BANPU



BANPU PUBLIC COMPANY LIMITED
ANNUAL REPORT
2019

MEMBER OF
Dow Jones Sustainability Indices
In Collaboration with RobecoSAM

SAM Sustainability Award Gold Class 2020

MSCI ESG RATINGS A
CCC | B | BB | BBB | A | AA | AAA

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BANPU



Banpu is moving toward being a leading integrated energy solutions company in Asia-Pacific by executing the **Greener & Smarter strategy**, which focuses more on environmentally-friendly business and smarter deployment of technologies and innovations to mobilize business in response to future energy trends.

3 BANPU'S CORE GROUPS OF BUSINESSES

Offering integrated energy solutions and building business ecosystems that supplement, enhance and synergize with one another

ENERGY RESOURCES



Coal and gas including related operations such as marketing, trading, logistics, fuel procurement and transmission



ENERGY GENERATION



Base-load and renewable power plants



ENERGY TECHNOLOGY



Total solar energy solutions, energy storage system and energy technology system





INTEGRATED ENERGY
SOLUTIONS
DELIVERING SUSTAINABLE VALUES

ESG

For nearly four decades of its business operations, **Banpu has always adhered to sustainable development.** The Company places top priority on environmental, social, and governance (ESG) principles according to its business credo that **an industry will be strong only when it is developed in tandem with social and environmental responsibility,** to enhance business growth as well as sustainable high benefits and returns to all stakeholders. Banpu embraces all ESG principles in its operations as follows:

E ENVIRONMENTAL

- Being environmentally responsible in all business activities in accordance with the principles of natural resource conservation.
- Minimizing adverse impacts and improving environmental quality by deploying High-Efficiency, Low Emissions (HELE) technologies.
- Expanding upstream business that lessens environmental impacts as well as further investment in renewable energy.

S SOCIAL

- Sustainably and continuously implementing corporate social responsibility (CSR) and community development projects to promote various forms of “learning” based on Banpu’s belief that “Learning is the Power of Change and Development.”
- Fostering the Company’s corporate culture “Banpu Heart” that supports good Company’s society.

G GOVERNANCE

- Prioritizing good corporate governance, transparency, and accountability by communicating the Corporate Governance Policy to employees, executives, and directors to raise their awareness.
- Ensuring compliance with the universally accepted business practices.
- Integrating the ESG principles into the risk management framework to prevent and mitigate business risks so as to maximize benefits of all stakeholders.







