



CHINA INVESTMENT IN THE COAL POWER PLANT SECTOR IN INDONESIA

FINANCE AND PORTRAIT OF SOCIAL, ENVIRONMENTAL AND LABOUR IMPACTS

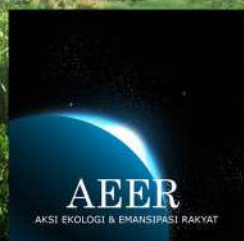
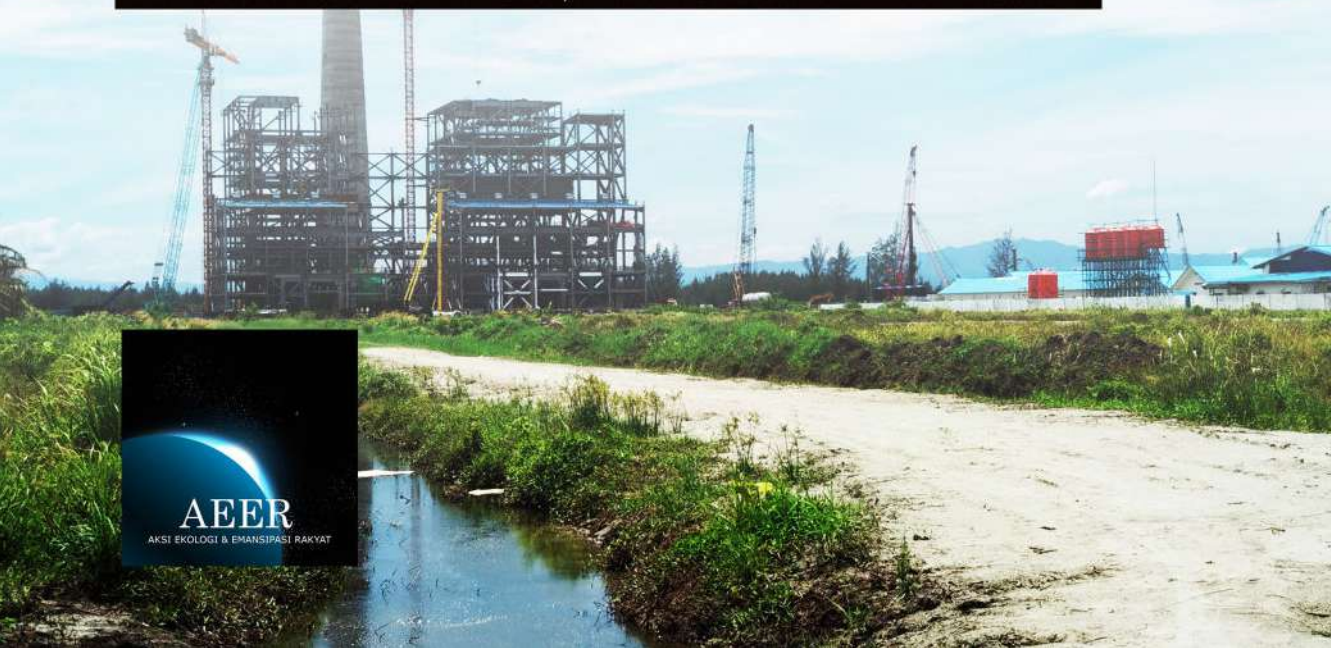


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China Investment in the Coal Power Plant Sector in Indonesia

Finance and Portrait of Social, Environmental and Labour Impact

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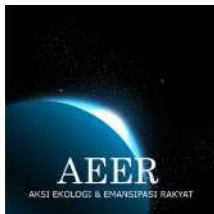
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INTRODUCTION

Coal-fired Power Plant in Indonesia will continually increase 40,063MW¹ from 2006 to 2025 under electricity acceleration program Fast Track Program (FTP) 1, FTP 2, and 35,000 MW. This increase will escalate the electricity reserve (reserve margin) as the electricity consumption does not meet the expectation. The government prioritize coal because of its lowest price compared to oil and other energy resources. To improve these power plants, the government has been working together with foreign investors, including China.

Nonetheless, the cost of goods sold for electricity supply kept rising after the shift from oil dominated power plants into coal power plants. The low quality of these plants caused wasteful investment in the coal sector which failed to produce the expected amount of electricity. For example, the coal-fired power plant (PLTU) Banjarsari 2 x 110 MW, developed by PT CNEEC (China National Electric Corporation) did not meet the Availability Factor (AF) , resulting in a huge loss of about US \$ 21.26 million. Also, PLTU Balikpapan 2 x 100, a power plant developed by PT. Adhi Karya and Sinehydro , which started operations in 2017, failed to operate optimally in 2017 (BPK 2019)

In infrastructure investment, the global average return equity expectation for the private sector was about 10.6 percent. However, when operating in Indonesia, they expected higher return equity, of 15 percent to 30 percent, considering regulatory uncertainty (PWC and GIIA). The expectation of higher return equity in Indonesia resulted in keeping low wages for workers and for environmental management expenditure lower compared to other developed countries or the origin countries of coal investment, including China. The arrival of direct coal funding and investment in Indonesia resulted at a vulnerable environment at the local level and a low quality of life for workers as well as the financial burden for countries to facilitate coal investment.

Indonesia has an abundance of renewable energy potential as it is located in a tropical area, enriched by tropical forests, in the Ring of Fire region (good for small scale geothermal, as long as problems

¹ The total component capacity of coal-fired power plants in FTP I (9,934 MW), FTP II (17,428 MW), and 35,000 MW (35.831 MW).

such as erosion and forced eviction avoided) and the long coastlines. Hence, in the light of classical economics and philosophy, improving coal power plants for electricity may have not originated from the government's good intention but from the business interest in the coal power plant system. The public should study whether these interests represents the people's interest in the long term for a better environment, quality of life for the labor force, and the strengthening of the state's financial position. This research is one of the efforts, to find the consequences of coal funding investment with the impacts on environmental quality and the life of workers. This research selected Chinese investment because the investment dominates the financing, ownership, and the construction of coal-fired power plants in Indonesia.

Hopefully, this research could contribute to improve understanding on the coal-fired power plants in Indonesia from the aspect of financial and environmental dynamics as well as advocacy for improvement both in financial aspects and impacts on the ground.

Pius Ginting

The Coordinator of AEER (Ecological Action for People Emancipation)

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CHAPTER I

PREFACE

The 2015 Paris Agreement held by the United Nations Framework Convention on Climate Change (UNFCCC) encouraged 195 countries including Indonesia to commit to reducing global warming below 2 C and below 1.5 c if possible. The use of coal as a main problem of global climate change is one of the most significant steps.

According to a special report of the Intergovernmental Panel on Climate Change (IPCC) that was released on October 2018, a total stop from the use of coal for the electric power plant in 2050 and a two-thirds cut of the existing coal-fired power plant in 2030 are required to reduce the acceleration of global warming into 1.5 c.² However, some countries are not totally in the trend to reduce coal.

Currently, China is the top country in renewable energy capacity with 695,864,515 MW.³ At the same time, China plays a role in the global trade by actively investing in a big scale and become the biggest trading partner for Asia economy. Foreign Direct Investment from the Chinese mainland in Southeast Asia has increased to USD 2.4 trillion, the third-ranked after Singapore and Japan.⁴

However, China mostly realized its investment in Indonesia through coal-fired power plants. It is part of Chinese commitment to fund USD 35.9 billion for coal-fired power plant projects with 102 GS total capacity in over 27 countries.⁵

Although Indonesia is rich in renewable energy, the development is not optimal because international funding is more supportive of the coal sector. In the newest document of General Plan for Electricity Supply (RUPTL), coal still dominates electricity production with

² https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_Chapter1_Low_Res.pdf (retrieved Agustus 27, 2019 at 13.01 Western Indonesian Time)

³ <https://www.irena.org/Statistics/View-Data-by-Topic/Capacity-and-Generation/Country-Rankings> (retrieved July 30, 2019 at 17.32 Western Indonesian Time)

⁴ <https://www.bkpm.go.id/en/publication/press-release/readmore/2178101/35001> (retrieved 13 Juli 2019 at 10.23 Western Indonesian Time)

⁵ Shearer, Christine et al. "China at a Crossroads: Continued Support for Coal Power Erodes Country's Clean Energy Leadership". IIEFA, January 2019 (http://ieefa.org/wp-content/uploads/2019/01/China-at-a-Crossroads_January-2019.pdf) retrieved July 11, 2019 at 09.03 Western Indonesian Time

54.4% until 2028. Indonesian government continually develops coal-fired power plant when public resistance against its destructive force to the environment gets stronger.

Indonesia is an archipelago country with more than 260 million populations. It is the 4th largest populated country in the world (3.4% of the world population).⁶ The population density is about 149/km of which 65 percent of the people lived in urban areas. The Country is projected to be the fifth biggest economy in the world in 2030 and be the fourth in 2050. In 2018, Indonesian economy grew by 5.17% and the sixth fastest in Southeast Asia⁷.

The population density and its economic growth make Indonesia need a lot of energy. The country is responsible to meet its citizen's energy needs, including electricity, especially in the area with no electricity or unreliable electricity supply. Unfortunately, national electricity demand fulfilment still relies on coal, producing pollution and global warming.

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In 2017, Indonesia was the fifth biggest coal producer country and the second biggest coal exporter in the world. Indonesian coal production reached 461 million ton,⁸ and supplied 16.1 % of the total global coal export.⁹ The biggest export destination country for Indonesia was China with 48.279 million ton in 2017.¹⁰

Indonesian government tried to minimize coal production and to increase domestic use. The National Midterm Plan (RPJMN) in 2015 - 2019 revealed the attempt to reduce coal production from 421 million ton (24% for domestic needs) in 2014, to 400 million ton (60% for domestic need) in 2019. In fact, the coal production was over the target of RPJMN's expectation.

6 Hawksworth, John dan Chan, Danny. "The World in 2050 Will the shift in global economic power continue?". Pricewater House Coopers UK, February 2015 (<https://www.pwc.com/gx/en/issues/the-economy/assets/world-in-2050-february-2015.pdf>) Retrieved July 11, 2019 at 13.21 Western Indonesian Time

7 <https://www.cnbcindonesia.com/market/20190206104549-17-53987/pertumbuhan-ekonomi-indonesia-2018-capai-517> (retrieved 11 Juli 2019 at 11.38 Western Indonesian Time)

8 <https://yearbook.enerdata.net/coal-lignite/coal-production-data.htm>

9 <http://www.worldstopexports.com/coal-exports-country/> (retrieved October 8, 2019 at 11.01 Western Indonesian Time)

10 Ministry of Energy and Mineral Resources Republic of Indonesia, 2018, *Handbook of Energy & Economic Statistics of Indonesia*.

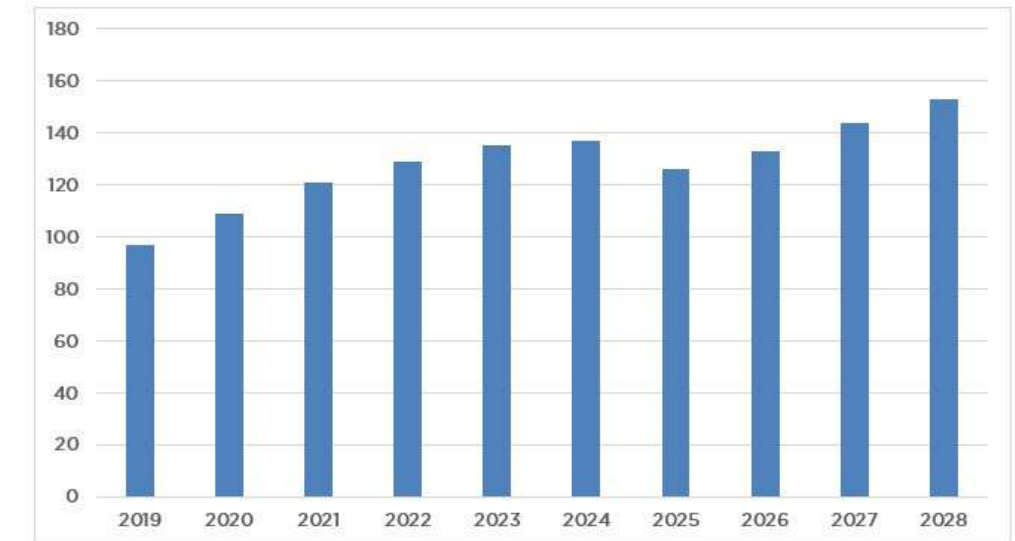
Table 1. Coal production of RPJMN vs Actual

Description	2015	2016	2017	2018	2019
RPJMN (million ton)	425	419	413	406	400
Actual (million ton)	461	456	461	477	-
gap	36	37	48	71	-

In million ton
Source : RPJMN 2015-2019

Meanwhile, in the Electricity Procurement Plan (RUPTL) PLN 2019 - 2028, the government showed the increasing trend of coal use because coal still dominates the additional capacity of electricity program.

Figure 1. Coal Needs Projection Diagram for the Electricity Procurement Plan 2019-2028



In million ton
Source: RUPTL PT PLN Persero 2019-2028.

In policy aspect, the government tried to reduce coal production. However, the national market is extending along with the increase of domestic coal consumption and PLTU (coal-fired power plant) construction. The big coal exporters such as Adaro and Bukit Asam group integrated the coal mining business to power plant under partnership with foreign investors to improve electricity coal power plant. Low calorie coal, which is not economical to export because of its low price, becomes valuable after the construction of mine-mouth coal-fired power plant (PLTU) , in which the power plant location is not far away from coal mining area.

Mine-mouth coal-fired power plants have been supported by the Ministry of Energy and Mineral Resource (ESDM) Regulation Number 19 year 2017. The goal is to reduce production costs such as fuel, vehicles, and 20-40% more efficient than other thermal power plant.¹¹ Besides, the coal supply from mining location with low calories is more guaranteed to be absorbed by Mine-mouth PLTU without being burdened by transportation cost that causes disadvantage.

Some Mine-mouth PLTUs were constructed in provinces with abundance of coal reserve such as Sumatra and Borneo. In the Electricity Procurement Plan 2019 -2028, there were 5,690 MW Mine-mouth PLTU with 4,790 MW in Sumatra and 900 MW in Borneo. Some of those PLTU projects were constructed by the coal mining companies and their subsidiaries as the business expansion from upstream to downstream which controls coal supply chain for several power plants.

Table 2. List of mine-mouth PLTU owned by coal mining companies.

Mine-mouth PLTU	Capacity (MW)	Status	COD	Scheme	Ownership
Riau-1	2 x 300	PPA	2028	IPP	Bukit Asam
Jambi-1	2 x 300	PPA	2023/24	IPP	-
Jambi-2	2 x 300	Pengadaan	2022	IPP	-
Sumsel-1	2 x 300	Konstruksi	2021	IPP	-
Banyuasin	2 x 120	Konstruksi	2021	IPP	-
Sumbagsel-1	2 x 150	Konstruksi	2023	IPP	-
Sumsel-6	300	PPA	2027	IPP	Bukit Asam
Sumsel Ekspansi	350	Perencanaan	2023	IPP	-
Sumsel-8	600	Perencanaan	2022	IPP	Bukit Asam
Sumsel-8	600	Konstruksi	2023	IPP	Bukit Asam
Kalselteng-3	2 x 100	Committed	2024/25	IPP	-
Kalselteng-4	2 x 100	Committed	2026/27	IPP	-
Kalselteng-5	100	Rencana	2028	IPP	-
Kaltim-3	2 x 100	Committed	2025/26	IPP	
Kaltim-5	2 x 100	Committed	2027/28	IPP	Adaro Energy
Tanjung Tabalong	2 x 30	Operasi	2017	IPP	Adaro Energy

Surce : RUPTL Ketenagalistrikan 2019-2028, dan beberapa sumber berita online.

¹¹ <https://industri.kontan.co.id/news/lebih-efisien-hingga-40-pIn-andalkan-pltu-mulut-tambang> (retrieved October 9, 2019, 22.55 LT)

The operation of mine-mouth PLTU is feared to damage the environment because PLTU and coal mining are located in a nearby area. However, the location is not far from the settlement and the farming area is vulnerable to pollution and trash exposure that can disturb the plantation’s growing , including the human being. The problems of environmental impact, economic, and social impact of mine-mouth PLTU will be discussed further in chapter IV.

A. THE PROJECTION OF GREENHOUSE EMISSION IN 10 YEARS

Indonesian Commitment to reduce carbon contradicts to the program to speed up the electricity development that still heavily relies on coal power plant. The rising use of coal to obtain the target of electricity capacity every year means the increasing carbon emission from PLTU’s burning. It happens along with the lands and forest area extracted for coal that causes deforestation, especially in the provinces with the biggest coal reserve in Indonesia, South Sumatra province, South Borneo, and East Borneo.

Instead of reducing greenhouse gas emissions, Indonesia will increase 52.4% greenhouse gas emission in 9 years (2019- 2028). In 2028, it will increase from 351.5 million ton GRK, around 85% from coal electricity power plant. While, Indonesia NDC’s target in the first period is decreasing GRK in Law Indonesian Republic Number 16 year 2016 about the Ratification of Paris Agreement To The United Nations Framework Convention On Climate Change :

“DECREASING THE EMISSION 29% WITHOUT FOREIGN ASSISTANCE, INTO 41% WITH FOREIGN ASSISTANCE WITHOUT ACTION CONDITIONS (BUSINESS AS USUAL) IN 2030, THAT WILL REACH THROUGH SECTORS INCLUDING FOREST SECTOR, ENERGY INCLUDING TRANSPORTATION, TRASH, INDUSTRIAL PROCESS, PRODUCT USE, AND FARMING. INDONESIA NDC’S COMMITMENT FOR NEXT PERIOD IS DETERMINED BASED ON PERFORMANCE STUDY, AND SHOULD SHOW IMPROVEMENT FROM THE PREVIOUS PERIOD”.

The use of energy in Indonesia do not encourage the mission to reduce greenhouse gas emission in absolute way. Instead, the number of emission continually increase because coal-fired power plant still dominates the FTP1, FTP2 and in the program 35,000 MW which contains Chinese significant role as developer, construction company, and financial source.

Figure.2 Projection diagram for Greenhouse Emission of 2019-2028



Number : in million ton
 Surce : RUPTL 2019-2028

B. RESEARCH PURPOSE

The purpose of this research is to give a more comprehensive perspective from financial point of view about China’s investment in the energy sector, especially coal power plant that related with other issues such as environmental pollution, working conditions, economic - social condition in ground level. This research wants to re-affirm that investment penetration in various forms in the electricity sector, especially coal power plant, still has weakness. Hence, it is important to give such a recommendation for stakeholders, shareholders, civil organizations, and the public to improve the regulation and to strengthen supervision of investment to achieve social justice for all of Indonesian people.

C. RESEARCH METHODOLOGY

The research focuses on the issue of Chinese Foreign Direct Investment on coal-fired power plant sector. The research addressed public-private (China) partnership through financial point of view related to social and environmental issues. The samples are various Chinese investments in the electricity sector, focus on coal power plant such

as Fast Track Program 1, Fast Track Program 2 and 35,000 MW under assumption that the data are available and accessible. Therefore, the research methodology is mixed method with concurrent mixed methods strategy. It means the researcher will mix quantitative and qualitative data to have comprehensive analysis on the research issue or research problems.

According to John W Creswell, Ph. D, Mix Method Research is research that involve data collection, analysis, and integrate research quantitative and qualitative in single study or longitudinal program of investigation.¹²

D. RESEARCH TIME AND PLACE

The research has been conducted in two steps. First, field research done in Muara Enim reGENCY, South Sumatera on July 24 -31, 2019. The data collected in the field research are mostly primary including documentation and interviews to the local community in the three areas of coal-fired power plants (PLTU). The plants are PLTU Simpang Belimbing, PLTU Sumsel-1, and PLTU Sumsel-8. Second, literature and document study to process secondary data from January to September 2019.

E. THE RESEARCH DESIGN

The research report consists of 4 chapters. The first chapter explains generally the increase of China’s investment on coal sector in Indonesia since electricity acceleration program implemented in FTP1 in 2006 to 35,000 program in 2015. The policy contradicts Indonesia’s commitment to reduce global warming in accordance with the Paris agreement (COP21) in 2015.

