

CHAPTER I

INTRODUCTION

1.1 Research Background

Financial Authority Services (OJK) defines investment as a capital injection into financial instruments, including the stock market and other financial securities, to gain a profit. Thus by investing, a person or company can elevate their wealth by investing unused funds rather than keeping the money in the bank. Another reason to invest is to protect the value of money from the inflation risk. For example, the price of a movie ticket cost \$2.89 on average in 1980. By 2019 the movie ticket cost \$9.16. It shows that the value of money diminished over the years, inevitably lowering the purchasing power to buy the same goods or services (Schmidt, 2021).

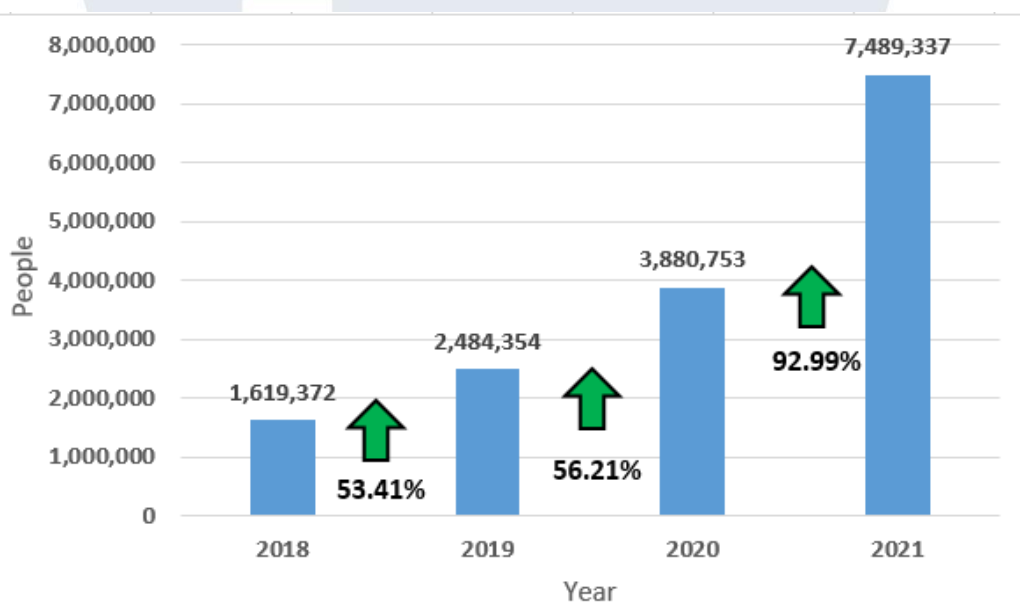
In investment, it's crucial to know the instrument products before investing in them because each instrument carries different risks and potential gains. Six instrument products include mutual funds, shares or stocks, bonds, gold, derivatives, and property (Mandiri Sekuritas, 2018). For instance, risk-taker investors have higher risk tolerance with higher return expectations; thus, risk-taker investors will invest in higher-risk instruments such as stocks. On the other hand, risk averter investors have a lower risk tolerance, so risk averter investors invest in safer instruments such as mutual funds, government bonds, and gold (Malik, 2021).

Indonesia's stock market has increased significantly over the year. As seen in Figure 1.1, there has been a significant growth of investor increase since the pandemic from 2020 to 2021. It became vital for the company to show good performance to attract new investors. Furthermore, the ongoing pandemic has been challenging to maintain the firm's well-being (Aeni, 2022).

To stop the spreading of the pandemic, the government has implemented mobility restrictions (Permatasari, 2021). The restriction has resulted in some

companies closing its business and going bankrupt, consequently resulting in a work termination that reduced the number of workers. Thus, the public's spending capacity affects the economy (Ministry of Finance, 2021).

The pandemic also results in uncertainty, with no reference to the crisis as impactful and complex as the covid-19 crisis (Deloitte, 2021). According to Su et al. (2019), the economic policy uncertainty and news implied uncertainty would affect the stock market volatility. Because according to financial behavior, the decision-making could be affected by factors such as anxiety, anger, fear, or excitement that result in unrationed decision-making. Thus, the uncertainty affects the investor's behavior, resulting in stock market volatility (Hayes, 2021).



Source: KSEI (2021)

Figure 1.1 Stock Market Investor

According to Indonesia Stock Exchange (2022) classify, the listed company are into 12 sectors, including (1) energy, (2) basic material, (3) industrials, (4) consumer non-cyclical, (5) consumer cyclical, (6) healthcare, (7) financials, (8) property and real estate, (9) technology, (10) infrastructure, (11) transportation and

logistics, and (12) listed investment product. Then, each sector is divided once again into a more specific sub-sector (Indonesia Stock Exchange, 2022).

The energy sector is chosen as the research object as it is one of the crucial sectors affected during the pandemic. In the United States, energy supply, health, and welfare are included in crucial sectors where the economy could not function without them. Energy is a crucial sector because it provides an enabling function for another sector (CISA, 2022). During the pandemic restriction in Indonesia, only the crucial sector is allowed to work from the office. The crucial sector in Indonesia includes the energy sector, health, security, logistics and transportation, food and drink industry, petrochemical, cement, vital national object, disaster management, national strategic project, construction, basic utility, and other industry that fulfills the basic need of the public (Hakim, 2021).

Tobin's Q is an indicator to measure the firm's market performance. Tobin's Q is counted by dividing the firm's market value by the firm's book value (Danson, Lartey, Gyimah, & Adu-Ameyaw, 2020). Table 1.1 displays Tobin's q of the sector in NYSE. From December 2019 to June 2020, six of the sectors, including consumer staples, energy, financials, industrials, real estate, and utilities, have a decline in the Tobin's Q from the pre-pandemic and after the pandemic conditions. In this case, the energy sector has the highest decline with 26.25% from December 2019 to June 2020, followed by the financial sector with a 25.83% decline. This means that the energy sector is the most impacted sector on the first impact of the pandemic on the firm market performance.

Table 1.1 NYSE Sector Tobin's Q

NYSE Sector	Dec-19	Jun-20	Dec-20
Communications	3.44	3.50	4.03
Consumer Discretionary	8.00	9.74	10.94
Consumer Staples	5.75	5.49	6.16
Energy	1.60	1.18	1.28
Financials	1.51	1.12	1.40
Health Care	4.61	4.73	4.78

Industrials	4.96	4.57	5.42
Information Technology	7.53	9.09	10.73
Materials	2.54	2.70	2.48
Real Estate	3.77	3.25	3.46
Utilities	2.32	2.00	2.19

Source: Sibilis Research (2022)

Table 1.2 display the Tobin's Q of the sector in IDX Energy. At that time the energy sector including in oil, coal, and gas production is still classify in the mining sector. From December 2019 to June 2020 only agriculture sector has an increased of the firm market value, on the contrary there are 8 other sector that decreased. The miscellaneous industry has the highest decline by 48.93%, followed by property, real estates, and building construction sector by 33.78% and basic industry and chemicals by 29.22%. Different from the market performance in the NYSE that has energy as its highest decline, in this case the mining sector is in the fourth order of the highest decline by 27.43%.

