

**ENERGY DILEMMA OF NATURAL GAS  
TRADING BETWEEN THAILAND AND  
MYANMAR**



**EI EI PHYU**

**MASTER OF ARTS  
IN PUBLIC POLICY**

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**GRADUATE SCHOOL  
CHIANG MAI UNIVERSITY  
JUNE 2023**

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THAILAND AND MYANMAR**

**EI EI PHYU**

**AN INDEPENDENT STUDY SUBMITTED TO CHIANG MAI UNIVERSITY  
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR  
THE DEGREE OF MASTER OF ARTS  
IN PUBLIC POLICY**

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**JUNE 2023**

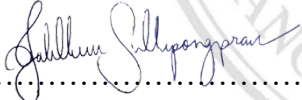
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THIS INDEPENDENT STUDY HAS BEEN APPROVED TO BE A PARTIAL  
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IN PUBLIC POLICY


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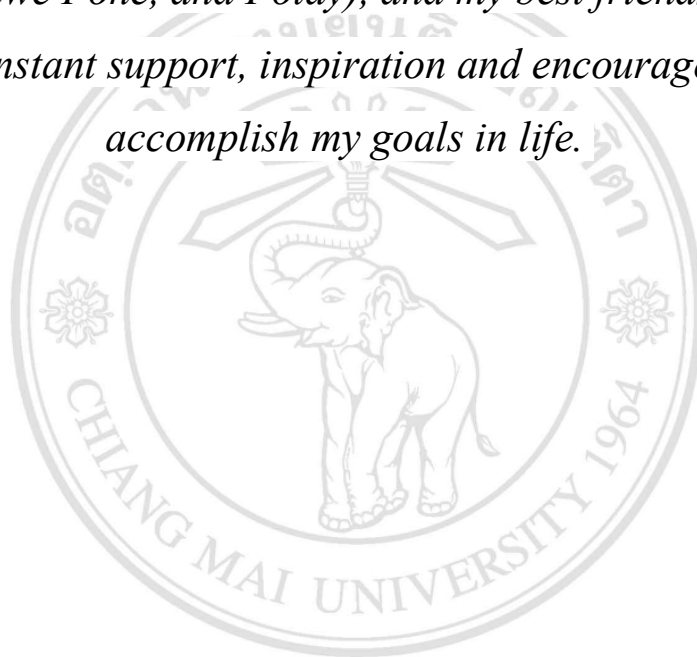
  
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1 June 2023

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To

*my precious Parents, my Teachers @ Ajarn(s), my love ones, my two brothers, my nieces and nephews (Paung Paung, Norah, Treasure, Shwe Pone, and Potay), and my best friends ever for all their constant support, inspiration and encouragement to accomplish my goals in life.*



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Ei Ei Phyu

หัวข้อการค้นคว้าอิสระ	ภาวะย้อนแย้งด้านการค้าพลังงานจากก๊าซธรรมชาติระหว่างไทยกับ เมียนมา
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### บทคัดย่อ

งานวิจัยนี้ศึกษาภาวะย้อนแย้งด้านพลังงานในการซื้อขายก๊าซธรรมชาติระหว่างประเทศไทยและเมียนมา ซึ่งก่อให้เกิดความท้าทายต่อความมั่นคงทางพลังงาน การเมือง และความยั่งยืน โดยมีจุดมุ่งหมายเพื่อตรวจสอบการพึ่งพาก๊าซธรรมชาติของประเทศไทยกับพม่า ประเมินผลกระทบทางการเมืองและให้ข้อเสนอแนะเชิงนโยบาย โดยศึกษาปัจจัยขั้วขั้วและสนับสนุนเพื่อแจ้งข้อเสนอแนะเชิงนโยบายตามหลักฐานด้วยวิธีการเชิงคุณภาพ เช่น การวิเคราะห์เฉพาะเรื่อง เครื่องมืออนาคตศาสตร์ และการวิเคราะห์ผู้มีส่วนได้ส่วนเสีย

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**Independent Study Title** Energy Dilemma of Natural Gas Trading between Thailand and Myanmar

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**Degree** Master of Arts (Public Policy)

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### ABSTRACT

This study examines the energy dilemma in natural gas trading between Thailand and Myanmar, posing challenges to energy security, politics, and sustainability. It aims to investigate Thailand's gas dependency on Myanmar, assess political implications, and provide policy recommendations. The study explores inhibiting and supporting factors to inform evidence-based policy recommendations using qualitative methods such as thematic analysis, foresight tools, and stakeholder analysis.

**Keywords:** Energy Dilemma, Thailand, Myanmar, Natural Gas, Resource Dependency

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# CHAPTER 1

## Introduction

Natural gas is a crucial non-renewable energy source due to its cleanliness, efficiency, and abundant reserves distributed globally. It meets the substantial energy needs of major gas-consuming countries, offering lower carbon emissions than other fossil fuels. This makes it increasingly favored in developing nations for industrial production, electricity generation, and transportation (Alam et al., 2016). The energy landscape in Southeast Asia has witnessed significant transformations, with Thailand and Myanmar being critical players in the region's natural gas sector. This study delves into the intricate web of the energy dilemma surrounding the natural gas trading relationship between Thailand and Myanmar. By examining the challenges and opportunities associated with this trade, the research aims to shed light on the complex dynamics, potential risks, and possible solutions in navigating the energy landscape of both nations.

### **1.1 Why is there an energy dilemma in natural gas trading between Thailand and Myanmar?**

Collaboration and trade in the energy sector between Myanmar and Thailand have a long history. Thailand is one of Myanmar's primary trading partners in ASEAN. Myanmar exports natural gas, fishery products, coal, and other goods to Thailand. Recent years have seen a significant increase in natural gas shipments from the Taninthayi region to Thailand. Bilateral commerce between the two countries reached US\$ 4.12 billion, with exports surpassing imports by US\$ 2.55 billion (Myanmar, 2021).

Thailand imports pipeline gas from Myanmar, including from the Yadana and Zawtika projects, partially owned by the Thai corporation PTTEP. These projects supply 15% of Thailand's gas needs. The pipelines passing through ethnic territories have raised concerns about militarization, conflicts, land seizures, and human rights violations (EarthRights International, 2010a, 2010b; Simpson, 2007), cited in (Middleton, 2012).

Petronas operates the Yetagun Gas Project in Myanmar with other stakeholders, including Myanma Oil and Gas Enterprise, Nippon Oil Exploration, and PTTEP International. Thailand's imports of natural gas from Myanmar saw year-on-year growth in February 2021 and January-February 2021 (Yep & Ang, 2021). Thailand heavily relies on natural gas, with the Zawtika Project being a significant source. However, Myanmar's gas shipments to Thailand decreased by 2% annually in 2022.

TotalEnergies, the primary stakeholder and operator of the Yadana Gas Project, is leaving Myanmar due to the humanitarian situation. PTTEP has shown interest in operating the project, but Myanmar has concerns about energy security. The reliance on natural gas trading between Thailand and Myanmar has become a pressing issue with political, economic, and environmental ramifications for both countries.

Thailand heavily depends on natural gas for energy generation, with a decreasing share over the years. Thailand increasingly relies on imports to meet its energy needs, with Myanmar being a significant supplier due to its abundant natural gas reserves.

The natural gas trade impasse between Thailand and Myanmar has political, geopolitical, and energy security implications. It requires close coordination between the two nations and careful consideration of energy diplomacy and national security. As the energy landscape evolves, comprehensive knowledge of this subject is primary for establishing effective plans and policies that promote energy sustainability and constructive bilateral energy connections.

## **1.2 Problem Identification**

Thailand heavily relies on natural gas for power generation, with 72% sourced domestically and the rest imported from neighboring countries. Most of Thailand's power comes from thermal generation, primarily coal, and natural gas, accounting for 93.8% of generation. Hydro, geothermal, solar, small hydro and biomass comprise the remaining share (Energy Outlook, 2021). However, Thailand's dependence on natural gas, mainly imports from Myanmar, raises concerns about long-term sustainability and sector vulnerability. The political dynamics surrounding the energy trade gained significance

due to international criticism of Myanmar's human rights record after the military coup in February 2021.