Chapter 2 explores the involvement of China’s investor in mega project of electricity acceleration program through partnership with Indonesian government, Independent Power Producer (IPP) and Engineering Procurement Construction (EPC). The chapter will explore how Chinese involvement in the cooperation scheme in the coal-fired power plants increased the financial risk of PLN, government, and consumers in the electricity business by comparing electricity sales revenue.

Chapter 3 specifically explores the involvement of Chinese investors in each electricity acceleration program started from Fast Track

¹² Creswell, John W., “An Introduction to Mixed Methods Research” SSP, University of Nebraska-Lincoln; 2007. (<https://sbsrc.unl.edu/Introduction%20to%20Mixed%20Methods.pdf>) retrieved 21 Juli 2019 at 11.30 Western Indonesian Time

Program 1 in 2006, Fast Track Program 2 in 2010 and 35,000 MW in 2015 which was still totally dominated by coal-fired power plants. In This chapter, the scheme of funding and China banks that were involved in financing coal-fired power plant contradicts to their commitment to implement Green Credit Strategy to increase green economy which releases low carbon and reduce environmental and social risks.

Last, chapter 4 presents the field findings in 3 PLTU locations, in Muara Enim regency, South Sumatra. The three PLTUs are PLTU Sumsel 1, PLTU Sumsel 8, PLTU Simpang Belimbing which involve China investor as developer, EPC executor, and financing. This chapter explores a lot of social ecological crisis that happens in villages where mine-mouth PLTUs were constructed.



THE ARRIVAL OF
DIRECT COAL
FUNDING AND
INVESTMENT IN
INDONESIA RESULTED
AT A VULNERABLE
ENVIRONMENT AT THE
LOCAL LEVEL AND
A LOW QUALITY OF
LIFE FOR WORKERS
AS WELL AS THE
FINANCIAL BURDEN
FOR COUNTRIES TO
FACILITATE COAL
INVESTMENT.



CHAPTER II

CHINA'S INVESTMENT IN INDONESIAN COAL-FIRED POWER PLANT

Findings:

- Chinese investment in electricity program in Indonesia increased since Belt and Road Initiatives announced in 2013.
- Although the average price of coal and national crude oil as primary fuels in coal electricity production decreased, it was not in accordance with the decrease of electricity supply cost. Instead, the electricity supply cost, which had increased.
- Chinese contractor companies (EPC) develop the coal-fired power plant owned by Chinese companies. The company executing the EPC has demonstrated the poor quality of PLTU construction for several times as indicated from some occupational accidents as the impact of the unreliable construction.

The first electricity acceleration program was launched for the first time in 2006 until 2015 under Fast Track Program I, Fast Track Program II, and 35,000 MW that became one of infrastructure mega projects in which China was interested to invest in Indonesia, especially in coal sector. The entrance of Chinese investment was related with the Going out Policy in 2000. This is the first policy to encourage the company and industry in China to invest abroad¹³. The abroad investment policy was renewed with Belt and Road Initiative (BRI) policy.¹⁴.

Since Chinese President Xi Jinping announced BRI in 2013, China's investment has been increasing throughout the globe. In the whole

¹³ China's Belt & Road Initiative, An Introduction, Friends of the Earth US, Desember 2016

¹⁴ *The Belt Road Initiative is China's investment strategy that focuses on 7 sectors; Energy, Infrastructure, Transportation, Aviation, Logistics, Agriculture, and Communication to several priority countries such as Southeast Asia, Central Asia, Russia and Central and Eastern Europe. This economic cooperation is carried through two routes; the land route (western China to the Middle East) and the maritime route (China, Africa, and Europe). Chinese President Xi Jinping announced it for the first time in 2013.*

of 2014 until the end of June 2018, Chinese investment globally skyrocketed to USD 622.38 billion.¹⁵ This investment in average reached USD 155.60 billion per year.

The total is bigger than China's investment in 8 years before BRI had been launched. In 2005 - 2013, the total of Chinese investment only reached USD 467.97 billion or only USD 58.50 billion per year on average¹⁶ It means the BRI increased Chinese investment abroad 11 times per year.

Currently, there are at least 6 BRI projects realization in Indonesia. They are 1) Jakarta-Bandung high-speed railway; 2) Nickel and steel manufacture in Morowali (including PLTU) Central Sulawesi; The central of aluminum and steel in North Borneo; 4) Special Economic Zone in Bitung, North Sulawesi; 5) Special economic zone in Sei Mangkei, North Sumatera; 6) The improvement of tourism infrastructure in Bali.¹⁷

Investment network of China in Indonesia through BRI could increase in various sectors on which the BRI focuses. The Indonesian government's readiness to propose dozens projects for investments in BRI's forum in March 2019 proved the trend. Among the proposed projects were Coal-fired power station with capacities 2,100 MW, coal fired power plant with capacities 1,000 MW in industrial park and international port (KIPI), Kuning Land - Mangkupati, PLTU mine-mouth with 2 x 350 MW capacities in Celukan Bawang Bali, PLTU Mouth Mining South Central Borneo 3 with 2 x 100 MW capacities, mine-mouth PLTU South Central Borneo 4 with 2 x 100 MW, Central Borneo.¹⁸

Investment Coordinating Board (BKPM) merged the data of electricity investment with water and gas investment. China has been underlined as the third-ranked biggest investor from 2006 to 2019 with 2.8 billion USD.

¹⁵ OECD Business and Finance Outlook 2018 Highlights (www.oecd.org/daf/OECD-Business-Finance-Outlook-2018-Highlights.pdf) retrieved July 26, 2019, at 13.26 Western Indonesian Time

¹⁶ *Ibid*

¹⁷ Tenggara Strategics Briefing Paper, (Agustus 2018), *Belt and Road Initiative: What's in it for Indonesia?* (<https://tenggara.id/insights/Belt-and-Road-Initiative-Whats-in-it-for-Indonesia>) retrieved 15 Agustus 2019, at 16.11 Western Indonesian Time

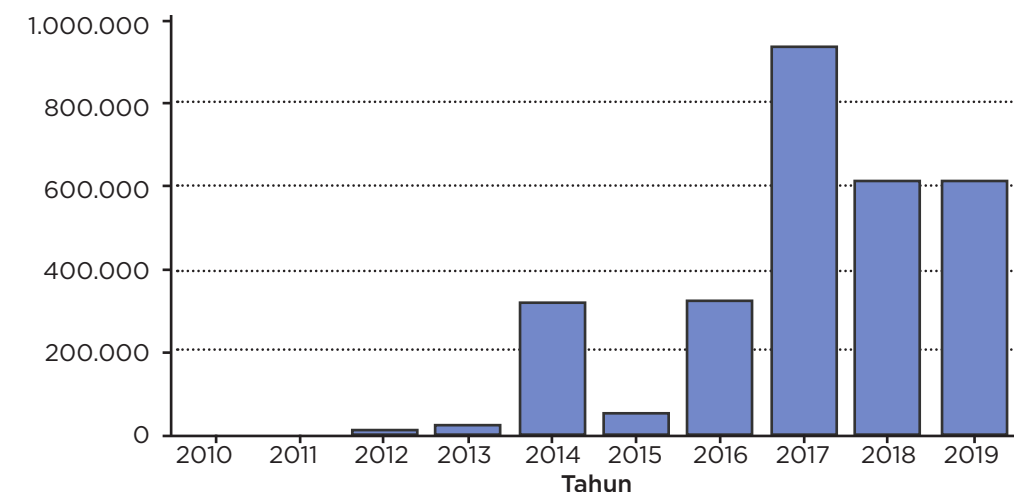
¹⁸ https://www.cnnindonesia.com/ekonomi/20190320203641-92-379253/daftar-28-proyek-rp1296-t-yang-bakal-dijual-ke-china?utm_source=facebook&utm_medium=oa&utm_content=cnnindonesia&utm_campaign=cmssocmed (retrieved August 30 2019 at 15.13 Western Indonesian Time)

Table. 3 Foreign investment in water, gas, and electricity sector

Investor	Proyek	Investasi US\$ (Ribu)
Gabungan Negara	217	10.289.497,3
Jepang	98	5.279.513,6
Singapura	796	3.696.374,0
R.R. Tiongkok	498	2.866.884,2
Belanda	119	2.081.945,2
Korea Selatan	107	961.023,1
Hongkong, RRT	484	909.265,9
British Virgin Islands	106	609.917,1
Amerika Serikat	35	267.507,0
Australia	47	239.269,9
Perancis	24	221.815,5
Seychelles	25	173.252,1
Malaysia	365	127.611,7
Inggris	36	75.764,6
Jerman	18	23.580,6
India	31	23.449,7

Source : Badan Koordinasi Penanaman Modal, 2019.

Figure 3. The rate of China's investment in electricity, water and gas in Indonesia before and after the launch of BRI



(Investment value in thousand USD)

Source: Investment Coordinating Board, 2019

China's investment in electricity, water and gas have been increased in the last 6 years, especially in 2014 after BRI announced, has increased to USD 319.4.

Chinese investors involved in the electricity sector in Indonesia under some schemes such as Independent Power Producer (IPP) and Engineering Procurement Construction (EPC).

A. INDEPENDENT POWER PRODUCER (IPP)

State-owned Enterprises (SOEs) PT. PLN has a responsibility to supply electricity for citizen's needs. To fulfill the obligation, the Indonesian government needs the participation of privates sector (IPP) to construct electricity power plants to produce electricity to be sold to PT.PLN to be distributed to consumers¹⁹ The limited fund of PLN to construct its own power plant causes the Power Purchase Agreement (PPA) between PLN and IPP. In other words, PLN needs the IPP to develop the project.

The private sector involvement (IPP) was driven by the Indonesian government's ambition to boost electricity capacity. The ambition began to be realized under Fast Track Program 2 year 2010 with 17,428 MW capacity. Private sector dominated the program with 11,659 MW while PLN only produced 5,799 MW. However, the government considered the electricity project stage two was no longer sufficient. Therefore, the government launched 35,000 MW electricity program in 2015. The projects of the program was dominated by IPP with 29,950 MW while PLN 8,911 MW.

In IPP's scheme, the private sector is the project's owner which and can also become executor of Engineering Procurement Construction (EPC). The private sector fund the project 100 percent and expected to profit from the feed-in tariff in which the private sector (IPP) sells the electricity to PLN²⁰ Before the transaction is commenced, both parties signed Power Purchase Agreement.

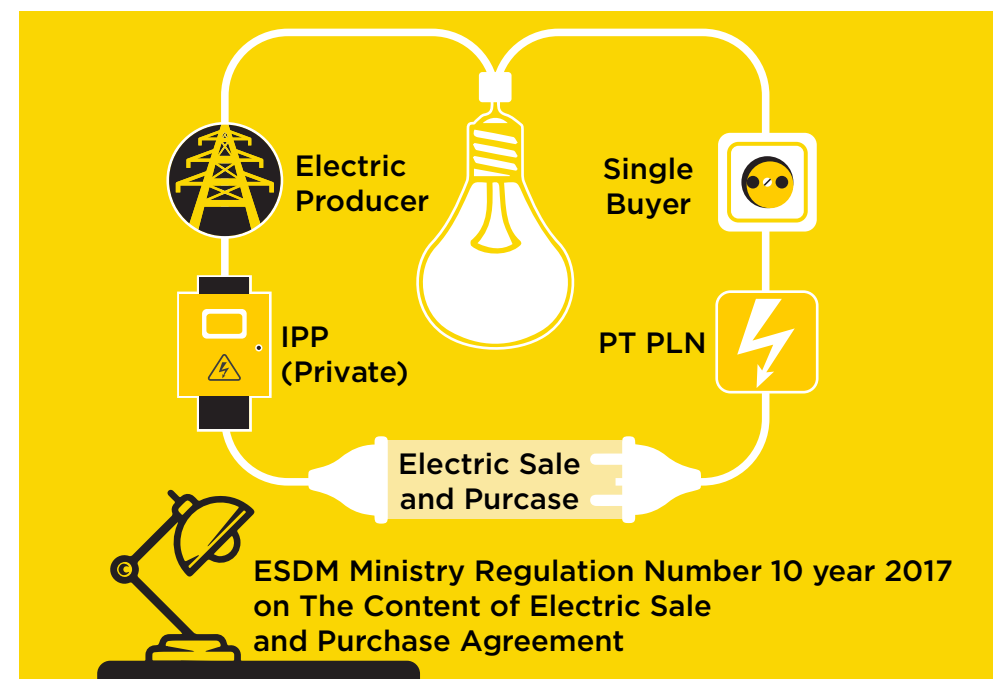
In the coal sector, the Power Purchase Agreement will be valid for 25 years since the PLTU begins the operation or commenced the Commercial Operation Date (COD).²¹ In other words, PLN will purchase electricity for 25 years contract to fulfill the consumers' electricity needs. After the agreement ended, the ownership of the power plant will be handed to PLN.

¹⁹ Independent Power Producer (IPP) is a private electricity supplier developed by a consortium to have an agreement with PPA and PLN.

²⁰ The Energy and Mineral Resources Ministry presented his presentation, entitled The Partnership of Government and Private Sector in Electricity, in a seminar about electricity, on August 24, 2014.

²¹ Electric Investment Guide in Indonesia, BKPM in 2015.

Figure 4. Partnership Scheme of IPP and PLN



The private sectors are involved to increase the electrification ratio which only reached 67.2% when the FTP 2 program was launched in 2010²² It means 36.8% of society does not have access to electricity, particularly in the rural and border areas.

However, the data have shown that household electricity consumption's growth from 2011 to 2017, was the lowest consumption (35%) among public sector, industrial, and enterprise consumption. Moreover, the increase in electric capacity has benefited the industrial and enterprises customers more than household customers because industrial and enterprises customers consume more electricity. The biggest electric consumers are in Java, about 42,126,060 (61,89% of 68,068,283 consumers), while outside of Java, there are 25,942,223 consumers (38,11%).²³

Table 4. Electricity consumption growth per sector

Year	Industry (%)	Domestic (%)	Enterprise (%)	Public (%)
2012-2017	45,87	35,32	61,35	43,25

Source : PLN Statistics 2018.

²² Electrification Ratio Document in 2017 by ESDM (<https://www.esdm.go.id/assets/media/content/content-rasio-elektifikasi.pdf>), retrieved 1st of October 2019 at 13.39

²³ RUPLT PT PLN (Persero) 2019-2028

Nicke Widyawati, the PLN corporate planning director period 2014 - 2017, admitted the fact that China made a big portion of IPP for Indonesia's electric power plant, particularly in the coal-fired power plant. From the countries signing Power Purchase Agreement (PPA) dan Engineering, Procurement, Construction (EPC) to 2015 with the total of 17,300MW; China dominated the IPP with 47 percent. Meanwhile, IPP from Japan made 30% and the rest about 24% made by Korea, Turk, US, Malaysia, and Indonesia companies.²⁴

Table 5. List of Chinese electricity developers as IPP in coal-fired power plant projects

Chinese Consortium	PLTU	Capacity (MW)	Location	Statue
PT Adaro Energy Tbk - China Shenhua Overseas Development and Investment Co, Ltd	PLTU Mulut Tambang Kalimantan Timur	2x300	East Borneo	Pre-licensing process
PT Bukit Asam Tbk - China Huadian	PLTU Sumsel 8 (Bangko Tengah)	2x600	Muara Enim regency, South Sumatra	Units 1 & 2: under construction Units 3 & 4 : canceled
PT Intraco Penta - Power China	PLTU Bengkulu	2x100	Bengkulu City, South Sumatra	Under construction
Black Gold - China Huadian	PLTU Riau 1	2x300	Indragiri Hulu, Riau	Canceled
China Huadian	PLTU Celukan Bawang	Units 1-3: 380 total; Units 4 & 5: 330)	Buleleng, Bali	Unit 1-3: Operating Unit 4 & 5: Licensing Process
PT Jawa Energy, a private consortium of Chinese and Indonesian investors	PLTU Cilacap	5x5.000	Cilacap, Jawa Tengah	Canceled

²⁴ <https://industri.kontan.co.id/news/ini-sebabnya-china-kuasai-proyek-listrik-ri> (retrieved 1st of October 2019 at 12.41 Western Indonesian Time)

Chinese Consortium	PLTU	Capacity (MW)	Location	Statue
PT Pembangkitan Jawa Bali (PJB) - China National Energy Investment Group	PLTU Jawa 7	2x991	Serang, Banten	Under construction
Sinar Mas Group - Dongfang Electric Corporation	PLTU Kalselteng 1	2x100	Gunung Mas, South Borneo	Under construction
Harita Group - China Hongqiao Group, Winning Investment Co, Shandong Weiqiao Aluminium and Electricity Co. Ltd	PLTU Ketapang Smelter	160	Ketapang, West Borneo	Ketapang 1: Operating, Ketapang 2: Konstruksi
Shenhua Group	PLTU Mesuji	2x350	Mesuji, Lampung	Postponed
Nagan Raya (1,2) : PLN, Nagan raya (3,4) : China Datang Overseas Investment, PT Sumberdaya Sewatama	PLTU Nagan Raya	Unit 1,2 (2x110), Unit 3,4 (200)	Nagan Raya, Aceh	Unit 1, 2 : Operatngi, and Unit 3, 4 : Licensing process
PLN - Konsorsium Dongfang Electric Company - PT Dalle Energy	PLTU Pacitan	2x315	Pacitan, Jawa Barat	Operating
China Energy Engineering Corporation - Praba Group	PLTU Parit Baru	200 (Units 1 & 2: 50 ; Units 3 & 4: 55)	Pontianak, West Borneo	Unit 1: Operating; Unit 2: Under construction; Units 3-4: Pre-licensing process

Chinese Consortium	PLTU	Capacity (MW)	Location	Statue
PT Lion Power Energy - China Shenhua	PLTU Sumsel-1	600	Muara Enim, South Sumatera	Under construction
PT Indonesia Power - Golden Concord Holdings	PLTU Kalbar-1	2x100	West Borneo	Under construction
PT Energi Musi Makmur Indonesia - China Shenhua	PLTU Simpang Belimbing	300	Muara Enim, South Sumatra	Operating
Bintang Delapan (Indonesia) - Dingxin Group (China)	PLTU Sulawesi Mining (Morowali)	Tahap 1: 2 x 65 , Tahap 2: 2 x 150 , Tahap 3: 2 x 150 , Tahap 4: 2 x 350	Morowali, Central Sulawesi	Phase 1: Operating; Phase 2 Unit 1 - Operating, Phase 2 Unit 2: Under construction; Tahap 3: Under construction; Tahap 4: Under construction
PT Toba Bara Sejahtera - Sinohydro	PLTU Sulut 3	2x50	Kema, North Sulawesi	Under construction
PT Toba Bara Sejahtera Tbk - PT Toba Sejahtera - Shanghai Electric Power Konstruksi Co. Ltd	PLTU Sulbagut 1	2x50	Gorontalo, North Sulawesi	Pre-licensing process

Source : Source Watch and Various Online Media.

The involvement of private sector developer (IPP) is regulated in the ministry of energy and mineral resources regulation number 10 year 2017 on the content of electric sale and purchase agreement that will be valid for 25 years. The regulation regulates IPP and PLN to run the "Take or Pay scheme", in which PLN was obliged to pay electricity produced by IPP, regardless of the electricity is consumed or not. However, this scheme may disadvantage PLN as it should pay the electric gap produced by the private sector (IPP) regardless of it was consumed or not by customers.

The loss will lead to a subsidy increase and affect the state budget (APBN) or will be the customers' burden by increasing the electricity pricing. Therefore, the government applied the clause of Delivery or Pay (DoP), in which IPP should supply electricity to PLN in a certain amount that has been regulated in ESDM Ministry's Regulation Number 10 year 2017.