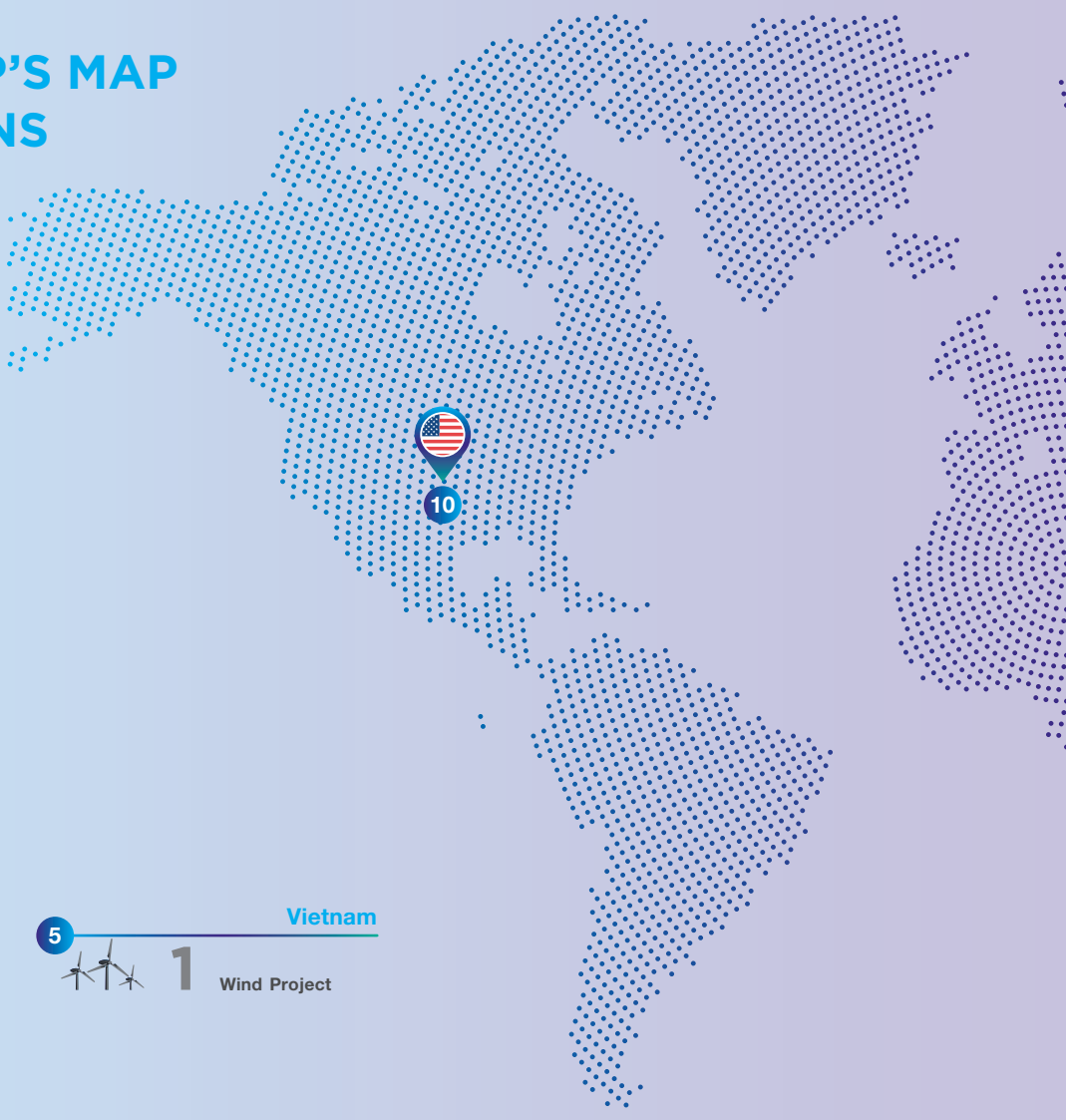
POLICY AND BUSINESS OVERVIEW

Banpu Public Company Limited was established on 16 May 1983 as "Ban Pu Coal Company Limited" with a THB 25 million registered capital. The Company was founded by members of the Vongkusolkit and Auapinyakul families in order to subcontract a coal mining operation at Banpu Mine (BP-1 Mine) located in Li district, Lamphun province from the Department of Alternative Energy Development and Efficiency.

On 4 May 1989, Banpu was listed on the Stock Exchange of Thailand (SET). The Company later changed its name on 29 July 1993 to **"Banpu Public Company Limited."**

Driven by 37 years of experience in local and international businesses, Banpu is currently **a leading integrated energy solutions company in Asia-Pacific** operating in 10 countries worldwide: Thailand, Indonesia, China, Australia, Lao PDR, Mongolia, Singapore, Japan, the United States of America and Vietnam. The Company is moving forward to create continuous growth and strengthen the Banpu group's business ecosystems with the **Greener & Smarter strategy**, which prioritizes eco-friendly business and