The international community is pressuring Thailand, a key economic ally of Myanmar, to take a more explicit stance against the military junta. The intertwined relationship between energy reliance and political response adds complexity to the energy dilemma, requiring further exploration. Existing literature lacks a comprehensive understanding of Thailand's political position toward the military junta and its implications for the natural gas trade. Filling this knowledge gap will contribute to a holistic understanding of the energy dilemma, including its political dimensions, and inform policy discussions and decisions concerning the natural gas trade between Thailand and Myanmar.

### **1.3 Research Objectives and research question**

#### **1.3.1 Research Objectives**

The study aims to assess Thailand's reliance on natural gas imports from Myanmar, analyze the energy paradox stemming from this dependence, and provide policy recommendations to address the associated issues. The specific objectives of the study are as follows:

- (i) Investigate Thailand's dependence on natural gas imports from Myanmar for electricity generation and identify the factors driving this dependency.
- (ii) Assess the political implications of the energy challenge and evaluate national energy strategies.
- (iii) Develop policy suggestions for Thailand to manage energy dependency, reduce reliance on natural gas imports from Myanmar, promote energy sustainability, and enhance energy security for both countries.

#### **1.3.2 Research Question**

The research question encompasses investigating natural gas dependency, analyzing the energy dilemma's political implications, and providing policy recommendations. It aims to identify concrete actions and approaches for Thailand

to reduce resource dependency and manage the energy dilemma while acknowledging the importance of political dynamics.

**Research Question:** How can Thailand reduce its resource dependency on Myanmar for natural gas imports and manage the energy dilemma while considering the political dynamics between the two countries?



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## **CHAPTER 2**

### **Conceptual Framework**

#### **2.1 Conceptual Framework**

The conceptual framework for this research examines the energy dilemma of natural gas trading between Thailand and Myanmar. It considers the interrelationships between energy policies, security, sustainability, political dynamics, and infrastructure development. Drawing on resource dependency theory, the framework analyzes the energy dependency dynamics between the two countries. It focuses on Thailand's reliance on Myanmar for natural gas imports and the broader dependence on external energy sources. The framework guides the analysis and interpretation of data to identify relevant factors and understand their influence on the energy dilemma.

##### **2.1.1 Reviews of Related Literature**

According to resource dependence theory, organizations rely on external resources due to their inability to provide them internally, leading to external dependencies (Pfeffer & Salancik, 1978). These dependencies can result in imbalanced interdependence and asymmetrical relationships with external actors, prompting organizations to employ strategies like centrality and hedging to manage these relationships (Biermann & Harsch, 2017). However, resource dependencies can also compromise the performance of the actors involved. Mutual dependencies and power dynamics influence the relationships between parties, highlighting the significance of managing resource dependencies to ensure optimal performance.

The study of Verrastro and Ladislaw (2007) shows that energy commerce has benefited the world despite inevitable conflicts and supply interruptions. The public and commercial sectors have tried to promote the trade of energy-related products and



services while ensuring that consumers can access the most affordable energy sources. Energy trade has served as a foundation for international trade and diplomatic connections and a source of security and savings, similar to the global financial and labor markets. Significant oil exporters are not energy independent. About 60% of all global oil is transferred across borders, 25% of natural gas, and 17% of coal trading (Verrastro & Ladislaw, 2007).

According to Chifu (2014), substantial political and economic support is necessary for technical solutions to provide energy access to import-dependent states successfully. It acknowledges the complex relationships between political ideology and energy dependence and suggests feasible technical solutions. Meanwhile, "Energy Dependency" describes a country's explicit reliance on energy resources imported and exported from other nations. In light of recent geopolitical and economic changes, the interconnectedness of nations in the energy sector can significantly impact their political and economic relations (Stanley, 2018).

This conceptual framework provides a structured approach to investigating the energy dependency relationship between Thailand and Myanmar. It enables examining the impact of resource and energy dependency on political dynamics, energy security, and sustainable development.

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## CHAPTER 3

### Research Methodology and Analytical Framework

#### 3.1 Methodology

The research will employ a qualitative approach, gathering information from primary and secondary sources such as press releases, journal articles, and official online platforms. Thematic analysis and foresight tools will be used to examine inhibiting and supporting factors related to the energy dilemma in both countries. A stakeholder analysis will identify key players and their influence on policy decisions. The research will follow these steps:

- i. Data Collection: Review existing literature, reports, and policy documents. Gather statistical data from reliable sources.
- ii. Foresight Analysis: Use futures triangle analysis to examine collected data and identify factors related to energy policies, regulatory frameworks, security, and sustainability.
- iii. Stakeholder Analysis: Understand stakeholder interests, priorities, and power dynamics in Thailand and Myanmar's natural gas trading relationship.
- iv. Findings and Policy Recommendations: Synthesize the analysis, and identify insights, challenges, and opportunities. Develop evidence-based policy recommendations aligned with the research objectives.

This research methodology will comprehensively analyze the energy dilemma, offer insights into underlying factors, and inform policy recommendations for sustainable energy development in both countries.

#### 3.2 Analytical Framework

The study will employ a qualitative data collection method, conducting a desk study to review and analyze policy documents, articles, news, and official statements as

outlined in the methodology. In this session, firstly, the analytical framework for the study will be based on the identified thematic areas:

- **Energy Policies in Thailand and Myanmar:** Evaluate existing energy policies, regulations, and frameworks in both countries. Assess their effectiveness, alignment with sustainable energy goals, and potential for revision or improvement.
- **Energy Security and Sustainability:** Examine energy security concerns, risks, and implications of the energy dilemma. Evaluate the sustainability of the current energy mix and explore strategies for diversification, renewable energy integration, and enhancing energy resilience.
- **Political Factors:** Investigate political dynamics and geopolitical considerations impacting Thailand and Myanmar's natural gas trade relationship. Analyze the influence of political events and Thailand's stance towards the Myanmar government on energy cooperation and decision-making processes.

The study will utilize future triangle mapping analysis to assess inhibiting and supporting factors for reducing energy dependency and promoting renewable or non-fossil-oriented energy policies. Stakeholder analysis will examine the two countries' current relationship and political situation. The findings from the foresight and stakeholder analyses will be synthesized to provide policy recommendations.

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## CHAPTER 4

### Analysis

#### 4.1 Analysis: What Public Policy Tools?

Foresight emerged in France during the 1950s as a way to envision the post-World War II future. The oil crisis in the mid-1970s prompted a shift from "forecasting" to "foresight" in future research. Three fundamental principles guide foresight:

1. Multiple futures: There are various potential futures, not a predetermined outcome.
2. Exploring the future: The future is seen as uncharted territory, open to exploration.
3. Creating the future: The future is not only anticipated but actively shaped and constructed.

Futurists employ different approaches to study the future. Dr. Sohail Inayatullah, UNESCO chair of Futures Studies, views the future as a learning journey rather than a place of prediction. To gain insights into future possibilities, a coherent theoretical framework is essential. Foresight encompasses four practical approaches: predictive, interpretive, critical, and participatory action learning/research. Each approach has its unique focus and methodology, from empirical forecasting to stakeholder-driven future shaping. While having a theory of the future is valuable, it is equally important to possess a conceptual framework for understanding future developments.