According to the financial report of PLN 2019, PLN's income was from the sale of electricity to consumers. While another income was from the government's subsidy and electricity compensation to cover the price gap between the Electricity Supply Cost (BPP) which is higher than the electricity price for customers. RUPTL 2019 - 2028 mentioned the income from customers in the past 2 years only covered around 79 -84% of PLN's production cost. PLN charged the price gap to subsidy from the state budget.²⁵

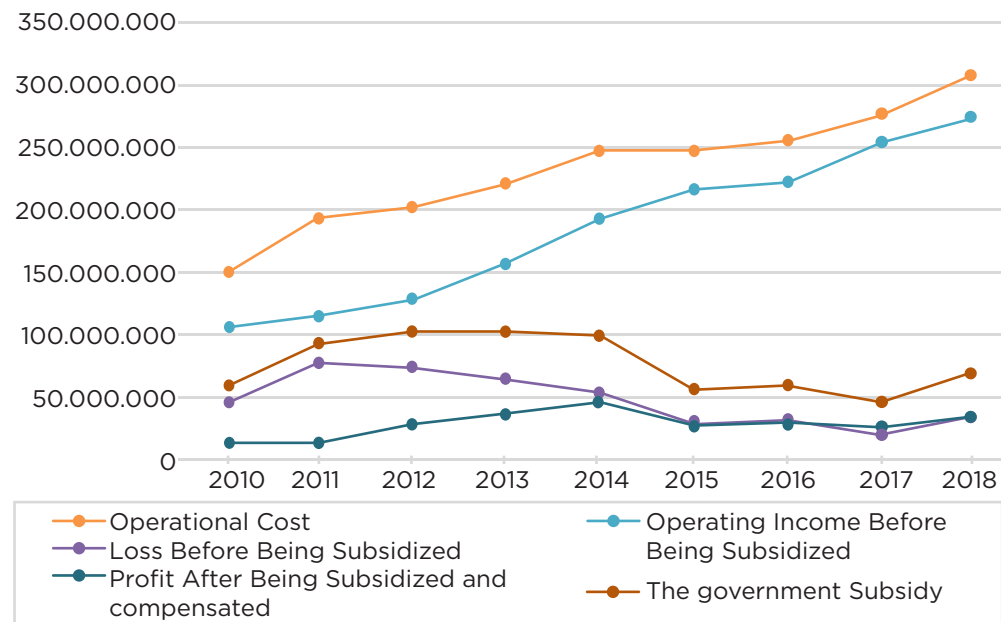
Table 6. Comparison between operational electricity cost and PLN income

Year	Operational cost	Operational income before the subsidy	Loss before being subsidized	Government subsidy	Compensation income	Profit after subsidy and compensation	Average electricity cost
2010	149.108.072	104.266.876	44.841.196	58.108.418	0	13.267.222	699
2011	193.397.299	114.840.083	78.557.216	93.177.740	0	14.620.524	714
2012	203.115.450	129.325.171	73.790.279	103.331.285	0	29.541.006	728
2013	220.911.147	156.196.722	64.714.425	101.207.859	0	36.493.434	818
2014	246.909.970	193.417.941	53.492.029	99.303.250	0	45.811.221	940
2015	246.012.286	217.346.990	28.665.296	56.552.532	0	27.887.236	1.035
2016	254.449.802	222.821.956	31.627.846	60.441.520	0	28.813.674	991,37
2017	275.474.094	255.295.243	20.178.851	45.738.215	0	25.559.364	1.105,11
2018	308.188.889	272.897.742	35.291.147	48.101.754	23.173.464	35.984.071	1.123,01

Source : PLN Statistics 2010-2018
In Thousand USD

²⁵ RUPTL PT PLN (Persero) 2019-2029

Figure 5. Comparative Trend of operational cost and subsidy income



Source : PLN statistic 2010-2018
In million IDR except for the year.

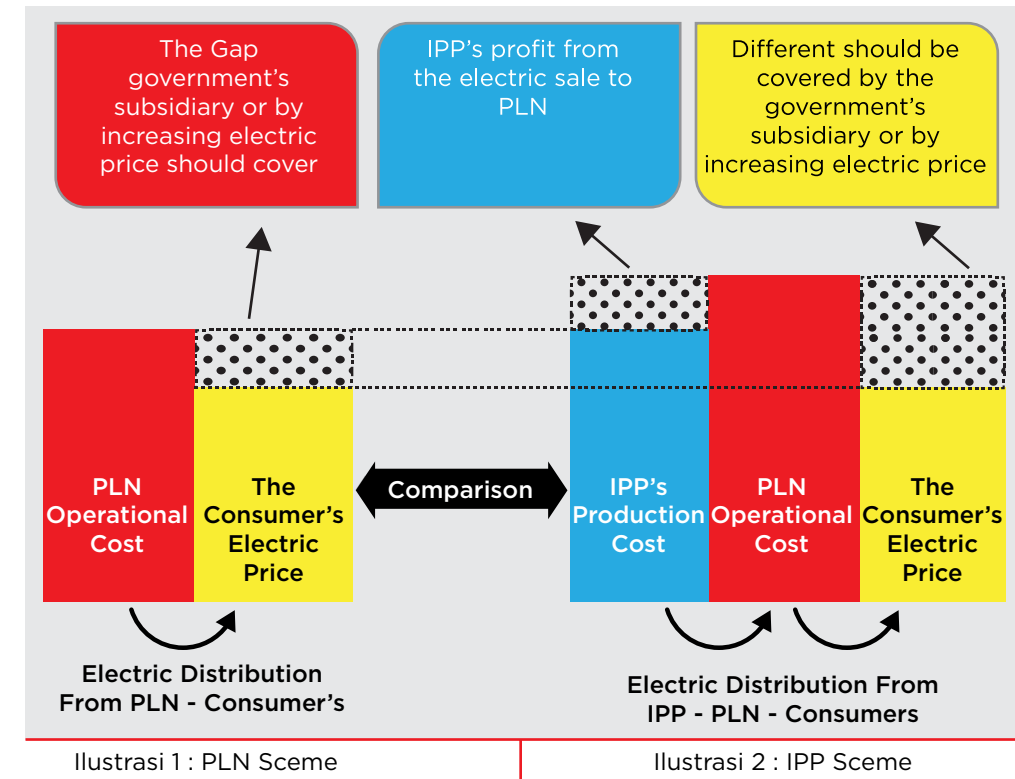
The electricity operational cost and income, from 2010 to 2018, had significantly increased. As the electric operational cost was higher than its income²⁶ it caused difference cost considered as loss before being subsidized.

The cost difference started to decrease between 2015 to 2018 that shown PLN's lower loss. The higher operational income from the increasing electricity price to customers covered the loss. At the same time, the subsidy of government had been eliminated from 2015 to 2018, to decrease the burden of state budget.

In general, the electricity cost difference would be covered by the government through giving subsidy and compensation. However, the government could decrease the subsidy whenever the state budget is not stable or other factors that could affect state finance. In 2015, the government's subsidy was cut 43% as of IDR 99.3 trillion (USD 7.1 billion), causing the unbalance of PLN's profit with continually operational cost increased. (see table 5). In this case, electricity pricing for consumers is the most vulnerable variable to increase for avoiding PLN loss.

²⁶ Operational cost in PLN 2019 Financial Report consists of electricity purchase and private rent, fuel and oil, maintenance, asset depreciation, employee, and so on.

Figure 6. Illustration of Operational cost of electricity trade under PLN scheme and IPP



The big capital PLN needed to run acceleration programs, raised the electricity's price. The programs are FTP I (10.000 MW), FTP 2 (17.000 MW) and 35,000 MW. Besides, PLN should spend a lot of money to purchase electricity from IPP which is more expensive than the private production cost in FTP 2 and 35,000 MW program. The comparison of sale electricity price and in PLN's scheme or IPP's can be illustrated in the following picture.

The above Illustration describes how the electricity production of PLN, which has been distributed to consumers directly in illustration 1. Meanwhile, illustration 2 explains the IPP scheme, in which the private sector produces the electricity that PLN purchased and resold to consumers.

Under PLN scheme, PLN produces its own electricity in a standard production cost and sells to consumers directly. However, the IPP scheme has 2 steps of electricity distribution to the consumers. These two-steps indicate profit for the seller although the standard production cost is similar or equal to PLN's. The first distributor is IPP, while PLN is the second one. Unfortunately, it is the IPP (private sector) that will get profit because PLN buys electricity at a higher

price than IPP's electricity production cost. Meanwhile, PLN has a responsibility to distribute electricity to consumers at an affordable price that is lower than the operational cost.

In other words, the electricity cost production from buying private electricity when produced under IPP scheme is higher compared to PLN electricity production. However, the PLN scheme does not necessarily mean a better solution because PLN, with the budget limitations, needs loan to produce electricity. Therefore, BUMN/ SOE (State Owned Enterprise) has to endure debts and loan interest that should be paid annually according to the applicable tenor.

Based on the illustration above, both schemes (PLN and IPP) have an equal risk of electricity production cost increase that affects PLN's finance, state budget, and electricity pricing increase. It seems the electricity project has been forced to be implemented especially in regions that have many electricity reserves such as Java Island.²⁷ However, the main factors of BPP, such as average coal and crude oil price have decreasing incline trend in 2010 - 2018, BPP follow to decrease.

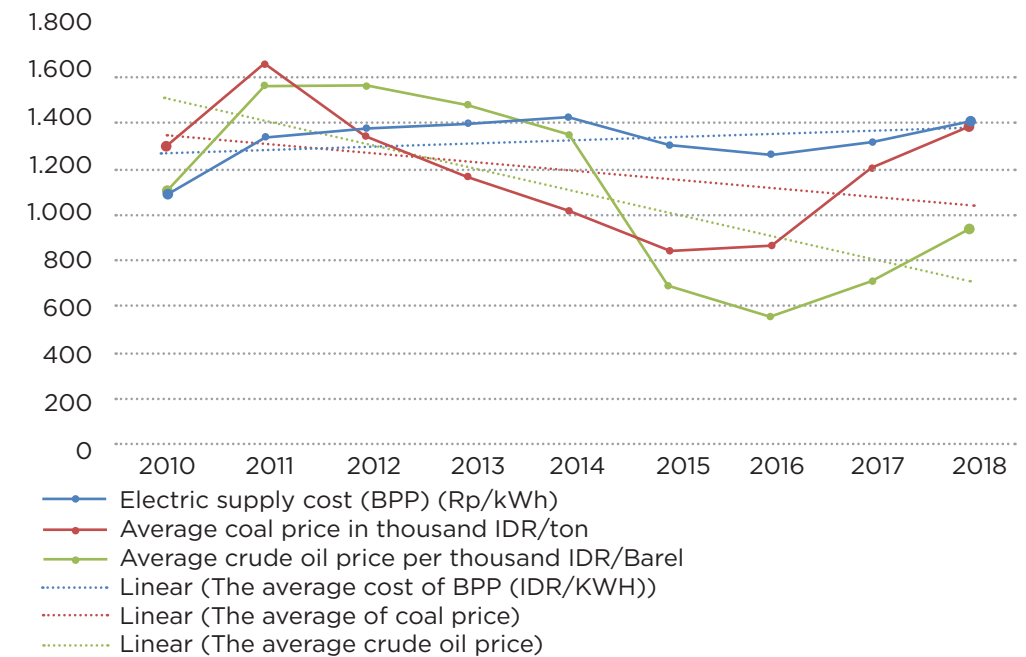
Table 7. Comparison among average electricity supply cost, average coal price, and crude oil price

Year	The average Major Cost of Electric Supply (BPP) (Rp/kWh) (*)	The coal average price (USD/ ton)	The coal average price in thousand IDR/ton (**)	The crude oil average price USD/ Barel	The crude oil average price in thousand IDR/barrel (***)
2010	1.089	91,74	1.284,36	79,41	1.111,79
2011	1.351	118,4	1.657,60	111,55	1.561,68
2012	1.374	95,50	1.337,00	111,89	1.566,53
2013	1.399	82,90	1.160,60	105,76	1.480,68
2014	1.420	72,60	1.016,40	96,51	1.351,18
2015	1.300	60,10	841,40	49,2	688,85
2016	1.265	61,80	865,20	40,16	562,26
2017	1.318	85,90	1.202,60	51,17	716,38
2018	1.406	98,96	1.385,44	67,47	944,52

Source : (*) Statistik PLN, 2018
 (**) Average Coal Price for USD/Ton conversion to IDR (IDR 14,000/USD)
 (***) Average Price of USD Crude Oil/Barrels conversion to rupiah (IDR 14,000/USD)

27 Supply Major Cost (BPP) is PLN's electric supply cost in electric power plant, not including electric distribution cost

Figure 7. The Comparison of BPP to the average of coal and crude oil's price



Source : The Processed PLN's Statistic 2018 Data & The the average of coal and crude oil's price

Coal and crude oil prices are significant indicators in the production process affecting electric supply cost (BPP) because coal is a dominant fuel in the electric power plant in Indonesia and crude oil affects transportation costs to transport the fuel to the electric power plant. Nevertheless, the decreasing trend in the price of both primary energies does not automatically translate into decreasing electricity supply cost. The other factors, exchange rate ratio and loan burdens, contribute to the average electricity supply cost increase. The other additional factor is the profit of IPP's electricity burdened to PLN in which purchase fee is certainly higher than IPP' electricity production cost.

B. ENGINEERING PROCUREMENT CONSTRUCTION (EPC)

Private sector does not only participate as the owner of the power plant under IPP scheme but is also involved in contract agreement Engineering Procurement Construction (EPC) that PT. PLN proposed in public bidding. Construction companies executed the EPC to start technical steps in designing an electric power plant project, materials supply, the construction process, production and maintenance. The mechanism has been regulated in MoI (Ministry of Industry) Regulation

No.54 year 2012 on the Guidelines for the Use of Domestic Products in the Construction of Electricity Infrastructure

This regulation controls the restriction of foreign enterprise's EPC by making an obligation to involve national consortium or has cooperation with national EPC. A power plant project can only be completely given to national EPC company when the power plant capacity is no more than 135 MW. When the capacity exceeds the 135 MW, foreign company is permitted if it has a national EPC company as partner. EPC has been implemented as regulated in MoI Regulation No.54 year 2012 as follows:

Table 8. Mandates, tasks, and function of the national and foreign construction company as executor of coal-fired power plant EPC projects

The Capacity per Unit	National EPC	Foreign EPC
< 135 MW	100% The Coordinator and executive of the Project	X
> 135 MW	100% the coordinators and executive of the project or can be implemented by cooperating with foreign companies and responsibility sharing managed by joint coordinator.	Foreign Companies can be involved with national consortium companies by distributing responsibility that managed by the coordinator of the joint project.
	The IPC will be given to a foreign company if the national company cannot execute it but still involve the national company with a responsibility managed by the coordinator or joint project	The foreign company can execute EPC power plant but should involve national company managed by the coordinator of the joint project

Source : Industry Ministry Regulation Number 54/ 2012.

Nowadays, the investments of China have dominated the Indonesian electricity sector. Chinese companies have not only taken a role owner (IPP) a lot of PLTU but also as EPC. Below is the list of PLTUs and their contractors.

Table 9. Chinese company involved as contractors of coal-fired power plants.

Company's Name	PLTU
China National Electric Engineering Company (CNEEC)	PLTU Indramayu PLTU Tanjung Awar-awar PLTU Sumsel-5 PLTU Banjarsari
Shandong Electric Power Construction Corporation III (SEPCO III)	PLTU Muara Jawa PLTU di Singkawang, Kalbar PLTU Kalbar-1
China National Technical Import and Export Corporation (CNTIC)	PLTU Adipala Unit 1 PLTU Teluk Sirih unit 1 & 2
Shangdong Machinery I&E Group Crop.	PLTU Babel-4 PLTU Kepri Unit 1 & 2
Power Construction Corporation of China	PLTU Bengkulu
Hubei Hongyuan Power Engineering Co Ltd	PLTU Barru Unit 1 & 2 PLTU Tenayan Raya unit 1 & 2
China Huadian Engineering Corporation Ltd	PLTU Celukan Bawang PLTU MT Riau-1 Unit 1 & 2
China Machinery Engineering Corporation (CMEC)	PLTU Suralaya Baru unit 1
China Nuclear Group Engineering Corporation (CNEC)	PLTU Jawa-7
Dongfang Electric Corporation Ltd	PLTU Kalselteng-1
China Shenhua Overseas Development and Investment Co, Ltd.	PLTU Kaltim-5

Company's Name	PLTU
Hunan Electric Power Construction	PLTU Kaltim Teluk Balikpapan Unit 1 & 2
China Energy Engineering Corporation	PLTU Cilacap Adipala Unit 3
Chengda Engineering Company of Chengdu	PLTU Cilacap Source Unit 1 & 2 PLTU Jawa-8 (Cilacap Source Unit 4) PLTU Punagaya Unit 1-4
Jiangxi Jianglian International Engineering Co, Ltd.	PLTU Kendari-3 Unit 1 & 2
Shangdong Electric Power Construction	PLTU Ketapang Unit 1 & 2
Chengda Engineering Corporation	PLTU Labuan Unit 1 & 2
China Huadian Hongkong Company	PLTU Sumsel-8 PLTU Bangko Tengah Unit 1-4
Shangdong Electric Power Engineering	PLTU Sumsel-7 Unit 1 & 2
Sinohydro Corporation Limited	PLTU Nagan Raya Unit 1 & 2 PLTU Sulut-3
China Datang Overseas Investment	PLTU Nagan Raya Unit 3 & 4 PLTU Pangkalan Susu Unit 3 & 4
Hubei Second Electric Power Construction Co	PLTU Pacitan Unit 1 & 2
Guangdong Power Engineering Corp	PLTU Pangkalan Susu Unit 1 & 2
China Gezouba (Group) Corporation (CGGC)	PLTU Parit Baru Unit 1-4
China Shenhua Guohua	PLTU Simpang Belimbing PLTU Sumsel-1 PLTU Jawa 7
China National Machinery Industry Corporation	PLTU BTN Dumai

Source : Source Watch, Online Media And Company's Profile.

Most of the coal-fired power plants constructed by China's Construction companies are mostly also financed and owned by China. For example, China National Energy Investment Group-Shenhua Gouhua has stock 70% in PLTU Java 7 as IPP electric power plant and China Nuclear Group Engineering Corporation (CNEC) has stock 30% in PT. The electric power plant of Java Bali (PJB), financed

by the China Development Bank.

However, many media have covered that the construction of PLTU with Chinese companies as EPC caused crisis. For example, PLTU Indramayu 1 with 3 x 330 MW capacity which officially operated in 2011 weakened the economy of the local community. The fishermen caught fewer fish as the impact of water pollution that decrease their income drastically. Besides, the local citizen loses their job as the impact of productive land acquisition which previously supported their life.²⁸

In North Sumatera, during the construction of PLTU Pangkalan Susu unit 3 and 4, 1 worker died and 5 workers injured.²⁹ The workers became victims of an occupational accident in dock construction. The failure in the construction of PT Pangkalan Susu units 3 and 4 construction were alleged to cause the collapse. A similar occupational accident had ever happened before in 2018 that caused a foreign worker death.

PLTU Pangkalan Susu unit 3 and 4 with 2 x 200 MW capacity is the expansion project of 2 former units that had operated. The project of PLTU base Susu units 3 and 4 are vulnerable to damage because of its frequent accident histories. In 2017, the boiler of PLTU Pangkalan Susu units 3 and 4 exploded and injured 9 workers.³⁰

²⁸ <http://www.gresnews.com/berita/ekonomi/103171-proyek-pltu-indramayu-ii-dihadang-warga/> (retrieved May 15, 2019 at 14.31 Western Indonesian Time)

²⁹ http://www.medanbisnisdaily.com/news/online/read/2019/05/18/75634/galang_dermaga_pltu_pangkalan_susu_robok_1_meninggal_5_luka_luka/ (retrieved July 11, 2019 at 11.12 Western Indonesian Time)

³⁰ <https://news.metro24jam.com/read/2017/04/10/23672/boiler-pltu-unit-3-4-pangkalan-susu-meledak-9-pekerja-luka-luka> (retrieved July 15, 2019 at 13.52 Western Indonesian Time)



CHAPTER III

CHINA'S ROLE AS CREDITOR IN ELECTRICITY PROGRAM

Findings:

There is a tendency of high interest rates from China's funding agency from FTP1 to FTP

Most planned PLTUs in FTP1 and FTP 2 program would be transferred to 35,000 MW program because of land acquisition and funding problems. Besides, around 2,187 MW (6,17%) PLTU in 35.000 MW has not yet been allocated nor has not signed PPA's contract.

