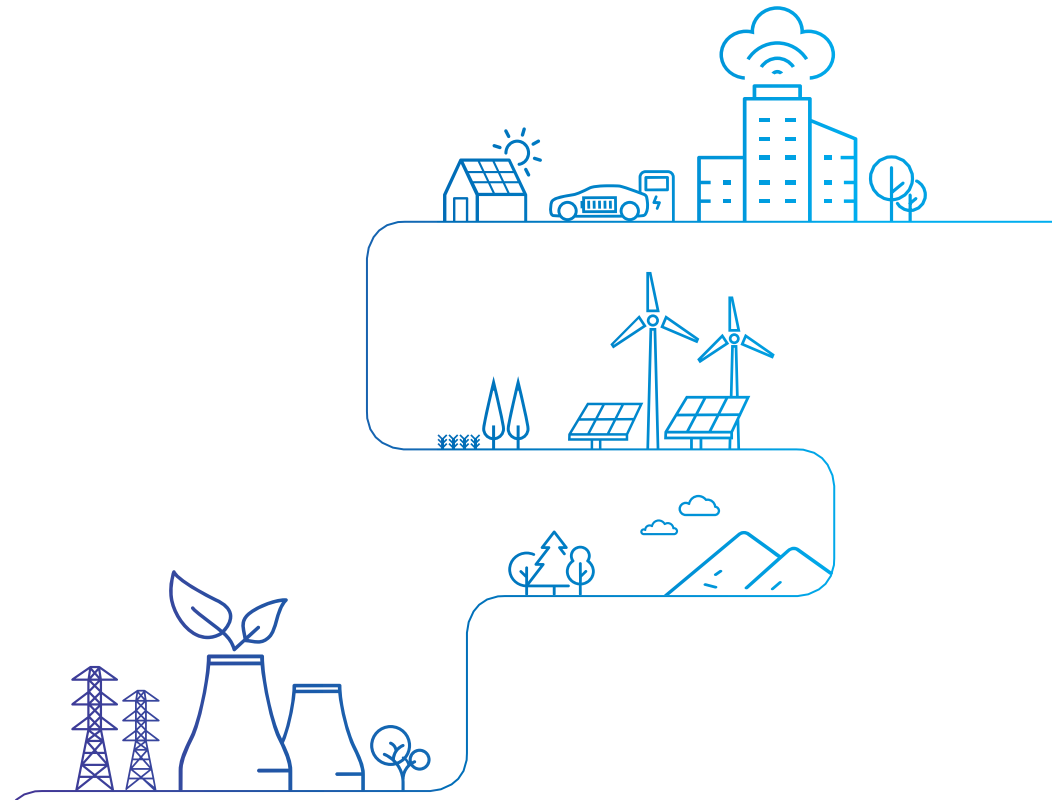
BANPU

OUR WAY IN
ENERGY
OUR WAY IN
SUSTAINABILITY

SUSTAINABILITY REPORT 2018

Contents

BANPU

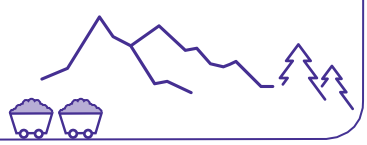


Vision

- The Asian energy company at the heart of innovation, technology, and sustainability

Mission

- Build sustainable value for all our stakeholders as a trusted partner, with emphasis on care for the earth and society
- Promote innovation, synergy, sustainability, and integration across the energy supply chain, between conventional and new energy technologies
- Foster our corporate values, operational excellence, and uphold Banpu's reputation for integrity, professionalism and best practices



Message from CEO

In recent years, Banpu has developed a new corporate strategy focused on ensuring a 'Greener and Smarter' company. The Greener theme is focused on developing lower emissions and more eco-friendly businesses. The Smarter theme revolves around developing and harnessing new technologies as well as capturing horizontal and vertical synergy through 'Integrated Energy Solutions' across energy supply chain, from resource development and logistics to generation and distribution. Together, these measures will ensure sustainable value to our stakeholders for many decades to come.

In adopting and implementing this approach, Banpu has aligned our strategy with the United Nations Sustainable Development Goals ('SDGs'). The Company has set out a number of specific commitments in this regard, such as:

- Reducing greenhouse gas emissions by 25% for our coal business and 15% for our power business by 2020
- Increasing electricity generation from renewable resources more than 20% by 2025
- Reducing the Lost Time Injury Frequency Rate ('LTIFR') to zero by 2024
- Achieving a net positive impact on biodiversity for the mines being closed after 2025
- Integrating SDG objectives into our community development programs

Since 2016, Banpu has delivered our commitments in each of our main business groups as follows:

1. **Energy Resources:** Banpu has developed a new lower emissions energy resources business around gas. Banpu is now a leading gas producer in the U.S. and will grow this business in the years ahead.
2. **Energy Generation:** Banpu has established a 0.5 GWe renewable energy portfolio from solar and wind assets under development or in operation throughout the Asia-Pacific region. This portfolio will grow to at least 0.9 GWe of capacity in the next few years.
3. **Energy Technology:** Banpu has made progress in developing a new smart energy business with a focus on distributed energy, battery technology, e-mobility and smart infrastructure. And we have now launched our own digital transformation, Innovation Lab and start-up co-creation programs.

As part of our commitment to sustainability, this year we announced the Sustainable Supply Chain Policy to ensure greater environmental and social management for Banpu and our suppliers. To guarantee the reliability of our environmental and social performance, this Sustainability Report was verified by an external party. The topics assured include greenhouse gas emissions, energy consumption and occupational health and safety. Furthermore, going forward, we plan to continue broadening the assurance scope in our sustainability report both in terms of topics and business units.

In light of the importance we attribute to sustainable development, we are delighted to have been selected for a fifth consecutive year as a member of the Dow Jones Sustainability Indices ('DJSI'). And we were again ranked 'Gold Class' in the Coal & Consumable Fuel sector by Robeco Sustainable Asset Management ('RobecoSAM'). Banpu also received the 'Sustainability Awards of Honor' by the Stock Exchange of Thailand for the second consecutive year and was listed in Thailand Sustainability Investment ('THSI') for the fourth consecutive year.

Banpu also continue to focus on ensuring best practice on corporate governance and investor relations standards. In particular, we are pleased to have achieved an 'Excellence' scoring in the Corporate Governance Report of Thailand Listed Companies in 2018 as published by the Securities & Exchange Commission of Thailand ('SEC'), the Thai Institute of Directors Association ('IOD') and the Stock Exchange of Thailand ('SET'). The TRIS credit rating agency also recently affirmed the rating of Banpu's senior unsecured debentures with "A+ with stable outlook".

Banpu is also pursuing excellence in the areas of health and safety. In 2018, we completed the first milestone of a safety culture assessment at our Indonesian mines. Sadly we have not achieved the zero work-related fatalities target, however, we have taken tremendous efforts to determine the root causes, to define preventative measures and to strengthen our safety culture and systems in every country where we operate.

BanpuHeart

Banpu is changing in fundamental ways. To celebrate these changes and with a view to characterizing our new corporate culture, we decided to launch a new corporate culture in 2018, 'Banpu Heart'. Banpu Heart is an essential mantra comprising three related themes:

Passionate

Leading a responsible transition to ever-more sustainable energy supply in the Asia-Pacific region,

Innovative

Realizing our vision by harnessing new technologies and an Integrated Energy Solutions approach which emphasizes ecosystem-thinking and synergy capture,

Committed

Having a real sense of urgency and the grit and courage to get things done and deliver results.

On behalf of Banpu management and the Sustainable Development Committee, I would like to express my gratitude and appreciation to all stakeholders for their continued trust and support. We are poised to make many further important breakthroughs in 2019.

Somruedee Chaimongkol
Chief Executive Officer and
Chairman of the Sustainable Development Committee

About this Report

Banpu's sustainability report is published annually to communicate the Company's policies and management approach regarding sustainable development and to disclose its sustainability performance, namely economic, social, environmental, and good governance aspects to all stakeholders. This report was prepared in accordance with the Global Reporting Initiative (GRI) Standards: Core option with additional indicators from GRI Mining and Metals Sector disclosures and GRI Electric Utilities Sector disclosures. The report also demonstrates the linkage between Banpu's sustainability performance and the United Nations' Sustainable Development Goals.

Reporting Boundary

This report covers performance from 1st January to 31st December 2018 in the business entities in which Banpu holds a greater than 50% of shares and has management control. These entities include coal business in Indonesia and Australia, power business in China and Japan and total solar energy solution business in Thailand, as well as the head offices in Thailand, Singapore and Vietnam. In 2018, two more solar power plants in Japan began commercial operation. However, this report excludes the fuel procurement business in Indonesia, as it is currently in the process of developing a data collection system to ensure that performance reported is in line with the Company's standards. Banpu expects to disclose those performance data in Sustainability Report 2019.

This report excludes the performance of the business entities that Banpu holds less than 50% either direct or indirect investment and does not directly participate in their management, in other words only supervision through their Board of Directors. Such companies include coal business in China, BLCP power plant in Thailand, Hongsa power plant in Laos PDR, the total solar energy solution business in Singapore, the battery business in China, and the gas business in the U.S. Those interested can learn more about these businesses on pages 8-13 and 126-127.

	Included	Excluded
Coal Business		
Gas Business		
Fuel Procurement Business		*
Conventional Power Business		
Renewable Power Business		
Total Solar Energy Solution Business		
Energy Storage System Business		
Head Office		

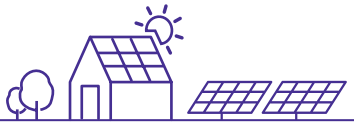
* The Company expects to disclose the performance data in the Sustainability Report 2019

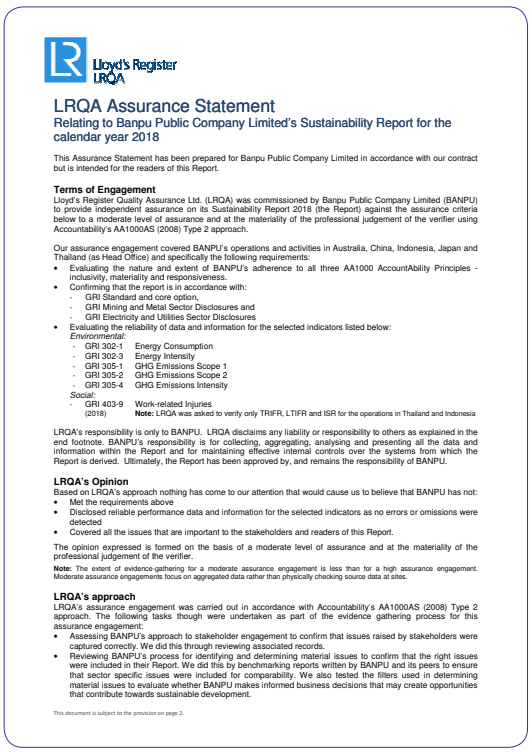
Reporting Content

The content of this report covers 29 topics. Some topics have been renamed to be more relevant to Banpu's sustainability context, and some topics that are relevant to one another have been grouped together. However, there is no significant difference in material topics in this report compared with the previous year. The performance data on water and waste during 2015-2017 in this report is changed from the previous report, as the Company has upgraded the data collection system in accordance with GRI 303 (2018) and GRI 306 (2016). Changes also include data of occupational health and safety, which was updated in accordance with GRI 403 (2018).

Assurance

This report was assured by an external party that it was developed in accordance with GRI Standards: Core option. The external assurance scope covers energy and greenhouse gas (GHG) emissions from the coal business in Indonesia and Australia, and the power business in China and Japan. The occupational health and safety of the coal business in Indonesia and the head office in Thailand are covered. The Company is committed to expanding the external assurance scope in the future, both in terms of material topics and business units.





Lloyd's Register LRQA

LRQA Assurance Statement

Relating to Banpu Public Company Limited's Sustainability Report for the calendar year 2018

This Assurance Statement has been prepared for Banpu Public Company Limited in accordance with our contract but is intended for the readers of this Report.

Terms of Engagement

Lloyd's Register Quality Assurance Ltd. (LRQA) was commissioned by Banpu Public Company Limited (BANPU) to provide independent assurance on its Sustainability Report 2018 (the Report) against the assurance criteria below to a moderate level of assurance and at the materiality of the professional judgement of the verifier using Accountability's AA1000AS (2008) Type 2 approach.

Our assurance engagement covered BANPU's operations and activities in Australia, China, Indonesia, Japan and Thailand (as Head Office) and specifically the following requirements:

- Evaluating the nature and extent of BANPU's adherence to all three AA1000 AccountAbility Principles - inclusivity, materiality and responsiveness.
- Confirming that the report is in accordance with:
  - GRI Standard and core option,
  - GRI Mining and Metal Sector Disclosures and
  - GRI Electricity and Utilities Sector Disclosures
- Evaluating the reliability of data and information for the selected indicators listed below:

Environmental:
- GRI 302-1 Energy Consumption
- GRI 302-3 Energy Intensity
- GRI 305-1 GHG Emissions Scope 1
- GRI 305-2 GHG Emissions Scope 2
- GRI 305-4 GHG Emissions Intensity

Social:
- GRI 403-9 (2018) Work-related Injuries **Note:** LRQA was asked to verify only TRIFR, LTIFR and ISR for the operations in Thailand and Indonesia

LRQA's responsibility is only to BANPU. LRQA disclaims any liability or responsibility to others as explained in the end footnote. BANPU's responsibility is for collecting, aggregating, analysing and presenting all the data and information within the Report and for maintaining effective internal controls over the systems from which the Report is derived. Ultimately, the Report has been approved by, and remains the responsibility of BANPU.

LRQA's Opinion

Based on LRQA's approach nothing has come to our attention that would cause us to believe that BANPU has not:
- Met the requirements above
- Disclosed reliable performance data and information for the selected indicators as no errors or omissions were detected
- Covered all the issues that are important to the stakeholders and readers of this Report.

The opinion expressed is formed on the basis of a moderate level of assurance and at the materiality of the professional judgement of the verifier.

Note: The extent of evidence-gathering for a moderate assurance engagement is less than for a high assurance engagement. Moderate assurance engagements focus on aggregated data rather than physically checking source data at sites.

LRQA's approach

LRQA's assurance engagement was carried out in accordance with Accountability's AA1000AS (2008) Type 2 approach. The following tasks though were undertaken as part of the evidence gathering process for this assurance engagement:
- Assessing BANPU's approach to stakeholder engagement to confirm that issues raised by stakeholders were captured correctly. We did this through reviewing associated records.
- Reviewing BANPU's process for identifying and determining material issues to confirm that the right issues were included in their Report. We did this by benchmarking reports written by BANPU and its peers to ensure that sector specific issues were included for comparability. We also tested the filters used in determining material issues to evaluate whether BANPU makes informed business decisions that may create opportunities that contribute towards sustainable development.

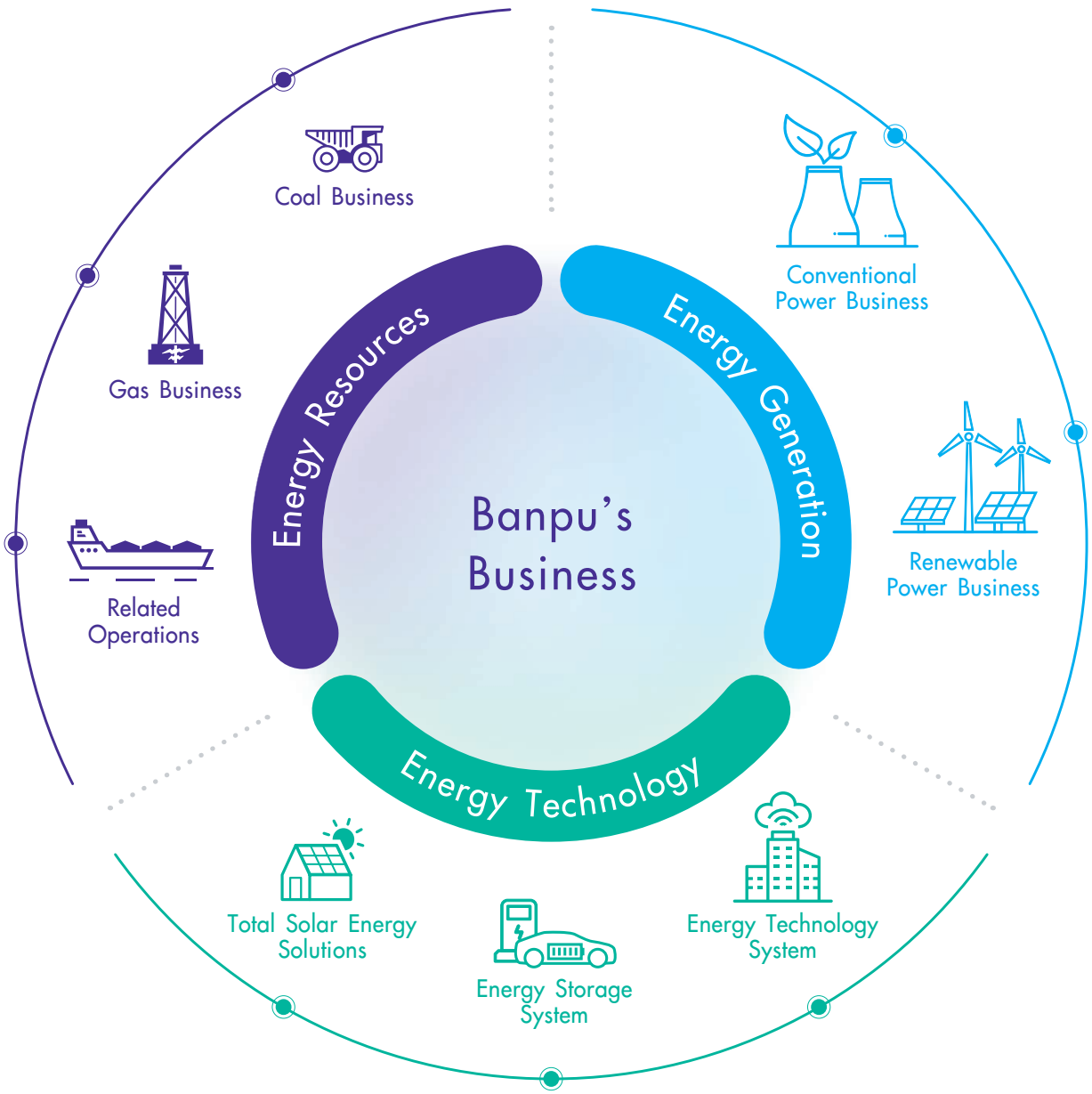
This document is subject to the provision on page 2.

Contact Details

Sustainable Development Division,
Banpu Public Company Limited
27th Floor, Thanapoom Tower, 1550 New Petchburi Road,
Makkasan, Ratchathewi, Bangkok 10400 Thailand
Telephone: +66 2694 6600
Email: Sustainability@banpu.co.th

Our Business

Banpu operates business under “Greener & Smarter” strategy covering 3 core groups of businesses with a commitment to becoming the Asian energy company.



Energy Resources

Coal Business

This business has been the Company's core business for more than 35 years. We operate both open-pit and underground coal mines in Indonesia, Australia, and China. Our product is sold to industrial customers and coal-fired power plants in Asia and Europe, meeting the demand for high-quality coal.

Gas Business

The shale gas exploration and production business, our production base is the Marcellus shale in the state of Pennsylvania, United States of America. All of the produced gas is transferred via national gas pipelines to serve domestic customers.

Related Operations

To enhance business value chain security and offer a better variety of products for customers, in addition to the coal and gas businesses, the Company also operates other businesses related to marketing, trading, logistics, fuel procurement, and transmission.

Energy Generation

Conventional Power Business

The Company operates power plants and thermal power plants in China, Thailand and Lao PDR, using conventional fuels that use high efficiency low emissions technology (HELE) to provide energy security for industrial customers as well as households.

Renewable Power Business

Our renewable power plants comprise of solar and wind in China, Japan and Vietnam to serve the needs for clean energy. Some plants are operating commercially while others are under development or under construction. The goal is to increase the electricity generation from renewable resources by more than 20% of portfolio within 2025.

Energy Technology

Total Solar Energy Solutions

This business currently provides solar rooftop services in Thailand and Singapore, serving retail and industrial customers in Southeast Asia who require clean energy and smart technology. The goal is to reach 300 MW of installed capacity by 2022.

Energy Storage System

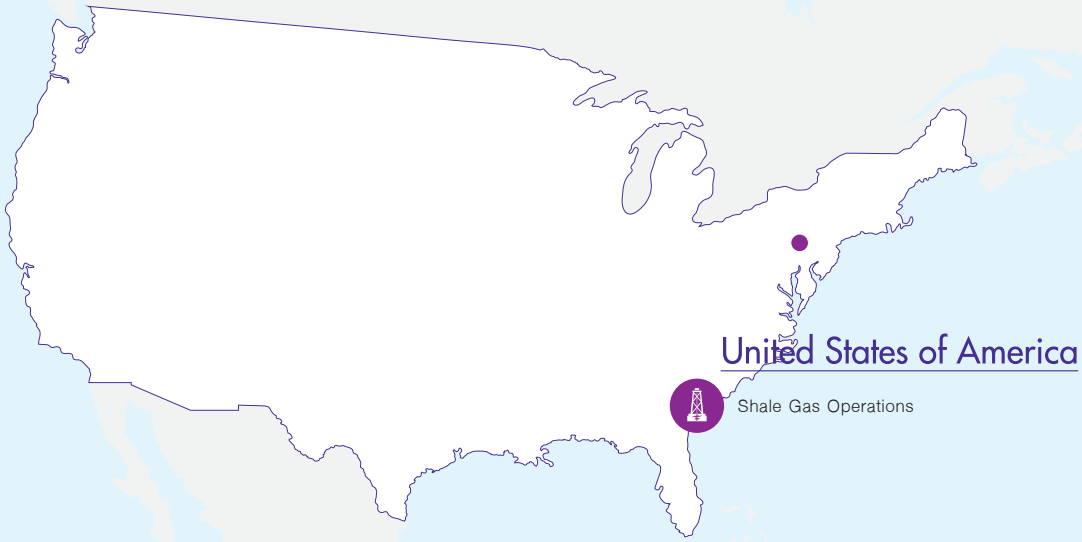
This business provides energy storage systems and power supply systems for automotive industry. The Company has an operating battery-manufacturing factory in China.

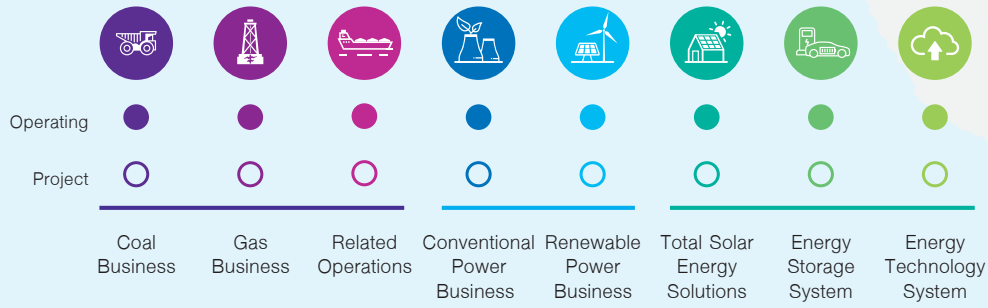
Energy Technology System

To cater the demands for energy efficiency from the private sector and urban communities, this business utilizes modern technology for integrated energy management, and covers production process control, transportation, energy storage, and intelligent infrastructure.

Map of Operations

Banpu currently operates in 10 countries namely Thailand, Lao PDR, Vietnam, Indonesia, Singapore, China, Japan, Mongolia, Australia and United States of America.


United States of America
Shale Gas Operations


Operating
Project
Coal Business
Gas Business
Related Operations
Conventional Power Business
Renewable Power Business
Total Solar Energy Solutions
Energy Storage System
Energy Technology System

Thailand

Through Banpu Power Public Company Limited, Banpu invests in BLCP, a coal-fired power plant, with a capacity of 1,434 MW in the Map Ta Phut Industrial Estate in Rayong province. In addition, the Company has expanded its business into total solar energy solutions through Banpu Infinergy Company Limited, with a capacity of 13 MW.

Singapore

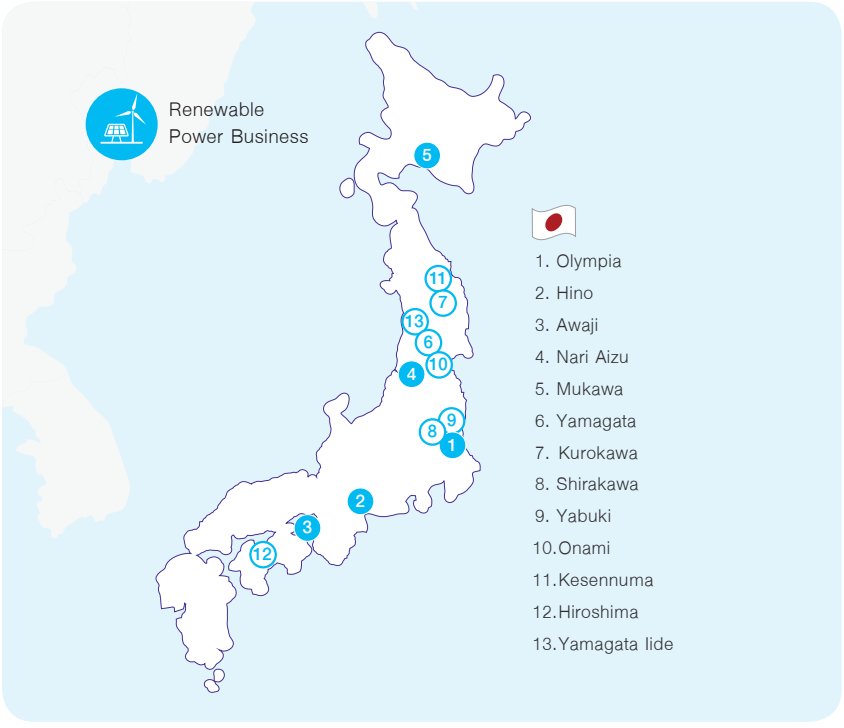
Banpu invests in Sunseap Group Pte. Ltd., a leading solar rooftop player in Singapore. Banpu's share of the total production capacity around 138 MW. Additionally, the Company operates a sales office in Singapore, which serves as its hub for coal trading and logistics.

Lao PDR

Banpu invests in the Hongsa Power Plant, a coal-fired power plant with a capacity of 1,878 MW, through Banpu Power.

Vietnam

In August 2018, Banpu invested in a wind power plant project in Soc Trang province in southern Vietnam. The power plant's production capacity is 80 MW, split into three development phases, with a 30 MW, 30 MW, and 20 MW capacity each. Commercial operation is expected to begin in 2020-2021.



Japan

The Company invests in power generation business through Banpu Power and now we operates 5 solar power plants. The total equity-based power generation capacity is 37 MW. In addition, another 8 projects are under construction or under development, with an expected total equity-based power generation capacity of 196 MW. These are expected to begin commercial operation between 2019-2023.

Indonesia

Banpu invests through PT Indo Tambangraya Megah Tbk, a listed company on the Indonesian Stock Exchange. The business includes 5 open-pit coal mines, with a production capacity of 22.1 million tonnes in 2018. The coal produced serves domestic customers and is exported to overseas customers through Bontang Terminal, which has an annual capacity of around 20 million tonnes. In addition, Banpu also operates a fuel procurement business as well as other coal mining projects, which recently expanded during 2017-2018. Two coal mining projects are under development.

Mongolia

Banpu invests in Hunnu Coal Pty Ltd., an expert company in coal exploration and mine development in Mongolia. Three projects are currently under development: Tsant Uul, which is conducting feasibility studies of coal tar production; Altai Nuurs, which conducts drilling test for coal reserve verification; and Unst Khudag, which develops geological models.

China

Banpu invests in power generation business through Banpu Power, while Banpu Investment (China) Co., Ltd. operates the business. Currently, BIC operates 3 Combined Heat and Power (CHP) plants in northern China, with the total equity-based power generation capacity of 487 MW, and 6 commercially operational solar power plants, with the total capacity of 152 MW. In addition to these, BIC has a 1,320 MW coal-fired power plant project, currently under construction that is expected to begin operation in 2019.

In addition to the energy resources business, the Company also invests in coal business through BP Overseas Development Co., Ltd. and Banpu Mineral Co., Ltd. Currently, Banpu operates 2 underground coal mines located in Shanxi and Henan provinces. The total production capacity in 2018 was 11.6 million tonnes.

In the past year, the Company expanded into the energy technology business by investing in Durapower* through Banpu Infinergy. Durapower is an expert in designing, producing, and installing lithium ion batteries for automotive industry. The company has an operating battery-manufacturing factory in China with the capacity of 80 MWh per year.

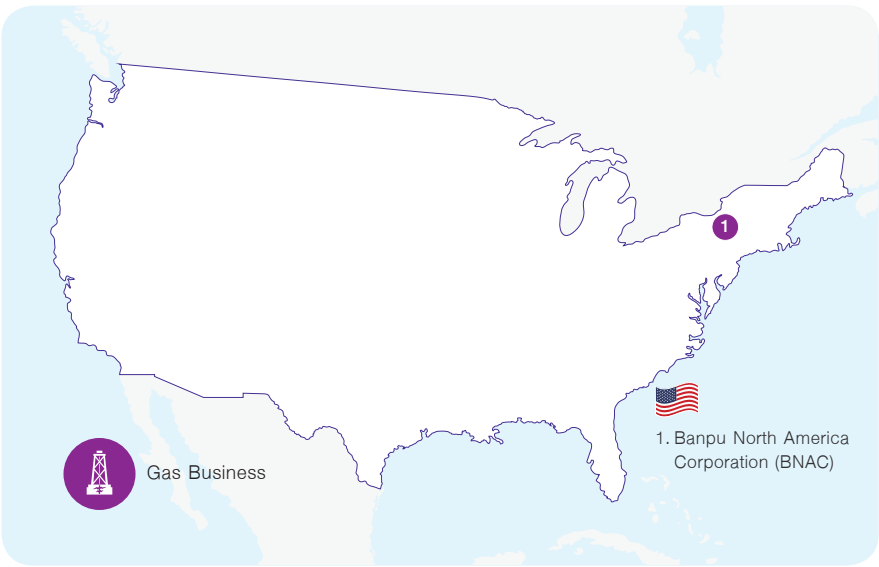
*Formerly New Resources Technology Pte., Ltd. The company became Durapower Holdings Pte., Ltd. on January 10, 2019.

Australia

Banpu invests through Centennial Coal Co., Ltd, which currently operates 5 underground mines, with the total production capacity of 11.7 million tonnes in 2018. The coal produced from the mines is transported to domestic customers via rail and exported to overseas customers via freight through the Kembla and Newcastle ports. Additionally, there are 4 mine projects under development, or care and maintenance phases, and a mine is operating under a mining cooperation deed.

United States of America

Banpu invests in shale gas production through Banpu North America Corporation, with a production base at the Marcellus shale in northeastern Pennsylvania. The equity-based production capacity totals more than 200 MMcf/day. All gas produced is delivered to domestic customers via national gas pipelines.



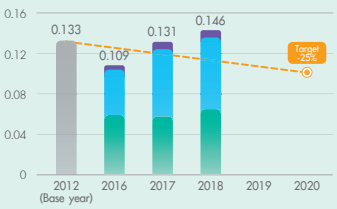
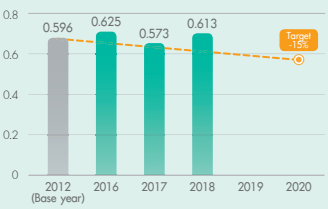
Remarks: More information of each business unit can be found on page 126-127

Performance Overview

Economy

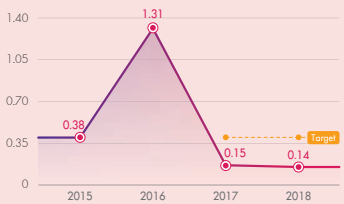
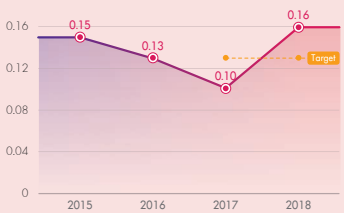
Number of significant corporate governance complaints	0	✓
Coverage of risk management system	100%	✓
Accumulate percentage of conducting the first BCP drill at country level	33%	✓
Proportion of new critical suppliers with ESG risk assessed	100%	✓
Proportion of customer complaints being timely handled	100%	✓

Environment

GHG Emissions Intensity Coal Business (tonnes CO_2e/tonnes finished coal)		+10% →
GHG Emissions Intensity Power Business (tonnes CO_2e/MWh)		+3% →
Energy consumption intensity - coal business (GJ/tonnes finished coal)	0.47	✗
Energy consumption intensity - power business (GJ/MWh)	1.72	✗
Water consumption intensity - coal business (m^3/tonnes finished coal)	0.138	✗
Water consumption intensity - power business (m^3/MWh)	1.103	✓
Proportion of hazardous waste reused and recycled	81.5%	✓
Proportion of non-hazardous waste reused and recycled	39.4%	✗
Number of significant environmental incidents	0	✓
Number of significant fines	0	✓

Achieved
Not Achieved
On Track

Our People

Employee engagement levels		
Thailand	67%	✓
Indonesia	80%	✓
China	94%	✓
Level of alignment between employee behavior and the corporate culture	69%	✓
Proportion of critical positions having succession plan	100%	✓
Number of fatalities	1	✗
Lost Time Injury Frequency Rate (LTIFR) Employees (person/million man-hour) 	0.14	✓
Lost Time Injury Frequency Rate (LTIFR) Contractors (person/million man-hour) 	0.16	✗

Society

Number of significant complaints	1	✗
Average stakeholder's satisfaction level on community development projects	68%	✓
Number of resettlements	0	✓
Number of violations of indigenous peoples' rights	0	✓
Number of significant human rights complaints	0	✓
Number of significant social non-compliance	0	✓

Corporate Governance

The Board of Directors is responsible for ensuring that the Company's business operations are compliance with laws, the objectives and regulations of the Company, and shareholder resolutions, as well as the rules and regulations issued by the Stock Exchange of Thailand, the Securities and Exchange Commission, and the Capital Market Supervisory Board. As such, the Board of Directors has formulated the "Banpu Public Company Limited Board of Directors' Practice" as a guideline to be strictly followed. The practices are reviewed on a regular basis to ensure that they still remain relevant to and compliant with the organization's roles and responsibilities and the changing business landscape, allowing the Board to maintain and promote good governance within the Company. The practices were last amended and edited in 2017.

Corporate Governance Structure

The Board of Directors of Banpu Public Company Limited is a one-tier system with three sub-committees, namely the Corporate Governance and Nomination Committee, the Audit Committee, and the Compensation Committee. Their roles and responsibilities are as follows:

Corporate Governance and Nomination Committee

3 Non-Executive Directors
1 Indenpendent Director

Main roles and responsibilities are conducting regular reviews of the Company's Corporate Governance Policy and Code of Conduct, and ensuring compliance with the policy and good governance practices.The Committee also recruite and nominate persons for senior executive positions.

Audit Committee

3 Independent Directors

Main roles and responsibilities are reviewing the Company's financial reports, internal controls and audits, risk management systems, and compliance with regulatory requirements. The Audit Committee also considers disclosures of the Company's information in the case of potential conflicts of interest.

Compensation Committee

1 Non-Executive Director
2 Independent Directors

Main roles and responsibilities are making recommendations regarding compensation and benefits to the Board of Directors, sub-committees, and the Chief Executive Officer. The committee also reviews the overall compensation structure including salaries and annual bonuses.

The Board of Directors of Banpu Public Company Limited currently consists of 12 members. Of these, one is an executive director and seven are non-executive directors, while four are independent directors, which comprises 33 percent of the total number of Board members. The Board of Directors requires that its Chairman and Chief Executive Officer be different persons. Both positions have clearly defined roles and completely independent of each other, in order to ensure a healthy balance between management and good corporate governance.

Highlight of the Board of Directors

1 Executive Director
7 Non-Executive Directors
4 Independent Directors

The Board of Directors consists of 1 female member

The tenure of Independent Board Directors must not exceed 9 years or 3 consecutive terms

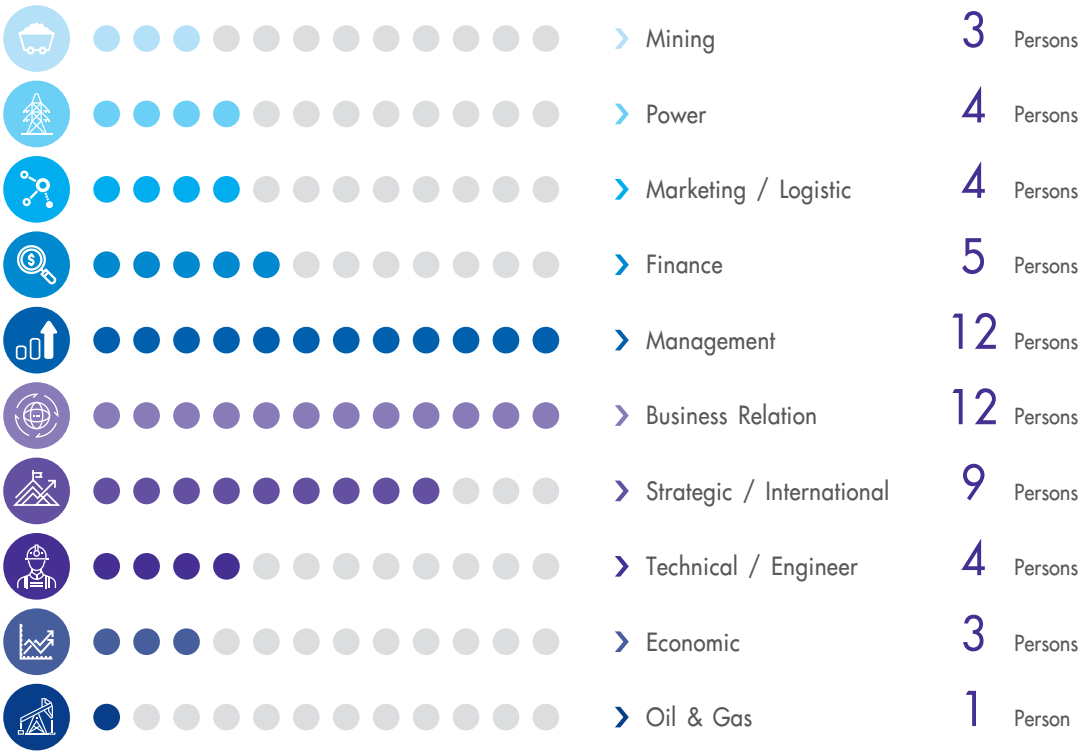
Directors must not hold more than 5 other external directorships in listed companies

Resolutions of Board of Directors' meeting must be made with at least 2/3 of all directors

Board of Directors Nomination

The Corporate Governance and Nomination Committee is to nominate directors upon careful consideration and using an efficient selection process. The committee takes into consideration several aspects of potential candidates, including independence, skills, experiences and expertise, regardless of gender, nationality, religion and age. Such qualifications are accessed by Board Skills Matrix to deliver maximum benefits for the Company and to meet stakeholders' expectations.

Board Skills Matrix



Board Meeting Attendance

Board of Directors
Board meetings 12 times
Percentage of meeting attendance 94
Minimum percentage of meeting attendance 50

Corporate Governance and Nomination Committee
Number of meetings held 4 times
Percentage of meeting attendance 88

Audit Committee
Number of meetings held 10 times
Percentage of meeting attendance 97

Compensation Committee
Number of meetings held 9 times
Percentage of meeting attendance 100

Board of Directors Performance Evaluation

The Corporate Governance and Nomination Committee is responsible to review and propose methods for evaluating the performance of the Board of Directors on an annual basis for the Board's approval. The annual performance evaluation of the Board of Directors is conducted to assess the Board, the sub-committee, and individual directors. Recommendations made from the annual performance evaluation are used to improve the Board's performance to ensure maximum benefits for the Company and the stakeholders.

Annual Board of Directors Performance Evaluation in 2018

Board of Directors	Sub-committees	Individual Directors
		
An average score of 4.73 out of 5	An average score of 4.92 out of 5	An average score of 4.75 out of 5
Very good performance	Very good performance	Very good performance

Competency Development of the Board of Directors

Throughout the year, Directors attended the following competency development programs:

Programs	Organizations	Number of Directors Attending
Boards that Make a Difference (BMD) Class 8/2018	Thai Institute of Directors (IOD)	2
Academy of Business Creativity (ABC) Class 8/2018	Sripatum University	1
Seminar on Board Matters Forum "Top Prioritoes in Digitalization: the Next Move"	Ernst & Young (Thailand)	1
Seminar on "SME and Consumer Financial Solutions Conference"	Bank of Thailand	2
TEA Annual Forum 2018 "Winners and Losers in the Data Revolution Era"	Thammasat Economics Association	1

Voluntary Commitments

The Comapany has applied international practices to develop corporate sustainability management and performance as follows.