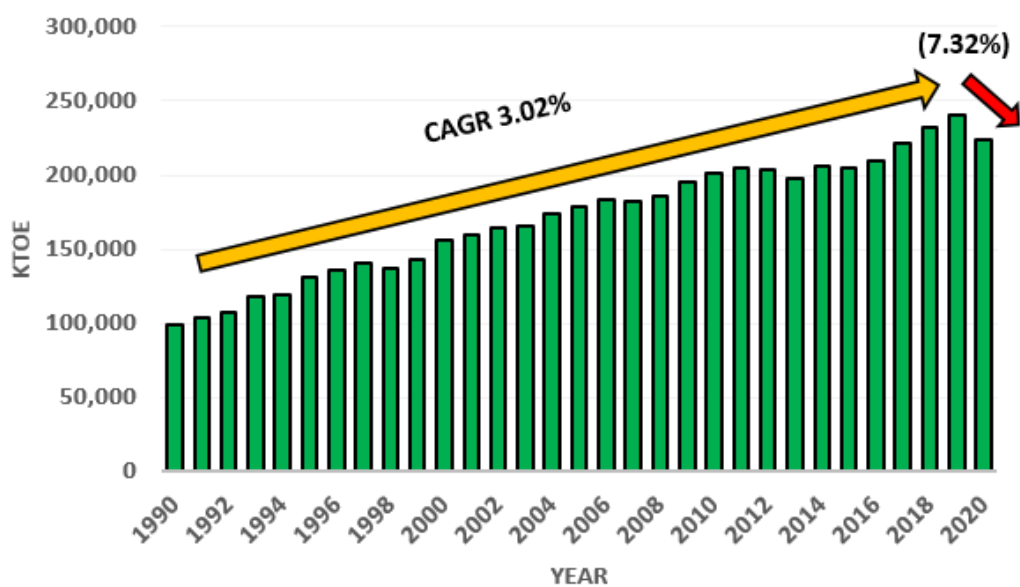
Table 1.2 IDX Sector Tobin's Q

IDX Sector	Dec-19	Jun-20	Dec-20
Agriculture	1.19	1.51	1.31
Mining	2.26	1.64	2.01
Basic Industry and Chemicals	1.54	1.09	1.63
Miscellaneous Industry	2.80	1.43	1.62
Consumer Goods Industry	4.17	3.10	3.83
Property, Real Estate, and Building Construction	2.22	1.47	1.58
Infrastructure, Utilities, and Transportation	2.34	1.91	1.91
Finance	2.42	2.19	2.45
Trade, Services & Investment	2.56	2.09	2.12

Source: IDX Statistic (2020)

According to Indonesia Stock Exchange (2021), the energy sector is defined as a company that sells products or services related to fossil fuel extraction; therefore, the revenue is directly affected by the commodities price such as oil, gas, and coal mining companies and service provider companies related to the industry. In addition, this sector also includes the company that sells products or services

related to alternative energy. Thus, the energy sector is divided into fossil fuels consisting of oil, gas, coal, and alternative energy. Based on Indonesia Stock Exchange data, at the end of January 2022, there are 73 listed companies. Out of the 73 energy companies, there were 70 oil, gas, and coal companies. However, the government has set a target for Indonesia to be free of net-zero carbon by the end of the year 2060 (Tambunan, 2022). Furthermore, to reach the target, the government had planned to shift from fossil fuel into renewable energy with projects such as B100 (biodiesel), electric vehicles, and dimethyl ether (DME) to substitute fossil energy will impact the industry significantly (IESR, 2021).



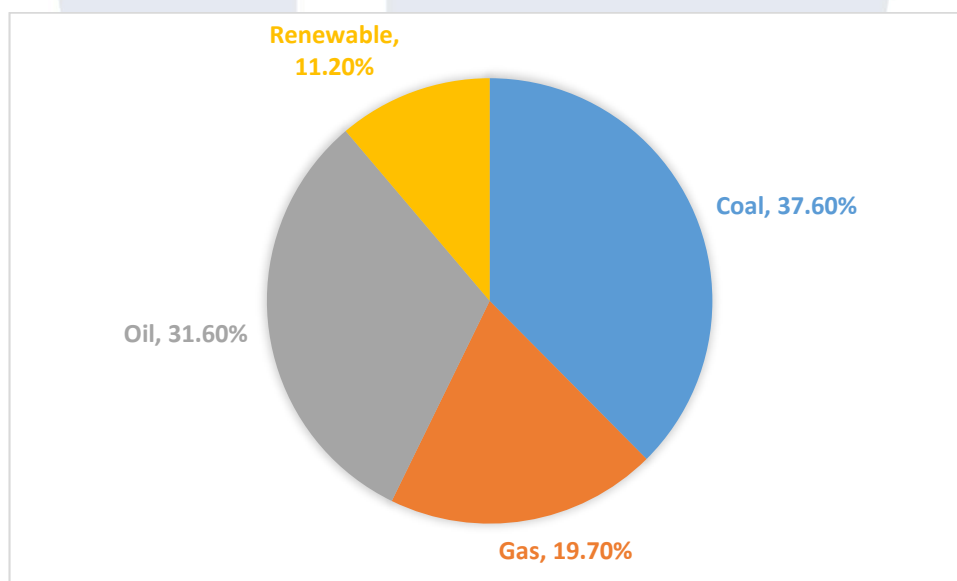
Source: Enerdata (2022)

Figure 1.2 Indonesia Total Energy Consumption

Figure 1.2 showed Indonesia's total energy consumption since 1990. There is an upward trend with the Compound Annual Growth Rate (CAGR) of 3.02% from 1990 to 2019. Showing a constant improvement as the economy grows. This shows the rise of energy need's every year; consequently, it became the demand that the energy sector needed to fulfill as the population grew. The covid-19 slowed down the energy consumption in 2020. The restriction placed to prevent the virus

transmission has reduced energy use in the industry, power plant, and transportation.

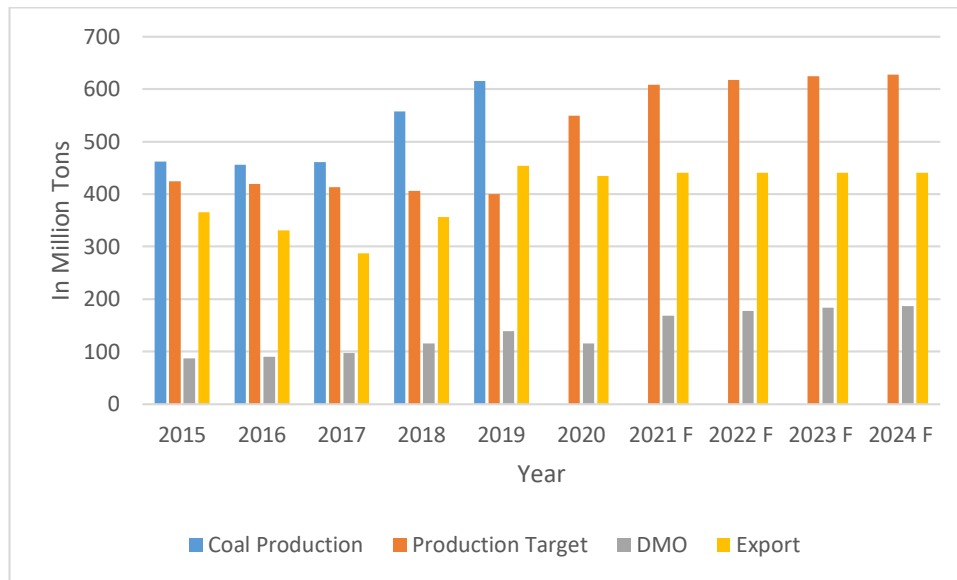
In the third quarter of 2021 (Figure 1.3), Indonesia's energy consumption consists of 37.6% coal, 31.6% oil, 19.7% gas, and 11.2% renewable energy. This displays a dependence on fossil fuel energy with 88.8% of the total energy consumed. Indonesia's government has a short-term target to reach 23% renewable energy by 2025 by encouraging the construction of solar plants to accelerate the development plan of renewable energy (Ministry of Energy and Mineral Resource Republic of Indonesia, 2021).