BANPU GROUP'S MAP OF OPERATIONS



1 Mongolia
- 11 Coal Projects

2 China
- 2 Coal Mines
- 3 Power Plants
- 1 Power Project
- 7 Solar Farms

3 Japan
- 10 Solar Farms
- 7 Solar Projects

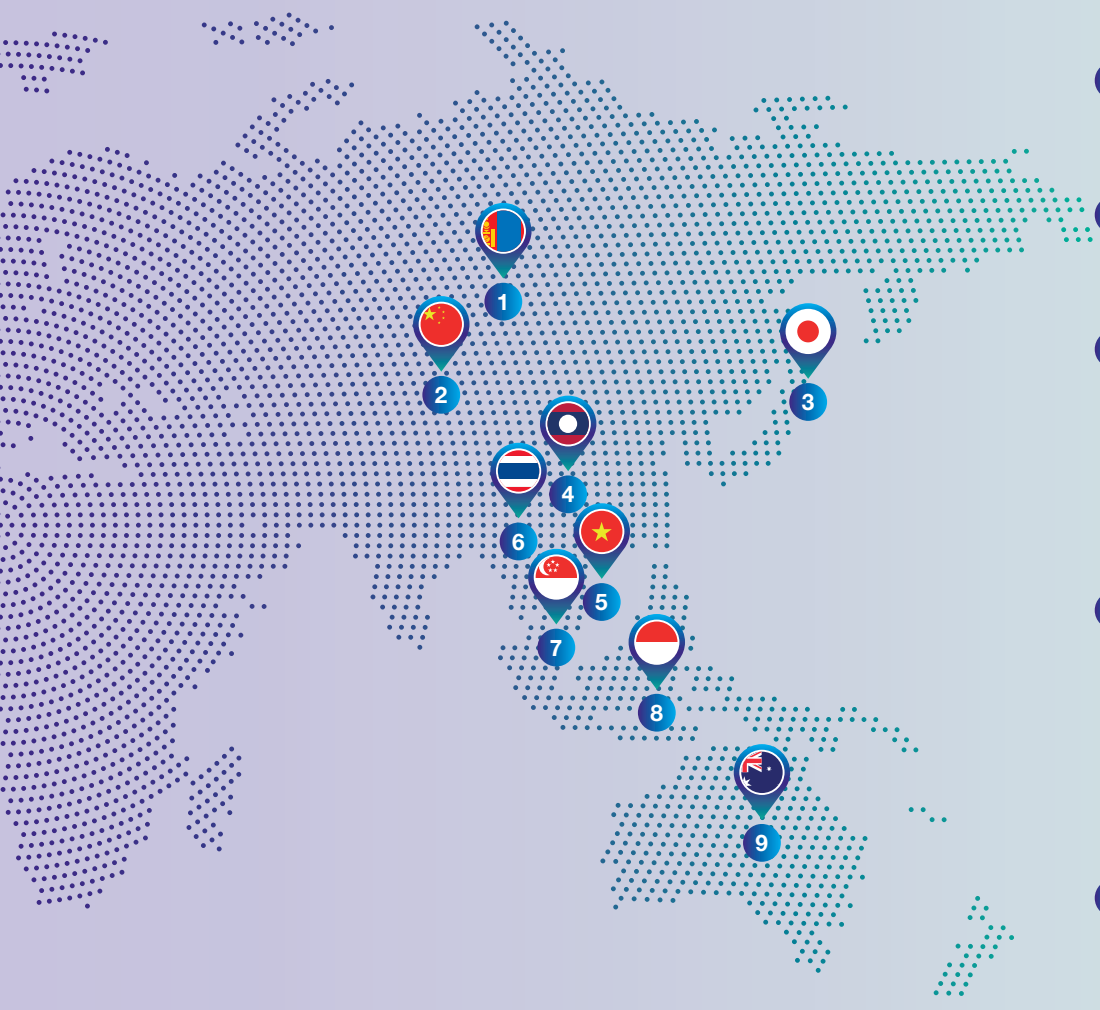
4 Lao PDR
- 1 Power Plant

5 Vietnam
- 1 Wind Project

smart integration of technologies and innovations whilst embracing the megatrends, the 3Ds of energy: comprising Decentralization, Decarbonization, and Digitalization. This has elevated the operational efficiency of Banpu's 3 core groups of businesses – **Energy Resources** (coal and gas including related operations such as marketing, trading, logistics, fuel procurement and transmission), **Energy Generation** (base-load and renewable power plants), and **Energy Technology** (total solar energy solutions, energy storage system and energy technology system), leading to continuous growth and energy sustainability for the benefits of consumers, communities, society, and the environment.

With the collaborative synergy of Banpu people bolstered by the corporate culture **"Banpu Heart,"** which comprises Passionate, Innovative, and Committed, Banpu has driven sustainability by adhering to **Environmental, Social and Governance (ESG)** principles throughout its nearly four decades of operation. Consequently, Banpu has been delivering sustainable returns to shareholders and investors, by embracing the principles of transparency and accountability, as well as sustainable values to all stakeholders in accordance with our brand promise **"Our Way in Energy."**