The Six Pillars approach, introduced by Inayatullah, provides the framework of mapping the future, anticipating the future, timing the future, deepening the future, creating alternatives, and transforming the future. Each pillar utilizes specific methodologies, such as futures triangle, emerging issues analysis, scenario planning, and

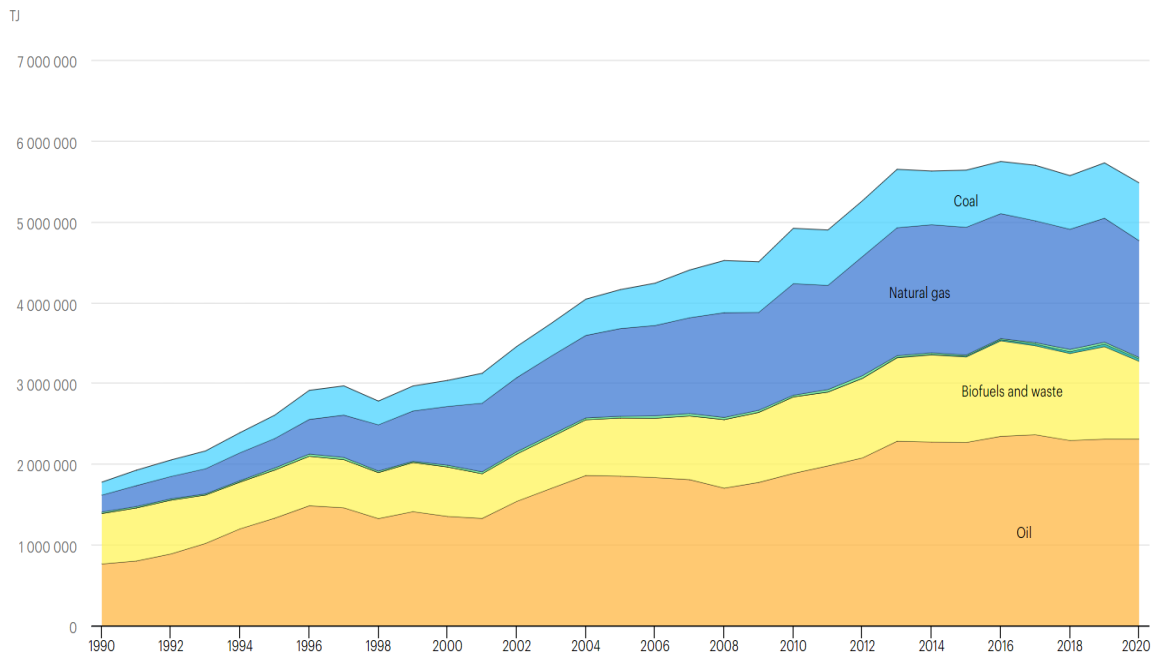
visioning. The study aims to comprehensively understand future scenarios, anticipate challenges, and propose transformative policy recommendations by employing these approaches and frameworks.

## **4.2 Energy Sectors and Policies in Thailand**

### **4.2.1 Thailand's Energy Sector**

Thailand relies heavily on its energy sector, utilizing abundant natural resources and robust production capacity. It encompasses natural gas, crude oil, and coal facilities, essential for power generation and providing electricity and gas to households. The electricity, gas, steam, and air conditioning sector made a significant contribution to Thailand's GDP, amounting to approximately 395.6 billion Thai baht in 2021, representing about 15% of the country's total GDP of around 15.6 trillion Thai baht (CEIC, 2022). Energy imports accounted for 15% of Thailand's total imports in 2021, with a trade balance deficit of approximately -46 billion Thai baht (CEIC, 2022). The figure below illustrates the sources contributing to Thailand's energy supply, with oil being the largest, followed by natural gas.

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**Figure 4-1: Thailand Energy Supply by Sources (1990 – 2020) Source: IEA**

#### **4.2.2 Energy Policy of Thailand**

July 25, 2019, Cabinet Policy Statement prioritizes energy security through fuel source diversification, renewable energy support, and community engagement. The policy highlights upgrading electrical and energy networks, establishing an intelligent power network system, and connecting economic corridors. It reflects the government's commitment to sustainable energy sector development, integration with other sectors, and infrastructure prioritization (TMoE, 2019).

#### **4.2.3 Thailand's Power Development Plan (PDP 2018-2037)**

The Thailand Power Development Plan (PDP 2018-2037) is the primary strategy for meeting the country's electricity demands in line with economic growth and population expansion. It incorporates the 20-year National Strategic Plan and addresses power generation, transmission, distribution, and plant security. Key objectives include ensuring stable electrical systems, promoting low-cost electricity generation, preparing for power generation competition, reducing environmental impact, increasing renewable

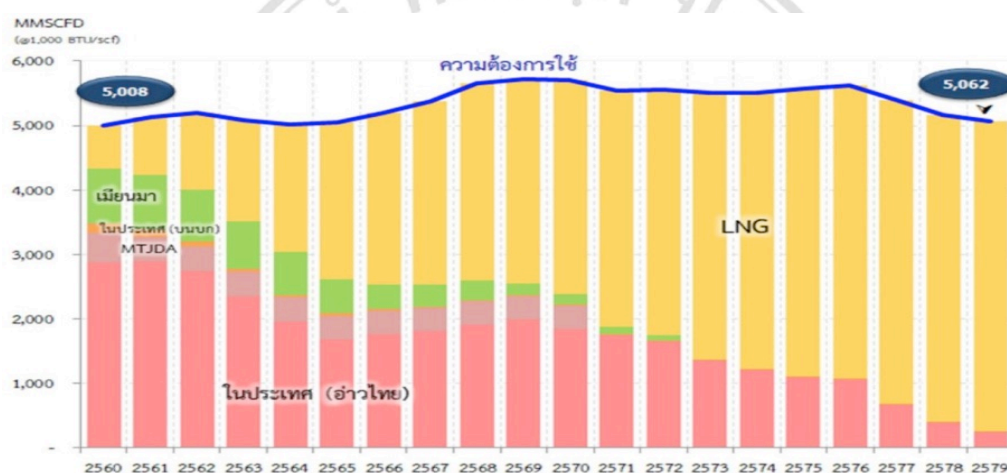
energy usage, improving electrical system efficiency, and developing an innovative grid network. The plan aims to balance regional needs, minimize redundant investments, and maintain stable power generation capacity. By 2037, the PDP envisions a total utility capacity of 77,211 megawatts, encompassing existing and new power plants and decommissioning. The plan is aligned with the country's economic development trajectory, and the expected long-term economic growth rate of 3.8 percent per year, according to the Office of the National Economic and Social Development Council (NESDB).

Furthermore, Thailand has implemented a policy to purchase electricity from neighboring countries as part of its energy procurement strategy. This approach serves as an alternative energy source and helps mitigate the limitations in domestic electricity supply. By relying on electricity imports, Thailand can reduce the need for constructing additional power plants and minimize fuel procurement. Moreover, this policy fosters positive energy cooperation and enhances diplomatic relations with neighboring countries. The purchases are guided by bilateral agreements, formalized through memorandums of understanding (MOUs). Currently, Thailand has effective MOUs with Laos, Myanmar, and Cambodia.

#### **4.2.4 Gas Plan (2018-2037) of Thailand**

The Gas Plan 2018, a key component of Thailand's National Energy Integration Plan, aims to promote natural gas usage, reduce air pollution, and develop infrastructure to meet regional demand. It focuses on accelerating exploration and production, fostering competition in the gas sector, and adapting to changing technology and energy landscapes. The plan has four main objectives: utilizing natural gas to reduce air pollution, enhancing exploration and production, developing efficient infrastructure, and ensuring sustainability through sector competition. Prepared by the Energy Policy and Planning Office and relevant agencies, the plan projects a long-term annual increase in natural gas demand of 0.7%, with a primary focus on electricity generation and industrial use. Natural gas procurement encompasses domestic production, imports from Myanmar, and LNG imports, constituting approximately 68% of total procurement.

The gas plan (2018) anticipates a decline in LNG demand by 2037 compared to previous projections of the gas plan (2015). However, there is a growing dependency on natural gas due to declining domestic production and increasing import requirements. As shown in the figure, natural gas imports from Myanmar will cease in 2029, but LNG imports will play a more prominent role in meeting the demand. This reliance on natural gas and decreasing domestic production contribute to high energy dependency on this resource. Meanwhile, the natural gas supply will reduce from 2028, as per the following figure.



