CIREBON POWER SUSTAINABILITY REPORT 2017

Powering the Life of Indonesia

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GREETINGS FROM OUR PRESIDENT DIRECTOR

[GRI 102-14]

Dear Stakeholders,

Welcome to our first Sustainability Report. When people think about coal power plant, perception of dirty energy would perhaps have stuck in their mind. Cirebon Power is challenged to offer a different perspective by providing reliable clean energy with our clean coal use technology.

Our company has gone through fundamental changes by restructuring and redefining our vision, values and direction. We envision a growing nation fueled by the power of energy to make things brighter and lives better. Through our new values of being trustworthy, impactful, friendly and pioneering, we have grown from merely power operator into one of the most prominent power developer in Indonesia.

Energy supply is always an issue in an emerging country such as Indonesia. Providing reliable and affordable energy supply in various areas throughout the largest and longest archipelago on earth with over 17,500 islands bestows a much bigger challenge. Our focus is to provide reliable energy supply by utilizing advanced technology that is friendly for the planet, enhance the life of the people, and yet generate reasonable profit to the shareholders. During 2017, we have sold over 4 million MWh electricity to PLN through the Java-Bali Power Grid. With the increasing of power demand, we started an expansion project of 1x1000 MW coal fired Ultra Supercritical power plant, which is expected to operate in 2021.

In our activities, we continuously strive to pioneer creative solutions. Our Supercritical and Ultra Supercritical technology has allowed improvement of cycle efficiency, resulting in lower coal consumption and emission reduction far below the government environmental regulations, producing reliable supply of electrical energy at low cost and low emission. We always believe that there should be a balance between development, environment and the society. Cirebon Power aims to make positive long-term changes to the communities where we operate. We embrace our community through structured community development programs and social innovations, such as the vocational center, micro financing and mobile literation uplift, that are genuinely impacting the lives of our community.

In line with our mission, we aim to power not only a nation, but each and every life in it. Through all of our activities, we believe that sustainable development can be achieved and that we can contribute in building a brighter Indonesia.

Heru Dewanto
President Director
Cirebon Energi Prasarana

As one of the emerging market economies of the world, Indonesia contains great economic potential, abundant natural resources, and young and large population that presents an opportunity for Indonesian energy market. Indonesia's energy plan up to 2050 will still be using coal as the main energy resources. The use of coal are commonly associated with global environmental concerns such as greenhouse gas emission and emissions of pollutants that affect human and environmental health. Environmental aspect is without a doubt the utmost important concern in our operation. With the latest technology for coal energy utilization from Japan and Korea, our emission is far below the government environmental requirements.

Our company and shareholders are proudly committed to social and economic development and safeguarding the global environment through our daily operation and community development activities. We are focused in long term goals and committed to the Indonesian market to ensure sustainable development. To support our community development goals, in 2017 we increased our budget and set our priority to develop connections and improve relationships with the community.

At Cirebon Electric Power, providing value to the society through reliable energy supply is our priority and responsibility. Therefore, we ensure that operation and maintenance of the plants are well managed, strengthened by our local supports. With technology advances and innovation, we continuously strive to go beyond compliance and achieve competitive advantages while being a responsible member of the global community.

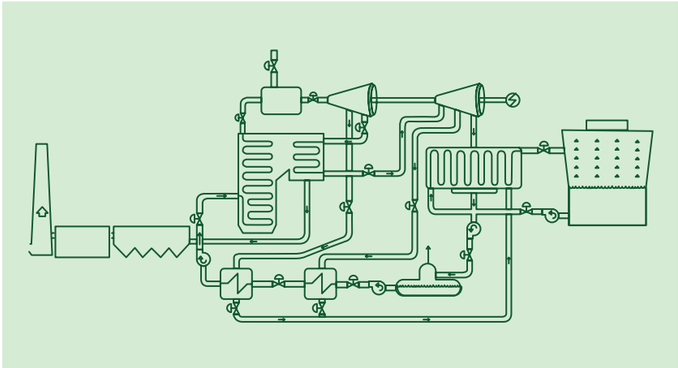
Takeo Nakata
President Director
Cirebon Electric Power

CIREBON POWER HIGHLIGHT

01

SUPERCRITICAL & ULTRA SUPER CRITICAL TECHNOLOGY

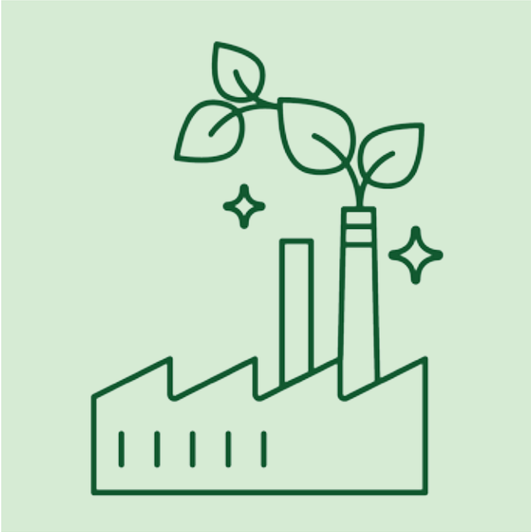
Ultra Supercritical & Supercritical coal fired power plants meet remarkably the requirements for high efficiencies to reduce both fuel costs and emissions as well as for a reliable supply of electrical energy at low cost.



02

UTILIZE DOMESTIC COAL WITH LOW CALORIFIC VALUE AS OUR MAIN FUELS

Our clean coal use technology allow us to utilize domestic coal with low calorific value as our main fuel. Using domestic coal means less transportation cost and improving the local economy.



03

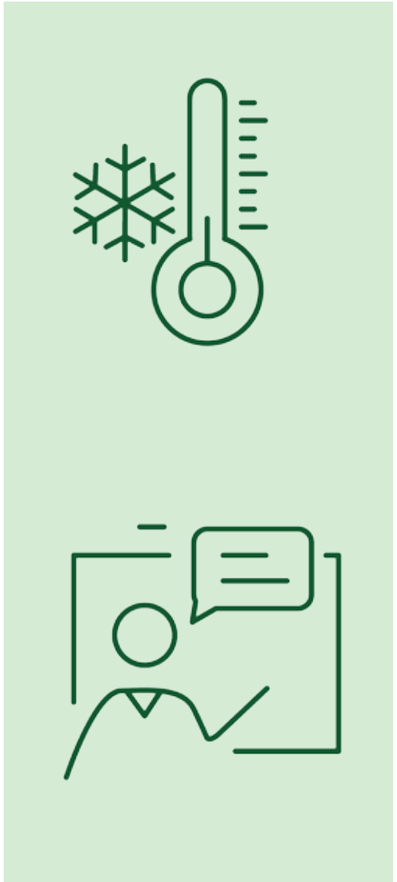
CLEAR AIR EMISSIONS

We strive in pursuing "beyond compliance" environmental policies. Our water quality, air quality, waste and other environmental parameters have always been far below the government requirements.

04

LESS THAN 2°C TEMPERATURE DIFFERENCE

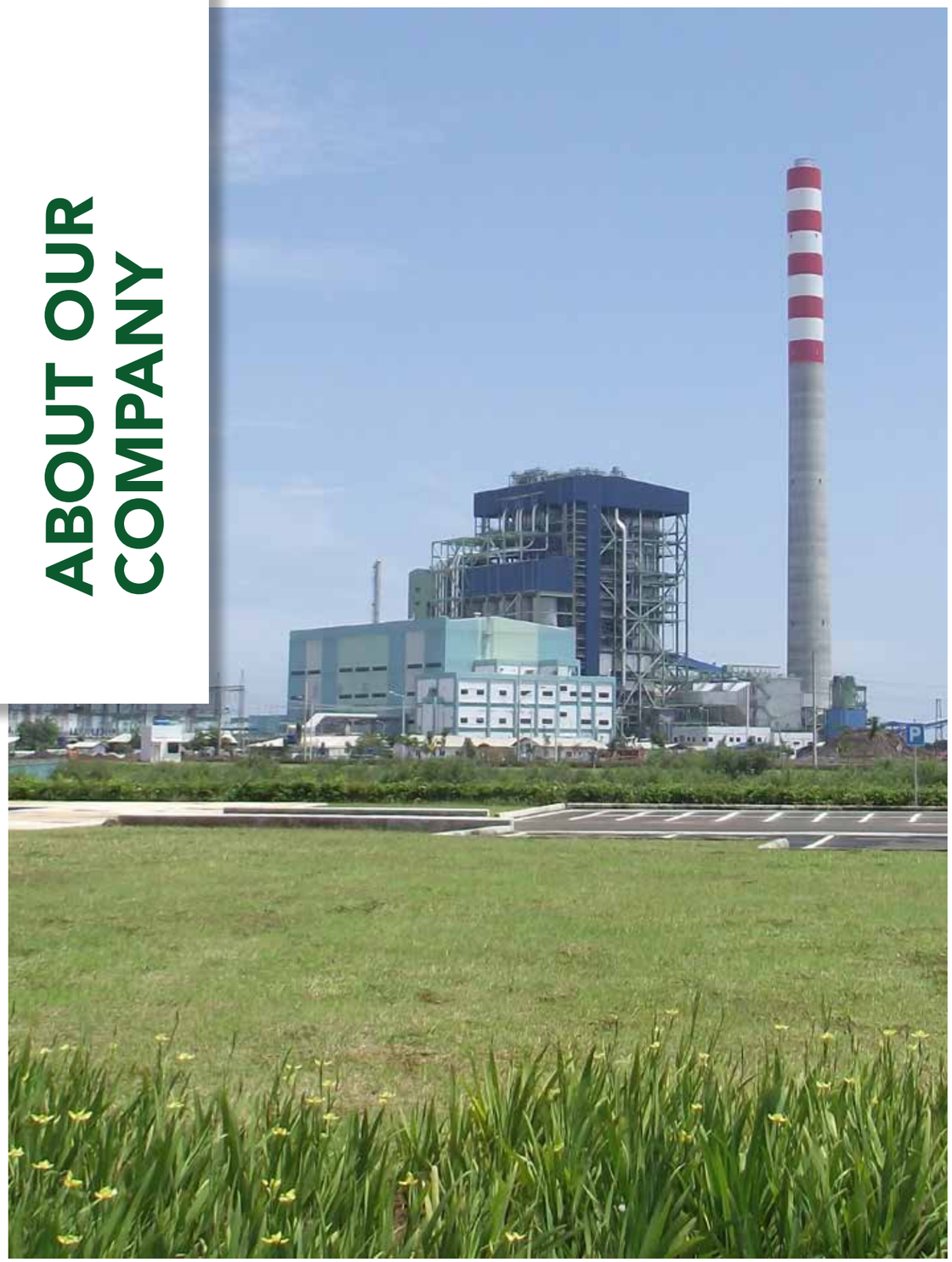
Cooling tower technology keeps the cooling water temperature out of the condenser into the open sea below 2°C difference from the temperature of the seawater intake.



05

BUILD VOCATIONAL TRAINING CENTRE AS THE HUB FOR HUMAN RESOURCE FOR POWER PLANT

In this program, we facilitate and assist the local communities to enhance their skills so that they can be more competent resources. Our vocational program covers four villages around the plant to help improve the wellbeing of the local communities.



01

“POWERING THE LIFE OF INDONESIA”

Is more than just a slogan. For us, it’s a guiding principle that allows us to give meaning to our existence. Cirebon Power is envisioned to pioneer cleaner energy solutions using technological advances to preserve the environment and to ensure a better life for all by the power we produce.

Our Company

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CORPORATE VISION & MISSION
[GRI 102-16]

OUR VISION

WE DREAM OF A GROWING NATION FUELED BY THE POWER OF ENERGY

WE PRODUCE ENERGY TO MAKE THINGS BRIGHTER AND LIVES BETTER

OUR MISSION

"WE WANT TO POWER NOT ONLY A NATION, BUT EACH AND EVERY LIFE IN IT. WE WANT TO LIGHT NOT ONLY CITIES, BUT EACH AND EVERY HOME IN IT. WE STRIVE TO DELIVER A SMARTER, CLEANER, MORE RELIABLE ENERGY FOR EVERYONE. THAT IS OUR PART IN BUILDING A BRIGHTER INDONESIA"

OUR VALUES

TRUSTWORTHY
- Do the Right Thing
- Be Ethical
- Be Professional
- Show Responsibility
- Respect Others
- Get Better Everyday
- Strive for the Best

IMPACTFUL
- Do Things with a Purpose
- Bring a Positive Impact

FRIENDLY
- Be Warm
- Be Open and Approachable
- Be a Friend
- Show Kindness

PIONEER
- To be at the forefront technology in bringing clean energy and changing the lives of people in Indonesia through innovations

Cirebon Power is a brand that operates coal fired power plant with advanced clean coal technology in the coastal city of West Java. Our first unit is the 1x660 MW coal fired power plant with Supercritical Technology. In November 2017, we started the construction of the Expansion Project on the 1x1000 MW large scale Ultra Supercritical pressure coal fired power plant.

Supercritical and Ultra Supercritical Boiler technologies that have been adopted in our plants are the most advanced Clean Coal Technologies (High Efficiency Low Emission / HELE). It improves our efficiency and enable us to achieve fuel cost savings and reduce emissions for each kWh of electricity generated. This means using less coal, and producing less emission to generate more energy.

Inline with the Indonesian government development program to develop Indonesia by strengthening villages and the regions, Cirebon Power continuously contribute the national electricity company (PLN), as our customer, by providing and ensuring electricity availability, especially in Java-Bali region. Through the provision of electricity, we have indirectly contributed to the national economic development. We supply 80% from our installed capacity (1x660 MWh) of the electricity to PLN based on Power Purchase Agreement (PPA) with PLN. In 2017, we provided 4,041,043.7 MWh of electricity to PLN based on data electricity sold, powered by 849 employees to run our entire operations.

Our External Initiatives **[GRI 102-12]**

- In September 20th, 2016, through the Ministerial Decree of the Ministry of Energy and Mineral Resources (MEMR) Regulation No. 7102 K/93/MEM/2016, Cirebon Power was appointed as a National Vital Object. A total of 315 hectares, comprising of 110 ha of Cirebon #1 Plant and 205 ha of Cirebon #2 Plant, are secured and protected due to its strategic importance.
- ISO 9001 : 2015 Certification.
- Award : 2017 - Best Foreign Investment In Cirebon from Government of Cirebon through the Assessment of Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu (DPMPTSP).
- PII (Persatuan Insinyur Indonesia).

Membership of associations **[GRI 102-13]**

- APLSI (Asosiasi Pengusaha Listrik Swasta Indonesia)
- APLBI (Asosiasi Pembangkit Listrik Batubara Indonesia)
- MKI (Masyarakat Ketenagalistrikan Indonesia)

OUR HEADQUARTER:
Pondok Indah Office Tower 3, Suite 2301
Jl Sultan Iskandar Muda Kav. V-TA
Jakarta 12310, Indonesia

OUR OPERATION:
Kanci Kulon village, Cirebon district

OUR SHAREHOLDERS

[GRI 102-5]

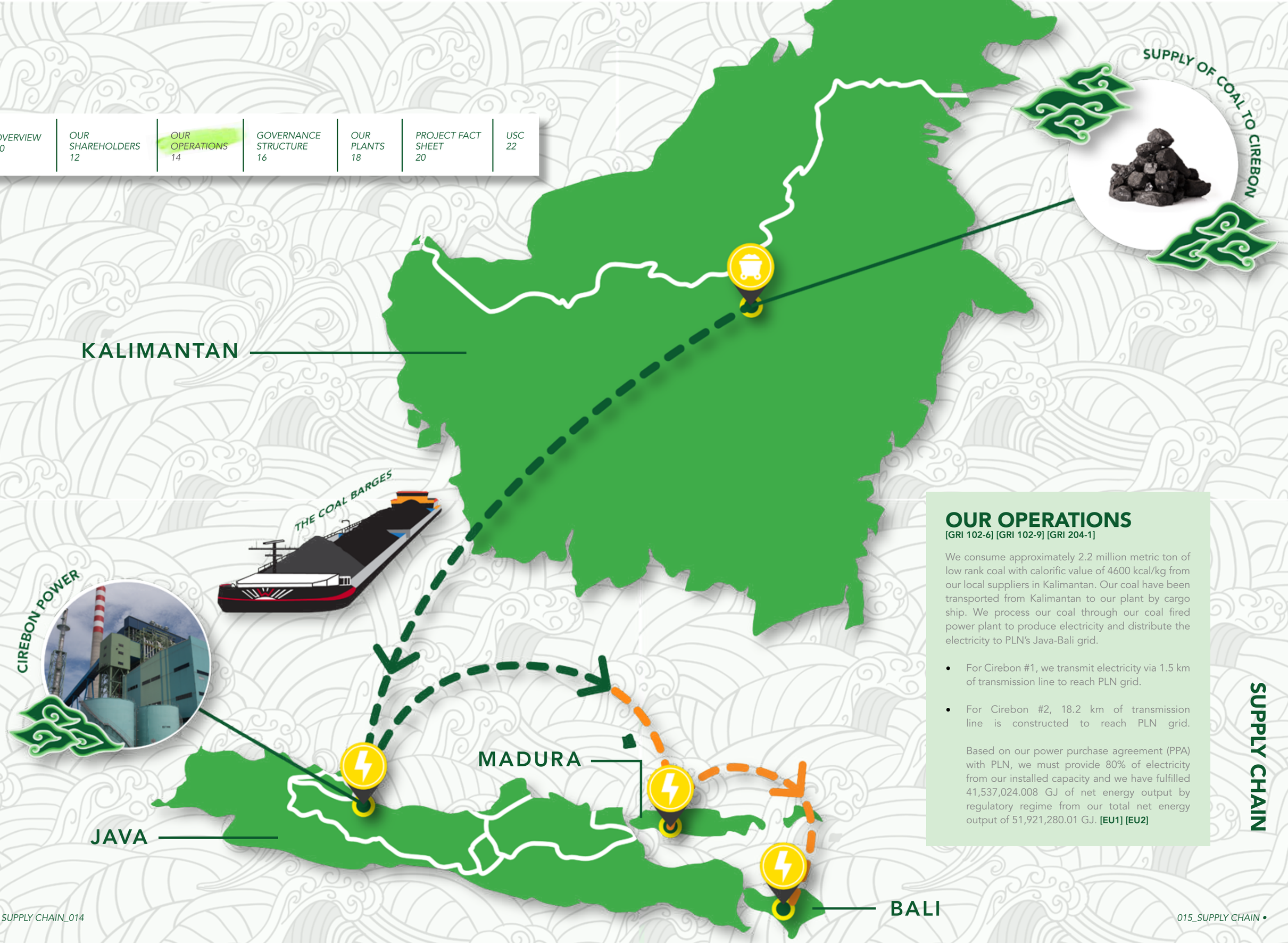
Marubeni is involved in the handling of products and provision of services in a broad range of sectors. These areas encompass importing and exporting, as well as transactions in the Japanese market, related to food materials, food products, textiles, materials, pulp and paper, chemicals, energy, metals and mineral resources, transportation machinery, and includes offshore trading.