Banpu has been included in the Dow Jones Sustainability Indices (DJSI) conducted by Robeco Sustainable Asset Management (RobecoSAM) and continuously adopted the assessment results to develop sustainability governance since 2014.

Banpu prepares sustainability reports in accordance with Global Reporting Initiative (GRI) Standards.

Banpu supports the United Nations Sustainable Development Goals (SDGs) and has aligned its long-term corporate strategies with them.

Banpu has participated in the CDP's climate change assessment and water management program since 2010 and 2017 respectively. The results have been used as a factor in the process improvement to reduce greenhouse gas emissions and optimize water management in the production process.

Banpu adopts AA1000 Accountability Principles Standard (AA1000APS) and AA1000 Stakeholder Engagement Standard (AA1000SES) to create stakeholder engagement and materiality assessment frameworks. In addition, Banpu's sustainability reports have been verified by an external party in accordance with AA1000 Assurance Standard (AA1000AS).

Banpu applies the United Nations Global Compact (UNGC) to ensure corporate responsibility in 4 main areas, namely human rights, labour, environment, and anti-corruption.

Banpu conducts business in accordance with the United Nations Guiding Principle on Business & Human Rights and Universal Declaration of Human Rights and also integrates them as part of its human resources and human rights policies.

Challenge and Opportunity

Energy Resources

Challenge and Opportunity	Banpu's Strategy
Coal Business	
• The reserves of good quality coal with high heat output are limited and the mines that produce high-quality coal are gradually closing down or turning to producing lower quality coal. • China's restrictive policy on low-quality coal imports results in the significant decrease in demand for this kind of coal. • Many financial institutions restrict lending to coal projects and new coal resource developments and become stricter about environmental and social issues. • The competition in the European market is expected to be more intense due to the decrease in gas prices and coal demand and the greenhouse gas emissions reduction policy in Europe. • The competition in the Thai coal market is expected to be more aggressive owing to an oversupply of low-quality coal from Indonesia that results in more coal supply options. • Policy uncertainty, trade conflicts between the United States and China, and economic slowdown affect the volatility of energy prices. • A number of domestic and international competitors.	• Focusing on expanding markets that demand high-quality coal and certain deliveries as well as markets with high growth and demand for a wide variety of quality coal. • Conducting product development by using coal purchased from external sources to develop higher quality coal that meet the needs of target markets. • Expanding coal sales to Asian countries such as Vietnam, Bangladesh, and Myanmar in order to increase customer bases. • Using modern technology to monitor coal production and quality, starting from mining to loading coal at the terminals for delivery to customers. Securing delivery of coal by utilizing the Company's own terminals for the exclusive purpose of coal transportation. • Purchasing coal from external sources for resale in order to serve the fast-growing demand of the Asian coal market. • Increasing index-linked sales based on the coal price in the global market. Using the fixed-price method for short-term sales.
Gas Business	
• The U.S.'s demand for natural gas as the main fuel in electricity generation tends to constantly increase. • Natural gas is exported to Mexico and global markets in form of liquefied natural gas for electricity generation instead of coal. • Marcellus and Utica shales are major sources of natural gas in the U.S.	• Seeking additional investment opportunities through feasibility study.

Energy Generation

Challenge and Opportunity	Banpu's Strategy
Conventional Power Business	
• Increased competition in bidding or acquring electricity sale licenses for the development of new power plant projects in Thailand. • Environmental awareness, stricter environmental laws, and community concerns about coal-fired power plants. • A number of domestic and international competitors. • Production cost is higher due to the impact of global coal prices on domestic coal prices in China. • Strict environmental policies that limit the use of coal as fuel for industrial production.	• Conducting business in line with market conditions using cost management and production efficiency practices. • Monitoring availability of power plants through regular equipment maintenance. • Improving and increasing the efficiency of pollution control systems to meet strict environmental standards of each country. • Developing products that meet customers' needs, i.e. Zhengding Power Plant in China sells chilled water in the summer through the same pipeline as hot water in the winter. • Maintaining and managing good relationships with customers as well as local agencies and communities.
Renewable Power Business	
• Government support and investment promotion of financial institutions in the renewable power business. • Clear energy policies result in low investment risk, as a feed-in tariff (FIT) provides a fixed-rate power purchase scheme for renewable energy generators in China and Japan. • Steady economic growth and clear energy management policy of the Vietnamese government. • A number of domestic and international competitors.	• Seeking investment opportunities and continuously monitoring the project development progress in order to carry out a commercial launch as planned. • Optimizing investment management through partnerships and managing costs from various funding sources. • Handling relationship management with local agencies and communities through continuously supporting community activities. • Seeking business expansion opportunities by building on existing businesses and creating additional values.

Energy Technology

Challenge and Opportunity	Banpu's Strategy
Total Solar Energy Solutions	
• Smart energy business shows an upward trend due to Thailand's Power Development Plan 2018-2037 that promotes the use of electricity from solar energy and the privileges granted by the Board of Investment (BOI). • The private sector is encouraged to participate in energy markets and provide more self-consumption services.	• Making a difference by being a provider of total solar energy solutions and smart city technologies. • Focusing on customer services, starting from system installation and development to after-installation support.

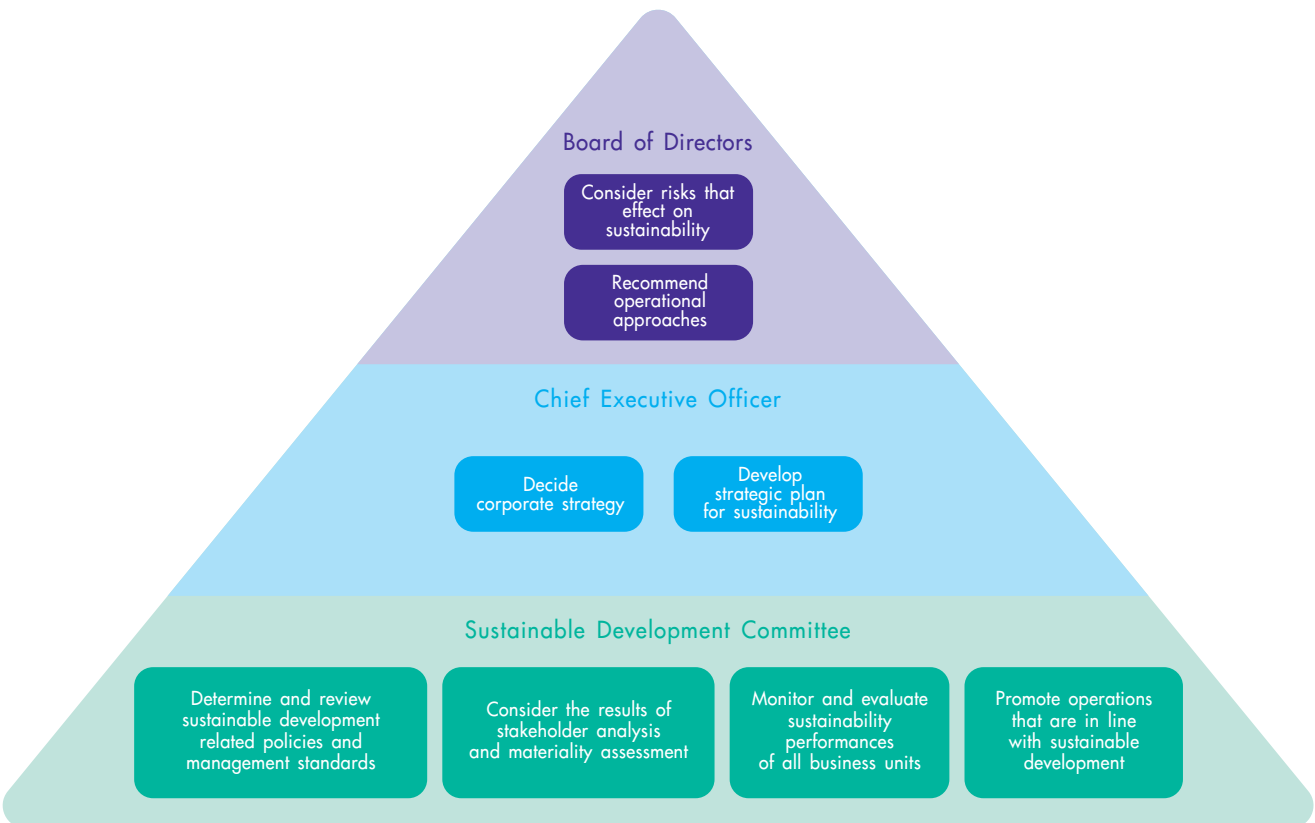
Sustainability Governance

The Company drives sustainable development by integrating sustainability into the corporate risk management system, under the supervision of the Company Board of Directors, the 2016 Sustainable Development Policy and the 5-year plan (2016-2020).

Sustainable Development Policy

Management Approach

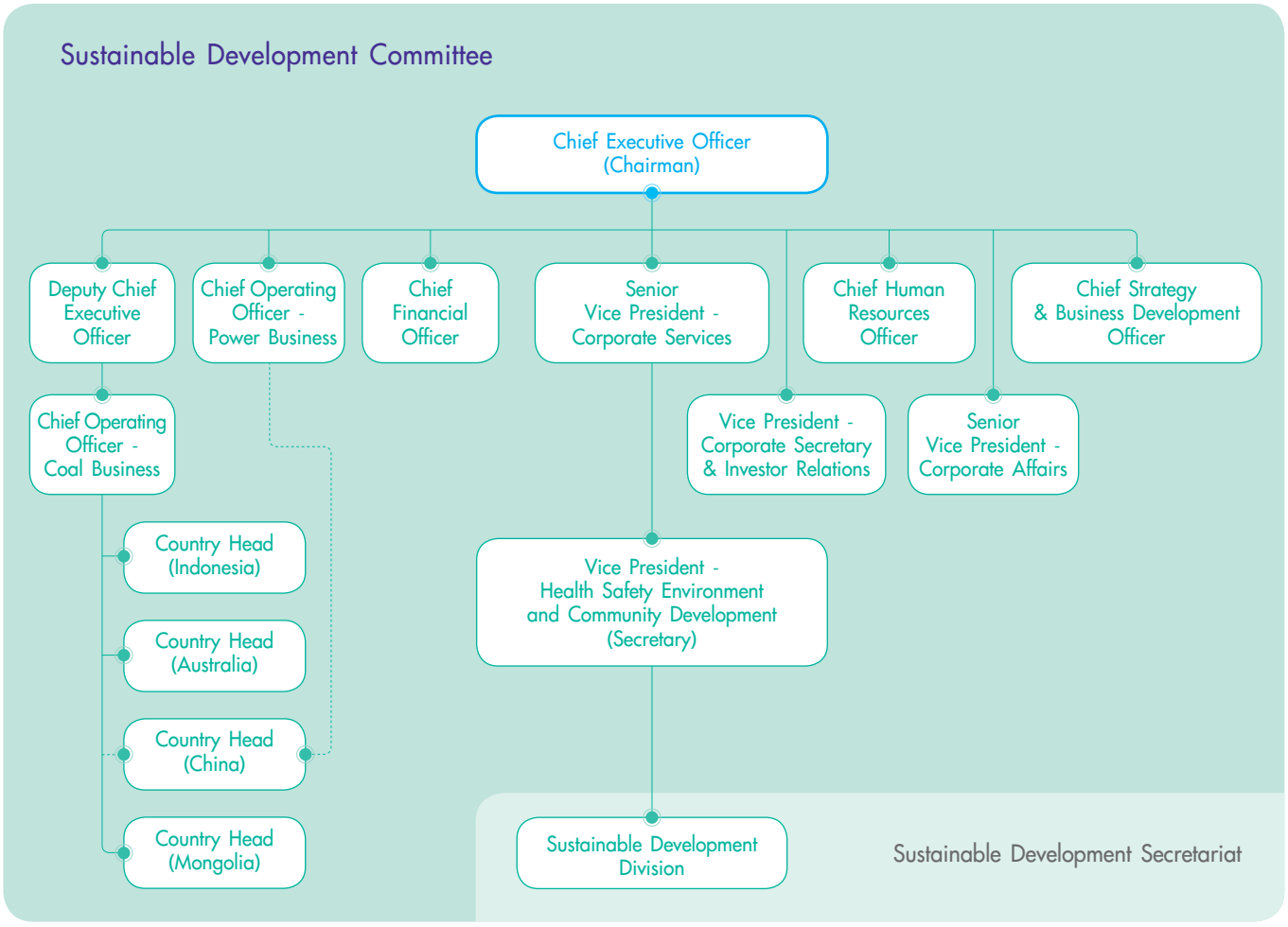
The Company integrates sustainability into the corporate risk management system, with each business unit conducting risk assessments that cover economic, social, and environmental dimensions. The business units are responsible for reporting their assessment results back to the Risk Management Committee, the Audit Committee, and the Board of Directors, respectively. The Board of Directors then considers those risks and makes recommendations to the Chief Executive Officer about appropriate management approaches. Sustainability performances are reported at Board of Directors meetings on a monthly basis. Additionally, the Board of Directors also monitors sustainability performances by making annual visits to business units in each country in which the Company operates at least 1 time annually.

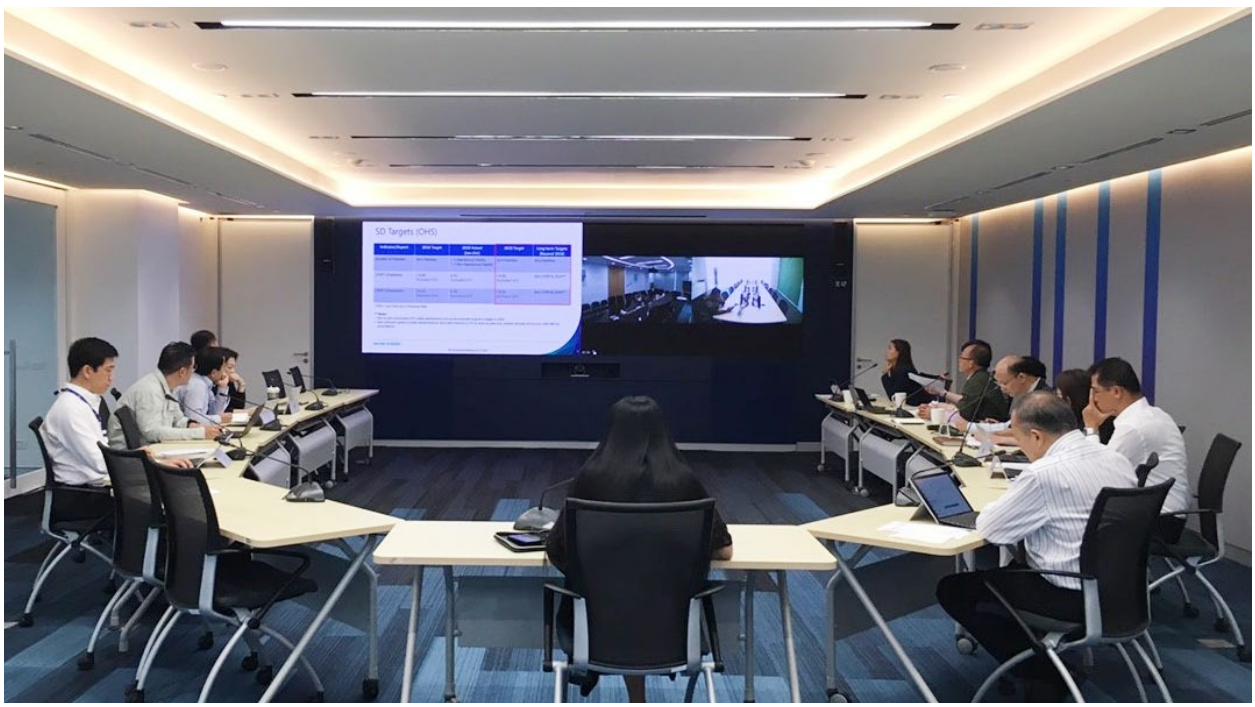


Sustainability Governance Structure

In implementing sustainability governance, Banpu has established the Sustainable Development Committee to drive its sustainability initiatives. The committee, chaired by the CEO, consists of senior executives and heads of business units from every countries in which the Company operates. Committee meetings are held twice annually.

Sustainable Development Committee





Evaluation of Sustainability Performance and Compensation

The Company annually establishes Key Performance Indicators (KPIs) for sustainability. These KPIs are used to evaluate the performance of the Chief Executive Officer and the progress of sustainability governance. Single-year and long-term targets, as well as KPIs for senior executives are also established. The CEO's KPIs, established jointly by the Board of Directors and the CEO will ensure that business targets are achieved hand-in-hand with social and environmental sustainability goals.

The Compensation Committee is responsible for evaluating the performance and compensation of the CEO, taking into consideration of the Company's business performance, the CEO's performance, and surveys of executive compensation from other companies in the same industry. The Compensation Committee's proposal is then submitted to the Board of Directors for further consideration and approval.

To design salary structures and adjustments for senior executives, the Company uses job scope evaluations and salary surveys, while also taking into consideration of individual performance, behavioral assessments, and single-year and long-term targets covering economic, social, and environmental dimensions, such as greenhouse gas emissions. These targets are in line with the corporate sustainability KPIs and the CEO's KPIs.

Sustainability Recognition

With a strong commitment to business ethics and good corporate sustainability governance, Banpu has been recognized by leading sustainability authorities both internationally and nationally.

International Recognition

MEMBER OF Dow Jones Sustainability Indices In Collaboration with RobecoSAM

The Company has been selected as a member of the Dow Jones Sustainability Indices (DJSI) in 2018 for the fifth consecutive year.

SAM Sustainability Award Gold Class 2019

The Company remains the Gold Class 2019 in the Coal & Consumable Fuels sector of the Robeco Sustainable Asset Management (RobecoSAM) Sustainability Award.

National Recognition

HONOR SET SUSTAINABILITY AWARDS 2018

The Company was awarded the Sustainability Awards of Honor 2018 by the Stock Exchange of Thailand for the second consecutive year.

THSI THAILAND SUSTAINABILITY INVESTMENT 2018

The Company was listed as one of the companies in Thailand Sustainability Investment by the Stock Exchange of Thailand for the fourth consecutive year.

SET The Stock Exchange of Thailand

The Company has been listed in SET THSI Index, which was first introduced by the Stock Exchange of Thailand in July 2018.

Stakeholder Engagement

The Company applies the Management Framework: Stakeholder Analysis, which was developed based on the international AA1000 Stakeholder Engagement Standard (AA1000SES) to assess issues that are of importance to stakeholders. Three principles - inclusivity, materiality, and responsiveness - underpin the stakeholder engagement framework.

Process of Stakeholder Analysis

1 Identify stakeholders

By considering factors including dependency, responsibility, influence, and other factors as appropriate

2 Define levels of the Company's impacts on stakeholders

By considering the economic, social, and environmental impacts

3 Define levels of stakeholders' influence on the Company

By considering influence in terms of finance, operations, regulations, reputation, and operational strategies

4 Categorize stakeholders

By dividing stakeholders into four groups according to the levels of impact that the Company has on the stakeholders, and stakeholders' influence on the Company

5 Prioritize stakeholders

With appropriate engagement approaches for each stakeholder group, for example interviews and workshops

Banpu's Practice

Each business unit is responsible for identifying and analyzing stakeholders related to its business operations. Results from each business unit are collected and analyzed at the corporate level under the supervision of the Sustainable Development Committee.

"As business partner, we arrange a meeting every month in order to share knowledge and strengthen our relationship, which lead onto process improvement of the existing joint venture and also new business opportunities for the sustainability of both organizations."

Aekwarin Tunkitchanon
Vice President - Asset Management
Electricity Generating Public Company Limited

"What I like about working here is tele-working which allows employees to work from home or anywhere once a week. This system is really into people in new generation."

Siwaree Boonthavornsatien
Supervisor - Environment, Banpu

Engagement Method and Stakeholder's Issue

Stakeholder	Engagement Method	Stakeholder's Issue	Banpu's Sustainability Topic
Employee	• Communication between human resources department and employee • Employee involvement in committees • Complaint channel • "Banpu Heart" behavioral survey • Employee engagement survey • Town Hall Meeting	• Direction of the Company	• Challenge and Opportunity
		• Business ethics and responsible business practices	• Business Ethics
		• Happiness in workplace • Reasonable wages and benefits • Career opportunities	• Empoyee Management
		• Knowledge development	• Human Capital Development
		• Safety in workplace	• Occupational Health and Safety
Community	• Communication between community development officers and local community • Establishment of Community Consultative Committee (CCC) • Community satisfaction survey • Complaint channel • Public information on Banpu's website	• Social and environmental impact from the Company's operations	• Community Engagement • Air Emissions & Waste
		• Safety in life and residence	• Resettlement
		• Respect on human rights	• Human Rights • Indigenous Peoples
		• Community well-being and economic distribution	• Economic Distribution • Community Development
Customer	• Customer satisfaction survey • Complaint channel • Occasional visits • Response the request for data disclosure	• Quality and price of product • On-time product delivery	• Customer & Product Stewardship
		• Social and environmental impact from use of product	• Customer & Product Stewardship • GHG Emissions
Government	• Occasional visits • Support to governmental initiatives and activities • Response the request for data disclosure • Publication of Annual Report and Sustainability Report • Public information on Banpu's website	• Value creation for economy and society	• Sustainability Governance • Corporate Philanthropy
		• Business ethics • Data transparency	• Business Ethics
		• Compliance with law and regulation	• Environmental Compliance • Social Compliance
		• Maximization of natural resource	• Energy & Water
		• Supply chain management	• Supplier Management • Customer & Product Stewardship
		• Social and environmental impact from the Company's operations	• GHG Emissions • Water & Air Emissions & Waste • Biodiversity • Mine Closure
		• Driving SDGs into practices	• Banpu and SDGs

Stakeholder	Engagement Method	Stakeholder's Issue	Banpu's Sustainability Topic
Supplier	• Regular meeting with supplier	• Fair and transparent procurement process	• Business Ethics
		• Future opportunity for doing business with Banpu	• Supplier Management
Contractor	• Regular meeting with contractor • Annual meeting of mine contractor	• Fair and transparent procurement process	• Business Ethics
		• Safety in workplace	• Occupational Health and Safety
		• Reduction of energy consumption	• Energy
		• Future opportunity for doing business with Banpu	• Supplier Management
Financial Institution	• Analyst meeting • Publication of Annual Report and Sustainability Report	• Business transparency	• Business Ethics
		• Business growth and financial performance	• Performance Overview
Business Partner	• Board meeting at subsidiaries and associated companies • Publication of Annual Report and Sustainability Report	• Business transparency	• Business Ethics
		• International reputation	• Awards & Recognitions
		• Business growth and financial performance	• Performance Overview
Shareholder	• Annual general meeting of shareholder • Publication of Annual Report and Sustainability Report • Complaint channel • Public information on Banpu's website	• Qualification of Board of Directors and Managements	• Corporate Governance
		• Business transparency	• Business Ethics
		• Risk management	• Risk Management • Business Continuity Management
		• Research & development for operational excellence	• Process Improvement and Innovation
		• Business growth and financial performance	• Performance Overview
Investor	• Opportunity investment roadshow • Presentation on Opportunity Day organized by Stock Exchange of Thailand • Publication of Annual Report and Sustainability Report • Public information on Banpu's website	• Qualification of Board of Directors and Managements	• Corporate Governance
		• Business transparency	• Business Ethics
		• Value creation for economy, society and environment	• Sustainability Governance
		• Risk management	• Risk Management • Business Continuity Management
		• Business growth and financial performance	• Performance Overview
Media and NGOs	• Response the request for data disclosure • Fact sheet summary • Public information on Banpu's website	• Value creation for economy and society	• Sustainability Governance • Corporate Philanthropy
		• Business transparency	• Business Ethics
		• Data transparency	• Performance Data
		• Compliance with law and regulation	• Environmental Compliance • Social Compliance
		• Social and environmental impact from the Company's operations	• GHG Emissions • Water & Air Emissions & Waste • Community Engagement

Materiality Assessment

Material topics are assessed and prioritized by using the Management Framework: Materiality Assessment, which was developed based on the internationally recognized Global Reporting Initiative (GRI) and AA1000 AccountAbility Principle Standards (AA1000APS), while taking into consideration the economic, environmental and social impacts on the Company and stakeholders. Topics that are of concern to and are within the expectations of stakeholders are also incorporated. The Sustainable Development Committee reviews and approves the materiality assessment on an annual basis.

Process of Materiality Assessment

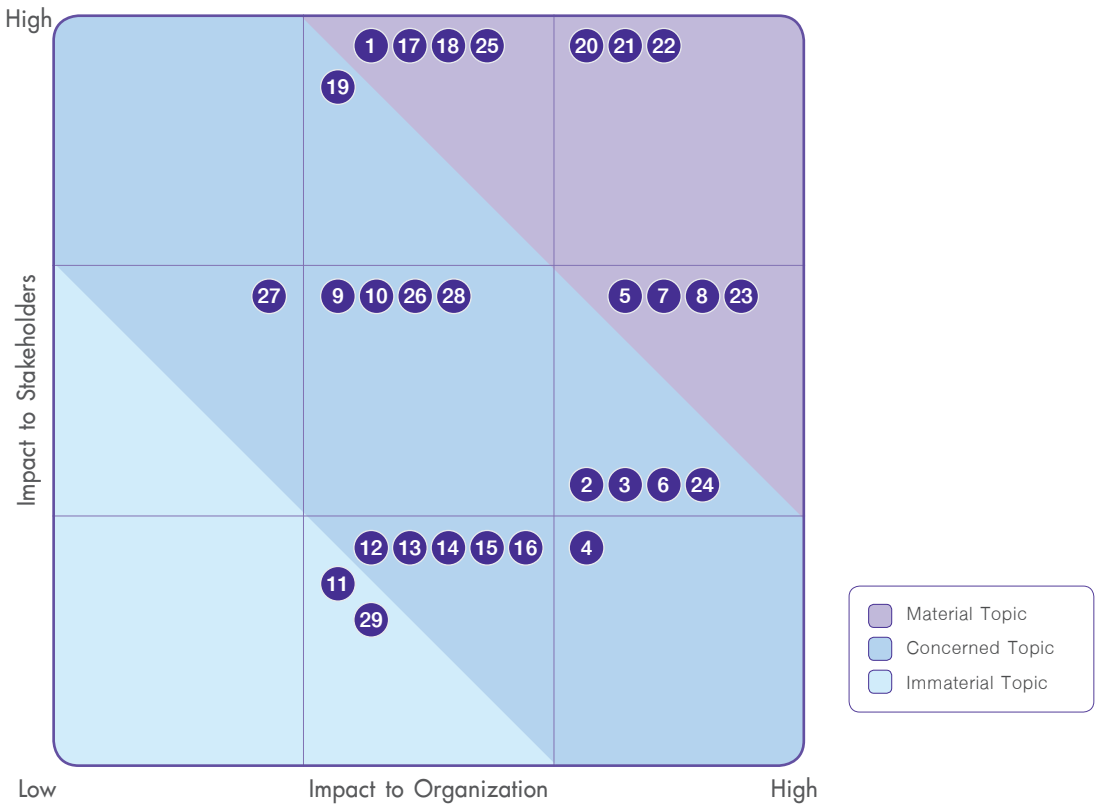
Topics of concern or expectations of stakeholders are analyzed together with the Master List of general topics derived from a review of relevant laws, topics in related industries, those identified by international sustainability standards or assessments, and matters of global concern.

For each sustainability topic, the degrees of impact to organization are assessed and identified in the financial, operational, strategic, reputational, and regulatory aspects, along with the likelihood of each incident occurring and its respective magnitude.

For each sustainability topic, the degree of possible impact to stakeholders is identified together with the level of influence those stakeholders have on the organization.

The topics are prioritized into three categories according to their level of impact on the organization and stakeholders. The three categories are: material topics, concerned topics, and immaterial topics.

Materiality Matrix



1 Business Ethics
2 Risk Management
3 Business Continuity Management
4 Process Improvement and Innovation
5 Supplier Management
6 Customer and Product Stewardship
7 GHG Emissions
8 Energy
9 Water
10 Air Emissions
11 Waste
12 Biodiversity
13 Mine Closure
14 Mine Subsidence
15 Mineral Waste
16 Specific Waste from Power Plant
17 Environmental Compliance
18 Employee Management
19 Corporate Culture
20 Human Capital Development
21 Occupational Health and Safety
22 Community Engagement
23 Community Development
24 Indigenous Peoples
25 Social Compliance
26 Economic Distribution*
27 Resettlement*
28 Human Rights*
29 Corporate Philanthropy*

*Additional topics in 2018

Re-validation of Material Topics

In 2018, the Company used the 2017 materiality assessment to identify sustainability topics for this report. Adjustments have been made to certain topics - such as Mineral Waste and Specific Waste from Power Plant - in order to better reflect the Company's current context. Smaller topics that are relevant to one another are also grouped together to make the report reading more convenient. For example, topics regarding sulfur dioxide, nitrogen oxide, and particulate matter are included as part of the "Air Emissions" topic. There is no significant difference among the 11 material topics in this report when compared with the previous year's report. In order to cover all matters of stakeholder's interest, in this report four topics are added: Economic Distribution, Resettlement, Human Rights, and Corporate Philanthropy, which were derived from the consideration of sustainability assessment standards. The Company is in the process of reviewing material topics for next year's sustainability report to ensure that the content is of concern to stakeholders, and in keeping with global changes.

Material Topic and Indicator

For all 11 material topics, the Company has established relevant indicators which are linked to GRI Standards.

Material Topic	Impact Boundary										Indicator	Linkage with GRI Standards	Page
	Employee	Business Partner	Community	Contractor	Financial Institution	Customer	Government	Investor	Shareholder	Supplier			
1 Business Ethics	●	●		●	●		●	●	●	●	Number of significant CG complaints	-	38
5 Supplier Management				●			●			●	Proportion of new critical suppliers with ESG risk assessed	308-1 414-1	48
											Proportion of critical suppliers with ESG risk assessed	308-2 414-2	
											Proportion of spending on local suppliers	204-1	
7 GHG Emissions						●	●				GHG emissions intensity	305-4	56
8 Energy				●			●				Energy consumption intensity	302-3	62
17 Environmental Compliance							●				Number of significant environmental incidents	307-1	88
											Number of significant fines		
18 Employee Management	●										Employee engagement level	404-2	92
20 Human Capital Development	●										Proportion of critical position having succession plan	404-3	96
											Proportion of employee having individual development plan		
21 Occupational Health and Safety	●			●							Number of fatalities	403-9	98
											Lost Time Injury Frequency Rate (LTIFR)		
22 Community Engagement			●								Number of significant complaints	413-1 MM6	106
											Proportion of significant complaints that are handled		
23 Community Development			●								Cumulative coverage of stakeholder's satisfaction survey on CD projects	413-1	110
											Average stakeholder's satisfaction level on CD projects		
25 Social Compliance							●				Number of significant social non-compliance	419-1	122
											Number of significant fines		

Banpu and SDGs

The Company has placed great importance to be a part in driving the United Nations Sustainable Development Goals (SDGs) with the timeframe of 15 years: (2015-2030). Therefore, the Company has developed strategies and targets to align with SDGs.

Target Year

2020

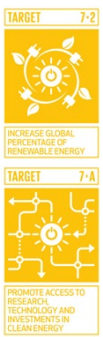
Company's strategy and target (page 56)

- Reduce GHG emissions intensity by 25% for coal business and 15% for power business

Company's strategies and targets (page 110)

- Strengthen awareness and understanding of the SDGs for communities
- Integrate the SDGs into community development projects

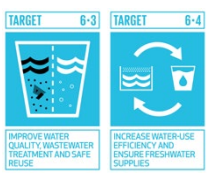
2022



Company's strategy and target (page 56)

- Install 300 MW of solar rooftop

2019



Company's strategies and targets (page 66)

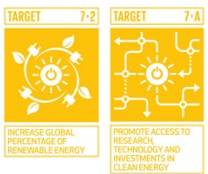
- Develop a baseline for water utilization and water quality at all business units
- Review water related risks at all business units
- Engage with local communities, experts and relevant stakeholders to study and improve the Company's water efficiency management
- Develop short-term quantitative target (3-5 years) for both corporate and business unit levels

Company's strategies and targets (page 76)

- Assess biodiversity risk at all business units
- Support and collaborate in biodiversity research

Company's strategies and targets (page 98)

- Reduce number of fatalities to zero
- Reduce Lost Time Injury Frequency Rate (LTIFR) of employee and contractor to zero



Company's strategy and target (page 56)

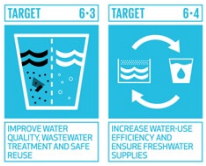
- Increase electricity generation from renewable resources by more than 20% of portfolio

Company's strategy and target (page 76)

- Achieve a net positive impact on biodiversity for the mine being closed after 2025

2024 2025 2030

Target Year



Company's strategies and targets (page 66)

- Reduce water utilization at each business unit
- Reduce water footprint throughout the supply chain

Company's strategies and targets (page 38)

- Adhere to operate the business under good corporate governance and business ethics
- Support and engage with related organization to promote anti-corruption
- Strengthen awareness and understanding of the business ethics to business partners and related stakeholders.

Economy

Budget for Community Development Project
1,969 USD thousand

Revenue
3,481
USD million

100%
Coverage of Business Continuity Management

49% Spending on Local Suppliers

100% Customers Complaints are Timely Handled

Economic Distribution

The Company believes that driving business towards sustainability should not only focus on profitability. It is essential for the Company to demonstrate responsibility towards communities, societies, and relevant stakeholders through social participation and economic value creation.

Reporting Boundary

The economic distribution information disclosed in this report covers all business entities in which the Company holds greater than 50% of shares and has management control, namely coal business in Indonesia and Australia, power business in China and Japan, total solar energy solution business in Thailand, as well as the head offices in each country.

Management Approach

In regard to creating economic values for stakeholders, beside the dividends paid to shareholders, the Company places emphasis on responding to basic needs and showing its responsibility to the countries where it operates such as paying taxes and fees to the government or local authorities and employing local workers in order to generate income distribution among communities surrounding the operational areas. The main objective aims to create economic strength to related communities and countries. The economic distributions that the Company has taken into account are as follows:

Stakeholders	Economic Values Created
Supplier and Contractor	• Operating cost
Employee	• Salary, wage, and welfare • Provident fund contribution • Employee development expense
Financial Institution	• Interest expense and financial expense
Shareholder	• Dividends
Governance	• Royalty fee • Corporate income tax and local maintenance tax • Property tax, specific business tax and other taxes
Community	• Community development project around operation area

Community Development and Assessment of Social Return on Investment

The Company adopts the Social Return on Investment (SROI) framework to improve community development projects and evaluate its social impacts. SROI is used to measure any changes in ways that are relevant to the contributions of social value and then used monetary values to represent those contributions. The analysis will estimate how each $1 invested in the activity will create how much social value. The SROI assessment summarizes “a set of significant values” linked to the missions of each project and then translates them into monetary values.

In 2018, the Company applied SROI framework to measure the social return of 5 community development projects in Indonesia. The sample of success includes the “Clean Water Access Project” of the Indominco mine established to solve clean water shortage in the local communities. This project has continuously operated since 2013 until present and was reported to benefit 548 households in 5 villages. The SROI results showed that the social return of this project was IDR 4.75 for every one IDR invested.

(Remark: The evaluation is based on tangible data and calculated by internal SROI practitioner)

Performance Summary

	2018	Target 2018
Ratio of Dividend Payout to Net Profit	54.7%	50%

Remark: The dividend payment rate depends on the cash flow and investment initiatives of the Company and its subsidiaries as well as legal restrictions and other necessities.

Progress 2018

- Applying the Social Return on Investment (SROI) framework to assess the community development projects

Performance

In 2018, the Company paid dividends totaling USD 112 million accounting for 54.7% of the net profit. In addition, the Company had total sales revenue of USD 3,481 million. After distriabuting an economic value of USD 2,727 million to its stakeholders, the Company had the retaining economic value of USD 754 million.

Economic Value Generated	Economic Values Distributed							Economic Value Retained
Revenues	Dividends Paid	Operating Cost[a]	Employee Wages and Benefits[b]	Payments to Providers of Capital[c]	Payments to government[d]	Community Investments[e]	Environmental Investments[f]	
3,481	112	1,601	325	175	480	12	22	754

Unit: USD million

[a] Includes operating cost for suppliers and contractors
[b] Includes salary, wage, welfare, provident fund contribution and employee development expense
[c] Includes interest expense and financial expense
[d] Includes royalty fee, corporate income tax and local maintenance tax, property tax, specific business tax and other taxes
[e] Includes expense for community development, corporate social responsibility activity and land compensation
[f] Includes expense for environmental management

Community Development Investment in Indonesia

The Company places the great importance on supporting and investing in the development of communities and societies surrounding the operational areas with the aim to create community trust in order to gain acceptance through the implementation of quality of life development activities. In Indonesia, the Company has invested in 6 main frameworks of community development and conducted stakeholder satisfaction survey on a regular basis.

Project	Budget for Development Project (USD Thousand)
Economic Development and Income Generation	667
Education Development	311
Basic Infrastructure Development	276
Health and Sanitation Development	241
Environmental Conservation	158
Social, Cultural and Community Relations Promotion	316
Total Budget	**1,969**

Business Ethics

Business ethics is a material issue interested by all stakeholders as without such, wrongfully operating business in a way that goes against the principles of good governance or tax evasion may directly discourage the confidence of the Company's stakeholders. Upholding the critical level of business ethics as well as standard practices can help prevent major damage to the business.

Reporting Boundary

The Information about business ethics disclosed in this report cover all business entities in which the Company holds greater than 50% of shares and has management control, namely coal business in Indonesia and Australia, power business in China and Japan, and total solar energy solution business in Thailand as well as the head office in each country.

Governance Principles and Practices

Management Approach

The Company announced the Corporate Governance Policy and the Code of Conduct that are consistent with internationally recognized requirements and criteria such as ASEAN Corporate Governance Scorecard, Organization for Economic Co-operation and Development (OECD), and Securities and Exchange Act. The Company has ultimately revised the essence of relevant policies and Code of Conduct to make certain that they coincide with the principle of good corporate governance for the listed company in 2017 of the Securities and Exchange Commission. Additionally, the company announces policies and guidelines to encourage accurate understanding in such matters as follow:

- Anti-corruption Policy
- Whistleblower Policy
- Market Sensitive Information Policy
- No Gift Policy
- Corporate Compliance Policy
- Human Rights Policy
- Human Resources Policy
- Tax Management Approach

To implement corporate governance efficiently, the Company cultivates its corporate culture by setting KPIs for all executives and employees as well as promoting the understanding via two-way communication as follows:

- A training session on corporate governance principles as part of the orientation program for new employees
- Annual CG Day to promote the understanding in terms of Business Ethics
- Articles on Good Corporate Governance in internal journals published quarterly and distributed to all countries where the company conducts business
- Promoting the concept of best practices via electronic mails
- Communicating with and gather opinions from employees via Line@ applications

Performance Summary

	2018	Target 2018
Number of Significant Corporate Governance Complaints	0	0

Progress 2018

- Revised the essence of Corporate Governance and Policies as well as Business Ethics.
- Recertified as a member of the Collective Action Coalition Against Corruption (CAC) for the 2nd term.

Performance

The Company participates in the assessment by the Corporate Governance Report of Thai Listed Companies (CGR) annually. In 2018, the Company received Excellent CG Scoring. In the past year, the Company received two complaints from stakeholders. Although the matters brought on were not considered as significant, the company took swift action and managed to get all resolved. Moreover, the Company's Board of Directors has agreed to increase more channels for receiving complaints directly to Chairman of the Corporate Governance and Nomination Committee.

Complaints Channels

Letter to
- Corporate Governance and Compliance Division
  Banpu Public Company Limited
  27th Floor, Thanapoom Tower
  1550 New Petchburi Road
  Makkasan, Ratchathewi, Bangkok 10400

Company website
- https://www.banpu.co.th/complaint/

Company web portal
- http://portal.banpu.co.th
  Corporate Governance Receiving Complaint

Email to
- Corporate Governance and Compliance Division
  GNCSecretariat@banpu.co.th
- Chairman of the Corporate Governance and Nomination Committee
  GNCchairman@banpu.co.th

Investigative Procedure

1. In case there is sufficient evidence to justify the complaint, a full investigation will be conducted with the objective to ensure whether the alleged malpractice has occurred. The investigation is needed to carry out under Corporate Fraud Management manual.
2. The investigation team will inform the complainant of the findings of the investigation and its outcome through appropriate communication channels.
3. When the allegation was proven, senior management will decide what action to take e.g. disciplinary punishment or any other appropriate measures. The summary of complaint will be reported to the Corporate Governance and Nomination Committee quarterly and reported to the Board of Directors annually.