6 Thailand
1 Power Plant

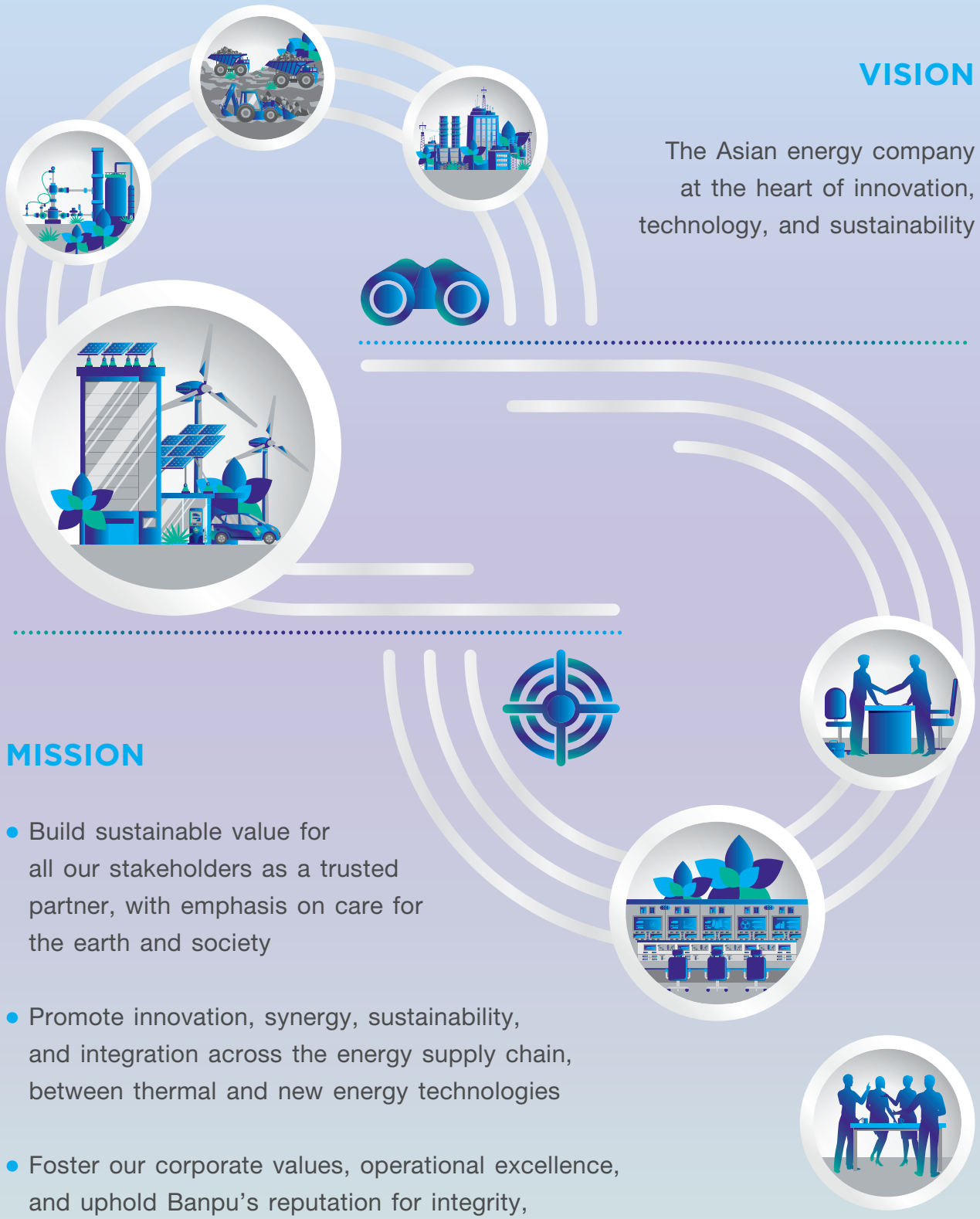
7 Singapore
1 Sales and Logistics Hub

8 Indonesia
5 Coal Mines
2 Coal Projects
2 Ports

9 Australia
9 Coal Mines
3 Coal Projects
2 Ports

10 The United States of America (Pennsylvania and Texas)
5 Shale Gas Sites

VISION & MISSION



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 thermal and new energy technologies
- Foster our corporate values, operational excellence, and uphold Banpu's reputation for integrity, professionalism and best practices