Indika provides integrated energy solutions for its customers through its diversified investments in the areas of energy resources, energy services and energy infrastructure i.e., through its strategic investments in the areas of coal production (PT Kideco Jaya Agung); engineering, procurement and construction services (Tripatra); engineering, mining and construction contractor & services (PT Petrosea Tbk); and a power generation project (PT Cirebon Electric Power).

Komipo is a power generation company spun off from Korea Electric Power Corporation on April 2, 2001, following the enactment of Electric Power Industry Restructuring. Komipo operates six power generation facilities, which supply 13% of all domestic electric power in South Korea and takes lead in developing and utilizing renewable energy as exemplified with Yang Yang pumped storage power plant and wind power plant, which are much esteemed for applying environment-friendly energy.

Samtan is one of the leading energy specialized companies in South Korea. Samtan has devoted to energy related industry. In 1982, Samtan involved in a proactive resources development business from the beginning of unfolding the overseas energy development. Samtan has succeeded in developing their businesses in Indonesia through their own original capital and technology.

JERA Co., Inc. ("JERA") was established on April 30, 2015 based on the comprehensive alliance entered into between Tokyo Electric Power Company (since renamed and referred to herein as "TEPCO") and Chubu Electric Power Company ("Chubu") encompassing the entire energy supply chain from upstream fuel investment and fuel procurement through power generation. In July 2016, JERA succeeded its parent companies' fuel business and the overseas power generation business, and aims to become one of the world's leading energy firms.



OUR OPERATIONS

[GRI 102-6] [GRI 102-9] [GRI 204-1]

We consume approximately 2.2 million metric ton of low rank coal with calorific value of 4600 kcal/kg from our local suppliers in Kalimantan. Our coal have been transported from Kalimantan to our plant by cargo ship. We process our coal through our coal fired power plant to produce electricity and distribute the electricity to PLN's Java-Bali grid.

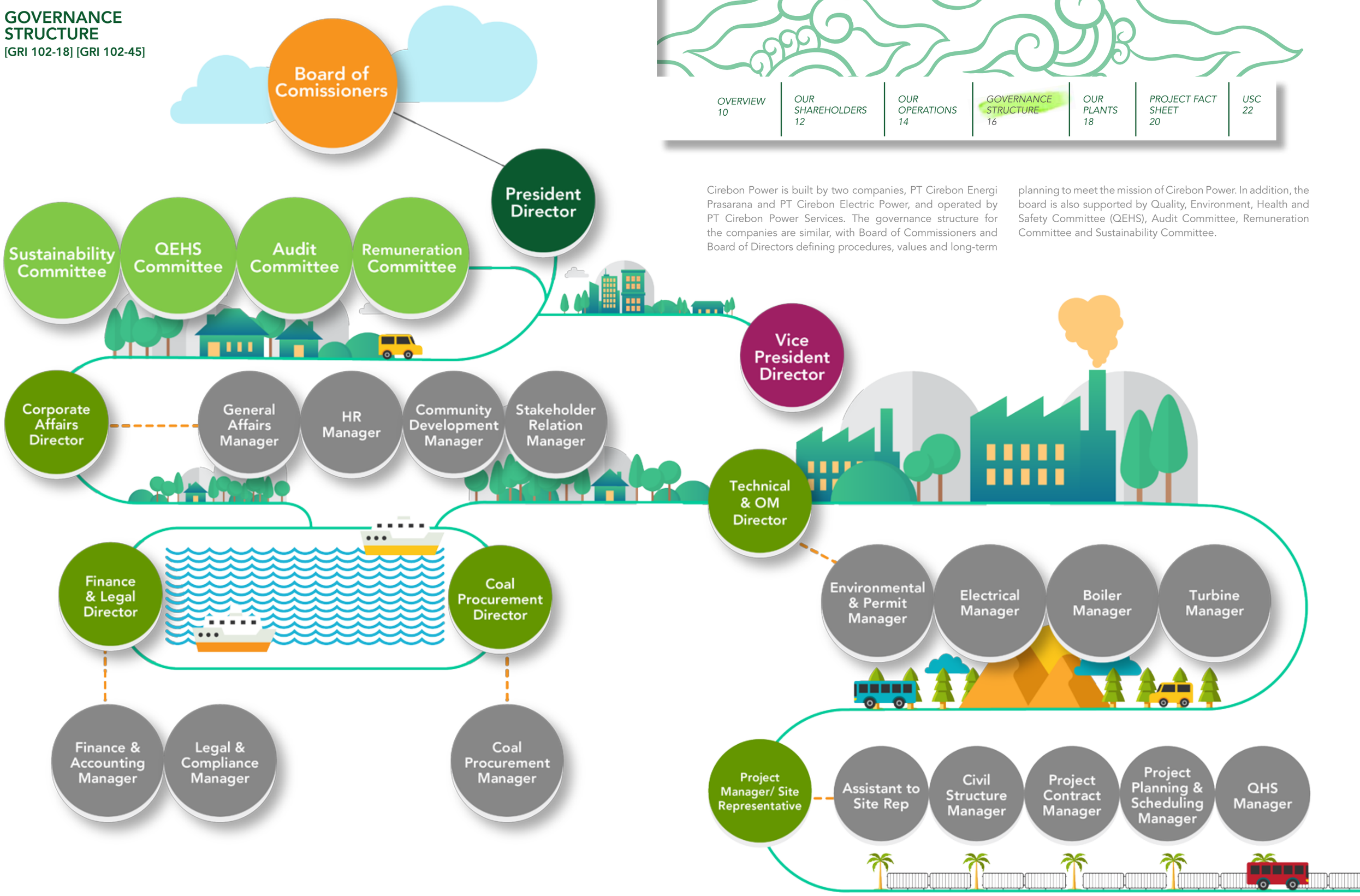
- For Cirebon #1, we transmit electricity via 1.5 km of transmission line to reach PLN grid.
- For Cirebon #2, 18.2 km of transmission line is constructed to reach PLN grid.

  Based on our power purchase agreement (PPA) with PLN, we must provide 80% of electricity from our installed capacity and we have fulfilled 41,537,024.008 GJ of net energy output by regulatory regime from our total net energy output of 51,921,280.01 GJ. **[EU1] [EU2]**

GOVERNANCE STRUCTURE

[GRI 102-18] [GRI 102-45]

Cirebon Power is built by two companies, PT Cirebon Energi Prasarana and PT Cirebon Electric Power, and operated by PT Cirebon Power Services. The governance structure for the companies are similar, with Board of Commissioners and Board of Directors defining procedures, values and long-term planning to meet the mission of Cirebon Power. In addition, the board is also supported by Quality, Environment, Health and Safety Committee (QEHS), Audit Committee, Remuneration Committee and Sustainability Committee.



OUR PLANTS

PT Cirebon Electric Power (CEP) Investment: US$ 877.5 Million

Established in 2007, CEP is an international consortium involving Asia's leading energy and infrastructure companies: Marubeni Corporation (32.5%), Korea Midland Power Co., Ltd (KOMIPO) (27.5%), Indika Energy (20%), and Samtan Corporation (20%) with US$ 877.5 million in total investment. The group of energy powerhouse join forces and built our first unit of 1x660 MW in Kanci Kulon village, West Java. The power plant began its operation 8 months ahead of schedule in July 2012, producing 5 TWh of electricity annually to the Java-Madura-Bali (Jamali) grid. The Operation & Maintenance (O&M) company of Kanci Plant is run by PT Cirebon Power Services (CPS) as the service company. CPS was established in 2010 to manage, operate and maintain Cirebon Power's first unit of 1x660 MW. Managed by more than 200 people, CPS aims to implement cost-effective and environmentally-friendly operation of Cirebon #1 plant.

PT Cirebon Energi Prasarana (CEPR)

Investment: US$ 2 Billion

In May 2014, the multi-national consortium behind the success of our first unit, began a new journey by adding Japan's JERA to strengthen the group. With US$ 2 Billion total investment from Marubeni Corporation (35%), Indika Energy (25%), Korea Midland Power Co., Ltd (KOMIPO) (10%), Samtan Corporation (20%), and JERA Co., Inc. (10%). The development of 1x1000 MW Cirebon Power's expansion project was initiated. This second unit utilizes more advanced Ultra Supercritical technology that enable us to generate even cleaner energy for everyone. The new Cirebon #2 unit is expected to operate in 2021 at Kanci village and Waruduwur village, Cirebon district.

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PROJECT FACT SHEET

	PROJECT OWNER	FINANCING	EPC CONTRACTOR	SHAREHOLDERS
UNIT 1	PT Cirebon Electric Power (CEP)	JBIC (Japan), KEXIM (South Korea)	Doosan Heavy Industries & Construction	Marubeni, Komipo, Indika, Samtan
UNIT 2	PT Cirebon Energi Prasarana (CEPR)	JBIC (Japan), KEXIM (South Korea), NEXI (Japan)	Hyundai Engineering & Construction, Toshiba Corporation, Mitsubishi Hitachi Power System	Marubeni, Komipo, Indika, Samtan, Jera

	OPERATION & MAINTENANCE	OFF TAKER	PPA	CAPACITY
UNIT 1	PT Cirebon Power Services (CPS)	Perusahaan Listrik Negara (PLN)	30 years from COD	1x660 MW Unit area: 110 ha
UNIT 2	PT Cirebon Energi Prasarana (CEPR)	Perusahaan Listrik Negara (PLN)	25 years from COD	1x1000 MW Unit area: 205 ha

TECHNICAL FEATURES

UNIT 1 — Supercritical Technology

Boiler Technology
- Manufacturer : Doosan Heavy Industries & Construction
- Once Through
- Tangential Firing With Tilted Burners
- Supercritical
- Main Steam Pressure : 250 Bar
- Main Steam Temperature : 569°c

Turbine
- Manufacturer : Doosan Heavy Industries & Construction
- Type : Tandem Compound, Single Reheat
- Cooling Method : Cooling Tower

UNIT 2 — Ultra Supercritical Technology

Boiler Technology Manufacturer
- Mitsubishi Hitachi Power System
- Once Through
- Front-Rear Firing with Tilted Burners
- Ultra Supercritical
- Main Steam Pressure : 258 Bar
- Main Steam Temperature : 600°c

Turbine Technology
- Manufacturer : Toshiba
- Tandem Compound reheat turbine with two double-flow
- HP Bypass
- Boiler Feed Pump
- Condenser Tube
- Cooling Tower

Generator Technology
- Manufacturer : Toshiba
- Rated output 1,210 MVA, Voltage output 26 kV, Class F, Freq. 50 Hz, PF 0.85
- Cooling type : Hydrogen cooling

Ultra Supercritical Coal Fired Power Plant (USC)

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1 Introduction

Ultra Supercritical coal fired power plants meet notably the requirements for high efficiencies to reduce both fuel costs and emissions as well as for a reliable supply of electrical energy at low cost.

2 Background

At present, about 60% of the country's over 307 GW of power generation capacity is based on coal.

3 Advantages

- High-end coal based power plants using advanced technology will be as environmentally friendly as a renewable power project of similar investments.
- Compared to an older inefficient coal-based power plant, a new high-end Ultra Supercritical coal fired power plant can bring significant emission reduction at about 20-30%.
- USC technology requires less fuel than other coal fired processes to produce the same amount of electricity.
- Reduce fuel requirements also mean: reduce emissions of sulfur dioxide (SO_2), nitrogen oxide (NO_x), mercury (Hg), carbon dioxide (CO_2) and particulate (PM-10).
- Reduced production of solid waste products such as fly ash.

4 International examples

- German coal fired power plant has an electrical efficiency of nearly 46% while meeting stringent German environmental requirements, making it the cleanest hard coal fired power plant in Europe.
- First USC plant built in the U.S reigns as the country's most efficient coal fired power plant with an electrical efficiency of 40%.

5 Alternative to renewable energy

- High-end coal based power plants are alternative to renewable energy projects which are less reliable and have huge additional costs.
- They produce about four times more power than renewable power.

6 How is it different from conventional coal fired power plant?

- Conventional coal fired power plants, which make water boil to generate steam that activates a turbine, have efficiency of about 32%.
- Ultra Supercritical (USC) power plants operate at temperatures and pressure above the critical point of water, where the liquid and gas phases of water co-exist in equilibrium.
- This results in higher efficiencies above 45%.
- Ultra Supercritical (USC) power plants require less coal per megawatt-hour, leading to lower emissions, higher efficiency and lower fuel costs per megawatt.

7 The future of this technology

- With USC well established, R&D is underway to increase stem temperatures to 700°C and beyond, which could achieve coal fired efficiencies as high as 50%.
- Further advances in the technology, material science and emissions control will enable coal fired power to retain a primary role in future power systems.

8 Conclusion

Consuming less coal for generating or producing energy will be helpful for decreasing the cost of electricity.

02

“CLEAN COAL USE TECHNOLOGY”

Our Clean Coal Use Technology improves cycle efficiency, resulting lower coal consumption and reduce emissions to the atmosphere.

OUR CLEAN COAL USE TECHNOLOGY

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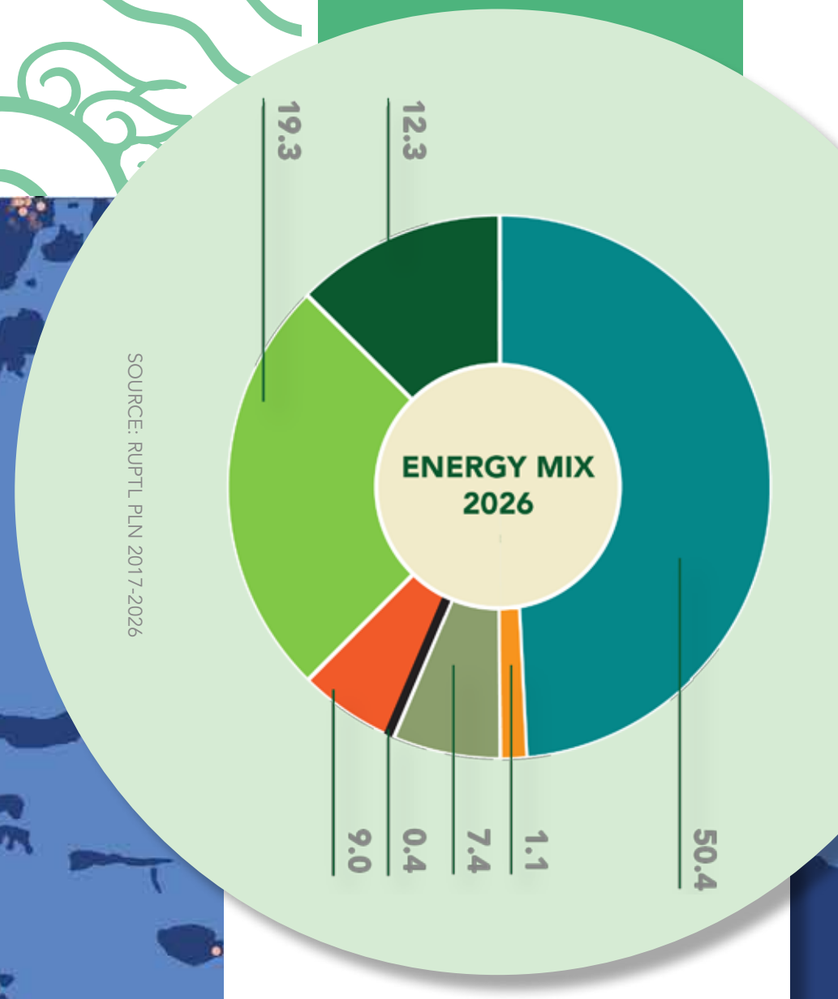
ENERGY 35

Indonesia consists of thousands of wonderful islands, however 4,000 islands of our archipelago are still suffering from electricity crisis and remains in the dark. Around 8.5 million unfortunate families do not have access to electricity. 42,000 villages and 17,000 schools do not have electricity for daily operations. Compared to nations in Southeast Asia, Indonesia is one of the lowest consumer of electricity with 1.00 MWh per capita, compared to Brunei (10.11 MWh/capita) and Singapore (8.70 MWh/capita). (Economist Intelligence Unit, May 2016)

To fulfill the electricity demand of Indonesian people throughout the archipelago, the government developed 35.000 MW Power Plant Program. Cirebon Power as an Independent Power Producer has signed power purchase agreement (PPA) to help meet Indonesia's rapidly rising energy demand.