Source: IESR (2021)

Figure 1.3 Indonesia Primary Energy Mix

U N I V E R S I T A S
M U L T I M E D I A
N U S A N T A R A



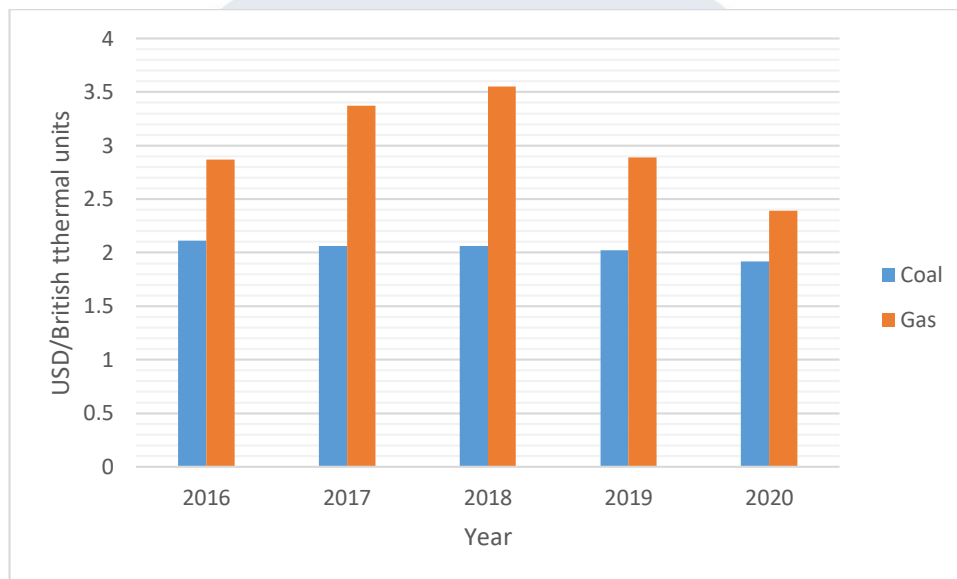
Source: Ministry of Energy and Resource of Republic Indonesia (2021)

Figure 1.4 Indonesia Coal Production

Indonesia's coal production has been increasing since 2017 as the energy demand continues to grow. The policy of domestic market obligation (DMO) continues to rise by 59.43% from 2015 to 2019 (Figure 1.4). However, the global market for coal took a more significant part in Indonesia's coal industry as 73.78% of coal production is exported. In addition, there is a rise in demand for coal energy in the global market. According to the International Energy Agency (2021), coal demand is at an all-time high in 2021 due to China and India's demand recovery with an estimated growth of 9% and 12% respectively. The China and India coal demands impact the coal market significantly as they account for two-thirds of the global coal consumption. Because the coal used is mainly for industrial purposes such as iron and steel production, there are no technology substitutes in the short term to replace coal.

Indonesia's electricity sources have shifted from natural gas to coal (Figure 1.6). One of the reasons is that coal is the least expensive fossil energy. In figure 1.5, the authors compare coal and gas prices as Indonesia's first and second-biggest electricity sources. The coal price has remained constant, with a slight decline since

2016. On the other hand, gas price is volatile as it rises in 2018 before going into a down-trend until 2020.

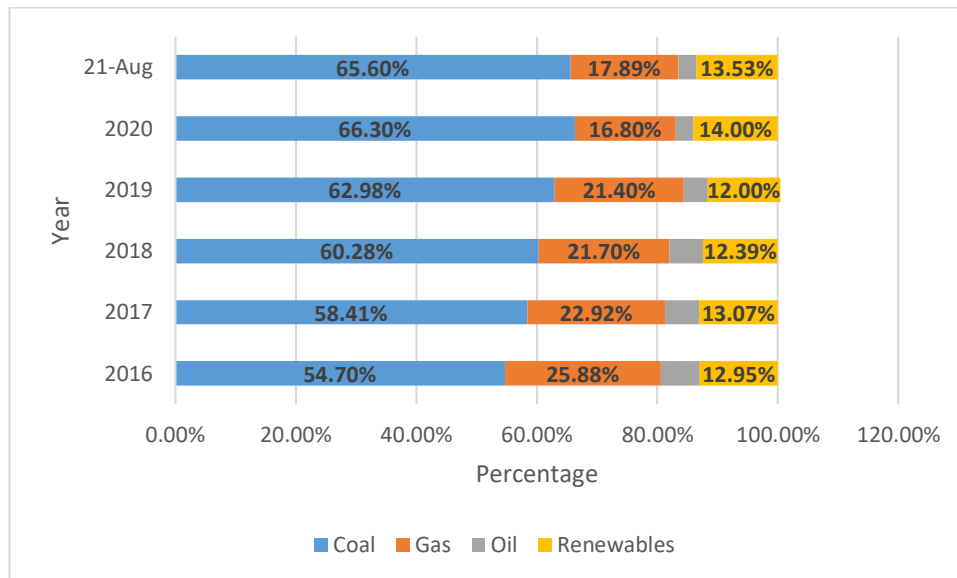


Source: Statista (2021)

Figure 1.5 Coal vs. Gas Price

According to Global Energy Monitor (2020), 75% of planned coal power in South-East Asia is owned by Indonesia. Coal is also the primary resource for electricity generators, about 66.3% of electricity in 2020 (Figure 1.5). This makes Indonesia the third country behind India and China in coal-fired capacity, with a total of 22.7 gigawatts (Coca, 2021). The industry still expects to grow until the year 2030 before shifting to renewable energy and implementing capture and sequestration (CCS) technology to coal (IESR, 2021).