**Figure 4-2: Estimated natural gas demand and supply from 2015 – 2036**  
 (Source: Gas Management Plan 2018 in Thai Language Version,  
 Ministry of Energy, Thailand)

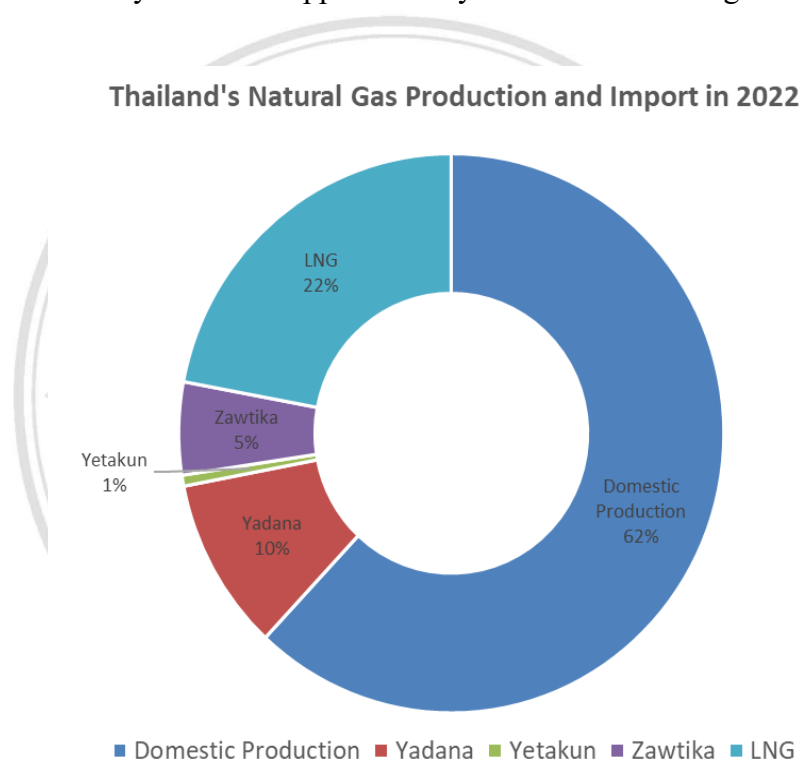
The industrial sector is expected to drive a 2.0% annual increase in natural gas demand, reaching 1,116 million cubic feet per day by 2037, comprising 21% of total demand. The long-term supply includes domestic sources, Myanmar natural gas, and contracted LNG. Domestic production is projected to decrease to approximately 1,500 million cubic feet per day by 2037, while the total supply is estimated to increase from 4,676 million cubic feet per day in 2018 to 5,348 million cubic feet per day in 2037.

Additional natural gas or LNG procurement will be necessary to meet the rising demand starting in 2020. The projected LNG demand in 2037 is around 26 million tons per year, with 22 million tons for the onshore pipeline network area and 4 million tons for the southern region. Operational guidelines include expediting negotiations for



additional natural gas purchases and procuring LNG to compensate for the contract expiration of natural gas procurement for the Chana Power Plant in 2028. A comprehensive plan is required to address these needs effectively.

According to Thailand's Ministry of Energy (2022), domestic production accounts for approximately 62% of total natural gas demand, with 16% sourced from pipeline imports from Myanmar and approximately 22% fulfilled through seaborne LNG imports.



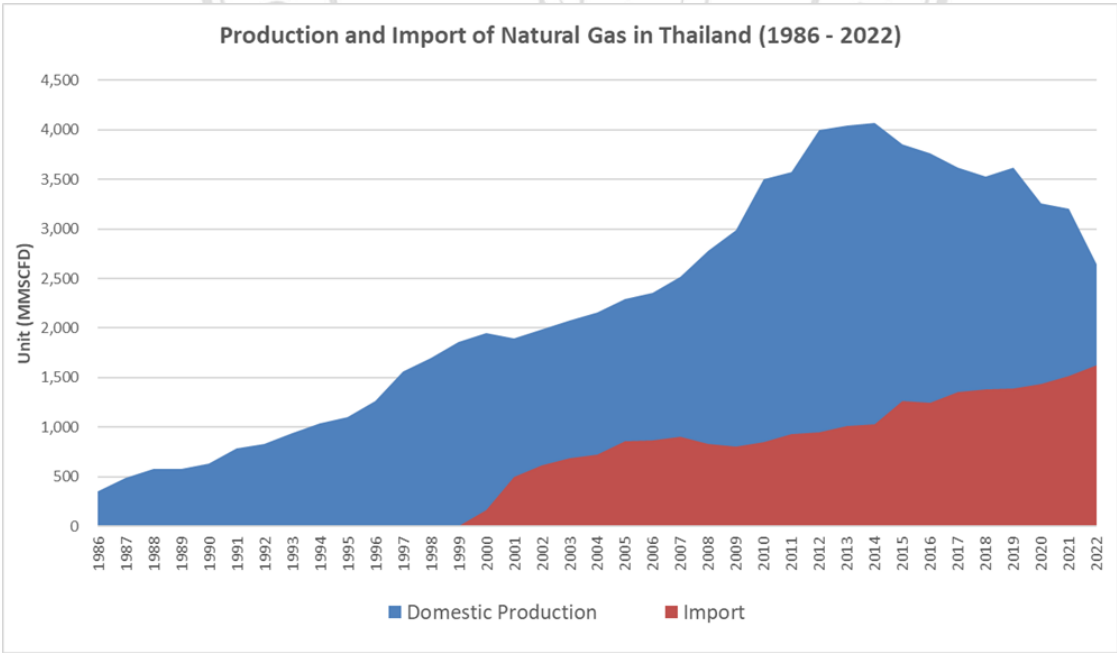
**Figure 4-3: Thailand's Natural Gas Production and Import in 2022**  
(Source: Ministry of Energy, Thailand)

Thailand has experienced a decline in domestic natural gas production, resulting in increased dependence on imports. In 2022, domestic production decreased by 17% to 2,648 million standard cubic feet per day (mmscfd). This trend is depicted in a figure illustrating the gradual depletion of domestic production and growing import reliance. Concurrently, natural gas imports have risen, reaching 15,719,000 cubic meters in December 2021.

Thailand's annual natural gas import data, updated and reported by the Organization of the Petroleum Exporting Countries (OPEC), demonstrates an upward trend. December 2021 imports exceeded the previous year, with the highest recorded volume at 15,719,000 cubic meters and the lowest in 1998 at 0 cubic meters.

Regarding natural gas production, Thailand's marketed production was 33,036,000 cubic meters in December 2021, which decreased compared to the previous year's production of 33,700,000 cubic meters. Thailand's natural gas production data from December 1960 to 2021 highlights the highest recorded volume in 2014 at 42,090,000 cubic meters and the lowest in 1980 at 0 cubic meters.

These developments underscore the importance of addressing the declining domestic production and increasing import reliance in Thailand's natural gas sector. Strategic measures must be implemented to mitigate this trend and ensure a stable and sustainable energy supply for the future.



**Figure 4-4: Production and Import of Natural Gas in Thailand (1986-2022)**  
**(Source: Ministry of Energy, Thailand)**

#### **4.2.5 Alternative Energy Development Plan**

The 2018-2037 renewable and alternative energy development plan (AEDP) aims to achieve a 30% share of renewable and alternative energy in electricity, heat, and biofuels. It aligns with current consumption trends and future directions. The key areas that require attention to expedite progress: are policy improvement, technological advancement, knowledge enhancement, awareness raising, raw material risk management, and addressing production risks. By prioritizing these areas, Thailand can effectively promote renewable energy, ensuring a sustainable and secure future.