Currently, the electrification ratio in Indonesia at rate of 84%. By the end of 2019, the government will manage to increase the ratio to 97.35%. According to the MEMR, RUPTL PLN (2017-2026), the government plan for energy mix by the end of 2026 consist of 6 big categories which are coal, LNG, water, geothermal, gas, and oil. The biggest energy contribution still from coals with the share of 50.4%.



SOURCE: RUPTL PLN 2017-2026

Energy Source	in %
COAL	: 50.4
GAS	: 7.4
OIL	: 0.4
GEOTHERMAL	: 9.0
LNG	: 19.3
WATER	: 12.3
OTHER RENEWABLE ENERGY	: 1.1

WHY COAL?

The International Energy Agency (IEA) predicts that the share of coal in power generation in Southeast Asia will rise from 32% to 50%. With abundant local supply of coals from Sumatra and Kalimantan Island, coal is the most reliable, affordable and considerably safe energy source in Indonesia. Compared to other energy sources, the price of coals is only around half price of other sources, making it the choice of energy for emerging Indonesia. Our challenge is to balance development with sustainability, national capabilities, and market structure.

OUR SOLUTION

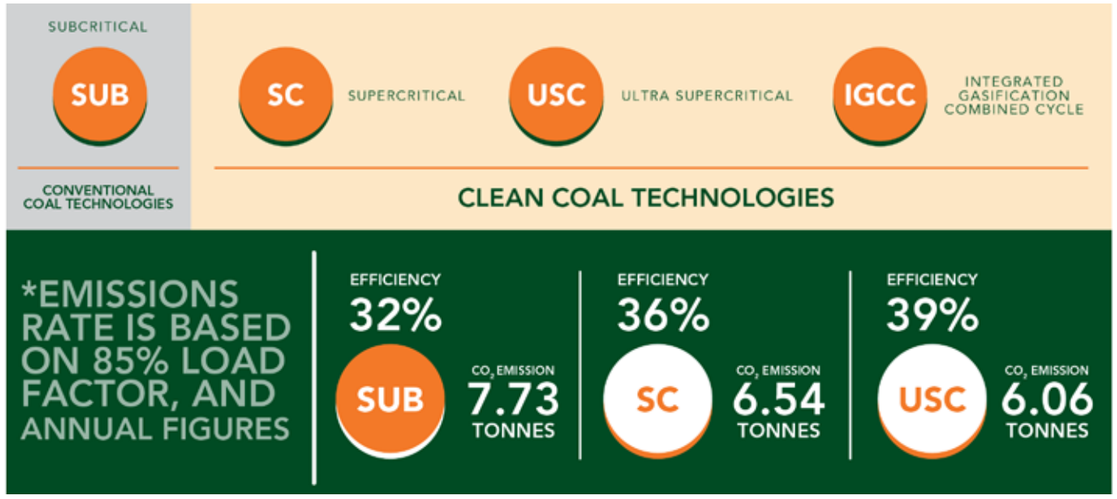
Our approach is to provide the best technology to fully utilize coal capabilities as efficient energy source in an environmentally responsible way.

Our approach is to provide the best technology to fully utilize coal capabilities as efficient energy source in an environmentally responsible way. As we concerned about the environmental issues, we contrive to fulfil the electricity demand with cleaner energy solution and preserve the environment to ensure a better life.

We utilize clean coal use technology in powering our plants. The Supercritical and Ultra Supercritical technologies improve the cycle efficiency, which results in lower coal consumption and reduced emissions to the atmosphere even though burning low calorific coal. The boiler is tangentially fired and utilise LO-NO_x Burners which ensure that the production of Nitrous Oxides (NO_x) is significantly lower than the thresholds set out by the government of Indonesia. Not only NO_x, but we also ensure the level of sulfurous oxides (SO_x) emissions as we use coal with a very low sulfur content (less than 0.2%).

During 2017, we consumed approximately 2.2 million metric ton of Indonesian 0.1% low sulfur and maximum 3% low ash environmentally friendly Indonesian lignite coal **[GRI 301-1].** These materials are procured 100% locally from industries in Kalimantan **[GRI 204-1].** The low sulfur coal enables Cirebon Power to meet sulfur oxides (SO_x) emission regulated standards obviating the need for engineering solutions such as flue gas desulphurization (FGD) and reducing the cost of plant operation. The low ash content also contributes to extending the life of the power plant ash disposal facility and reduces the cost associated with ash disposal treatment and area.

Clean Coal Technologies consists of three different types which have different level of efficiencies, namely Supercritical, Ultra Supercritical, and Integrated Gasification Combined Cycle. According to the World Coal Association Analysis 2015, 36% of the world's coal power plant is Supercritical, while 26% uses Ultra Supercritical. Our first coal fired power plant at Kanci Kulon-Cirebon district, utilizes Supercritical technology while our second one is implementing Ultra Supercritical technology, which is more advanced than the existing technology at our first plant.



We pioneered in clean coal Ultra Supercritical technologies in Indonesia. For these advances, we invested 877.5 million Rupiah for our Supercritical technologies and 2 billion Rupiah for our Ultra Supercritical technologies. This investment particularly focused on providing sustainable electric power development and procurement, including advanced generation technology, energy efficiency, and local procurement**.** We continuously working on improving the efficiency of our plants and keep the carbon emissions as low as possible. **[EU-R&D]**

THE APPLICATION OF CLEAN COAL TECHNOLOGY

1 SUPERCRITICAL TECHNOLOGY

This technology is applied in the plant to enhance the efficient use of coal. Unlike subcritical power plants, where more heat is required to evaporate the water in the boiling phase, the plant operates above the critical pressure (22.064 MPa) which removes the boiling phase from the cycle and improves the cycle efficiency.

2 TANGENTIAL FIRING SYSTEM AND LO-NOx BURNERS

The fuel and air streams from the wind box nozzles are directed towards concentric firing circles and provide more effective mixing of fuel and air through turbulence and diffusion to ensure enough time for complete combustion of the fuel. LO-NOx is normally generated by excessive furnace temperature. Staging the air to some extent, will slightly reduce furnace temperature therefore reducing NOx production.

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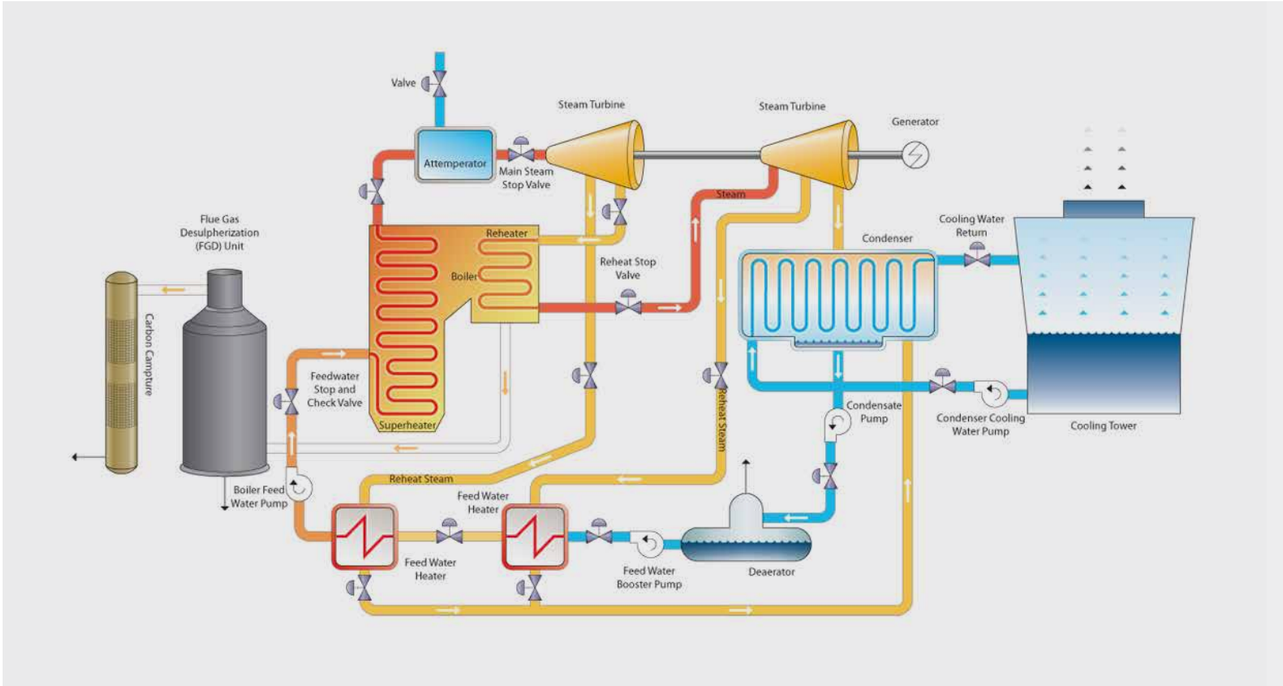
3 ULTRA SUPERCRITICAL TECHNOLOGY (USC)

According to the research, coal is still dominating as the most used energy feedstock. Environment friendly and economical power generation is of paramount to cope with the challenges imposed by an increasing demand of energy throughout the world. Larger CO_2 emissions increase the need for more efficient coal-based power generation. Ultra Super Coal Used Technology meets remarkably the requirements for high efficiencies to reduce both fuel costs and emissions as well as for a reliable supply of electrical energy at low cost. This technology will be as environmentally friendly as a renewable power project of similar investment. Compared to an older coal-based power plant, this power plant can bring significant reduction of fuel needed over the life as well as emission reduction at about 20-30%.



EFFICIENCY AND RELIABILITY

[EU10, EU11]

The Indonesian government projected that until 2031 there will be an annual demand growth of 8.3% based on RUPTL PLN 2017-2026. With the current consumption of 970 kWh/capita/day, the target consumption per capita is expected to grow up to 2700 kWh. This demand is responded through the construction of the 1x1000 MW coal fired Ultra Supercritical power plant expansion project. **[EU10]**

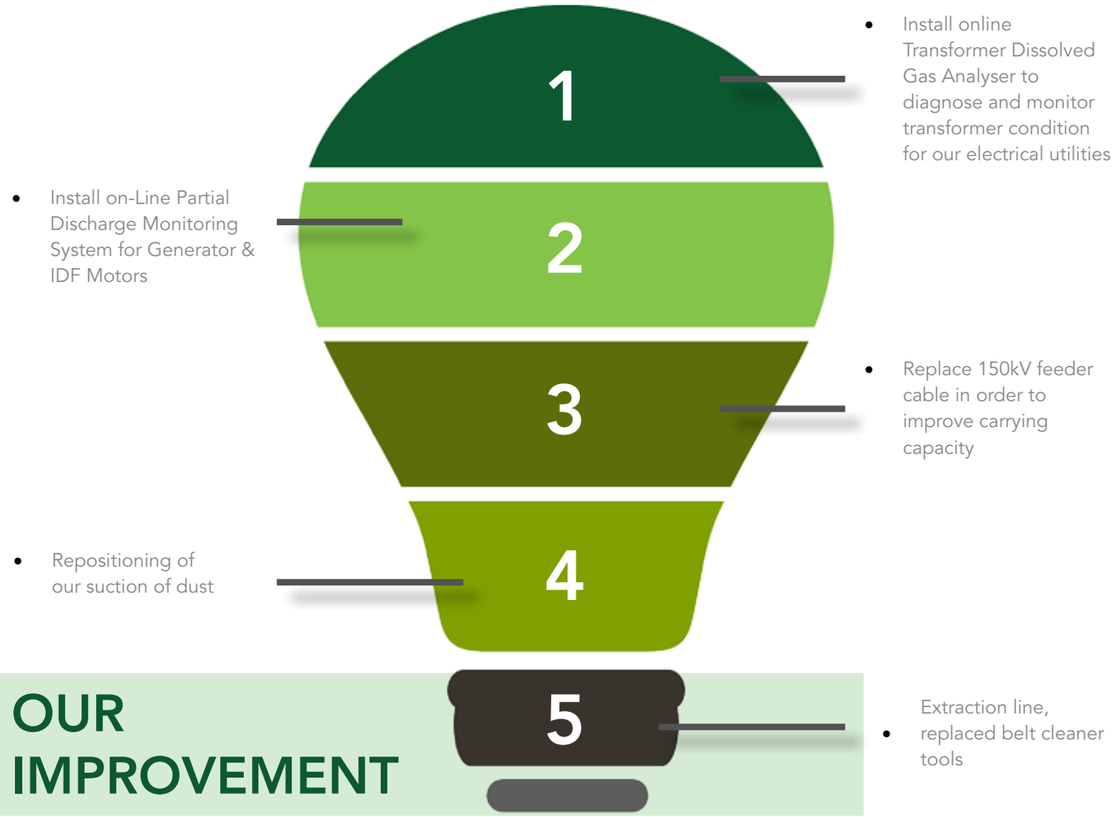
Furthermore, to improve plant efficiency, reliability, and availability, reduce safety risk and environmental impact, improve work effectiveness of operation and maintenance, as well as economic and profit viability, we have a procedure called Plant Modification Request (PMR).

PMR priority based on following criterias:

This procedure allows modification and improvement of systems, similar to research and development team. From 2012 until 2017 we have invested USD 3,762,910, with USD 119,732 alone in 2017, for modification our plant. **[EU-R&D]**

The Plant Modification Request (PMR) comprised of several scopes such as modification and or removal of existing system and equipments, additional installation of equipments, and modification of control and logic. The sequence of modifications will be determined according to our urgency criteria.

As of December 2017, we closed more than 91% of our PMR issues. Two modifications which have major contribution to our efficiency are main turbine forced cooling and baby cooling water pump. Those implementations have direct impact on the overhaul schedule, which decreased duration of overhaul period by 27%.



OUR IMPROVEMENT

Since the beginning, we always maintain our plant efficiency at rate of 37-38%. **[EU11]**

Additionally, we continuously innovate to improve our efficiency by reducing technical losses from pressure, temperature lost, condenser pressure lost, and increasing cooling tower efficiency. In 2017, our technical losses were contributed by pressure lost at rate of 0.22%, main steam temperature lost at rate of 0.18%, hot reheat steam temperature lost of 0.14% and also condenser pressure lost at rate of 1.5%. Although those rates are considerably low, we are committed to continuously improving our system reliability.

We are fully committed to safeguarding our coal availability in fulfilling long-term demand. Beside establish new power plant, we focus on improving the stability and efficiency of our existing plant by monitoring and evaluating our system continuously. We have several strategies to face upcoming challenges, one of them is regarding the outage period.

The most critical moment which required precise control is when the plant on outage period. We have two outage classes - 47 days long and 37 days long - which conducted every two year alternately. During outage period, we buy electricity from PLN to power our daily plant and administration process. In those events, we use auxiliary transformers in addition to our own generator transformer. We will keep improving our quality of service as we manage to minimize the outage period. In addition, we have to endeavour proper forecast of demand and raw material price. In this case, demand from our customer depend on the coal price. We have established our coal price strategy for having good merit order number. Complimentary to that, we also have preventive maintenance strategy and minimum requirement of coal stockpile level.

TRANSMISSION AND DISTRIBUTION

[EU3, EU4, EU12]

The electricity that we produce from our power plants are purchased by Indonesian government (Perusahaan Listrik Negara / "PLN"), as the national electricity service provider. In 2017, the power produced by Cirebon #1 plant is distributed to the Java Bali Power Grid via PLN Brebes (185 MW) and PLN Sunyaragi (475 MW). Cirebon #1 power plant provides approximately 1.5 km transmission line while Cirebon #2 power plant is designed with 18.2 km lines with a voltage level of 150 kV. The transmission over long distances potentially creates technical losses. However, until now we have yet measured the losses due to transmission and distribution.

ENERGY

Even though our plant implemented the most advanced clean coal technology, we continuously provide the best effort in maintaining our energy sustainably. Effort to reduce energy consumption such as modifications on steam turbine brush seal, air heater seal driving system, coal storage dome, installation of valves, and replacement of motors to variable speed drive type which were conducted in 2017.