Indonesia started to focus on constructing coal-fired power plant after decreasing oil production. To meet domestic oil demand, Indonesia became oil net importer since 2004 that increased production cost to produce electricity

For the solution, the state chose coal as a priority fuel because of its low price to reduce production cost and produced electricity efficiently. Unfortunately, the shift of crude oil to coal to fuel electricity caused new environmental problems. The increasing coal consumption for electricity correlates with the decreasing of productive lands for subsistent plantation or collective farming and contribute deforestation

The decrease of crude oil to coal had happened in the electric acceleration program phase 1 (FTP1) in 2006, often referred as 10,000 MW with all plants were fueled by coal and owned by PT PLN.

A. FAST TRACK PROGRAM I (FTP 1)

The government mandated PLN to operate the electric development acceleration program phase 1 (FTP1) by releasing Presidential Decree Number 71/ 2006 Assignment to PT PLN (Persero) To Perform Accelerated Development of Coal-Fired Power Plant with Capacities 10,000 MW

This program had debt about USD 6.4 billion or IDR 90.6 trillion³¹ guaranteed by the government, in this case was Finance Ministry of the Indonesian Republic as President Decree Number 91/ 2007. PLN allocated the loan from the bank to fund 85% of EPC. However, 61% of those loans were from Chinese banks. They are Bank of China, China Development Bank, and Export-Import Bank of China. Meanwhile, the rest were from domestic banks.

Table 10. List of banks as creditors of FTP 1 Project

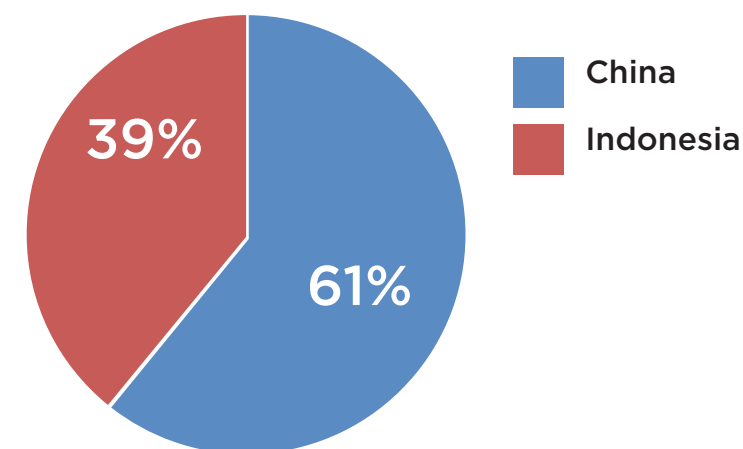
The Lenders	Maximum Facility (Thousand USD)
China	55.143.620
Bank of China	5.178.240
Bank of China Limited	14.621.600
Barclays Capital, The Investment / Banking Division of Barclays Bank PLC dan China Development Bank	3.647.940
China Development Bank	10.620.960
The Export-Import Bank of China	21.074.880
Indonesia	35.457.100
Bank Bukopin	2.667.840
Bank Central Asia	3.024.840
Bank DKI	6.996.920
Bank Mandiri	1.922.480
Bank Mega	5.983.740
Bank Negara Indonesia	7.652.540
Bank Rakyat Indonesia	7.208.740
Grand Total	90.600.720

In Thousand USD

Source: The processed PLN's Finance Report 2019.

³¹ The amount of IDR 90 trillion or USD 6.4 billion was calculated from domestic bank debt in IDR added with the loan from Chinese banks converted to IDR (IDR 14,000 per US\$)

Figure 8. PLN's Loan Composition in FTP 1 Project



Source : Laporan Keuangan PLN 2019

The interests of the debt PLN should pay consist of flat and floating interest. For domestic bank, the floating rate for the loan was based on JIBOR while for Chinese bank LIBOR³² The flat rate was added to the floating rate. The result from the counting of interest based on loan type given by the Government Guarantee scheme in FTP1 program came as follows.

Table 11. Composition of loan interest that PLN should pay in 2018

Lender	Interest in Rupiah
China	2.665.758,480
Bank of China	249.411,120
Bank of China Limited	576.408,420
Barclays Capital, The Investment / Banking Division of Barclays Bank PLC	210.506,520
China Development Bank	677.131,980
The Export-Import Bank of China	952.300,440
Indonesia	2.686.725,049
Bank Bukopin	187.911,751
Bank Central Asia	152.176,021
Bank DKI	563.590,493
Bank Mandiri	123.914,367

³² JIBOR, stands for Jakarta Interbank Offered Rate, is a floating rate based on money market and Indonesian central bank or Bank Indonesia (BI). JIBOR is used as a reference to determine loan interest, financial instrument pricing, and financial instrument tool evaluation with some tenors including overnight, 1 week, 1 month, 3 months, 6 months, and 12 months.

Lender	Interest in Rupiah
Bank Mega	464.756,222
Bank Negara Indonesia	601.577,226
Bank Rakyat Indonesia	592.798,970
Grand Total	5.352.483,529

In Thousand USD

Source : Processed from PLN's Financial Report 2019.

PLN was burdened with the loan and the interest every year which should be paid every year. In 2018, there was IDR 5.35 trillion (USD 381 million) interest PLN should pay for FTP1. This amount was from flat interest added with LIBOR (interest= k% + LIBOR)³³ from the loan of China's banks about IDR 2.66 trillion (USD 189 million) which was lower from main interest added with JIBOR (interest= k% + JIBOR)³⁴ oleh bank-bank domestik sebesar Rp2,69 Triliun.

The interest may fluctuate depended on the daily fluctuation of floating rate variable (JIBOR). The China's main component interest IDR 1.28 trillion (USD 91 million) was higher than domestic main component interest of IDR 0.38 trillion (USD 27 million).

The applicable JIBOR for domestic banks from 2011 to 2019 was ranged from 4% to 11%, while average LIBOR referred to China's banks were around 0.3% to 5%. The higher the floating interest, the more money PLN should pay to lender for the interest.

In addition to the loan and burden interest, the planned program failed to be completed on time in 2009 and extended for five years. This project was delayed again until December 31, 2014, as mentioned in President Decree Number 59/ 2009. Until November 2018, the construction of Electric Acceleration Project 10,000 MW that had finished and operated commercially is about 9,647 MW and 287 MW while others are still under construction.³⁵

The delay of PLTU FTP 1 construction caused a loss in PLN. In the document of The Result of Semester II, Examination 2016 by The Audit Board of The Republic of Indonesia mentioned that 10,000 MW construction took longer time and more cost than its planned. The construction process of PLTU was out of time and caused loss of IDR 609.54 billion (USD 43 million) and USD 78.69 million. Besides, there

³³ The used LIBOR was average LIBOR in 2018 about 2.489% of 6 months tenor.

³⁴ The JIBOR used for the floating interest of domestic banks was different from each other because of its different tenor among banks. The rate applied was ranged from 5.37% to 7.4%.

³⁵ RUPTL PT PLN 2019-2028

was a waste of state budget caused by the construction expensive budget of about IDR 871.75 billion (USD 62 million) and USD 8.8 million. While other losses caused by the inattentive decision making about IDR 429.96 billion (USD 30 million) and US\$ 36.31 million .Some PLTUs did not finish its construction on time and the EPC contractors had to pay penalty decided by PLN IDR 704.87 billion (USD 50 million) and US\$ 102.26 million.

Most of the troubled projects were executed by EPC from Chinese company with financial resources from Chinese banks. Below is the list of problematic companies related to China's investments.

Table 12. List of Chinese troubled power plant in FTP 1

The name of power plant	COD	EPC	The relation with China	Scheme	Lender	Problems
PLTU west borneo 1/Parit Baru (2x100 MW)	2020	SEPCOIII and CCCC Third Harbor Consultants Co of China	The executive contractor company EPC and the project owner cooperating with PLN is from China's company. The fund's source also from Bank of China	Indonesia Power - China's Golden Concord Holdings (GCL-Poly)	Exim Bank of China US\$D 101 Million	PLTU west Borneo 1 became one of 5 power plants that waste PLN's budget about IDR 609,54 billion (USD 43,666 million) and US\$ 78,69 million to construct PLTU that did not give any advantage as its plan. This PLTU was delayed and continue again with another name PLTU Parit Baru with capacity 2 x 50 and operated in 2017. However, this project is problematic because of land acquisition, implemented by EPC China Gezhouba Group Co.Ltd - PT.Praba Indopersada

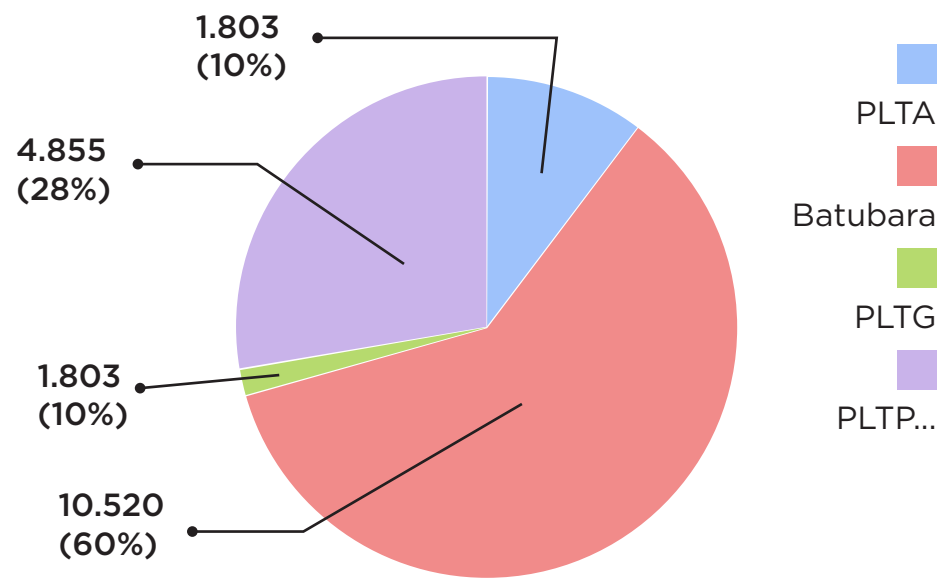
The name of power plant	COD	EPC	The relation with China	Scheme	Lender	Problems
PLTU Adipala (660 MW)	2015	China National Technical Import and Export Corporation (CNTIC)	The financial source is from China Development Bank	PLN	China Development Bank US\$ 625 Juta	The uncertainty of PLTU Adipala's land status and the access of PLTU Pangkalan Susu's path
PLTU Pangkalan Susu (2x200 MW)	2014/2015	PT. Sinohydro Corporation Limited	The financial source is from China Exim Bank	PLN	Exim Bank of China US\$ 373 Juta	
PLTU Tanjung Awar-Awar unit 2 (2x350 MW)	2012/2013	PLN cooperating with Joint Operation China National Machinery Equipment Corp (Sinomac), China National Electric Equipment Corp (CNEEC), and PT Penta Adi Samudra.	The financial source is from the Bank of China, and executive contractor company EPC from China	PLN	Bank of China US\$ 327 Juta	A fine for delayed project construction amounted to Rp74.75 billion (USD 5.3 million) and the US \$ 24.16 million

Source : Overview of 2016 Semester II Examination Results, Source Watch, and Various Online News.

B. FAST TRACK PROGRAM II (FTP 2)

In 2010, the government issued Presidential Decree Number 4 year 2010 then amended by Presidential Decree Number 48/ 2011 mandated PLN to operate the powerplant acceleration program which started to include renewable energy into the plan. The total capacity of FTP2 is about 17,428MW³⁶. The program started to involve IPP in implementing the PLTU construction project. IPP would manage 11,629 MW (67%) while PLN only 5,799 MW (33%). Although the program is focused on renewable energy development in coal-fired electric power plant made 60 percent of the program. The program that had been scheduled to be completed in 2014 is estimated to be completed in 2025. However, 8 projects with a total capacity of 755 MW (4%) already operated on December 31, 2017.

Figure 9. power plant composition of FTP2 electricity project



Source : RUPTL PT PLN 2019-2028

FTP2 project construction also relied on the budget from various financial sources with responsibility fell each project owners. The budget of PLN's electric power plant construction with a capacity of 5.799 MW was originated from the combination of state budget, two-step loan, bank's loan, and internal budget.

China contributed in giving loan to FTP2 program under Two-Step Loan based on Finance Report PLN 2019 analysis. The total of Two-Step Loan equivalent with IDR 43 billion (USD 3 billion) and Export-

³⁶ BukuProspektus-PUB-II-Tahap-1.pdf(<https://www.pln.co.id/statics/uploads/2017/10/Prospektus-PUB-II-Tahap-1.pdf>) Retrieved August 21, 2019 at 12.03 Western Indonesian Time

Import Bank of China gave 16% of the loan for PLN about IDR 7 billion (USD 498 million).³⁷

The interest of from Export-Import Bank of China was 3% + 0,35% pa for each loan . Based on this calculation, PLN should pay the interest about IDR 236 billion (USD 16.8) since 2018. The flat interest of Two-Step Loan by Export-Import Bank of China was higher than FTP1 program which was lower than 3%.

Table 13. Contribution of Chinese finance through two-step loan in 2013-2015 lending period per December 31, 2018.

Lender	In Foreign Currency (USD)	The amount (Million IDR)	The interest rate per year	Year	The conversion of Loan Interest 3% + 0,35%
China Exim Bank 1248 - US\$	96.703.626	1.399.609	3% + 0,35%	2013 - 2033	46.886,90
China Exim Bank 1260 -US\$	198.538.284	2.851.330	3% + 0,35%	2015 - 2029	95.519,56
China Exim Bank 1261- US\$	194.328.655	2.800.762	3% + 0,35%	2015 - 2029	93.825,53
Grand Total	489.570.565	7.051.701	-	-	236.231,98

Source : The processed PLN's finance report 2019.

In 2017, PLN estimated the total of investments needed in EPC contracts for PLN's electric power plant and IPP in FTP II was about USD 27,056 million to cost generator development project and about USD 408 million to cost transmission development project. On December 31, 2017,the companies withdrew USD 507million loan related to FTP II (not included IPP) to execute the construction of the FTP 2 project.³⁸,

Coal-fired power plants had dominated the FTP 2 program with 60 percent. Yet, only 26 power plants are constructed³⁹, by PLN and IPP. It indicated some PLTU in this program had bigger capacities than the average capacities of the former power plant in FTP1

Up to 2017, 17 PLN's FTP 2 power plants were constructed in which 6 of the power plants are fired power plants. The 3 of 6 them have been funded by China's banks and another one by Japan's. While 2 other

³⁷ Financial report of PLN in 2019

³⁸ Prospect Book-PUB III Phase I PT PLN, 2018

³⁹ 12 Unit PLTU

fund and PLTU's loans remained unknown as its closed information especially from Chinese banks. The researchers have sent letters to some institutions such as PLN and Coordinating Investment Board (BKPM), which only gave information on PLTU classification based on acceleration program and 35,000 MW without additional data on interests and lenders.

PLN answered the letter that stated The Officer of Information and Documentation of PLN still studied the consequences analysis to determine the type of data classification as public information.

Table 14. List of PLN power plant per December 2017 in FPT 2 program

The name of Power Plant	Province	Capacity (MW)	Fund Source	The Total of Loan (Million US\$)
PLTU Indramayu	West Java	1 x 1.000	JICA	15,2
PLTU Jawa 6	Central Java	2 x 1.000	Unavailable Information	Unavailable Information
PLTU Pangkalan Susu (3 dan 4)	North Sumatera	2 x 200	Export Import Bank of China	373
PLTU Parit Baru	West Borneo	2 x 50	Export Import Bank of China	132,2
PLTU Takalar	South Celebes	2 x 100	Export Import Bank of China	241
PLTU Lombok	West Nusa Tenggara	2 x 50	Unavailable Information	Unavailable Information

Source : Prospektus Book-PUB-III-Phase-I. PT PLN, 2018 and various online portals

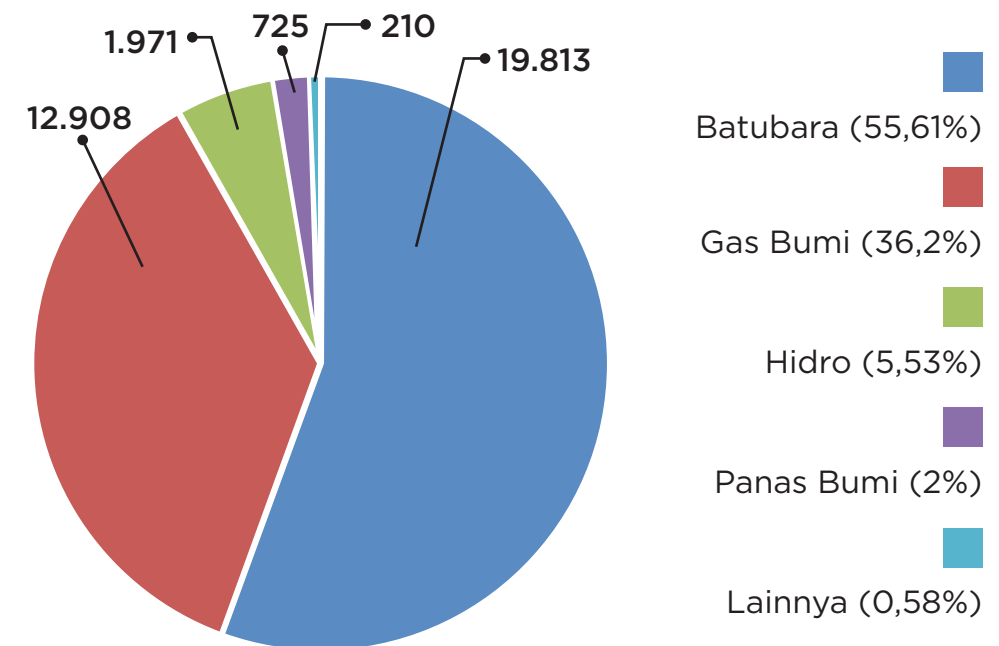
In this program, the Export-Import Bank of China is the dominant lender as the previous one in FTP 1 which funded a lot of coal-fired power plants about 35% China's total funds in FTP1.

B. 3. 35,000 MW PROGRAM

The electric power plant development in FTP I and FTP II was expected to add 108 electric power plants with total capacity 27,355 MW. After the government implemented the acceleration program which is not finished yet, the government introduced the 35,000 MW program in 2015 to obtain the target of national electrification ratio increase above 97.4% at the end of 2019.

35,000 MW program need more than IDR 1.123 trillion (USD 87 billion) financial source.⁴⁰ The private's construction of an electric power plant (IPP) will produce 26,920 MW (75.2%) of the total capacity of 35.831 MW that can ease PLN's financial burden. Meanwhile, PLN will complete the rest 8,911 MW (24.8%).⁴¹ The program still relied on coal as fuel with 55.61 percent while geothermal 2 percent, gas 36.2 percent, hydro 5.53 percent and others 0.58 percent.⁴²

Figure 10. Composition of Power Plant Fuels in the 35,000 MW Electricity Program



Source : 2017 Indonesian Electricity Book

According to its data on August 15, 2019, National Investment board (BKPM) informed that Sale and Purchase Contract (PPA) for about 33.275 MW (93.83%) of the 35,000 MW program had been signed while the rest about 2,187 MW (6.17%) had not yet signed. About IPP's 26,645 MW (100 percent) of a total of 33,275 MW had signed PPA with PLN. Meanwhile, about 2,187 MW (24.8%) power plant is still categorized as unallocated project.⁴³

The delayed constructions of some of the FTP 2 and FTP 1 program would start over in 2015. The others were included in 35,000 MW and

⁴⁰ Prospektus Book-PUB-II-Tahap-I. PT PLN, 2017

⁴¹ Ibid.