#### **4.2.6 Economic Benefits and Benefits to the Environment**

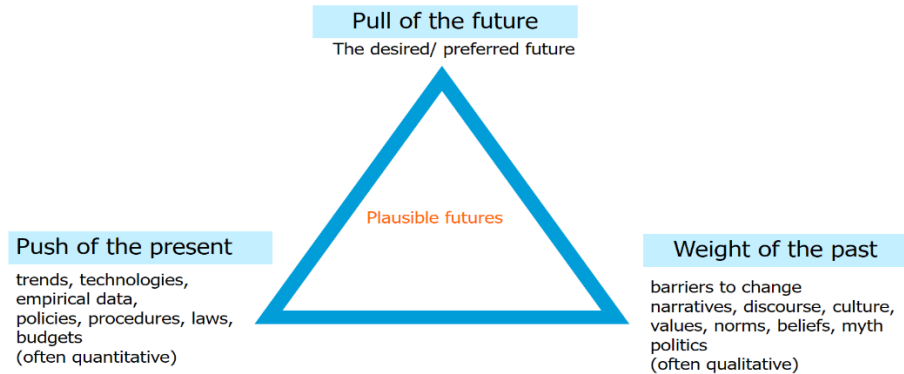
Thailand aims to reduce energy imports and gain economic benefits by harnessing renewable energy sources. Currently reliant on imports like natural gas and crude oil, the country seeks to tap into its natural energy potential, including solar and wind power, waste, and agricultural by-products. This transition will decrease dependence on external sources, support local industries, and create job opportunities. This shift will result in advancements in energy technology and environmental benefits, such as enhanced energy security, reduced costs, and improved quality of life. Renewable energy aligns with the Circular Economy concept and fosters sustainable environmental preservation.

#### **4.2.7 Forecast Electricity Demand in Thailand**

The NESDB has conducted a long-term economic growth forecast for 2017-2037, projecting an average annual growth rate of 3.8%. The forecast considers a population growth rate of -0.02% per year. The PDP2018 plan incorporates these projections, estimating a net electricity demand of approximately 367,458 million units and net peak power of 53,997 MW 2037 across the three electricity systems.

### 4.3 Futures Triangle Analysis on Thailand Energy Policies

#### Futures Triangle



**Figure 4-5: Futures Triangle**

(Source: Public Policy and Governance Lecture Slides, SPP)

Applying the Futures Triangle analysis framework, it evaluates the prospects of Thailand's energy sector to resource dependency, particularly in natural gas imports. The following is a compact analysis based on the provided information upon the thematic area of:

**Desired Future (Pull of the Future):** Thailand's desired future is to reduce its resource dependency on Myanmar for natural gas imports and effectively manage the energy dilemma. The country aims to achieve the following goals diversifying energy sources, enhancing domestic energy production, strengthening regional cooperation, promoting energy efficiency, and strategic steps for energy security.

**Weight of the Past (Barriers to Change):** Thailand faces several barriers in achieving its desired future and reducing resource dependency on Myanmar for natural gas imports:

- **Declining Domestic Production:** The decline in domestic natural gas production poses a challenge, necessitating efforts to ensure a stable and sustainable energy supply in the future.

- **Import Dependency:** Growing reliance on natural gas imports, mainly from Myanmar, raises concerns about energy security and economic stability, requiring strategic measures to mitigate import dependency and secure alternative energy sources.
- **Political Dynamics:** The interconnectedness of energy trade with political relations complicates the energy dilemma. International pressure on Thailand to take a stance against Myanmar's military junta affects energy cooperation decisions.
- **Infrastructure Limitations:** Significant investments and coordination among relevant agencies are needed to develop efficient infrastructure that supports alternative energy usage across sectors and meets regional demand.

**Push of the Present:** Thailand is actively pushing for changes in its energy sector through various initiatives:

- **Power Development Plan (PDP):** The PDP 2018-2037 prioritizes renewable energy, energy efficiency, and environmental sustainability while ensuring stable electrical systems, promoting low-cost electricity generation, increasing efficiency, and developing an intelligent grid power network.
- **Gas Plan 2018:** The Gas Plan promotes natural gas usage, reduces air pollution, and develops infrastructure. It aims to accelerate exploration and production, ensure competition for energy sector sustainability, and adapt to changing technology and energy landscapes.
- **Renewable Energy Development Plan (AEDP):** The AEDP for 2018-2037 aims to achieve a 30 percent share of renewable and alternative energy in electricity, heat, and biofuels. By improving policies, advancing technology, and enhancing awareness, Thailand seeks to promote the adoption of renewable energy sources.

As a result, Thailand's desired future is to reduce resource dependency on Myanmar for natural gas imports and manage the energy dilemma by diversifying energy sources, enhancing domestic production, strengthening regional cooperation, promoting energy efficiency, and taking strategic steps for energy security. However, barriers such

as declining domestic production, import dependency, political dynamics, and infrastructure limitations must be addressed to realize the desired future. The country's current push through the Power Development Plan, Gas Plan, and Renewable Energy Development Plan demonstrates its commitment to overcoming these barriers and steering the energy sector toward a more sustainable and secure future.

#### **4.4 Energy Sectors and Policies in Myanmar**

##### **4.4.1 Energy Situation in Myanmar**

As a net energy exporter, Myanmar primarily exports natural gas and coal to neighboring countries. However, it heavily relies on imported oil, which accounts for around 90% of its energy consumption, while natural gas is the primary source of export earnings (Energy Outlook, 2021). The geopolitical unrest and the departure of TotalEnergies and Chevron from the Yadana gas field pose potential challenges to the energy sector. Despite having abundant natural resources, Myanmar exhibits the lowest per-capita energy consumption in Asia, highlighting the need to improve energy access for a significant portion of the population.

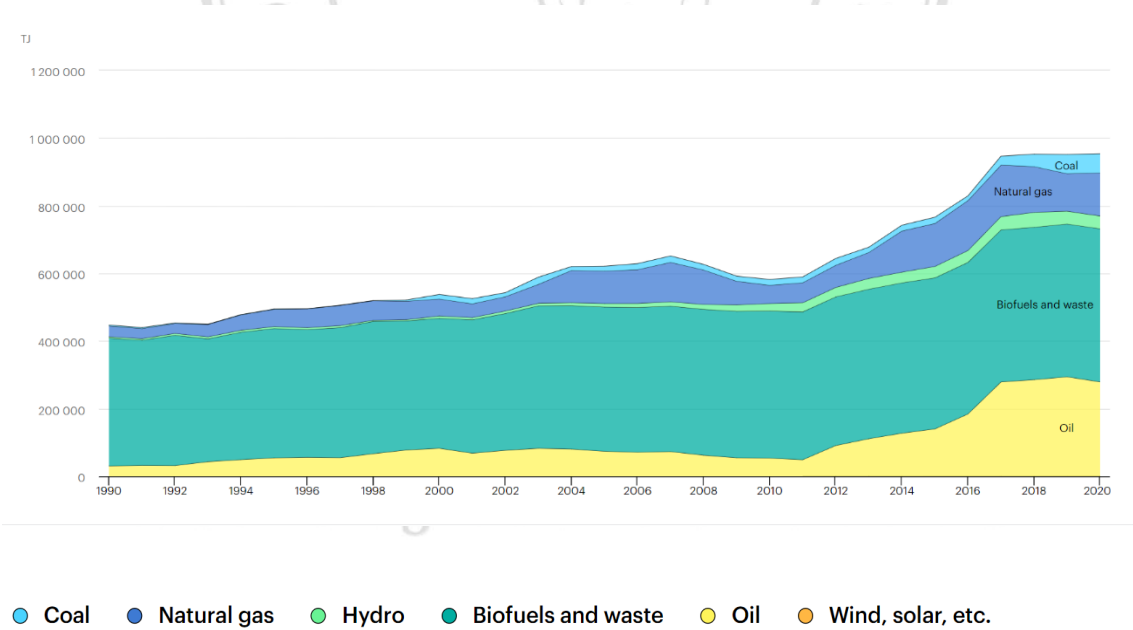
The Yadana project, operated by TOTAL, supplies a substantial portion of its gas to Thailand. In contrast, the under-development Shwe project will provide gas reserves to China and the domestic market. Myanmar's natural gas sector has experienced considerable growth and is a vital source of export revenue. Key gas fields include Yadana, Yetagun, Shwe (Daewoo), and Zawtika, with Yadana accounting for approximately 41% of the country's production (Afp, 2022).