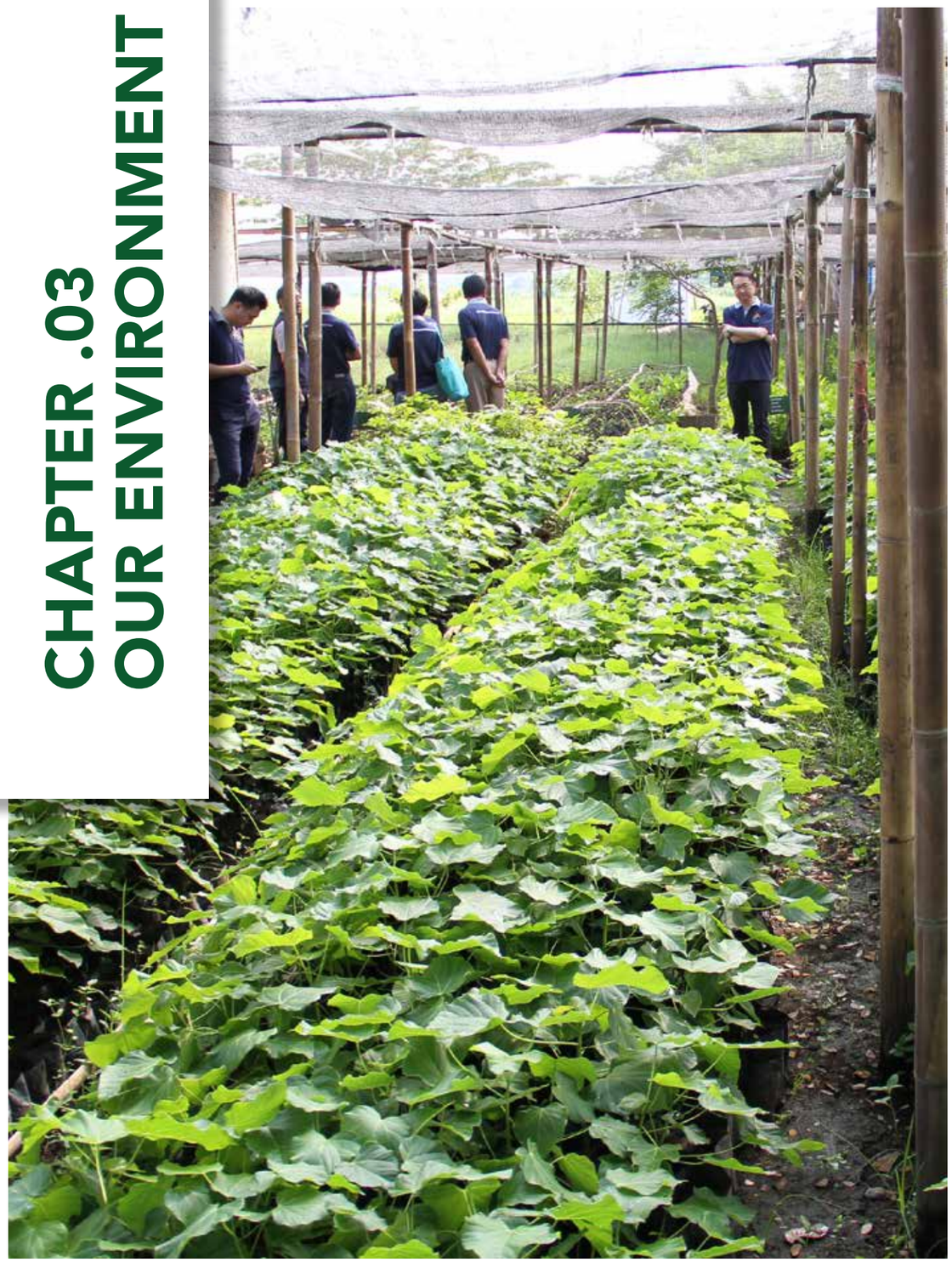
All our energy sources are non-renewables. Throughout 2017, we consumed 2,186,885 ton of coals and 1,243,595 KL fuel oil to initiate plant start up after maintenance or outage. By December 2017, we have sold 4,041,043.72 MWh electricity to PLN.

The amount of electricity sold according to some aspect such as Planned Outage (PO) for Major Overhaul (MOH), Forced Outage (FO), Reserve Shutdown (RS), Outside plant Management Control (OMC), Forced Derating and Maintenance Derating.

Due to the energy usage, the total direct greenhouse gas emission from our operation (scope 1) is 3,894,157.5 ton CO_2eq., which is broken down to CO_2, CH_4, and N_2O. **[GRI 305-1]**

Until now we have yet participated in any carbon trading initiative. Our future improvement includes the implementation of energy audit and vehicle emission testing program to further enhance our operation efficiency. **[EU5]**

Energy consumption within the organization [GRI 302-1]	C1	C2	Unit
Coal	51,282,453.25	-	Gj
Fuel Oil	51,600,698.75	-	Gj
Electricity Sold	14,547,757.57	-	Gj
GHG Emission Intensity [GRI 305-4]			
Intensity CO_2 Emission	**C1**	**C2**	**Unit**
Emission Total CO_2	3,875,376.00	-	Ton CO_2 eq.
Number of Production	4,041,043.00	-	MWh
Emission Intensity (Emission total/ Number of Production	0.96	-	
Intensity CH_4 Emission	**C1**	**C2**	**Unit**
Emission Total CH_4 (Ton CO_2 eq.)	1,235.2	-	Ton CO_2 eq.
Number of Production (Ton, kW, etc.)	4,041,043.00	-	MWh
Emission Intensity (Emission total/ Number of Production	0.00031	-	
Intensity N_2O Emission	**C1**	**C2**	**Unit**
Emission Total N_2O (Ton CO_2 eq.)	17,545.62	-	Ton CO_2 eq.
Number of Production (Ton, kW, etc.)	4,041,043.00	-	MWh
Emission Intensity (Emission total/ Number of Production	0.00434	-	



03

“PRESERVING OUR ENVIRONMENT”

As one of the front runners in the implementation of efficient and clean coal use technology, we are committed to the reduction of environmental impacts from our power generation facilities. We conduct professional, measurable, and accountable waste and air pollution management as well as local endemics preservation.

Our environmental management approach applies precautionary principles to protect the environment. [GRI 102-11]

Habitat Protection and Biodiversity

HABITAT PROTECTION & BIODIVERSITY 38
ENVIRONMENTAL COMPLIANCE 40
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1. GREEN BELT

It has always been our main purpose to preserve and protect the environment, flora and fauna habitats in our industrial environment. Cirebon Power is committed to protect and conserve green areas around the plant site.

Mangrove systems are among the most productive and biologically important ecosystems in the world. They form a crucial component of the livelihoods of coastal communities in developing countries providing: fish, crustaceans and other sea life for food and income; wood for fuel and energy; protection of shorelines from erosion, flooding and storm damage; and a filter for pollutants to help maintain water quality. Starting from the construction process in 2009, we have continued to plant and conduct mangrove and tree pruning processes together with the residents and surrounding communities. So far, we have planted more than 25,000 trees and 70,000 mangroves. Furthermore, we will continue to do more reforestation. **[GRI 304-3] [EU13]**

Since 2011, we have been partnering with local environment NGOs, Community Groups, Local Government and illages around us to plant over 70,000 mangrove seeds along the Cirebon Coast. The initiative aims to improve the coastal habitat so that fish, crabs and small shrimps can live providing a source of livelihood for the local villagers that's closer to home. The project is conducted every year. This is part of our commitment to provide cleaner energy solutions and preserving the environment. These mangrove plants will make the coastal areas greener, prevent abrasion, and guard the coastal ecosystem. **[GRI 304-1]**

2. SEEDLINGS BANK

As part of our ongoing environmental rehabilitation effort, we have been developing a seedlings bank, in cooperation with local environmental NGO; Forum Masyarakat Peduli Lingkungan (FORMAS PL). Here we grow soursop, mangosteen, longan fruit, custard apple, and also protective plants such as *Reutealis trisperma, Cerbera manghas, Polyalthia longifolia, Swietania mahagony and Terminalia* katappa. Thousands of seedlings are planted in surrounding villages every year, together with the local villagers, village officials, and Environmental Groups in the community.

3. COMMUNITY ENVIRONMENTAL FORUM

Following a series of environmental rehabilitation conducted by Cirebon Power together with local environmentalist, villagers and NGO. In 2015, the Community Environmental Forum was established. The group aims to intensify the cooperation and do even more great things for mother nature. As a result the seedlings bank was established during 2015 – 2016 as well as mangroves and trees plantation were conducted in many locations in surrounding village areas.

4. MARINE BIOTA REGULAR MONITORING

Cirebon Power hire certified laboratory to do regular water monitoring, four times a year. We do water sampling for plankton organisms and sediment sampling (sludge) for benthic organisms. The samples (water and sediment) are then observed in the laboratory to obtain the result. In the lab, they will calculate the density and the number of its kind to obtain parameter diversity index and uniformity index. Until 2017, our index result always way much above very good scale.

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ENVIRONMENTAL COMPLIANCE

Cirebon Power stand on an area of 315 ha in Cirebon Regency. Unit II Cirebon Power is built on government-owned land through a land use cooperation agreement with the Ministry of Environment and Forestry of Republic Indonesia (MoEF). A major government breakthrough to boost the acceleration of infrastructure development and minimize land acquisition barriers by using the state-owned land. We are the first company to undertake development with the scheme. The land of Unit II is the land owned by MoEF previously utilized by State Forest Company (Perhutani). **[GRI 307-1]**

Every target and program is documented in Objective, Target, Program (OTP) which is aligned with ERA (Environment Risk Assessment), rules and regulations, environmental management standard, as well as internal monitoring and external audit. In the process, OTP is integrated with International Environmental Management System (EMS) ISO 14000. We always conduct sampling of water quality, air quality, waste, and other environmental parameters in laboratories that have been accredited ISO 17025 by National Accreditation Body of Indonesia (KAN) and registered in Ministry of Environment.
[GRI 102-12]

We believe that data validity is an important aspect as a guideline in monitoring environmental performance which becomes our priority. During 2017, there were no administrative sanction and fine related to violation on quality standards or environmental management. **[GRI 307-1]**

For our environmental compliance, we received Blue rating for our environmental performance (PROPER) from the Ministry of Environment and Forestry.

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ENVIRONMENTAL PROTECTION

The availability of clean and reliable sources of water is a critical issue in Indonesia and across the world. We continuously monitor and implement technologies to address the potential water management issues related to our coal-based power generation, such as water contamination and high temperature of discharged cooling water. Our management strategies are:

1. GROUNDWATER MONITORING WELLS

The wells between the temporary shelters of bottom ash will be a comparison of groundwater quality before and after the operation of the power plant. The results show that the power generation process does not alter groundwater quality around the site. The groundwater monitoring wells are built around storage areas of fly ash and bottom ash and coal storage areas to monitor groundwater quality.

2. WATER QUALITY MONITORING

Periodically every three months, we also monitor the quality of seawater, rivers, and groundwater around the plant site, including residents' wells. This monitoring system is done to ensure water quality is maintained, as we promised. **[GRI 306-5]**

3. IMPERMEABLE MEMBRANE

The membrane sheets made of High-Density Polyethylene (HDPE) material coat the coal storage, the coal run-off settling pond or the temporary ash storage. Thus, we can ensure that no bit of coal and ash waste is seeped into the soil, preventing water and soil contamination around our plant site. **[GRI 306-5]**

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4. INTERCEPTOR PIT

This pit is where the last ditch of rainwater runs. This pit filters and precipitates water, to make sure there is no remaining coal particles. From here, clean water is streamed into the sea through our sewers.

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5. THE FLOOD EARLY WARNING SYSTEM

Facing climate change, Cirebon Power have a water management strategy in order to avoid flooding during high rainfall and no drought when the rainfall is low. Cooperating with the government institution, we developed a flood early warning system in the upstream and downstream of the Kanci River. Equipped with detection and siren sensors, this system will provide early warning to residents if water levels have exceeded normal limits. All the systems we build are our commitment to generate energy in a smarter, more efficient and environmentally friendly way.

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WASTEWATER MANAGEMENT

Before wastewater was channeled to public water bodies, such as rivers or the sea, we ensure that it has met the quality standards set by the Governments. All points of water disposal location have obtained and approved through the Decree of the Regent of Cirebon and the Decree of West Java Governor. **[GRI 306-5]**

1 / Wastewater from Cooling Tower

To reduce the usage of freshwater, the power plant installations utilize sea water and is returned to the sea after it has been used. 100% the water used for the cooling process is taken from North Java Ocean, near Cirebon coastline. The water is pretreated and stored in tanks for each stage, from filters to desalination. To inhibit the growth of water microbiota, e.g. moss and bacteria, we treated the water with recommended dose of chlorine. **[GRI 303-2]**

THE WATER SYSTEM PROCESS:

After passing through various stages of production, the temperature of the water produced is often higher than the ocean. Cirebon Power is the first large capacity coal plant using cooling tower facility to prevent damage to the marine biota. According to the regulation, the water we re-transport to the sea should not exceed 2°C from the initial temperature. **[GRI 306-1] [GRI 306-5] [EU Water (G4-DMA)]**

Our cooling tower technology keeps the temperature of the water output from the condenser to the open sea below 2°C difference from the sea water intake. This low temperature protects the marine ecosystem around our power plant.

2 / The Coal Lance Water Pond & Screen Pool

To ensure that coal and other pollutants in rainwater can be deposited and or sent to the wastewater treatment plant.

3 / Monitoring by internal laboratories and licensed Independent Laboratories

We conduct a regular environmental monitoring in cooperation with certified third-party laboratories, to make sure that our operations do not harm the environment as we follow the environmental safety requirements. We also report the result to the government quarterly and semi-annually.

AIR QUALITY

To our company, reducing figures is not just to meet government regulations. We want to reduce our plant emissions to a minimum, so Cirebon Power is able to pioneer a cleaner energy solution. Our company conducts monitoring of emission produced during production process. This is one way for us to preserve nature and ensure that our company has responsibilities in conserving environment. This monitoring system is also used as our guidelines to observe to what extent fly ash resulted from plant activities affect environment as well as to assist us in reducing the air pollution.

In the process of generating energy, coal fired power plants produce burning ash, in the form of fly ash and bottom ash. Our fly ash shelter has a capacity of 1,350 tons and serves as a temporary shelter. Furthermore, 100% of the stored ash is transferred to a closed transport truck, to be brought to the cement factory, where ash is used as the cement making material.

OUR APPROACH TO CONTROL EMISSION

1 / Coal Storage Wind Breaker

The Plants coal yard is enclosed by a mesh-type wind breaker which extends to a height greater than the coal stockpile in order to minimize coal dust from being easily escaping into the surrounding areas. Our coal shelters are equipped with a 13-meter windbreaker that holds the wind around the shelter and prevents coal dust from flying into the surrounding environment. We also planted more than 7 layers of Acacia mangium trees to reduce the pollution of coal dust. The combination of mesh and tree wind breakers will greatly reduce coal dust being air borne both inside the plant and the surrounding areas of the plant.

2 / Electrostatic Precipitator

In managing fly ash, we utilize fly ash exhaust & removal system with an electrostatic precipitator. Electrostatic Precipitator regulates emissions by holding and discharging 99.8% of fly ash in combustion to avoid contamination.

The Electrostatic Precipitator function can be seen from the emission parameters, where the total particulate emissions produced range from 25mg / Nm^3, well below the government threshold of 100mg / Nm^3, with a thickness of 10%, or only half of the maximum limit set.

3 / Coal Yard Dust Suppression

One way to prevent coal dust from polluting the environment is by spraying water. We spray water from a high-pressure machine over the pile of coal regularly. This process also serves to moisten the top of the coal pile.

The plant's coal yard is also equipped with a "dust suppression system" where water is sprayed onto the coal during loading and unloading activities in dry seasons. Together with the wind breakers this system will further reduce air borne dust, thereby minimizing contaminants entering into the environment.

4 / Continuous Emission Management System and Ambient Air Monitoring System

Our operations that utilized coal as the main source of carbon emission consist of: usage of fuel for boiler and generator, fuel usage for operational vehicles, coal usage for combustion power plant, as well as land clearing for mining. In reducing the impact of gas emission from both operational equipment and vehicles, we always conduct routine maintenance to maintain effectiveness of combustion. We use Continuous Emission Monitoring System which installed in Emission Chimney and operates continuously (24 hours a day, 7 days per week) and monitoring of chimney emission quality manually done every 3 months by the certified laboratory.

Our company also provides an air quality monitoring station that operates (24 hours a day, 7 days a week) since 2010, which named the Ambient Air Quality Monitoring Station. The system works for 24 hours and serves to ensure air quality stays within safe limits in accordance with the provisions of Highest Ground Level Concentration (HGLC).