CG Day 2018

CG Day is a regular activity held annually to cultivate and build awareness of business ethics to employees at all levels. The previous CG Day was taken place on 7 September 2018 under the theme "Light the Way & Familing Your Story", to provide an opportunity to all employees to show their creativity in ways that reflect the new corporate culture "Banpu Heart" through video clips.

Risk Management

Due to the ever-changing in business, laws and regulations as well as stakeholders' expectations, the Company hence pay great attention to the effective risk management that can serve not only as key reduction to any possible damage but also increasing business opportunities.

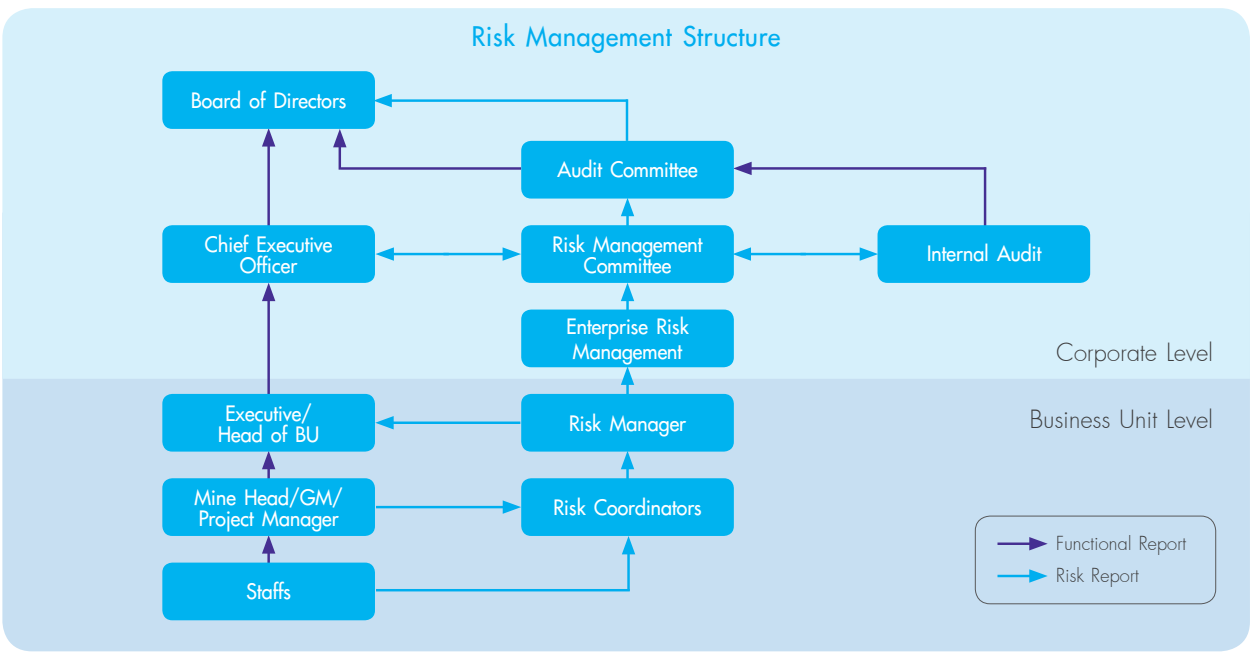
Reporting Boundary

The information about the risk management disclosed in this report covers all business entities in which the Company holds greater than 50% of shares and has management control, namely coal business in Indonesia and Australia, power business in China and Japan, and total solar energy solution business in Thailand as well as the head offices in each country.

Management Approach

The Company's Risk Management function is directly under the supervision of the Audit Committee. In order to ensure effective risk management, the Company has established the Risk Management Committee (RMC) chaired by Chief Executive Officer, who is also a Board member. Moreover, risk management policy and Risk Management Committee Charter have been developed, which stipulates main duties of the committee as follows:

1. Monitor risks and risk assessment performance according to the mitigation plan
2. Review and evaluate relevant policies and risk management process to align with strategies and practical with relevant situation including build awareness in term of risk management
3. Stay updated on any events related to risk management



Performance Summary

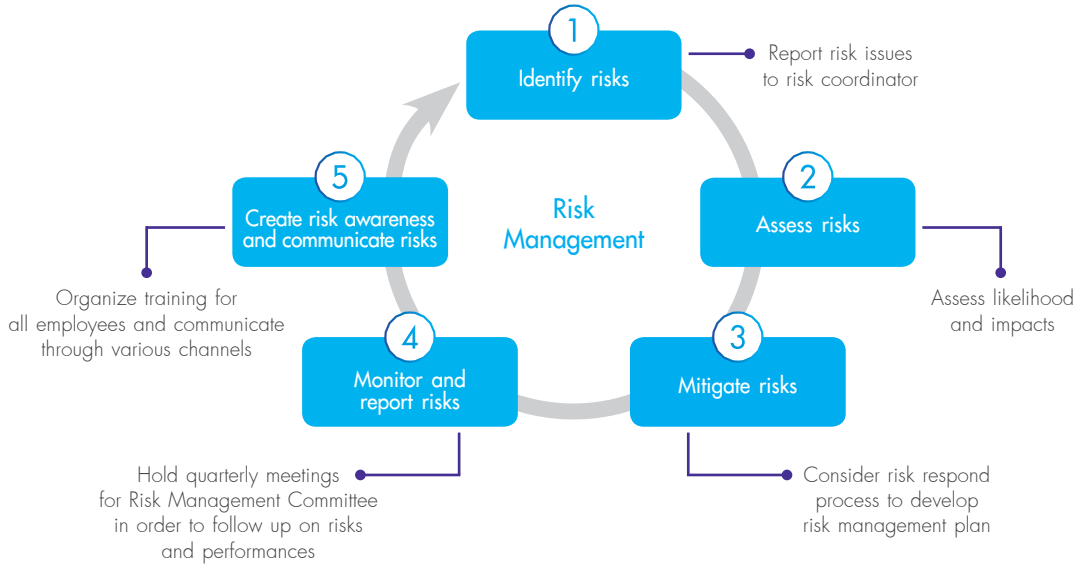
	2018	Target 2018
Coverage of Risk Management System	100%	100%
Proportion of Business Units having Key Risk Indicators	100%	100%

Progress 2018

- Revised policy and Risk Management Committee Charter
- Evaluated risk management system by external expertise

The Risk Management Committee thus holds the meetings to follow up on risks and risk management performance according to the risk mitigation plan, and report the risk management performance to the Audit Committee and the Board of Directors on a quarterly basis. In 2018, the Company has revised such policy and Risk Committee Management Charter as well as the Risk Appetite Policy in order to align with the strategic plan and corporate culture. Moreover, the Company developed tools such as key risk indicator to improve the efficiency of risk management.

The Company has established a clear approach in analyzing the risks, which may have impact on the Company's business goals, strategies, as well as the Company's operations. Moreover, there are also other meetings relevant to risk management such as monthly basis of the Financial Management Committee in order to monitor financial risks, and the Commodity Risk Management Committee meeting to monitor risk associated with volatility in coal and oil prices.



The Company creates awareness and sets it as a part of the corporate cultures as well as constantly promotes the understanding through different communication channels such as:

- Training for new employees
- Training via E-learning
- Communication via electronic mails
- Communication via press release and internal journals

Performance

The Company mandates that all businesses develop Key Risk Indicators (KRIs) and report such indicators to the Risk Management Committee in quarterly basis. In 2018, the Company cooperated with external expertise to evaluate the risk management system against international standards. A conclusion from the evaluation was used to develop the risk management plan as well as organize the trainings for the management and employees to promote the understanding.

Risk Categories	Risk(s)
1. Strategic Risks	• Risk in strategic planning and implementation • Risk in human resource management and development to accommodate future growth • Corporate reputation risk • Risk from the inability to increase coal reserve for commercial purpose • Risk from investment in new businesses
2. Financial Risks	• Exchange rate risk • Taxation risk • Risk from volatility in coal and gas prices
3. Operating Risks	• Risk in coal business • Risk in power business • Risk in shale gas business • Risk in total solar energy solution business • Occupational health, safety and environmental risks • Risk from social and community impact
4. Compliance Risks	• Risk from policy and regulatory changes in the countries where the company has invested
5. Emerging Risks	• Risk from disruptive energy technology • Risk from digital transformation • Risk from climate changes

Emerging Risks

According to the Company's risk assessment, three major emerging risks were found, namely risks from disruptive energy technology, digital transformation and climate change. The Company realizes the significance of such risks by revising its corporate vision and missions in order to strive toward improvement for sustainable energy via various types of technology.

Risks from Disruptive Energy Technology

Emerging energy technology trends have driven changes in consumer behavior as well as related laws and regulations. In order to respond to such risks, the Company has revised its investment strategy into 3 core groups of businesses namely;

- Energy Resources: Increase investment in upstream energy resources such as shale gas business
- Energy Generation: Adapt High Efficiency Low Emissions (HELE) into conventional power plants and increase electricity generation from renewable resources more than 20% by 2025
- Energy Technology: Invest in total solar energy solution, energy storage system and energy technology system

Risks from Digital Transformation

The ever-changing world of technology has direct and strong influences on people's power consumption behaviors including the Company's way of operating business. We have set up the Digital Center of Excellence department to effectively respond to the above mentioned risks which not only lead to more efficiency but it is also used to improve the standard working procedures in order to be more responsive to the consumers' demands.

Risks from Climate Change

Risks from climate change have direct impact on the Company as we are categorized as both producers and consumers in the energy production process. In terms of risk management, we have set out clear strategies in dealing with climate change where we focus on 4 main tasks, namely reduction of GHG emissions, adaptation to climate change, being a part of in low-carbon society, and participating in climate change community.

Besides, climate change factors contribute to the performance of the Company such as rising sea levels, volume of precipitation along with drought conditions in some locality. However, the Company has not yet discovered any business units experiencing valid risks from scarcity of water.

Business Continuity Management

The business environment is characterized by rapidly changes and uncertainties from natural causes or human influence, which is the potential risks that the Company might face with a significant business discontinuity and cause damage to the Company and related stakeholders. In order to minimize impact or damage, the Company pays great attention on business continuity management that leads to sustainable business continuity.

Reporting Boundary

The information about the business continuity management disclosed in this report covers all business entities in which the Company holds greater than 50% of shares and has management control, namely the head office in Thailand, coal business in Indonesia and Australia, and power business in China. However, the coal business in Mongolia excludes in this report as it is still under exploration and development phase.

Business Continuity Management Policy

Management Approach

The Company has published its business continuity management policy developed according to the International Standards Organization (ISO 22301: 2012) which covers the processes including business impact analysis and risk assessment as well as Business Continuity Plan (BCP). The Company classifies business continuity management into 4 levels, namely response level, site level, country level, and corporate level which conduct the drills regularly, for example, the head office in Thailand conducts BCP drill at country and corporate levels every two years on an alternating basis. In regards to BCP drill plan in each country, the Company aims to conduct annual BCP drill at country and site level in 2022 onwards; however, BCP drill at the site level will be rotated in each country, for example, the drill will be conducted at the Trubaindo mine in 2019 and at the Indominco in 2020. The Company also monitors and reconsiders the system efficiency via internal assessment and management review annually.

Performance

The Company has set a target to complete conducting BCP drill at country level for all countries by 2022. In 2018, the head office in Indonesia has successfully conducted BCP drill at country level for the first time. The drill has conducted according to the Company's standard and complied with ISO 22301:2012. Moreover, the Company has also conducted the drill at head office in Thailand as planned.

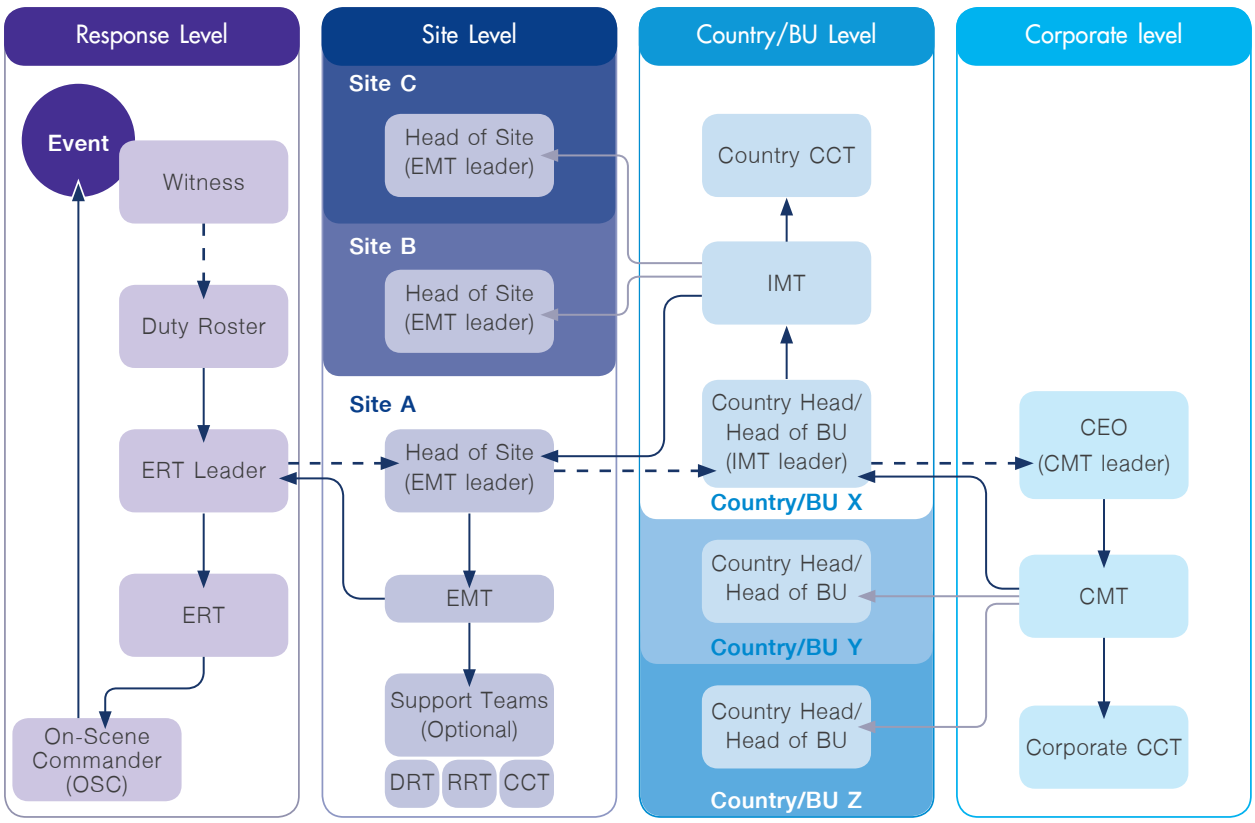
Performance Summary

	2018	Target 2018	Target 2022
Accumulate Percentage of Conducting the First BCP Drill at Country Level	33%	33%	100%

Progress 2018

- Produced business continuity management movie as internal communication media
- Conducted BCP drills at country level at the head office in Thailand and Indonesia

Activation of Crisis and Emergency Management Team



ERT: Emergency Response Team

EMT: Emergency Management Team
DRT: Disaster Recovery Team
RRT: Relative Response Team

IMT: Incident Management Team

CMT: Crisis Management Team
CCT: Crisis Communication Team

Business Continuity Management Communication within the Organization

In 2018, the Company aimed to raise awareness to all employee and management of the importance of business continuity management through a movie called "Be Prompt" which illustrates the whole picture of business continuity management process and examples of how specific incidents at corporate level are handled. The movie will allow everyone involved to have a clear understanding about business continuity management.

Process Improvement and Innovation

Amid a fast-paced business environment and rising of production costs that are affected by external factors outside of the Company's control, such as fuel costs, the Company believes that the continuous improvement of processes and the application of advanced technology including innovation are more important than ever.

Reporting Boundary

The information about the process improvement and innovation disclosed in this report covers all business entities in which the Company holds a greater than 50% of share and has management control, namely coal business in Indonesia and Australia, power business in China and Japan, and total solar energy solution business in Thailand, as well as the head offices in each country.

Management Approach

In order to minimize production costs and lost time, the Company employs the principles of lean manufacturing and Total Productive Maintenance (TPM), and promotes worker engagement to identify problems and their root causes through a systemic process and continuous improvement. With support from the head office, the process begins by training employees to enable them to identify problems that may arise during their work processes. Annual seminars are held to promote operational excellence and provide an opportunity for employees to present their innovation projects that will help the Company increase production efficiency. Due to differences in the nature of the business in each country, activities are adapted to suit each business and its requirements. For example, ITM in Indonesia annually organizes a workshop on Operational Excellence, while in Australia, Centennial has carried out a process improvement project named "Step Change Productivity".

The Company places great importance on promoting innovation through a variety of activities across all levels, from the operational level to management, so that all employees understand the importance of applying innovation in the workplace. Starting at the head office in Thailand in 2008, different activities to promote innovation have been carried out in each country, for example, the Thailand Innovation Award in Thailand, KOMPAK in Indonesia, and Innovation Sharing Day in China. Since 2012, the Company has incorporated innovation into the corporate strategies. The Banpu Innovation Convention is held annually to provide an opportunity for each country to share and exchange innovation concepts. The best ideas receive awards from a panel of judges that includes the Chief Executive Officer and senior executives.

> "The more I know about Banpu, the more I love Banpu. The Company keeps giving good feelings to employees and allows us to try new things all the time. We get to think and do new things, and we have a venue to showcase our ideas."

Patyodsaporn Weeradittakit
Section Manager - Corporate Culture and HR Communication, Banpu

Performance Summary

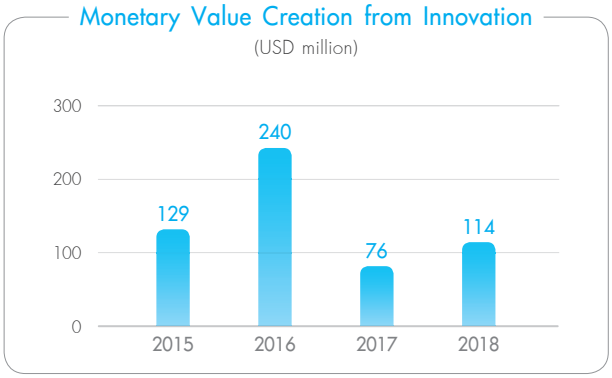
	2018	Target 2018
Monetary Value Creation from Innovation (USD million)	**114**	**>76**

Progress 2018

- 10 projects received the Best Innovation Awards, generating value creation worth USD114 million

Performance

The most recent Banpu Innovation Convention was held in March 2018. The top 10 innovations from Thailand, Indonesia, China, and Australia generated value creation of USD114 million in 2017.



Banpu Digital Transformation

Under the digital transformation plan, the Company continues to apply new digital technology in its work processes, for example, using cloud computing to expedite system installation for development and maintenance, linking each business unit using the Collaboration Platform, and using an electronic document management system to send and receive important information with enhanced security. The Company has also set up the Digital Center of Excellence to drive these transformations. In 2018, several projects were under way, for example, the Underground Mining Assistant (UMA) project to install wireless equipment to send and receive real-time information between machinery in underground mines and the above-ground control room. The project is currently in the final testing phase and will be fully operational by 2019.

Supplier Management

Management of suppliers to operate their business with good governance and take into account the social and environment responsibilities is the priority of the Company. It does not only reduce the risk of business interruption but it also enhances the efficiency of business operations of both the Company and its suppliers for sustainable growth.

Reporting Boundary

The supplier management data disclosed in this report cover coal business in Indonesia and Australia. The data in this report do not include power business in China and Japan, fuel procurement business in Indonesia and total solar energy solution business in Thailand, as it is in the process of a data collection system standardization. The Company expects to start publishing data for such business in Sustainability Report 2020 and covering all business unit in 2022.

Sustainable Supply Chain Policy

Management Approach

The Company announced the Sustainable Supply Chain Policy in 2018 and developed a 5-year strategic plan (2018-2022) by dividing the operation into 2 phases:

Development	Implementation
Supplier Code of Conduct has been developed to cover social, environment and good governance (ESG) issues and assessment criteria has been prepared to identify critical suppliers. In addition, Supplier ESG Due Diligence Manual has also been developed to be standardized across the organization and expected to be completed in 2019.	Based on 5-year strategic plan, the first supplier due diligence will be conducted in Thailand in 2019. Then, it will be implemented at all countries that the Company holds a greater than 50% of shares and has management control.

When the standards are completely established and implemented across the organization, the Company will identify critical suppliers. Those critical suppliers will be assessed for preliminary sustainability risks. In the case that the critical suppliers are identified as high sustainability risk, such suppliers shall prepare preventive or corrective measures with a comprehensive audit plan. The Company will conduct an audit as specified in the plan once a year.

To comply with the Sustainable Supply Chain Policy, the Company also supports procurement of goods and services with local suppliers in all areas of business operation. Currently, the Company is preparing proper criteria for grouping of suppliers and target of procurement with local suppliers. This is conformed to the United Nations Sustainable Development Goals that focus on generating of revenue for all stakeholders in all countries where the Company operates.

Performance Summary

	2018
Proportion of New Critical Suppliers with ESG Risk Assessed	100%*
Proportion of Critical Suppliers with ESG Risk Assessed	100%*
Proportion of Spending on Local Suppliers	49%

*Data of coal business in Indonesia only

Progress 2018

- Announcement of the Sustainable Supply Chain Policy
- Developing the standards to be used across the organization including Supplier Code of Conduct, assessment criteria for critical suppliers identification and Supplier ESG Due Diligence Manual

Performance

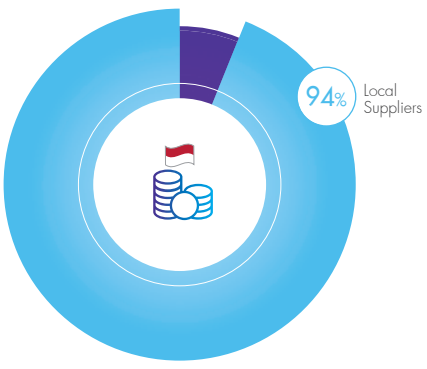
In 2018, the Company had a total of 3,056 suppliers of coal business in Indonesia and Australia. ITM, a subsidiary of the Company in Indonesia, has implemented the assessment of critical suppliers using its internal criteria which are determined by the main production activities and the procurement spending. The results of the assessment represented that the critical suppliers include 19 contractors for coal mining and coal hauling.

	Indonesia	Australia
Number of Suppliers	1,500	1,556
Number of Critical Suppliers	19	Under standardization process

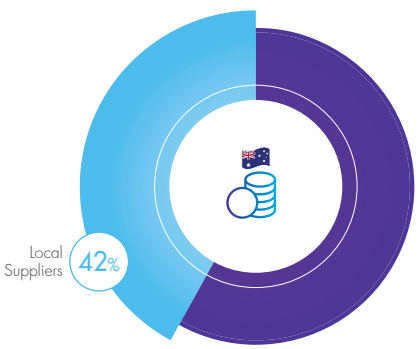
ITM has assessed social and environmental risk of new contractors prior to doing business. The existing contractors are also assessed for their efficiency in regards to the standards called “Health, Safety and Environment of Contractor Management System or HSE-CMS” on a yearly basis. In the past year, all critical suppliers are assessed by this system. However, the corporate standards and data collection system is being developed. For this reason, the data disclosed in this year is specifically derived from ITM for the assessment of social and environmental risk only.

The procurement spending with local suppliers in 2018 is totally accounted for 49%. Consideration by country found that the procurement spending with local suppliers in Indonesia and Australia is accounted for 94% and 42% respectively.

Proportion of Spending on Local Suppliers
Coal Business in Indonesia



Proportion of Spending on Local Suppliers
Coal Business in Australia

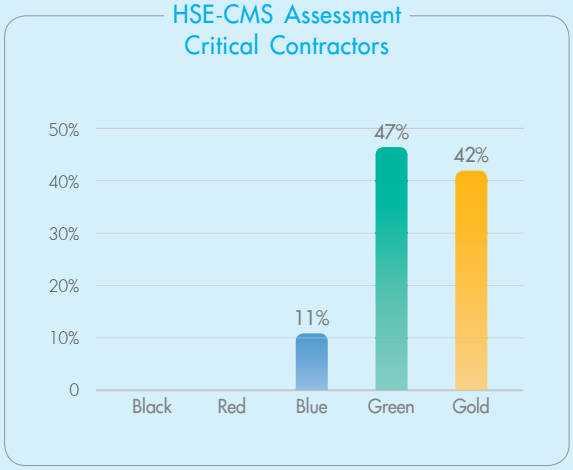


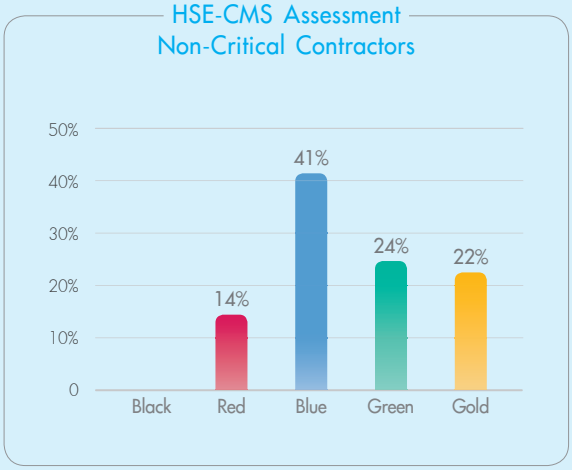
Social and Environment Risk Assessment of Contractors in Indonesia

Coal production activities are likely to cause potential social and environmental impacts. ITM therefore established standards for assessing social and environmental risks of contractors that cover from the selection process of new contractors to annual contractor performance assessment. In 2018, all new contractors are selected based on criteria with consideration of occupational health, safety and environmental risks, such as

- Does your company have appointment of responsible person for occupational health, safety and environment in the Company and onsite project?
- Does your company have occupational health, safety and environment policy?
- Does your company have emergency response plan?

To ensure the protection of potential risks associated with contractor operation, ITM does not only select contractors based on above criteria but also conduct audit for Health, Safety and Environment of Contractor Management System (HSE-CMS) on a yearly basis. Contractors are classified into 5 levels based on 4 aspects of their performance as follows:





In 2018, 56 contractors or 4% of total suppliers in Indonesia have been assessed. The proportion target of green level and higher of critical suppliers is more than 80% was set by ITM. The green level and higher is reported at 89%, thus it was achieved the established target.

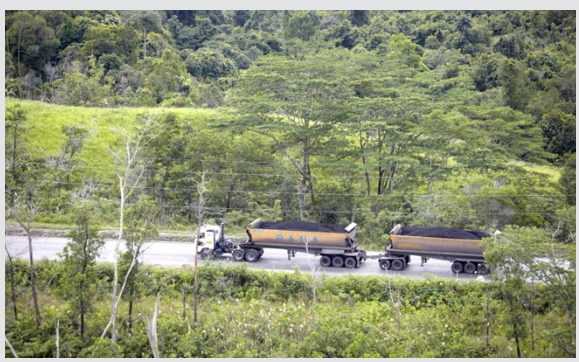
Progress on Sustainable Supply Chain Management

In 2018, the Company has announced the Sustainable Supply Chain Policy to be used as a framework for supplier management by taking into account the operations that focus on creating long-term value for stakeholders with the following key areas.

- Integrate environmental, social and governance (ESG) objectives into our supply chain strategy and other supply chain related policies to leverage opportunities and mitigate risks arising throughout our supply chain;
- Conduct Supplier ESG Due Diligence to ensure that sustainability risks in the supply chain are identified and properly managed;
- Conduct procurement transparently in accordance with Banpu's Code of Conduct;
- Engage with supplier who conduct business adhering to ethical, social and environmental responsibility, with the respect for human rights, and being aligned with our Supplier Code of Conduct and other related policies;
- Ensure that our suppliers are complied with all local regulatory requirements as well as international labor standards (where applicable);
- Support local procurement in every country where we operate;
- Encourage our suppliers to extend our sustainability practices across their supply chain through continuous improvement and process innovation; and
- Publicly disclose sustainability performance of our supply chain on a regular basis to related stakeholders.

The Company is developing Supplier Code of Conduct to be basic requirements and Supplier ESG Due Diligence Manual to be used as guidelines across the organization. It is expected to be completed in 2019 prior to establishing of long-term proper targets.

Reduction of Accident from Coal Hauling



Work safety of suppliers is priority of ITM. The accident statistics over the past 2-3 years found that most of accidents are associated with coal hauling activities. ITM therefore increases incentive scheme for suppliers with excellent safety performance. Such measures cover coal mining, coal hauling and coal loading activities of 3 mines in Indonesia (Trubaindo mine, Bharinto mine and Kitadin-Embalut mine). It has been implemented since July 2017 with a total of 10 suppliers that participating this project. After the project is implemented, the number of accident associated with coal hauling activities is significantly decreased from 62 times in 2017 to 50 times in 2018, or about 19% from the previous year.

> "As a contractor who works with Banpu, it makes a sense to me that we work together with happiness. In addition, Banpu always fully provides safety equipment, which prepares us the readiness, and we are able to perform the works according to the purposes proudly."

Kanyarat Kiatamornvej
Contractor in Thailand

Customer and Product Stewardship

One of our most desired goals in conducting our business is to truly understand different sets of our customers' demands and being able to meet those needs and delivering highest level of satisfaction to them coupled with securing the public's trust by being socially and environmentally responsible.

Banpu's Code of Conduct

Reporting Boundary

Management approach disclosed in this report covers coal business in Indonesia and Australia, power business in China and Japan, and total solar energy solution business in Thailand. However, the performance data in this report do not include the total solar energy solution business in Thailand, as it is in the process of developing a data collection and management system. The Company expects to publish performance data to cover such business in Sustainability Report 2020.

Management Approach

The Company has clearly mandated that treating the customers the right way be included in Banpu's Code of Conduct, aiming for creating sustainable business values by the following measures;

- Delivering high-quality products and meeting the customers' demands
- Facilitating our customers by always being ready to deliver products and services as per requirements
- Professional services handled by competent staff, being able to quickly handle the customers' problems
- Operating business professionally according to business ethics and good governance

In implementing this management approach, the Company has established clear guidelines in creating proper relationships with customers of different business as follow;

Business	Relationship-building Approach
Coal Business	• Regular customer visits • Meeting with customers • Mutual knowledge sharing • Report on the Company's performance and plans to our customers on a quarterly basis • Hosting site visits for customers
Conventional Power Business	• Fully compliance with local government's requirements and guidelines • Providing continuously support for community activities
Renewable Power Business	• Fully compliance with local government's requirements and guidelines • Providing continuously support for community activities
Total Solar Energy Solution Business	• Giving expert advice on the design of the system • Evaluating and calculating Returns of Investment (ROI) • Providing design and installation plans • Providing 24-hour customer service

Performance Summary

	2018	Target 2018
Proportion of Customer Complaints being Timely Handled	100%	100%
Number of Complaint Regarding Customer Privacy	0	0
Number of Complaint Regarding Safety and Environmental Issues from the Use of Products	0	0

Progress 2018

- Product and service improvement to enhance customers' satisfaction

Realizing the corporate social responsibility on the environment from the use of products, the Company has identified specific measures for each different business as follow;

Business	Measure
Coal Business	• Preparing Material Safety Data Sheet (MSDS) which complies with international standards and regulations for our customers upon request • Covering products with tarpaulin during transportation • Sending sales representatives to provide necessary product information to our customers to make sure that they could use the Company's products without negative impacts on society and environment
Conventional Power Business	• Selecting high-quality coal with low ash and sulfur content for power generation • Reusing waste gas from nearby factories to minimize the use of coal • Reusing of ash and gypsum from the production process in other industries.

In order to improve the quality of our products and services and to secure the trust from our customers regarding their personal information, the Company has developed management approach and operational guidelines as follow;

- **Complaint receiving** Customers can submit their complaints about sales, product quality, delivery, and after-sales services via telephone, email and/or websites. The Company has a complaint recording system and tracking system while generating a deadline for handling them. A follow-up system is also in place to report root cause analysis of the complaints and how complaints are managed. Basic response time is currently set at within one working day while related business unit will be notified to ensure that the problem is solved within the given time limit.
- **Customer satisfaction survey** The survey isconducted by sending questionnaires to customers. Then customer relation officers will conduct face-to-face interview in order to fully realize the problems, understand the demands of customers and maintain good relationship with them.
- **Protection of Customers' personal information** Information related to the customers shall only be used to further improve the quality of service and products. Such information shall be disclosed only upon given consent by the customers and let it be certain that such doing is mandated by law and with proper reasons. Moreover, the information shall be fully protected and never be given to any unauthorized third party. In the case that such information is requested by the Company's staffs for servicing and analyzing purposes, those who have access to customer's information must follow the information security protocol.

Performance

In 2018, all complaints were handled in due time which met our annual target and there was no complaint reported regarding neither customer privacy nor safety and environmental issues from the use of the Company's products.

Environment

Water Consumption Intensity

Coal Business

0.138 m^3/tonnes

Power Business

1.103 m^3/MWh

81.5%

of Hazardous Waste was Reused and Recycled

100%

of Business Units have assessed Biodiversity Risk

0

Significant Environmental Incidents

GHG Emission Intensity against 2012 Baseline

Coal Business

+10%

Power Business

+3%

GHG Emissions

Climate change is a global concern for all stakeholders resulting in collaboration across countries to control the increases of average global temperatures through strict regulations of GHG emissions. GHG emissions are therefore significant to the Company as an energy provider. For this reason, the Company has been conducting business under the Greener & Smarter strategy and has established specific targets to reduce GHG emissions.

Reporting Boundary

The GHG emissions data disclosed in this report cover all business entities in which the company holds a greater than 50% of shares and has management control. These entities include the coal business in Indonesia and Australia, the power business in China and Japan, and total solar energy solution business in Thailand. Activities related to GHG emissions are as follows:

Business	GHG Emissions (Scope 1)	GHG Emissions (Scope 2)
Coal Business	• Methane from coal stockpiles and underground coal seams • Use of diesel for electricity generation • Use of coal for electricity generation • Use of diesel and gasoline in light vehicles • Use of diesel in heavy vehicles • Use of diesel for barging • Use of explosives • Use of SF_6 and HFCs	• Use of electricity from external sources
Conventional Power Business	• Use of coal for electricity generation • Use of waste gas from adjacent factories as the fuel for electricity generation • Methane from coal stockpiles • Use of fuel in commencing steam boiler operation • Use of diesel and gasoline in light vehicles • Use of SF_6 and HFCs • Use of calcium carbonate ($CaCO_3$) in the air quality control system	• Use of electricity from external sources
Renewable Power Business	• Use of diesel and gasoline in light vehicles	• Use of electricity from external sources
Total Solar Energy Solution Business	• Use of diesel and gasoline in light vehicles	

The Company expects to expand the boundary to cover fuel procurement business in Indonesia in Sustainability Report 2019.

Performance Summary

	2018	Target 2020
GHG Emissions Intensity* - Coal Business	+10%	-25%
GHG Emissions Intensity* - Power Business	+3%	-15%

*Target and performance over baseline 2012

Progress 2018

- Revised Carbon Policy to Climate Change Policy
- Established internal carbon pricing in term of shadow price which has been used for feasibility study of new project investment
- Disclosed data on other indirect GHG emissions (Scope 3)
- Calculated biogenic GHG emissions from use of biodiesel in coal business, Indonesia

Climate Change Policy

Management Approach

Climate change is one of the aspects that the Company has considered in risk assessments for all business units. The Company has been regularly reviewing its strategy on climate change and established climate change management as one of key performance indicators of the highest managements for relevant business units. The Company's strategy for climate change management focuses on the 4 measures as follows:

1 Mitigation

- Announced Carbon Policy which changed in name to Climate Change Policy in 2018
- Established target 2020 to reduce GHG emissions intensity by 25% in coal business and 15% in power business over the baseline in 2012
- Developed and established internal carbon pricing in term of shadow price which has been used for feasibility study of new project investment
- Seek for opportunities to invest in alternative energy business, implement energy conservation programs, and conduct feasibility study for using renewable energy in the current business units

2 Adaptation

- Conduct climate change-related risks and report the results to Risk Management Committee in order to determine mitigation and monitoring measures for potential impacts in the future
- Include natural disaster arising from climate change as one of potential risks in the Business Continuity Management (BCM) Plan

3 Being a part of low-carbon society

- Increase in renewable power generation with greater than 20% proportion in portfolio by 2025.
- Increase in total solar energy solution with total capacity of 300 megawatts by 2022.

4 Participation in climate change community

- Disclose data on GHG emissions and management measures as well as the climate change-related risks to stakeholders.

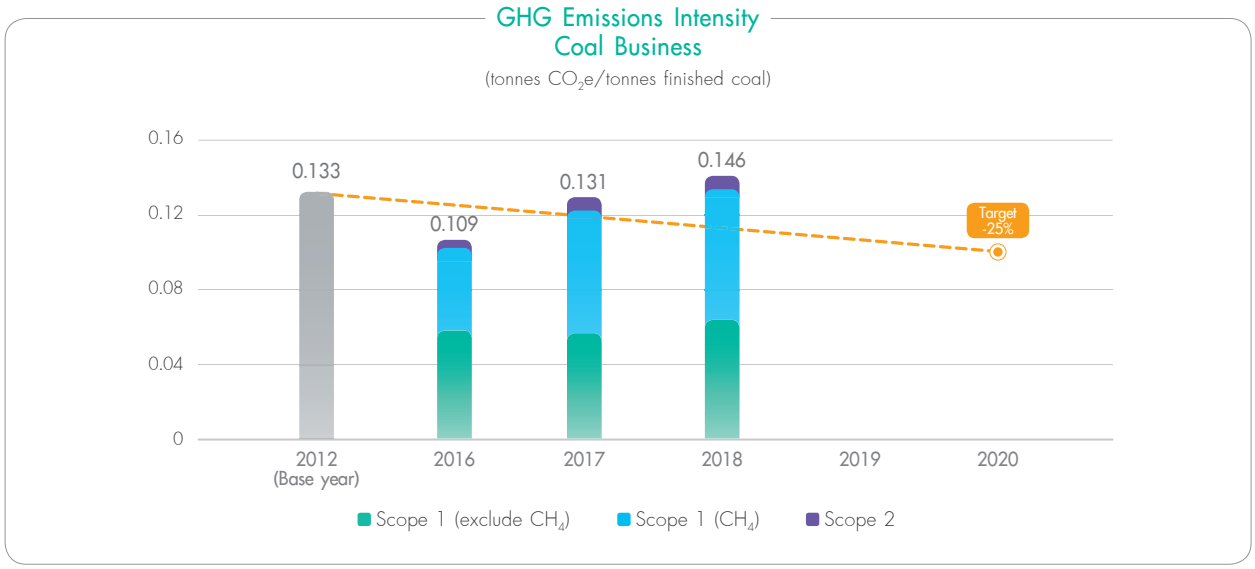
The Company has developed a calculation system to determine the GHG emissions including the Intergovernmental Panel on Climate Change (IPCC)'s Global Warming Potential (GWP) values, A Corporate Accounting and Reporting Standard (Revised Edition)'s emission factors for GHG emissions, and specific emissions factors in the case where there are regional factors for GHG emissions, for instance, emissions factors for electricity generated within the operating country were used. In 2017, the company updated GWP factors based on IPCC Fifth Assessment Report (AR5) with the exception of coal business in Australia which its calculation based on IPCC Forth Assessment Report (AR4) according to country's guidelines.

Gases used for the calculation include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF_6). The GHG target was set based over the baseline in 2012 which is the year that the Company consolidated Australian business unit performance into overall corporate for consideration. In addition, this is the first year that the Company has disclosed data on other indirect GHG emissions (Scope 3) for 3 relevant activities including customer's use of the Company's coal as the fuel for electricity generation, business trip by airplane travel for employee at Bangkok head office, and coal transportation by vessels to overseas customers.