U N I V E R S I T A S
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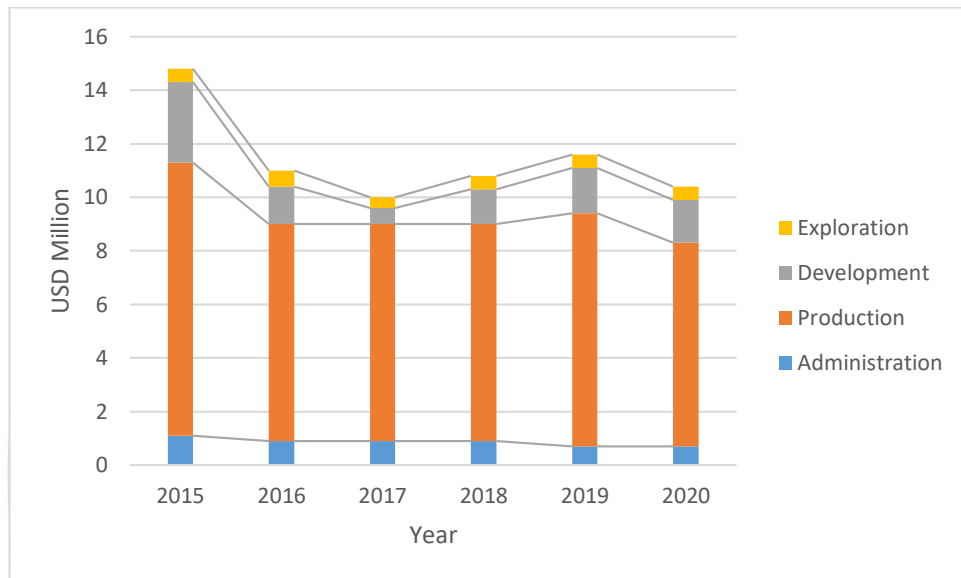


Source: IESR (2021)

Figure 1.6 Indonesia Electricity Generation Share

To fulfill the needs of Liquefied Natural Gas (LNG), the government has started downstream development of turning coal into Dimethyl Ether (DME) as a substitute (Ministry of Energy and Resources, 2022). Dimethyl Ether (DME) has the advantage of its ease of decomposing into the air; as a result, it won't damage the ozone. In addition, it also won't produce pollutants such as particulate matter and nitrogen oxides to the environment. The president (2022) expects the program to be finished by 30 months or by June of 2024.

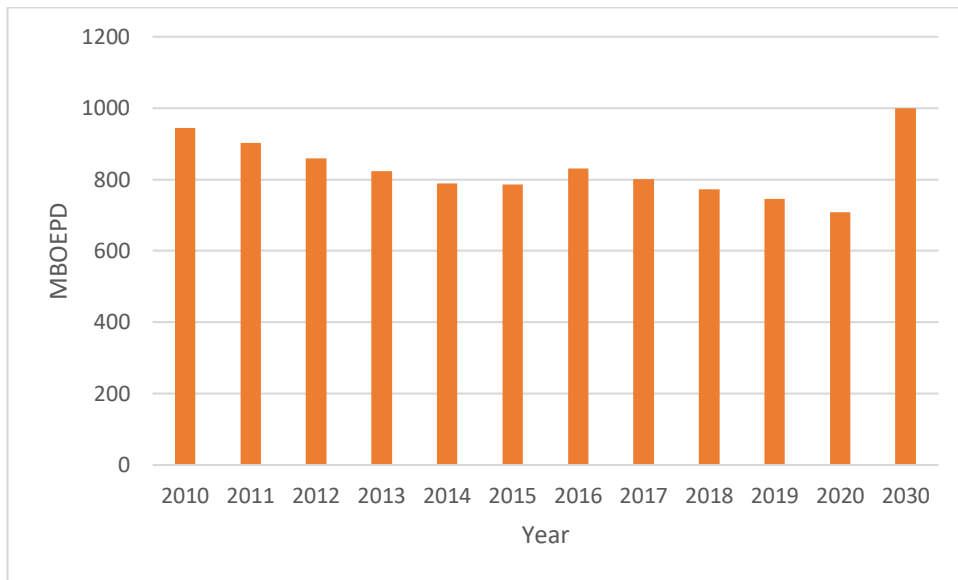
Responding toward the government plan to be net zero-carbon in 2060, PT. Bukit Asam Tbk. Coal mining companies have started to shift their revenue segment with the target of 50% from the non-coal sector by 2026. Other coal companies also started to diversify their revenue into a renewable energy source, mainly solar power plants and the electric vehicle industry. PT. Indika Energy Tbk. another coal mining company, plans to close the last coal power plant by 2047 (IESR, 2021).



Source: SKK MIGAS (2021)

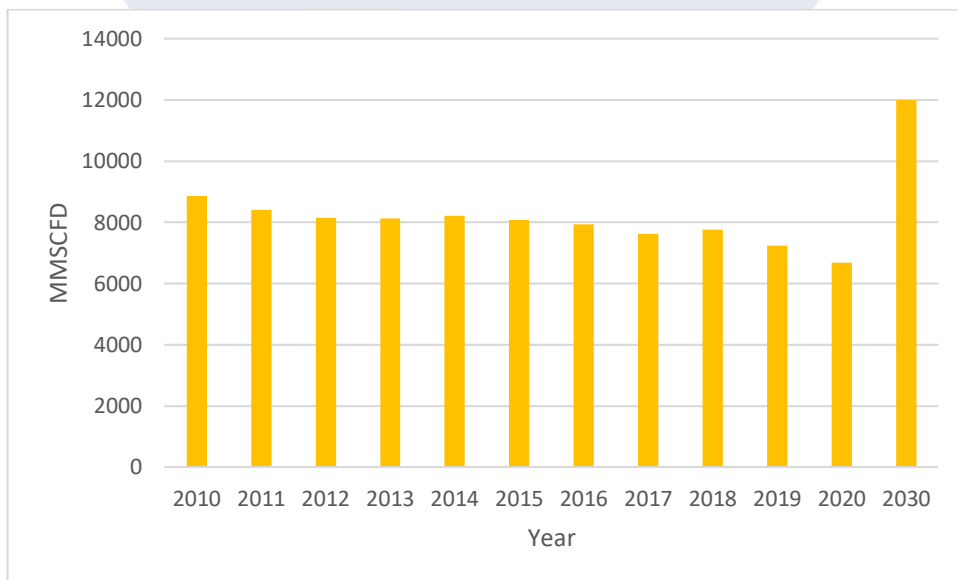
Figure 1.7 Indonesia Oil and Gas Investment

Oil and Gas lifting is a volume of oil and gas production-ready to be sold (Ministry of Finance Indonesia, 2018). The oil and gas industry has declined since 2014 (Figure 1.8 and Figure 1.9). The decline is caused by the downturn of investment in the oil and gas industry (Figure 1.7). Although domestic production continues to decline, the domestic demand for oil and gas continues to rise over the year. Demand rise for fuel needs and liquefied petroleum gas (LPG) are the main reasons for domestic demand rise. According to the police traffic corps, Indonesia's motor vehicles has reached 43.340.128 units, or more than half of the population (Herawati, 2021). In addition, the need for liquefied petroleum gas (LPG) has resulted in a negative trade balance as 80% of 100 Trillion Rupiah products are imported to fulfill the demand. Furthermore, the government subsidizes liquefied petroleum gas (LPG), costing 60-70 Trillion Rupiah (Ministry of Energy and Resources, 2022).