⁴² 2017 Indonesian Electricity Book

⁴³ The term Unallocated Project in RUPTL PT PLN company is a new project plan that the candidate of developer and its fund source yet to decide, can be constructed by PLN or IPP or by creating specific cooperation in which PLN does not play the role as the whole off-taker.

7,000 MW programs⁴⁴ The construction of both programs started after 2015. Below is the list of coal-fired power plants of FTP2 which were included in 35,000 MW and 7,000 MW programs.

Table 15. List of coal-fired power plant FTP1 and FTP2 included in 35,000 MW power plant and 7,000 MW

Program	PLTU's Name	Capacity (MW)	Scheme	COD
35.000 MW	PLTU Lombok (FTP 2)	2x50	PLN	2019
35.000 MW	PLTU Jawa 1 (FTP 2)	1.000	Private	2019
35.000 MW	PLTU Kassel/ Tabalong (FTP 2)	2 x 1000	Private	2019
35.000 MW	PLTU Kaltim (FTP 2)	2 x 100	Private	2019
7.000 MW	PLTU Parit Baru (FTP 2)	2 x 50	PLN	2018
7.000 MW	PLTU Punagaya/ Takalar (FTP 2)	2 x 100	PLN	2018
7.000 MW	PLTU Pangkalan Susu #3 dan 4 (FTP 2)	2 x 200	PLN	2019
7.000 MW	Belitung Baru (FTP 1)	17	PLN	2015
7.000 MW	PLTU Bima (FTP 1)	2 x 10	PLN	2015
7.000 MW	PLTU Ende (FTP 1)	7	PLN	2015
7.000 MW	PLTU Kupang (FTP 1)	16,5	PLN	2015
7.000 MW	PLTU Pangkalan Susu #1 dan 2 (FTP 1)	440	PLN	2015
7.000 MW	PLTU Pulang Pisau (FTP 1)	120	PLN	2015
7.000 MW	PLTU Riau (Amandemen) (FTP 1)	220	PLN	2015
7.000 MW	PLTU TB Karimun (FTP 1)	7	PLN	2015
7.000 MW	PLTU Tidore (FTP 1)	14	PLN	2015
7.000 MW	PLTU Lombok (FTP 1)	2 x 25	PLN	2016
7.000 MW	PLTU Pantai Kura- Kura (FTP 1)	2 x 27,5	PLN	2016
7.000 MW	PLTU Parit Baru (FTP 1)	2 x 50	PLN	2016
7.000 MW	PLTU Gorontalo	2 x 25	PLN	2017
7.000 MW	PLTU Waai (FTP 1)	2 x 15	PLN	2017

Source : The data of Investment Coordinating Board (BKPM) , 2019.

The 35,000 MW program has used internal and external fund sources. It will also use both sources. The internal fund comes from

⁴⁴ 7,000 MW program consists of FTP 1 (2.671 MW), FTP 2 (1.366 MW) dan Non FTP (3.845 MW) that commence its construction in 2015

enterprise profit. Meanwhile, the external comes from a two-step loan, government loan through investment account, domestic and internal obligation, and bank loan.

The accessible data on fund sources related to China's investment on 35,000 MW, especially coal-fired power plant, have been collected from printed and online media. Several institutions that have data on the finance did not respond to information requests until the research writing completed.

Below is the summary of several coal-fired power plants that were funded by China under 35,000 MW program :

Table 16. List of coal-fired power plant financed by Chinese banks in 35,000 MW program

PLTU	Capacity	Investor	Scheme	The Creditor of China	The total of Fund from China
PLTU Bengkulu	200	PT. Intraco Penta (30%), PowerChina (70%)	Private	Industrial and Commercial Bank of China (ICBC) dan Export-Import Bank of China	US\$ 270 Juta
PLTU Jawa 5	2 x 1000	Swasta - PT Indonesia Power	Private	China Development Bank	Unavailable Information
PLTU Jawa 7	2 x 1000	China National Energy Investment Group, 70%; PT Pembangkitan Jawa Bali (PJB), 30%	Private	China Development Bank	Unavailable Information
PLTU Kendari 3	2 x 50	PT Dian Swastatika Sentosa Tbk, in turn a subsidiary of Sinar Mas Group	Private	China Development Bank Corporation US\$ 150 Juta	US\$ 150 Juta
PLTU Sumsel 8 (Bangko Tengah)	2 x 600	China Huadian 55%, PT Bukit Asam 45%	Private	Export Import Bank of China	US\$ 1.26 Milyar

PLTU	Capacity	Investor	Scheme	The Creditor of China	The total of Fund from China
Sumsel-1	2 x 300	China Shenhua	Private	Bank of China, China Construction Bank	Unavailable Information

Source : Source Watch and various online news portal.

Some PLTU projects above have problems ranging from the beginning of the public bidding selection process to the worse impact on the environment, local community's health, industrial relation, until the economic decrease of local community around PLTU.

One of the problems was the controversial public bidding selection process in PLTU Java 5, in which China Nuclear-China Oceanwide – PJB was suspected to be the consortium securing the bidding because the consortium offered USD 0.045 per kwh or USD 0.01 cheaper than other consortium competitor. PLN canceled the bidding because PT PJB as the participant did not secure permission beforehand from PLN directors.

Besides, in Bengkulu, the environmental organization, Kanopi, argued that the Environmental Impact Analysis (AMDAL) of Bengkulu coal-fired power plant was suspicious. There was unfair compensation of growing plants during land acquisition. The nominal to pay to the local community was far below the nominal mentioned in the AMDAL document. Kanopi recorded the construction of coal-fired power plant violated the law because it contradicted The Provincial Spatial Plan of Bengkulu 2012 – 2023. Many local people have refused the construction since the very beginning.⁴⁵

The construction of coal-fired power plant as the national development program often violates the spatial plan of a province or regency. However, the local government is considered to have a deeper understanding on the spatial plan of the related area. The unsynchronized policy between the national and the local spatial plan brings bad impacts on the related region, especially local community around the coal-fired power plant. Moreover, the local people were not involved in designing the spatial plan of region and the PLTU construction planning in their village.

Some facilities, such as land procurement, to develop the national projects need to be concerned. The government conducted land acquisition for infrastructure construction in the name of public

⁴⁵ <https://bengkuluekspress.com/kanopi-kupas-amdal-pltu/> (retrieved October 17, 2019 at 14.23 Western Indonesian Time)

interest. Unfortunately, the land acquisition is protected by Law No. 2 year 2012 on Land Procurement for the Public Interest. Furthermore, the government released Presidential Regulation no 71 year 2012 on Land Acquisition for the Public Interest.

The regulation becomes the tool to acquire land in the government's perspective which is vulnerable to cause a forced eviction to the community whose lands are targeted for the infrastructure construction although they refuse to sell their lands.

In Java, many local people protested the construction of PLTU Java 7 when President Joko Widodo officially commenced the project. Traditional fisherman had already suffered the effect. The barge mobility to bring construction materials of the coal-fired power plant disturbed the fish and moved them to other areas. Therefore, the fishermen changed their fishing location. This change hiked the operational cost of the fishermen. They cost more on the fuel as the fishing location was getting further and the lighting cost as well. The abstain of lighting during the night would risk them to collide against the barge that brought construction materials of the coal-fired power plant. Meanwhile, one of the traditional fishermen admitted that they caught less fish because the trash made the sea dirty.⁴⁶

Besides causing the environmental and social impact, 35,000 MW PLTU project caused inevitable financial loss as well. Moreover, it is said the PLN budget was weakening from the electricity megaprojects. The Finance Ministry – Sri Mulyani responded to this issue by sending The Financial Ministry Letter Number S-781/MK.08/2017 on September 19th, 2017 to The Ministry of Energy and Mineral Resource and BUMN ministry. In the letter contained her worry of PLN's financial condition of the 35,000 MW program. Below is the content of the letter collected from the media.⁴⁷

The instability of PLN's financial performance certainly raised concern about the future risk of Indonesia's electric sector.

C. THE CONTRADICTION OF COAL REDUCTION COMMITMENT TO THE SUPPORT OF COAL COMPANY INVESTMENT AND CHINA'S FUND

Some of China's companies have committed to decrease its business portfolio in the coal sector. Since the CBRC (China Bank Regulatory

⁴⁶ The interview with fishermen around PLTU on January 2019.

⁴⁷ <https://www.tribunnews.com/bisnis/2017/09/27/kementerian-bumn-tak-banyak-bicara-tanggapi-surat-menkeu-soal-potensi-gagal-bayar-utang-pln> (retrieved October 17th at 17.46 Western Indonesian Time)

Commission) launched Green Credit from 2012 to June 2016, the Green Credit mechanism was reported to save fossil fuel use equal to 187 tons of coal standard. On the contrary, China has become one of the fund pillars on coal-based electric programs in Indonesia since FTP 1 to 35,000 MW.

Besides, some of the project's stocks owned by Suohydro, PLTU Sulut 3, which was financed by PT SMI, an Indonesian Infrastructure Fund Agency accredited to receive funds from Green Climate Fund.

China's banks have financed many coal-fired power plant projects since the FTP 1 program although some of them, such as Bank of China, Export-Import Bank of China dan China Development Bank, has committed to run low-carbon business for encouraging reduction of greenhouse effects. The Export-Import Bank of China is the biggest lender of three banks involved in FTP 1 and FTP 2 while the biggest lender of 35,000 programs is China Development Bank

Regarding the state budget risk management from PLN's financial condition in the context of reaching the target of electric infrastructure supply(35 GW Program), we can state as follows:

- *PLN's performance seen in the financial aspect has been continually weakening as its increasing obligation to pay the loan principal and interest which cannot be supported by the increasing nett from the operation. In these last 3 years, the ministry of finance should propose the waiver to PLN's lender as the impact of violation against the obligation to obtain PLN's covenant in the loan agreement, to avoid cross-default on PLN's loan which the government had guaranteed.*
- *PLN's limited internal fund to invest in implementing government assignments affected PLN's dependency on fulfilling its investment needs from loan including bank credit investment loan, obligation release, or international finance agencies.*
- *Based on the profile of PLN's debt maturity, PLN obliged to pay principal and interest loan was predicted to increase in the next years. Electric sales growth did not fulfill the target as the government had published the policy to prevent rising price of electricity increases PLN 's risk of default.*
- *Considering that PLN's main income are from electric price paid by customers and electric subsidiary from government, the policy of eliminating electric price rising should be supported by publishing regulation to encourage electric cost production decrease. Besides, we hope you can encourage PLN to have efficiency on operational cost (especially on primary energy) to anticipate default risk increase in the future.*

- *Regarding with the 35 GW assignment, we argue that we need target adjustment on PLN's investment completion by considering PLN's incapability to obtain investment funds from operations cash flow, the high of outlook debt maturity profile, and the government's policy on electric price, electric subsidiary, and state capital participation (PMN). It is necessary to take care of the fiscal sustainability of the state budget and PLN's finance condition as one of the sources of government's fiscal risks*

Since 2017, the Export-Import Bank of China is one of China's domestic banks that was obliged to follow Green Credit Strategy to encourage Green Credit Business improvement and controlled the risk of environmental and social damage

Green Credit Guidelines has been launched by the China Bank Regulatory Commission (CRBC) to encourage green low carbon economic scheme.⁴⁸

In fact, domestic banks of China, especially the Export-Import Bank of China, still fund the coal industry project after 2012. Coal has been the biggest contributors of greenhouse effects in energy sector of Indonesia. The energy sector is the biggest contributor to greenhouse gas emissions as well, about 562,244 or 49% of national GRK in 2017.⁴⁹

Besides, China Development Bank is one of the electric energy sector's lenders in Indonesia and in the process of encouraging environmental conservation as its commitment to Green Credit. In China, this bank had some environmental recovery programs, including watershed and city areas. The other similar programs were 10 projects of the main energy-saving, clean energy, industrial and circular economy pollution control. At the end of June 2015, the outstanding CDB green loan balance was RMB 1.5 trillion (USD 2014) and made it the largest green credit provider among Chinese banks⁵⁰. However, in Indonesia, the bank still provides credit for coal power plants, especially in FTP 1 and the largest at 35,000 MW.

Bank of China is one of the dominant lenders for PLTU in Indonesia, including PLTU Mouth - Mining that needs more expensive cost constructions than regular Thermal PLTU. PLTU Mouth - Mining has contributed economic value to the low calorie of coal that nowadays

48 Green Credit Guideliness - Translation by International Finance Cooperation accessed from <http://www.cbrc.gov.cn/chinese/files/2012/E9F158AD3884481DBE005DFBF0D99C45.doc> on October 10, 2019.

49 Statistic in 2018. Directorate General of Climate Change Control, Ministry of Environment and Forestry, Directorate General of Climate Change Control 2019.

50 *Sustainability Report 2018. China Development Bank-Global Compact Participant, 2018*

is uncompetitive in the market. Although it is more efficient and economist, the damage impact is multiplied and caused a bigger loss to citizen's space of life and environmental damage that received less attention, as explained in Chapter IV.



INDONESIAN
GOVERNMENT
CONTINUALLY
DEVELOPS
COAL-FIRED
POWER PLANT
WHEN PUBLIC
RESISTANCE
AGAINST ITS
DESTRUCTIVE
FORCE TO THE
ENVIRONMENT
GETS STRONGER.



CHAPTER IV

FIELD FINDINGS: CHINA'S INVESTMENT AND THE ENTAILING ECOLOGICAL-SOCIAL CRISIS

Findings :

- The mining activities of Musi Prima Coal which supplied coal to mouth-mining PLTU Simpang Belimbing caused annual flooding from the impact of Penimur river hoarding. The affected people suffered material loss and around 15 hectares of plantation could not be planted after being flooded.
- -The location of PLTU Simpang Belimbing and the coal mining supplier were too close to the settlement and plantation causing coal dust pollution and disturbing the welfare of the neighbourhood.
- -Some small rivers in PLTU Mulut Tambang South Sumatera 1 were closed and caused some land that has not been acquired to be flooded
- -The workers in some parts of PLTU were paid under provincial minimum wage and the overtime wage was not paid according to the regulation. Daily workers were not protected by worker social and health security in PLTU South Sumatera 1 and South Sumatera 8 and did not have working contracts. -When they suffered occupational injury and disease, the workers had to cover the costs themselves

In the last 13 years, the electricity sector has become one of the government's priority programs which had been promoted since the release of Fast Track Program (FTP) 1 (9,934 MW) in 2006 and FTP 2 (17,428 MW) in 2010. Both programs were implemented during SBY's two periods of presidency (2004 -2014). Then, in 2015, the electricity program was launched again with a bigger capacity. Jokowi - JK regime named the new electricity program 35,000 MW program with 35,831 MW capacity.⁵¹ It has been proceeding until now.

A huge spatial reorganization has been happening in several places because the increase of electricity capacity of about 63,012 MW from the West End of Indonesia in Sumatra to Papua. Certainly, the reorganization changed the landscape, the function of land, and a shift from agrarian society to industrial society, especially in regions which became focus of coal-fired power plant and coal-mining development.

This chapter will explain the field findings in three coal-fired power plants in South Sumatera. The provinces, mentioned as energy barn, had been and would be developed as research samples to highlight some aspects such as environment, social, worker system, health, and economy of mining activities and coal-fired power plant operation (PLTU).

A. PLTU MINE-MOUTH OF THE SIMPANG BELIMBING

PLTU Simpang Belimbing was constructed in 2008 and operated in 2011. This PLTU is one of Mine-Mouth Coal-Fired Power Plants located in Gunung Raja village, village 2, district Rambang Dangku with capacity of 2 x 150 MW. The power plant was sponsored by PT. Guo Hua Musi Makmur Energy (PT. GH EMM) with stock from China Shenhua (70%) and PT Energy Musi Makmur (30%) and spent about USD 213 million, most of the loan funds from China Development Bank and The Export Import Bank of China.

Figure 11. The location of Mine-mouth PLTU of the Simpang Belimbing in the middle of Settlements and Plantations



Coal to fuel PLTU Simpang Belimbing came from the mining license area of PT. Musi Prima Coal (PT. MPC). The license was released by the regent based on The Decision Letter of Regent Muara Enim number 430/KPTS/Tamben 2010 about the Agreement of Adjustment Authority of Coal Mining Exploitation Become License of Coal Product Operation mining to PT. Musi Prima Coal.

However, since the shift of authority in releasing the license from the authority of district government to provincial government, the IUP of PT Musi Prima Coal had been revised and released by the Government of South Sumatera number 32/I/IUP/PMA/2018. The stock of mining company was owned by 3 companies and 1 individual. They are PT Bara Musi Makmur (Indonesia) about 20%, View Sino Group LTD. (Hongkong) about 29%, Fine Diamond International LTD (Hongkong) about 30% and Henri (Indonesia) about 31%.⁵²

I. A. SIMPANG BELIMBING MINE-MOUTH COAL-FIRED POWER PLANT

a. Compensation as a forced solution for the annual flood disaster

Unlike the thermal coal-fired power plant, the mine-mouth plant is generally constructed in one package with the mining activities. They are located near each other to minimize the production cost of fuel delivery to PLTU to produce electricity. The presence of both industries in one region cause multiplied damages which are more severe.

In Gunung Raja village, the PLTU was located in Village 2, while the activities of coal mining are in village 3. The distance between the two villages is about 2 kilometers, passing through villager's plantations and settlements. The dredging location of the PT Musi Prima Coal mining, which is located in the region of village 3, Gunung Raja village, causes annual flood since 2016 as the impact of Penimur river flow manipulation in coal mining location beside Gunung Raja village. The manipulation of river flow changed the river path. The company built water tunnel and pump system using pipe to be drained into two river paths, which are Lematang river and Keruh River. In fact, this method cannot completely manage the stream which flows from upstream to downstream, flooding settlements and plantations.

⁵² <https://modi.minerba.esdm.go.id/portal/detailPerusahaan5336> (diakses tanggal 27 Juli 2019 Pukul 00.17)

Figure 12. The manipulation of Penimur River Flow using pump

(the water manipulation of penimur river using pipe eliminated the natural ecosystem of the river. Besides, it causes annual floods in the region of village 3 which causes loss for the local community every year because the flood happens repeatedly)

Source : The documentation of Gunung Raja local community.

The flood caused material loss because it inundated the productive rubber plantation owned by 20 families with a total area of about 30 hectare. Each family owned about 1-2 hectare of land. Until now, at least about 15 hectare of rubber plantation can no longer be productive because the plantation is regularly flooded.

The local community cannot harvest the productive rubber trees because the activities of rubber tapping cannot be conducted during the rain or when the rubber rod is flooded. Some rubber rods died because the rods were flooded for too long. Normally, in one whole day, the production of rubber can reach 5 kilogram/ hectare.

Beside the plantation, local people who live around Penimur River has to take refuge in other place as the flood annually inundates 15 houses with 1-1.5 meter depth of water. The flooding lasts for a few days; depending on the rainfall. The longer the rain duration, the longer it takes for the flood to recede as the water volume increases even more. Much household furniture was damaged such as TVs and refrigerators, because people had no time to evacuate them.

Figure 13. Changing land function from productive rubber plantation into unproductive land

The ex- rubber plantation about 15 hectare which was not used again by the villagers because of the flood caused the dead of rubber plantation. This flood had been happened since the shift of Penimur River that caused the river overflowed.

Source : The document of Gunung Raja's local community.

62 villagers of Gunung Raja organized a demonstration on 19th of March 2017 because their properties were damaged. They demanded compensation from the company. As a result, the company compensated the families, in amounts commensurate with the family's loss. However, the company only paid compensations for one year publicly. Since the flood is an annual event, the local community in Village 3 continues to suffer.

One of the affected residents, Maryam (38 years old) has been staying in Village 3 with her family since 2000. Maryam had been staying in her house for two decades but only in the last three years has she experienced the flooding of her home. Before the company operated, the villagers used Panimur River path as a water source to take a bath and do laundry. However, the company changed everything. Now, the river beside her home continually overflows every year during heavy rain.