Performance

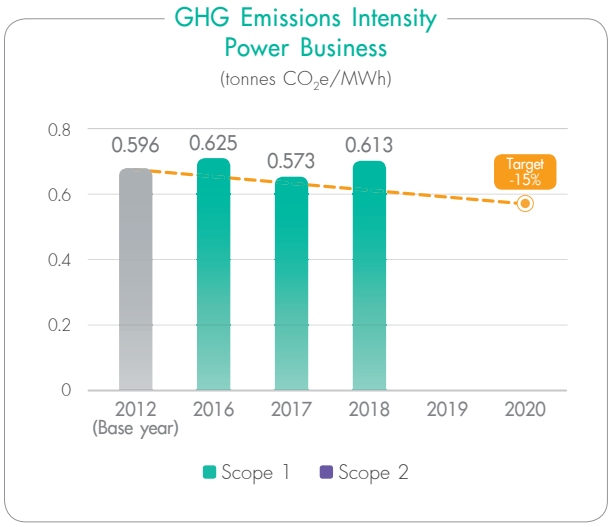
Coal Business

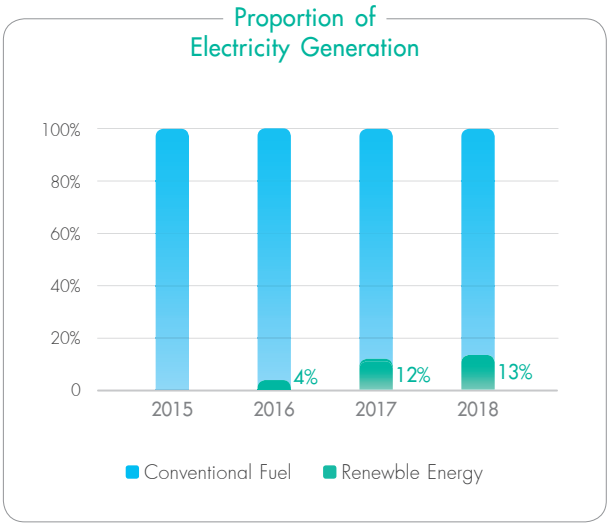
In 2018, GHG emissions intensity was increased by 10% over baseline 2012 due to geological changes of underground mining area, resulting in significant increase of the methane emissions from the underground coal seams. The company has installed the methane combustion system or Ventilation Air Methane Regenerative after Burner (VAM-RAB) to convert it into less potent greenhouse gas, carbon dioxide. However, the high concentration of methane gas is exceeded the capacity of VAM-RAB. For this reason, some of methane gas is directly released into the atmosphere to maintain system capability. Currently, the company is conducting the feasibility study of power generation from methane gas. Implementation of such initiatives does not only reduce the GHG emissions but also reduces the purchased electricity from the external sources. The project is expected to be completed by the year 2020.



Power Business

In 2018, the Company has generated power from renewable energy sources in China, Japan and Thailand with a total generation of 224,775 MWh, which is accounted for 13% of total power generation in 2018 and reduced coal stockpiles to reduce emission of methane gas from coal stockpiles. However, the GHG emissions intensity in power business has increased by 3% over baseline 2012 due to the adjustment of proportion of electricity, stream and heat generation to meet the customers' demand. The Company has a regular inspection and maintenance plan to ensure effective work performance of equipment.





GHG (Scope 3) Emissions

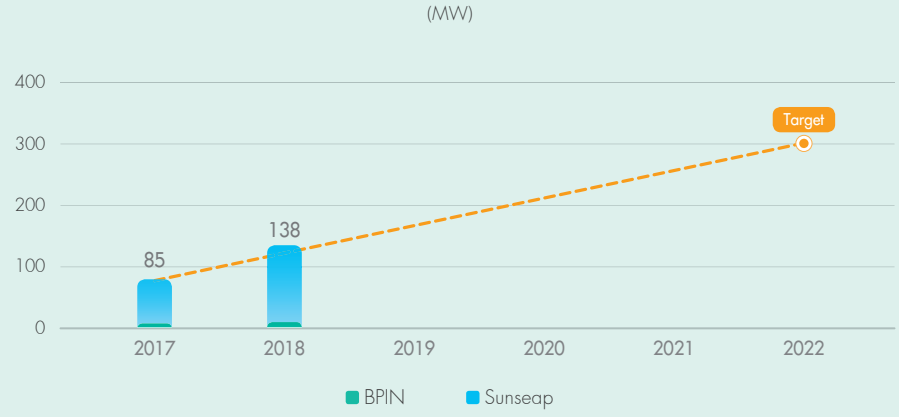
The preliminary assessment of other indirect GHG emissions (Scope 3) based on Technical Guidance for Calculating Scope 3 Emissions (Version 1) stated in the previous report found 4 activities associated with operation of the Company including use of sold product, business travels, upstream transportation and distribution, and investment. However, in 2018 the Company has disclosed the GHG emissions (Scope 3) for 3 activities as shown in the following table.

Activities	GHG Emissions (Scope 3)	Scope
1. Use of sold product	73,197,272 tonnes CO_2e	Use of the Company's coal as the fuel for electricity generation
2. Business travels	627 tonnes CO_2e	Domestic and international airplane travel for business trip of employees and management at Bangkok head office
3. Upstream transportation and distribution	99,732 tonnes CO_2e	Coal transportation by vessels to overseas customers for coal business
4. Investment	In process of data collection	The Company is currently collecting data to assess GHG emissions for this activity

Being a Part of Low-Carbon Society

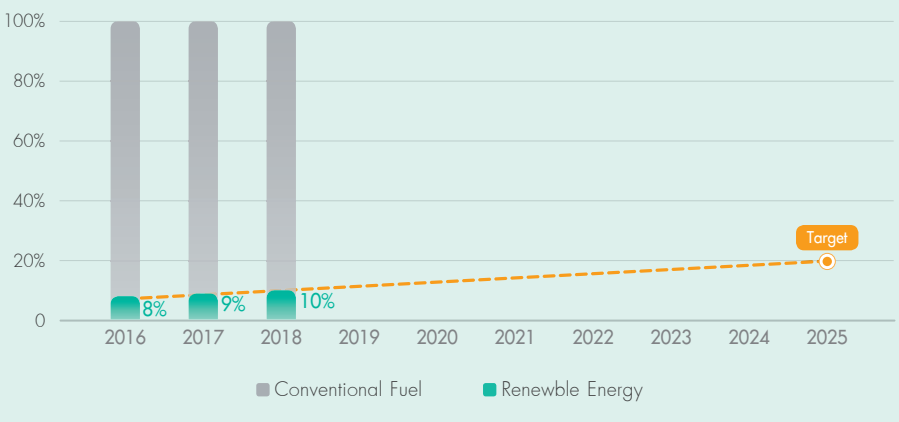
Being a part of low-carbon society is one of the Company's strategies for the GHG management. One of measures that the Company has implemented is to invest in total solar energy solution business. Banpu Infinergy Company Limited has been established since 2017 to serve customers in Thailand. In addition, Banpu Infinergy has expanded its business operation by holding 38.46% share in Sunseap, a leading company in Singapore. As a result, the Company has a total capacity of 151 MW or more than 50% target of 300 MW by 2022.

Total Power Generation Capacity of Total Solar Energy Solution Business



Another additional important measure is to increase proportion of power generation from renewable energy with greater than 20% by 2025 through Banpu Power, a subsidiary of Banpu. The progress of more than 50% of target has been reported in 2018 with the proportion of power generation from renewable energy that has been commercially operated approximately 10% of investment portfolio.

Proportion of Renewable Power Generation

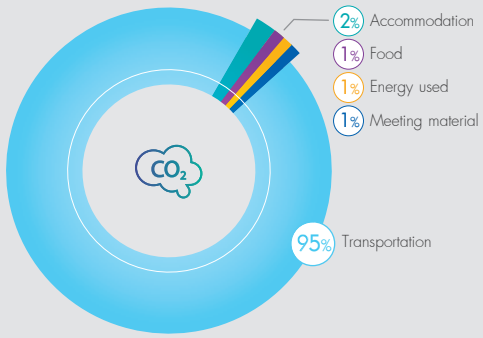


Carbon Footprint from HSEC Summit

In 2018, the Company assessed the amount of GHG emissions generated by the HSEC Summit, a corporate strategic meeting, with the long-term target to reduce carbon footprint. The result of the assessment found that most of GHG emissions are generated by transportation to attend the HSEC Summit.

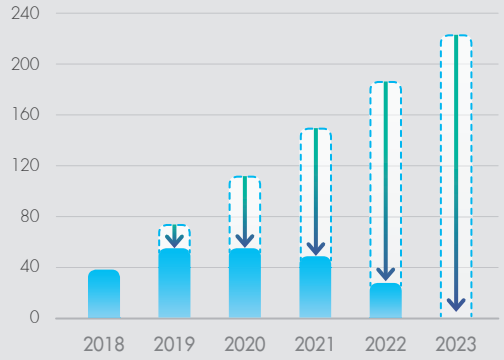
To compensate GHG emissions generated by the HSEC Summit, the Company plans to plant about 3,700 trees; 1,000 1,000 700 500, and 500 trees from 2019 to 2023 respectively. Such actions will make the HSEC Summit as a carbon neutral meeting from 2023 onwards.

Carbon Footprint from HSEC Summit



Carbon Neutral Plan 2019-2023

(tonnes CO_2e)



Carbon Pricing

One of the measures used for the Company's management of GHG emissions is internal carbon pricing to reflect the overall economic costs of GHG emissions (Scope 1 and Scope 2). In 2018, the Company studied the relevant laws and trends of carbon trading in each country where the Company operates. The company also has considered carbon pricing that announced in the global carbon market and similar industrial groups. The carbon pricing has been established in the form of shadow price to be used to evaluate the project feasibility for investment. This carbon pricing will be used to evaluate the project feasibility from 2019 onwards. In addition, carbon pricing also helps to support the company to achieve the GHG reduction target.

Energy

Energy is one of the key factors that contribute to the economic and social development of the world. Continuous increase in energy demand results in an imbalance between supply and demand which leads to the fluctuation of the production cost of the industrial sector as well as the business of the Company. Thus, management of efficient energy consumption is the priority of the Company.

Reporting Boundary

The energy consumption data disclosed in this report cover all business entities in which the Company holds a greater than 50% of shares and has management control. These entities include coal business in Indonesia and Australia, power business in China and Japan, and total solar energy solution business in Thailand. Major activities associated with energy consumption are as follows:

Business	Major Activities associated with Energy Consumption
Coal Business	• Use of diesel for electricity generation • Use of coal for electricity generation • Use of diesel and gasoline in light vehicles • Use of electricity from external sources • Use of diesel in heavy vehicles • Use of diesel for barging • Use of electricity from solar power plant • Combustion of methane from underground coal seams
Conventional Power Business	• Use of coal for electricity generation • Use of fuel in commencing steam boiler operation • Use of waste gas from adjacent factories as the fuel for electricity generation • Use of diesel and gasoline in light vehicles • Use of electricity from external sources • Use of electricity from solar power plant
Renewable Power Business	• Use of diesel and gasoline in light vehicles • Use of electricity from external sources • Use of electricity from solar power plant
Total Solar Energy Solution Business	• Use of diesel and gasoline in light vehicles

The Company expects to expand boundary to cover fuel procurement business in Indonesia in Sustainability Report 2019.

Performance Summary

	2018	Target 2018
Energy Consumption Intensity - Coal Business (GJ/tonnes finished coal)	0.47	<0.37
Energy Consumption Intensity - Power Business (GJ/MWh)	1.72	<1.65

Progress 2018

- Integrating energy management plan as a part of GHG emissions management plan
- Developing data collection system to cover various businesses

Environmental Policy

Management Approach

The Company is committed to use energy efficiently by integrating the energy management plan as a part of the GHG emissions management plan. With the different characteristics of businesses in each country of the Company, for example, coal business in Indonesia is open-pit coal mining while coal business in Australia is underground coal mining. Therefore, the patterns of energy conservation activities are different as follows:

- In Indonesia, most of energy is used in coal and overburden transportation activities by truck. Thus, the energy conservation project focuses on increasing of the efficiency of energy consumption of such transportation systems. For example, change of truck to conveyor belt for coal transportation from mines or improvement of transportation routes to get shorter distance and reduce curve of road for maximum efficiency of fuel consumption of truck.
- In Australia, with the characteristics of underground coal mining, most of energy is used in coal drilling activities by heavy equipment and coal transportation by conveyor belt. Therefore, the energy conservation project focuses on increasing of the efficiency of electricity consumption. For example, use of automatic control system to calculate the appropriate speed for coal drilling and conveying, regular inspection and maintenance of equipment, etc.
- In conventional power business, most of energy is used in water boiling to produce electricity. The Company therefore focuses on improvement of such process to be effective through the adjustment of the proportion of electricity and heat production and meet the demand of customers that changed across the season.
- In renewable power business and total solar energy solution business, most of energy is used in transportation by small vehicles. The Company therefore focuses on travel planning in order to increase efficiency of fuel consumption.

The data collection system are being developed to cover various businesses of the Company. In addition, the baseline data on energy consumption for each production activity is also being studied. The Company also plans to establish long-term target on reduction of energy consumption intensity of each business unit which is expected to be completed in 2019.

Performance

Coal Business

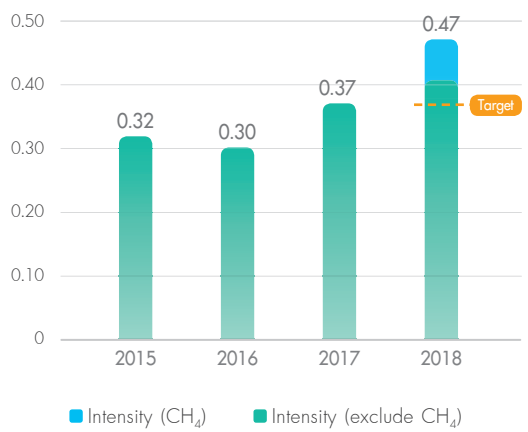
In 2018, the energy consumption intensity was increased by 19% from 2017 performance because the calculation method for energy consumption was changed in 2018 to comply with international standards. The energy of methane gas from the underground coal seams (both combustion and released directly into the atmosphere) were incorporated even though such combustion energy is not used by the Company. The energy of methane gas accounted for 13% of the total energy consumption in the previous year. Considering the amount of energy consumed by excluding the energy of such methane gas, the energy consumption intensity in 2018 was increased by 11% from the previous year.

Power Business

In 2018, the energy consumption intensity was increased by 4% from the previous year due to the adjustment of proportion of power, stream, and heat generation to meet with the demand of customers. The Company has studied and developed the production process to use energy to maximize efficiency through continuous energy conservation projects.

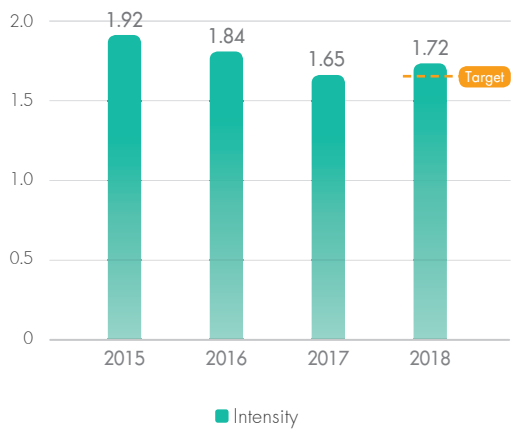
Energy Consumption Intensity
Coal Business

(GJ/tonnes finished coal)

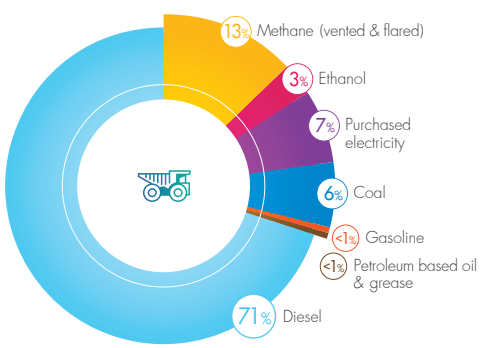


Energy Consumption Intensity
Power Business

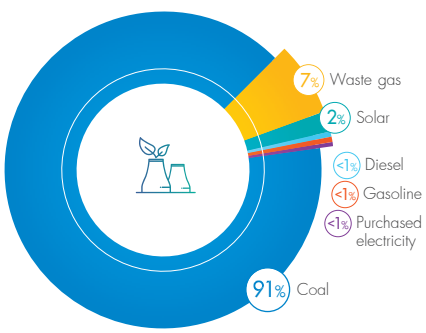
(GJ/MWh)



Proportion of Energy Consumption
Coal Business



Proportion of Energy Consumption
Power Business



Energy Conservation Projects

The Company has encouraged each business unit to improve its production process and development plan for effective use of energy. Energy conservation projects related to the reduction of GHG emissions that have been implemented since 2017 are presented below.

Project	Reduction of Electricity or Fuel Consumption per Year	Reduction of Energy Consumption per Year (TJ)	Reduction of GHG Emissions per Year (Tonnes CO_2e)
Coal Business			
Improvement of overburden transportation by mine planning optimization	Reduction on diesel consumption of 1,010,503 liters	35.97	2,721
Change of energy source for lighting in the mining area by installing 6 solar panels	Reduction on diesel consumption of 69,173 liters	2.46	1,862
Reduction of distance for coal transportation by constructing new roads.	Reduction on diesel consumption of 64,466 liters	2.29	1,736
Power Business			
Improvement of the water pumping system at Luannan Power Plant	Reduction on electricity consumption of 2,320 MWh	8.35	2,052
Improvement of the ventilation system of boiler no. 5 and improvement of the coal transportation system at Zhengding Power Plant	Reduction on electricity consumption of 2,080 MWh	7.49	3,279
Efficiency improvement of the cooling system, the turbine unit and steam consumption at Zhengding Power Plant	Reduction on coal consumption of 258 Tonnes*	6.81	472
Efficiency improvement of the cooling fan at boilor no. 5 at Zouping Power Plant	Reduction on electricity consumption of 356 MWh	1.28	281
Improvement of the heat exchange unit by using the flue gas from FGD to preheat feed water at Zouping Power Plant	Reduction on coal consumption of 4,200 Tonnes	110.84	7,682

*Calculation is based on standard coal.

Water

Water is a natural resource that all stakeholders are concerned as it is limited and important to human life. It is also a key raw material of most industrial sectors. Inefficient water management may not only cause water crises but also cause environmental problems associated with discharge of low quality water that leads to conflict with local communities or other water users. Finally, it will affect the credibility of the Company.

Reporting Boundary

The water management data disclosed in this report cover all business entities in which the Company holds a greater than 50% of shares and has management control. These entities include the coal business in Indonesia and Australia, conventional power business in China, and renewable power business in China and Japan. Major activities associated with water consumption and potential impacts breakdown by business types are as follows:

Business Types	Major Relevant Activities	Potential Impacts
Coal Business	• Improvement of coal quality • Dust control on road and coal stock yards • Mine rehabilitation work • Temperature control for on-site power plant	• Water withdrawal from public sources for production may cause conflicts with surrounding communities or water users • Discharge of water with low quality (TSS or pH) exceeding the standard limits may cause potential impacts on water quality and aquatic animals including water users
Conventional Power Business	• Steam production • Temperature control • Trapping of fly ash in air quality control system	• Water withdrawal from public sources in water stressed area for production may cause conflicts with surrounding communities or water users • Discharge of water with low quality (TSS or pH) exceeding the standard limits may cause potential impacts on water quality and aquatic animals including water users
Renewable Power Business	• Cleaning solar panels	• Water withdrawal from public sources in water stressed area for production may cause conflicts with surrounding communities or water users

The data in this report do not include fuel procurement business in Indonesia, total solar energy solution business in Thailand due to small volume of water consumption considered as no significant data.

Performance Summary

	2018	Target 2018
Water Consumption Intensity - Coal Business (m^3/tonnes finished coal)	**0.138**	**<0.137**
Water Consumption Intensity - Power Business (m^3/MWh)	**1.103**	**<1.232**

Progress 2018

- Assessed the location of our business units in the water stressed area
- Developed water accounting and water balance in the production processes

Water Policy

Management Approach

The Company has assigned all business units to conduct risk identification and assessment of water resources and report the result and risk mitigation plan to Risk Management Committee on a quarterly basis. One of the risk identification processes is to verify that the sites are located in water stressed area under the database of Aqueduct water risk atlas of World Resources Institute. Preliminary assessment found that 3 CHP plants and 6 solar power plants in China as well as 5 coal mines both operating and non-operating in Australia are located in water stressed area. The Company has therefore prepared short-term measures to minimize potential impacts associated with water use of each business unit. The Company is preparing a long-term plan to cover the management at the watershed level both surface water and groundwater by developing of water accounting framework and water balance prior to conducting water risk assessment throughout supply chain under short-term and long-term targets as follows:

Target 2019

- Development of database on water consumption and water quality of all business units
- Review water-related risks in all business units
- Engagement with communities, academics, and related stakeholders to study and improve the efficiency of water management
- Development of short-term quantitative targets (3-5 years) both at corporate and business unit levels

Target 2030

- Reduction of water consumption intensity
- Reduction of water footprint throughout product's life cycle

To increase efficiency of water consumption, the Company has implemented projects for production improvement to reduce water loss. The projects include the improvement the efficiency of water treatment system, water reuse in the original production process such as coal washing or water reuse in the other processes such as water spraying on road to control dust dispersion. In addition, the Company has collaborated with power plant (the Company's customer) by utilizing treated water of Springvale mine in Australia that is normally discharged into the public waterways to be used as water in cooling system. This project can reduce water withdrawal from public water sources.

In addition, due to the increasingly stringent environmental quality control announced by the Chinese government, the Company needs to provide measures to manage water discharge. It is also include the change of production technology to reuse water in the production process or other activities within the operational sites as much as possible. For example, Luannan power plant has a plan to construct new water treatment plant to receive wastewater both internal and external sources for recycling water in the production process which will not only reduce the volume of water withdrawal from natural water sources but also reduce the discharge of wastewater.

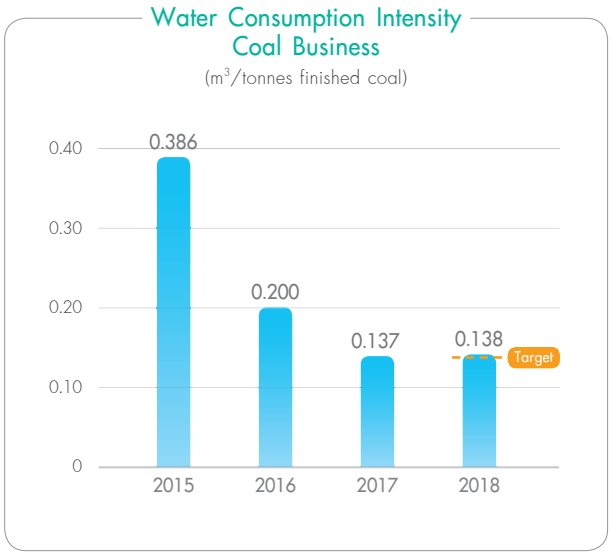
Performance

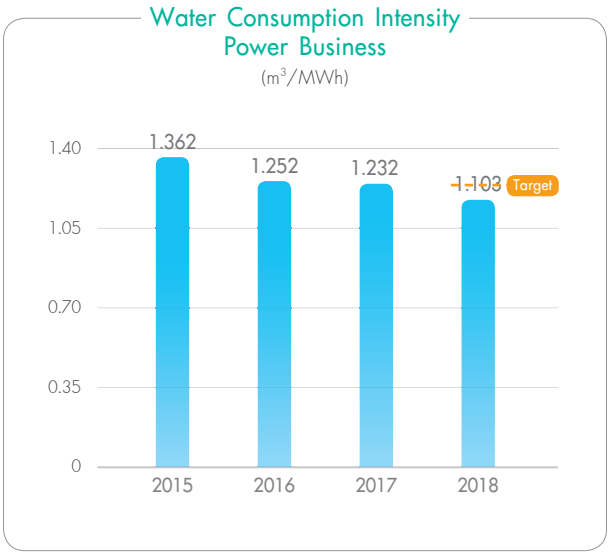
Coal Business

Water consumption intensity has continuously decreased since 2015. In 2018, the intensity is constant compared to the previous year, which closed to our annual target. In the past year, the quality of effluent discharged into the environment was complied with the applicable standards in all business units.

Power Business

Water consumption intensity of power business has continuously decreased since 2015. In 2018, the intensity was decreased by 10.5% compared to the previous year due to the installation of double Reverse Osmosis System at the Zhouping power plant. Low quality water from the first treatment is treated and reused in the production process. Even though wastewater generated from 3 CHP plants is sent to authorized organization for treatment, the Company also closely monitors its quality to ensure compliance with applicable standards in all business units.





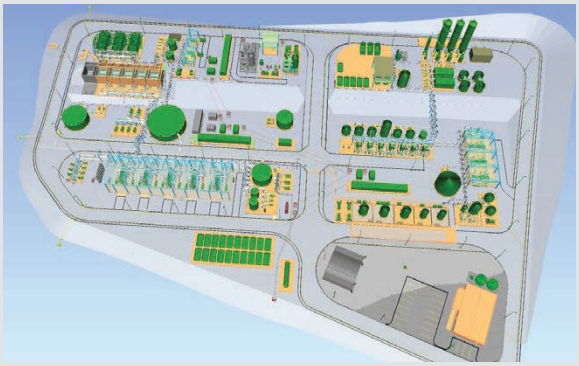
Real Time Monitoring System in Australia

Coal mine of Centennial is located in the area with biological diversity and in the vicinity of communities. Thus, the company has installed real time monitoring system to continuously monitor water quality, air quality, and noise as well as water quantity so that Centennial can handle any potential incident in a timely manner. In addition, the company is in the process of reviewing its licensed discharge points to ensure efficiency of water storage and management. This can minimize potential impacts on environment and strengthen credibility to stakeholders.

Water Management in Collaboration with Power Plant at Springvale Mine

Springvale Mine and Energy Australia Company Limited has collaborated in developing the project on reuse of treated water of Springvale Mine with quantity of more than 42 million liter/day which is normally discharged into public waterways to be reused as cooling water for the Mount Piper Power Station. Currently, the water treatment system is being constructed and 15 km of water pipeline is being installed. When the system is fully operated in 2019, it will create sustainable benefits to the company, suppliers and communities as follows:

- Reduction of water generated by mining activities to be discharged into public waterways;
- Water generated from mining activities is recycled;
- Creating sustainable economy between the company and the power plant;
- Reduction of water withdrawal from the natural sources for power plant's operations;
- Building trust in power generation to communities; and
- Creating jobs to the local communities.



Air Emissions

Air is an important natural resource for life. Emission of air pollutants into the atmosphere from the industrial sector is therefore an issue that needs to be closely monitored by the government. Thus, air emissions control is very important to the Company. Inefficient air quality management may not only cause potential impacts on environment and health of workers but also cause impacts on confidence of stakeholders.

Reporting Boundary

Air emissions information disclosed in this report cover all business entities in which the Company holds a greater than 50% of shares and has management control. These entities include coal business in Indonesia and Australia and conventional power business in China. It covers 3 major air pollutants including sulfur dioxide (SO_2), oxide of nitrogen (NO_x) and Particulate Matter (PM). These air pollutants generated from production activities as classified in table below.

Business	SO_2	NO_x	PM
Coal Business	• Combustion in power generation for internal use at the mine • Combustion of engines	• Combustion in power generation for internal use at the mine • Combustion of engines	• Combustion in power generation for internal use at the mine • Combustion of engines • Coal quality improvement process, coal transportation, and coal stockpiles
Conventional Power Business	• Combustion in power generation • Combustion of engines	• Combustion in power generation • Combustion of engines	• Combustion in power generation • Combustion of engines

The data in this report do not include renewable power business in China and Japan and total solar energy solution business in Thailand due to small amount of air emission load considered as no significant data. For fuel procurement business in Indonesia, the data storage system is being developed. The Company expects to publish performance data of such business in Sustainability Report 2021.

Performance Summary

	2018	Target 2018
Air Emissions Intensity - Coal Business (Kg/tonnes finished coal)	SO_2 0.0065 NO_X 0.0190 PM 0.0108	<0.0035 <0.0257 <0.0114
Air Emissions Intensity - Power Business (Kg/MWh)	SO_2 0.0239 NO_X 0.0517 PM 0.0038	<0.0273 <0.0714 <0.0055

Progress 2018

- Increased data coverage by including performance data of coal business in Indonesia.

Environmental Policy

Management Approach

In coal business, the Company has applied various management approaches to manage dust; a major air pollutant generated from production process; by focusing on the reduction of dust at its sources. For example, using conveyor belt instead of transportation by truck, using tarpaulin to cover coal during transportation by trucks to reduce dust dispersion and constructing truck tires washing areas. This also includes the control of environmental impacts to eliminate the risks such as planting trees as a wind-blocking, installation of windbreak wall to change wind direction, and control truck speed in the mining area. Additional measure to control dust dispersion includes water spraying on road and coal stockyards. The Company has regularly monitored the amount of dust at mine sites, coal storage and surrounding communities to ensure effective control of dust from our operations.

In power business, the Company focuses on point source control by preparing a 5-year plan (2013-2018) to improve air quality of 3 CHP plants in China with investment cost of over USD 43 million by using advanced and effective technologies as follows:

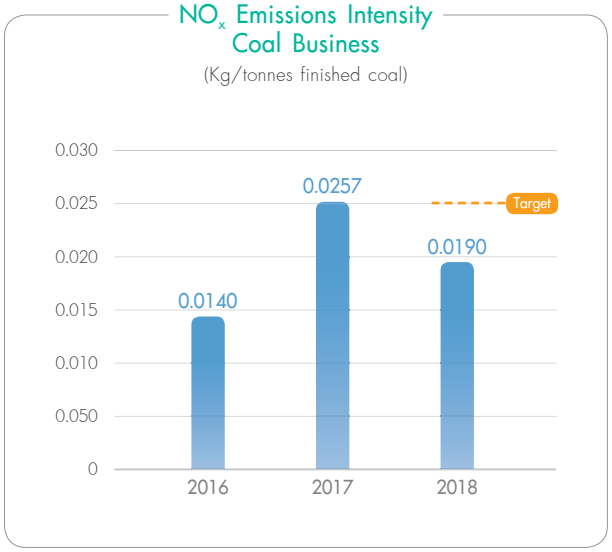
Air Pollutants	Point Source Control	Air Emissions Control
SO_2	• Use of Circulating Fluidized Bed (CFB) • Use of coal with low content of sulphur	• Installation of the semi-dry and wet flue gas desulphurization (FGD) systems at emission stack to remove SO_2
NO_x	• Use of Circulating Fluidized Bed (CFB)	• Installation of selective non-catalytic reduction (SNCR) and selective catalytic reduction (SCR) by injecting ammonia solution into the combustion chamber to convert NO_X into harmless nitrogen gas and water
PM	• Use of coal with low content of ash	• Installation of electrostatic precipitator (ESP) using the electric field to charge dust with negative electrode and induce to the collecting chamber having the opposite charges

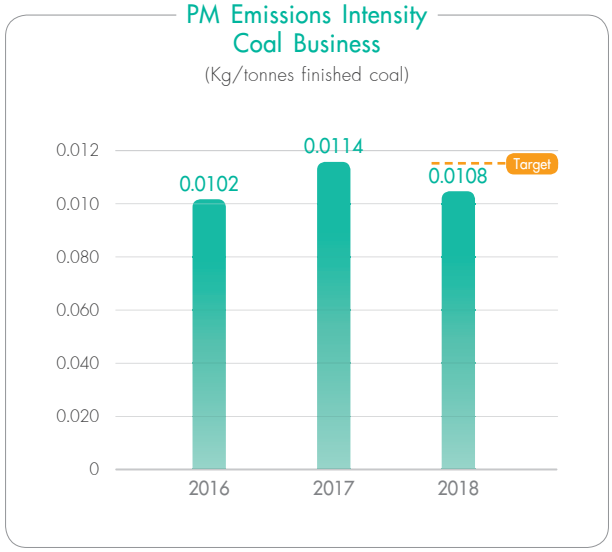
To ensure compliance with air quality standards and no potential impacts on communities and environment, the Company has installed continuous emission monitoring system (CEMS) at emission stack and surrounding communities to monitor air quality continuously and be able to manage any incidents in a timely manner.

Performance

Coal Business

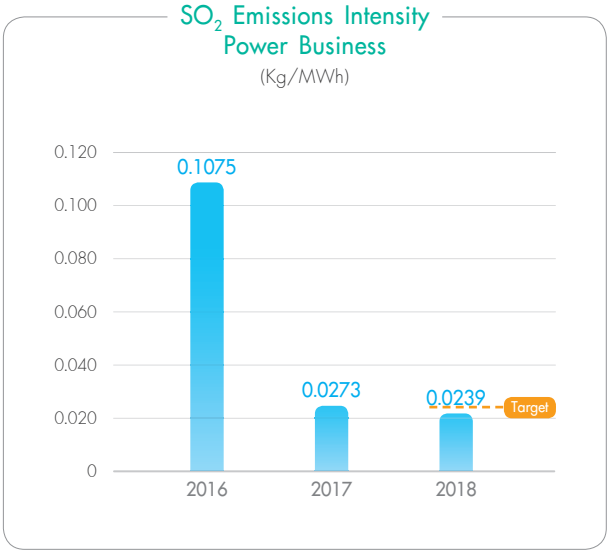
The Company has updated the performance data in 2016-2017 from previous report by including the performance data of the coal business in Indonesia. As a result, the performance data of the coal business in this report covers all business that the company holds a greater than 50% of shares and has management control. In 2018, the SO_2 emissions intensity for coal business is increasing. Although the emissions intensity of NO_x and PM have decreased compared to the previous year. This is due to the Company is improving the efficiency of the generator at the mines in Indonesia. In addition, the Company is collecting a baseline data to set our long-term targets.

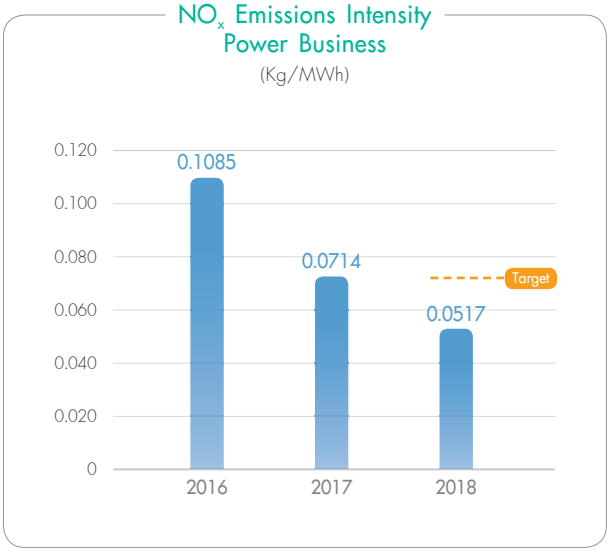


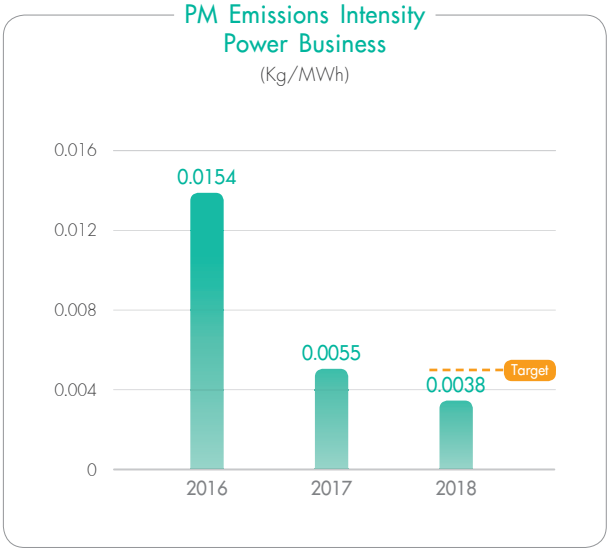


Power Business

In 2018, air emissions intensity for power business decreased significantly compared to 2017 (12% reduction in SO_2 emissions, 28% reduction in NO_x emissions, and 31% reduction in PM emissions). It has been continuously reduced since 2016. This is because the Company has applied technology to capture SO_2 and NO_x such as using Selective Non-Catalytic Reduction (SNCR) and Selective Catalytic Reduction (SCR) technologies by spraying ammonia solution to react with nitrogen oxide in the combustion chamber to produce harmless nitrogen gas and water. The Company also use coal with low content of ash, as well as improve and maintain Electrostatic Precipitator (ESP) to control air pollutants released into the atmosphere in accordance with the laws and prevent adverse effects on the environment and surrounding communities.







Waste

Waste in particular hazardous waste is one of the key issues upon which the Company places great importance, as leakage caused by improper waste management can have a direct impact in terms of high disposal costs and damages to the Company's reputation. More importantly, improper management of hazardous waste can affect the health and safety of employees including the surrounding communities.

Reporting Boundary

The information about waste disclosed in this report covers all business entities in which the Company holds a greater than 50% of share and has management control, namely coal business in Indonesia and Australia, and power business in China and Japan. However, the information excludes specific types of waste in different business, such as tailings and overburden from mining, and ash from coal-fired power plants. These types of waste are considered different material topics in this report. The Company's hazardous and non-hazardous wastes resulting from production are as follows:

Business	Hazardous Waste	Non-hazardous Waste
Coal Business	• Used lubricant oil • Coolants • Used batteries	• Bio waste • General waste
Power Business	• Used lubricant oil • Decommissioned solar panels • Used batteries • Electrical circuits • Transformers	• Bio waste • General waste

The information in this report does not cover the fuel procurement business in Indonesia and the total solar energy solution business in Thailand and Singapore, as these business entities are in the process of developing a data collection system. The Company expects to disclose waste management performances of these business entities by 2021.

Management Approach

The Company's waste management approach emphasizes the prevention and reduction of waste at the source, as well as reusing materials and recycling waste, in order to minimize amount of waste incinerated or landfilled. The Company has stipulated that its waste management, waste transfer and disposal standards be in compliance with international best practices as well as the laws and regulations of each country in which the Company operates. The Company's waste management system consists of four processes, namely purchase planning, storage, transportation and disposal.

1. **Purchase planning :** Opt for less hazardous materials
2. **Storage :** Store waste in compliance with standards and regularly inspect storage areas
3. **Transportation :** Transport waste in compliance with standards and record amount of waste transported
4. **Disposal :** Emphasize waste disposal by recycling, reusing, and disposing in compliance with standards including record amount of waste disposed

Performance Summary

	2018	Target 2018
Proportion of Hazardous Waste Reused and Recycled	81.5%	>50%
Proportion of Non-hazardous Waste Reused and Recycled	39.4%	>50%

Progress 2018

- Improve the waste data management system using the GRI 306 (2016)

Performance

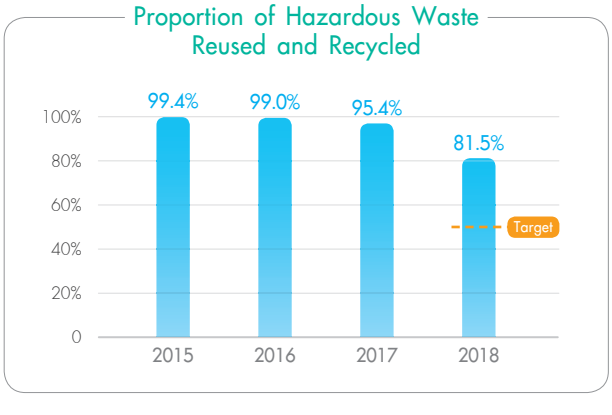
In 2018, the Company made improvements to its waste data management system to comply with GRI 306 (2016). As a result, the performance during the 2015-2017 period differs from previous reports.

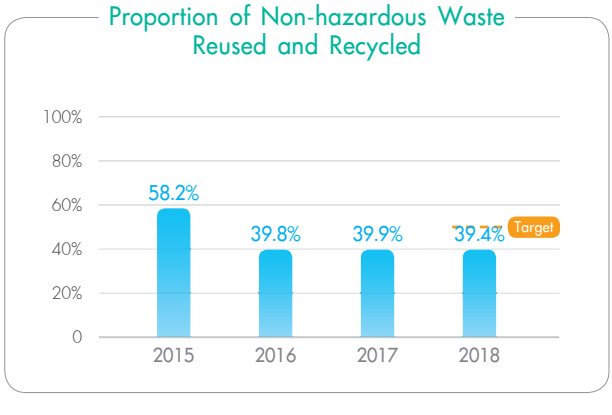
Hazardous Waste

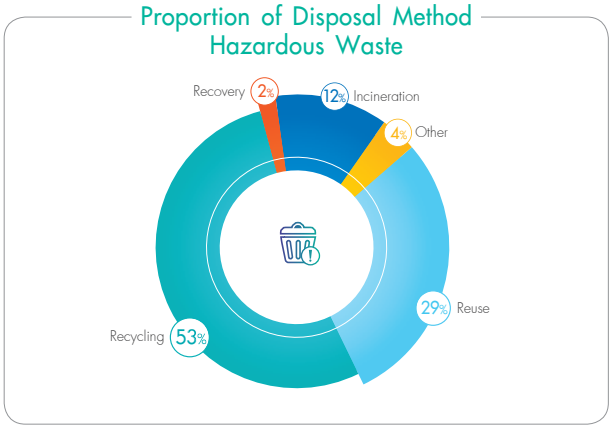
In 2018, the Company's hazardous waste from the coal and power businesses totaled 3,740 tonnes. Around 81.5% of the waste was either reused or recycled, exceeding the annual target of 50%. However, some hazardous wastes were disposed by on-site incineration.