Source: SKK MIGAS (2021)

Figure 1.8 Indonesia Oil



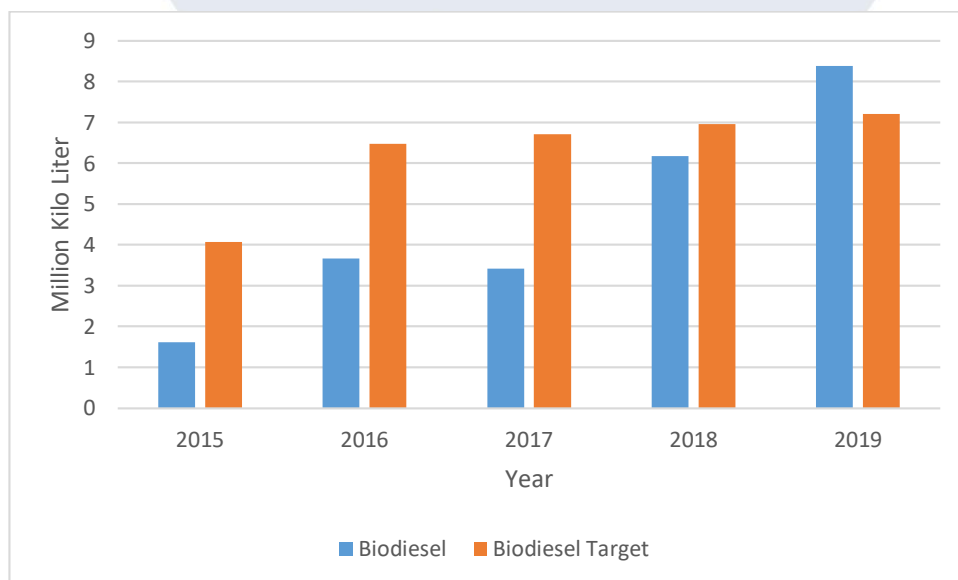
Source: SKK MIGAS (2021)

Figure 1.9 Indonesia Gas Lifting

In figure 1.8 and figure 1.9, the government has targeted a massive rise in oil and gas lifting as part of the plan to cut oil and gas imports. Oil production is targeted to rise to 1 million barrels per day, and gas production is expected to rise

to 12 BSCFD (SKKMigas, 2020). The government then would implement carbon capture, utilization, and storage (CCUS) to reduce carbon dioxide emissions.

To fulfill the fuel needs, the government also started a project of b100 or biodiesel as a more environment-friendly substitute and reduced the negative trade balance. Biodiesel is made from vegetable oil, which is environmentally friendly, unlike fossil fuel. Furthermore, palm oil is one of Indonesia's most significant commodities that can be used as biodiesel material, as 85% to 90% of palm oil is a product from Indonesia and Malaysia (ASIAN AGRI, 2022). Subsequently, biodiesel production expanded, as seen in figure 1.10. Furthermore, to increase biodiesel use, the government implemented mandatory obligations for all sectors with a 30% expected obligation in 2025 (Ministry of Energy and Resource of Republic Indonesia, 2021).



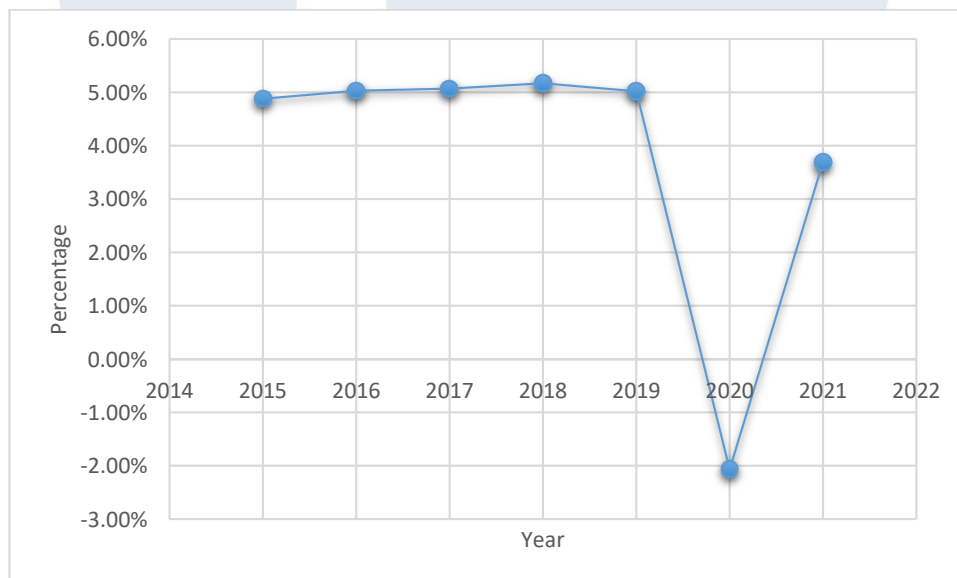
Source: SKK MIGAS (2021)

Figure 1.10 Indonesia Gas Lifting

B100 is fuel for a motor engine composed of 100% biodiesel as the material (Humas EBTKE, 2019). The project started in 2016 with b20, a mix of 20% biodiesel and 80% diesel fuel. Then b20 was implemented as an obligatory in 2018. After that, b30 is implemented in 2020, with b40 being tested in 2022. As a result,

the government has saved 66,64 Trillion rupiahs from the trade balance from b30 in 2021 (Putri, 2022).

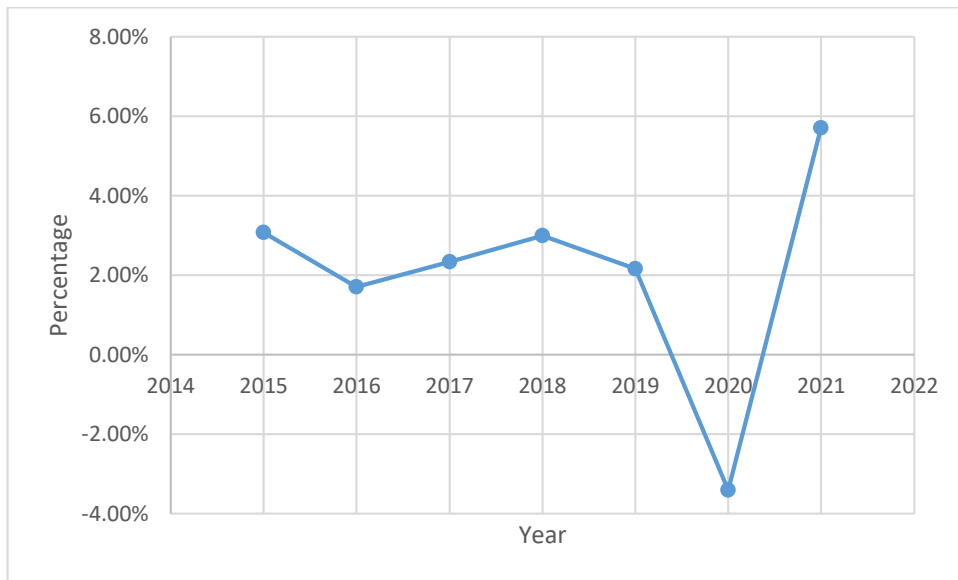
Covid-19 had slowed down the global economic growth because of the restriction and lockdown implemented. In figure 1.11, Indonesia's GDP growth has been constant at around 5% for the past five years before covid-19. Because of covid-19 spreading first in March of 2020, Indonesia's economic growth regressed to -2.07% in 2020. Likewise, in figure 1.12, United States GDP Growth has suffered during the pandemic to -3.41% in 2020. In the moment of crisis, debt becomes a burden and increases the risk of bankruptcy (Danson et al, 2020).