FINANCIAL HIGHLIGHTS



USD **2,759** Million — -21%

Sales Revenues

USD **695** Million — -41%

EBITDA

USD **75** Million — -66%

Net Profit Before Exchange Rate

USD **8,542** Million — +1%

Total Assets

USD **5,542** Million — +5%

Total Liabilities

USD **3,001** Million — -5%

Total Shareholder's Equity

ENERGY RESOURCES

Coal Business

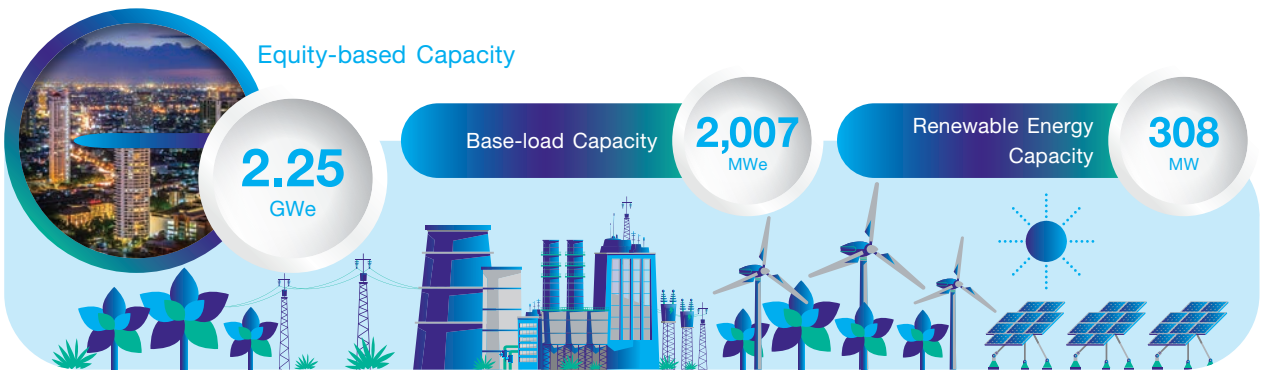


Gas Business



ENERGY GENERATION

Power Business



ENERGY TECHNOLOGY

Solar Rooftop Solutions Business

Equity-based Capacity



Energy Storage Business

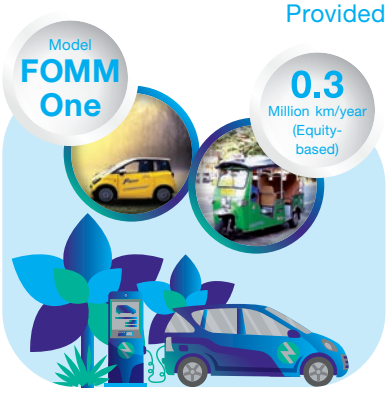
Equity-based Capacity



Electric Vehicle (EV) Business

Launched EV

EV Tuk Tuk Service Provided



		For the Year Ended		
		31 December 2019	31 December 2018	31 December 2017
Financial Position				
Total Assets	(Million USD)	8,542	8,454	8,223
Total Liabilities	(Million USD)	5,542	5,279	5,013
Total Shareholders' Equity	(Million USD)	3,001	3,175	3,211
Issued and Paid-up Share Capital	(Million USD)	150	150	150
Operational Results				
Sale Revenues	(Million USD)	2,759	3,481	2,877
Cost of Sales	(Million USD)	(2,051)	(2,253)	(1,766)
Gross Profit	(Million USD)	708	1,228	1,110
Selling and Administration Expenses	(Million USD)	(447)	(419)	(379)
Royalty Fee	(Million USD)	(241)	(291)	(268)
Other Revenues	(Million USD)	173	65	46
Other Expenses	(Million USD)	(95)	(82)	(97)
Profit from Operation	(Million USD)	99	502	412
Share of Profit from Joint Ventures	(Million USD)	206	264	205
Interest Expenses	(Million USD)	(182)	(170)	(135)
Financial Expenses	(Million USD)	(5)	(5)	(5)
Corporate Income Tax	(Million USD)	(76)	(189)	(134)
Indemnity Payment	(Million USD)	-	(86)	-
Non-controlling Interests	(Million USD)	(61)	(109)	(110)
Net (Loss) Profit	**(Million USD)**	**(20)**	**205**	**234**
EBITDA	**(Million USD)**	**695**	**1,178**	**968**
Financial Ratios				
Gross Profit Margin	(%)	26	35	39
Net Profits (Loss) to Total Revenues	(%)	(0.7)	6	8
Returns on Assets	(%)	(0.2)	2	3
Returns on Equity	(%)	(0.6)	6	8
Interest Coverage Ratio	(times)	2.4	3.8	5.7
Net Debt to Equity	(times)	1.24	1.02	0.98
Data per Share				
Earnings per Share	(USD)	(0.004)	0.040	0.046
Book Value per Share	(USD)	0.58	0.61	0.62
Dividend per Share	(THB)	0.60*	0.70	0.65

* The Company announced a total dividend of THB 0.60 per share arising from its performance during the period from 1 January 2019 to 31 December 2019, of which THB 0.35 was paid on 27 September 2019. The remaining dividend of THB 0.25 per share for 2019 performance will be paid on 30 April 2020.