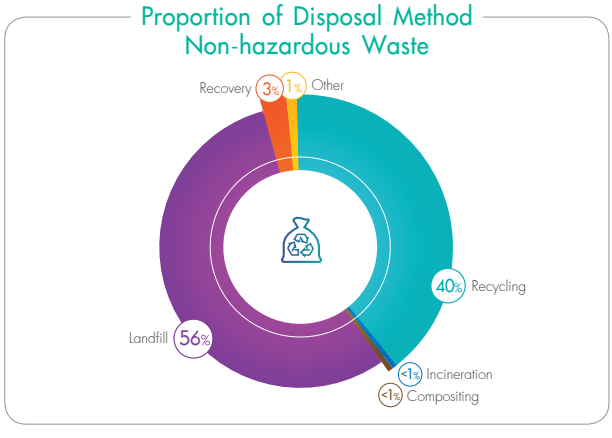
Non-hazardous Waste

In 2018, the Company's non-hazardous waste from the coal and power businesses totaled 7,468 tonnes. A total of 39.4% of the waste was either reused or recycled, falling short of the annual target of 50%. The majority of the non-hazardous waste was disposed by on-site landfill. The Company is in the process of reducing amount of waste landfilled through a number of initiatives such as waste segregation and reducing the usage of plastic.









Biodiversity

The Company recognizes that business operations, especially open-pit mining, may cause a direct impact on biodiversity and ecosystems. Managing and reducing negative impacts on biodiversity is, therefore, one of the Company greatest concerns.

Reporting Boundary

The information about biodiversity disclosed in this report covers only the coal business in Indonesia and Australia and the power business in China. However, based on the biodiversity risk assessment, there are 2 mines in Indonesia and 5 mines in Australia exposed to biodiversity risk. The performance presented in this report will, therefore, include only those 7 mines.

Business Entities		Character of Area		
		Relation to Protected Area	Relation to High Biodiversity Value Area	No Relation to Protected Area and High Biodiversity Area
Indonesia	Indominco	✓		
	Trubaindo			✓
	Bharinto		✓	
	Jorong			✓
	Embalut			✓
Australia	Airly	✓		
	Springvale	✓		
	Clarence	✓		
	Mandalong	✓		
	Myuna	✓		
China	Combined Heat and Power Plant at Zhengding			✓
	Combined Heat and Power Plant at Luannan			✓
	Combined Heat and Power Plant at Zouping			✓
	Solar Power Plant 6 sites			✓

Performance Summary

	2018	Target 2018	Target 2019
Coverage of business units being conducted for biodiversity risk assessment	100%	100%	100%
Coverage of business units being conducted for biodiversity impact assessment	29%	29%	100%

Progress 2018

- Prepared and published Biodiversity Management for Mining Handbook

Biodiversity Policy

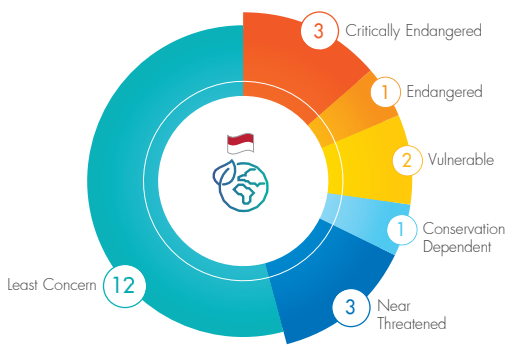
Management Approach

The Company has announced the Biodiversity Policy to demonstrate its commitment. The Company also determined not to conduct any activities in area or adjacent to World Heritage sites and protected areas based on the International Union for Conservation of Nature (IUCN) Type I to IV in order to reduce the risk of negative impacts on biodiversity. According to the IUCN's concept, the management consists of 4 approaches, namely avoidance, minimization, rehabilitation, and offset.

Avoidance	Minimization	Rehabilitation	Offset
Avoid activities that cause adverse impacts on biodiversity and ecosystems	Minimize unavoidable impacts by determining clear measures	Set an annual target for the rehabilitation of native trees and plants	Plant trees outside the operation areas in order to offset the impacts on biodiversity

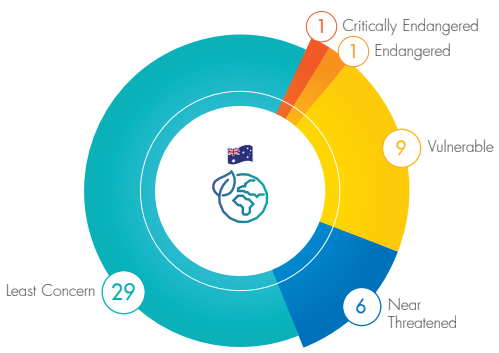
The Company conducts a biodiversity risk assessment in all business units before starting of production. The criteria used are whether each operation is related to protected areas or high biodiversity value areas. Vulnerable animal and plant species in each related area are also surveyed and monitored in order to preserve the unique native species and vulnerable species in the IUCN Red List.

IUCN Red List of Mine in Indonesia



Total 22 Species

IUCN Red List of Mine in Australia



Total 46 Species

In case that there is a business unit exposed to biodiversity risks, the Company will carry out a biodiversity impact assessment according to the Convention on Biological Diversity (CBD) in order to acknowledge the status of impacts and determine an appropriate rehabilitation plan, with the target to achieve a net positive impact on biodiversity for the mine being closed after 2025.

Performance

The Company successfully achieved the target of conducting a biodiversity risk assessment in all business units in 2018.

Business Entities		Character of Area			Assess Biodiversity Impact Assessment
		Relation to Protected Area	Relation to High Biodiversity Value Area	No Relation to Protected Area and High Biodiversity Area	
Indonesia	Indominco	✓			✓
	Bharinto		✓		✓
Australia	Airly	✓			
	Springvale	✓			
	Clarence	✓			
	Mandalong	✓			
	Myuna	✓			

Based on the biodiversity risk assessment, it was found that 1 mine in Indonesia and 5 mines in Australia were in relation to protected areas. There was also 1 mine in Indonesia that was in relation to high biodiversity value areas.

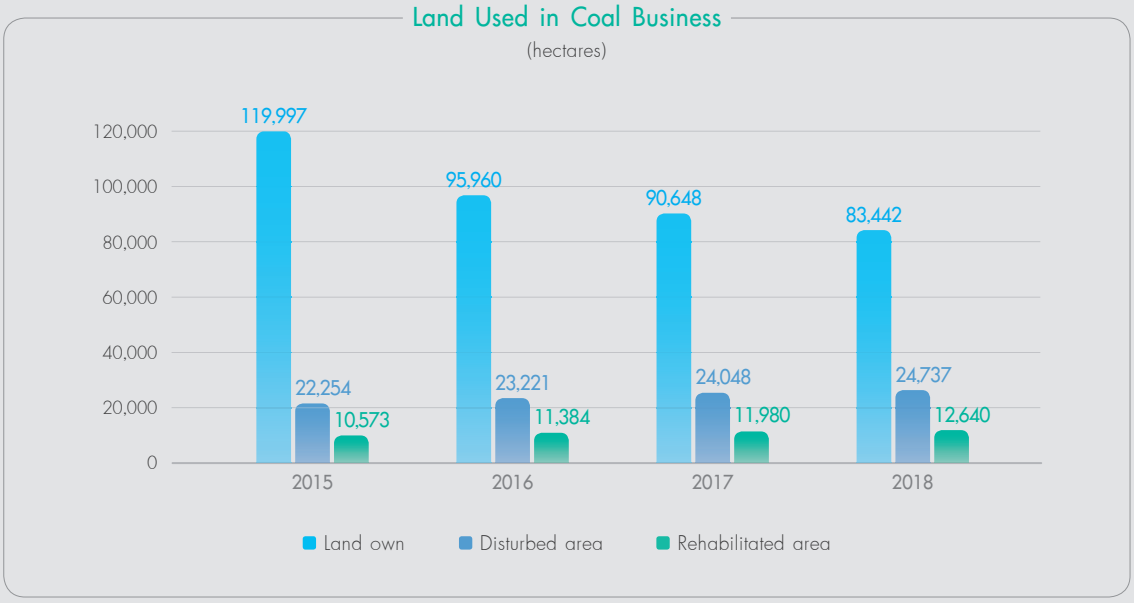
The Company already conducted the biodiversity impact assessment in 2 mines that were in relation to protected area and biodiversity areas. The Bharinto mine was assessed in 2017 using the survey data obtained in 2015, while the Indominco mine was assesses in 2018.

Biodiversity Management for Mining Handbook

In 2018, ITM collaborated with the Indonesian Academy of Sciences and experts from the Purwodadi Botanical Garden to create a book called “Ketika Tambang Mengelola Keanekaragaman Hayati” in order to disseminate and provide knowledge about biodiversity management, starting from pre-mining until mine closure stages, to interested persons and agencies. This book results from a biodiversity study carried out in the Bharinto and Indominco mines during 2010-2017.

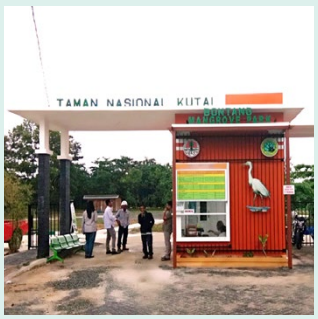
Mine Rehabilitation

In Indonesia, the Company has rehabilitated the mined areas along with the mining areas by backfilling overburden into the mine pits as much as possible after mining is completed. Then, the slope adjustment is conducted before planting native perennials on each area. In 2018, the Company's coal business owned mining concession areas of 83,442 hectares, of which only 29.6% or 24,737 hectares of total areas were used for mining activities. The Company has completed rehabilitation of 12,640 hectares. Apart from rehabilitation in the mine areas, the Company also plants trees in degraded and disturbed forests outside the operational areas as part of the government's Watershed Program. At the end of 2018, there were 25,849 hectares of cumulative offset rehabilitation area.



Bontang Mangrove Park

The Indominco mine collaborated with the Department of National Parks in Indonesia to open Bontang Mangrove Park as a new natural attraction in Kutai Salebba National Park with the aim to conserve the mangrove ecosystem within the national park and enhance ecological learning among local people.



Mine Closure

Due to the unique nature of the coal business in which the amount of coal reserves in each location will diminish after start of the production, the Company thus has placed emphasis on preparing for mine closure even before starting a project to ensure that all mines could be returned to the related parties as planned with the acceptance from communities and all stakeholders.

Reporting Boundary

The information about mine closure disclosed in this report covers all coal business entities in which the Company holds greater than 50% of shares and has management control, including the coal business in Indonesia and Australia. All related mines are listed below:

Business Entities		Status		
		Mining Stage	Mine Closure Stage	Closed
Indonesia	Indominco	✓		
	Trubaindo	✓		
	Bharinto	✓		
	Jorong	✓		
	Embalut	✓		
	Tandung Mayang		✓	
Australia	Airly	✓		
	Springvale	✓		
	Clarence	✓		
	Mandalong	✓		
	Myuna	✓		
	Ivanhoe North		✓	
	Charbon		✓	
	Vale of Clywdd		✓	
	Ivanhoe		✓	
	Munmorah			✓
	Endeavour			✓
	Blue Mountains			✓
	Lamberts Gully			✓

Performance Summary

	2018	Target 2018
Coverage of the Mines having Mine Closure Plan	100%	100%
Progress of Mine Closure Activities against Plan	99.4%	>90%

Progress 2018

- Hold the meetings to report the operational progress according to the mine closure plan in Indonesia.

Management Approach

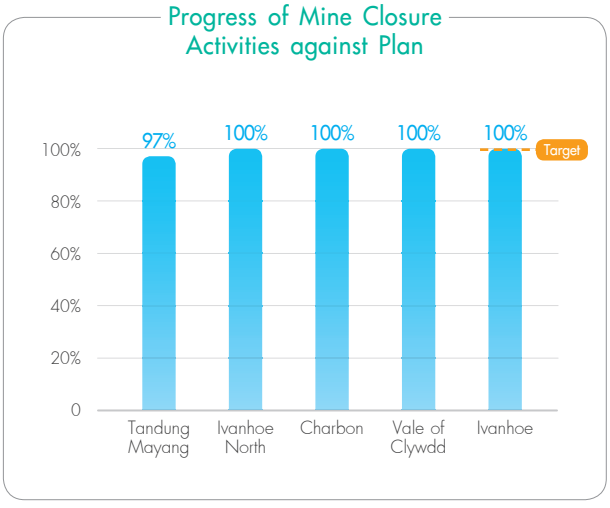
The Company has set the mine closure standards to be used as operational guidelines focusing on preventing environmental impacts that may arise from mining activities such as stabilization of the area, overburden management, water treatment and management, waste management, and mine rehabilitation. The criteria for environmental impact assessment and performance monitoring plans are also determined in each particular area, including surface, groundwater quality and biodiversity monitoring, to ensure no environmental impacts in the long run. Regarding both mines in operation and closure stages, the Company has regularly monitored their operational progress according to the mine closure plan. For example, there are quarterly meetings held for the coal business in Indonesia.

Performance

In 2018, there were 10 mines in Indonesia and Australia being in the mining stage that have already developed the mine closure plan covered production phase until returning the mine areas to the related parties. Thus, the target coverage was successfully achieved.

As for the mines in the closure stage, the Company has constantly monitored and evaluated the activities according to the mine closure plan. The progress of mine closure activities was at 94% against plan.

Business Entities		Mine with Closure Plan
Indonesia	Indominco	✓
	Trubaindo	✓
	Bharinto	✓
	Jorong	✓
	Embalut	✓
Australia	Airly	✓
	Springvale	✓
	Clarence	✓
	Mandalong	✓
	Myuna	✓



Mine Subsidence

Underground mining has a risk of mine subsidence caused by the movement of land to fill the void created underneath. Inefficient management may lead to fatal accident of miners and residents in the area as well as create negative environmental impacts from the changed environment.

Reporting Boundary

Management approach and performance data disclosed in this report shall specifically cover coal business in Australia as it is the only business entity involved with underground mining.

Centennial Coal's Website

Management Approach

Centennial, a subsidiary company whose business involves coal mining in Australia has assessed and monitored the possibility of mine subsidence by implementing the subsidence management plan for managing natural resources and facilities in the mining area that may be impacted. The Company submits such report to the government on a yearly basis to comply with the Underground Mining law of New South Wales (2014).

In implementing subsidence management, the Company has integrated the mine subsidence issue into mine planning by using gathered information from the risk assessment along with geological model to design underground mine and mitigate potential risks. Moreover, the Company has initiated a monitoring program, which can detect any changes in geology, hydrology, and ecology while constantly developing mine subsidence model. The outcome will be used to compare to actual occurrences in order to improve the management plan and reduce the potential incidents that could affect the community and environment.

Performance Summary

	2018	Target 2018
Number of Reports related to Mine Subsidence	0	0
Coverage of Underground Mine having Subsidence Management Plan	100%	100%

Progress 2018

- Using 3D photogrammetry program to monitor mine subsidence

Performance

The Company has established subsidence management plan covering all operational underground mines in Australia and also reviewed those plans regularly if there is any changes in the mining area. In 2018, there was no report related to mine subsidence from the Company's operations.

3D Photogrammetry Program

The Company has initiated a monitoring program and assessed mine subsidence via 3D photogrammetry program to avoid and prevent impact caused from mine subsidence. The program uses high-definition aerial photography which captured all natural resources and facilities in the mining area to monitor potential impacts. The result is evaluated by using Continually Operating Reference Station (CORS) including exact co-ordinates and elevation with reference to the Global Navigation Satellite System (GNSS) and Global Positioning System (GPS). The data will be recorded continuously in every 10 seconds and analyzed statistical data at two particular intervals; 24-hour average and 7-day average with accuracy level of ±10 millimeters.

This program was first installed at Airly mine in September 2018 and the result was done in November the same year; which covers mining and surrounding areas. The Company has thus been able to set reference points and boundary line that are prone to subsidence and consequently preparing more effective preventive measures in the future.

Mineral Waste

Due to the nature of open-pit coal mining, it could generate substantial amount of overburden and possibility to produce acid-mine water if the soil is Potential Acid Forming material (PAF). In addition, tailings is generated from coal washing process to improve the quality of coal to meet the customer's requirements, which may spill from storage facility. Effective mineral waste management has thus become a very important topic for coal business in order to avoid any negative impact on the people and the environment.

Reporting Boundary

Mineral waste data disclosed in this report cover all coal business in which the Company holds a greater than 50% of shares and has management control. This includes coal business in Indonesia and Australia. The activities related to mineral waste are as follows:

Mining Type	Activity	Mineral Waste
Open-pit mining	Overburden removal	• Overburden • PAF
	Coal washing	• Tailings
Underground mining	Drilling	• Waste rock
	Coal washing	• Tailings

Environmental Policy

Management Approach

The Company focuses on effective resource management in order to reduce and minimize potential risks on environment and surrounding communities. The Company has prepared overburden management plan with mine planning before production process begins and specified management measures, starting from geological survey and study of soil property in the area prior mining to create a geological model for estimation and classification of soil, assessment of environmental risks, and economic evaluation. This aims to remove overburden as little as necessary and increase in-pit backfilling as much as possible.

For tailings, the Company has effectively managed storage facilities throughout the project under tailing management standard. Tailing management plan has been developed by applying the principles of risk assessment, from the location selection for tailing storage facilities to the area preparation in mine closure stage. The tailings storage facilities have been inspected and maintained regularly, as well as the tailings management plan that will be periodically reviewed and revised to reflect significant changes in the mine plan.

Performance Summary

	2018	Target 2018
Proportion of In-pit Backfilling for Open-pit Mining	88%	>40%
Number of Significant Tailings Spills	0	0
Proportion of Mine having Acid Mine Water Management Plan	100%	100%

Progress 2018

- Remove overburden as little as necessary and increase in-pit backfilling as much as possible
- Improve the water quality in the areas where is acid mine drainage to become safe water prior to mine closure.
- Regularly inspect tailings storage facilities and always ready to respond to any emergency

Besides, the Company has also announced acid mine drainage standards to be used as a framework for operations in compliance with applicable laws and regulations in each location. The Company has always strived to improve the water quality in the areas where is acid mine drainage to become safe water prior to mine closure. The acid mine drainage issue is considered in the mine planning annually such as establishment of budget and responsible person for mineral waste management and water treatment in Indonesia, site remediation and prevention of acidic level.

Performance

Overburden

In 2018, the coal business in Indonesia has a proportion of in-pit backfilling accounted for 88%, which achieved the target set more than 40%. Due to strict regulation mandated that all mining industry must minimize void as well as the distance between the mining areas and landfill locations, therefore they are key challenges for the Company to perform mining efficiently.

Tailings

At present, the Company has three active coal washing facilities at Springvale, Clarence, and Mannering mines in Australia, and two closed facilities in Indonesia. The Company has managed tailing dams of those facilities to reduce risks and the impacts on environment and surrounding communities throughout their entire life, starting from planning to the end of operations. In 2018, the amount of tailings in Australia significantly decreased by 12% from the previous year due to additional process to sorting materials - waste rock for dam reinforcement and smaller coal for selling.

The Company has engaged external experts to inspect the tailing dams annually to ensure no tailings spills occurred. In the past year, there was no report on significant tailings spills, which achieved the target.

Acid Mine Drainage Management

The Company has acid mine drainage management plan covering all mines which have potential acid forming materials. All mines proceeded as planned and the quality of treated water is better which meets the local standards. Moreover, in 2018 ITM collaborated with Indonesian educational institutions conducted a research on sustainable water treatment of acid mine drainage, known as Swampy Forest. The knowledge transferred in formats of report and DVDs as official references for other mines in Indonesia.

Specific Waste from Power Plant

Ash and gypsum are by-products from coal combustion and flue gas desulfurization system of coal-fired power plants. Improper management leads to produce such waste and create negative impact on the environment and local communities as well as long-term cost for disposal.

Reporting Boundary

The classification of ash and gypsum as hazardous or non-hazardous waste is varies according to the local laws of each country where the Company has operations. The Company thus separate ash and gypsum from waste and reported them in specific waste from power plant. The management approach and performance data disclosed in this report cover coal-fired power plants in which the Company holds a greater than 50% of share and has management control including three CHP plants in China. Nevertheless, since coal business in Indonesia has a smaller coal-fired power plant for internal use, this report shall cover such power plant as well.

Environmental Policy

Management Approach

The Company focuses on the reuse of ash and gypsum since the properties of ash can be great substitutes of some raw materials and improve the quality of some products. For example, using fly ash in place of cement in the production of concrete, and using the synthesized gypsum instead of natural gypsum to slow down the concrete setting time and for smoother plastering finish. With such outstanding properties, the Company has categorized ash and gypsum based on sizes to cater to different market needs and increase sales prices. The Company has planned to manage ash in term of financial and production aspects by providing sufficient storage area in compliance with each local laws and regulations, as well as closely monitoring environmental impact from such storage areas such as construction of building to cover the storage area at Zhengding power plant in China.

The Company has a management plan for ash and gypsum in term of sending to authorized agencies for disposal, selling to buyers or storing in the area awaiting for further actions according to local laws and regulations. The 100% reused of all by-product is set as annual target in order to minimize the amount of waste disposed to landfill and reduce the negative impact on the environment.

Performance Summary

	2018	Target 2018
Percentage of Ash Reused	100%	100%
Percentage of Gypsum Reused*	100%	100%

*Data from three CHP plants in China

Progress 2018

- A cover built over the ash and gypsum collection area

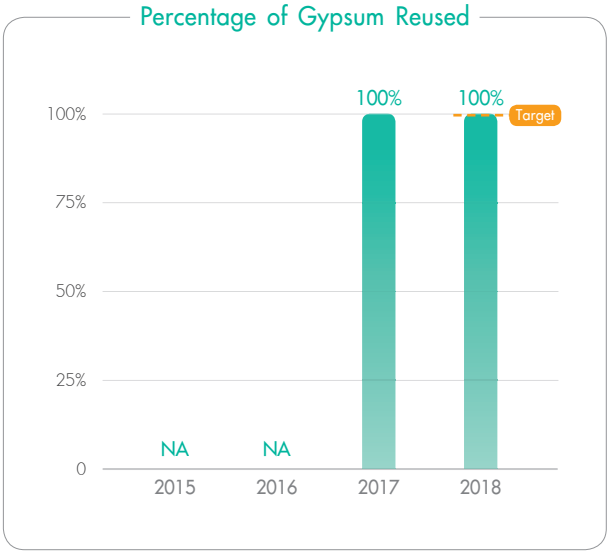
Performance

Ash

In 2018, the fly ash and bottom ash generated by three CHP plants in China were sold to external organizations for reuse in cement production process. The percentage of ash reused has increased from the previous year and met the annual target. While ash generated by small coal-fired power plant in Indonesia for internal use is classified by local law as hazardous waste. Some ash is temporarily stored in the area to await sending to an external authorized agency for appropriate disposal.

Gypsum

In 2018, 100% of gypsum generated from the use of calcium carbonate ($CaCO_3$) for flue gas treatment process in all three CHP plants in China were sold to external organizations for reuse, which achieved the annual target same as the previous year.



Environmental Compliance

Compliance is not only a fundamental requirement that all business has to comply to obtain a business license of operations, but it also reflects in the good management of the Company. Thus, the operations that do not comply with the environmental requirements may affect the renewal of licenses or expansion of projects and trust of stakeholders in addition to extra expenses from such non-compliance.

Reporting Boundary

Environmental compliance information disclosed in this report cover all business entities in which the Company holds a greater than 50% of shares and has management control. This includes coal business in Indonesia, Australia and Mongolia, and power business in China and Japan. Potential risks that may cause environmental non-compliance are identified as follows:

Business	Risk
Coal Business	• Spill of tailings from coal washing process • Spill of low quality water into public resources • Air quality from the generator that does not meet the standards (a power plant at Indominco Mine) • Management of fly or bottom ash from the coal-fired power plant at Indominco Mine
Conventional Power Business	• Management of fly or bottom ash from coal-fired power plant • Air quality from the generator that does not meet the standards • Spill of low quality water into public resources

Environmental Policy

Management Approach

To ensure that the operation of all business units will be complied with relevant regulations, the Company has announced the corporate environmental policy that focuses on strict compliance with laws. In addition, the Company also has reviewed new policies and laws for continuous development and improvement regularly. Annual target has been set as there must not be any significant environmental incidents and fines.

In implementing environmental compliance, the Company has developed HSEC Incident Reporting Procedure to classify environmental incidents into various levels. The incident with a significant level is determined by the following minimum criteria.

- Damage to widespread area (5-10 km from source)
- Change of an irreplaceable plant/animal
- Potential fine is greater than or equal to USD 10,000
- Other costs such as remedial action, lost time, legal cost, and liabilities that is greater than USD 20,000

In this regard, the Company has established the global internal audit and compliance department to audit, monitor, and propose measures to prevent risks of incidents that are not complied with environmental laws in all business units.

Performance Summary

	2018	Target 2018
Number of Significant Environmental Incidents	0	0
Number of Significant Fines	0	0

Progress 2018

- Developed HSEC Incident Reporting Procedure and applied to all business units.

Performance

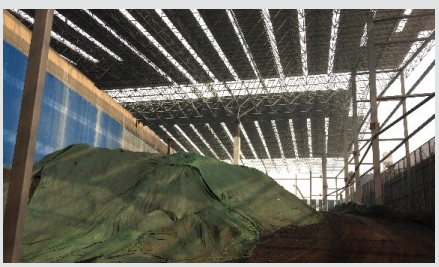
In the past year, there were no significant environmental incidents and fines in all business units. Thus, this makes the Company achieved the annual targets.

Certification of Environmental Management System

	Business Units	System Coverage	Third-party Certification
China	Zhengding	✓	✓
	Luannan	✓	✓
	Zouping	✓	✓
	6 Solar power plants	✓	
Indonesia	Indominco	✓	✓
	Trubaindo	✓	✓
	Bharinto	✓	✓
	Jorong	✓	
	Kitadin-Embalut	✓	
Australia	Airly	✓	
	Springvale	✓	
	Clarence	✓	
	Mandalong	✓	
	Myuna	✓	

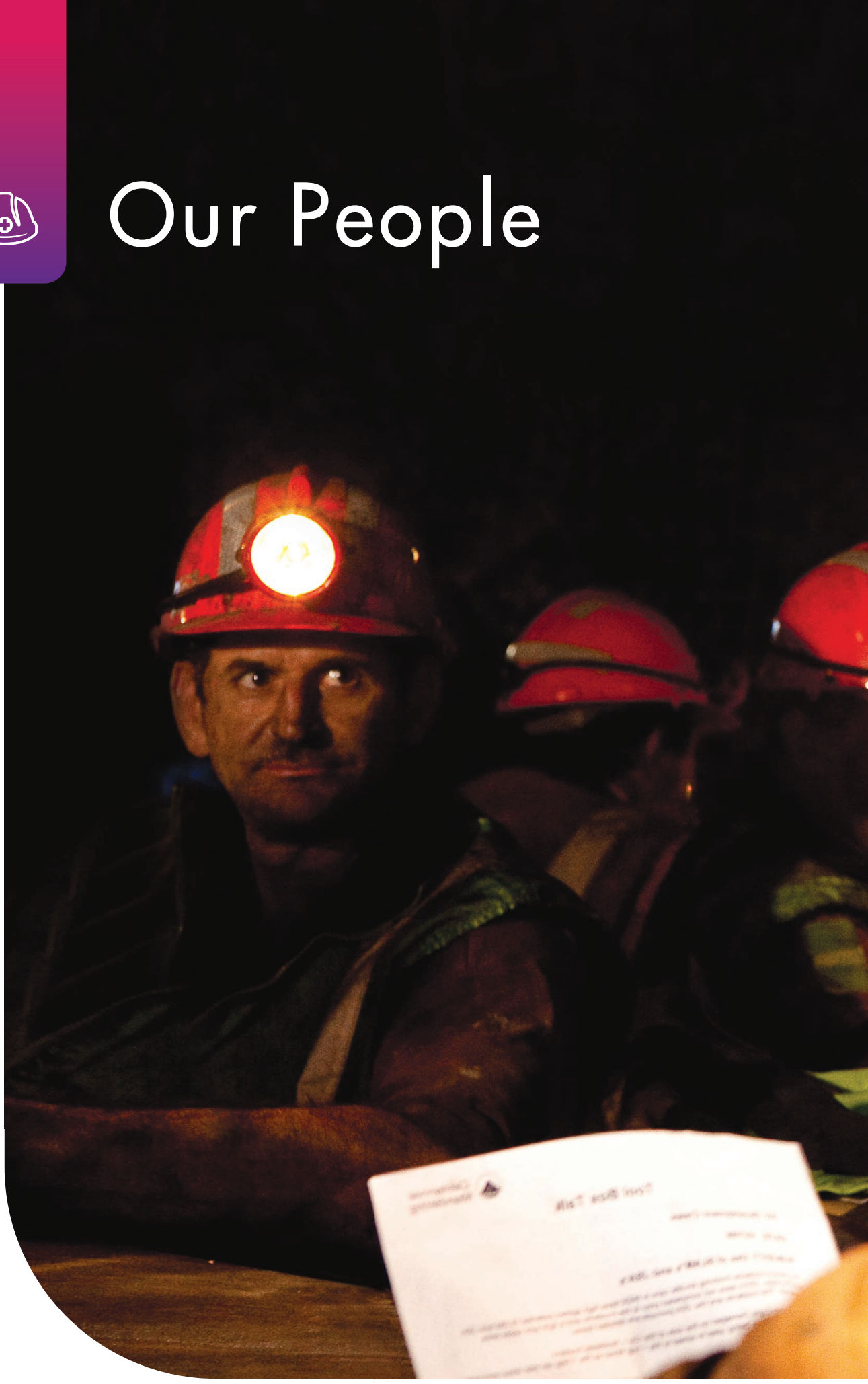
Besides the internal audits, the environmental management system is also verified by external certification bodies in order to enhance the trust of all stakeholders. Currently, the business units in each country have been certified with ISO 14001:2015 from external certification bodies including Zhengding, Luannan, and Zouping power plants in China as well as Indominco, Trubaindo and Bharinto mines in Indonesia.

The Progress of Building Construction for the Coal Stockyard at Zhengding Power Plant



In late 2017, the environmental agency of Hebei County, China, has announced the requirements for building construction of coal stockyard to reduce dust problems in the country. Zhengding Power Plant has received a notice from the government to complete the construction of coal stockyard by the specified period. The power plant has started construction to cover the coal stockyard area in early 2018 and installed a water spray system to reduce the temperature of the coal stockpiles and prevent the burning of coal. The automatic water spray system is scheduled to spray water at the frequency of 4 times a day and higher frequency of water spray can be adjusted in the summer. At present, the building is under construction and is expected to be completed in May 2019, which is in accordance with the time period specified by the government. When the construction is completed, it does not only reduce dust dispersion from coal stockyard but also increases aesthetic scenery of the power plant. In addition, Zhengding Power Plant has a plan to install solar panels on the roof of the building to generate electricity for internal use.

Our People



100%
of Critical Position
having Succession Plan

1 Contractor
Fatality

LTIFR
Employee 0.14
Contractor 0.16

74% of Employee
having Individual Development Plan

Level of Employee Engagement

Thailand
67%

Indonesia
80%

China
94%

Employee Management

The Company believes that human capital is at the heart of enhancing the Company's competitive edge. Employee engagement is also significantly associated with work effectiveness and the level of happiness. As such, employee management and ensuring employee engagement are integral to the Company's business operations.

Reporting Boundary

The information about employee management disclosed in this report covers all business entities in which the Company holds a greater than 50% of share and has management control, namely coal business in Indonesia, Australia, and Mongolia, and power business in China and Japan, and total solar energy solution business in Thailand, as well as the head offices in each country. However, the employee engagement surveys were conducted only at the coal business in Indonesia, the power business in China, the solar energy solutions business in Thailand, and the head office in Thailand. The Company is in the process of expanding the employee engagement surveys to the coal business in Australia and Mongolia, the power business in Japan, and the head office in Singapore in the near future.

Employee Engagement

Management Approach

The Company has formulated the Employee Relation Policy as a guideline for promoting strong employee relations, under the concept that engagement can be strengthened through these three principles:

Say	Employees say positive things about the Company both to internal and external stakeholders
Stay	Employees work happily and want to continue to stay with the organization
Strive	Employees form a deep bond with the Company and strive to improve its performance

To put these principles into practice, the Company has developed a three-part management approach:

- **Compliance with laws and international frameworks** The Company fully complies with local laws of each country in which it operates, in addition to international frameworks, including human rights principles, the prevention of child and compulsory labor, and labor unions and freedom of association.
- **Fair recruitment, performance management, and remuneration** The Company strictly adheres to competency-based approaches for candidate selection, and applies performance and value-based management principles for employee remuneration. Performance appraisal for fair remuneration is based on both work-related and behavior-based KPIs.
- **Employee welfare** The Company strives to promote employee happiness throughout his or her service with the Company and into retirement.

The Company entrusts an outside firm to conduct an annual employee engagement survey, starting in 2012 with workers at the head office in Thailand. Currently, the employee engagement survey covers Thailand, coal business in Indonesia and power business in China. The survey is translated into local languages to ensure that employees in every country have a thorough understanding and are able to express their opinions honestly and sincerely. Survey results are accessible to all employees and executives, and are reported to the Board of Directors on an annual basis.

Performance Summary

		2018	Target 2018
Employee Engagement Levels	Thailand	67%	>65%
	Indonesia	80%	>65%
	China	94%	>65%

Progress 2018

- Employee engagement results analysis by generation

To enhance employee engagement, the Company entrusts the management of each business entity to carry out the Company's strategies and develop an annual employee engagement plan based on survey results of their respective entities from the previous year. Progress updates are sent to senior executives via an official reporting system. Furthermore, the Company has developed the Banpu Engaging Leaders training curriculum for division managers and above, with an aim to help them strengthen relationships with their subordinates.

Performance

The levels of employee engagement in 2018 at the head office in Thailand, the coal business in Indonesia, and the power business in China exceeded the targets of 65% at 67%, 80%, and 94%, respectively. Employee engagement in Thailand in particular grew significantly from the previous year, while the levels in Indonesia and China decreased slightly. In 2018, the Company began analyzing employee engagement levels by generation in order to develop the most effective management approaches that address the needs of employees.

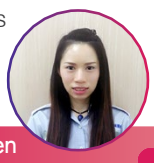
Performance Management System

The Company's performance management system consists of two sets of KPIs: work-related KPIs, which account for 70% of the overall performance, and behavior-based KPIs, which account for the remaining 30%. The behavior-based KPIs are measured by actions that demonstrate the Banpu Heart core values. The Company promotes employees' involvement in developing their own plans and KPIs by working closely with their teams and aligning their goals with those of the Company. To enhance employee engagement via management approaches of senior executives, the Company specifically developed Leadership KPIs for division managers and above, collected through a 360 Degree Feedback system to measure their performance in team management and the building of a motivating work environment.

Compensation Management System

Under the governance of the Compensation Committee and Job Evaluation Committee, the Company determines compensation based on job scope and individual competencies. The compensation structure is reviewed every two years to ensure that it is in keeping with the market, and that the Company remains competitive. In addition, annual bonus payments based on the Company's business performance are also awarded.

"I love what I do and I feel fortunate to work at Banpu. I can truly feel the how much the Company cares for its employees. Senior executives don't see us simply as employees, but actually as part of the organization."



Nantapak Thamwisen
Management System Head, TCM Mine

Corporate Culture

Since the workforce in the business operations of the Company is highly diverse in terms of language, race, religion and culture. This poses a great challenge to facilitate smooth operations to achieve the shared corporate goal. The Company firmly believes that a strong corporate culture is the key tool to manage such diversities and also strengthen its long-term competitiveness.

Reporting Boundary

The information about corporate culture disclosed in this report covers all business entities in which the Company holds greater than 50% of shares and has management control, namely coal business in Indonesia, Australia and Mongolia, power business in China and Japan and total solar energy solution business in Thailand as well as the head offices in each country. Since the corporate culture of the Company has been transformed from "Banpu Spirit" to "Banpu Heart" in mid-2018 and it has been communicating to employees in all countries. The survey on the level of alignment between employee behavior and the corporate culture "Banpu Heart" has covered total solar energy solution business and the head office in Thailand only. The Company expects to expand the scope of the survey to cover all businesses in the near future.

Banpu Heart

Management Approach

From the success of the corporate culture "Banpu Spirit" that all management and employees have followed as a code of conduct for practice for the last 14 years. In 2018, the Company has introduced the new corporate culture by developing a "Banpu Heart" consisting of three shared corporate values; Passionate, Innovative and Committed.

To put the corporate culture "Banpu Heart" into practice concretely, the Company has a systematic implementation plan, starting from the recruitment process to performance evaluation process, driven by Banpu Change Leader (BCL) through a wide range of activities. The Company monitors the level of alignment between employee behavior and the corporate culture by conducting an annual survey by third party. In addition, the activity details and the survey forms were translated into local languages to ensure that all employees will truly understand the corporate culture "Banpu Heart".

Process	Practice
Recruitment	The "Inner View Test" was designed to see how much the applicant's personalities and behaviors comply with "Banpu Heart", and the results will be incorporated as part of the interview.
Orientation	New recruits are required to attend the orientation on the corporate culture "Banpu Heart" and "Banpu Young @ Heart" to learn about the background and rationale of the corporate culture.
Performance Evaluation	The corporate culture "Banpu Heart" was set as one of the behavior-based KPIs.

Performance Summary

	2018	Target 2025
Level of Alignment between Employee Behavior and the Corporate Culture*	69%	>80%

*Data of employees in Thailand only

Progress 2018

- Transformed corporate culture from "Banpu Spirit" to "Banpu Heart" and communicated to employees in all countries.

Banpu Heart

Passionate — Striving for the Future

1. Pursue for Success
2. Can Do More
3. Be Agile and Change
4. Express Care and Share

Innovative — New Ideas, New Solutions

1. Transcend the Trend
2. Ideate and Get Real
3. Learn Fast, Do First

Committed — Success is the Only Option

1. Adhere to Integrity and Ethics
2. Synergize and Network
3. Engage to Sustainability Development

Performance

The Company has transformed corporate culture from "Banpu Spirit" to "Banpu Heart" in mid-2018 and communicated this corporate culture to its employees in Thailand, Indonesia, Australia, Mongolia, China, Japan and Singapore to create a mutual understanding among all employees. The first survey on the level of alignment between employee behavior and the corporate culture "Banpu Heart" was conducted in Thailand in late 2018. The Company plans to expand the survey to cover all businesses in the near future with the long-term target of the level of alignment between employee behavior and the corporate culture of greater than 80% by 2025.

> "Banpu creates values of collaboration among employees with corporate culture "Banpu Heart" regardless of race, religious or culture"

Mr. Jirameth Achcha
Senior Vice President - Corporate Services, Banpu

Human Capital Development

Currently, business operations are complicated and rapidly changing. Thus, the Company places a great importance on its executives and employees competency enhancement to be ready and deal with changes which directly affect the competitive advantage.

Reporting Boundary

The information about the human capital development disclosed in this report covers all business entities in which the company holds greater than 50% of shares and has management control, namely coal business in Indonesia, Australia and Mongolia, power business in China and Japan and total solar energy solution business in Thailand as well as the head offices in each country.

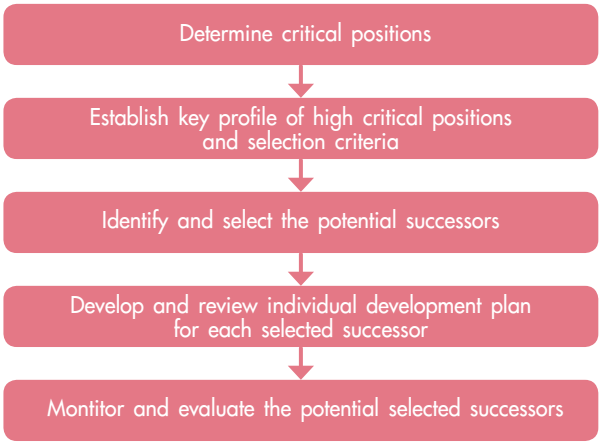
HR Learning and Development

Management Approach

The Company has evaluated the required competencies for all job positions based on functional competencies, which vary according to position, and leadership competencies, which are the required skills for employees at each level. The Company annually evaluates employee competency based on their current profiles coupled with the policy and business expansion plan in order to identify competency gap. The individual development plan is then developed for each employees to improve their competencies through internal and external trainings.

The Company has regularly developed the leadership competencies for the management level. The latest profile was announced in 2016 to comply with business strategies plan (2016-2020). The profile focuses on development of 7 skills, namely global mindset, people management, change leadership, commercial mindset, result & value management, stakeholder relationship & partnering, problem solving and decision making. These leadership competencies will then be designed to be a curriculum for leadership development at various levels that have been continuously developed since 2006. Guidelines on Learning Application Project (LAP) project have been used for the development.

The company has appointed the Succession Planning Committee to oversee the planning and developing of succession planning and high potential management for continuity in management and expansion of business.