Source: Badan Pusat Statistik (2022)

Figure 1.11 Indonesia GDP Growth

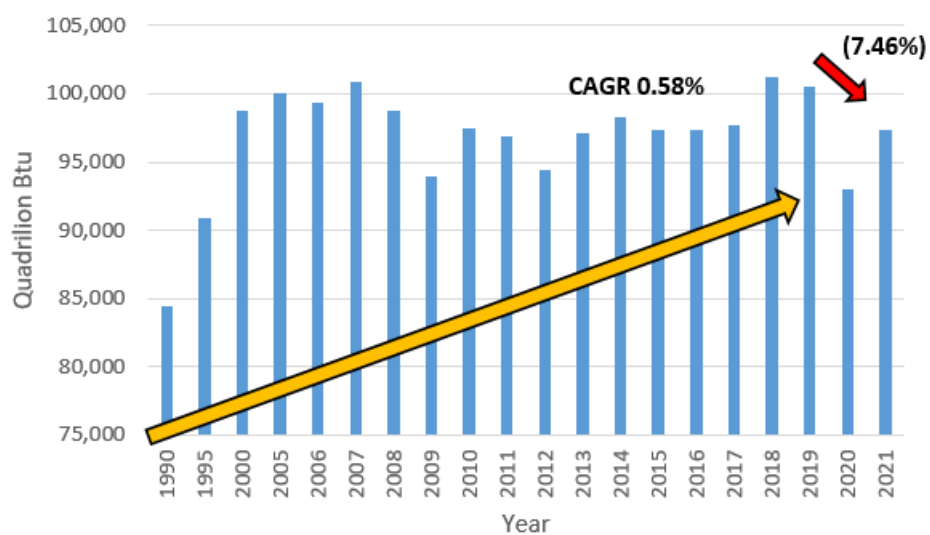
In this studies NYSE is chosen as a comparison to the IDX because United States as the second biggest total energy supply and consumption in the world in 2020 (IEA, 2021). Furthermore, NYSE is the biggest stock market globally, with 27.7 trillion dollars in December 2021 (Statista, 2022). In addition, there are lack of new studies on the factors affecting the firm performance in NYSE.



Source: The World Bank (2022)

Figure 1.12 United States GDP Growth

Figure 1.13 display the United States Energy consumption since 1990. As seen in figure 1.13 there are a volatility of energy consumption, where the financial crisis in 2008 diminish the energy consumption by 2.12%. Even though there is a volatility in the energy consumption, overall the energy consumption increased with 0.58% CAGR since 1990. Compared to the 2008 financial crisis, the pandemic has hit the United States consumption drastically with 7.46% decreased.

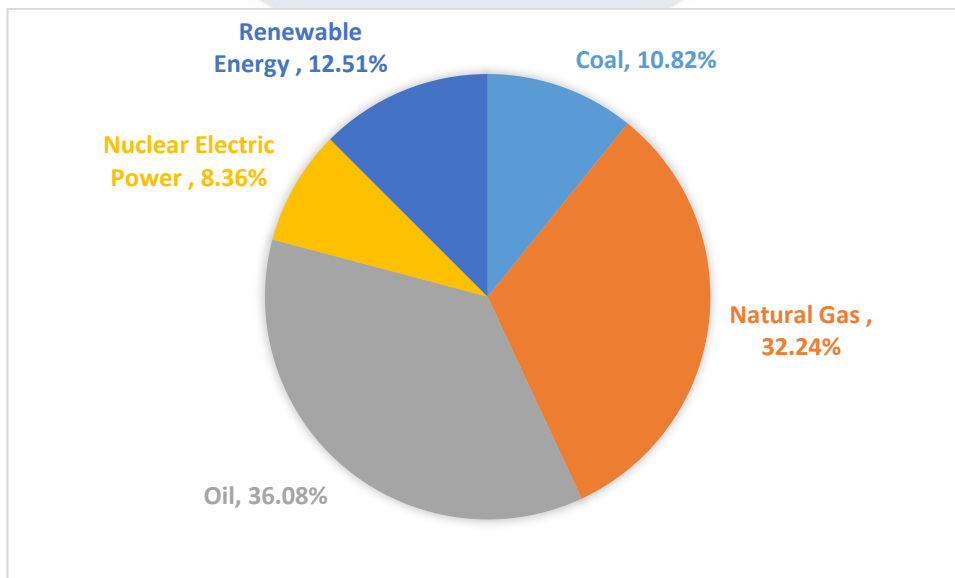


Source: U.S. Energy Information Administrator (2022)

Figure 1.13 United State Total Energy Consumption

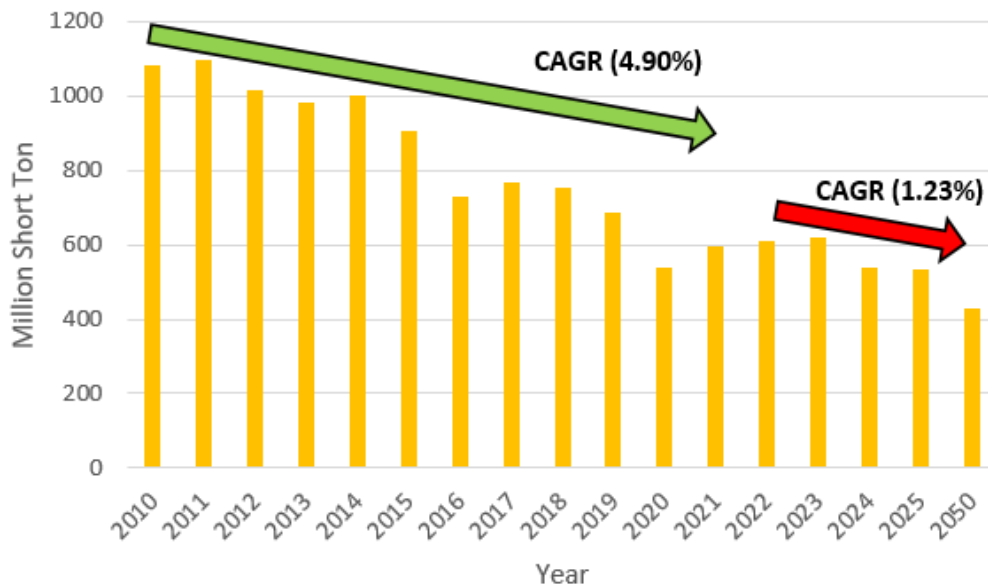
In 2021, United States energy consumption consists of 36.08% of oil, 32.24% of natural gas, 12.51% of renewable energy, 10.82% of coal, and 8.36% of nuclear electric power. The United States government has co-signed to shift to clean energy to face the climate crisis. The United States government has five targets; according to the white house (2021), it is as follows:

1. 100% carbon pollution free-electricity (CFE) by the year 2030.
2. 100% zero-emission vehicle (ZEV) acquisition by 2035 and 100% zero-emission light-duty vehicle acquisition by 2027.
3. Net-zero emission by the year 2050.
4. Net-zero emission building portfolio by the year 2045. 50% emission reduction is targeted by the year 2032.
5. Net-zero emission from federal operations by 2050, with a 65% emission reduction target by 2030.