During the floods, Maryam experienced itchy skin. The villagers no longer use the river for bathing and laundry, since it now flows very slowly due to closure and manipulation flow which use a smaller volume of pump pipe. This has deteriorated the ecosystem of Penimur River so that the water is not fresh enough to be used as a water source. Moreover, now Penimur River is full of trash as the local community does not use the river anymore. Instead, they start using

boreholes and rainwater for daily life. The ecosystem of Penimur River is now deteriorated and no longer proper to be used as a water source. However, the activities of fishing still remain, but not as much as before when Penimur River was so valuable for the villagers of Gunung Raja local community in Village 3.

Maryam had once received IDR 40 million (USD 2,860) as compensation from the company because her house and furniture were damaged by the flood. Her economic activities were paralyzed. The compensation was given openly for only one time. After that, every year the villagers only received Rp 1 million (USD 71) to 2 million (USD 142). The amounts were far from equate. As the next compensations were given privately, some locals received compensation and others did not. This caused social conflicts among the local community because of the differing amounts of compensation. The compensation itself does not solve the problem except the river normalization can be done because these annual disasters caused by the operation of the mines and the changing of the river function.

b. Industrial Disaster: Coal Dust

Not only floods, but coal dust has also become a health threat for the local community. The PLTU operates for 24 hours, releasing dust and smoke into the air. Hapisol (male, 75) and his wife Juhana (70s) live near the mine-mouth PLTU Simpang Belimbing, located in Gunung Raja Village. His house is only separated by a dirt street from the plantation right beside a mining site supplying coal to PLTU. The coal dust covering his house resulted in his plate and cups filling up with black coal dust in only three days, if there was no rain.

In his wooden house, they live with their grandchildren, Meisa (11) who was in the 6th grade of primary school and Oki Anggraini 3rd grade of Junior High School. The house environment is not suitable to live in due to the coal dusts. The house is located near the PLTU and coal mining. Hapisol and Juhana complained about this dirty dust that results in blurred. In addition, they should wear masks to prevent them from getting out of breath when they tap the rubber in the plantation directly borders with PLTU gate.

Figure 14. PLTU's location which is very close to the villagers' settlement and plantation causing coal dust pollution



Soft coal dust covered the surface of leaves in Hapisol's rubber plantation	Hapisol tapped rubber and wore mask to avoid coal dust
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Pictures Hapisol with his wife and grandchildren in PLTU Simpang Belimbing which is very near his house.

Source : The field documentation of Gunung Raja village, 2019.

Dust has been a serious problem for the local community since the PLTU started operations and the mining company excavated the coal in Gunung Raja Village. One of the members of the Prosperous Earth Forum (Forum Bumi Sejahtera) documented how these dusts settled

in a water tank in just less than 2 weeks. This water tank he used as the container for the rain to wash his car once in two weeks. In the bed of the tank, black dust particles suspected to be coal dust can be seen. The color is different from the soil dust which is red brown. The trucks containing coal dust residue of the coal-fired power plant pass the settlement street in Village 3. The trucks are only covered by tarp that leaves small slits that permit the coal to escape.

The exposure of coal dust in the long term potentially causes damage in all of the organ system, obstructs the physical growth, and can ultimately cause death. One of the most dangerous pollutants was Particulate Exposure Matter (PM) 2.5 that can cause blood lipid profile and lung dysfunction, total cholesterol level, and triglycerida.⁵³ Besides, coal dust also causes Pneumokoniosis. International Labour Organization (ILO) defined pneumokoniosis as one of the abnormalities that occurs as the impact of dust buildup in the lung which causes tissue to react upon the dust. The main reaction came up as the result of dust exposure in lung is fibrosis. Some results of research explained that coal dust exposure oftenly could cause ISPA (Acute respiratory infections)⁵⁴.

c. The Decrease of Rubber Plantation Productivity

Heri Sahirupian (48), owner of a rubber plantation around PLTU Simpang Belimbing, which is only 6 meter away bordered directly with the land owned by PT. GM EMM. His rubber rods looked black as they were covered with dust from the impacts of the mining and the PLTU. Consequently, the rubber trees became dry. The productivity of rubber could reach 250 -300 kg/ month for each hectare when conditions were normal. After the dust became the daily routine for him and other rubber peasants around PLTU, the rubber productivity dropped to 150 - 200kg/ month for each hectare. The dust clogged the path of the rubber latex's flow in the tapping process resulting in the reduced volume.

The facility of coal storage PLTU had burned that caused a more severe dust coverage than before on the land and its rubber plantation. Hence, the company had ever given compensation of about IDR 300 million (USD 21,449) to allow for the decreased production. The calculation was based on the mutual agreement with the company

⁵³ Hastiti, Laksita Ri. "PM2,5 exposure and impaired pulmonary function and blood lipid profile levels (HDL, LDL, total cholesterol, triglycerides) in employees of PT X South Kalimantan in 2012", Public Health Journal, Faculty of Public Health, University of Indonesia, Depok; 2013.

⁵⁴ Hafsari, Duta. "Analysis of Risk Factors In Acute Respiratory Infections Of Field Workers In Bukit Asam Company Ltd. Tarahan Port Unit Lampung" Jurnal Fakultas Kedokteran, Bandar Lampung University, Lampung ; 2016. The research with responden from field workers of PT Bukit Asam (Persero) Tbk unit Tarahan Lampung Port concluded that 26% suffered lung acute respiratory infections because of the coal dust.

according to the loss that Heri experienced from the failure of rubber production. This compensation was only for the plantation growing, not for land purchase.

This compensation agreement was implemented under an agreement scheme with PT. GH EHMM. According to Heri, both parties agreed not to propose lawsuits. The first party (company) would apply prevention measures in coal yard area, so it did not impact the land of the second party (Heri).

According to Heri, the agreement was canceled because the company did not obey the promise to apply the prevention measures on the impact of dust pollution. Therefore, he brought a lawsuit against the company. The company denied that the lawsuit could not be accepted because Heri had received the compensation of her rubber plantation. The company then closed the coal shelter as Heri and other villagers demanded it.

However, the closure of the coal yard does not change the impact that the local community suffers. Heri and his neighbour encounter the dust everyday during harvest time. They just wear cotton to cover their faces to avoid inhaling the coal dust. The immediate effect is the accumulation of dust on the rubber workers' clothing. In the long term, the dust threatens their respiratory system without further medical treatment.

Recently, the land adjacent to the farm land owned by Heri was developed as PLTU's trash landfill (fly ash and bottom ash - FABA). According to Government's Regulation Number 101 year 2014 about hazardous and toxic waste management, fly ash and bottom ash originating from the process of coal burning on PLTU's facility, boiler and/ or industrial stove fall under the category of hazardous and toxic waste. FABA from the coal burning generally contained heavy metal that causes health problems.

Heri viewed the trash landfill located near his land as worsening the potential damage in the future. Therefore, he asked the company to purchase his land under IDR 150,000/meter² price. However, the company just paid a lower price. Based on Heri's information, the company argued they did not need lands.

According to Heri, PLTU and local people's lands should at least be separated by 500 meters. The area should be purchased and become green buffer zones. In fact, some villager's lands were less than 50 meter from the PLTU. Heri compared the PLTU to Pertamina company in conducting exploration. Pertamina purchased the land to 2 hectares of land for an operation of 0.5 hectares.

Since the location of FABA trash landfill adjoins Heri's land, he sent a letter to the government bodies in Muara Enim Municipality including the environment, the energy and mineral body, and one single submission service. The second letter was sent to the management of PT. GHEMM Indonesia on May 9, 2019, about his objection to Paba Trash's landfill development. In his letter, he stated:

I, whose name was mentioned above, (Heri Sahiruplan bin Subirman Alm) , the eldest son of my parents named Subirman (alm) with Mayani and my parents has productive rubber plantation of about 4-5 hectare (45.000 m) and the plantation borders directly with the land of PT. GH EMMI in Gunung Raja Village.

Regarding the above information, we object to the development of coal paba/landfill trash by PT. GH EMMI, which until now did not have any coordination yet with us.

For considerations, the reasons of our objection are:

1. **Disturbing our environment and the growth of rubber and make our land barren, because the location is near to our land/plantation.**
2. **Disturbing our respiratory while tapping rubber**
3. **The noises of activities in hoarding location and activities of coal power plant PT. GH EMMI which for years has disturbed us. According to the consideration, as the owner of the rubber plantation, I refuse or object to the development of coal landfill trash hoarding and would agree if PT. GH EMMI would give solution for us.**

Finally, I would like to say that it was truly me who write this objection and thanks for your attention.

Regards,
The land owner

Heri Sahiruplan

The copies sent to:

1. Archive
2. Muara Enim Regent c/q The Head of Living Environment Muara Enim
3. The Mining and Energy Agency in Muara Enim
4. The Agency of investment and one door single service (DPMPTSP)
5. Empat Petulai head of district
6. Head of village of Gunung Raja

Figure 15. Coal Dust Covering the Surface of Leaves and Rod that Decreases the Productivity of Rubber Latex



The coal dust apparently covers the leaves and surface of rubber plantation land of Heri which is located near the PLTU. Heri's neighbours also experiences similar pollution. Although the coal is covered by yard, the coal dust still disturbs the villagers activities of rubber planting

Source : Documentation of Gunung Raja Villager

The regulation about the distance between the PLTU and the settlement as well as public facility is still weak because it does not specify the minimum distance between the PLTU from the living space of the local people. The regulation, that is Environment Ministry

Regulation number 4 2012 about sustainable environmental indicator, mentioned “the distance of the excavation hole edge should be at least 500 (five hundred) from the edge of mining license (initial hue near the settlement).”

However, the distance between the PLTU and living space of local people is only regulated in Government Regulation Number 26 year 2008 about Spatial Plan in national level chapter 43 paragraph (2) letter e which stated “Electricity Power plant as mentioned in chapter 38 paragraph (2) letter b was set with criteria (e) in the safe location of other activities and considering the clear distance.” Meanwhile, the minimum distance and safe location are not mentioned specifically. It means every electricity power plant company has different clear distances according to the result of the research in environment impact study (AMDAL) that often compromises the protection of villagers in the formulation.

d. The practices of labour in PLTU Simpang Belimbing

A contractor company delivered the coal supply from Musi Prima Coal Mining to PLTU Simpang Belimbing. One of those was PT Lematang Coal Lestari with 1,000 workers. PLTU Lematang Coal Lestari hired 5 sub-contract companies to operate. They are PT Skyway as a canteen sub contract supplier, PT Topkey as maintenance subcontractor, PT Recon as workers’ supplier for cleaning service, and PT Bermuda as the agent of security supplier.

While the coal supplying company - PT Lematang Coal Lestari (PT LCL) hired two heavy material subcontractors which were PT Lancarjaya Mandiri (PT LMA) and PT Cakra Indo Pratama (PT.CIP). PT LCL terminated the contract in 2019 with PT LMA leading to the dismissal of its workers. Fortunately, as the workers demanded to be rehired, PT LCL then recruited all workers of PT LMA as permanent workers in the coal mining.

In 2017, the workers who are also the local community around PLTU organized a protest. The protest was motivated by the issue of discrimination in recruitment process and the working status that the daily workers experienced. They demanded to be permanent workers. They also asked for their unpaid wages since the very first they worked until 2017. The local people also objected to the use of foreign workers by PLTU Simpang Belimbing to do non-skill work while many local people were unemployed and could do the job.

The local community considered creating jobs to benefit local people as one of the company’s goals. The local people would endure the environment impact for decades. Furthermore, the PLTU and the

mining has caused the loss of natural resources which degraded local people’s quality of life.

“If the company built PLTU here, and still hired foreign workers, what kind of work the local unemployed people should do? While the lands which were productive now it became mining land and PLTU. The foreign workers could go home after the project finishes, but what about us? We will face the environmental damage for the next decades, including for the future of our kids and grandchildren.” said source 1 who worked in one of PLTU contractor Simpang Belimbing.

Source person 1 is a local villager who works in a PLTU sub contractor. The source admitted that since he worked as a contract worker in PLTU, the wage never sufficed for daily needs. In the beginning, in 2012, he only received main wage about IDR 1,630,000 (USD 115) for 8 hours working (Monday to Friday) from 07.30 to 17.00, with break time of 2.5 hours. The contract agreement is renewed annually. In his second year (2013) working, he and his colleague received higher wage to IDR 1,925,000 (USD 136) which did not change until 2015 (2 years). Then, the wage increased again to IDR 2,125,000 (USD 151) until July 2017, which was still below the minimum wage of South Sumatera (IDR 2,388,000 or USD 169).

Since the very beginning, the company applied the minimum wage of South Sumatra Province because Muara Enim regency did not issue a Regency Minimum Wage until 2019 with IDR 2,910,587 (USD 2017). The regency wage was slightly higher compared to the Provincial Minimum Wage of South Sumatra in 2019 (IDR 2,840,453 or USD 202). Source Person 1 stated that the workers worked overtime without being paid according to the overwork wage regulation. The company just gave basic wage with additional overtime wage which applied equally to the normal wage per hour, even when it was on a day off.

The workers complained about the unequal wage system among workers in other subcontractor companies in PLTU Simpang Belimbing. The wage among workers in PT Topkey and other subcontractor could be different although those helper workers worked the same working hours.

Source person 1 stated the subcontract companies had been applying different wage systems since signing the contract working agreement from 2015 to 2017. Some companies provided meal allowance and daily transportation allowance to workers while others did not provide both. This caused social jealousy among the workers from different subcontractors, who assumed they were practicing discrimination.

Figure 16. Documentation of PT Top key Helper payslip at the Sintang Belimbing PLTU

overtime wage according to the regulation, and personal protective equipment.

The company had dismissed 20 daily workers before the protest was launched. The company discovered that they were starting a union at PLTU. The Muara Enim manpower agency invited both parties, PLTU's workers and the company, to have a mediation just one day before the demand letter was about to be submitted. As a result of this mediation, the dismissal of 20 daily workers dropped after a fierce debate between workers and the company.

There were 9 affiliated unions involved in the protests for the demands. Among them, six are unions from subcontractors of PT GH EMM and the three others from the mining company PT LCL, including PT LMA, PT Hong Fa, and PT CIP. The protest resulted in the companies' agreement to change the daily workers status to be permanent workers by signing job contract agreements.

After waiting for 2 months, the company did not yet fulfill the promises. Therefore, the workers launched another protest again at the end of 2017 (just 2 months after the previous protest). Some companies paid the unpaid overtime wages for 2 years. The total amount of this overtime wage was smaller than the actual amount according to the regulation. The company had negotiated with the workers first to pay the unpaid overtime wage not according to the regulation and the workers were forced to approve because the company also agreed to make them permanent workers.

However, the workers who worked in subcontract company PT Topkey stated that company did not pay the unpaid overtime wage in 2012 - 2014 periods. The workers who worked overtime only received IDR 5,000/ hour just like normal working hours. In 2017, they reported this case to the Provincial Manpower Agency of South Sumatra and it proceeded to investigation. The manpower agency collected 2 years wage receipts (2012 - 2014) to count unpaid overtime salary. But, this case was stopped in the middle of the process in January 2018 because the agency argued that the case between company and workers was solved.

Source Person 1 admitted that in 2017 they signed the agreement letter to renew the job contract for the following year under a certain amount of wage. However, this agreement in fact eliminated the demand for 2 years overtime wage that was not paid by the company. According to him, the agreement had been signed under pressure. If the workers did not sign the agreement, there would be no contract extension. This appeared to be a one side agreement because the workers did not accept the signed document.

Wage Receipt in 2012 - 2013 about Rp1.630.000 main wage

Wage Receipt 2015-2017

Wage Receipt 2017 until 2019

Source : The documentation of Gunungr Raja's local community

The dissatisfaction on wage led the source person 1 and his colleagues organized to organize a union and launch a strike on July 19, 2017. The demands of the workers were the job agreement for daily workers,

Referring to the civil law, the agreement letter could be null and void because it could not fulfill the requirement of the agreement, subjectively and objectively. The use of forced element upon the workers by the company is a subjective violation because the workers were under pressure. The pressure said that the workers who did not sign the agreement would not get contract extension from the company. Besides, objectively, the signed agreement did not meet the requirements of agreement object. The workers reported the case to manpower ministry in 2018. It is still in the process⁵⁵.

e. The Workers Were Vulnerable to Dismissal

In December 2017, one of sub-contract companies of PT. GH EMM, that was PT. Hong Fa having ended its contract with its owner, dismissed its workers. One of those dismissed was the source person 2 Gunung Raja, a local resident, who had worked as a helper in the company since 2013. There were 19 workers of PT. T. Hong Fa, 4 workers of PT. GH EMM, and 17 workers of PT Tri Mitra Selaras (TMS) dismissed. The total was 40 workers dismissed. PT.LMA also ended its contract with PT.GH EMM, but all its workers were transferred to the mining company PT.LCL.

After the dismissal, workers then shifted to uncertain daily employment in the village.. However, they previously had worked as peasant workers in the rubber plantation of Gunung Raja village under a shared system with the land owner. Some owned yard but then sold it to the company by guarantee that PLTU would hire them, under agreement with company PT. Guangdong Power Engineering Corporation (PT GPEC) - land acquisition company. Unfortunately it was a weak agreement because the company was different with employer company in PLTU Simpang Belimbing, which was PT. GH EMM.

Since the construction of PLTU in Village 2, the area which was a productive rubber plantation turned into a PLTU site. It completely replaced the livelihood of the village's rubber peasants with unemployment. The total area that was slated for the building of the Mine-Mouth PLTU was around 240 hectares.⁵⁶

On one hand, the source person 2 and other colleagues could no longer make a living from the rubber plantation as the land now turned the function into PLTU. On the other hand, the operational

⁵⁵ Based on the recent information from People's Labor Union Federation, the affiliation of PT Topkey, the Manpower Ministry considered the case closed in February 2019 because the investigation paper released by South Sumatra provincial manpower agency in October 2017 was replaced with Evaluation Record in January 2018 (Discussion with the People's Labour Union Federation on November 17, 2019)

⁵⁶ <https://industri.kontan.co.id/news/guohwa-energi-bangun-pltu-us-213-juta> (Last retrieved, August 26, 2019)

of mining and PLTU Mouth - Mining does not guarantee the local people to get a sustainable job to survive. Instead of getting job opportunities, local people around PLTU Mouth - Mining experienced decreasing life quality from the impact of environment's damage and impoverishment of the villagers.

The coal-fired power plant operated by PT. GH EMM does not seem to bring positive change for the life of Hapisol, Heri, PLTU workers, and other local people of Gunung Raja village. Many issues are yet to be resolved. Nonetheless, PT. GH EMM won the highest prize as "Best Electricity Company 2018" awarded by Indonesian Ministry of Energy and Mineral Resources on 15th of November 2018.

f. Women's Role in the Surrounding of Extractive Industry

However, as the village changed into mining and PLTU area after land acquisition in 2000s causing some local people change their job from peasants into workers. Nevertheless, the job opportunities during the construction process of the PLTU which started in 2018 could only absorb male as blue collar workers. Furthermore, a management level job requires a university degree. Meanwhile, .Only a handful of male workers could access even a high school education. Most of these could not complete high school or even be enrolled. Nonetheless, men are still counted as workers to access job opportunities in the company although as blue collar workers. Then, where is the women's position?

In the 1990s to the beginning of the 2000s, a few women accessed to education in Gunung Raja Village, admitted one of the villagers who worked as a housewife. Physical access to schools was very limited due to the muddy conditions of the paths. Most girls did not go to school at all or only completed elementary school. Most of them did not go to school or only graduate from elementary school.

However, working as a peasant does not require educational background to cultivate the land. Therefore, the villagers, men and women, still could tap the rubber although they had low education. The knowledge they have to cultivate land was inherited from one generation to the next in the family because they were used to going to the plantation with the family.

Most women in Gunung Raja Village now only rely on their husband's job either at the PLTU or the mining company. One of the wife of the workers told a story about how the workers' group had classes based on their wage depending on the contracts made between the sub-contract companies and the workers. Meanwhile, the grouping and the social circle of the wives of the workers will change in according to their husbands' wage.

Unlike today's generation, the elder generation enjoyed the harmony of neighborhood when the land was still a fundamental production tool in the village, in which they cultivated the land together, they even applied workforce social gathering⁵⁷ with their neighbor in their cultivating process. Unlike before the period of mega capital investment in the village, the social relation of the wives is no longer based on neighborhood social binding.