Thailand and China are the primary recipients of Myanmar's natural gas exports, with Thailand receiving gas from multiple fields and China receiving gas from the Shwe field. Export volumes vary, but during the first nine months of 2019, Myanmar exported 798 million cubic feet per day (mmcf/d) of gas to Thailand. Myanmar's natural gas production remained relatively constant at around 15,790,000 cubic meters in December 2021, with the highest recorded production volume in 2015. The country's exports to

Thailand amounted to \$316.670 million in July 2022, with the highest recorded export value in December 2013 at \$904.080 million (CEIC, 2022).

Myanmar's energy focus has primarily been pipeline transportation and export, needing more LNG storage infrastructure. The natural gas sector has witnessed significant growth, contributing to increased production and export revenues, which have become crucial sources of income for the country.

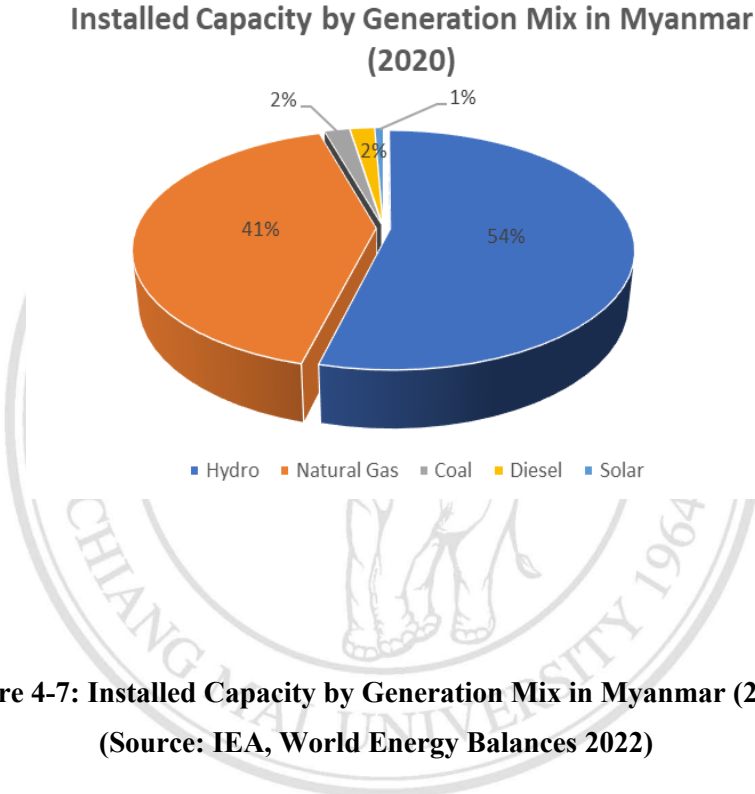
Regarding primary energy supply in Myanmar, biomass accounts for the largest share at 51%, followed by oil at 17%, natural gas at 13%, coal at 2%, and hydropower at 17% as of 2019. However, there has been a shift in energy consumption favoring natural gas. The figure below illustrates the contributed sources to Myanmar's energy supply from 1990 to 2020. As shown, biofuels and waste contribute the largest share of the energy supply in Myanmar, followed by oil and natural gas, with coal being the lowest source (IEA, 2022).



**Figure 4-6: Total Energy Supply by Source in Myanmar (1990 – 2020)**  
(Source: IEA, 2022)

The installed capacity by power generation mix for 2020 in Myanmar reveals that hydropower is the largest, with 54% of total installed capacity, followed by gas-fired power plants, shared with 41%, and it is the most considerable contribution to the nation's installed capacity. Nonetheless, a sizable amount of capacity is being built, notably for hydropower, which may change the future composition of the generation mix (IEA,

2022).



**Figure 4-7: Installed Capacity by Generation Mix in Myanmar (2020)**  
 (Source: IEA, World Energy Balances 2022)

**4.4.2 Energy Policies of Myanmar**

In 2013, the government established the National Energy Management Committee and the Energy Development Committee to enhance coordination and planning within the energy sector. Myanmar has implemented energy policies and plans to guide its energy sector development, including the National Energy Policy (2014), the Myanmar Energy Master Plan (2015), and the National Electrification Plan (2015) issued in 2016 (Kyi, 2020). However, the legal system in Myanmar is a mix of different laws, leading to potential inconsistencies between guidelines and regulatory practices.



The National Energy Policy (2014) focused on energy security, affordable and reliable energy, poverty reduction, and increased foreign exchange earnings through energy exports. The policy prioritizes green technologies, clean energy development, and rural electrification, with targets for electrification rate increase and clean cooking solutions.

The Energy Master Plan (2015) analyzes Myanmar's energy demand and outlines strategies for a stable and reliable energy supply. It emphasizes efficient resource utilization, an investment-friendly environment, the adoption of innovative technologies, and minimizing environmental and social impacts. The plan aligns with global and ASEAN commitments and supports the United Nations' Sustainable Development Goals.

The preferred energy scenario in the plan includes a mix of hydropower, coal, natural gas, and solar and wind energy. It is mentioned that renewable energy will contribute 15% to 20% of the total installed capacity by 2020, focusing on rural areas. The Ministry of Science and Technology, established on 2 October 1996, actively implemented rural electrification schemes utilizing renewable energy sources.

The Ministry of Electricity and Energy (MoEE) and the Myanmar Oil and Gas Enterprise (MOGE) administer Myanmar's oil and gas sector. Exploration and production activities occur both onshore and offshore, with licenses awarded through international tenders, and the terms of licenses or contracts are negotiated between the government and contractors.

According to the National Electrification Plan (2015), Myanmar aims to achieve nearly 100% electrification by 2030, with renewable and distributed energy systems accounting for 7% to 10% of the generation mix. If this plan is effectively executed, Myanmar has the potential to attain approximately 47% electrification by 2020, around 76% electrification by 2025, and achieve universal electrification of 100% by 2030. However, achieving this goal will require significant investment, coordination, and the inclusion of distributed energy systems in off-grid and on-grid areas.

#### **4.4.3 Government Policy on Natural Gas Sector**

Myanmar has a long-standing history of crude oil production. However, due to a prolonged period of military rule from 1962 to 2010, along with sanctions and limited technical infrastructure, the natural gas sector in Myanmar has remained underdeveloped. Despite these challenges, there has been significant growth in natural gas production over the last decade. It has emerged as the country's primary source of export revenue (Kyi, 2020).

Since 2011, the government of Myanmar has implemented policies and regulations to govern the oil and gas sector. The State-Owned Economic Enterprises (SEE) Law grants exclusive rights to the government over petroleum and natural gas exploration, extraction, and sale. However, private or foreign investors may participate through MOGE or other entities if it benefits the state. MOGE is central in promoting private sector involvement in the oil and gas industry. MoEE oversees the oil and gas sector and supervises three state-owned enterprises: MOGE, Myanmar Petrochemical Enterprise (MPE), and Myanmar Petroleum Products Enterprise (MPPE). The MoEE also manages the Oil and Gas Planning Department (OGPD) (Gas Regulation, 2017).

MOGE, as a state-owned enterprise, regulates the natural gas sector and is involved in exploration, production, and domestic supply through pipelines. It also oversees the participation of foreign oil companies through production-sharing agreements. OGPD handles negotiations of PSCs with foreign oil companies on behalf of the government.

#### **4.4.4 Regulatory Framework**

Myanmar's natural gas exploration and production regulatory framework encompasses several laws and regulations. These include the Oilfield Act of 1918, Oilfield Rules of 1936, Petroleum Rules of 1987, Essential Supplies and Services Law No. 13/2012, and other related acts and rules covering petroleum resources, concessions, and labor. Investors typically engage in PSCs that govern exploration and production

operations, overseen by the Myanmar Oil and Gas Enterprise (MOGE), by the existing laws.

#### **4.4.5 Regulation of natural gas pipeline transportation and Storage**

The ownership of natural gas pipeline transportation and storage infrastructure is primarily held by the state-owned enterprise MOGE. MOGE is responsible for transporting crude oil and natural gas, and it owns assets related to natural gas transportation and storage, including pipelines, through pipeline rights agreements.