Source: U.S. Energy Information Administrator (2022)

Figure 1.14 United State Energy Mix

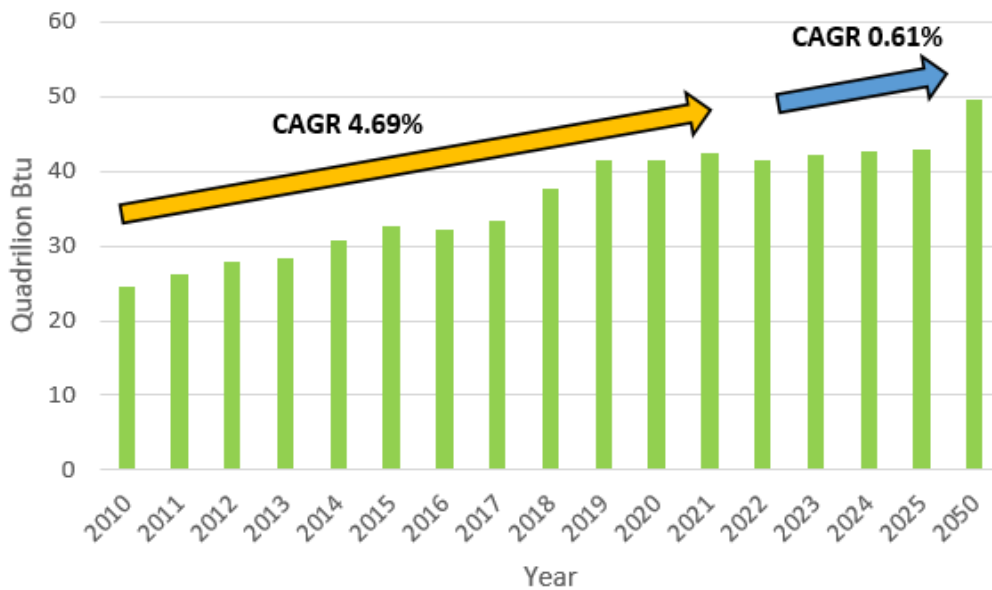


Source: U.S. Energy Information Administrator (2022)

Figure 1.15 United State Coal Production

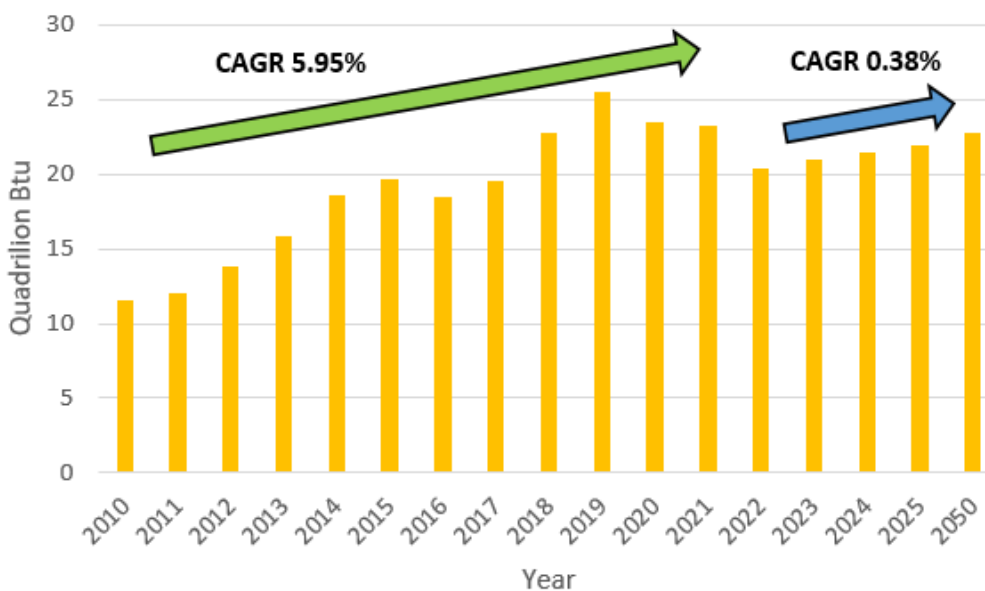
Coal production has declined by 4.90% CAGR from 2010 to 2021 (Figure 1.15) as the United States government reduces coal-fired generator use. Coal electricity generation is expected to fall to 20.51% in 2023 from 22.7% in 2021 (U.S. Energy Information Administration (EIA), 2022). Even though the coal-fired generator is expected to decrease, coal production is expected to increase until 2023 as an export commodity before declining in 2024. Coal production is expected to decline with 1.23% CAGR until 2050 as shown in figure 1.15.

Unlike coal, natural gas production has increased since 2010 with a 4.69% CAGR. The increase in natural gas demand causes the increase because natural gas is mainly used for electric power by 37% and the industrial sector by 34% in 2021 (U.S. Energy Information Administrator, 2022). With the government plan to shift more renewable and clean energy, the natural gas is expected to slow down with a slight increase of production by 0.61% CAGR from 2022 to the year 2050.



Source: U.S. Energy Information Administrator (2022)

Figure 1.16 United State Natural Gas Production



Source: U.S. Energy Information Administrator (2022)

Figure 1.17 United State Oil Production

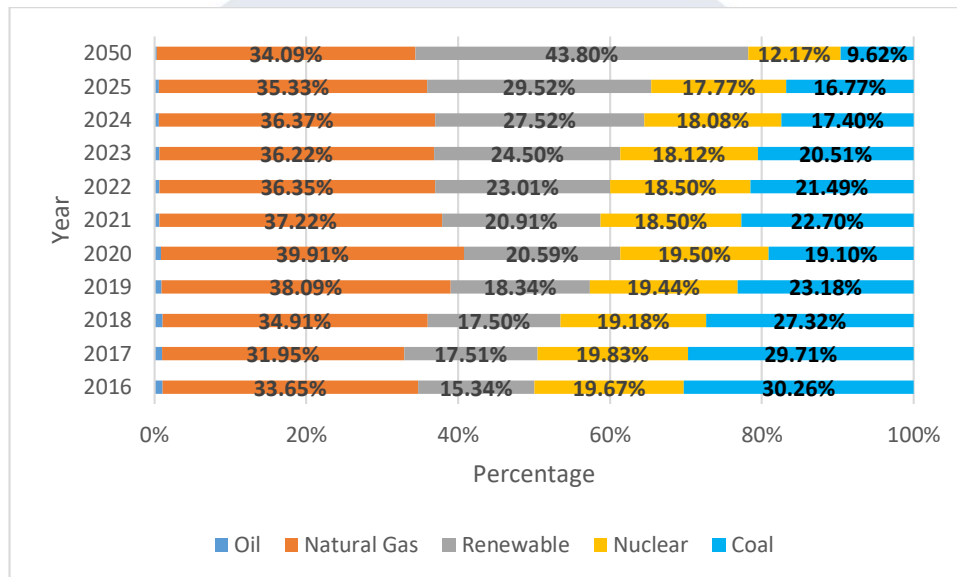
Oil production in the United States has expanded since 2010 to 2021 with 5.95% CAGR (Figure 1.17). The pandemic has impacted the oil production where in 2020 the production decline by 8.05% compared to the previous year. Furthermore, the government plan to shift toward electric vehicle potentially would reduce more oil demand. The government target of 100% zero-emission vehicle (ZEV) acquisition by 2035 and 100% zero-emission light-duty vehicle acquisition by 2027, consequently will reduce new the fossil fuel vehicle. Even so, United States Energy Information (2022) still expect a slight increase of oil production with 0.38% CAGR from 2022 until 2050.