Emissions are monitored and recorded in a Continuous Emission Management System (CEMS) located at site. In its eagerness to observe local environmental regulations as well as minimize environmental pollutants, Cirebon Power has also taken to install an Ambient Air Monitoring System (AAMS) approximately 4.5 km west of the chimney, wherein such location is said to have the highest concentration of NO_x caused by the operation of Plant, so as to allow for the close monitoring and recording of NO_x, SO_x, CO, CO_2, particulates etc. **[GRI 305-7]**

Our plant 2017 Continuous Emission Monitoring System (CEMS) test result is complied with our government regulation. **[GRI 305-7]**

WATER PERFORMANCE

Our water requirement to run the whole operations is 749,680,066 m^3, which is mainly used for the boiler, cooling tower, and office. Following the government regulation, we recycle our water through the use of cooling tower. During the reporting period, we withdrawn 48,880,066 m^3 water from the sea to make up the loss from evaporation and daily operation. We treat the seawater to become freshwater that comply our quality standard and conduct water recycle for water conversation purpose. In total, we have recycled 598,836,976 m^3 or equal to 80% of the whole water consumption. Our treated wastewater is released directly to the sea with the temperature difference less than 2°C compared to the water intake, beyond compliance from the given threshold set in the regulation. **[GRI 303-1] [GRI 303-3]**

Water withdrawal by source [GRI 303-1]	C1	C2	Unit
Sea water	48,880,066.00	-	m^3
Water sources significantly affected by withdrawal of water [GRI 303-2]	**C1**	**C2**	**Unit**
Total number of water sources significantly affected by withdrawal by type	Java Sea	-	
Size of the water source	320,000.00	-	km^2

Water recyled and reused [GRI 303-3]	C1	C2	Unit
Total volume of water recycled and reused by the organization	598,836,976.00	-	m^3/month
Total volume of water recycled and reused as a percentage of the total water withdrawal as specified in Disclosure 303-1	80%	-	

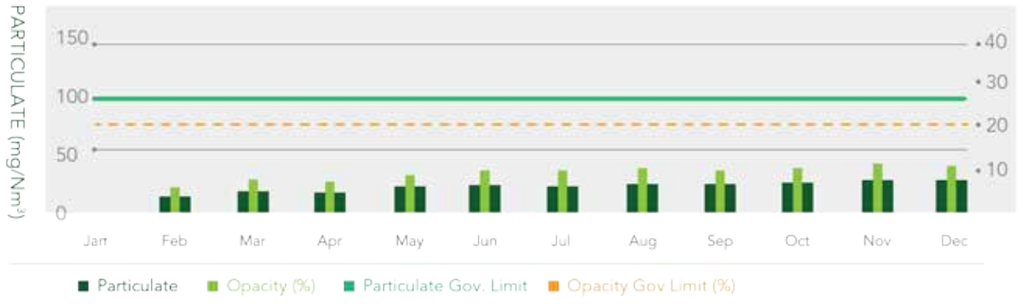
WASTEWATER PERFORMANCE

Water discharge by quality and destination [GRI 306-1]	C1	C2	Unit
Volume of water discharged (m^3)	149,400.00	-	m^3/day
Destination	Java Sea	-	m^3
Treatment Method	WWTP	-	
Whether the water is reused by another organization	No	-	

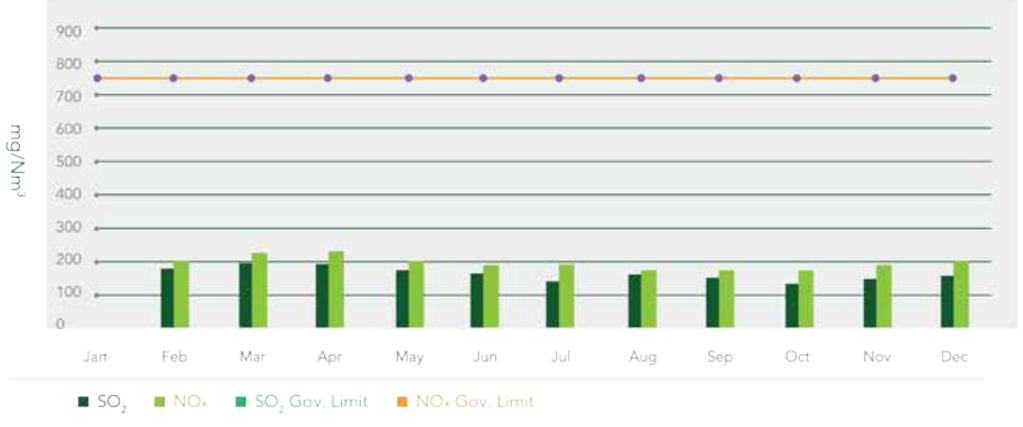
AIR QUALITY PERFORMANCE based on laboratory analysis December 2017

Nitrogen oxides (NO_x), sulfur oxides (SO_x), and other significant air emissions [GRI 305-7]				
C1				
Substance	Measurement Result	Standard	Unit	Measurement location
Particulate Matter	24	100	mg/Nm^3	Stack
SO_2	133	750	mg/Nm^3	Stack
NO_2	109	750	mg/Nm^3	Stack
Opacity	<20	20	%	Stack

based on CEMS (Continuous Emission Monitoring Station)



Average of SO_2 and NO_x Emission 2017



Average of Particulate Emission and Opacity 2017

WASTE AND HAZARDOUS MATERIAL MANAGEMENT

In preserving environment, Cirebon Power always applies Good Mining Practice and environmentally-safe mechanism in its operation. Knowing that there will be environmental pollution as a result from combustion process, Cirebon Power conduct preventive efforts and routine monitoring to minimize environmental pollution.

End-to-end mining process is planned and conducted with responsibilities to minimize negative environmental impacts. Cirebon Power have established an integrated management system as a foundation in environmental sustainability. The environmental management system consists of targets and programs as follow:

1. Hazardous Waste Temporary Storage Building
This warehouse is a temporary storage place for waste with hazardous and toxic labels that are not used anymore, such as oil, lights, cartridges, resins, plastic membranes, batteries, and chemicals before being shipped and processed by certified contractors. **[GRI 306-4]**

2. Chemical Secondary Containment
We prepare reserve reservoirs that can accommodate up to 110% of chemicals. This shelter is prepared as a preventive effort in case of undesirable things. This shelter will be able to prevent pollution of hazardous chemicals. **[GRI 306-2]**

3. Additional Fly Ash Silo
The additional/auxiliary fly ash silo with more than three (3) times the capacity of the original silo has been installed to store fly ash during major public holidays when ash trucks are not allowed to pass public road, such as during the Eid Mubarak holidays.

4. Temporary Ash Storage/Pond
Used only in emergency situations, when the truck can not operate, for example during the long holiday season.

99.4% OF OUR HAZARDOUS WASTE

IS UTILIZED AS RAW MATERIAL BY CEMENT INDUSTRIES

Waste by type and disposal method [GRI 306-2] [GRI 306-4]			
Hazardous waste	**C1**	**C2**	**Unit**
Fly Ash	42,725	-	ton
Bottom Ash	8,623	-	ton
General Hazardous Waste	312	-	ton

Non-Hazardous waste	C1	C2	Unit
Organic waste	8	-	ton/month
Non-organic waste	1	-	ton/month

All of our hazardous waste and non-hazardous waste are fully treated and transported by the certified third party. **[GRI 306-4]**

CHAPTER .04 SOCIOECONOMIC

04

SOCIOECONOMIC CONTRIBUTION

[GRI 203-1] [GRI 203-2]

Providing reliable electric power is the key to economic development, education and medical care. Especially in an emerging country, such as Indonesia, electricity as a fundamental infrastructure is integral to the economic development and essential for the development of rural areas, especially in Cirebon. The existence of Cirebon Power enables many essential services that would empower the community and support the local economic development. As a coal-based Independent Power Producer (IPP) in Indonesia, our focus is powering the life of Indonesia through electric power and community empowerment.

We recognize the communities who live beyond the electrical network are also lacking access to health care, education, communication, and enterprise opportunities that modern energy services can facilitate. These conditions restraint the socioeconomic development, an integral part of sustainable development, in these areas. Therefore, we focus our socioeconomic contribution through community development and livelihood programs.

In providing electricity, we choose coal as the most reliable, affordable and considerably safe energy source in Indonesia. We have an abundant local supply of coals from Sumatra and Kalimantan. Our efficient and environmentally friendly Supercritical and Ultra Supercritical boiler technology enable us to use lignite and still able to meet the environmental standard in accordance with applicable regulations while properly manage coal and waste storage so as not to pollute the environment. Lignite is a lower calorific value coal that has lower economic value for export. In this perspective, we are contributing to the local industry while being responsible to the environment.

Cirebon Power is contributing to the Indonesian government infrastructure development plan of 35,000 MW power plant program by providing 1.58% of our national installed capacity. The national electricity demand, especially Java-Bali which at that time has an installed capacity of 30,940 MW (December 2012 status) and after the operation of Cirebon steam power plant increased by 660 MW to 31,600 MW.

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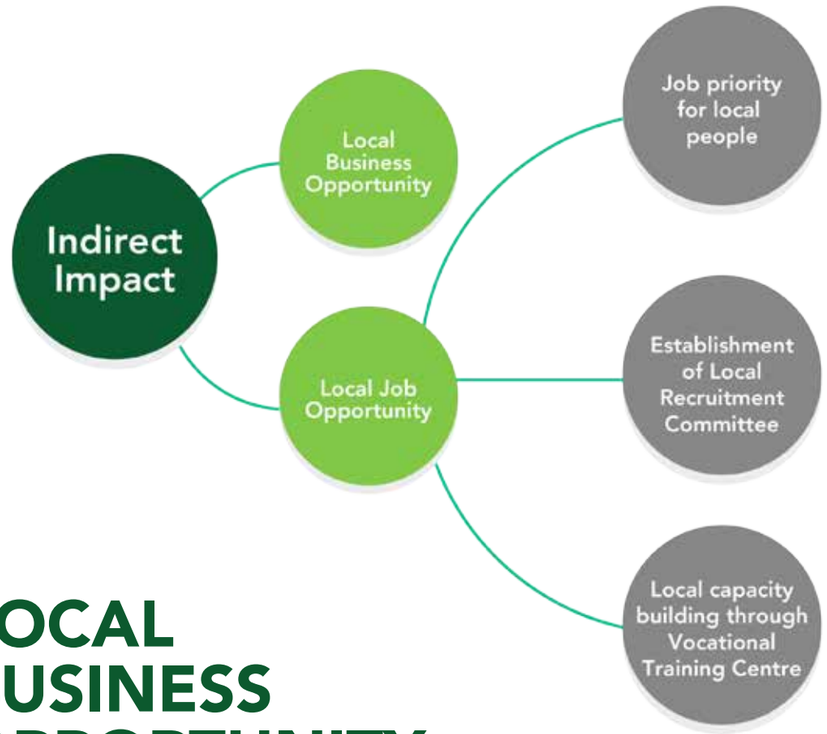
As we provide reliable electric power through our clean coal use technology plants, our surrounding community experienced some indirect impacts of it. Two major impact we can see as local business opportunity and local job opportunity.



LOCAL BUSINESS OPPORTUNITY

Since the first establishment of the company until to date, Cirebon Power continue in providing job and business opportunities by ensuring equal work and business opportunity and prioritizing local people from nearby villages such as:

- Service boat that supply logistics to Coal Transporter;
- Material supply & land fill projects;
- Local contractors who provide civil work, waste management and other services;
- Logistics supply, catering and etc;
- Equal opportunity to local companies to participate on project bidding.

OUR CONTRIBUTION

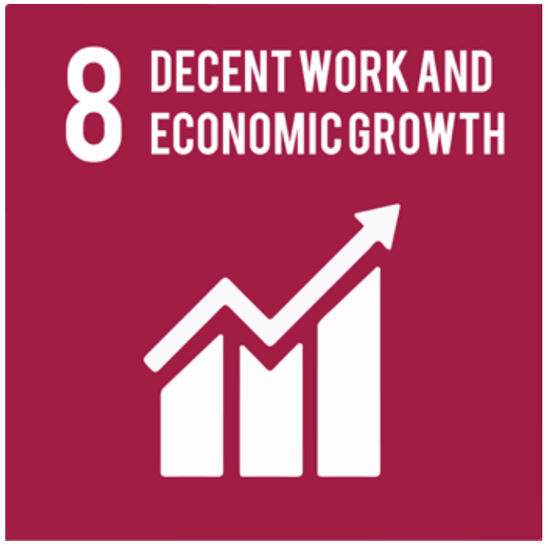
LOCAL SOURCING OF MATERIALS
INFRASTRUCTURE DEVELOPMENT THROUGH ELECTRIC POWER PROVISION
COMMUNITY EMPOWERMENT
PROVIDING DECENT WORK
LIVELIHOOD RESTORATION

LOCAL EMPLOYMENT OPPORTUNITY

Cirebon Power contribute to local economic growth through direct employment by helping to create jobs and opportunities. Together with our partners we are committed to prioritize local workers who match the qualifications specified for the job. We recruited local workers for operational workforce and environmental maintenance during power plant operation and operational energy and environmental maintenance of Cirebon Power. This commitment can be seen from number of local workers who are recruited in the project activities, increment of residents who work in informal sector. **[GRI 203-2]**

To support the above, together with sub district and village officials, Cirebon Power have established **Local Recruitment Committee**, the committee work together with Cirebon Power and all contractors to maximize all possible recruitment from surrounding community as well as collaborated with Cirebon Power Vocational Training Center to conduct skill improvement training for potential local candidates.

69% manpower who work in Cirebon Power unit are originated from Cirebon regency, while another 31% are from out of Cirebon area. During the reporting period, there are 849 people working at Cirebon Power, as recorded in our manpower system. Currently, we have fixed labor conditions at our plant, therefore, new recruits at Cirebon #1 plant is limited while in Cirebon #2 will be increased when the construction started.



We classified the manpower composition into 3 regions based on the workers' area of origin:

- Ring 1 are people from the nearby villages surrounding our power plant at Cirebon.
- Ring 2 are people from the Cirebon district but outside Ring 1.
- Ring 3 are people from outside Cirebon district including expatriate employees.

We respect the voices of our employees. Cirebon Power facilitated discussions and feedback from our employees in formulating the company rules and work agreement. **[GRI 102-41]**

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EMPLOYEE DATA

[GRI 102-7] [GRI 102-8]

CIREBON #1

9 Expatriate (2%)

71 Indonesian workers who come from outside of Cirebon (34%)

184 Indonesian workers who come from Cirebon but outside surrounding village (Ring 1) (34%)

170 Indonesian workers who come from surrounding villages (Waruduwur, Kanci, Kanci Kulon, Citemu, Bandengan, Mundu Pesisir, Astanajapura, Astanamukti, Pengarengan (54%)

In conclusion, the **Total Employee of C1**
Male: **426 people (98%)** | Female: **8 people (2%)**

CIREBON #2

46 Expatriate (11%)

140 Indonesian workers who come from outside of Cirebon (34%)

66 Indonesian workers who come from Cirebon but outside surrounding village (Ring 1) (16%)

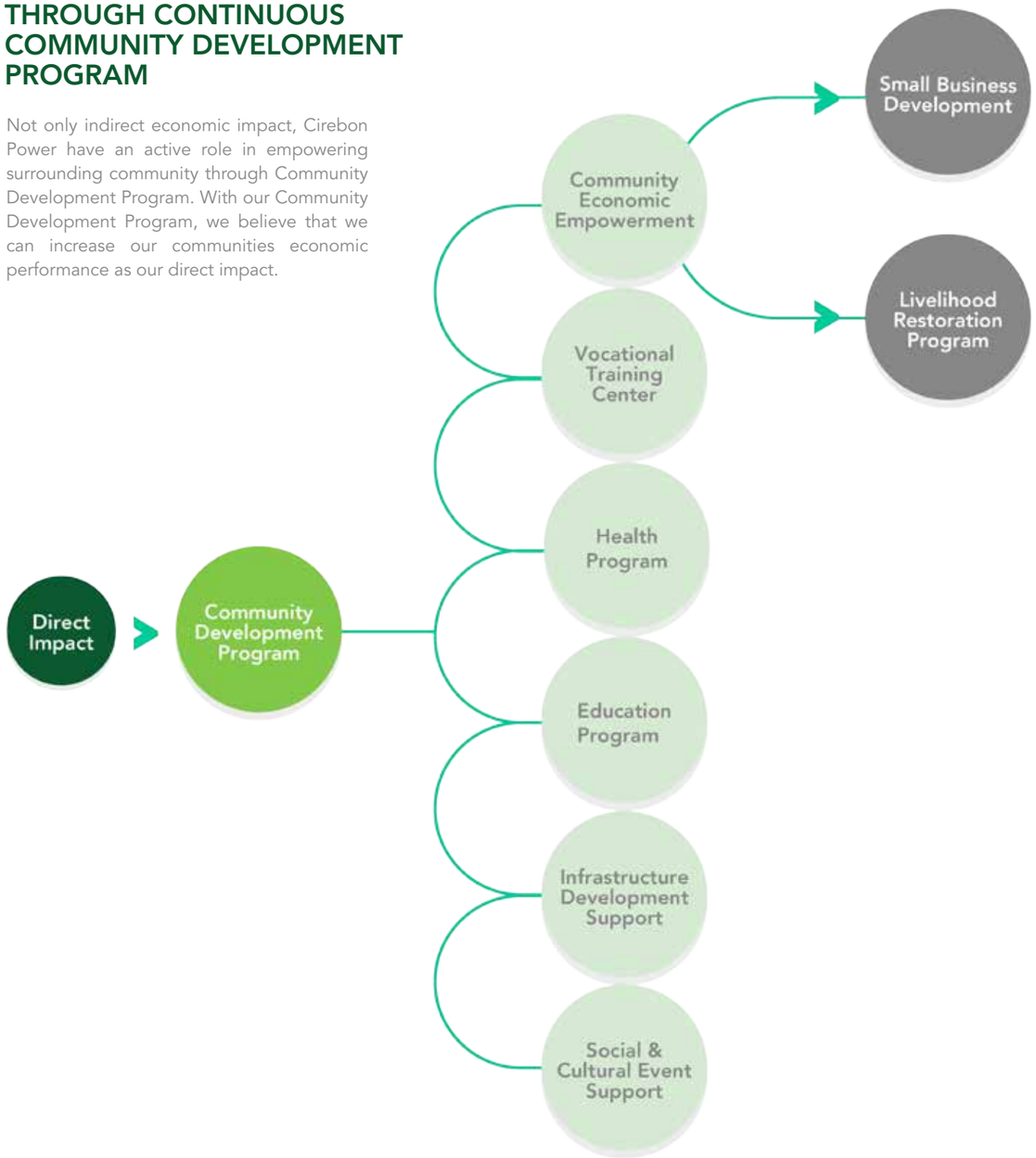
163 Indonesian workers who come from surrounding villages (Waruduwur, Kanci, Kanci Kulon, Citemu, Bandengan, Mundu Pesisir, Astanajapura, Astanamukti, Pengarengan (39%)

In conclusion, the **Total Employee of C2**
Male: **410 people (99%)** | Female: **5 people (1%)**

Every 3 months during operation phase, we conduct monitoring and evaluation for the absorption of local workforce. The parameter used for the monitoring are the increased number in the communities who work in informal sector and the raise in the communities' income.