Performance Summary

	2018	Target 2018
Proportion of Critical Positions having Succession Plan	100%	100%
Proportion of Employees having Individual Development Plan*	74%	100%

*Data of employees in Thailand only

Progress 2018

- Establish the Digital Academy to build additional new working skills under the concept of Digital Transformation

Performance

In 2018, the Succession Planning Committee has selected the successors for all critical positions who are suited in respect of knowledge, experience and being a role model for the corporate culture. Therefore, the target of the proportion of critical positions that have succession plan has been achieved. In addition, the Company has established the Digital Academy to build additional new working skills under the concept of Digital Transformation.

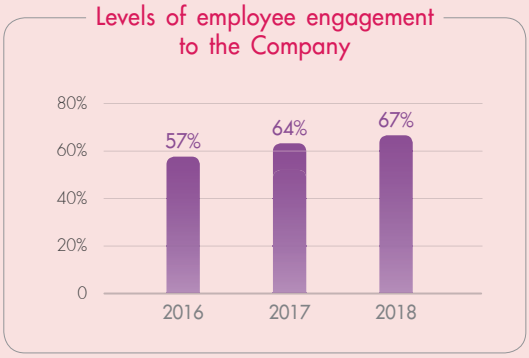
The company has also conducted the training on Banpu Leadership Program for Future Leader in 2018 that has been improved in 2017 for 29 section managers to ensure that they will be equipped for their new roles in the future. In addition, the Company has performed the training according to the established Leadership Development Plan including Banpu Global Leadership Program for Business Leader and Banpu Global Leadership Program for First Line Leader for executives from all countries with number of participants of 19 and 26 respectively. The evaluation result of the training found that more than 90% of participants are able to apply the knowledge obtained from the training in their work management.

> Being as an employee, my appreciation is the vision and awareness of the management for prompt management of possible changes.

Denchai Plengsang
Section Manager - Operation Data, ITM

BANPU Engaging Leader Course Leader

Referring to the result of employee engagement levels survey in 2014 at the head office in Thailand that has been significantly decreased. The Company has developed additional Banpu Engaging Leader Course in 2015, which has been continually conducted until the present. This training course has been performed for division managers and higher levels. The objective of this course is to increase the level of engagement of employees with the concept that those executives work closely with lower level of employees and are role model for them. This course focuses on development of coaching competency, work motivation and role model. In 2018, there were 38 participants attending the course. As a result of continually conducted the training on Banpu Engaging Leader Course, the level of engagement of the employees at the head office in Thailand has been increased significantly.



Occupational Health and Safety

The Company fully realizes that inefficient occupational health and safety (OHS) management not only adversely affects an organization's image, but more importantly the health and livelihood of employees and their families. As such, the Company is fully committed to ensuring that all employees, contractors, sub-contractors, and other relevant stakeholders work in a safe and healthy environment, in line with the United Nations Sustainable Development Goal 8.

Reporting Boundary

The OHS data disclosed in this report cover all business entities in which the Company holds a greater than 50% of shares and has management control. These entities include coal business in Indonesia and Mongolia, power business in China, and other related business in Thailand. The OHS data in this report do not include the coal business in Australia, as it is in the process of developing a data collection and management system to ensure that the performance reporting system meets the Company's standards and international guidelines. The Company expects to publish OHS performance data for the coal business in Australia as part of the Sustainability Report 2019.

Occupational Health and Safety Policy

Management Approach

The Company has publicly announced its OHS policy and goals for **"3 ZEROs"**.

Zero Incident

Zero Repeat

Zero Compromise

OHS policies, strategies, and goals are reviewed on an annual basis by the Sustainable Development Committee. The committee is the highest entity governing OHS management and is chaired by the CEO. The OHS performance is set as a KPI for the CEO and other high-ranking executives of all business units in every countries in which the Company operates.

In order to achieve the goals "3 Zeros", the Company has established an efficient OHS management system using the internationally accepted OHSAS 18001:2007 standards, along with best practices by relevant industries. Concurrently, regular reviews of relevant laws and regulations are conducted, while audits and certifications by external agencies are also sought. The OHS management system covers the following processes:

Hazard identification and risk assessment

The Company has hazard identification and risk assessment tools for routine and non-routine jobs, such as the Job Safety Environment Analysis (JSEA), Green Card/ Yellow Card system, the Safety Health Environment Accountability Program (SHEAP), which is used at mines in Indonesia, and the SLAM (Stop, Look, Assess, and Manage), for underground mines in Australia.

Determining risk management measures

The Company manages work-related risks according to the hierarchy of controls. Communication planning and risk monitoring and control are also part of this process. The supervisors are tasked with assessing risks and communicating plans to all staff before any operation begins, using the applicable hazard identification and risk assessment tools mentioned above. In addition, all employees and contractors can stop work immediately if they encounter a workplace hazard or threat to their safety.

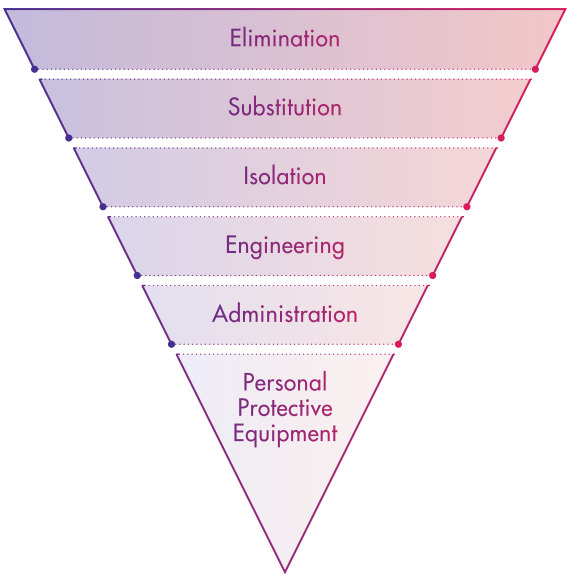
Performance Summary

	2018	Target 2018	Target 2024
Number of Fatalities	1	0	0
Lost Time Injury Frequency Rate (LTIFR) - Employees	0.14	<0.38	0
Lost Time Injury Frequency Rate (LTIFR) - Contractors	0.16	<0.13	0

Progress 2018

- Safety culture assessment was performed at Trubaindo and Bharinto mines in Indonesia
- In the process of developing standards for occupational illnesses database

Hierarchy of Controls



Controlling the safety and healthy work environment

The Company performs regular checks and assessments, air quality and light intensity in workplace, to ensure that all workers operate in an appropriate environment that is healthy and safe. Results from the latest checks showed that all indicators are within standards of legal requirements. Personal protective equipment, emergency equipment, and first aid kits are provided as required for the nature of the work, in an adequate quantity and within easy access.

Incident reporting and investigation

In case of an incident occurring, involved workers or those who witness the incident must report to their supervisors to assess the level of severity, before escalating the incident via specified channels to other involved persons. For example, in Indonesia, incidents are reported via the Incident Reporting System on a web application. For serious accidents, the Company will establish an incident investigation committee comprised of experienced and competent individuals to analyze the real causes of the incident, recommend preventative measures, and eradicate or reduce such risks from recurring. Incident reports, measures to prevent repeat incidents, and incident resolution statuses are included in monthly executive meetings.

Emergency response

Medical centers have been established to provide health-related advice to employees. Medical cares are also on standby to be deployed for emergencies at work. For example, medical centers at mine sites in Indonesia have doctors who are on call 24 hours a day.

Communication

All levels of workers have been involved in communication on OHS. The Safety Health and Environmental (SHE) Committee consists of management representatives and operational staff working together to inspect work place safety and OHS plans. They are also tasked with communicating to all other workers in an effort to reduce workplace accidents and injuries through a variety of communication channels, including:

- E-mails containing OHS information
- Briefings prior to starting a job
- Other activities promoting work safety
- Other activities related to occupational health and safety
- The Health, Safety, Environment, and Community Summit (HSEC Summit)

Training and development

The Company promotes an understanding of occupational health and safety by providing appropriate trainings to management and staff as required by the nature of each job and in accordance with local laws and regulations. Topics include occupational hazard analysis, work permit systems, and the lockout-tagout procedure. Evaluations are also conducted to measure the effectiveness of the training and to ensure that attendees have received adequate OHS knowledge. In addition, training sessions to enhance OHS management skills are also provided, such as a curriculum on safety culture and how it can be applied by workers of all levels at the Bharinto and Trubaindo mines in Indonesia, and a course on professional safety provided for safety supervisors at all three combined heat and power plants and top management in China.

Promotion of worker health

The Company provides health check-ups for new workers and annual medical check-ups for employees according to their risk factors, as well as monitoring occupational health effects via pulmonary function tests and audiometric tests. This also extends to ensuring good mental health for workers stationed abroad through the employees' health and injury databases. In addition, several activities promoting health are also held, such as employee sports clubs at power plants in China, activities to encourage healthy daily movement while working at the Bangkok office, and providing advice on healthy eating by nutritionists at a mine in Indonesia.

Preventing and mitigating impact in the supply chain

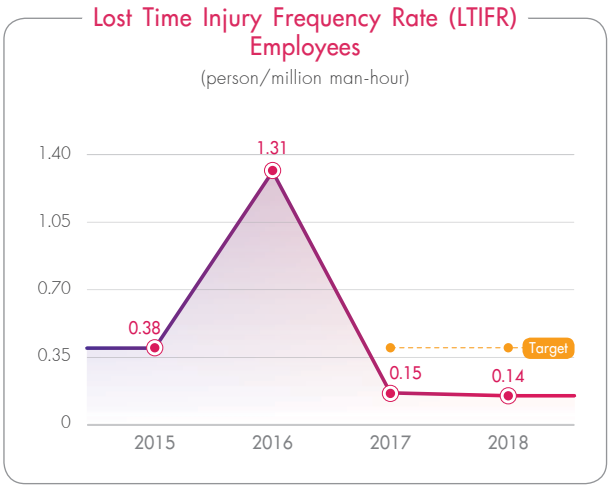
Realizing the occupational health and safety risks from contractors' operations, the Company has developed the Contractor's HSE Management Standards, and requires that all business units implement the Contractor Management System, which covers the selection, management, and auditing of contractors, to ensure that occupational health and safety risks are properly prevented and mitigated.

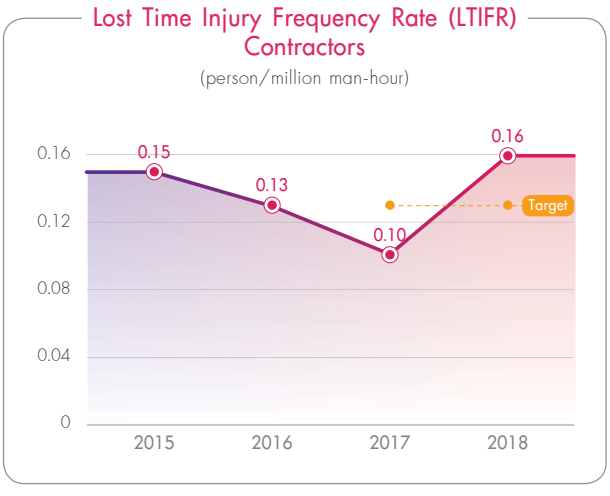
Performance

Business units that have received the OHSAS 18001:2007 certification from an external agency include the Zhengding, Luannan, and Zouping power plants in China, and the Indominco, Trubaindo, and Bharinto mines in Indonesia. These business units are currently in the process of becoming compliant with the new ISO 45001:2018 standards and expect to achieve certification by 2020.

Business Units		System Coverage	Third-party Certification
China	Zhengding	✓	✓
	Luannan	✓	✓
	Zouping	✓	✓
	6 Solar power plants	✓	
Indonesia	Indominco	✓	✓
	Trubaindo	✓	✓
	Bharinto	✓	✓
	Jorong	✓	
	Kitadin-Embalut	✓	
Australia	Airly	✓	
	Springvale	✓	
	Clarence	✓	
	Mandalong	✓	
	Myuna	✓	

The Company has set a long-term target to reduce LTIFR to zero for both employees and contractors by 2024. Annual targets have also been set for employees and contractors. The 2018 targets were based on the best statistics from 2014 to 2016.





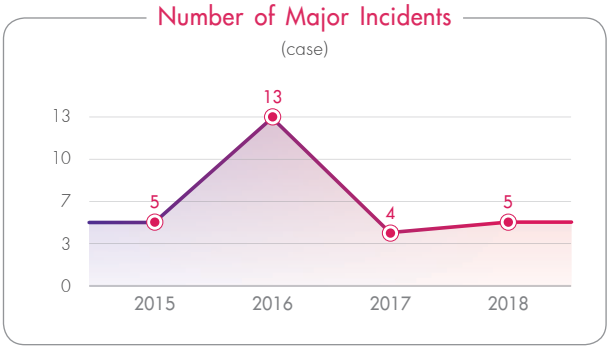
In 2018, LTIFR for employees was at 0.14, down from 0.15 of the previous year. The performance exceeded the target of being less than 0.38. However, for contractors, the Company was not successful at meeting the LTIFR target of 0.13, instead achieving a rate of 0.14, up from 0.10 of the previous year. One of the incidents that occurred resulted in the fatality of a contractor working at an Indonesian mine. The incident investigation revealed that the contractor had been electrocuted while a performing machinery maintenance. After the investigation, preventive measures were immediately put into place, including:

- Installing electric shock prevention devices
- Providing additional safety training for contractors
- Communicating the risk to all contractors

To prevent repeat incidents, in addition to the above measures, the Company also performed a risk assessment review and took the following steps:

- Reviewing contractors' occupational safety documents
- Improving the standards of personal safety equipment
- Preparing the emergency response team
- Conducting a feasibility study of replacing workers with machinery

Furthermore, the Company classifies the severity of impact on human life and property into four levels: major, serious, moderate and minor. Over the past year, a total of five major incidents occurred across all business operations.



Go Safe Program

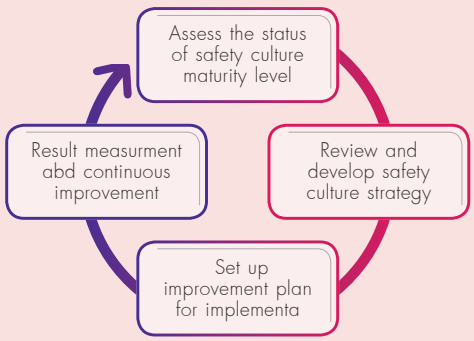
"Go Safe" is an app for Android phones that was developed by the Operation, IT and QSE teams at the Kitadin-Embalut mine in Indonesia. Employees and contractors can use the program to report accidents and unsafe conditions. The system then sends SMS and email notification to safety officers, relevant workers, and mine head, so that they can provide safety advice, and notifies emergency response teams, so that they can respond to the incident promptly.

In a continued effort to increase the efficiency of the Company's Occupational Health and Safety Management and ensure that it is aligned across all business units, the HSEC Summit is held on an annual basis. The most recent summit took place on October 1, 2018 and featured a workshop on the topic of "Banpu Safety Culture Transformation: Our Way in Business Sustainability". Board of Directors, CEO, and high-ranking executives of all business units participated in the summit.

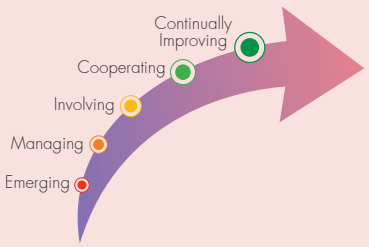
Creating Safety Culture

Safety culture is built upon all employees' awareness, commitment, and belief, which leads to continued safety practices that will help the Company achieve zero incident. Across all business operations, the Company has established five levels of safety culture under a four-step plan. The initial goal for the safety culture assessment is to cover at least 90% of employees and contractors across all business units by 2021. In 2018, the progress exceeded 30% of employees and contractors from the assessment at Indonesian mines.

Safety Culture Management Plan

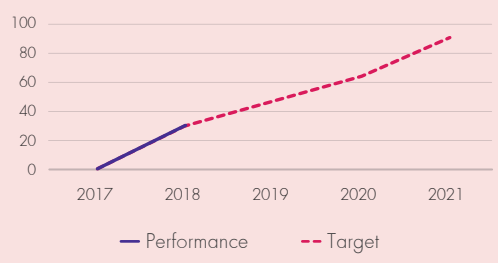


Safety Cuture Maturity Level



Progress of Safety Culture Assessment

(% of employees and contractors)



In 2018, the Company completed the safety culture assessments in the Trubaindo and Bharinto mines in Indonesia. The results represented that safety culture at both sites is at the "involving" level. The Company is in the process of developing plans to uplift the safety culture at both mines to the "cooperating" level by 2022.

Safety Audits by Top Management in China

In 2018, BIC top management jointly performed equipment and occupational environment checks and reviews of safety practices for operational workers at all combined heat power plants and solar power plants in China. The exercise reinforced the Company's commitment to occupational health and safety. The following recommendations were made after the assessment:

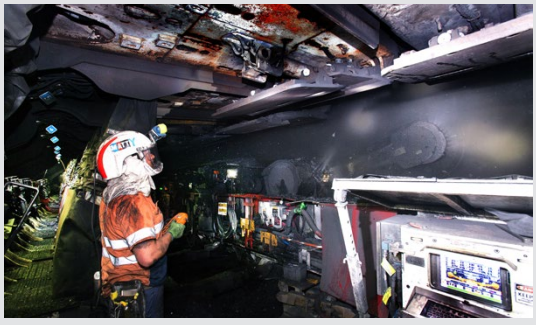
- Eradicating rust to prevent corrosion
- Changing insulation materials to prevent heat loss
- Inspecting chemical leaks
- Improving lighting in the workplace
- Color coding of pipes to identify different types of chemicals
- Installing additional safety signs

Improving the Work Permit System at Power Plants in China

In the past year, BIC focused on improving the efficiency of the risk management system using a hierarchy of controls. Some of the measures implemented were the lockout-tagout (LOTO) system and a review of high-risk work permit. Workshops were held for workers at all three combined heat and power plants.

Task Rotation in Underground Mine

Centennial conducted a joint research project with Coal Service Health and the University of Newcastle to reduce the risk of musculoskeletal injuries caused by prolonged periods of repetitive actions. The research studied 240 participants at the Springvale and Mandalong mines who worked as roof bolters, shuttle car and continuous miner drivers, chock operators and shearer drivers. The research was conducted over a 12-month period with the results that their quality of life improved and fatigue symptoms were reduced. However, there was no significant reduction of injuries. The task rotation also improved relationships among workers, as they engaged in transferring work and were able to acquire new skills.



Society

1 Significant Complaint from Community

68% Stakeholder's Satisfaction Level on Community Development Projects

0 Resettlement

0 Significant Human Rights Complaint

100%
Coverage of Stakeholder's **Satisfaction** Survey on Community Development Projects

Community Engagement

Striving to create sustainable values and to build stakeholders' trust as set forth in the mission statement, the Company gives priority to promoting the engagement of all stakeholders, especially the community that is considered as a key stakeholder in all business entities.

Reporting Boundary

The information about community engagement disclosed in this report covers the coal business in Indonesia and Australia and the renewable power business in China. However, as the Company has recently started building community engagement and in the process of developing a data collection system in China, the performance disclosed in this report includes only the coal business in Indonesia and Australia. The Company will disclose the community engagement performance of its renewable power business in China in the Sustainability Report 2019. The scope of community information classified by countries is as follows:

Business Unit		Number of Villages	Number of People	Projects Under Process of Community Consultation
Indonesia	Indominco	10	29,472	24
	Trubaindo	20	13,631	27
	Bharinto	6	5,240	30
	Jorong	6	22,126	12
	Embalut	4	23,155	16
Australia	Airly	2	260	2
	Springvale	3	15,934	-
	Clarence	3	15,934	1
	Mandalong	3	5,282	3
	Myuna	3	4,311	1

Stakeholder Engagement

Management Approach

The Company has developed the Management Framework for Stakeholder Analysis to integrate stakeholder analysis procedure with strategic formulation process. The Management Standards for Stakeholder Engagement were also determined to ensure the compliance of all business units.

Performance Summary

	2018	Target 2018
Number of Significant Complaints	1	0
Proportion of Significant Complaints that are Handled	0%	100%

Progress 2018

- Develop the Standard Practice Manual of Community Complaint Management

Procedure	Practice
Understanding basic characteristics	• Conduct stakeholder baseline data collection • Carry out social mapping • Conduct stakeholder analysis
Engagement building	• Hold an annual meeting of the Community Consultative Committee (CCC), comprising representatives from the government, the community, and the Company • Support community relations activities to build a good relationship between the community and the Company • Provide communication channels such as letter, e-mail, and phone number
Compliant handling	• Manage complaints according to the Standard Practice Manual of Community Complaint Management

The management of community engagement in each country may varies according to local business characteristics and community contexts. In Indonesia, the Company appoints the Community Development Officers (CDOs) to work with local communities in order to understand their true needs, facilitate community development programs, and deal with possible complaints. On the other hand, the Company establishes a sub-committee at the mine cluster level to communicate operational plans and performances to local communities in Australia. The Company has also established the Standard Practice Manual of Community Complaint Management to ensure that every complaint is appropriately handled and taken into account.

In addition to the above the Company also carries out environmental and social impact assessments, both at the initial stage of the project establishment, and reports the results to the community.

Business Unit		Conduct Environmental and Social Impact Assessment	Report Results of Environmental and Social Impact Assessment
Indonesia	Indominco	✓	✓
	Trubaindo	✓	✓
	Bharinto	✓	✓
	Jorong	✓	✓
	Embalut	✓	✓
Australia	Airly	✓	✓
	Springvale	✓	✓
	Clarence	✓	✓
	Mandalong	✓	✓
	Myuna	✓	✓

Performance

In 2018, the Company received one significant complaint from the community in Indonesia. The nature and severity of the complaint had already been assessed and investigated. Currently, the complaint is being handled through the participation of the community and the public sector.

Mine	Details	Complaint Management Status
Embalut	The villagers were concerned about the changing of road where it is the main transportation route of the community. The Company was intended to pay compensation to the affected villagers.	☑ Receive Complaint; ☑ Assess Complaint Type; ☑ Investigate Complaint; ☐ Resolve; ☐ Monitor and Close Compliant; ☐ Communicate Result The Company has established a working group to investigate the complaint and work with the government agencies and community representatives. The compensation assessment is currently being carried out.

In addition, the Company received 5 complaints from Australian communities. Although none of them was found significant, the Company has thoroughly studied those complaints and already solved 4 of them while another one is being handled.

Type	Number of Complaints	Status
Noise	1	In progress
Traffic	1	✓
Transportation of Machines	1	✓
Water Management	1	✓
Others	1	✓

A Voice for Mining Family Day

A Voice for Mining Family Day is an annual event held by miners in New South Wales to show the long-term relationship between miners and communities. In the event, the miners and community members participate in a rugby competition with high-visibility jerseys that look like the uniform of miners in order to show respect for those working in underground mines. In 2018, a TV commercial was also created to demonstrate the determination of miners and their relationships with local communities.

Community Engagement and Community Consultative Committee

The Community Consultative Committee (CCC) meeting is regularly held in every mine that the Company operates. The objectives are to provide opportunities for stakeholders to share opinions, communicate concerns, and express their needs regarding the communities surrounding mining areas and to monitor the progress of the community development projects and complaint resolutions. The members of CCC comprise of representatives from the government, community, and the Company.

> The Company has supported and developed the several community development projects, such as scholarship, chicken raising and cultural conservation promotion. Those projects generate economy contribution and improve well-being of community as well as support them to build sustainable growth.

Hendra
Village Secretary of Batalang Village

Community Development

The community is one of the Company's key stakeholders. All operations must be accepted and trusted by the community so that both the Company and the community can flourish together. The Company believes that laying a strong foundation for the community is a key factor contributing to the community's sustainable growth.

Community Development Policy

Reporting Boundary

The information about community development disclosed in this report covers only the coal business in Indonesia and the renewable power business in China because community development is identified as a material issue by the stakeholders in these countries. As the Company has just started community development activities in China this year and is still in the process of collecting community data for long-term planning, the community development performance of the renewable power business in China will be disclosed in the Sustainability Report 2019. The content of this report does not cover the coal business in Australia because most activities in Australia are projects that focus on community engagement and empowerment, which will be separately reported in the community engagement topic.

Management Approach

The Company is determined to promote business growth in parallel with community development in all areas that it operates. In order to ensure that all community development activities in each area are conducted in the same direction, the Company has established the Community Development Policy and management standards. The Company also applied local regulations and international practices such as Sustainable Development Goals (SDGs) to define the community development goals and strategies in 6 dimensions under the cooperation between the Company, community, and government. Additionally, the Company has adopted the Social Return on Investment (SROI) framework to assess the social impacts in order to optimize operational efficiency and achieve sustainable development goal.

Performance Summary

	2018	Target 2018
Cumulative coverage of stakeholder's satisfaction survey on community development projects	100%	100%
Average stakeholder's satisfaction level on community development projects	68%	>62.5%

Progress 2018

- Announced of the community development policy of the power business in China
- Developed management standards associated with community development of the power business in China

In terms of the coal business, the Company has determined the practices and objectives covering 3 mining stages: pre-mining stage dealing with fundamental embedding, mining stage focusing on community empowerment, and mine-closure stage emphasizing sustainability enhancement. To maximize the operational efficiency, the Company has reviewed community development plans through the annual Community Development Officer Forum and conducted stakeholder satisfaction surveys regarding community development projects. Moreover, the Quality Assurance Review (QAR) has been conducted by the employees who are not involved in community development projects in order to ensure transparency and highest efficiency.

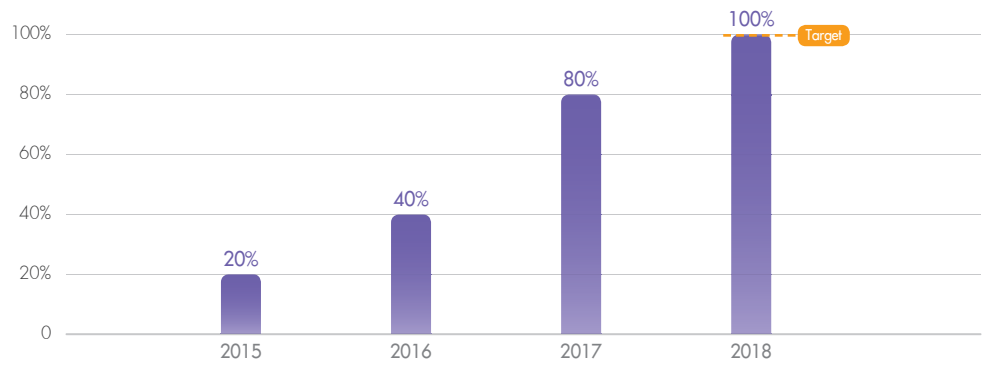
Pre-Mining Stage	Mining Stage		Mine-Closure Stage
Preparation of Community Development Plan	**Planning and Implementation**	**Monitoring, Evaluation, and Reporting**	**Implementation of Community Development Plan**
• Conduct stakeholder analysis • Carry out social mapping • Develop community development master plan	• Conduct community satisfaction surveys • Define goals and strategies and prepare community development plans for mine-closure stage • Establish the Community Consultative Committee (CCC) comprising representatives from the government, the community, and the Company • Appoint Community Development Officers (CDOs) to work with communities	• Monitor the status of each project to ensure compliance with the action plans • Review the action plans through an annual Community Development Officer Forum • Carry out community satisfaction surveys • Assess and develop capacity of the Community Consultative Committee, group committee, and contractors in terms of project management and specific skills • Evaluate performance and report to the management	• Implement the community development plan for the mine-closure and post-mining stages through providing community development support for at least 3 years after mine closure or as prescribed by the law to ensure that the community will be able to continue the projects in sustainable manner

Regarding the power business, in 2018 the Company has developed the Community Development Policy and management standards, covering all 3 operational stages: developing, constructing, and operating. These have been established as a framework for community development which consists of 6 steps: data preparation, planning, implementation, monitoring, evaluation, and reporting, to ensure that the implementation of each community development project is in the same direction.

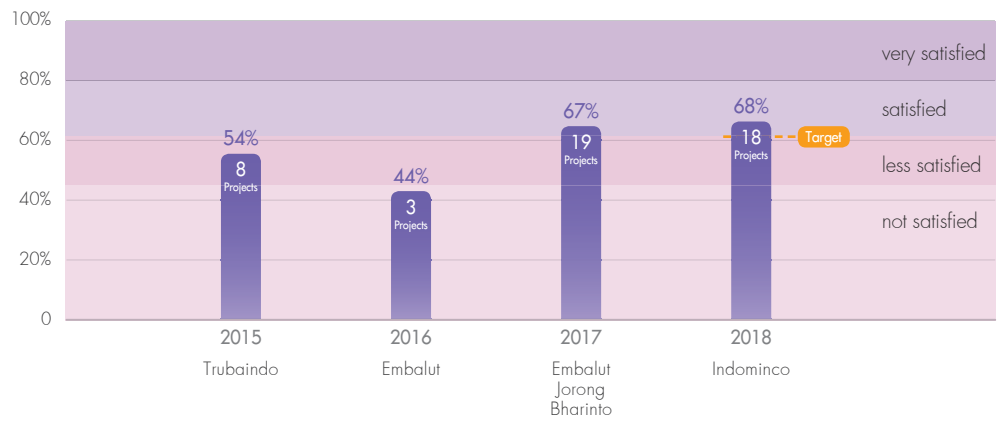
Performance

The Company has conducted stakeholder satisfaction survey on community development projects since 2015 and set a target to cover all mines in the mining stage within 2018 and obtain a “satisfied” level of average satisfaction or higher than 62.5%. In 2018, the Company carried out the survey at the Indominco mine, resulting in an achievement of the predetermined target. The average satisfaction towards 18 community development projects of the Indominco mine was at 68%, which is considered a “satisfied” level. From 2019 onwards, the Company has set a goal to conduct the survey at all mines on an annual basis, while striving to improve the level of stakeholder satisfaction in order to assure that all community development projects are in line with the needs of the stakeholders and contribute to the community's sustainability.

Cumulative Coverage of Stakeholder's Satisfaction Survey



Average Stakeholder's Satisfaction Level



Examples of Community Development Projects

1 Economic Development and Income Generation

Career Development Program for Fishermen

The Company has supported the career development program for fishermen in local areas around the Embalut mine since 2015. As a result, the fishermen have better career management and can sell their products without relying on middlemen. In 2018, there are 93 villagers joined this program and generated income of IDR 51,000,000 per year.

Career Development Program for Housewives Groups

The Company promotes income generation for groups of housewives and fishermen in the communities around the Jorong mine. In 2018, 41 villagers were taught to produce fish cracker and could generate more than IDR 27,000,000 per year.

2 Educational Development

Scholarship Program

The Company provides scholarships to students in the nearby villages of the Bharinto mine who are interested in nursing in order to promote the development of health and quality of life within the community. In 2018, a scholarship budget of IDR 1,451,120,000 was given to 11 students.

The Company also supports scholarships for poor students with good academic performance so that they can pursue higher education and use knowledge to develop their community. In 2018, there were 20 students from the villages around the Indominco mine participating in this program.

3 Basic Infrastructure Development

Road Development and Maintenance Project

The Company cooperates with contractors on road development and maintenance in order to enhance the quality of life in the community and increase access to facilities. In 2018, the Company repaired a total of 14 kilometers of roads around the Trubaindo and Indominco mines, which are the main routes that the community uses for transportation. The bridge and sewer were also renovated.

4 Health and Sanitation Development

Clean Water Supply Project

The Company has developed the water supply system for Santan Tengah, Kandolo, Suka Damai, and Suka Rahmat villages around the Indominco mine, which helped elevate the quality of life and make 440 households have clean water for consumption without having to buy water from outside sources and thus save about IDR 1,500,000 per month per family.

5 Environmental Conservation

Biodiversity Promotion Program

The Company has supported communities around the Bharinto mine to propagate and conserve rare native orchids since 2010. The Center of Intermittent Orchid Development was established in Kutai Barat village to provide knowledge, skills, and supporting equipment. Currently, there are 97 species of native orchids and rare plants propagated by the center.

6 Social, Cultural and Community Relations

Cultural Conservation Program

The Company has cooperated with the government and community in supporting religious, social, and cultural activities to strengthen community relations and unity and preserve local cultures of East Kutai-Kutai Kertanegera-Bontang. The Company has supported the community activities of 10 villages around the Indominco mine, namely Kandolo, Teluk Pandan, Martadinata, Suka Rahmat, Suka Damai, Danau Redan, Santan Ulu, Santan Tengah, Santan Ilir, and Bontang Lestari, were supported.

Community Development Collaborating with Contractors

The Community Development Contractor Forum has been annually held since 2014 with the aim to promote the role and cooperation between the members of the Melak contractor network in Indonesia through reviewing and aligning their work plan with the community development projects of the Trubaindo and Bharinto mines. This approach can also enhance employees' knowledge on social development planning and increase stakeholder engagement. At present, the network has a total of 33 member companies. In 2018, 32 representative contractors joining the network were from 24 companies, covering all production activities such as coal mining, coal delivery, road maintenance, and mine restoration.

Organic Fertilizer Production Project

The Jorong mine and small business enterprises have collaborated to generate income for surrounding communities through the organic fertilizer production project with a target to produce 18 tons of fertilizer per month. The produced fertilizers will be purchased for rehabilitation of the Jorong mine. This project has been started since 2016. In 2018, the production was 302 tons of organic fertilizer, accounting for over IDR 400,000,000 per year. The Company also conducts training on organic farming for Karang Rejo village in order to create more income generating opportunities for the villagers.

> The Company supports the community through various projects such as fish product processing, health and sanitation promotion, and fertilizer production and also provides training to develop our skills and knowledge. We hope that the Company will continue to support the community development projects for better quality of life of the villagers.

Norhana
Leader of Swarangan Village, Jorong Mine

Resettlement

During project development, there may be a need to resettle communities in the Company's operational areas. Improper management can consequently affect the quality of life of local communities, the Company's business license, and stakeholder confidence.

Reporting Boundary

The information about the resettlement disclosed in this report covers all coal businesses in which the Company holds greater than 50% of shares and has management control, comprising the coal business in Indonesia and Australia, the power business in China and Japan, including the joint venture projects where the Company owns less than half the shares. However, there was no resettlement taking place in any ongoing projects during the past year.

Management Approach

The Company adheres to international practices such as International Finance Corporation (IFC) requirements, which determine that the Company should avoid unnecessary resettlement, as the resettlement not only is a change of residences but also affects the quality of life, livelihood, and household income of affected people and can contribute to social and environmental changes. However, in the case of unavoidable circumstances, there should be appropriate guidelines for creating stakeholder confidence and minimizing adverse impacts. Thus, in order to establish a framework for management, the Company has developed the Resettlement Management Standards, consisting of the following 6 procedures.

1 Agreements

Negotiate, set objectives, and seek formal agreements with the local government in order to establish an operational framework.

2 Preparing information

Define and assess the scope of project. Identify relevant laws and regulations. Formulate implementation strategies such as resettlement management approaches, offset measures, and resolution timeframe.

3 Qualified expertise

Collaborate with external agencies or resettlement experts in supporting and controlling resettlement management for the maximum efficiency.

4 Consultation with affected persons

Survey and listen to opinions, concerns, and needs of affected persons so that the Company can effectively determine preventive measures and effective solutions.

5 Development and implementation of a resettlement plan

Collect related information by conducting a survey in actual areas for implementation and budget management planning.

6 Monitoring and evaluation

Monitor and evaluate the implementation of the resettlement plan, progress against stated objectives, and overall results.

Performance Summary

	2018	Target 2018
Number of Resettlements	0	0
Number of Resettlement Complaints	0	0

Progress 2018

- Developed the Resettlement Management Standard

Performance

In 2018, there was no resettlement took place in the Company's ongoing projects thus, there was also no resettlement complaint.

Resettlements at Hongsa Power Plant

Hongsa Power Plant is the Company's latest project where resettlements took place. It is a mine-mouth power plant consuming lignite as energy source, located in Hongsa District, Xayaburi Province in Lao PDR. The power plant started commercial operation in 2015. During the project development period, as Banpu Power and its business partners were well aware of potential impacts from power plant's operations, they cooperated in developing the community management guidelines, including resettlement measures, through land use data collection and social mapping. Affected communities were divided into 3 groups as follows:

Community Group	Management Measures
Communities that require resettlement	Compensate with money, land, housing, infrastructure, including setting target-income of each community in a new area.
Communities that lose their lands but require no resettlement	Provide land compensation and infrastructure development.
Communities that require no resettlement but may be affected	Allow communities to use the land and utilities of the power plant project.

At present, the Hongsa Power Plant has operated for more than 4 years. The progress of its community management plan has been monitored through meetings and satisfaction assessment. In addition, there is a performance evaluation by external parties to ensure that all operations are in line with the goals and the needs of communities.

Indigenous Peoples

Due to the nature of coal business that have operating areas adjacent to local communities with indigenous peoples, promotion and protection of the rights and cultural heritage of indigenous peoples is a vital issue that the Company has taken into account.

Reporting Boundary

The information on indigenous peoples disclosed in this report covers only the coal business in Indonesia and Australia, where there are the Dayak and the Aboriginal people living in. As the Company has just started community engagement activities in China and is currently collecting basic community information, if it is found that there are indigenous peoples living in the operating areas of renewable power business in China, such information will be included in the Sustainability Report 2019.

Management Approach

The Company has studied and collected basic information about the Dayak and the Aboriginal peoples in terms of culture, belief, and religion and then defined strategies to build indigenous engagement, prevent violations of indigenous peoples' right, and preserve their cultural heritage.

Issue	Indonesia	Australia
Indigenous Peoples	Three groups of the Dayak people, namely Tunjung, Benuaq, and Bentain, live in the areas adjacent to the Trubaindo and Bharinto mines.	The Aboriginal people settle near the Company's 5 mines: Airly Mine, Springvale Mine, Clarence Mine, Myuna Mine, and Mandalong Mine.
Basic Information	• The Dayak people who are mostly Christian or Catholic believe in performing rituals to build harmony between themselves and the nature. • There is an institution administering the implementation of Adat Law at the village, subdistrict, and district levels and overseeing local livelihood and administration. • Most Dayaks earn their living by shifting cultivation, rattan and rubber farming, fishing, hunting, and nature-based jobs.	• The Aboriginal people have lived in Australia for over 4,000 years. • The uniqueness of the Aboriginal people is their spiritual connection with their lands, natural resources, and religious sites. • Cultural heritage significantly links the ways of life and beliefs of the Aboriginal people since the past until present.
Engagement Approaches	• Operate in compliance with Adat Law, including the practices of outsiders that conduct business in the Dayak communities. • Set up Community Consultative Committee that includes the Dayak representatives. • Develop a project to conserve the Dayak cultural heritage.	• Implement the Aboriginal Cultural Heritage Management Plan (ACHMP) for the western and the northern mine clusters by adhering to related laws and management guidelines such as Aboriginal Land Rights Act (1983), Heritage Act (1977), and Environmental Planning & Assessment Act 1979 (EP&A ACT). • Establish subcommittees comprising the Aboriginal representatives registered with the Company. Hold a meeting twice a year to review the Company's operating results related to the Aboriginal cultural heritage. • Support activities relevant to Aboriginal Cultural preservation.

Performance Summary

	2018	Target 2018
Number of Violations of Indigenous Peoples' Rights	0	0

Progress 2018

- Supported the activities and projects of the Dayak and Aboriginal peoples.

Performance

In 2018, there was no violation of indigenous people's rights from the Company's operations in both Indonesia and Australia.

Dayak Cultural Heritage Preservation Program

ITM has partnered with the government and local communities to support cultural and religious activities in order to promote and preserve the Dayak cultural heritage, which is one of the important cultural identities of Indonesia. The activities are carried out in 5 villages surrounding the Trubaindo mine, namely Lotaq, Dingin, Benggeris, Payang, and Bermai. Tools and equipment necessary for conducting religious and cultural ceremonies such as local costumes and musical instruments are also provided.

Annual Aboriginal Cultural Festival

Centennial and Bonnells Bay School have collaborated to organize an annual Aboriginal cultural festival under the name "Jarjum Soar," which means "Flying Youth." The purpose of this event is to enhance the understanding of Aboriginal cultures among local students through various activities related to folk games, traditional arts, local food, native plants, indigenous language, and weaving.

Human Rights

Respect and recognition of human rights, dignity, freedom, and equality is a current topic of interest to all related sectors. Violations of human rights can affect the Company's reputation and business operations.