Different from Indonesia government that have biodiesel project and electric vehicle. On the other hand, the United States government focus on the implementation of the electric vehicle with the target to increase the infrastructure to support it (U.S. Energy Information Administration (EIA), 2022). Because Indonesia is one of the largest palm oil producer in the world alongside with Malaysia (ASIAN AGRI, 2022), Indonesia is able to carry out the biodiesel project as palm oil can be used for biodiesel material.

Figure 1.18 display the energy used to provide for electricity in the United States. There a shift of energy used from 30.26% in 2016 to 22.7% in 2021, where coal decreased each year as the government decreased coal-fired generator. It is expected to continue to decreased until 9.68% in 2050. Meanwhile, the nuclear energy used has been stagnant, before decreasing in 2021. Like coal, nuclear energy is also expected to decreased in the following year, as the government plan to used more clean energy.

On the other hand, the natural gas energy used in electricity has increased to its peak in 2020 by 39.91%. Although like coal and nuclear power, the use of natural gas in energy is expected to decreased as the government plan to target net zero emission in 2050. The solar panel and wind energy is expected to be the main driver of the increased in renewable energy. As almost half of the new electric

generating capacity is solar panel in 2022 (U.S. Energy Information Administration (EIA), 2022).



Source: U.S. Energy Information Administrator (2022)

Figure 1.18 United State Electricity Generator Shares

There are two forms of financing to cover the cost of business activities or working capital and investment: equity financing and debt financing. Equity financing trade-off between the firm ownership to acquire the funds; on the other hand, debt financing borrows funds with the obligation to pay it with interest (Hayes, 2021). According to Corporate Finance Institute (2022), the cost of equity is higher than the cost of debt because the investors expect a higher return of investment as capital gain is not guaranteed. Thus, the firm needs to maintain a balance of equity financing and debt financing to reduce the weighted cost of capital (WACC). Too much equity would increase the opportunity cost, but too much debt could increase default risk (Fernando, 2021).

Bontempi, Bottazi, & Golinelli (2020), divide debt based on its maturity. Short-term debt refers to a debt to be paid within a year; on the other hand, long-term debt refers to the debt with a maturity date over one year. According to

Cathcard, Dufour, Rossi, & Varotto (2020), excessive short-term borrowing could lead to higher default rates affecting firm performance.

The Debt to Total Assets (DAR) ratio determines how the firm finances its assets (Hayes, 2021). The higher the ratio means the firm assets are financed with more debt. An otherwise lower ratio means the firms are financed with more equity. For example, company XYZ, with 40.7% debt to total assets, explains that 40.7% of the company is funded through debt and the rest through equity (Carlson, 2020).

According to Dang, Li, & Yang (2018), firm size can be measured with three indicators: total assets, total sales, and market value of equity. As firm size defines the firm's growth opportunity and investment value, it is needed to measure the firm performance (Danson, Lartey, Gyimah, & Adu-Ameyaw, 2020). According to the trade-off theory larger firm have more access to debt because it has more assets to be used as a collateral. Thus, the firm that have a higher firm size could have access to more debt option that could be capitalized to an increase of profit consequently increasing the firm performance (Le & Bich, 2017). On the other hand, a firm with a lower firm size would have a limited access to debt because it has less collateral. In addition, larger firm size companies has the ability to diverse the firm investment that result in a lower default risk and have a lower financial cost compare to lower firm size companies that result in a higher profit for the company (Zeitun & Saleh, 2015).

This study is expected to find the energy firm's sector performance in managing debt and whether the firm size affects the firm performance in the moment of crisis. Furthermore, the authors will compare IDX Energy and New York Stock Exchange (NYSE) Energy to discover which firm handles the crisis well and a future model for managing debt. Because the energy sector is facing a significant change that will take much investment, IDX Energy company could decide which financing method to choose with the NYSE as a benchmark through this research. The author decides the research object considers Indonesia's potential in the energy sector and the United States as the second biggest total energy supply

and consumption in the world in 2020 (IEA, 2021). Furthermore, NYSE is the biggest stock market globally, with 27.7 trillion dollars in December 2021 (Statista, 2022). In addition, there are lack of new studies on the factors affecting the firm performance in NYSE.

1.2 Research Question

Based on the research backgrounds stated, the research questions are written as follows:

- Does long-term leverage have a positive effect on firm performance in IDX Energy?
- Does short-term leverage have a positive effect on firm performance in IDX Energy?
- Does firm size have a negative effect on firm performance in IDX Energy?
- Does long-term leverage have a positive effect on firm performance in NYSE Energy?
- Does short-term leverage have a positive effect on firm performance in NYSE Energy?
- Does firm size have a negative effect on firm performance firm performance in NYSE Energy?

1.3 Research Purpose

Based on the research question, the research purposes are written as follows:

- Discover the effect of long-term leverage on firm performance
- Discover the effect of short-term leverage on firm performance
- Discover the effect of firm size on firm performance
- Discover different or similar factors between IDX Energy and NYSE Energy for future energy models.

1.4 Research Benefit

This study is expected to benefit investors, companies, the government, and future researchers. The benefits are written as follows:

1.4.1 Academic Benefit

With this research, the researcher expected to contribute to the education world mainly in factors affecting firms' performances and became a reference for future studies.

1.4.2 Practitioner Benefit

This research expects to inform energy sector companies to get the best firm performance through leverage management. In addition, the researcher expects to help investors decide which firm to choose by using relevant variables to measure the firm's performance. Through comparing companies in two different countries, the researcher also expects to inform as a consideration reference to manage debt for companies and the government to manage the policy such as interest rate and loan regulations.

1.5 Research Limitation

In order for the research to be focused on the questions and purposes determined, the researcher limits the scope of the research as follows:

1. These research variables are divided into two; independent variables include overall leverage, long-term leverage, short-term leverage, and firm size. On the other hand, dependent variables include firm performance in IDX Energy and NYSE Energy.
2. The research sample included public companies in IDX Energy and NYSE Energy, which are listed at least in 2019.

1.6 Research Report Systematic

Chapter 1: Introduction

In this chapter, the author explains the research background, research question, research purpose, research limitation, and the systematic of the research.

Chapter 2: Literature

This chapter explains the theory related to leverage, firm size, and firm performance. In addition, this chapter will also present the research model, hypothesis, and past research.

Chapter 3: Methodology

In this chapter, the author explains the general description of the research object, research methods, research variable, data collecting techniques, and data analysis method used.

Chapter 4: Result and discussion

This chapter explains the statistical result, interpretation, and discussion following the research objective.

Chapter 5: Conclusion

In this chapter, the author explains the research conclusion and suggestion to related stockholders.

Reference

This section contains a book, journal, and article as the source of the research.

Appendix

This section contains variable processed data and statistic results discussed in chapter 4.