WE EMPOWER OUR PEOPLE THROUGH CONTINUOUS COMMUNITY DEVELOPMENT PROGRAM

Not only indirect economic impact, Cirebon Power have an active role in empowering surrounding community through Community Development Program. With our Community Development Program, we believe that we can increase our communities economic performance as our direct impact.



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COMMUNITY DEVELOPMENT PROGRAM

SMALL ECONOMIC DEVELOPMENT [GRI 413-1]

Until end of 2017, we developed and mentored such community small business as follows:

01

Koperasi Lumbung Energi *(Village Cooperatives)*

In collaboration with community members from Kanci Kulon, Kanci and Waruduwur, Cirebon Power established a Village Cooperatives called Koperasi Lumbung Energi (KLE) in January 2017. The establishment of this cooperatives was based on initiative from 50 community members who wanted to run small businesses. We then provided loan and business mentoring for them so as to enable them to run their businesses. As a result, as of April 2017, they provided cleaning services, civil works and event supplies for CEPR projects.

02

Koperasi Annisa *(Women Village Cooperatives)*

Koperasi Annisa (Annisa Cooperatives) was established 5 years ago. At first, it was operated only as savings and loan provider for its members as much as 40 women. However, as of early 2017, Cirebon Power supported them with others livelihood activities, cooking training, loan and business mentoring. As the result, they are able to grow as a traditional cake supplier and food catering. Nowadays, Annisa is not only provide food catering for Cirebon Power's events but also continuously supply and sell shrimp crackers to many restaurants and shops in Cirebon area.

04

Catfish Farming

In early April 2017, Cirebon Power supported an establishment of a catfish farming group in Kanci Kulon, this group will be further developed to be an alternative and additional source of income for 31 villagers in Kanci Kulon. This program was initiated after conducting a comparison study and learning from successful catfish farming groups in another regency. Cirebon Power assisted to establish group mechanism, technical training and provided loan for the group. **[GRI 413-1]**

03

Traditional shrimp paste production

This program is aiming to maintain local wisdom and increase people's income as the contribution to SDGs No. 8 on Decent Work and Economic Growth. The group which consists of 40 women has produced and sell shrimp paste to many supermarkets and shops in Cirebon, The shrimp paste is a well-known heritage recipe from Kanci Kulon. Although the activity has been running since 2012, the House of Terasi program is still getting intensive assistance from Cirebon Power to grow and be able to compete in the market.

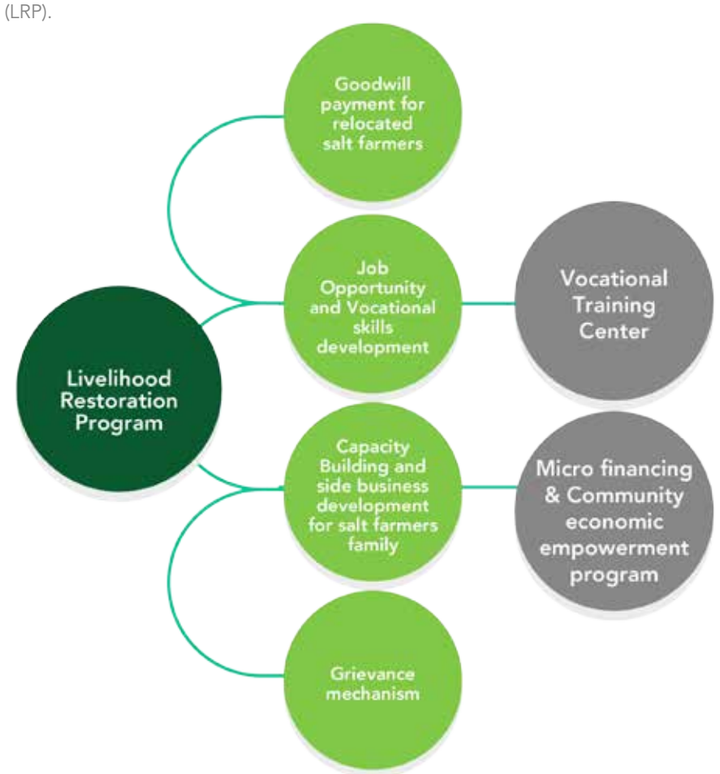
05

Livelihood Supports for Local Fishermen

Cirebon Power continue to support fishermen in Kanci Kulon, Waruduwur, Citemu, Mundu Pesisir and Bandengan villages by providing (1) fishing gear (nets, ropes and many other fishing tools) to Jelomblang Selar fishermen group in Kanci Kulon, (2) renovation of some facilities and providing additional tools for the Costal Community Communication Center in Citemu village, (3) Construction of fishermen posts in Kanci Kulon and (4) cleaning of rivers to facilitate easy traffic for fishermen' boats.

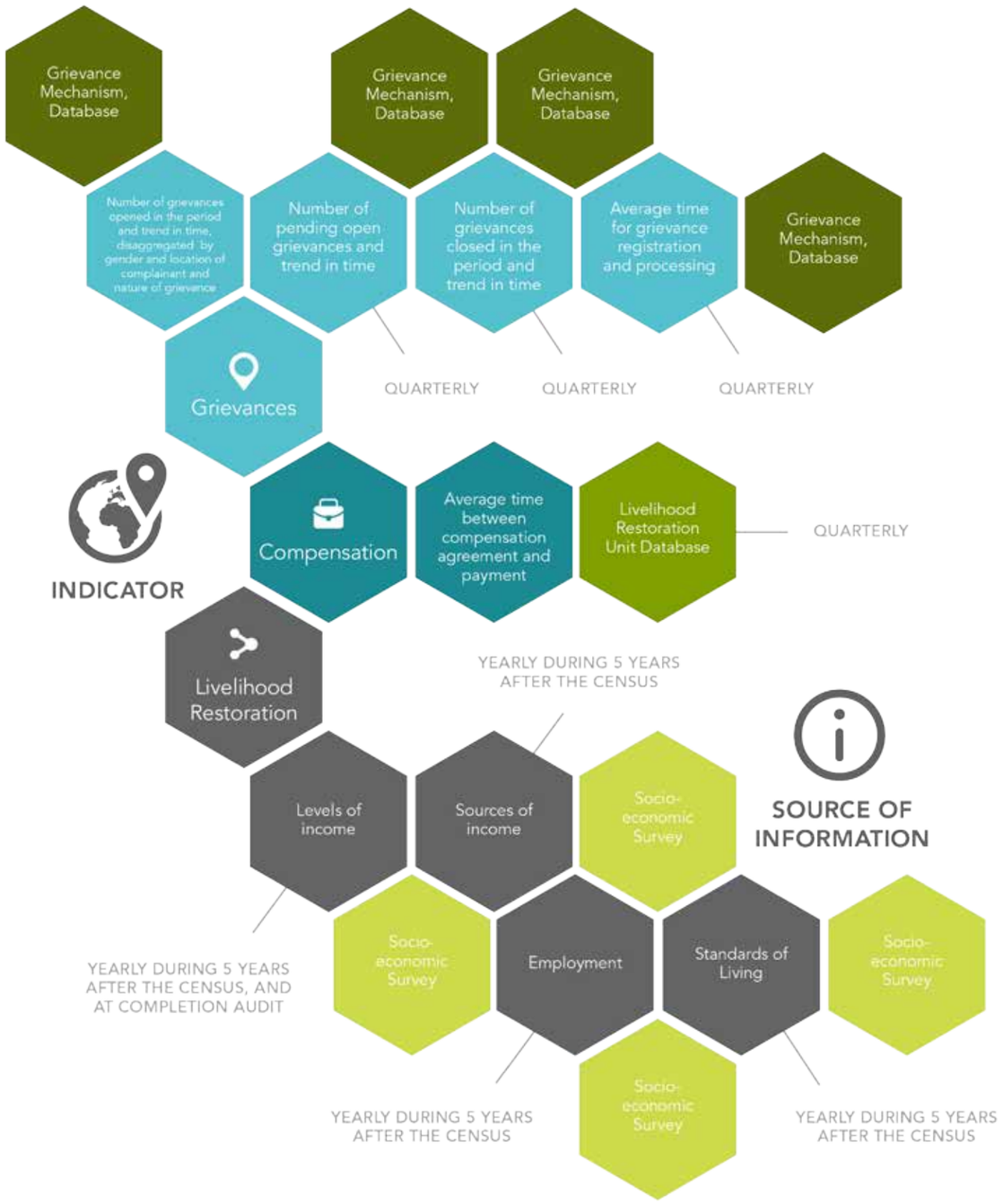
LIVELIHOOD RESTORATION PROGRAM

The construction and operation Cirebon Expansion 1x1000 MW Coal Fired Steam Power Plant IPP (Cirebon #2) Project involved land acquisition of sites for power plant. Through our social impact assessment, we have identified potential social issues related to the change in land utilization such as loss of access to land, loss of access to resources, loss of livelihood to local salt farmers and impact on population influx during construction. To mitigate these impacts, Cirebon Power established a Livelihood Restoration Program (LRP).



Our approach to LRP activities consist of establishing vocational training center to develop surrounding people skills and employability to work for the project, providing local job opportunity by prioritizing the surrounding community while improving their skills through Cirebon Power Vocational training center, establishing micro-financing program and community small business development as finding an alternative livelihood for local community. All LRP activities are recorded and monitored on a database for those people affected by the Project. The monitoring and evaluation are key components of the LRP Process. It examines what worked with the process and why, what did not and why it did not work, and what adjustments or additional measures need to be implemented to ensure that the livelihoods of the affected people are restored.

Outcomes of the Livelihood Restoration process will be monitored using these key indicators



The LRP has been prepared to complement the legal process and complied with the principles and objectives of the International Finance Corporation (IFC) Performance Standard (PS) 5 Land Acquisition and Involuntary Resettlement. This Performance Standard concerns physical displacement (e.g. people losing their home), as well as economic displacement (people losing means of livelihood).

Talih Asih (Goodwill) Payments have been provided to eligible affected persons. The Talih Asih (Goodwill) Payments is a government led process. The Livelihood Restoration measures within the LRP have been developed by Cirebon Power to bridge the gap between the Talih Asih (Goodwill) Payments (the legal process) and the requirement of PS5. There was no physical displacement of affected persons for this Project. Therefore, the main goal of the LRP is to define the strategy and steps required to mitigate the social impacts caused by land acquisition for the project and as a result of this restriction on the access to this land and natural resources by local land users (mainly salt farmers).

Communication with the affected individuals and communities, disclosure of relevant information and participation of the affected people are organized by Cirebon Power continuously throughout planning, implementation, monitoring and evaluation of the livelihood restoration activities.

To provide transparency to the community, we conducted several stakeholder engagement sessions for the Cirebon #2 power plant and transmission line. Among the engagements there were two meetings involving representatives of five villages (Kanci, Kanci Kulon, Waruduwur, Pangenan and Astanamukti) as well as representatives of NGOs and of administrative authorities. We discussed the project construction and operation activities, the impacts it has on them and the environment.
[GRI 102-43] [GRI 102-44]

As the measures, all affected people that identify as eligible to Talih Asih (Goodwill) Payments are also eligible to livelihood restoration measure developed by Cirebon Power.

The LRP has been started in early 2017 in the form of Micro Financing (MF) and community small business development, it will be as one of the major activity of LRP. MF is targeted to support the development of community small business of the 465 ex salt farmers family member/house wives located in Waruduwur, Kanci and Kanci Kulon villages by providing loan to grow their small business, but not only that, this program also provide training and business mentoring. Currently, the program stages have completed the baseline survey and are being continued with the formation of beneficiary groups based on small business clusters developed. In this program Cirebon Power collaborate with local universities and Micro Finance Institution.

We committed to ensure that at least one member of each of the vulnerable families will be employed by the project and/or that at least one member of each of these families will get benefit from micro-financing and community small business development.

Cirebon Power also established Social Management Plan (SMP) that provides a framework for our contractors who build the plant (Hyundai Engineering /HDEC) to manage and audit potential social adverse impacts during the construction phase of the Cirebon #2 Project, as well as Community Grievance Mechanism Procedure as part of the Environmental and Social Management System. It is designed to receive and facilitate resolution of grievances about the Project's environmental and social performance in compliance with the Principle 6 of the Equator Principles.

VOCATIONAL TRAINING CENTER

Vocational training center has been established by Cirebon Power to develop people technical skills. The center provides several training based on industry need and prioritize for community surrounding the project and generally to Cirebon and Cirebon Power aim to develop local people employability to work for the project, providing local job opportunity while improving their skills through Cirebon Power Vocational training center. Cirebon Power vocational training center also supporting government program for electricity national program 35,000 MW with providing skilled and certified electricity manpower. Cirebon Power develop local people with skills for Operation & Maintenance (O&M) technical skills that can fulfill the demand of man power for operation and maintenance (O&M) of power plant not only in Cirebon area but also national electricity manpower demand.

Cirebon Power vocational training center has some programs to support company vision such as training programs to support cirebon power expansion project (1x1000 MW) and training programs for Operation & Maintenance (O&M) of Clean Coal Power Plant.

During 2017, Cirebon Power conducted training programs such as welding and power electricity technician training. This program will be further continue with many other batches of another kind of training subject such as mechanical & electricity, civil subject/rebar, mason, rigger, carpenter, heavy equipment operator and etc.

The center is operated by Cirebon Power and the training is conducted by join collaboration between Cirebon Power, Ministry of Industry and trade, Ministry of Manpower and Korean Midland Power as one of the leader in electricity business in South Korea.

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HEALTH PROGRAM

Posyandu Program

In collaboration with the Local Health Institution, Cirebon Power provide nutrition improvement and medical check up program for women and children. This programs conducted every month in eight local villages, involving 44 village community health groups Pos Pelayanan Terpadu (Posyandu). In 2017, this program provided additional nutrition food and medical check up for 3181 children and pregnant mother.

Free Medical Check Up & Treatment

Free medical checkup and treatment were conducted in Waruduwur, Kanci, Kanci Kulon, Pengarengan and Blok Kandawaru. A total of some 2,500 villagers received this free medical checkup and treatment during this event.

Fisherman Insurance

In collaboration with the marine police and a state-owned insurance company, we provided life and AD&D insurance for 3000 fishermen in 10 villages.

EDUCATION PROGRAM

Another concern of Cirebon power plant as an effort to forge partnership with society in education, social and cultural development that contributes to SDGs No. 4 on Quality Education were:

STUDY TOUR (PLTU AS LEARNING INSTITUTION AND MOTIVATION BUILDING)

Cirebon Power recognizes that the Project is an exemplary representation of today's technology, business networking and cooperation, project financing and the brilliant minds that contributed to the success of the Project, therefore making the Project the perfect education tool for students and people to learn about the fundamentals of a project of such magnitude. At the same time, through the study tour, Cirebon Power promotes the adaption and dissemination of suitable technological innovations and knowledge, hopes to set an example to the students to illustrate that they may have in the future, be able to successfully contribute to such projects and the economy if they focus on their education at the present moment. Since 2012, Cirebon Power invited 40 students and teachers per month to visit the plant and explain about the project fundamentals regarding technology, business process and invesment, community development and environmental management practice. In 2017 we had 497 students visited and learn through this program.

SCHOLARSHIP (MOTIVATION BUILDING PROGRAM)

While education is not an emphasis or considered a matter of priority amongst the traditional locals, Cirebon Power recognize the importance of education, therefore it implemented a scholarship program to motivate students to excel in their education performance and encourage students, as well as their parents to pursue higher education. Accordingly, since early 2012 until now, Cirebon Power has been providing scholarships to students who excel academically and are top performers in their cohort as an incentive to top-performing students. Through this program, Cirebon Power hopes to motivate and inspire students to focus on obtaining a quality education, to excel academically and in turn, to reward their hard work and and achievements when they do. The scholarship is being distributed to 1200 students from 20 elementary schools in the villages surrounding the Plant every semester of the school year.