Remark: Financial figures are based on the consolidated financial statement.

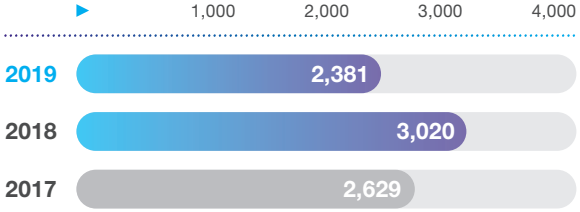
OPERATIONAL RESULTS

		For the year ended		
		2019	2018	2017
Coal Sales Volume	**(Million Tonnes)**			
Sources - Indonesia (ITMG)		23.10	21.49	22.21
Other Sources		2.27	2.52	1.07
Sources - Indonesia		25.37	24.01	23.28
Sources - Australia		10.50	13.70	13.36
Sources - China (Traded Coal)		0.31	0.31	-
Total Coal Sales Volume		**36.18**	**38.03**	**36.63**
Revenues	**(Million USD)**			
Revenue from Indonesia (ITMG)		1,550	1,801	1,656
Revenue from Other Sources		121	183	66
Revenue from Indonesia		1,671	1,984	1,722
Revenue from Australia		694	1,014	883
Revenue from China (Traded Coal)		16	23	24
Revenue from Coal Business		2,381	3,020	2,629
Revenue from Power Business		183	196	189
Revenue from Gas Business		105	144	37
Revenue from Fuel Business		79	95	3
Revenue from Other Businesses		12	26	19
Total Revenues		**2,759**	**3,481**	**2,877**
Gross Profit Margin	**(%)**			
Gross Profit Margin - Indonesia (ITMG)		34	45	44
Gross Profit Margin - Other Sources		8	11	20
Gross Profit Margin - Indonesia		32	42	43
Gross Profit Margin - Australia		15	27	34
Gross Profit Margin - China (Traded Coal)		0	4	13
Gross Profit Margin - Coal Business		27	37	40
Gross Profit Margin - Power Business		19	21	24
Gross Profit Margin - Gas Business		31	47	36
Gross Profit Margin - Fuel Business		2	5	42
Gross Profit Margin - Other Businesses		47	44	18
Total Gross Profit Margin		**26**	**35**	**39**

Revenue from Coal Business

(Million USD)

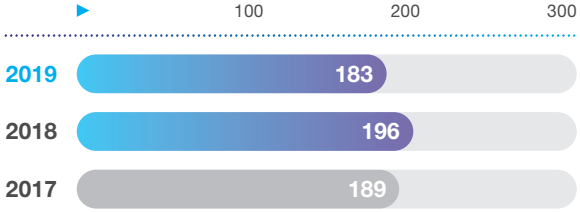




Revenue from Power Business

(Million USD)

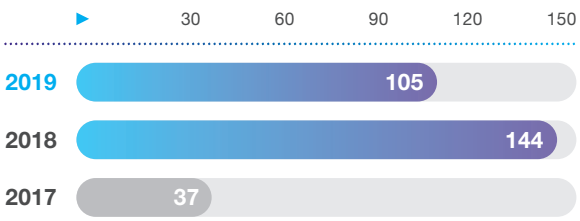




Revenue from Gas Business

(Million USD)

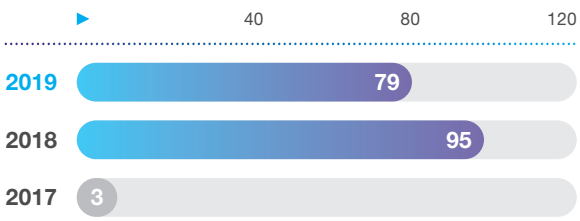




Revenue from Fuel Business

(Million USD)