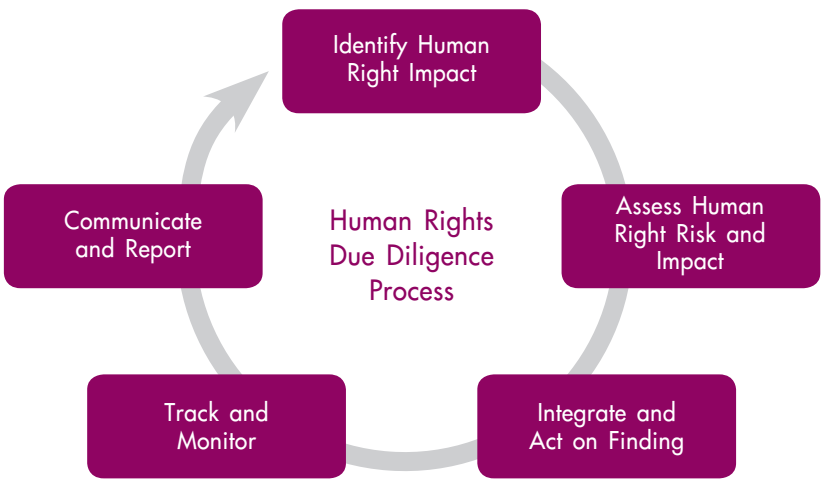
Reporting Boundary

The information about human rights disclosed in this report covers all business entities in which the Company holds greater than 50% of shares and has management control, namely the coal business in Indonesia and Australia, the power business in China and Japan, the total solar energy solution business in Thailand, and the head offices in each country. However, as the Company is currently in the process of creating a Human Rights Due Diligence Manual, the content of this report will include only the number of human rights complaints. The Company will disclose the performance on human rights in the Sustainability Report 2019.

Human Rights Policy

Management Approach

The company regulated the Human Rights Policy in accordance with international practices such as the Universal Declaration of Human Rights (UDHR), United Nations Global Compact (UNGC), UN Guiding Principles on Business and Human Rights, and local regulations of the countries where it operates. In practice, the Company adheres to the principles of liberty, equality and human dignity and shall not discriminate against gender, race, religion, and color in order to prevent and avoid human rights violations among employees, partners, customers, contractors, communities, and vulnerable groups namely children, women, the disabled, indigenous people, migrant workers, and the elderly. At present, the Company is developing the Human Rights Due Diligence Manual for reviewing and assessing operational activities that are exposed to human rights risks, which will be helpful for determining risk management plans and human rights complaint handling procedures.



Performance Summary

	2018	Target 2018	Target 2021
Number of significant human rights complaints	0	0	0
Coverage of business units being assessed for human rights risks	-	-	100%
Ratio of the operations that found human rights risks having risk management plans	-	-	100%

Progress 2018

- Develop the Human Rights Due Diligence Manual

Performance

In 2018, the Company was in the process of developing the Human Rights Due Diligence Manual and planned to disclose the human rights performance in the Sustainability Report 2019. The target of zero human rights complaint was achieved in the past year.

Human Rights Issues related to Labor Union and Collective Bargaining Agreement

The Company allows employees to form a union or similar bodies as specified in the Employee Relation Policy. In addition, the Company also encourages regular communications with employees in order to enhance understanding of benefits, career path, and business directions and maintain good relationships. The Company also holds informal meetings that are not required by law such as quarterly meetings with union leaders to foster collaborative environment. Currently, there are two labor unions in Indonesia and Australia with 75% and 100% of the employees being members of the unions, respectively.

Human Rights Issues related to Child and Forced Labor

The Company will not tolerate the use of child and forced labor and thereby has clearly set a minimum age of employment according to local labor laws to prevent child labor risks. In addition, the Company has established a transparent recruitment process and required that all employees must sign employment contracts.

Human Rights Issues related to Security Forces

The Company has organized training on respecting human rights for all security forces in order to provide knowledge and raise awareness of non-violence, which can affect the reputation of the Company. All of the Company's security forces are unarmed while performing security functions at operational areas.

> The Company does not discriminate against employees regardless race and religion. In addition, the Company implants the corporate culture to all management to ensure that they apply into practice concretely, which leads to sustainability.

Nittaya Chatsirisakul
Manager - Corporate Services, Banpu Power

Social Compliance

The Company places great importance on compliance with social laws and regulations that not only is fundamental to obtaining licenses to operate but also reflects the Company's responsibility and contribution to community and social acceptance. Non-compliance to such regulations may result in fines, project renewal or expansion licenses and stakeholder confidence.

Reporting Boundary

The information about social compliance disclosed in this report covers coal business in Indonesia and Australia and power business in China. However, the content about social compliance performance included only the coal business in Indonesia and Australia, since the Company is in the process of developing a data collection system in China according to the determined standards. The social compliance performance of the power business in China will be disclosed in the Sustainability Report 2019. Relevant social laws and regulations are exemplified below:

Issue	Relevant Laws
Corporate Governance	• The Securities and Exchange Act • The Code of Best Practices of Directors of Listed Companies • The Principle of Good Corporate Governance
Employee	• Labor Law • Occupational Health and Safety law
Community	• National Heritage and Culture Law • Indigenous Protection Law

Management Approach

In order to build stakeholder trust and ensure compliance with related laws and regulations, the Company announced the Corporate Compliance Policy and established the corporate compliance department to monitor compliance with laws and regulations prescribed by the government and external agencies based on ISO 19600 (Compliance Management System). The 4 key compliance management components are as follows:

1. **Identify** legal risks from legal related activities and specific laws relevant to each business unit
2. **Report** compliance status through the Compliance Self-Assessment Report and notify all related business units when there are changes in laws
3. **Check** and give advice to ensure compliance with relevant laws of each business unit as specified in the Compliance Self-Assessment Report
4. **Report** compliance with laws and regulations

Performance Summary

	2018	Target 2018
Number of Significant Social Non-compliance	0	0
Number of Significant Fines	0	0

Progress 2018

- Develop a data collection system for the power business in China

The Company continuously encourages all employees to recognize the importance of compliance with laws through various communication channels such as monthly e-newsletters that provide knowledge about social compliance and training programs on compliance-based topics.

Performance

In 2018, the Company achieved the target of no non-compliance with social laws and regulations and no significant fine.

Quality Assurance Review (QAR)

The Company developed the Quality Assurance Review (QAR) system to review the operational efficiency of every unit under the division of Corporate Services whether its operations align with the Company's management standards and work procedures. The review results will be used for further improvement and development of each unit. The Company's subsidiaries in Thailand, Indonesia, and China have adopted the QAR system, while the business units in Mongolia and Australia will implement this system in the near future.

Corporate Philanthropy

"An industry will be vigorous only when it is developed in tandem with social and environmental responsibility" is a business commitment that the Company has strictly adhered to over the past 3 decades. Hence, the Company has strived to create a healthy balance between business growth and community development initiatives, both related and not related to business operations.

Reporting Boundary

The corporate philanthropy information disclosed in this report covers all businesses in which the Company holds greater than 50% of shares and has management control, namely the coal business in Indonesia and Australia, the power business in China and Japan, the total solar energy solution business in Thailand, and the head offices in each country.

Social Responsibility Policy

Management Approach

The company is committed to supporting activities, projects, and initiatives, both related and not related to business operations, that focus on enhancing community quality of life and social contribution as follows:

Areas	Details
Education	Support schools, universities, organizations, and learning projects aimed at enhancing specialized skills
Health	Support and assist hospitals and health-related organizations for illness prevention and health promotion
Economic development	Promote and support economic-development organizations and activities such as income generation programs and occupational development projects
Environment	Promote and support environmental-conservation organizations and projects such as plant and animal conservation programs
Art and culture	Promote and support organizations and projects that help improve the quality of life of communities and preserve local cultural and historical heritage
Social welfare	Support organizations and activities that are aimed at helping disadvantaged people in society
Disaster	Provide assistance when natural disasters occur

The Company shall not support agencies, activities, and projects that are associated with:

- Non-compliance with laws, morality, ethics, or transparency standards
- Disrespect for the nation or religions
- Non-compliance with the Company's business ethics

Performance Summary

	2018	Target 2018
Coverage of Philanthropy Activities	100%	100%

Progress 2018

- Sent emergency response teams from the mines in Indonesia to assist in the evacuation of earthquake and tsunami victims in Lombok city, Palu city, and Banten Province.

Performance

In previous year, the Company supported the philanthropy activities through various programs in every country that the Company has an operation continually.

Areas	Example of Activities in 2018	Additional Example of Activities
Education	• Banpu Education for Sustainability 15th Year • Sponsorship for Schools • CONNEXT ED Project • Light and Learn: Solar Project for Education • Banpu Table Tennis Club • Support for a Young Tennis Athlete • Banpu Innovative Learning Program 3rd Year • Power Green Camp 13	
Health	• Health and Sanitation Development Program in Indonesia	
Economic development	• Banpu Champions for Change 8 • Economic Development and Income Generation in Indonesia	
Environment	• Nan Forest Rehabilitation Project	
Art and culture	• Social and Culture Development in Indonesia	
Social welfare	• Infrastructure Development in Indonesia	
Disaster	• Provided of emergency response teams from the mines in Indonesia to assist in the evacuation of earthquake and tsunami victims in Lombok city, Palu city, and Banten Province.	

> Banpu has continuously engaged with the community through various activities such as traditional ceremonies, annual events, community relations promotion activities, and community development programs, which make us live peacefully together.

Wimon Rodphueng
Villager in Tha Maka District, Kanchanaburi Province

List of Business

Energy Resources

Coal Business

Country	Name	Type	Current Status	Production Volume[c]	Ownership
Indonesia	Indominco	Open-pit Coal Mine	Operating	12.5 Million Tonnes	68.09%
	Trubaindo	Open-pit Coal Mine	Operating	4.5 Million Tonnes	68.09%
	Bharinto	Open-pit Coal Mine	Operating	2.4 Million Tonnes	68.08%
	Jorong	Open-pit Coal Mine	Operating	1.0 Million Tonnes	68.09%
	Kitadin-Embalut	Open-pit Coal Mine	Operating	1.1 Million Tonnes	68.09%
	Tepian Indah Sukses[a]	Open-pit Coal Mine	Project Development	-	68.09%
	PT. Nusa Persana Resources[b]	Open-pit Coal Mine	Project Development	-	68.09%
China	Gaohe	Underground Coal Mine	Operating	9.7 Million Tonnes	45.00%
	Hebi	Underground Coal Mine	Operating	1.4 Million Tonnes	40.00%
Australia	Airly	Underground Coal Mine	Operating	0.7 Million Tonnes	100%
	Springvale	Underground Coal Mine	Operating	3.3 Million Tonnes	50.00%
	Clarence	Underground Coal Mine	Operating	1.7 Million Tonnes	85.00%
	Mandalong	Underground Coal Mine	Operating	5.3 Million Tonnes	100%
	Myuna	Underground Coal Mine	Operating	1.7 Million Tonnes	100%
	Mannering	Underground Coal Mine	Operating[e]	-	100%
	Angus Place	Underground Coal Mine	Care & Maintenance	-	50.00%
	Newstan	Underground Coal Mine	Care & Maintenance	-	100%
	Inglenook	Underground Coal Mine	Project Development	-	100%
	Neubecks	Open-pit Coal Mine	Project Development	-	100%
Mongolia	Altai Nuurs	Coal Mine	Project Development	-	100%
	Unst Khudag	Coal Mine	Project Development	-	100%
	Tsant Uul	Coal Mine	Project Development	-	100%

Gas Business

Country	Name	Type	Current Status	Production Capacity (Equity Base)
The U.S.	Banpu North America Corporation	Shale Gas Production	Operating	194 MMcf/day

Related Operations

Country	Name	Type	Current Status	Ownership
Indonesia	Gasemas	Fuel Procurement	Operating	68.09%

Energy Generation

Conventional Power Business

Country	Name	Type	Current Status	Production Capacity (100%)	Ownership[h]
Thailand	BLCP	Coal-fired Power Plant	Operating	1,434 MW	50.00%
Lao PDR	Hongsa	Coal-fired Power Plant	Operating	1,878 MW	40.00%
China	Zhengding	Combined Heat & Power Plant	Operating	139 MW	100%
	Luannan	Combined Heat & Power Plant	Operating	175 MW	100%
	Zouping	Combined Heat & Power Plant	Operating	247 MW	70.00%
	Shanxi Luguang	Coal-fired Power Plant	Under Construction	1,320 MW	30.00%

Renewable Power Business

Country	Name	Type	Current Status	Production Capacity (100%)[i]	Ownership[h]
China	Jinshan	Solar Power Plant	Operating	28.95 MW	100%
	Huineng	Solar Power Plant	Operating	21.51 MW	100%
	Haoyuan	Solar Power Plant	Operating	20.0 MW	100%
	Hui'en	Solar Power Plant	Operating	19.7 MW	100%
	Deyuan	Solar Power Plant	Operating	51.64 MW	100%
	Xingyu	Solar Power Plant	Operating	10.3 MW	100%
Japan	Olympia	Solar Power Plant	Operating	10.0 MW	40.00%
	Hino	Solar Power Plant	Operating	3.5 MW	75.00%
	Awaji	Solar Power Plant	Operating	7.9 MW	75.00%
	Nari Aizu	Solar Power Plant	Operating[f]	20.46 MW	75.00%
	Mukawa	Solar Power Plant	Operating[g]	17.0 MW	56.00%
	Yamagata	Solar Power Plant	Under Construction	20.0 MW	100%
	Kurokawa	Solar Power Plant	Under Construction	18.9 MW	100%
	Shirakawa	Solar Power Plant	Project Development	10.0 MW	100%
	Yabuki	Solar Power Plant	Under Construction	7.0 MW	75.00%
	Onami	Solar Power Plant	Project Development	16.0 MW	75.00%
	Kesennuma	Solar Power Plant	Project Development	20.0 MW	100%
	Hiroshima	Solar Power Plant	Project Development	8.0 MW	100%
	Yamagata Iide	Solar Power Plant	Project Development	200.0 MW	51.00%
Vietnam	Wind Power Plant Project in Soc Trang[b]	Wind Power Plant	Project Development	80.0 MW	100%

Energy Technology

Total Solar Energy Solutions

Country	Name	Type	Current Status	Production Capacity (Equity Base)	Ownership
Thailand	Banpu Infinergy	Solar Rooftop	Operating	13.0 MW	100%
Singapore	Sunseap	Solar Rooftop	Operating	138.0 MW	38.46%

Energy Storage System

Country	Name	Type	Current Status	Production Capacity (Equity Base)	Ownership
China	Durapower[d]	Battery Factory	Operating	80.0 MWh	47.68%

[a] Invested in November 2017
[b] Invested in November 2018
[c] Coal sales volume in 2018 (exclude 3rd party coal)
[d] Invested in March 2018 (previous name was New Resources Technology Pte., Ltd., changed to Durapower Holdings Pte., Ltd. on 10 January 2019)
[e] Under mining cooperation deed
[f] Commercial Operation Date (COD) in December 2018
[g] Commercial Operation Date (COD) in August 2018
[h] Banpu Power's ownership (78.57% share is held by Banpu)
[i] MW_{DC} in China and MW_{AC} in Japan for Solar Power Plant

Awards and Recognitions

Thailand

Business Unit	Awards & Recognitions	Host Institution
Banpu	Member of Dow Jones Sustainability Indices (DJSI) in Emerging Market	RobecoSAM
	RobecoSAM Sustainability Award Gold Class 2019 in Coal & Consumable Fuels	RobecoSAM
	Sustainability Awards of Honor 2018	The Stock Exchange of Thailand
	Member of Thailand Sustainability Investment	The Stock Exchange of Thailand
	DRIVE AWARD 2018 for Strategy	MBA Alumni Association, Faculty of Commerce and Accountancy, Chulalongkorn University
	Excellence CG Scoring, according to the Corporate Governance Report of Thai Listed Companies 2018	Thai Institute of Directors Association (IOD), in collaboration with the Securities and Exchange Commission of Thailand (SEC) and The Stock Exchange of Thailand (SET).

Indonesia

Business Unit	Awards & Recognitions	Host Institution
ITM	Asia Sustainability Awards	National Center for Sustainability Reporting (NCSR)
	Best Non-Financial Listed Company	Indonesia Institute for Corporate Directorship (IICD)
Indominco Mine	Certificate of Appreciation Occupational Safety and Health Management System	Ministry of Manpower
	Green Certificate - PROPER	Governor of East Kalimantan Province
	P2-HIV & AIDS Program in Working Place	Ministry of Manpower
	Recognition for ESDM Emergency Response for Disaster Alert	Ministry of Energy and Mineral Resources
Trubaindo Mine	Blue Level - PROPER	Ministry of Environment and Forestry of the Republic of Indonesia
	Blue Level - PROPER	Governor of East Kalimantan Province
	Bronze Award - Environmental Mining Management	Ministry of Energy and Mineral Resources
Bharinto Mine	Bronze Award - Environmental Mining Management	Ministry of Energy and Mineral Resources
	Silver Award - Safety Mining Management	Ministry of Energy and Mineral Resources
	Zero Accident Award	Governor of East Kalimantan Province
Jorong Mine	Blue Level - PROPER	Ministry of Environment and Forestry of the Republic of Indonesia
Kitadin-Embalut Mine	Blue Level - PROPER	Ministry of Environment and Forestry of the Republic of Indonesia
	Blue Level - PROPER	Governor of East Kalimantan Province
	Bronze Award - Environmental Mining Management	Ministry of Energy and Mineral Resources
	Zero Accident Award	Governor of East Kalimantan Province
	Zero Accident Award	Ministry of Manpower
TRUST	Silver Award - Safety Mining Management	Ministry of Energy and Mineral Resources
	Zero Accident Award	Governor of East Kalimantan Province
	Zero Accident Award	Ministry of Manpower

Australia

Business Unit	Awards & Recognitions	Host Institution
Clarence Mine	Lithgow Tidy Towns - Winner of the 'Sustainable Projects' Category and the Overall NSW Award	Annual Keep Australia Beautiful Awards (NSW)
Mandalong Mine	Annual Mining First Aid Competition	Coal Services

China

Business Unit	Awards & Recognitions	Host Institution
Zhengding Power Plant	"Excellent Enterprise" Award for the 40th Anniversary of Reform and Opening-up of Shijiazhuang	Jointly issued by Publicity Department of the Municipal Committee of Shijiazhuang; Bureau of Industry and Information Technology of Shijiazhuang; Shijiazhuang Radio and TV Station; Shijiazhuang Entrepreneur Association
	Advanced Unit of Safe Production in Zhengding	Bureau of Industry and Information Technology of Zhengding
	Model Home for Staff	General Labor Union of Hebei Province
	Top 100 Private Enterprise Taxpayer	Shijiazhhuang Tax Bureau
Luannan Power Plant	Heat and Power Comprehensive Engineering Technology Study Center of Luannan County	Science and Technology Bureau Luanan County
	Pass the revaluation of Demonstration Enterprise on Safety Culture Construction in Tangshan City	The Safe Production Committee of Tangshan City
Zouping Power Plant	Advanced Environmental Protection Units in 2017	Zouping Environmental Protection Bureau
	Human Resources and Social Security Law-abiding and Honest Grade A Unit in 2017	Binzhou Human Resources and Social Security Bureau
Jinshan Power Plant	Excellent Company Award	Wushan Town Government
Haoyuan Power Plant	Foreign Investment Project Promotion Award by Tai'an City	Dongping County Commercial Bureau
Deyuan Power Plant	Excellent EPC Award-Second Prize	China Planning and Design of Electric Power Association

Membership

Thailand

Organization	Status
Thai Listed Companies Association (TLCA)	Chairman of Center for Building Competitive Enterprise
Thai Listed Companies Association (TLCA)	Advisor of the Chairman
The Securities and Exchange Commission	Chairman of the working group for Sustainable Development of Thai Listed Company
The Securities and Exchange Commission	Expert Board members of the Securities and Exchange Commission
CSR Club of Thai Listed Companies Association	Committee
Thai Institute of Directors (IOD)	Thailand's Private Sector Collective Action Coalition Against Corruption (CAC)

Indonesia

Organization	Status
Corporate Forum for Community Development (CFCD)	Member
Forum for Rehabilitation on Mined Land	Member
Indonesia Mining Association (IMA)	Member
Indonesian Chamber of Commerce and Industry (KADIN)	Member
Indonesian Coal Mining Association (ICMA)	Member
Indonesian Communication Forum of Mining Environmental Management (FKPLPI)	Member
Indonesian Corporate Secretary Association (ICSA)	Member
Indonesian Institute of Accountant (IAI)	Member
Indonesian Public Listed Companies Association	Member
Indonesian Safety Mining Professional Association (APKPI)	Member
The Mines and Energy Society	Member

Mongolia

Organization	Status
American Chamber of Commerce in Mongolia	Committee Member
Cover Mongolia	Committee Member
Mongolian National Chamber of Commerce and Industry	Committee Member

China

Organization	Status
Binzhou Overseas Chinese Entrepreneurs Association	Member
China Association of Enterprises with Foreign Investment	Member
Chinese Thermal & Power Professional Management Association	Member
Henan Association of Enterprises with Foreign Investment	Member
Shandong Electric Power Enterprises Association	Member
Shandong Overseas Chinese Entrepreneurs Association	Member
Shanxi Association of Enterprises with Foreign Investment	Member
Thai Chamber of Commerce in China	Member

Australia

Organization	Status
ACARP Committee re collision avoidance and Proximity detection for underground coal mining machines	Member
ACARP Mine Site Greenhouse Mitigation Committee	Member
ACARP Underground Strata	Industry Advisor
Australian Coal Association Limited Project (ACARP)	Director
Australian Coal Association Limited Project (ACARP) - Research Committee	Member
Australian Coal Association Limited Project (ACARP) - Underground Maintenance Committee	Member
Australian Standards	Member
Australian Taiwan Business Council (ATBC)	Member
Coal 21 Limited	Director
Coal Mining Abatement Technology Support Package (CMATSP) - Project Oversight Committee	Member
Coal Services - NSW Mines Rescue Working Group	Group Member
Coal Services - Airborne Contaminants and Diesel Particulate Sub Committee	Member
Dept. Trade and Investment - Mine Safety/Competency Unit	Convener of the Undermanager examination panel
DII Examinations Committee	Member
EL-023 Committee	Member
Engineers Australia Organisation	Assessor
Executive Committee NSW Minerals Council	Member
Hunter Medical Research Institute Foundation	Member
Hunter TAFE Foundation	Member
MCA Climate Change Committee	Member
MCA Coal Forum	Member
MCA Corporate Affairs Committee	Member
MCA OHS Committee	Member
MCA Public Positioning Committee	Member
MCA Tax Committee	Member
Mine Managers Association of Australia	Vice-President
Mining Competence Board	Board Member
Mining Equipment/Personnel Interaction Advisory Group (MEPIAG)	Chairperson
NCIG Holdings Pty Limited	Director
Newcastle Coal Infrastructure Group (NCIG)	Director
Newcastle Knights Pty Ltd	Director
Northern NSW Rescue Helicopter Service Limited	Director
NSW Freight Advisory Council	Advisory Council Member
NSW Minerals Council Board	Director
NSW Minerals Council Communications Working Group	Member
NSW Minerals Council Executive Committee	Member
NSW Minerals Council Environment and Community Committee	Member
NSW Minerals Council OHS Committee	Member
NSW Underground Geotechnical Society (NUGS)	Executive Committee Member
Port Kembla Coal Terminal Limited	Director
University of Queensland Centre for Mined Land Rehabilitation Advisory Board	Member (advisory position)
Wests Group Australia	Director

Data Boundary

Sustainability Topic	Coal Business			Fuel Procurement Business	Conventional Power Business	Renewable Power Business			Total Solar Energy Solution Business	Office			Coal Business	Gas Business	Conventional Power Business		Total Solar Energy Solutions Business	Energy Storage System Business
Economic Distribution	●	●	●	●	●	●	●	●	●	●	●	●	×	×	×	×	×	×
Business Ethics	●	●	●	●	●	●	●	●	●	●	●	●	×	×	×	×	×	×
Risk Management	●	●	●	●	●	●	●	●	●	●	●	●	×	×	×	×	×	×
Business Continuity Management	●	●	NR	●	●	●	●	●	●	●	●	●	×	×	×	×	×	×
Process Improvement and Innovation	●	●	NR	○	●	●	●	○	●	●	●	○	×	×	×	×	×	×
Supplier Management	●	●	NR	○	○	○	○	○	○	○	○	○	×	×	×	×	×	×
Customer & Product Stewardship	●	●	NR	○	●	●	●	○	○	●	●	○	×	×	×	×	×	×
GHG Emissions	●	●	NR	○	●	●	●	○	●	NR	NR	NR	×	×	×	×	×	×
Energy	●	●	NR	○	●	●	●	○	●	NR	NR	NR	×	×	×	×	×	×
Water	●	●	NR	NR	●	●	●	NR	NR	NR	NR	NR	×	×	×	×	×	×
Air Emissions	●	●	NR	○	●	NR	NR	NR	NR	NR	NR	NR	×	×	×	×	×	×
Waste	●	●	NR	○	●	●	●	○	○	NR	NR	NR	×	×	×	×	×	×
Biodiversity	●	●	NR	NR	●	●	NR	NR	NR	NR	NR	NR	×	×	×	×	×	×
Mine Closure	●	●	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	×	×	×	×	×	×
Mine Subsidence	NR	●	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	×	×	×	×	×	×
Mineral Waste	●	●	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	×	×	×	×	×	×
Specific Waste from Power Plant	◐	NR	NR	NR	●	NR	NR	NR	NR	NR	NR	NR	×	×	×	×	×	×
Environmental Compliance	●	●	●	○	●	●	●	●	○	NR	NR	NR	×	×	×	×	×	×
Employee Management	●	◐	◐	○	●	●	◐	◐	●	●	◐	◐	×	×	×	×	×	×
Corporate Culture	◐	◐	◐	○	◐	◐	◐	◐	●	●	◐	◐	×	×	×	×	×	×
Human Capital Development	●	●	●	○	●	●	●	●	●	●	●	●	×	×	×	×	×	×
Occupational Health and Safety	●	○	●	○	●	●	○	○	◐	●	○	○	×	×	×	×	×	×
Community Engagement	●	●	NR	NR	NR	○	NR	NR	NR	NR	NR	NR	×	×	×	×	×	×
Community Development	●	NR	NR	NR	◐	NR	NR	NR	NR	NR	NR	NR	×	×	×	×	×	×
Resettlement	●	●	NR	NR	●	●	●	NR	NR	NR	NR	NR	×	×	×	×	×	×
Indigenous Peoples	●	●	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	×	×	×	×	×	×
Human Rights	◐	◐	○	○	◐	◐	◐	○	◐	◐	○	○	×	×	×	×	×	×
Social Compliance	●	●	○	○	○	○	○	○	○	NR	NR	NR	×	×	×	×	×	×
Corporate Philanthropy	●	●	○	○	●	●	●	○	●	●	●	●	×	×	×	×	×	×

● Management approach and performance data cover such business.

◐ Management approach covers such business but performance data cover partially.

○ Management approach covers such business but performance data have not covered.

NR No significant or no relevance to such business.

× Management approach and performance data do not cover such business due to less than 50% of shares and no management control.

Performance Data

Economic Performance

	2015	2016	2017	2018
Revenues (USD million)	2,477	2,259	2,877	3,481
EBITDA[a] (USD million)	469	540	968	1,178
Net Profit (USD million)	(43)	47	234	205
Gross Profit Margin	32%	33%	39%	35%
Interest Coverage Ratio	5.9	5.3	5.7	3.8
Net Debt to Equity Ratio	1.40	0.99	0.99	1.07

[a] Earnings before interest, taxes, depreciation, and amortization

Tax Payment - by Country

	2015	2016	2017	2018
Indonesia				
• Net Profit before Tax (USD million)	139	192	362	367
• Income Tax[a] (USD million)	(76)	(61)	(109)	(109)
• Income Tax Paid (USD million)	(103)	(132)	(60)	(109)
• Income Tax Rate	25%	25%	25%	25%
China				
• Net Profit before Tax (RMB million)	369	385	257	126
• Income Tax[a] (RMB million)	(102)	(96)	(67)	(31)
• Income Tax Paid (RMB million)	(112)	(107)	(52)	(50)
• Income Tax Rate	25%	25%	25%	25%
Banpu[b]				
• Net Profit before Tax (USD million)	82	166	477	504
• Income Tax[a] (USD million)	(98)	(69)	(134)	(189)
• Income Tax Paid (USD million)	(112)	(145)	(97)	(135)
• Income Tax Rate	20%	20%	20%	20%

[a] Consisting of Corporate Income Tax, Withholding Tax and Deferred Tax
[b] Consolidated

Economic Distributions

	2015	2016	2017	2018
Percentage of Dividend Paid and Net Profit	NA[a]	151%	35%	55%
Dividends (USD million)	92	72	83	112
Operating Cost[b] (USD million)	1,137	1,034	1,177	1,601
Employee Wages and Benefits[c] (USD million)	347	295	385	325
Payment to Providers of Capital[d] (USD million)	130	130	140	175
Payment to Government[e] (USD million)	337	288	402	480
Community and Social Investment[f] (USD million)	9	10	10	12
Environmental Investment[g] (USD million)	15	12	18	22

[a] Revenues lost but dividends was paid
[b] Includes operating cost for suppliers and contractors
[c] Includes salary, wage, welfare, provident fund contribution and employee development expense
[d] Includes interest expense and financial expense
[e] Includes royalty fee, corporate income tax and local maintenance tax, property tax, specific business tax and other taxes
[f] Includes expense for community development, corporate social responsibility activity and land compensation
[g] Includes expense for environmental management

Business Ethics

	2015	2016	2017	2018
Number of Significant Corporate Governance Complaints	0	0	0	0
Number of Significant Violation against Business Ethics				
• Corruption	0	0	0	0
• Use of Company Information	0	0	0	0
• Giving and Receiving Bribes	0	0	0	0
• Human Rights	0	0	0	0
• Tax Payment	0	0	0	0

Risk Management

	2015	2016	2017	2018
Coverage of Risk Management System	100%	100%	100%	100%
Proportion of Business Units having Key Risk Indicators	100%	100%	100%	100%

Business Continuity Management

	2015	2016	2017	2018
Accumulate Percentage of Conducting the First BCP Drill at Country Level	0%	0%	0%	33%

Process Improvement and Innovation

	2015	2016	2017	2018
Monetary Value Creation from Innovation (USD million)	129	240	76	114

Supplier Management

	2015	2016	2017	2018
Number of Suppliers				
• All Suppliers	-	-	-	3,056
• Critical Suppliers	-	-	-	19[a]
Proportion of Critical Suppliers assessed on Sustainability Risks				
• All Critical Suppliers	-	-	-	100%[a]
• New Critical Suppliers	-	-	-	100%[a]
Proportion of Spending on Local Suppliers	-	-	-	49%
• Indonesia	-	-	-	94%
• Australia	-	-	-	42%

[a] Data from coal business in Indonesia only

Customer and Product Stewardship

	2015	2016	2017	2018
Proportion of Customer Complaints being Timely Handled	-	-	100%	100%
Number of Complaints				
• Customer Privacy	-	-	0	0
• Safety and Environmental Issues from the Use of Products	-	-	0	0

Product

Coal Business	2015	2016	2017	2018
Finished Coal[a] (tonnes)	40,584,950	40,069,424	36,311,551	35,303,278
Power Business				
Electricity Sold[a] (MWh)	1,455,954	1,531,993	1,691,107	1,715,684
Steam Sold[a] (MWh)	3,634,782	4,017,692	4,236,338	3,975,903
Heat Sold[a] (MWh)	352,706	341,357	444,362	546,686
Total Solar Energy Solution Business				
Electricity Sold (MWh)	-	-	-	182

[a] Adjusted data from the previous report

GHG Emissions[a]

Coal Business	2015	2016	2017	2018
GHG Emissions (tonnes CO_2e)	4,341,576	4,387,280	4,752,727	5,163,393[b]
• Scope 1	4,086,283	4,149,489	4,501,535	4,622,736[b]
• Scope 1 (Biogenic)	-	-	-	283,352[b]
• Scope 2	255,293	237,791	251,192	257,305[b]
GHG Emissions Intensity[c] (tonnnes CO_2e/tonnes finished coal)	0.107	0.109	0.131	0.146[b]
Power Business				
GHG Emissions (tonnes CO_2e)	3,177,885	3,681,906	3,650,542	3,824,124
• Scope 1	3,177,803	3,681,214	3,648,340	3,821,632
• Scope 2	82	692	2,202	2,492
GHG Emissions Intensity[c] (tonnnes CO_2e/MWh)	0.584	0.625	0.573	0.613
• Electricity Generation	1.038	1.067	0.954	0.991
• Steam & Heat Generation	0.418	0.470	0.435	0.470
GHG Emissions Intensity - China[d] (tonnnes CO_2e/MWh)				
• for All Generation Capacity	0.584	0.625	0.574	0.615
• for Fossil Generation Capacity	0.584	0.631	0.591	0.635
GHG Emissions Intensity - Japan[d] (tonnnes CO_2e/MWh)				
• for All Generation Capacity	-	-	0	0
• for Fossil Generation Capacity	-	-	NA	NA
SF_6 Emissions (tonnes CO_2e)	-	-	-	110
Total Solar Energy Solution Business				
GHG Emissions (tonnes CO_2e)	-	-	-	13
• Scope 1	-	-	-	13
• Scope 2	-	-	-	0
GHG Emissions Intensity[c] (tonnnes CO_2e/MWh)	-	-	-	0.073
• Electricity Generation	-	-	-	0.073
• Steam & Heat Generation	-	-	-	NA

[a] Adjusted data from the previous report in accordance with GRI 305 (2016)

[b] Due to a different reporting year between the Company (a calendar year) and Australian operation (a June fiscal year), data of Australia for July-December are not official and under the audit process by Australian Federal Government.

[c] Scope 1 & 2

[d] Scope 1

Energy[a]

Coal Business	2015	2016	2017	2018
Total Energy Consumption (TJ)	13,163	12,186	13,417	16,590[b]
Renewable Energy Consumption (TJ)				
• Renewable Fuel[c]	0	0	0	409[b]
• Electricity Purchased	0	0	0	0
• Electricity Self-generated	0	0	0	0
Non-renewable Energy Consumption (TJ)				
• Non-renewable Fuel[d]	12,088	11,171	12,338	15,062[b]
• Electricity Purchased	1,075	1,015	1,079	1,119[b]
• Steam, Heat and Cooling	0	0	0	0
Energy Consumption Intensity (GJ/tonnes finished coal)	0.32	0.30	0.37	0.47[b]
Power Business				
Total Energy Consumption (TJ)	10,461	10,866	10,545	10,721
Renewable Energy Consumption (TJ)				
• Renewable Fuel[c]	0	0	0	0
• Electricity Purchased	0	0	0	0
• Electricity Self-generated	0.16	196.84	718.08	814.61
Non-renewable Energy Consumption (TJ)				
• Non-renewable Fuel[d]	30,057	31,874	32,756	32,354
• Electricity Purchased	0.34	2.82	9.01	10.36
• Steam, Heat and Cooling	0	0	0	0
Renewable Energy Sold (TJ)				
• Electricity	0	195	701	809
Non-renewable Energy Sold (TJ)				
• Electricity	5,241	5,320	5,387	5,368
• Steam	13,085	14,464	15,251	14,313
• Heat	1,270	1,229	1,600	1,968
Energy Consumption Intensity (GJ/MWh)	1.92	1.84	1.65	1.72
Total Solar Energy Solution Business				
Total Energy Consumption (TJ)	-	-	-	0
Renewable Energy Consumption (TJ)				
• Renewable Fuel[c]	-	-	-	0
• Electricity Purchased	-	-	-	0
• Electricity Self-generated	-	-	-	0.65
Renewable Energy Sold (TJ)				
• Electricity	-	-	-	0.65
Energy Consumption Intensity (GJ/MWh)	-	-	-	0

[a] Adjusted data from the previous report in accordance with GRI 302 (2016)

[b] Due to a different reporting year between the Company (a calendar year) and Australian operation (a June fiscal year), data of Australia for July-December are not official and under the audit process by Australian Federal Government.