COMPUTER COURSE

There were three batches of computer courses conducted in 2017, 294 students from surrounding elementary schools participated in these courses. The aims of this program is to give prior knowledge, ahead vision of technology and internet literate for elementary student.

SOCIAL & CULTURAL EVENT SUPPORT

In 2017, Cirebon Power supported religious, cultural and social activities in Cirebon, especially those held in nine surrounding villages such as Eid Fitr, Eid Adha, Indonesian Independence Day Festive, Traditional Sea Festival, Earth Day and etc. Activities of Alms of the Sea ('Nadran') or "Party of the Seas". This activity is routinely carried out every year by the fishermen as an expression of gratitude for the safety of the previous year and wish for a productive year ahead. This activity is not only a cultural ritual activity, but also a potential tourism activity that can attract visitors to the location of the sea alms ritual. **[GRI 413-2]**

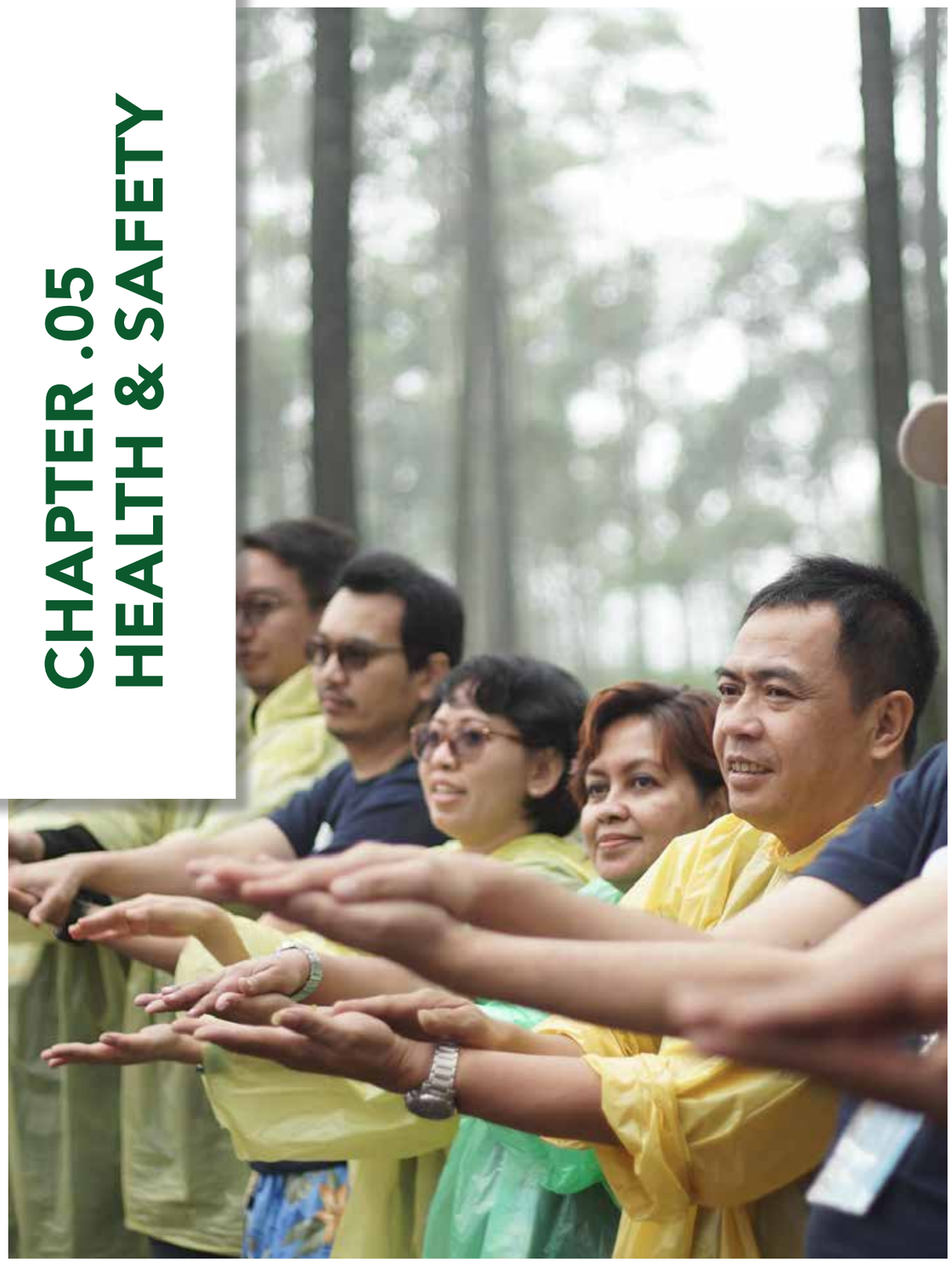
INFRASTRUCTURE DEVELOPMENT SUPPORT

During the reporting period, we provided street lights around Citemu village. In July 2017, this program was implemented to Citemu villagers, particularly to the fishermen, by providing adequate lightings along the road from the pier to the village. 15 streetlights were provided in July. In October 2017, together with the village committee and the Cirebon district Department of Transportation, we provided street lights alongside the village at Kanci Kulon to provide protection, enhance social life and make the community feel safer at night. The provision of light also promoted the night time operation of businesses and increase pedestrian street use after dark, all of which leads to a more active, enhanced neighborhood. Beside the above Cirebon power has also support some renovations and newly build infrastructure such as 2 houses and 2 mosques, 1 bridge and 1 public toilets renovations in 3 villages and build 2 volleyball fields in 2 villages.
[GRI 203-1] [EU-Local Communities (G4-DMA)]

SOCIO ECONOMIC COMPLIANCE

We always ensure that operations conform to certain performance parameters to be able to expand our operations, thus until now we do not have any fines and non-monetary sanctions for non-compliance with laws and/or regulations in the social and economic area. **[GRI 419-1]**

CHAPTER .05
HEALTH & SAFETY



05

"We are committed to protect the **health and safety** of those who play major parts in our operations, and those who live in areas that operate or use our products."

The health and safety of our employees, contractors and communities have continuously become the focus of our operation. It is among the critical parts of our operation. We are committed to protect the health and safety of those who play major parts in our operations, and those who live in areas where we operate or use our products.

Inline with the sustainable development goals, we conduct our business with respect and care for the local and global environment and systematically manage our risks. We believe that leadership, communication and planning play important role in managing health and safety. Directly lead by our President Director, in 2017, we have formed a collaborative team of Occupational Health and Safety Department and Environmental Department to develop Quality, Environment, Health and Safety (QEHS) Policy. The policy aim to measure our health and safety performance, demonstrate progress and identify areas for improvement by following the standard requirements for integrated Quality, Environmental, Occupational Health and Safety Management Systems.

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OCCUPATIONAL HEALTH AND SAFETY

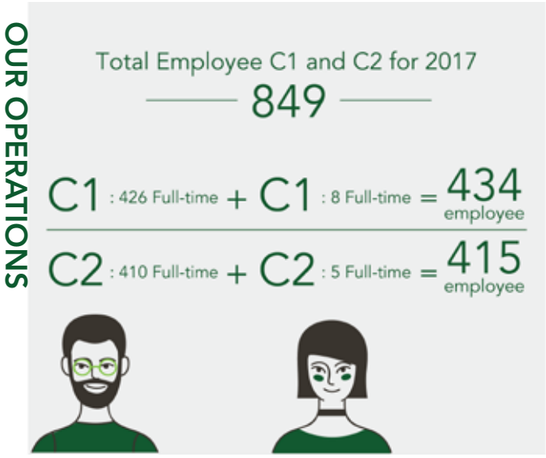
[GRI 102-7] [GRI 102-8] [EU-Employment (G4-DMA)] [GRI 403-1] [GRI 403-2] [G4-LA6]

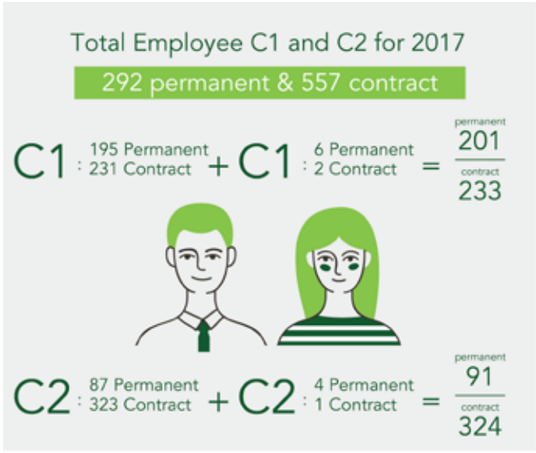
Both of our plants are built and operated by permanent employees and subcontractors or outsourced company. We outsourced jobs such as security, cleaning service, coal yard maintenance, coal storage, coal handling and mechanic helpers for our operation to PT Cirebon Power Services (CPS) to implement cost-effective and environmentally-friendly operation.

CPS is our sister company who is responsible for the operation and maintenance of Cirebon Power's first unit of 1x660 MW. We employed a total of 434 full time employees and workers in Cirebon #1 plant and 415 people at Cirebon #2 plant in 2017.

*Based on Human Resource Department database 2017.

OUR OPERATIONS



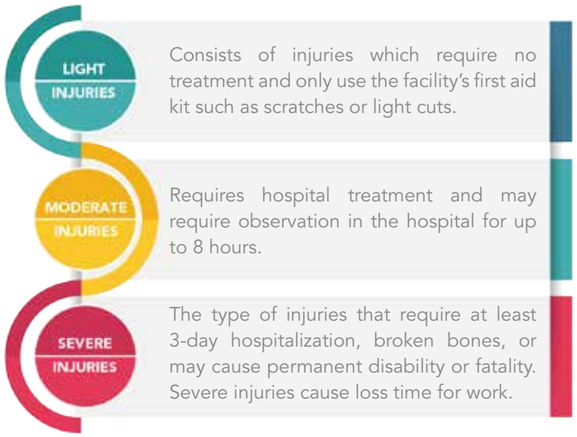


To continuously measure and improve the health and safety of our worker, 5% of the workers are represented by the Health and Safety Committee. The committee comprises of representatives from various departments to ensure the implementation of our health and safety rules, standards, and procedures. **[GRI 403-1]**

We provide regular Health, Safety and Environment (HSE) training for our employees to ensure zero injury or fatalities in our operation, such as a refreshment on safety induction to improve HSE awareness, fire prevention and firefighting training, evacuation drill and others.

In 2017, we have conducted professional health and safety training. The training provided were onsite and offsite training provided by our internal management and external organisation. Our contractors and subcontractors are always involved in OHS program such as safety coordination meeting, safety briefing, joint inspection regarding lifting gear, hand-tools and others.

One of the indicator of our safety performance is the number of accident. Throughout 2017, we recorded 2 light injuries in Cirebon #2 plant which occurred to our male employees. We are grateful to report that we have zero accident in Cirebon #1 plant during 2017. As a guide, we define three types of injuries:



Based on our monitoring through our management we have no occupational illness due to work related activities.
[GRI 403-2]

"We strive to eliminate any injuries, occupational illness, unsafe practices and incidents of environmental harm from our activities"

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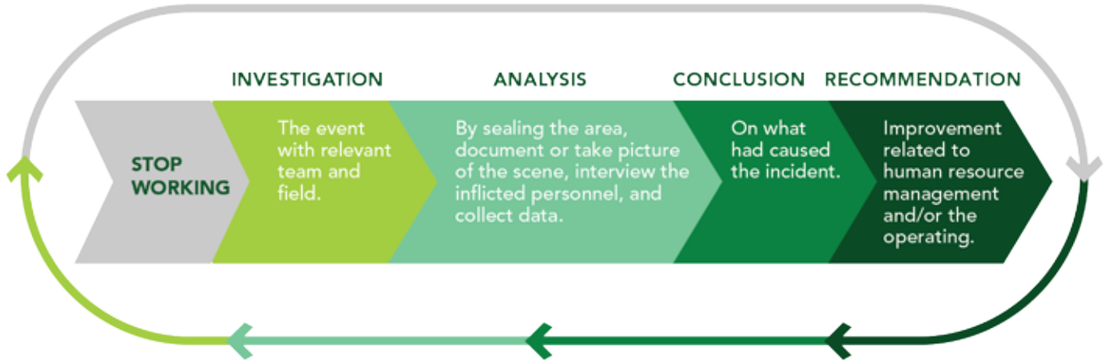
As part of our continuous improvement system, we evaluate what went wrong, adapt and strengthen our safety approach to avoid future harm through an incident mechanism approach:



To manage the potential risks to health and safety of our workers and surrounding communities, we conduct measures to prevent the potential impact, as such:

- Require every employee or worker who works in the ash disposal area to use mask.
- Provide polyclinic unit in the power plant area for the power plant's staff.
- Provide firefighting unit.

PUBLIC HEALTH AND SAFETY

ENVIRONMENTALLY CONSCIOUS PLANT DESIGN

Our plants are designed and embedded with mitigation procedures to ensure public health and safety. We conducted measures to carefully anticipate the potential impact since the beginning of the plant design:

A. Reduce the occurrence of NO_x emission, through the combustion with Low NO_x Tangential Burner Firing System or Circular Firing with Over Firing Air System.

B. Install Electrostatic Precipitator to reduce 99.22% of dust in the air emission. Thus, the dust that emitted from the chimney can meet the quality standard of immobile source emission air.

C. Use low-sulfur-contented coal (<0.2 %), which results in lower SO_2 emission than the emission quality standard (<750 mg/m_3).

D. To reduce the concentration distribution of exhaust emissions, we constructed a chimney with a diameter of 7.1 m and a stack height of 215 m equipped with CEMS (Continuous Emission Monitoring System) in accordance to Regulation of the Minister of Environment Republic Indonesia No. 21/2008. We cooperate with an accredited laboratory to monitor and report our CEMS results quarterly.

PROMOTING PUBLIC HEALTH AND WELLBEING

We cooperate with the Cirebon Regency Local Government in providing health facilities:

PROVIDING FREE MEDICAL TREATMENT

Cooperating with Astanajapura *Puskesmas* (Public Health Centre) and Mundu Health Center located in Waraduwur village. There are 702 direct beneficiaries from village Kanci Kulon and 602 from Waruduwur village. This activity also served residents from Pengarengan village (500 people), Astanamukti village (423 people), and 289 residents of Waruduwur village.

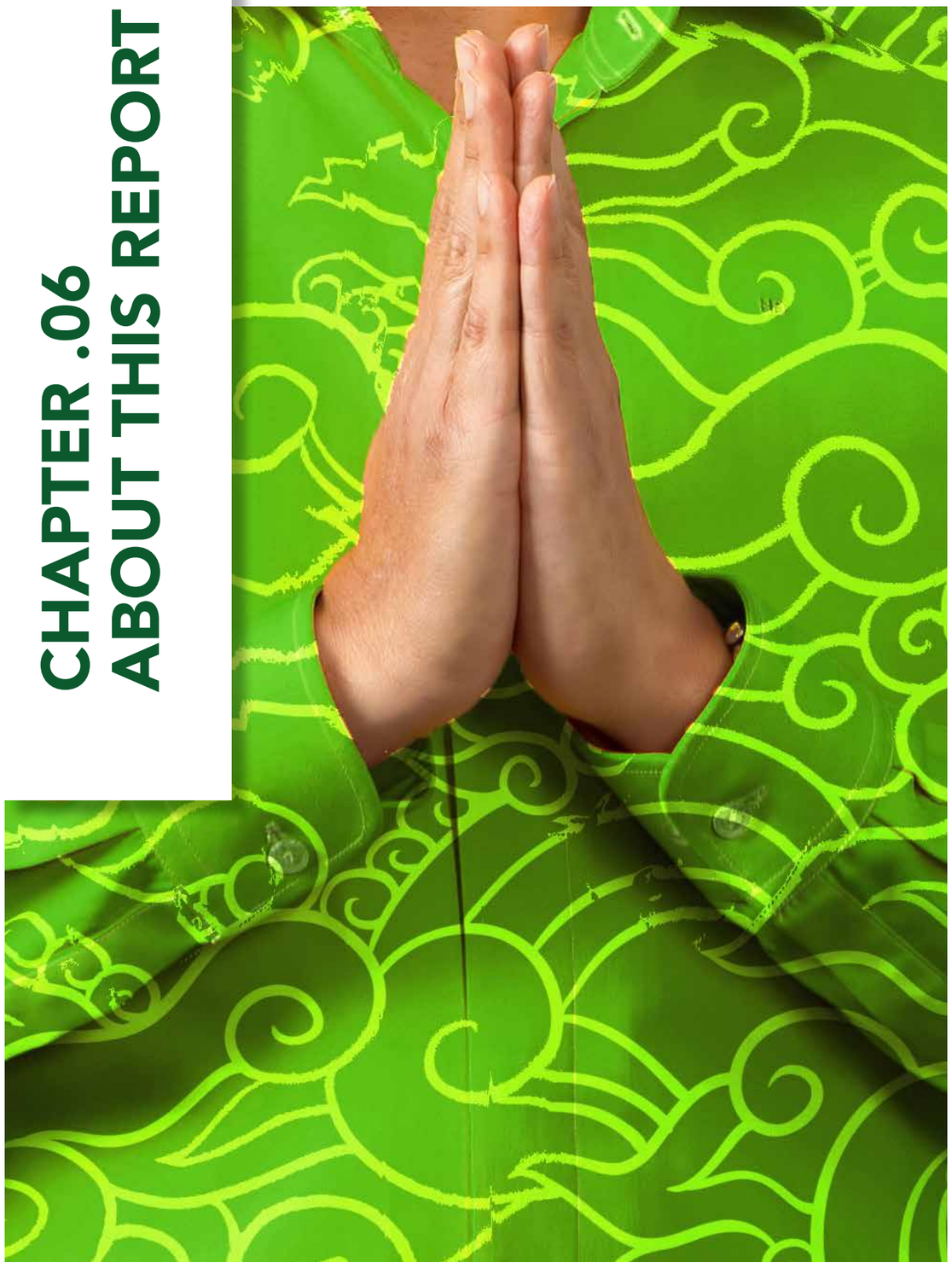
SUPPLEMENTARY FEEDING AND IMMUNIZATION AT POSYANDU

This program is implemented to improve the immune system, health and nutrition of toddlers and children in the surrounding villages. We targeted 45 units of Posyandu in 9 villages around Cirebon Power. Supplementary feeding and immunization activities at *Posyandu* are routinely conducted from May 2017.