The regulatory framework for the construction, ownership, operation, and interconnection of natural gas transportation pipelines and storage facilities involves various government entities. MoEE is responsible for coordination, Regulation, exploration, production, pipeline networks, refining, marketing, and distribution. OGPD, under the MoEE, oversees the regulatory framework. Land rights are obtained through leasehold or freehold titles for natural gas transportation or storage facilities. Foreign individuals or companies with foreign ownership generally require government permission to acquire land in Myanmar.

#### **4.4.6 Regulation of natural gas distribution**

The MoEE has promoted liquefied petroleum gas (LPG) and compressed natural gas (CNG) as household fuels. The government controls the distribution of LPG through MPE. Several LPG plants have been established in Myanmar, including those by Mitsubishi Heavy Industry Co (Japan) and CMC Dong Fang International Co (China). Additionally, the MoEE has encouraged the establishment of CNG filling stations to support using CNG as a fuel.

The regulatory framework for Myanmar's natural gas distribution must be clearly defined. No specific information about the statutory and regulatory structure or the authorizations required to operate a distribution network is provided. To what extent gas distribution utilities are subject to public service obligations is still being determined. Access to the natural gas distribution grid in Myanmar requires contracting with MOGE. However, these contracts' specific terms and conditions are not publicly disclosed. The

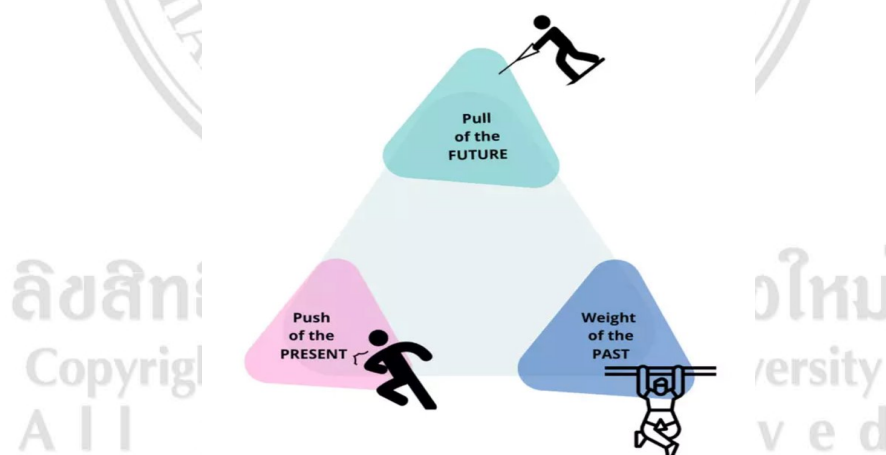
information needs to provide details about the Regulation of prices for distribution services or circumstances under which rates or terms of service can be changed.

#### 4.4.7 Regulation of natural gas sales and trading

Regarding government oversight, natural gas supply and trading activities in Myanmar are stated to be under the control of MOGE. However, further information needs to be provided regarding the extent of government oversight or the specific authorizations required to engage in the wholesale trading of gas. It does export natural gas under the terms of PSCs and Gas Sales Agreements (GSAs).

Furthermore, information needs to be made available regarding the range of services and products offered in the natural gas market in Myanmar. It must clarify whether wholesale and retail buyers must purchase a bundled product from a single provider or if competing providers offer different services and products.

#### 4.5 Futures Triangle Analysis on Myanmar Energy Policies and Natural Gas



#### Trading

Figure 4-8: Futures Triangle (Source: Public Policy and Governance Lecture Slides, SPP)

**Desired Future:** Myanmar's target future is to effectively manage its energy dilemma by implementing a comprehensive and sustainable energy policy. This policy aims to enhance energy security, increase energy access for its population, reduce dependence on imported oil, and optimize its abundant natural resources, including

natural gas and renewable energy sources. Additionally, Myanmar aims to strengthen its natural gas trading relationship with Thailand by ensuring a reliable and efficient gas supply while addressing geopolitical challenges and uncertainties.

### **Weight of the Past**

- **Prolonged Period of Military Rule:** The historical context of Myanmar's energy sector includes a prolonged period of military rule (1962-2010), which limited the development of the natural gas sector and resulted in the underutilization of its resources.
- **Inconsistent Regulatory Framework:** Myanmar's legal system comprises a mix of different laws, leading to potential inconsistencies between guidelines and regulatory practices. This has created challenges in governing the oil and gas sector effectively.
- **Geopolitical Unrest:** The geopolitical challenges, such as the departure of TotalEnergies and Chevron from the Yadana gas field, have raised uncertainties in the energy sector and pose potential barriers to stable and reliable natural gas exports.
- **Low Per Capita Energy Consumption:** Myanmar's low per capita energy consumption indicates a need for significant improvements in energy access and infrastructure development to achieve universal electrification and energy security.

### **Push of the Present**

- **Energy Exporter:** Myanmar's status as a net energy exporter allows it to leverage its natural resources, particularly natural gas, to enhance economic growth and attract foreign investment.
- **Renewable Energy Potential:** Myanmar's abundant renewable energy sources, including hydropower, offer potential for sustainable energy development and rural electrification.

- **National Energy Policies:** Myanmar has implemented various energy policies, including the National Energy Policy (2014), Energy Master Plan (2015), and National Electrification Plan (2015), which provide a foundation for shaping the future energy landscape.

Based on the Futures Triangle Analysis, Myanmar's energy policy and natural gas trading with Thailand can be effectively shaped by capitalizing on its position as a net energy exporter, utilizing its renewable energy potential, and aligning its national energy policies to achieve the desired future.

#### **4.6 Examination of recent political relationships between Thailand and Myanmar**

Myanmar is in a civil war triggered by the 2021 military coup and subsequent crackdown on protests. The conflict has led to armed resistance and exploitation by ethnic insurgencies. Many seek refuge in Thailand, burdening Thai authorities. Thailand lacks laws to grant legal status to refugees, relying on voluntary return or third-country resettlement. Unlike other ASEAN nations, the Prayuth government engages in cautious diplomacy but faces security and humanitarian challenges (Sanglee, 2021).

Thailand's 2021 exports to Burma reached \$4.34 billion, including Refined Petroleum, Flavored Water, and Insulated Wire. Over 26 years, exports grew steadily at a 10.2% annual rate, from \$347 million in 1995. Burma's 2021 exports to Thailand amounted to \$2.82 billion, mainly Petroleum Gas, Corn, and Non-fillet Fresh Fish. Burma's exports to Thailand have grown 10.6% annually since 1995 (OEC, 2022).

Myanmar's instability affects the region. Malaysian PM urged Thailand to address Myanmar, but Thailand hesitated to oppose the military junta. Singapore, the Philippines, Brunei, Indonesia, and Malaysia rejected the junta's legitimacy. In contrast, the junta cooperates with Cambodia, Laos, Thailand, and Vietnam, excluding other ASEAN nations (Bloomberg, 2023; Tanakasempipat, 2023).

Overseas energy companies exiting Myanmar's gas operations pose a crisis for its government, losing a primary foreign income source. Thailand's PTTEP postponed a

\$2 billion gas project. At the same time, Chevron and TotalEnergies left due to human rights concerns and the military takeover—depletion of existing gas fields and limited prospects impact Myanmar's revenue. Thailand depends on Myanmar for 15% of its gas supply, making abrupt import elimination challenging. Myanmar faces currency depreciation, business hurdles, and potential power shortages (Writer, 2023).

Thailand's policy on post-coup Myanmar diverges from other ASEAN countries. Thailand holds bilateral meetings with Myanmar's military government, contrary to ASEAN's Five Point Consensus. This independent policy reflects Thailand's historical practice and aims to reset relations by moving away from supporting armed groups along the border. Thailand faces challenges in conferring legitimacy, persuading ASEAN counterparts, and managing domestic political transitions (Fulcrum, 2023).

The United States refrains from imposing sanctions on Myanmar's gas projects to avoid adverse effects on Thailand's energy security. Thailand is projected to have greater energy security in 2023. Potential cessation of gas exports would result in rising electricity prices, lower than costs incurred by countries reducing reliance on Russian gas due to Ukraine's conflict (EarthRights, 2023).