[c] Renewable fuel such as biomass and ethanol

[d] Non-renewable fuel such as coal, diesel, gasoline, methane vented/flared, petroleum based oil and grease, and natural gas

Air Emissions

Coal Business	2015	2016	2017	2018
Air Emissions Load[(a)] (tonnes)				
• NO_x	-	562	934	672
• SO_2	-	47	128	228
• PM	-	409	413	383
Air Emissions Intensity (Kg/tonnes finished coal)				
• NO_x	-	0.0140	0.0257	0.0190
• SO_2	-	0.0012	0.0035	0.0065
• PM	-	0.0102	0.0114	0.0108
Ozone-depleting Substances (Kg CFC-11e)				
• ODS Consumption	-	85	87	132
Power Business				
Air Emissions Load[(a)] (tonnes)				
• NO_x	908	639	455	323
• SO_2	810	633	174	149
• PM	144	91	35	24
Air Emissions Intensity - for All Generation Capacity (Kg/MWh)				
• NO_x	-	0.1085	0.0714	0.0517
• SO_2	-	0.1075	0.0273	0.0239
• PM	-	0.0154	0.0055	0.0038
Air Emissions Intensity - for Fossil Generation Capacity (Kg/MWh)				
• NO_x	-	0.1095	0.0737	0.0536
• SO_2	-	0.1084	0.0282	0.0248
• PM	-	0.0156	0.0057	0.0039
Ozone-depleting Substances (Kg CFC-11e)				
• ODS Consumption	-	0	0	0

[(a)] Adjusted data from the previous report

Water

Coal Business	2015	2016	2017	2018
Water Withdrawal (ML)				
• from All Areas[a]	358,536	350,354	437,389	1,022,935
• from Water Stress Area	-	-	-	NA
Water Withdrawal (ML)				
• Surface Water[a]	333,313	325,668	417,493	999,982
• Groundwater	24,237	23,273	17,652	20,797
• Seawater	332	779	1,700	1,555
• Produced Water	0	0	0	0
• Third-party Water	655	634	544	601
Water Withdrawal - from water stress area (ML)				
• Surface Water[a]	-	-	-	NA
• Groundwater	-	-	-	NA
• Seawater	-	-	-	NA
• Produced Water	-	-	-	NA
• Third-party Water	-	-	-	NA
Third-party Water Withdrawal - from water stress area (ML)				
• Surface Water[a]	-	-	-	NA
• Groundwater	-	-	-	NA
• Seawater	-	-	-	NA
• Produced Water	-	-	-	NA
Water Discharge (ML)				
• to All Areas[a]	342,878	342,341	432,398	1,018,058
• to Water Stress Area	-	-	-	NA
Water Discharge (ML)				
• Surface Water[a]	342,629	341,660	430,959	1,016,667
• Groundwater	0	0	0	0
• Seawater	249	680	1,439	1,392
• Third-party Water	0	0	0	0
Water Consumption[b] (ML)				
• All Areas	15,659	8,014	4,991	4,877
• Water Stress Area	-	-	-	NA
Water Consumption Intensity (m^3/tonnes finished coal)	0.386	0.200	0.137	0.138
Water Recycled/Reused (ML)	232	155	521	3,669
Change in Water Storage (ML)	-	-	-	NA

[a] Includes unused rainwater as amount of rainwater specifically consumed by mining activities cannot be separated.
[b] Water consumption is calculated in accordance with GRI 303 (2018)

Power Business	2015	2016	2017	2018
Water Withdrawal (ML)				
• from All Areas	7,874	8,121	8,563	7,838
• from Water Stress Area	-	-	-	7,838
Water Withdrawal (ML)				
• Surface Water	4,576	5,330	6,056	5,076
• Groundwater	3,298	2,790	2,508	2,761
• Seawater	0	0	0	0
• Produced Water	0	0	0	0
• Third-party Water	0	0	0.5	1
Water Withdrawal - from water stress area (ML)				
• Surface Water	-	-	-	5,076
• Groundwater	-	-	-	2,761
• Seawater	-	-	-	0
• Produced Water	-	-	-	0
• Third-party Water	-	-	-	1
Third-party Water Withdrawal - from water stress area (ML)				
• Surface Water	-	-	-	1
• Groundwater	-	-	-	0
• Seawater	-	-	-	0
• Produced Water	-	-	-	0
Water Discharge (ML)				
• to All Areas	463	744	712	960
• to Water Stress Area	-	-	-	960
Water Discharge (ML)				
• Surface Water	0	0	0	0
• Groundwater	0	0	0	0
• Seawater	0	0	0	0
• Third-party Water	463	744	712	960
Water Consumption[(b)] (ML)				
• All Areas	7,411	7,377	7,851	6,878
• Water Stress Area	-	-	-	6,878
Water Consumption Intensity (m^3/MWh)	1.362	1.252	1.232	1.103
Water Recycled/Reused (ML)	-	602	602	494
Change in Water Storage (ML)	-	-	-	NA

[(b)] Water consumption is calculated in accordance with GRI 303 (2018)

Waste

Coal Business[c]	2015	2016	2017	2018
Hazardous Waste (tonnes)				
• Hazardous Waste Transported	-	-	-	3,033
• Hazardous Waste Imported	-	-	-	0
• Hazardous Waste Exported	-	-	-	0
• Hazardous Waste Treated	-	-	-	3,626
Hazardous Waste Treated[a] (tonnes)	1,816	1,634	1,670	3,626
• Reuse	1,805	1,618	1,645	1,076
• Recycling	0	0	0	1,962
• Incineration	0	0	0	435
• Landfill	0	0	0	0
• Others	11	16	25	154
Non-hazardous Waste Treated[a] (tonnes)	4,978	3,591	3,522	4,879
• Reuse	2,469	1,197	1,328	0
• Recycling	0	0	0	2,137
• Incineration	0	0	0	1
• Landfill	2,509	2,394	2,194	2,678
• Others	0	0	0	62
Percentage of Waste Shipped Internationally	-	-	-	0%
Power Business[d]				
Hazardous Waste (tonnes)				
• Hazardous Waste Transported	-	-	-	113
• Hazardous Waste Imported	-	-	-	0
• Hazardous Waste Exported	-	-	-	0
• Hazardous Waste Treated	-	-	-	113
Hazardous Waste Treated[a] (tonnes)	-	2	60	113
• Reuse	-	-	-	0
• Recycling	-	2[b]	5[b]	10
• Recovery	-	0	0	101
• Incineration	-	0	0	3
• Landfill	-	0	0	0
• Others		0	55	0
Non-hazardous Waste Treated[a] (tonnes)	1,020	383	130[a]	2,589
• Reuse	0	0	0	0
• Recycling	1,020	383	130[a]	808
• Composting	-	-	-	1
• Recovery	-	-	-	236
• Incineration	-	-	0	0
• Landfill	-	-	0	1,517
• Others	-	-	0	27
Percentage of Waste Shipped Internationally	-	-	-	0%

[a] Adjusted data from the previous report
[b] Includes reuse of hazardous waste
[c] Excludes overburden and tailing
[d] Excludes ash and gypsum

Biodiversity

Coal Business	2015	2016	2017	2018
Number of Operations in relation to Protected Area	6	6	6	6
• In the Area	0	0	0	0
• Adjacent to	0	0	0	0
• Containing Portions	6	6	6	6
Number of Operations in relation to High Biodiversity Value Area[(a)]	1	1	1	1
• In the Area	1	1	1	1
• Adjacent to	0	0	0	0
• Containing Portions	0	0	0	0
Number of Operations Assessed for Biodiversity Value	7	7	7	7
Number of Operations Required Biodiversity Management Plan	7	7	7	7
Number of Operations Implemented Biodiversity Management Plan	7	7	7	7
Biodiversity Offset Area (Hectares)	-	-	-	4,947

[(a)] Adjusted data from the previous report

Mine Closure Plan

Coal Business	2015	2016	2017	2018
Number of Mine Sites having Mine Closure Plan	-	-	-	10
• Indonesia	-	-	-	5
• Australia	-	-	-	5
Number of Mine Sites during Mine Closure Stage	-	-	-	5
• Indonesia	-	-	-	1
• Australia	-	-	-	4
Number of Mine Sites have been Closed	-	-	-	4
• Indonesia	-	-	-	0
• Australia	-	-	-	4
Coverage of Mine Site having Mine Closure Plan	-	-	-	100%
Progress of Mine Closure Activities against Plan	-	-	-	99.4%
Land Used (Hectares)				
• Land Own at the End of Reporting Year	119,997	95,960	90,648	83,442
• Disturbed Area (yearly)	1,551	950	910	836
• Disturbed Area (accumulate)	22,254	23,221	24,048	24,737
• Rehabilitated Area (yearly)	693	811	596	660
• Rehabilitated Area (accumulate)	10,573	11,384	11,980	12,640
• Land Disturbed and Not Yet Rehabilitated	-	-	-	24,077
Ratio of Actual Disturbed Area to Actual Land Own	18.5%	24.2%	26.5%	29.6%

Mine Subsidence

Coal Business	2015	2016	2017	2018
Number of Reports related to Mine Subsidence	-	-	0	0
Coverage of Underground Mine having Subsidence Management Plan	-	-	100%	100%

Mineral Waste

Coal Business	2015	2016	2017	2018
Overburden[a] (million BCM)	246	201	236	265
Percentage of In-pit Backfilled[a]	-	-	40%	88%
Tailings (dry tonnes)	-	322,843	333,596	295,066
Proportion of Mine having Acid Mine Water Management Plan	100%	100%	100%	100%

[a] Data from coal business in Indonesia only

Specific Waste from Power Plant

Coal Business[a]	2015	2016	2017	2018
Ash (tonnes)	2,866	4,048	6,581	1,134
• Reuse	2,866	4,048	6,581	1,134
• Recycling	0	0	0	0
• Landfill	0	0	0	0
• On-site Storage	0	0	0	0
• Others	0	0	0	0
Percentage of Ash Reused	100%	100%	100%	100%
Power Business				
Ash (tonnes)	605,462	617,405	627,167	619,138
• Reuse	605,462	617,405	571,402	619,138
• Recycling	0	0	0	0
• Landfill	0	0	0	0
• On-site Storage	0	0	0	0
• Others	0	0	55,765	0
Percentage of Ash Reused	100%	100%	91%	100%
Gypsum (tonnes)	-	-	53,306	90,346
• Reuse	-	-	53,306	90,346
• Recycling	-	-	0	0
• Landfill	-	-	0	0
• On-site Storage	-	-	0	0
• Others	-	-	0	0
Percentage of Gypsum Reused	-	-	100%	100%

[a] Adjusted data from the previous report

Environmental Compliance

Coal Business	2015	2016	2017	2018
Number of Incidents of Non-compliance				
• Effluent Discharge Limits	0	0	0	0
• Air Emission Standards	0	0	0	0
Number of Significant Fines[b]	2[a]	2	2	0
Total Amount of Significant Fines (USD)	1,043,964	23,385[a]	23,385	0
Non-monetary Sanctions	0	0	0	0
Cases brought through Dispute Mechanisms	0	0	0	0
Number of Significant Spills[b]	3	1	1	0
Total Amount of Significant Spills (Liter)	180,452	NA[c]	100	0
Power Business				
Number of Incidents of Non-compliance				
• Effluent Discharge Limits	0	0	0	0
• Air Emission Standards	0	0	0	0
Number of Significant Fines[b]	0	0	1[a]	0
Total Amount of Significant Fines (USD)	0	0	14,757[a]	0
Non-monetary Sanctions	0	0	0	0
Cases brought through Dispute Mechanisms	0	0	0	0
Number of Significant Spills[b]	0	0	0	0
Total Amount of Significant Spills (Liter)	0	0	0	0

[a] Adjusted data from the previous report

[b] Significant environmental incident referred to internal definition with minimum criteria such as any damage to widespread area or potential fines that is greater than or equal to USD 10,000.

[c] Unknown exact volume of spill

Employee

	2015	2016	2017	2018
Employee - Total	5,505	5,675	5,780	5,963
Employee - by Country				
• Thailand	5.5%	5.5%	6.0%	6.3%
• Indonesia	49.7%	49.8%	48.3%	47.7%
• China	16.1%	16.0%	16.1%	15.8%
• Australia	25.6%	26.0%	27.0%	27.9%
• Mongolia	2.5%	2.2%	2.1%	1.6%
• Singapore	-	0.3%	0.3%	0.3%
• Japan	-	0.1%	0.1%	0.3%
• Lao PDR	-	0.1%	0.1%	0.1%
• Vietnam	-	-	-	0.03%
Employee - by Gender				
• Male	85.9%	86.2%	86.2%	86.0%
• Female	14.1%	13.8%	13.8%	14.0%
Employee - by Nationality				
• Thai	7.2%	7.1%	7.5%	7.9%
• Indonesian	48.6%	48.7%	47.3%	46.6%
• Chinese	16.0%	15.9%	16.0%	15.6%
• Australian	25.7%	26.0%	27.0%	28.0%
• Mongolian	2.3%	2.0%	1.9%	1.5%
• Singaporean	-	0.1%	0.1%	0.1%
• Japanese	-	0.1%	0.1%	0.1%
• Others	-	0.1%	0.1%	0.2%
Employee - by Age				
• Under 30 years	20.0%	17.9%	17.0%	15.1%
• 30-39 years	38.7%	39.5%	39.3%	38.5%
• 40-49 years	27.5%	28.1%	30.4%	30.9%
• Over 50 years	13.8%	14.5%	15.2%	15.5%
Employee - by Type				
• Permanent	94.9%	91.7%	90.7%	92.0%
• Temporary	5.1%	8.3%	9.3%	8.0%
Employee - by Level				
• Senior Management	0.9%	0.8%	1.0%	1.2%
• Middle Management	5.6%	5.3%	7.3%	6.7%
• Junior Management	29.1%	28.3%	26.0%	27.1%
• Staff and Supervisor	64.4%	65.6%	65.7%	65.0%
Management - by Gender[(a)]				
• Male	-	-	75.0%	77.3%
• Female	-	-	25.0%	22.7%

[(a)] Include Middle and Senior Managements

New Employee

	2015	2016	2017	2018
New Employee - Total	-	136	400	459
New Employee - by Country				
• Thailand	-	25	25	30
• Indonesia	-	5	138	187
• China	-	51	80	61
• Australia	-	46	146	169
• Mongolia	-	8	8	3
• Singapore	-	1	1	4
• Japan	-	0	2	4
• Lao PDR	-	0	0	0
• Vietnam	-	-	-	1
New Employee - by Gender				
• Male	-	103	342	381
• Female	-	33	58	78

Collective Bargaining Agreements

	2015	2016	2017	2018
Percentage of Employees covered by Collective Bargaining Agreements[(a)]				
• Thailand	0%	0%	0%	0%
• Indonesia	92%	48%	65%	75%
• China	0%	0%	0%	0%
• Australia	76%	76%	100%	100%
• Mongolia	0%	0%	0%	0%
• Singapore	0%	0%	0%	0%
• Japan	0%	0%	0%	0%
• Lao PDR	0%	0%	0%	0%
• Vietnam	-	-	-	0%

[(a)] There are labor unions in Indonesia and Australia only.

Corporate Culture

	2015	2016	2017	2018
Level of Alignment between Employee Behavior and the Corporate Culture[(a)]				
• Thailand	-	74%	77%	69%
• Indonesia	-	80%	82%	-
• China	-	95%	99%	-

[(a)] The company has transformed corporate culture from "Banpu Spirit" to "Banpu Heart" in mid-2018. The first survey on the level of alignment between employee behavior and the corporate culture "Banpu Heart" was conducted in Thailand in late 2018.

Employee Management

	2015	2016	2017	2018
Level of Employee Engagement				
• Thailand	-	57%	64%	67%
• Indonesia	-	78%	84%	80%
• China	-	97%	95%	94%
Total Turnover Rate	5.5%	3.8%	5.3%	6.0%
Voluntary Turnover Rate	1.7%	2.2%	2.8%	3.9%
Turnover Rate - by Country				
• Thailand	10.1%	6.6%	5.1%	6.6%
• Indonesia	1.5%	2.8%	4.7%	6.9%
• China	5.7%	4.4%	2.8%	4.7%
• Australia	12.5%	3.4%	4.2%	4.7%
• Mongolia	5.3%	17.9%	18.9%	12.4%
• Singapore	-	0%	0%	6.7%
• Japan	-	0%	0%	0%
• Lao PDR	-	0%	0%	0%
• Vietnam	-	-	-	0%
Employees that take Parental Leave				
• Thailand	-	4	6	2
• Indonesia	-	21	30	NA
• China	-	11	42	36
• Australia	-	4	19	20
• Mongolia	-	2	2	3
• Singapore	-	0	0	1
• Japan	-	0	0	0
• Lao PDR	-	0	0	0
• Vietnam	-	-	-	0
Return to Work after Parental Leave				
• Thailand	100%	100%	100%	100%
• Indonesia	90%	100%	100%	NA
• China	100%	100%	93%	89%
• Australia	80%	100%	95%	100%
• Mongolia	33%	100%	100%	0%
• Singapore	-	-	NA	NA
• Japan	-	-	NA	NA
• Lao PDR	-	-	NA	NA
• Vietnam	-	-	-	NA

Human Capital Development

	2015	2016	2017	2018
Average Cost of Training (USD/Employee)				
• Thailand[a]	-	1,614	1,128	1,488
• Indonesia	-	108	161	172
• China	-	283	211	244
• Australia[b]	-	-	-	-
• Mongolia[b]	-	-	-	-
Average Cost of Training (USD/Employee)				
• Senior Management	-	1,681	929	1,253
• Middle Management	-	1,114	907	1,141
• Junior Management	-	251	396	352
• Staff and Supervisor	-	130	156	133
Average Hours of Training (Hrs/Employee)				
• Thailand[a]	36.8	-	37.0	26.2
• Indonesia	37.9	-	17.5	15.1
• China	24.5	-	20.6	26.9
• Australia[b]	-	-	-	-
• Mongolia[b]	-	-	-	-
Average Hours of Training (Hrs/Employee)				
• Senior Management	35.6	-	14.3	15.6
• Middle Management	32.1	-	25.1	22.5
• Junior Management	52.1	-	24.1	20.7
• Staff and Supervisor	24.0	-	18.8	17.6
Employee having IDP	-	25%	97%	74%
Critical Positions having Succession Plan	-	100%	100%	100%
• Senior Management	-	-	100%	100%
• Middle Management	-	-	100%	100%
Employee attending Leadership Programs (accumulate)	-	-	442	554
Employee attending Leadership Programs (annual)				
• Strategic Leader	-	-	23	0
• Business Leader	-	-	17	19
• First Line Leader	-	-	24	26
• Future Leader[d]	-	-	0	29
• Engaging Leader[d]	-	-	39	38
Success of Leadership Development Programs[c]				
• Strategic Leader	-	-	81%	NA[e]
• Business Leader	-	-	80%	91%
• First Line Leader	-	-	81%	91%
• Future Leader[d]	-	-	NA[e]	90%
• Engaging Leader[d]	-	-	94%	93%

[a] Include Singapore, Japan and Lao PDR
[b] Reporting system under standardization
[c] % Applied learning according to the program evaluation
[d] Data covers only employee in Thailand
[e] No program conducted

Occupational Health and Safety

	2015	2016	2017	2018
Number of Fatalities	1	1	1[b]	1
• Employee	0	0	0	0
• Contractor	1	1	1[b]	1
• Third-party[a]	0	0	1	0
Fatality Rate[c] (person/million man-hour)	-	-	-	0.02
• Employee	-	-	-	0
• Contractor	-	-	-	0.02
Number of Recordable Injury[c] [d] [e]	-	-	-	16
• Employee	-	-	-	2
• Contractor	-	-	-	14
Total Recordable Injury Frequency Rate (TRIFR)[c] [d] [e] (person/million man-hour)	0.39	0.46	0.19	0.28
• Employee	0.75	1.90	0.30	0.29
• Contractor	0.34	0.25	0.18	0.28
Lost Time Injury Frequency Rate (LTIFR)[e] [f] (person/million man-hour)	0.18	0.28	0.10	0.16
• Employee	0.38	1.31	0.15	0.14
• Contractor	0.15	0.13	0.10	0.16
Injury Severity Rate (ISR)[e] [g] (day/million man-hour)	105.65	117.12	107.66	106.05
• Employee	4.64	47.44	1.33	0.71
• Contractor	120.77	127.23	121.67	120.81
Number of Hour Worked[e]	-	-	-	56,943,323
• Employee	-	-	-	6,998,343
• Contractor	-	-	-	49,944,981
Number of Major Incident[h]	5	13	4	5
• Thailand	0	0	0	0
• Indonesia	5	12	4	5
• China	0	1	0	0
• Australia	-	-	-	-
• Mongolia	0	0	0	0

[a] Third-party fatality is not included in the calculation of TRIFR, LTIFR, and ISR

[b] This fatality is classified as non-fatal case according to Indonesian Regulation since the death occurred over 24 hours after accident happened.

[c] Based on GRI 403-9 (2018)

[d] The calculation includes fatalities, but excludes first aids.

[e] Exclude the following data due to reporting system under standardization:
- Employees and contractors in Australia, which is expected to disclosed in Sustainability Report 2019;
- Contractors in China and employees in Beijing Office, which is expected to disclosed in Sustainability Report 2019;
- Employees in offices and barging contractors in Indonesia, which is expected to disclosed in Sustainability Report 2020.
- Barging contractors in Thailand, which is expected to disclosed in Sustainability Report 2024.

[f] The calculation of LTIFR includes fatalities and lost time injuries

[g] Include the number of actual lost day and calculated lost day which the lost day count begins the day after accident happened until worker can return to work. Calculated lost day refers to American National Standards Institute (ANSI) standard, for example 6,000 days for fatality.

[h] Major Incident includes fatality and/or property damage with cost exceeding USD 100,000.

Occupational Health and Safety Data 2018

	Thailand	Indonesia	China	Australia	Mongolia
Number of Fatalities					
• Employee	0	0	0	-	0
• Contractor	0	1	-	-	0
Fatality Rate (person/million man-hour)					
• Employee	0	0	0	-	0
• Contractor	0	0.02	-	-	0
Number of Recordable Injury					
• Employee	0	2	0	-	0
• Contractor	1	13	-	-	0
TRIFR (person/million man-hour)					
• Employee	0	0.27	0	-	0
• Contractor	15.56	0.26	-	-	0
LTIFR (person/million man-hour)					
• Employee	0	0.24	0	-	0
• Contractor	15.56	0.14	-	-	0
ISR (day/million man-hour)					
• Employee	0	1.18	0	-	0
• Contractor	155.58	121.14	-	-	0
Number of Hour Worked					
• Employee	742,944	4,252,067	1,770,760	-	232,572
• Contractor	64,276	49,727,441	-	-	153,264

Community Engagement

	2015	2016	2017	2018
Number of Significant Complaints	-	0	0	1
Proportion of Significant Complaints that are Handled	-	NA[(a)]	NA[(a)]	0%

[(a)] No significant complaint

Community Development

	2015	2016	2017	2018
Cumulative Coverage of Stakeholder's Satisfaction Survey on Community Development Projects	20%	40%	80%	100%
Average Stakeholder's Satisfaction Level on Community Development Projects	54%	44%	67%	68%

Resettlement

	2015	2016	2017	2018
Number of Resettlements	-	-	-	0
Number of Resettlement Complaints	-	-	-	0

Indigenous Peoples

	2015	2016	2017	2018
Number of Violations of Indigenous Peoples' Rights	-	0	0	0

Human Rights

	2015	2016	2017	2018
Number of Significant Human Rights Complaints	-	-	-	0
Coverage of Business Units being Assessed for Human Rights Risks	-	-	-	100%
Ratio of the Operations that Found Human Rights Risks having Risk Management Plans	-	-	-	100%

Social Compliance

	2015	2016	2017	2018
Number of Significant Social Non-compliance	-	-	-	0
Number of Significant Fines	-	-	-	0

Corporate Philanthropy

	2015	2016	2017	2018
Coverage of Philanthropy Activities	-	-	-	100%

Contributions to External Organizations and Associations

	2015	2016	2017	2018
Political Party or Political Interest (USD million)	-	-	-	0
Trade Association or Non-Governmental Organizations (USD million)	-	-	-	0.54

GRI Content Index

Disclosure	Description	Page	Detail/Omission	External Assurance
GRI 101: Foundation (2016)				
GRI 102: General Disclosures (2016)				
Organizational Profile				
102-1	Name of the organization	Front cover		-
102-2	Activities, brands, products, and services	6-7, 10-13		-
102-3	Location of headquarters	Back cover		-
102-4	Location of operations	8-9		-
102-5	Ownership and legal form	126-127		-
102-6	Markets served	8-13, 20-21		-
102-7	Scale of the organization	126-127, 133, 144		-
102-8	Information on employees and other workers	144, 148-149		-
102-9	Supply chain	48-51		-
102-10	Significant changes to the organization and its supply chain	4, 126-127		-
102-11	Precautionary Principle or approach	40-43		-
102-12	External initiatives	19		-
102-13	Membership of associations	130-131		-
EU1[E]	Installed capacity, broken down by primary energy source and by regulatory regime	126-127		-
EU2[E]	Net energy output broken down by primary energy source and by regulatory regime	126-127		-
EU3[E]	Number of residential, industrial, institutional and commercial customer accounts	-		-
Strategy				
102-14	Statement from senior decision-maker	2-3		-
102-15	Key impacts, risks, and opportunities	20-21, 40-43		-
Ethics and Integrity				
102-16	Values, principles, standards, and norms of behavior	38-39		-
102-17	Mechanisms for advice and concerns about ethics	39		-
Governance				
102-18	Governance structure	16-18		-
102-19	Delegating authority	16-18		-
102-20	Executive-level responsibility for economic, environmental, and social topics	22-24		-
102-21	Consulting stakeholders on economic, environmental, and social topics	26-28		-
102-22	Composition of the highest governance body and its committees	16-17		-
102-23	Chair of the highest governance body	16		-
102-24	Nominating and selecting the highest governance body	17		-
102-25	Conflicts of interest	16, 38		-
102-26	Role of highest governance body in setting purpose, values, and strategy	16, 22-23		-
102-27	Collective knowledge of highest governance body	17-18		-

Disclosure	Description	Page	Detail/Omission	External Assurance
102-28	Evaluating the highest governance body's performance	18, 24		-
102-29	Identifying and managing economic, environmental, and social impacts	22-23, 26-28		-
102-30	Effectiveness of risk management processes	22, 40-42		-
102-31	Review of economic, environmental, and social topics	22		-
102-32	Highest governance body's role in sustainability reporting	22		-
102-33	Communicating critical concerns	22, 40-41		-
102-34	Nature and total number of critical concerns	29-31		-
102-35	Remuneration policies	18, 24		-
102-36	Process for determining remuneration	18, 24		-
102-37	Stakeholders' involvement in remuneration	-		-
102-38	Annual total compensation ratio	-		-
102-39	Percentage increase in annual total compensation ratio	-		-
Stakeholder Engagement				
102-40	List of stakeholder groups	27-28		-
102-41	Collective bargaining agreements	121		-
102-42	Identifying and selecting stakeholders	26		-
102-43	Approach to stakeholder engagement	27-28		-
102-44	Key topics and concerns raised	27-28		-
Reporting Practice				
102-45	Entities included in the consolidated financial statements	126-127		-
102-46	Defining report content and topic Boundaries	29-31		-
102-47	List of material topics	31		-
102-48	Restatements of information	5		-
102-49	Changes in reporting	4-5		-
102-50	Reporting period	4		-
102-51	Date of most recent report	4		-
102-52	Reporting cycle	4		-
102-53	Contact point for questions regarding the report	5		-
102-54	Claims of reporting in accordance with the GRI Standards	4		-
102-55	GRI content index	151-157		-
102-56	External assurance	5, 158-159		-

Economic				
GRI 201: Economic Performance (2016)				
103-1	Explanation of the material topic and its Boundary	36		-
103-2	The management approach and its components	36		-
103-3	Evaluation of the management approach	37		-
201-1	Direct economic value generated and distributed	133		-
201-2	Financial implications and other risks and opportunities due to climate change	43		-
201-3	Defined benefit plan obligations and other retirement plans	93		-

Disclosure	Description	Page	Detail/Omission	External Assurance
GRI 203: Indirect Economic Impacts (2016)				
103-1	Explanation of the material topic and its Boundary	36		-
103-2	The management approach and its components	36		-
103-3	Evaluation of the management approach	37		-
203-1	Infrastructure investments and services supported	37		-
203-2	Significant indirect economic impacts	36		-
GRI 204: Procurement Practices (2016)				
103-1	Explanation of the material topic and its Boundary	48		-
103-2	The management approach and its components	48		-
103-3	Evaluation of the management approach	49		-
204-1	Proportion of spending on local suppliers	134		-
GRI 205: Anti-corruption (2016)				
103-1	Explanation of the material topic and its Boundary	38		-
103-2	The management approach and its components	38		-
103-3	Evaluation of the management approach	39		-
205-1	Operations assessed for risks related to corruption	39		-
205-2	Communication and training about anti-corruption policies and procedures	38		-
205-3	Confirmed incidents of corruption and actions taken	134		-
GRI-G4 Sector Disclosure: System Efficiency				
EU11[E]	Average generation efficiency of thermal plants by energy source and by regulatory regime	-		-

Environment				
GRI 302: Energy (2016)				
103-1	Explanation of the material topic and its Boundary	62		Yes
103-2	The management approach and its components	63		Yes
103-3	Evaluation of the management approach	64-65		Yes
302-1	Energy consumption within the organization	136		Yes
302-3	Energy intensity	136		Yes
302-4	Reduction of energy consumption	65		-
GRI 303: Water and Effluents (2018)				
103-1	Explanation of the material topic and its Boundary	66		-
103-2	The management approach and its components	67-68		-
103-3	Evaluation of the management approach	68-69		-
303-1	Interactions with water as a shared resource	67-68		-
303-2	Management of water discharge-related impacts	67-68		-
303-3	Water withdrawal	138-139		-
303-4	Water discharge	138-139		-
303-5	Water consumption	138-139		-

Disclosure	Description	Page	Detail/Omission	External Assurance
GRI 304: Biodiversity (2016)				
103-1	Explanation of the material topic and its Boundary	76		-
103-2	The management approach and its components	77		-
103-3	Evaluation of the management approach	78-79		-
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	141		-
304-2	Significant impacts of activities, products, and services on biodiversity	76		-
304-3	Habitats protected or restored	78-79		-
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	77		-
MM1[M]	Amount of land (owned or leased, and managed for production activities or extractive use) disturbed or rehabilitated	141		-
MM2[M]	The number and percentage of total sites identified as requiring biodiversity management plans according to stated criteria, and the number (percentage) of those sites with plans in place	141		-
GRI 305: Emissions (2016)				
103-1	Explanation of the material topic and its Boundary	56, 70		Yes
103-2	The management approach and its components	57-58, 71		Yes
103-3	Evaluation of the management approach	57-61, 72-73		Yes
305-1	Direct (Scope 1) GHG emissions	135		Yes
305-2	Energy indirect (Scope 2) GHG emissions	135		Yes
305-3	Other indirect (Scope 3) GHG emissions	59		-
305-4	GHG emissions intensity	135		Yes
305-5	Reduction of GHG emissions	65		-
305-6	Emissions of ozone-depleting substances (ODS)	135		-
305-7	Nitrogen oxides (NO_x), sulfur oxides (SO_x), and other significant air emissions	137		-
GRI 306: Effluents and Waste (2016)				
103-1	Explanation of the material topic and its Boundary	74		-
103-2	The management approach and its components	74		-
103-3	Evaluation of the management approach	75		-
306-2	Waste by type and disposal method	140		-
306-3	Significant spills	143		-
306-4	Transport of hazardous waste	140		-
MM3[M]	Total amounts of overburden, rock, tailings, and sludges and their associated risks	142		-
GRI 307: Environmental Compliance (2016)				
103-1	Explanation of the material topic and its Boundary	88		-
103-2	The management approach and its components	88		-
103-3	Evaluation of the management approach	89		-
307-1	Non-compliance with environmental laws and regulations	143		-

Disclosure	Description	Page	Detail/Omission	External Assurance
GRI 308: Supplier Environmental Assessment (2016)				
103-1	Explanation of the material topic and its Boundary	48		-
103-2	The management approach and its components	48		-
103-3	Evaluation of the management approach	49-51		-
308-1	New suppliers that were screened using environmental criteria	134		-
308-2	Negative environmental impacts in the supply chain and actions taken	51		-

Social				
GRI 401: Employment (2016)				
103-1	Explanation of the material topic and its Boundary	92		-
103-2	The management approach and its components	92-93		-
103-3	Evaluation of the management approach	93		-
401-1	New employee hires and employee turnover	145-146		-
401-3	Parental leave	146		-
GRI 403: Occupational Health and Safety (2018)				
103-1	Explanation of the material topic and its Boundary	98		Yes
103-2	The management approach and its components	98-100		Yes
103-3	Evaluation of the management approach	100-103		Yes
403-1	Occupational health and safety management system	98		Yes
403-2	Hazard identification, risk assessment, and incident investigation	98-99		Yes
403-3	Occupational health services	99		Yes
403-4	Worker participation, consultation, and communication on occupational health and safety	99		Yes
403-5	Worker training on occupational health and safety	100		Yes
403-6	Promotion of worker health	100		Yes
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	100		Yes
403-8	Workers covered by an occupational health and safety management system	100		-
403-9	Work-related injuries	148-149	Number and rate of high-consequence work-related injuries and main types of work-related injury are unavailable because our data collection system is under standardization. This data will be available in SD Report 2020.	Yes
GRI 404: Training and Education (2016)				
103-1	Explanation of the material topic and its Boundary	96		-
103-2	The management approach and its components	96		-
103-3	Evaluation of the management approach	97		-
404-1	Average hours of training per year per employee	147		-

Disclosure	Description	Page	Detail/Omission	External Assurance
404-2	Programs for upgrading employee skills and transition assistance programs	97		-
404-3	Percentage of employees receiving regular performance and career development reviews	-		-
GRI 411: Rights of Indigenous Peoples (2016)				
103-1	Explanation of the material topic and its Boundary	118		-
103-2	The management approach and its components	118		-
103-3	Evaluation of the management approach	119		-
411-1	Incidents of violations involving rights of indigenous peoples	150		-
MM5[M]	Total number of operations taking place in or adjacent to Indigenous Peoples' territories, and number and percentage of operations or sites where there are formal agreements with Indigenous Peoples' communities	-		-
GRI 412: Human Rights Assessment (2016)				
103-1	Explanation of the material topic and its Boundary	120		-
103-2	The management approach and its components	120-121		-
103-3	Evaluation of the management approach	121		-
412-1	Operations that have been subject to human rights reviews or impact assessments	-		-
GRI 413: Local Communities (2016)				
103-1	Explanation of the material topic and its Boundary	106, 110		-
103-2	The management approach and its components	106-108, 110-111		-
103-3	Evaluation of the management approach	108-109, 112-115		-
413-1	Operations with local community engagement, impact assessments, and development programs	106, 108		-
413-2	Operations with significant actual and potential negative impacts on local communities	106, 108		-
MM6[M]	Number and description of significant disputes relating to land use, customary rights of local communities and Indigenous People	150		-
MM7[M]	The extent to which grievance mechanisms were used to resolve disputes relating to land use, customary rights of local communities and Indigenous Peoples, and the outcomes	108, 118		-
EU22[E]	Number of people physically or economically displaced and compensation, broken down by type of project	117, 150		-
GRI 414: Supplier Social Assessment (2016)				
103-1	Explanation of the material topic and its Boundary	48		-
103-2	The management approach and its components	48		-
103-3	Evaluation of the management approach	49-51		-
414-1	New suppliers that were screened using social criteria	134		-
414-2	Negative social impacts in the supply chain and actions taken	51		-
GRI 416: Customer Health and Safety (2016)				
103-1	Explanation of the material topic and its Boundary	52		-
103-2	The management approach and its components	52-53		-

Disclosure	Description	Page	Detail/Omission	External Assurance
103-3	Evaluation of the management approach	53		-
416-1	Assessment of the health and safety impacts of product and service categories	53		-
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	134		-
EU25[E]	Number of injuries and fatalities to the public involving company assets including legal judgments, settlements and pending legal cases of diseases	-		-
GRI 418: Customer Privacy (2016)				
103-1	Explanation of the material topic and its Boundary	52		-
103-2	The management approach and its components	52-53		-
103-3	Evaluation of the management approach	53		-
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	134		-
GRI 419: Socioeconomic Compliance (2016)				
103-1	Explanation of the material topic and its Boundary	122		-
103-2	The management approach and its components	122-123		-
103-3	Evaluation of the management approach	123		-
419-1	Non-compliance with laws and regulations in the social and economic area	134, 150		-
GRI-G4 Sector Disclosure: Resettlement				
103-1	Explanation of the material topic and its Boundary	116		-
103-2	The management approach and its components	116		-
103-3	Evaluation of the management approach	117		-
MM9[M]	Sites where resettlements took place, the number of households resettled in each, and how their livelihoods were affected in the process	150		-
GRI-G4 Sector Disclosure: Closure Planning				
103-1	Explanation of the material topic and its Boundary	80		-
103-2	The management approach and its components	81		-
103-3	Evaluation of the management approach	81		-
MM10[M]	Number and percentage of operations with closure plans	141		-
GRI-G4 Sector Disclosure: Access				
EU28[E]	Power outage frequency	-		-
EU29[E]	Average power outage duration	-		-
EU30[E]	Average plant availability factor by energy source and by regulatory regime	-		-

Topics not covered by GRI Standards				
Business Ethic				
103-1	Explanation of the material topic and its Boundary	38		-
103-2	The management approach and its components	38		-
103-3	Evaluation of the management approach	39		-

[M] GRI-G4 Mining & Metals Sector Disclosures (2010)
[E] GRI-G4 Electric Utilities Sector Disclosures (2010)

LRQA Assurance Statement

Relating to Banpu Public Company Limited's Sustainability Report for the calendar year 2018

This Assurance Statement has been prepared for Banpu Public Company Limited in accordance with our contract but is intended for the readers of this Report.

Terms of Engagement

Lloyd's Register Quality Assurance Ltd. (LRQA) was commissioned by Banpu Public Company Limited (BANPU) to provide independent assurance on its Sustainability Report 2018 (the Report) against the assurance criteria below to a moderate level of assurance and at the materiality of the professional judgement of the verifier using Accountability's AA1000AS (2008) Type 2 approach.

Our assurance engagement covered BANPU's operations and activities in Australia, China, Indonesia, Japan and Thailand (as Head Office) and specifically the following requirements:

- Evaluating the nature and extent of BANPU's adherence to all three AA1000 AccountAbility Principles - inclusivity, materiality and responsiveness.
- Confirming that the report is in accordance with:
  - GRI Standard and core option,
  - GRI Mining and Metal Sector Disclosures and
  - GRI Electricity and Utilities Sector Disclosures
- Evaluating the reliability of data and information for the selected indicators listed below:

  Environmental:
  - GRI 302-1 Energy Consumption
  - GRI 302-3 Energy Intensity
  - GRI 305-1 GHG Emissions Scope 1
  - GRI 305-2 GHG Emissions Scope 2
  - GRI 305-4 GHG Emissions Intensity

  Social:
  - GRI 403-9 (2018) Work-related Injuries
    Note: LRQA was asked to verify only TRIFR, LTIFR and ISR for the operations in Thailand and Indonesia

LRQA's responsibility is only to BANPU. LRQA disclaims any liability or responsibility to others as explained in the end footnote. BANPU's responsibility is for collecting, aggregating, analysing and presenting all the data and information within the Report and for maintaining effective internal controls over the systems from which the Report is derived. Ultimately, the Report has been approved by, and remains the responsibility of BANPU.

LRQA's Opinion

Based on LRQA's approach nothing has come to our attention that would cause us to believe that BANPU has not:

- Met the requirements above
- Disclosed reliable performance data and information for the selected indicators as no errors or omissions were detected
- Covered all the issues that are important to the stakeholders and readers of this Report.

The opinion expressed is formed on the basis of a moderate level of assurance and at the materiality of the professional judgement of the verifier.

Note: The extent of evidence-gathering for a moderate assurance engagement is less than for a high assurance engagement. Moderate assurance engagements focus on aggregated data rather than physically checking source data at sites.

LRQA's approach

LRQA's assurance engagement was carried out in accordance with Accountability's AA1000AS (2008) Type 2 approach. The following tasks though were undertaken as part of the evidence gathering process for this assurance engagement:

- Assessing BANPU's approach to stakeholder engagement to confirm that issues raised by stakeholders were captured correctly. We did this through reviewing associated records.
- Reviewing BANPU's process for identifying and determining material issues to confirm that the right issues were included in their Report. We did this by benchmarking reports written by BANPU and its peers to ensure that sector specific issues were included for comparability. We also tested the filters used in determining material issues to evaluate whether BANPU makes informed business decisions that may create opportunities that contribute towards sustainable development.

This document is subject to the provision on page 2.

- Auditing BANPU's data management systems to confirm that there were no significant errors, omissions or mis-statements in the Report. We did this by reviewing the effectiveness of data handling procedures, instructions and systems. We also spoke with those key peoples responsible for compiling the data and writing the Report.
- Sampling the consolidated data and information at BANPU's head office in Bangkok and visiting BANPU's Power Plants in China and Coal Mines in Indonesia.

Observations

Further observations and findings, made during the assurance engagement, are:

- Stakeholder inclusivity:
  We are not aware of any key stakeholder groups that have been excluded from BANPU's stakeholder engagement process. However, BANPU should make better use of the output from this engagement process to inform their business decisions and future Reports.
- Materiality:
  We are not aware of any material issues concerning BANPU's sustainability performance that have been excluded from the Report. BANPU continues to re-validate their material issues to ensure that they remain current and relevant.
- Responsiveness:
  BANPU has processes for responding to various stakeholder groups: for example, disclosure of GHG related information to its clients and investors. We understand that future Reports will disclose more data and information related to occupational health and safety management programmes (specifically those associated with operations in Australia and China).
- Reliability:
  BANPU uses well designed spreadsheets and management information systems to collect and calculate the data and information associated with the selected indicators. BANPU should consider interim verification to check the quality of data and information disclosure throughout operations in China and Indonesia.

LRQA's competence and independence

LRQA ensures the selection of appropriately qualified individuals based on their qualifications, training and experience. The outcome of all verification and certification assessments is then internally reviewed by senior management to ensure that the approach applied is rigorous and transparent.

This verification is the only work undertaken by LRQA for BANPU and as such does not compromise our independence or impartiality.

Signed

Dated: 15 February 2019

AA1000
Licensed Assurance Provider
000-11

Opart Charuratana
LRQA Lead Verifier

On behalf of Lloyd's Register Quality Assurance Ltd.
Lloyd's Register International (Thailand) Limited
22nd Floor, Sirinrat Building, 3388/78 Rama IV Road
Klongton, Klongtoey, Bangkok 10110 THAILAND

LRQA reference: BGK00000233A

Feedback Form for Sustainability Report 2018

BANPU

Please provide your feedback by scanning this QR Code
or send this feedback form to the address specified at the back cover or e-mail to Sustainability@banpu.co.th.

1. Please specify your relationship with Banpu.

- ☐ Employee
- ☐ Community
- ☐ Customer
- ☐ Government
- ☐ Supplier
- ☐ Contractor
- ☐ Financial institution
- ☐ Business partner
- ☐ Shareholder
- ☐ Investor
- ☐ NGOs
- ☐ Other (Please specify.....)

2. How did you receive this report?

- ☐ Annual general meeting
- ☐ Banpu's website
- ☐ Banpu's employee
- ☐ Seminar
- ☐ Other (Please Specify.....)

3. What is your reason for reading this report?

- ☐ To support investment decision
- ☐ To understand Banpu's business
- ☐ For research and education purposes
- ☐ Other (Please Specify.....)

4. Please indicate the topic(s) that you are interested in.

Economy

- ☐ Economic Distribution
- ☐ Business Ethics
- ☐ Risk Management
- ☐ Business Continuity Management
- ☐ Process Improvement and Innovation
- ☐ Supplier Management
- ☐ Customer & Product Stewardship

Environment

- ☐ GHG Emissions
- ☐ Energy
- ☐ Water
- ☐ Air Emissions
- ☐ Waste
- ☐ Biodiversity
- ☐ Mine Closure
- ☐ Mine Subsidence
- ☐ Mineral Waste
- ☐ Specific Waste from Power Plants
- ☐ Environmental Compliance

Our People & Society

- ☐ Employee Management
- ☐ Corporate Culture
- ☐ Human Capital Development
- ☐ Occupational Health and Safety
- ☐ Community Engagement
- ☐ Community Development
- ☐ Resettlement
- ☐ Indigenous Peoples
- ☐ Human Rights
- ☐ Social Compliance
- ☐ Corporate Philanthrophy

5. In your opinion, does the report cover all material topics?

- ☐ Yes
- ☐ No

If no, please specify topic(s) that should be included.

.....

.....

6. Please rate your satisfaction towards our Sustainability Report 2018.

Completeness	☐ High	☐ Medium	☐ Low	☐ Dissatisfied
Materiality	☐ High	☐ Medium	☐ Low	☐ Dissatisfied
Attractive content	☐ High	☐ Medium	☐ Low	☐ Dissatisfied
Ease to understand	☐ High	☐ Medium	☐ Low	☐ Dissatisfied
Report design	☐ High	☐ Medium	☐ Low	☐ Dissatisfied
Overall satisfaction	☐ High	☐ Medium	☐ Low	☐ Dissatisfied

7. Please provide other comments or suggestions for further improvement.

.....

.....

.....

.....

Thank you for your kind cooperation. Your feedback is very useful for our further improvement.

BANPU

Banpu Public Company Limited
27th Floor, Thanapoom Tower, 1550 New Petchburi Road,
Makkasan, Ratchathewi, Bangkok 10400 Thailand
Telephone: +66 2694 6600 Facsimile: +66 2207 0695-7
www.banpu.com