OVERHEAD TRANSMISSION LINES CLEARANCE

We anticipated the potential health risk due to exposures to high voltage transmission lines. Therefore, to ensure public health and safety of the villages crossed by the high voltage transmission lines, we have selected the best route option for the overhead lines. The areas that are crossed by the overhead lines were cleared and acquired following the government regulation. For 500 kV double circuit lines, we follow the government regulation to ensure adequate clearance of 17 metres on each sides, with a total of 34 m along the corridor to ensure psychological public health.

CHAPTER .06
ABOUT THIS REPORT



06

"WHAT MATTERS THE MOST"

Cirebon Power 2017 Sustainability Report is prepared in accordance with the GRI Sustainability Reporting Standards. This is our first Sustainability Report, covering the reporting period of Fiscal Year 2017 from January 1 to December 31, 2017. We intend to produce our sustainability report annually for the importance of public communication and information also for our internal monitoring and evaluation. Since this is our first report, there are no repetition of data, significant changes of material topics and topic boundary from the previous report. **[GRI 102-10] [GRI 102-48] [GRI 102-49] [GRI 102-50] [GRI 102-51] [GRI 102-52]**

This report presents Cirebon Power's management approach and its sustainability pillars: economic, social, and environmental performance. The report format follows the guidelines of GRI Standard which published by the Global Reporting Initiative (GRI) in 2016 and in accordance with core option. **[GRI 102-54]**

We also follow GRI's Electric Utilities Sector as additional sector disclosure requirement. To improve readability, we include disclosure number at relevant sections of this report. A GRI Content Index is presented at the end of this report listing all disclosures included in the report. All data disclosed in this report is provided by the Cirebon Power included all subsidiaries and power plants.

This report is published in English and can be downloaded at Cirebon Power's website. For additional information, please contact:

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cirebonpower
cirebonpower_official

DEFINING REPORT CONTENT

[GRI 102-46]
To achieve high quality sustainability reporting, we apply the 10 reporting principles for defining report content and report quality. In defining the report content, the 4 reporting principles that must be met are Stakeholder inclusiveness, sustainability context, materiality and completeness. The quality of the report is governed by the 6 reporting principles of accuracy, balance, clarity, comparability, reliability and timeliness.

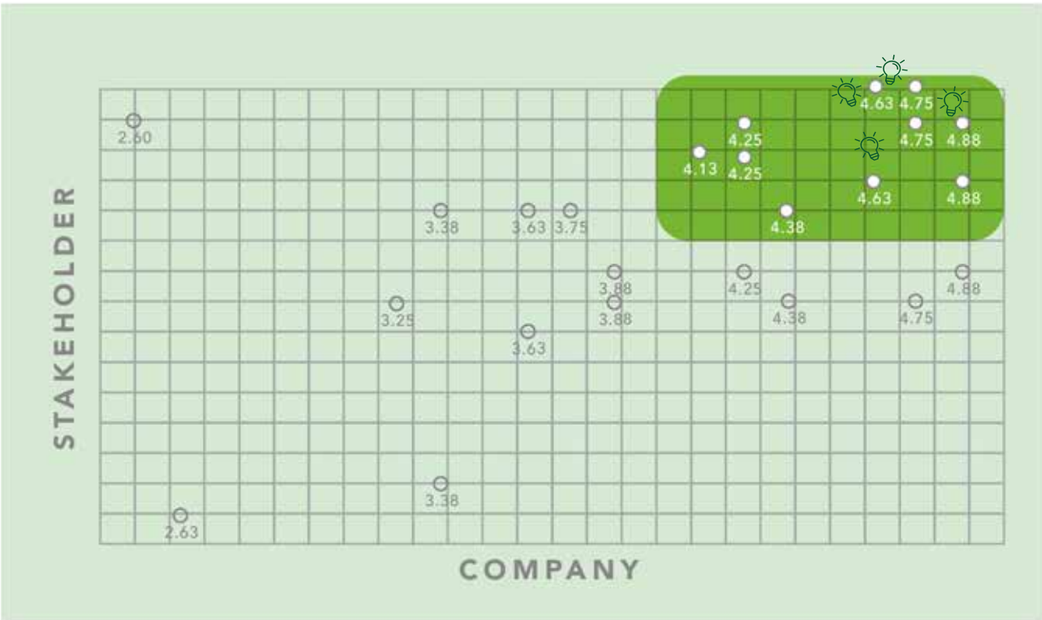
DEFINING MATERIALITY

[GRI 102-47]

In defining our materiality, we started with internal management meeting and continued with focus group discussion with representatives from various departments such as president director, finance, technical, communication, community development, environment, human resource, legal and corporate document. We interviewed and surveyed all the department representatives. Their feedbacks represent the topics that matter the most for the company. We surveyed customer (PLN), suppliers, local community, government, NGOs and interview local community as the voices of external stakeholders.

Based on the survey, focus group discussion, and interviews, we develop sustainability report materiality matrix to identify the most important issues for the company and its stakeholders.

Energy consumption & reduction	(4,88)
Generation efficiency & service to customers (Stability in electricity supply)	(4,88)
Air Quality	(4,75)
Waste and hazardous material management, water and wastewater managament, & environmental compliance	(4,75)
Social contribution	(4,63)
Habitat protection and biodiversity	(4,63)
Material sourcing (local procurement)	(4,38)
Public health and safety	(4,25)
Greenhouse gas (GHG) emissions	(4,25)
Occupational health and safety	(4,13)



TOPIC BOUNDARY

The importance of topic boundary is to define where the impact occurs and the organization involvement with the impact. The impact will affect not only within the Cirebon Power, but also along the supply chain of the organization, whether it is upstream or downstream. We construct the topic boundary based on the materiality which chosen previously. Our topic boundary as follows.

■ CAUSED
■ LINKED

	SUPPLIER	CIREBON POWER	CUSTOMER
Delivering innovative products and services		CAUSED	LINKED
Material sourcing	CAUSED	LINKED	
Generation efficiency		CAUSED	LINKED
Reliable energy generation		CAUSED	LINKED
Energy consumption and reduction		CAUSED	
Greenhouse gas (GHG) emissions	LINKED	CAUSED	
Habitat protection and biodiversity		CAUSED	
Environmental compliance		CAUSED	LINKED
Water		CAUSED	
Wastewater management		CAUSED	
Air quality		CAUSED	
Waste and hazardous material management		CAUSED	
Social contribution / Indirect economic impact		CAUSED	
Community development		CAUSED	
Socioeconomic compliance		CAUSED	LINKED
Public health and safety		CAUSED	LINKED
Occupational health and safety		CAUSED	

Organization involvement : **cause, contribute, or linked with the impact**

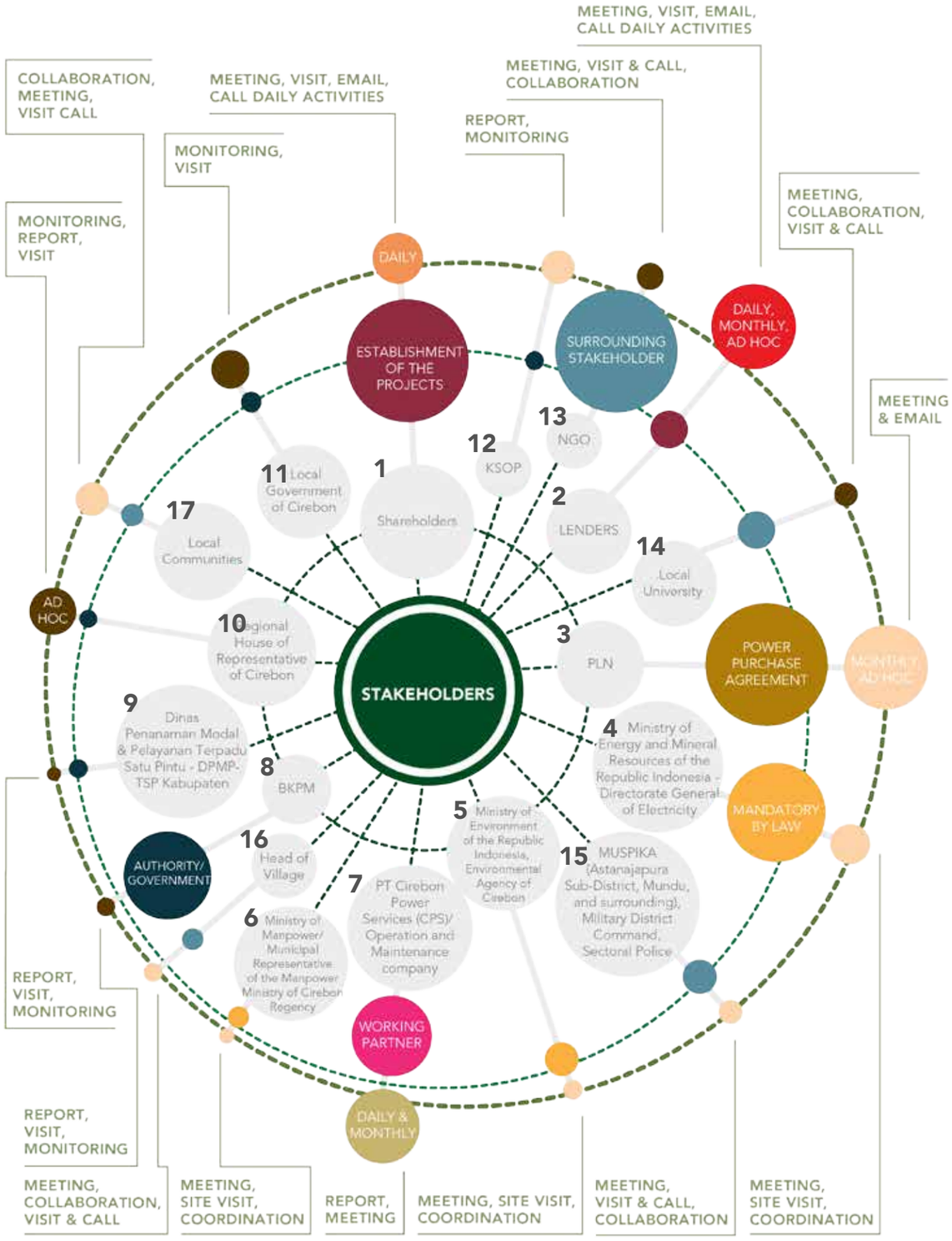
STAKEHOLDER ENGAGEMENT

[GRI 102-40] [GRI 102-42] [GRI 102-43]

We are fully aware that stakeholder engagement is a significant aspect in ensuring the sustainability of the company. We define the stakeholders as all people or associations that are influenced by our business practices. We continually conduct an analysis to identify stakeholders voice and extend stakeholder engagement through varied methods and communication form. The frequency of communication with each stakeholder group is diverse relying upon our work plan and our comprehension of stakeholders' needs and concerns. Our stakeholder engagement practices can be defined as follows:

LEGEND

- STAKEHOLDER [GRI 102-40]
- BASIS FOR DETERMINING STAKEHOLDER
- FREQUENCY OF ENGAGEMENT [GRI 102-43]
- METHOD [GRI 102-43]
- TOPIC DISCUSSED [GRI 102-44]



TOPIC DISCUSSED [GRI 102-44]

01	Target Profit, operations plan, CSR, project development, finance, HR and regulation
02	CSR, project development, finance, HR and regulation
03	Electricity supply and availability factor performance, operation
04	Technical spec., environment, regulation, certification, corporate social responsibility report, report of national vital object
05	Report, seminar, workshop, regulation, consultation
06	Labor regulation, annual report health & safety , compliance and vocation, vocational training collaboration
07	Operation performance
08	Permit, compliance
09	Permit, compliance, land acquisition

10	CSR & community development, permit, compliance, land acquisition
11	CSR & community development, permit, compliance
12	Jetty coal operation
13	CSR & community development
14	CSR, training and community development
15	CSR, training and community development
16	CSR, training and community development, land acquisition
17	CSR, training and community development, land acquisition, job opportunity and local business opportunity

GRI CONTENT INDEX

GRI STANDARD	DISCLOSURE		PAGE NUMBER(S) AND/OR URL(S)
GENERAL DISCLOSURES			
	102-1	Name of the organization	11
	102-2	Activities, brands, products, and services	11
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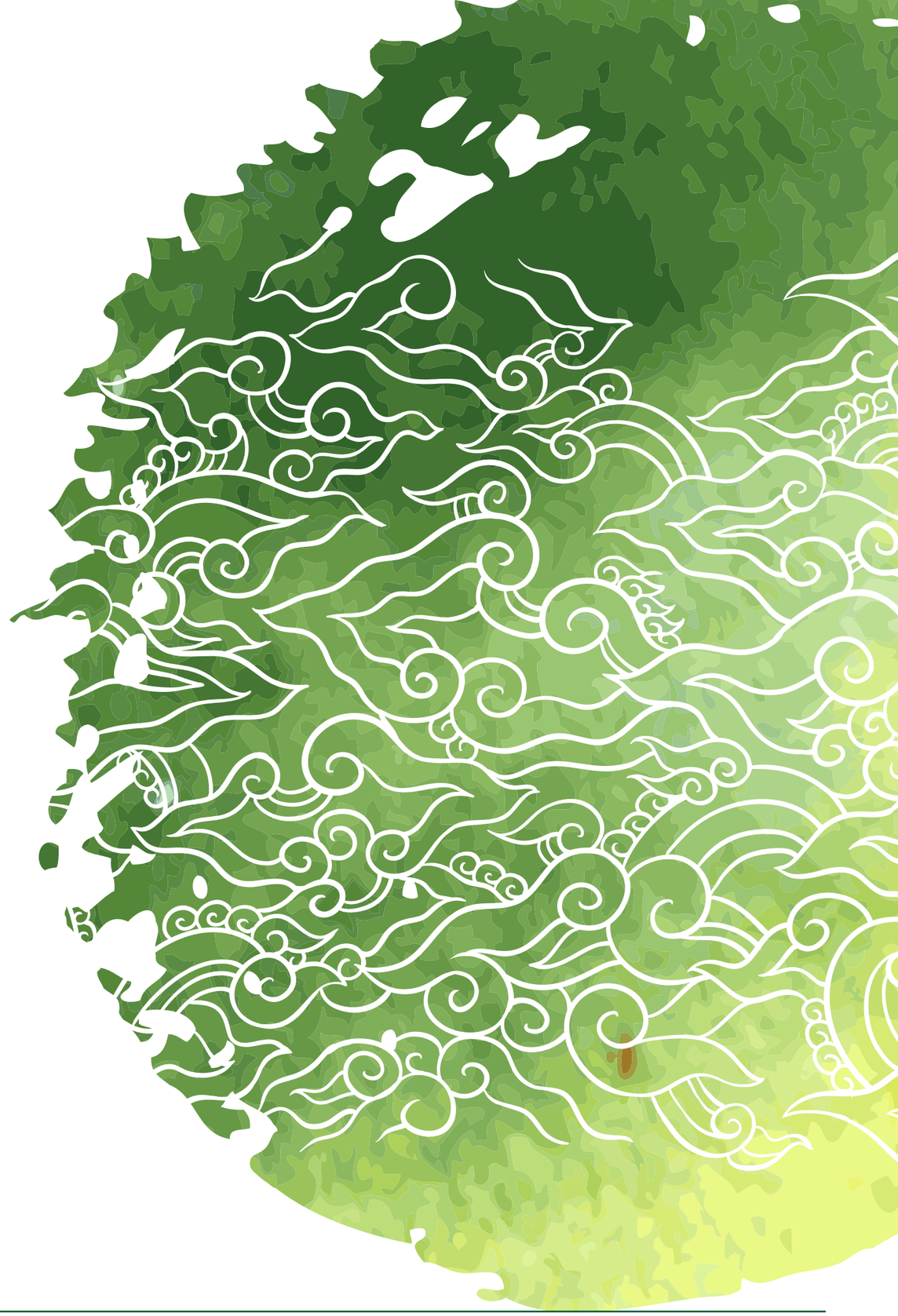

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