Myanmar's military government intends to reconsider its relationship with Thailand due to perceptions that Thailand's new government is "pro-West" and supports "terrorists." Myanmar's regime has been violent since 2001, leading to a simmering civil war near the Thai border. Thailand's Move Forward Party seeks increased pressure on Myanmar, leveraging international assistance. Myanmar and Thailand share a complex relationship influenced by history, culture, economics, and geopolitics (Saronchai, 2023).

#### **4.7 Stakeholder Analysis of current relationships between Thailand and Myanmar**

The stakeholder analysis of the current relationships between Thailand and Myanmar reveals the following key actors and their influence:

**Governments:** The governments of Thailand and Myanmar play a significant role in shaping energy policies and decision-making processes. Myanmar's military regime heavily relies on natural gas profits, and its relationship with Thailand is of utmost

importance. Thailand's government engages in bilateral meetings with the military junta to reset relations and manage border security issues. However, this stance diverges from other ASEAN countries, leading to challenges in conferring legitimacy and persuading ASEAN counterparts. Thailand's government is concerned about the impact of Myanmar's instability on its energy security, given its dependence on Myanmar for 15% of its gas supply.

**Energy Companies:** Foreign energy companies, including Thailand's PTTEP, have been impacted by human rights concerns and a military takeover in Myanmar. Some companies have postponed or abandoned their natural gas operations. The crisis for Myanmar cause losing a primary foreign income source, impacts its revenue and economic stability.

**International Organizations:** International organizations play a role in addressing the energy dilemma and promoting sustainable solutions. Their involvement can influence policy development, human rights considerations, and regional cooperation efforts.

**ASEAN Member States:** ASEAN member states have different positions in Myanmar's military government. While some countries, such as Singapore, the Philippines, Brunei, Indonesia, and Malaysia, reject the junta's legitimacy, others, like Cambodia, Laos, Thailand, and Vietnam, cooperate with the military government, excluding the other ASEAN nations. Thailand's independent policy towards Myanmar poses challenges in managing relations within ASEAN.

**Ethnic Insurgencies and Refugees:** The ongoing conflict in Myanmar, triggered by the 2021 military coup, has led to armed resistance and exploitation by ethnic insurgencies. Many refugees seek refuge in Thailand, burdening Thai authorities. The welfare and security of these refugees are critical concerns for both Thailand and Myanmar.

**Civil Society Organizations:** Organizations often advocate for human rights, environmental sustainability, and social justice. They can influence public opinion, raise



awareness about the energy dilemma, and push for policy changes aligned with their objectives.

**Public Opinion:** Public sentiment in both Thailand and Myanmar plays a role in shaping the countries' policies towards each other. Due to its violent history and human rights concerns, Thailand may have domestic pressure to take a stricter stance on Myanmar's military government. Similarly, Myanmar's public perception of Thailand's government as "pro-West" and supporting "terrorists" can influence bilateral relations.

In terms of influence, the key actors vary in their power and leverage. Governments hold significant power and influence over energy policies and diplomatic relations. The Prayuth government engages in cautious diplomacy with Myanmar's military junta to address security concerns and manage potential refugee influx. This independent policy stance diverges from other ASEAN nations and can impact regional dynamics. Human rights concerns and the military takeover influence energy companies' decisions to delay or abandon operations in Myanmar. This has implications for energy security and business expenses, including those in Thailand.

#### **4.8 Summary Factors and Findings from Analysis**

The energy dilemma of natural gas trading between Thailand and Myanmar has emerged due to several interconnected factors. Understanding these factors is crucial to grasp the complexity of the situation.

Myanmar's reliance on natural gas as a significant source of foreign revenue plays a central role in the energy dilemma. The country heavily depends on the profits generated from gas exports, making it a crucial component of its economy. However, the depletion of existing gas fields and the limited prospects for new development opportunities challenge Myanmar's ability to sustain its gas production and export levels. This situation risks Myanmar's foreign revenue and creates uncertainty regarding its future energy supply.

Meanwhile, Thailand's dependency on natural gas imports from Myanmar exacerbates the energy dilemma. Thailand relies on Myanmar for approximately 15% of

its gas supply, making it a significant energy source for its electricity production. The reliance on gas imports from Myanmar creates vulnerabilities in Thailand's energy security, as any disruption or reduction in supply can impact the availability and affordability of electricity within Thailand.

The interplay between these two factors creates a complex energy dilemma. Myanmar's diminishing gas supply and limited development prospects put its energy security at risk and jeopardized its ability to sustain the foreign revenue from gas exports. At the same time, Thailand's dependency on Myanmar for gas imports exposes it to potential supply disruptions and challenges in ensuring a stable and affordable energy supply for its domestic needs.

Furthermore, Myanmar's political and socio-economic challenges, such as protracted violence, civil unrest, and the military coup, contribute to the energy dilemma. The instability in Myanmar affects the overall regional dynamics and poses additional risks to energy cooperation and trade between the two countries. The political landscape and uncertainties surrounding Myanmar's governance also impact the decision-making processes and policy coordination related to energy matters.

Therefore, the energy dilemma of natural gas trading between Thailand and Myanmar is multifaceted, influenced by political, economic, and social factors. Achieving their desired energy futures requires addressing barriers to change, managing political dynamics, and collaborating with stakeholders. Policy recommendations must consider energy security, humanitarian concerns, regional cooperation, and sustainability to effectively manage the energy dilemma and enhance energy security for both countries and the ASEAN region.

## CHAPTER 4

### Conclusions and Policy Recommendations

The research findings shed light on the energy dilemma faced by Thailand and Myanmar, with a particular emphasis on Thailand's heavy reliance on Myanmar's natural gas imports for electricity generation. This dependency risks Thailand's energy security and economic stability, while the bilateral strategy with Myanmar's junta carries significant political implications. The following conclusions and policy recommendations are proposed for both countries to tackle these challenges and promote energy security and sustainability.

In the short term (1-3 years), immediate actions are required to address the energy challenges. Thailand should prioritize energy diversification by investing in renewable energy projects, such as solar, wind, and biomass, to reduce its dependence on natural gas imports from Myanmar. Concurrently, crisis management efforts should be implemented, with both countries engaging in dialogue and cooperation to address the impact of Myanmar's political and socio-economic challenges. Humanitarian support for refugees seeking shelter in Thailand is essential to alleviate the burden on Thai authorities.

In the medium term (4-7 years), Myanmar needs to focus on infrastructure development, particularly in renewable energy projects like hydropower and solar, to bolster domestic energy production and reduce reliance on natural gas exports. Myanmar also should focus on enhancing regulatory consistency and transparency to attract foreign investment and stimulate growth in the natural gas sector. Simultaneously, Thailand and Myanmar should align their energy policies and address each other's concerns to foster mutual understanding and pave the way for greater cooperation in the energy sector. Investing in energy-efficient technologies and practices will optimize energy consumption and reduce wastage, benefiting both countries in the medium term.

Looking towards the long term (8-10 years and beyond), research and innovation must be prioritized to develop new energy technologies and explore untapped energy sources. Advancements in clean energy and smart grid technologies will contribute to long-term energy sustainability. Addressing Myanmar's political instability requires long-term diplomatic efforts and regional collaboration to foster sustainable peacebuilding, creating an environment conducive to energy sector growth and cooperation. Engaging in cross-border energy trade agreements will help reduce dependence on a single supplier and promote knowledge sharing and policy coordination.

ASEAN should work towards establishing a regional energy integration framework that facilitates energy trade and collaboration among member states in the long run to foster greater regional energy security. By promoting stability, sustainability, and prosperity in the region's energy sector, collaborative efforts within ASEAN will contribute to a more interconnected and resilient energy landscape.

In conclusion, addressing the energy dilemma between Thailand and Myanmar necessitates combining short-term, medium-term, and long-term policy measures. Implementing energy diversification, crisis management, infrastructure development, energy efficiency, research and innovation, and conflict resolution will enhance energy security and cooperation between the two countries. Collaborative efforts within ASEAN will play a crucial role in fostering a stable and sustainable energy future for the region.

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