Another wife of a worker spoke about the early marriages of women in the village. The married woman telling the story was 23 years old and had a 7 years old child. She was 14 years old when she married. They couldn't avoid early age marriage because their lack of access upon two things; education and job. A PLTU's worker, who was interviewed, stated that he wanted his daughter married at 18 years old after graduating from Senior High School because the daughter would end up in the kitchen regardless of her higher education.

The father's reflected social reality in the village because until now women who graduated from school in Gunung Raja village could rarely access jobs in PLTU or mining company. Therefore, early marriage becomes the only option. The extractive coal mining industry and PLTU is very male-dominated and has effectively marginalized women from job opportunities by changing the land function.

Jobs for women in PLTU or coal mining company are now limited to cleaning service or kitchen services in supplying food. Most women workers work in sub contractor company, PT. Skyway as canteen suppliers and PT Recon as cleaning service supplier. Although, the company provides job opportunities for women, the amount is less than that of men who can be employed to work in PLTU or coal mining company.

The company PLTU Simpang Belimbing did not respond to questions about this finding in the research.

B. SUMSEL 1 MINE MOUTH COAL-FIRED POWER PLANT

PLTU South Sumatra or Sumsel 1 is a mouth-mining coal-fired power plant listed in the electricity program of 35,000 MW in Jokowi - Jusuf Kalla era to meet the domestic electricity demand and to achieve the economic growth target of about 7% in the upcoming years. The PLTU was located in Tanjung Menang village and Air Cekdam Village Muara Enim municipality with capacity 1 x 300 MW. This project was sponsored by China Senhua and constructed by PT Senhua Gohua

⁵⁷ The system rotate the collective work from one land to the other land to work the plantation together to speed up and ease the land cultivation.

Lion Power (PT. SGPLI) as the winner of PLTU Sumsel 1's construction public bidding.

PT. SGLPI started pre-construction of PLTU Sumsel 1 in 2016 after successfully acquiring 113 hectares of land in 2 villages. About 84 hectare (80%) of the land was acquired in Tanjung Menang village while the rest of 20% is in Air Cekdam village. The site of the PLTU was farming and plantation land owned by about 20 people who each owned 1 to 5 hectare that were procured by PT. Lion Power.⁵⁸

a. The Problem of Land Acquisition

The construction of PLTU Sumsel 1 in Tanjung Menang village caused land conflicts as the result of maladministration of land acquisitions, according to Tanjung Menang village administration. Since the process of land acquisition by PLTU in 2016, some problems occurred such as the overlap of land acquisition in administrative aspect between Tanjung Menang village and two other villages; Air Cekdam village and Belimbing village. The dispute is caused by the administrative border between Rambang Dangku district and Belimbing district has yet to be finished.⁵⁹

However, according to the company, the land acquisition referred to the natural or local custom border agreed on the former head village of Tanjung Menang and Belimbing Jaya although the ratification of district border had just finished one year after in early 2017 by the government of Muara Enim Regency.⁶⁰ As written in their response letter, the public relation of PLTU Sumsel 1 stated that the land acquisition complied with the regulation and no land dispute existed among the villages. The argument was supported by the fact that that the National Land Agency (BPN) issued the certificate based on the former landowner agreement.

The government of Tanjung Menang village argued that this case should not be closed because in fact the administrative problem of

⁵⁸ Lion Power merupakan bagian dari PT.Leo Investment Terbuka, (https://www.idx.co.id/StaticData/NewsAndAnnouncement/ANNOUNCEMENTSTOCK/From_EREP/201812/cd6c0ef50e_5f77825e55.pdf) retrieved 3 Agustus 2019 at 21.03 Western Indonesian Time.

⁵⁹ Tanjung Menang Village and Air Cekdam Village in Rambang Dangku District while Belimbing Village is located in Belimbing District.

⁶⁰ In the response letter, the company state through Public Relations Manager of PT Senhua Gohua Lion Power Indonesia, Herida ST MT wrote, "...a. The procured land was based on the natural/custom bordered under agreement with the head of village (Tanjung Menang and Belimbing Java Village) at that time. The border between the district was just released at the beginning of 2017. b. Since the land border between Rambang Dangku District and Belimbing District was issued by the government of Muara Enim Regency, and as the certificate for 13 lots of lands have been issued, we have adjusted the land border between the district, and the area in the village was certified. The Land Agency of Muara Enim has issued the certificate.. (Letter to response the research from PT Senhua Gohua Lion Power Indonesia collected by AEER, November 4, 2019).

land acquisition with other villages was not yet solved at the village level. The regency has not released an official map. Therefore, the Tanjung Menang village administration has not accepted it.

Moreover, the PLTU did not give comprehensive information to the local people from the beginning and thus did not involve their participation.⁶¹ At first, the local community was informed about a replanting program of palm oil. Local people who had ageing palm oil trees were listed for palm oil replanting. It was also said that the palm oil processing plant would be constructed. That was all the information that the village administration and local community received at that time. Subsequently, the head of the village received information that the project to be constructed was PLTU Sumsel 1. However, the head of village (Derista Ridwan) ended his term in office. He was replaced by an acting new head of the village for 1.8 year. The land acquisition occurred during this period of the acting head of village. When Derista Ridwan returned to his office as head of the village he experienced the onset of the land dispute.

In August 2018, the construction activities were postponed when Kokos Leo Lim (alias Kokos Jiang) was facing trial in the case of coal calories forgery for PLN Coal cause the loss of IDR 477.359 billion (USD 34 million) for PLN coal through PT. Tansri Energy, of which Kokos was the President Director⁶². Kokos Leo Lim had a high ranking title in Lion Power company. Lion power is the company that, together with Shenhua Guo Hua, owned Mine-Mouth PLTU Sumsel 1.

In the middle of July 2019, the village head of Tanjung Menang stated that he had received a letter from PT SGLPI that the construction activities would start again in early August 2019. It followed the decision of corruption criminal court (tipikor) Jakarta which dropped the charge against Kokos Leo Lim on June 12, 2019. South Jakarta Prosecutor's Office filed an appeal of this decision.

PT. Lion Power Energy From acquired 84 hectare of land for the construction of PLTU Mouth-Mining Sumsel 1 in Tanjung Menang village. The blocks no 88 and 89, 98 a and 98 b were still under dispute involving 3 to 5 families. The company had cleared some areas although without any agreement with the land owners,

61 The participation refers to Manipulative Participation. Hobbey details the participation as participation of membership based on representation from one task force, work division or other group instead of individual. The mentioned participation did not involve people. In the context of Tanjung Menang Village, it was characterized by Passive participation in which information came from administration without listening to the response from the people on what they decided based on the information. In other words, the company only briefed the people about the plant to construct the PLTU without listening to the response or suggestion from the people.

62 <https://kabar24.bisnis.com/read/20180319/16/751409/korupsi-pengadaan-batu-bara-kejati-dki-sita-seluruh-aset-pt-tme>(retrieved August 16, 2019)

who no longer could use this land for planting⁶³.

The company wanted to solve the land dispute in block 88 and 89 by offering to purchase the land under 150.000/ meter² scheme for 3.9 hectares. However, until now, the land owners refused the offer. According to the information from the source person, the landowner assumed that their land was 5 hectares while the company's version said it was only 3.9 hectares. This gap came because the company used GPS, although the area is bumpy, while the land owners had measured the land manually using a tape measure.⁶⁴

The company also closed 3 rivers in Tanjung Menang village. They are the tributary pauhr river, a branch of river Mburung, and the tributary of Batu Besi river. According to the source person, it had been done without the permission of The River Basin Area management Center (BPSDA).⁶⁵ The river previously had served the need for farming lands. Now, since they were repurposed the water tunnel to meet the company's demand. The river manipulation caused flood in some locations such as block 88 and 89 where the company still faced problems in land acquisition of 1 hectare in Neighborhood 6 in Village 3. The total land was about 1 hectare that contains rubber plantation and palm oil whosed development affected by the flood.

The company responded that the manipulated river was not listed in the BPSDA. The company argued that they had fulfilled their responsibility to handle the flood by installing a water tunnel. The source person who lived in Tanjung Menang village stated that the company ignored the fact that some of the villager's land was still flooded.

63 In the response letter, the company state through Public Relations Manager of PT Shenhua Gouhua Lion Power Indonesia, Herida ST MT wrote "... i. It is right that we did not procure lands in area 88 and 89 because: The claimed area does not meet the calculation we conducted with the village and district administration. We offer IDR 10 billion (USD 711 thousand) based on the calculation that concluded the 2.5 ha size. The other issue is the pollution and land dispute (according to the land owner) although the company has legally purchased the land and legalized by the village and district administration that determines the land bordered and completed the administration. However, our good intention will keep us on solving this problem according to the rule. Up to now, the land owner has not taken the money. The pollution because of water cannot be concluded to cover 3 HA as there is no accurate data. No trees died. We have calculated together with village administration and local police. The company decided not to purchase Land 98 B because it was offered under very expensive price. The other areas related to the 98 B cannot be disputed because according to the administration the the purchase has already been settled based on the owner agreement).

64 Interview with Tanjung Menang head of village (July 28, 2019).

65 In the response letter, the company state through Public Relations Manager of PT Shenhua Guohua Lion Power Indonesia, Herida ST MT wrote, "... k. The closure of the three rivers are not true because the rivers do not have name. They are not officially recognized rivers as not listed by the River Basin Area management Center. The three are ditches created to irrigate the rubber plantation and the company only modified them slightly to fit the company's needs. We have been responsible to the flood issue by creating ditches and made pipe to flow the water beside the PLTU.

The source person added that all of the village's area(100%) of Tanjung menang, which is about 678 hectare, belongs to PT. Cakra Bumi Energi's mining license (IUP) for coal mining to supply coal for PLTU Sumsel 1. PT. Cakra Bumi Energy, that already secured 9,815 mining license (IUP) on September 11, 2006, will expire on September 10, 2026. The mining had been categorized as CnC (clear and clean), meaning the area does not overlap settlements.

b. Industrial Relations at Mine-Mouth PLTU Sumsel 1

The security workers who worked at PT SGPLI stated that they had received wages lower than the minimum wage. In 2017, when they started working as security they received wages of IDR 2,338,000 (USD 166) in accordance with the minimum wage in South Sumatera 2017 without overtime wage. In 2018 when the minimum wage of South Sumatra was IDR 2.595.994 (USD 184), they received the minimum wage of 2017. According to the source, the company paid below minimum wage because no operational/ construction activities started yet. Nevertheless, they still worked for 8 hours according to the standard regulations of the company regardless of the construction beginning.

In 2019, the government of Muara Enim regency had just enacted minimum wage IDR 2,910,587 or USD 207. However, PLTU Sumsel 1 only paid IDR 2,910,587 (USD 207) according to the provincial minimum wage but not according to the Muara Enim minimum wage. Paying workers below minimum wage violates Labor Law number 13/2003 article 90 section 1 which stated:

“Entrepreneurs shall be prohibited from paying a wage lower than the minimum wage as meant in Article 98”.

Furthermore, the overtime wage in 2017 and 2018 and the wage gap for 1 year in 2018 which did comply with the minimum wage were unpaid. The company forced the security to sign an agreement letter in 2019 with conditions that previous overtime wages would not be paid. The debts of the company to the security according to the calculation of the workers was IDR 112,000 or USD 7.9 time to 12 months was about IDR 1,344,000 (USD 95) for each. Moreover, the calculation of unpaid overtime wages for each worker were different.

A written response from PLTU Sumsel-1 by Herida ST, MT argued that the company was complying with the procedures of labor laws and

minimum wage.⁶⁶

After the massive land acquisition, many farmers lost their land and prepared themselves to be workers at the PLTU. Some had already worked at the pre-construction project although as daily workers and did not have a contract agreement letter with the sub contract company nor social security.

The other labor problems they complained of were penalties they incurred when they experienced accident. One of the workers in PT.Indo Fudong suffered a wage cut IDR 80.000 (10.000/hour for paying IDR 125.00 / day as the penalty for work accident he experienced.

When the interview was conducted on July 29, 2019, around 90 workers of PT Indo Fudong, who were facilitated by the Head of village, were demanding their rights including the below minimum wage payment. They only received IDR 10,000/ hour (Rp 80,000/ day). The amount was supposed to be Rp 16.000/ hour based on UMP of South Sumatera 2019. The head of the village also tried to communicate with the company about the local community's demands. To solve the problems, the head of the village tried to communicate with the manpower agency to process the labor problems at PLTU MT Sumsel 1. “The Manpower agency should move because it is related with labour sector and manpower agency should send credential letter to the head of the village to legitimate its business with the company,” said the head of village

While the construction stopped, the security work and cleaning service is still going on, in which all sub contract companies were originated from joint venture company with China. Some of the companies involved in this construction were PT. Indo Fudong, PT. Sandong PT. GPEC.

C. PLTU MT SUMSEL 8

PLTU Mine-mouth Sumsel 8 is one of electricity project 35,000 MW which is under construction process. The PLTU, constructed by PT. Bukit Asam (PT. BA), is expected to operate in 2022. This project was

⁶⁶ In the response letter, the company state through Public Relations Manager of PT Shenhua Guohua Lion Power Indonesia, Herida ST MT wrote, “... m. Regarding the security, our company hired Outsourcing Service and work agreement in comply with the rules and minimum wage. There is no longer any problem. Currently, company and employee are synergized., n. There is no longer any problem with workers recruitment as everything is conducted based on the procedure and vie PLTU South Sumatra Public Relations including five villages in zone 1 (Air Cekdam, Tanjung Menang, Belimbing Jaya, Belimbing dan Darmokasih) and Tripika (district administration, police chief, and military subdistrict command). Payment was agreed through public relation.

financed by PT. Huadian Bukit Asam Power (PT.HBAP) by Equity for about 25% from the total of construction cost US\$ 420 million, while the rest got funding from ChinaExport Import Bank (CEXIMP) for about 75% or US\$ 1,26 billion (17 trillion).⁶⁷

PT.HBAP itself is a consortium between China Huadian Hongkong Company Lt with the share about 45% PTBA and the rest of 55% that belongs to China Huadian Hongkong Company Ltd.⁶⁸

PLTU Sumsel 8 is a mouth-mining PLTU with an investment value reached IDR 210.8 trillion (USD15 million). The company has signed Power Purchase Agreement by Independent Power Producer Scheme with BUMN (PT. PLN). This PLTU is expected to connect with Sumatera Transmission 500KV. PLTU mouth-mining Sumsel 8 is located in Tanjung Lalang village, District Paramayan, Muara Enim Regency with its capacity about 2 x 620 MW.

At first, PLTU Sumsel 8 was constructed to meet electricity needs in Java through High Voltage Direct Current (HVDC), but surplus electricity supply already existed in the island. Therefore, the electricity from PLTU Sumsel 8 would be streamed for Sumatra Grid via Extra High Voltage 500KV transmission. HBAP, also constructed transmission path from PLTU Sumsel 8 to substation PLN in Muara Enim with about 45 km completed so far⁶⁹.

a. The Portrait of PLTU Sumsel 8's Workers Condition

PLTU MT Sumsel 8 started the construction in February 2019. Finance Minister Sri Mulyani was invited to the first stone laying ceremony to officially kick off the construction activities in PLTU.

As explained above, PLTU MT Sumsel 8 is an electricity project funded by China. Among subcontractor companies which operate in construction phase in PLTU Sumsel was PT. ZTPI from China. The workers had to survive with a long working hours and under minimum wage of Muara Enim (IDR 2,910,587 or USD 208) or minimum wage of South Sumatera (IDR 2,805,751 or USD 200)

These construction workers were daily workers with hourly wage of Rp 14.000 (USD 1) for 8 hours normally. It equals to IDR 2,240,000 (USD 160) monthly salary (160 hours normal work)⁷⁰, While additional

67 <https://katadata.co.id/berita/2019/05/03/bukit-asam-pastikan-pltu-sumsel-8-beroperasi-di-2022> (retrieved August 5, 2019)

68 <https://www.cnbcindonesia.com/market/20180723144640-17-24928/bukit-asam-mulai-konstruksi-pltu-sumsel-8-senilai-rp-24-t> (retrieved August 5, 2019)

69 <https://bisnis.tempo.co/read/1229849/pln-pasang-turbin-gas-di-pltgu-muara-karang-peaker> (retrieved August 6, 2019)

70 The basic working hours refer to Labour Law Number 13/2003 that mentions 8 working hours in a day or 40 working hours in 1 week for 5 days working in 1 week. There are 4 weeks in 1-month, therefore working hours in 1 month is 40 hours x 4 weeks = 160 hours/month

2 hours were assumed as overtime and only paid about Rp 15.000 (USD 1.07) / hour. The wage system violates the the Regulation of Manpower Ministry and Transmigration Republic of Indonesia Number Kep.102/Men/VI/2004 about overtime hours and overtime wage, article 11 mentions that the overtime wage scheme shall be counted as 1.5 time of per hour wage (Rp. 20.393 USD 1.5) for the first hour of over time while the next hour of over time was about doubled per hour wage (Rp 27.191 or USD2). In one day, they worked from 6 am to 6 pm.⁷¹

Besides, the workers right to pray was not guaranteed by the company management that applied strict time schedule without tolerance. The "strict" time schedule was viewed by some workers as a violation of their right to pray. It caused them to be 40 minutes late for their maghrib prayer, arriving home at 6:40 rather than 6. Since they had to clean their body first as a requirement of prayer, the maghrib prayer itself was shortened. Furthermore, they should clean their body first for the requirement to pray and the maghrib duration is short. Besides, the fact that they had to attend the workplace briefing at 5:55 am made them rush through the subuh prayers. If they came late, they had to go home and not work for that day. This had happened repeatedly

On Fridays, the workers could rarely conduct Friday prayers because the break time started at 11 am to 1 pm. while the Friday prayers ended at 1:30 pm. They had to choose between prayer and work. If they were late, the company asked them to go home with no payment for that day.

During the Moslem Fasting Month this year, many workers were forced to forego fasting because of the stricted time schedule and their bad physical condition. Suprianto (33), a villager of Gunung Raja who worked in PT ZTPI reported that the company has always strived to shorten the break time and add the working hour. Previously, the company held a briefing to allocate times for workers, to respect those who were fasting by changing the starting work to 7 am and and the finishing time to 5 pm. However, it was only applied for one day. After that, the subcontractor company applied the former policy, which was from 6 am to 6pm.⁷²

71 The response to the research written by the General Affair PLTU South Sumatra-9, Giana Hadi, stated....1. Principally, all of local workers under EPC or subcontractor were employed via outsourcing company. According to the business agreement to the outsourcing company, all workers should be paid according to the current minimum wage of Muara Enim (2019).

72 The response to the research written by the General Affair PLTU South Sumatra-9, Giana Hadi, stated. 2. PLTU project very respects the local customs and beliefs and religions of the workers. There is no restriction to do religious activity in the middle of work. Everyday, the workers take two times break in the afternoon. The Friday breaks lasts for almost three hours. During fasting month, considering the fasting, we adjust and reduce the working hours. For normal day, workers are not forced to take extra hours.

For this typical case, the company just responded “No restriction for prayer activities in the workplace.” However, the workers could not make sense of the sentence because in reality the management arranged schedule time so strictly. If the workers failed to meet the schedule, the company asked them to go home and cut their daily wage. .

Figure. 17 The condition of PLTU Sumsel-8’s workers’ rent house



The number of PLTU Sumsel 8’s workers who stayed in their contracted house for 10 people. They chose to live in the house, although it was too small for them, instead of living in boarding rooms provided by the company which were noisy and lacking clean water

Most of the workers of PT ZTPI had worked since February 2019. During the time, their wages were cut for natural circumstances causes such as raining although it was the company who asked them

not to work. The burden fell on the shoulder of the workers because the company paid them by the hour.

To maximize the working time, the company provided dormitories for the local and foreign workers in PLTU’s location side by side with the heavy materials. They were made to move into the dormitory, but the workers chose to live in their own rental house with 10 x 12 meter size with a capacity of ten people instead. They refused to live in the dormitory because of the lack of clean water and the fact that the toilet was only a ditch, far below any healthy standard.⁷³

To discipline the workers, the subcontractor company also made the workers live in the workers dormitory. If they refused, the company would dismiss them. The company also threaten them to stop the food allowance about IDR 30.00 (USD2) / day if they lived outside PLTU’s location and did not move into workers dormitory.