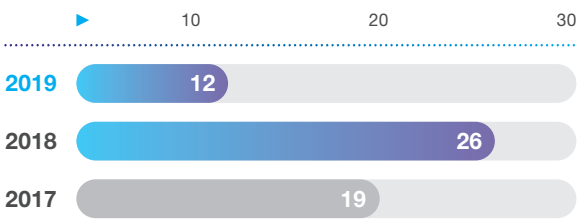




Revenue from Other Businesses

(Million USD)

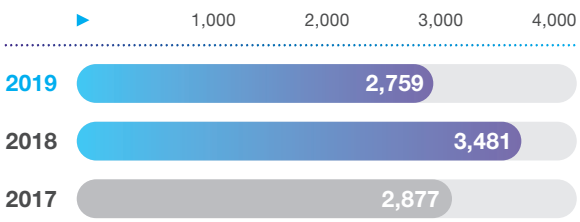




Total Coal Sales Volume Revenue

(Million USD)





THE BOARD OF DIRECTORS REVIEW

Banpu's has always placed great importance on sustainable growth that is built upon the environmental, social, and governance (ESG) principles, underpinned by Banpu's business credo that **"an industry will be strong only when it is developed in tandem with social and environmental responsibility"**. We firmly adhere to good corporate governance, transparency, and accountability, which are put at the heart of Banpu's business operations.



Mr. Chanin Vongkusolkit
Chairman of the Board of Directors

In 2019, Banpu Public Company Limited moved forward business operations in preparation for its fourth decade with a focus on sustainable growth. Banpu responded to future energy trends by harnessing clean energy in both production and consumption. We also deployed technology and innovation to disrupt the status quo and enhance our competitive advantage. Banpu introduced Banpu NEXT Company Limited, the Banpu group's flagship company, which focuses on the clean energy portfolio of the group as well as energy technology business to strengthen Banpu group's business ecosystem, comprising Energy Resources, Energy Generation, and Energy Technology. The flagship company will leverage all core businesses for greater integration to fully satisfy the needs of consumers, communities, society, and the environment.

To align the Board of Directors' potential with the Company's business direction, we approved the Board restructuring by adding directors specialized in digital technology to support and advise on digital disruption management. The restructuring will enable the Board to timely respond to digital disruption and become a change leader of the energy industry. Apart from that, we have closely collaborated with top executives to determine the Company's direction and devise strategies for new business ventures on a regular basis. For instance, the Company established the Digital Center of Excellence to cultivate and foster working approaches that fit digital trends to empower Banpu employees to successfully ride the digital wave.

Despite Banpu's strong commitment to ever-advancing growth, the Board of Directors has always placed great importance on sustainable growth that is built upon the environmental, social, and governance (ESG) principles, underpinned by Banpu's business credo that **"an industry will be strong only when it is developed in tandem with social and environmental responsibility".**



We firmly adhere to good corporate governance, transparency, and accountability, which are put at the heart of Banpu's business operations.

In the past year, the Company formulated the Supplier Code of Conduct that prescribes practices for Banpu's suppliers to ensure that the business is conducted with social and environmental responsibility, good governance, and respect for human rights in accordance with the Sustainable Supply Chain Policy. The Supplier Code of Conduct is communicated to suppliers to ensure compliance and a focus on corporate governance in compliance with international corporate governance standards. In addition, the Company has promoted awareness of the newly revised Corporate Governance Policy and Code of Conduct among executives and employees. We had approved the revision of the essence of the Corporate Governance Policy and the Code of Conduct in accordance with the Corporate Governance Code for Listed Company 2017 to enhance growth and competitive edge in tandem with social responsibility in all dimensions.

Amid business challenges, we prioritize close collaboration and communication with the management. Banpu is moving forward with a clear business direction and strategies, and we are willing to work hard with the management during this transition period. We are agile to change and also inquisitive, constantly seeking new information to stay abreast of the latest global trends, especially the energy issues and market needs, to develop new solutions that optimize our customer needs.

On this occasion, the Board of Directors would like to express our sincere gratitude to all our valued customers, stakeholders, and related parties, both in Thailand and abroad, for your unwavering trust and continued support. We pledge our commitment to creating sustainable value with full responsibility to the society and the world while advancing and strengthening sustainable business growth to stay in sync with changing trends. We will steer the Company forward with effective management, concern for long-term impacts, ethical conduct, respect for rights, and responsibility toward our shareholders and all stakeholders.