Some workers who lived in the dormitory complained that the breakfast came at 9 am while they had to start work at 6 am. By living outside the boarding room, the workers could arrange their own time schedule according to their needs.

b. The lack of Social Security Access

The social protection or occupational safety and health for workers is the responsibility of the company. However, in the scheme of daily workers in the subcontractor companies of PLTU Sumsel 8, there was no social protection that could protect the workers from occupational injury, disease, etc.

Workers had to spend their own money when they suffered occupational injury or sickness. For minor physical injury, they treat themselves with iodine. Permission for sick leave was not approved for the workers because they would lose their daily wage.⁷⁴

The company responded that they had cooperation with manpower instancy to give medical allowance to the workers. The company

⁷³ The response to the research written by the General Affair PLTU South Sumatra-9, Giana Hadi, stated... 3. Accommodations for the local workers during contraction phase are varied depending on the subcontractors. Some local workers lived in the dormitory or houses in the local community rented by the company. The conditions are varied in each area. We believe the conditions would be improved along with the on-going development.

⁷⁴ The response to the research written by the General Affair PLTU South Sumatra-9, Giana Hadi, stated “... 4. We trust the Manpower Agency to give the best solution regarding the social security (BPJS) and medical allowance for the employee. The insurance provided depended on the types of employment because there are many kinds of working relations, be it temporary or permanent employment. Regarding this case, we suspected that some employees were not informed about the collective protection insurance provided by the company because of the complex working condition and many companies involved. All subcontractors have committed and been responsible for treatment related to occupational injury and salary during the treatment. We believe any problem related to work can be solved well.

added that some workers did not know that they were protected with collective assurance managed by the company. The company claimed that the contractors had committed to take responsible for occupational injury treatment and to pay for the wage during the treatment.

Based on the company's response, the company should improve the system to deal with some workers who did not know about their social protection rights covered by the company. Besides, the contractors' commitment should be supervised by the parent company, PT. Huadian Bukit Asam Power (PT HBAP) so that the social protection rights could comply with the existing regulation.

In fact, an occupational injury happened in June 2019 in the workplace. A worker from Cilegon experienced an accident which injured his finger when he operated the iron cutting tool. The sub contractor company PT. Indo Fudong, just paid compensation about IDR 2,000,000 (USD 142) to him and the company forced the worker to resign and sent the worker home to Cilegon. The worker had worked since January 2019. He had moved from sub contractor company in Cilegon when the contract constructing PLTU Cilegon ended.

Evaluating the labor management system of PLTU Sumsel 8, the workers were so vulnerable to occupational illness because of the long working hours while the company did not provide healthy protection. The company made them work under low wages and without basic rights such as accommodation and food.

It is common that the work of PLTU's construction can be completed in two years or less. This leads to the uncertainty of workers' life after the construction. The workers can rarely save enough money because of their low wages.

Table.17 List of coal-fired power plant samples in Muara Enim regency, South Sumatra

Electricity Power plant	Capacity	IPP	EPC	Lender	Coal Supplier Mining Company
PLTU Mouth - Mining Simpang Belimbing	300 MW	China Shenhua (70%), PT Energy Musi Makmur (3	PT Guohwa Energi Musi Makmur	China Development Bank and The Export Impor Bank of China	PT Musi Prima Coal

Electricity Power plant	Capacity	IPP	EPC	Lender	Coal Supplier Mining Company
PLTU Sumsel-1	600 MW	China Shenhua	China Shenhua and PT Senhua Gohua Lion Power (PT. SGLPI)	Bank of China, China Construction Bank, ICBC	PT Cakra Bumi Energi
PLTU Sumsel-8	2 x 620 MW	China Huadian (55%), Bukit Asam (45%)	Huadian Bukit Asam Power	Export-Import Bank of China (US\$1.26 Milyar)	PT Bukit Asam

Source : Field Observation and Document Study

CONCLUSION

Investment in Coal-fired power plant in Indonesia is more promising for investors because it gives a higher profit margin than other developed countries which are leaving coal. The lower environmental standard, loose citizen's protections, and low wages, in fact, contributed to higher profit for foreign and domestic investment. Such practice are not sustainable because of the high intensity of disruption "by the PLTU on the beach and also mouth-mining PLTU on the land.

The profit for investors such as Shenhua Gou Hua in Simpang Belimbing, Huadian in Bali, in operating PLTU encouraged investment from China to continually boost their investment in other PLTU, such as Sumsel 1, Java 7 for Shenhua Gou Hua and Sumsel 8 for Huadian. Indonesian Government and the public need to encourage the halting of coal-based capital accumulation. It would be better to improve renewable energy that is in line with the interest of the local community.



RECOMMENDATION

A. GOVERNMENT

1. The shift of fuel power plant from crude oil into coal in long run does not reduce the electricity production cost and the price of electricity for consumers. The shift into coal has intensified environmental impacts as long as the PLTU operates. Hence, the government should be more aggressive in developing the potential of renewable energy.
2. The foreign debt to finance coal fired power plants tends to have higher interest. Moreover, many funding agencies launched policies not to fund PLTU. Therefore, the access to funding was getting smaller and more expensive. For this reason, the government would be better off developing renewable energy optimally.
3. Do not involve state owned funding agency such as PT Sarana Multi Infrastruktur in coal energy funding, considering this agency was accredited to access the fund of Green Climate Fund for the project of climate change mitigation. The coal energy funding would make the agency lose their focus on climate change mitigation.
4. Issue a regulation about a minimum distance standard between PLTU and the settlement, farming area, as well as public facilities to minimize the risk of waste exposure and pollution. A buffer zone must be regulated around the PLTU under the standard distance. Another regulation is also needed to regulate the minimum standard distance of temporary hoarding fly Ash and bottom Ash (FABA) with the settlement, farming land and public facilities.
5. The houses that are nearby to PLTUe should be relocated for a healthier environment. Their houses should be compensated with another descent house.



6. Improve the role of Manpower Supervisor to enforce the labor law, in work status, wage, working hours, and unpaid overtime, social security, occupational health and safety
7. Set the sectoral minimum wage of PLTU's construction higher considering their work was temporary (less than 2 years). After the work is completed, the workers do not have any savings to live on. Meanwhile, working as peasants in PLTU's is no longer possible, due to the negative impacts of PLTU, such as acid rain water.

B. INVESTOR

1. Fulfill all of labour normative rights as mentioned in labor law. These include work relationship, working hours, overtime, leave, and holidays, social security, occupational health and safety. Provide supervising system and complaint system from workers to sub contractor company which could be supervised by the parent power plant company. Pay higher wage than normative regulation, considering the PLTU's construction work was temporary and after that the workers need time to look for the new job, and considering the operation just hired so few workers.
2. Do not reduce construction and operation cost of coal power plant by sacrificing environmental protection. Provide enough funds to supervise the water quality with chemistry and environmental biology parameters. The monitoring of air quality's ambient produced by PLTU, coal mining, and transportation in PLTU Mouth - Mining's location should be provided considering the impact of PLTU and mining on local neighborhood.
3. The plantation near PLTU Mouth-Mining's location in village area which had been operated should be purchased at a fair price and coordinate with the government to make sure that the people who sold their lands could get decent work.
4. Renormalize the rivers to prevent annual flooding from happening again every year. The transparent information should be disseminated regularly about the performance of PLTU to the local community through the village's officers and environmental organizations.
5. In line with the goal of decreasing greenhouse gas emission, the investment should be directed to develop renewable energy. PLTU Mouth-Mining's construction distorted the finance resource to fund the renewal energy improvement.

C. SOCIETY

1. Encourage the environmental and labor standard applied in the Chinese company. The standards should not be worse than capital from the other international companies and not lower than the standards at the originated investor countries (China) and obey the regulations in Indonesia.
2. Build an advocacy network in the local community around PLTU to improve the standard of environmental protection, local community's protection, the workers' prosperity improvement.
3. Do not sell the productive land easily for PLTU's construction, considering the PLTU's project gives big job opportunities only for two years. after that the environment will be less productive as the result of PLTU and coal mining.

REFERENCES

I. JOURNAL

- Eka Wardhani, Mumu Sutisna, Anggi Herlina Dewi. "Evaluasi Pemanfaatan Abu Terbang (Fly Ash) Batubara Sebagai Campuran Media Tanam pada Tanaman Tomat (*Solanum lycopersicum*)" Jurusan Teknik Lingkungan, Institut Teknologi Nasional (Itenas); Bandung. 2012.
- Hafsari, Duta. "Analysis of Risk Factors In Acute Respiratory Infections Of Field Workers In Bukit Asam Company Ltd. Tarahan Port Unit Lampung" Jurnal Fakultas Kedokteran, Universitas Lampung; Bandar Lampung. 2016.
- Hastiti, Laksita Ri. "Pajanan PM2,5 dan Gangguan Fungsi paru serta kadar profil Lipid darah (HDL, LDL, Kolesterol Total, Trigliserida) Pada karyawan PT X Kalimantan Selatan Tahun 2012", Jurnal Kesehatan Masyarakat, fakultas Kesehatan Masyarakat, Universitas Indonesia; Depok. 2013..

II. DOCUMENT

- Badan Koordinasi Penanaman Modal. "*Panduan Investasi Sektor Ketenagalistikan di Indonesia*". 2015
- Kementerian Lingkungan Hidup dan Kehutanan-Direktorat Jenderal Pengendalian Perubahan Iklim. "*Statistik Tahun 2018 Direktorat Jenderal Pengendalian Perubahan Iklim*". KLHK. 2019
- Petromindo. "*2017 Indonesian Electricity Book*". 2018
- Ministry of Energy and Mineral Resources Republic of Indonesia, 2018, *Handbook of Energy & Economic Statistics of Indonesia*. 2019
- Presentasi Kementerian Energi dan Source Daya Mineral Direktorat Jenderal Ketenagalistrikan pada Seminar Ketenagalistrikan. "*Kerjasama Pemerintah dan Swasta dalam Ketenagalistrikan*". 24 Agustus 2014
- Perusahaan Perseroan (Persero) PT Perusahaan Listrik Negara. "*Rencana Usaha Penyediaan Tenaga Listrik PT PLN (Persero) 2019-2028*". PLN. 2019.



- Perusahaan Perseroan (Persero) PT Perusahaan Listrik Negara. "Laporan keuangan PLN 2018". PLN. 2019.
- Perusahaan Perseroan (Persero) PT Perusahaan Listrik Negara. "Buku Prospektus-PUB II Tahap I, 2017". PLN. 2017
- Perusahaan Perseroan (Persero) PT Perusahaan Listrik Negara. "Buku Prospektus-PUB III Tahap I, 2018". PLN. 2019
- PT Lion Power. "Laporan Keuangan Untuk Periode Sembilan Bulan Yang Berakhir Pada tanggal-Tanggal 30 September 2018 dan 2017 Serta Untuk Tahun-Tahun Ynag Berakhir Pada Tanggal-Tanggal 31 Desember 2107 dan 2016 Beserta Laporan Auditor Independent". 2019.

III. PLN STATISTICS 2018

- Ministry of Energy and Mineral Resources. "Rasio Elektrifikasi 2017". ESDM. 2019.

IV. NEWS

- Boiler PLTU Unit 3 & 4 Pangkalan Susu Meledak ,9 Pekerja Luka-Luka. Metro 24 jam News. 10 April 2017. <https://news.metro24jam.com/read/2017/04/10/23672/boiler-pltu-unit-3-4-pangkalan-susu-meledak-9-pekerja-luka-luka>
- Bukit Asam Mulai Konstruksi PLTU Sumsel 8 Senilai Rp 24 T. CNBC Indonesia. 23 Juli 2018. <https://www.cnbcindonesia.com/market/20180723144640-17-24928/bukit-asam-mulai-konstruksi-pltu-sumsel-8-senilai-rp-24-t>
- Bukit Asam Pastikan PLTU Sumsel 8 Beroperasi di 2022. Katadata.co.id. 3 Mei 2019. <https://katadata.co.id/berita/2019/05/03/bukit-asam-pastikan-pltu-sumsel-8-beroperasi-di-2022>
- Coal Exports by Country. World's Top Exports. 31 Agustus 2019. <http://www.worldstopexports.com/coal-exports-country/>
- Daftar 28 Proyek Rp1.296 T yang Bakal 'Dijual' ke China. CNN Indonesia. 21 Maret 2019. https://www.cnnindonesia.com/ekonomi/20190320203641-92-379253/daftar-28-proyek-rp1296-t-yang-bakal-dijual-ke-china?utm_source=facebook&utm_medium=oa&utm_content=cnnindonesia&utm_campaign=cmssocmed
- Galang Dermaga PLTU Pangkalan Susu Roboh, 1 Meninggal, 5 Luka- Luka. Medan bisnis daily. 18 Mei 2019. <http://www.medanbisnisdaily.com/news/online/read/2019/05/18/75634/>

- *galang_dermaga_pltu_pangkalan_susu_roboh_1_meninggal_5_luka_luka/*
- Guohwa Energi Bangun PLTU US\$ 213 Juta. Kontan.co.id. 9 Juli 2009. <https://industri.kontan.co.id/news/guohwa-energi-bangun-pltu-us-213-juta>
- Ini sebabnya China kuasai proyek listrik RI. Kontan.co.id. 20 Januari 2016. <https://industri.kontan.co.id/news/ini-sebabnya-china-kuasai-proyek-listrik-ri>
- Kanopi Kupas Amdal PLTU. Bengkuluexpress.com 17 Januari 2019. <https://bengkuluexpress.com/kanopi-kupas-amdal-pltu/>
<https://bengkuluexpress.com/kanopi-kupas-amdal-pltu/>
- Kejaksaaan Ajukan Kasasi Kasus Korupsi Rp 477 Miliar yang Divonis Bebas. Kompas.com. 14 Juni 2019. <https://nasional.kompas.com/read/2019/06/14/16492851/kejaksaaan-ajukan-kasasi-kasus-korupsi-rp-477-miliar-yang-divonis-bebas>.
- Kementerian BUMN Tak Banyak Bicara Tanggapi Surat Menkeu Soal Potensi Gagal Bayar Utang PLN. Tribunnews.com. <https://www.tribunnews.com/bisnis/2017/09/27/kementerian-bumn-tak-banyak-bicara-tanggapi-surat-menkeu-soal-potensi-gagal-bayar-utang-pln>.
- Lebih efisien hingga 40%, PLN andalkan PLTU mulut tambang. Kontan.co.id 12 Mei 2019. <https://industri.kontan.co.id/news/lebih-efisien-hingga-40-pln-andalkan-pltu-mulut-tambang>
- Total Investment Realization in 2018 reaches Rp 721.3 trillion, increased by 4.1%. Badan Koordinasi dan Penanaman Modal. Januari 2019. <https://www.bkpm.go.id/en/publication/press-release/readmore/2178101/35001>
- Pertumbuhan Ekonomi Indonesia 2018 Capai 5,17%. CNBC Indonesia. 6 Februari 2019. <https://www.cnbcindonesia.com/market/20190206104549-17-53987/pertumbuhan-ekonomi-indonesia-2018-capai-517>
- PLN Pasang Turbin Gas di PLTGU Muara Karang Peaker. Tempo. 29 Juli 2019. <https://bisnis.tempo.co/read/1229849/pln-pasang-turbin-gas-di-pltgu-muara-karang-peaker>
- PLTU Jawa 5 Mesti Ditender Ulang. Eksplorasi.id. 21 September 2016. <https://eksplorasi.id/pltu-jawa-5-mesti-ditender-ulang/>
- Proyek PLTU Indramayu II dihadap Warga. Gresnews.com 25 Februari 2016. <http://www.gresnews.com/berita/ekonomi/103171-proyek-pltu-indramayu-ii-dihadang-warga/>

V. REPORT

- Allen, M.R., O.P. Dube, W. Solecki, F. Aragón-Durand, W. Cramer, S. Humphreys, M. Kainuma, J. Kala, N. Mahowald, Y. Mulugetta, R. Perez, M. Wairiu, and K. Zickfeld, 2018: *Framing and Context. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press. Diakses dari https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_Chapter1_Low_Res.pdf
- Hawksworth, John dan Chan, Danny. "The World in 2050 Will the shift in global economic power continue?". Pricewater House Coopers UK, February 2015. Diakses dari <https://www.pwc.com/gx/en/issues/the-economy/assets/world-in-2050-february-2015.pdf>
- Shearer, Christine et al. "China at a Crossroads: Continued Support for Coal Power Erodes Country's Clean Energy Leadership". IEEFA, January 2019. Diakses dari http://ieefa.org/wp-content/uploads/2019/01/China-at-a-Crossroads_January-2019.pdf

VI. OTHERS

- Creswell, John W. "An Introduction to Mixed Methods Research". SSP, University of Nebraska-Lincoln. 2007. Diakses dari <https://sbsrc.unl.edu/Introduction%20to%20Mixed%20Methods.pdf>
- China Development Bank-Global Compact Participant. *Sustainability Report 2018*. China Development Bank-Global Compact Participant, 2018. Diakses dari <http://www.cdb.com.cn/English/shzr/lxsd/>
- Ener Data. *Global Statistical Yearbook 2019: Coal and Lignite Production*. 2019. <https://yearbook.enerdata.net/coal-lignite/coal-production-data.html>
- China Banking Regulatory Commission. *Green Credit Guidelines*. CBRC- Translation by International Finance Cooperation. <http://www.cbrc.gov.cn/chinese/files/2012/E9F158AD3884481DBE005DFBF0D99C45.doc>

- Hobley M. "Participatory Forestry: The Forestry Of Change In India And Nepal" Buku. In Rural Development Forestry Study Guide 3; London. 1969.
- International Renewable Energy Ranking. 2018 <https://www.irena.org/Statistics/View-Data-by-Topic/Capacity-and-Generation/Country-Rankings>
- Kementerian Minerba. *Detail Perusahaan*. Modi Minerba esdm.go.id <https://modi.minerba.esdm.go.id/portal/detailPerusahaan5336>
- Komite Percepatan Penyediaan Infrastruktur Prioritas. *PLTU Mulut Tambang Sumsel*. <https://kppip.go.id/proyek-prioritas/ketenagalistrikan/pltu-mulut-tambang/>
- Organization for Economic Cooperation and Development. "OECD Business and Finance Outlook 2018 Highlights". OECD. 2018. diakses dari www.oecd.org/daf/OECD-Business-Finance-Outlook-2018-Highlights.pdf
- SourceWatch.com
- Tenggara Strategics. "Tenggara Strategics Briefing Paper-Belt and Road Initiative: What's in it for Indonesia?". Tenggara Strategics; Jakarta. Agustus 2018. diakses dari <https://tenggara.id/insights/Belt-and-Road-Initiative-Whats-in-it-for-Indonesia>



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INVESTMENT IN COAL-FIRED POWER PLANT IN INDONESIA IS MORE PROMISING FOR INVESTORS BECAUSE IT GIVES A HIGHER PROFIT MARGIN THAN OTHER DEVELOPED COUNTRIES WHICH ARE LEAVING COAL. THE LOWER ENVIRONMENTAL STANDARD, LOOSE CITIZEN'S PROTECTIONS, AND LOW WAGES, IN FACT, CONTRIBUTED TO HIGHER PROFIT FOR FOREIGN AND DOMESTIC INVESTMENT

Indonesia has an abundance of renewable energy potential as it is located in a tropical area, enriched by tropical forests, in the Ring of Fire region (good for small scale geothermal, as long as problems such as erosion and forced eviction avoided) and the long coastlines. Hence, in the light of classical economics and philosophy, improving coal power plants for electricity may have not originated from the government's good intention but from the business interest in the coal power plant system. The public should study whether these interests represents the people's interest in the long term for a better environment, quality of life for the labor force, and the strengthening of the state's financial position. This research is one of the efforts, to find the consequences of coal funding investment with the impacts on environmental quality and the life of workers. This research selected Chinese investment because the investment dominates the financing, ownership, and the construction of coal-fired power plants in Indonesia.