CHIEF EXECUTIVE OFFICER REVIEW

In 2019, Banpu took important steps to accelerate the transition to a Greener & Smarter value structure including expansion of the Company's lower carbon gas and renewables businesses - and formation of a clean energy flagship company, **'Banpu NEXT'**.

Banpu continues to emphasize best practice environmental, social and governance (ESG) principles and is pleased to obtain the top ESG score for its sector worldwide as a member of the Dow Jones Sustainability Index (DJSI) for a sixth consecutive year.



Ms. Somruedee Chaimongkol
Chief Executive Officer

Financial Performance

Banpu generated consolidated group EBITDA[1] of USD 695 million in 2019: USD 482 million from the group's Coal business, USD 145 million from the Power business and USD 68 million from the Gas business. EBITDA in 2019 were lower than in 2018 (USD 1,178 million) due mainly to weaker commodity prices.

The consolidated net profit excluding foreign exchange for the year was USD 75 million. The continued appreciation in the Thai Baht against the US Dollar during the year; however, caused a translation loss of USD 95 million which more than offset a derivatives gain (mostly from coal and gas hedging) of USD 33 million. As a result, Banpu recorded a net loss of USD 20 million for the year. The net profit in the previous year was USD 206 million.

Banpu's financial gearing was kept at manageable levels with our TRIS credit rating confirmed at 'A+ with stable outlook'[2].

Energy Resources

Coal Sales and Market Analysis

Banpu group coal sales in 2019 totaled 40.7 million tonnes (Mt) versus 43.1 Mt in 2018. Sales were 25.4 Mt from Banpu's Indonesian mines, 10.5 Mt from Australian mines and the rest, 4.7 Mt, from China[3]. Production from Banpu's Indonesian mines increased, while output from Australian mines declined slightly. In China total production levels remained similar year-on-year.

1 Earnings before interest, tax, depreciation and amortization
2 Banpu corporate rating and for senior unsecured debentures.
3 Indonesia on 100% consolidated basis, Australia and China on equity basis.

Coal sales to customers in China increased by over 20% in 2019 to 12.5 Mt. Sales to ASEAN customers were up at 7.8 Mt. In South Asia, although sales were down in India (to 1.6 Mt), coal sales to Bangladesh more than tripled to 1.1 Mt in 2019. Sales to customers in Japan, Korea and Taiwan and to domestic customers in Australia were down year-on-year at 9.3 Mt and 6 Mt respectively.

The benchmark NEX[4] Index, representing thermal benchmark prices at Newcastle in Australia for high-grade export coal, decreased 28% to an average level of USD 77 per tonne in 2019 versus USD 108 per tonne in 2018. Banpu group's weighted average coal selling price was USD 65 per tonne in 2019 compared to USD 79 per tonne in 2018.

Indonesia Coal Business

PT Indo Tambangraya Megah Tbk (ITM) is listed on the Indonesian stock exchange and is approximately 68%-owned by Banpu. ITM recorded EBITDA of USD 242 million in 2019, down from the previous year due primarily to a 20% decrease in average selling prices (USD 65 per tonne in 2019 versus USD 81 in 2018).

Coal output at ITM increased 6% in 2019 to 23.4 Mt: 12.3 Mt from Indominco, 4.9 Mt from Trubaindo, 3.0 Mt from Bharinto, 1.4 Mt from Embalut and 1.7 Mt from Jorong. ITM average unit costs decreased to USD 58 per tonne from USD 60 per tonne due to mine plan optimization initiatives, lower strip ratios and reduced royalties.

Australia Coal Business

Centennial's EBITDA in 2019 was recorded at AUD 124 million, down on the previous year due to difficult mining conditions and higher costs. While average selling prices remained relatively stable at AUD 96 per tonne, unit costs were up 23% to AUD 79 per tonne.

Output at Centennial's mines was down at 9.4 Mt compared to 11.7 Mt in 2018. This was due mainly to the decrease in output from the Northern operations to 5.4 Mt versus 7.5 Mt in the previous year. Longer than expected longwall relocation as a result of poor geological conditions experienced in the new Mandalong South Block reduced output at that mine to 3.9 Mt, while output at Myuna was down at 1.6 Mt.

Our Western operations output decreased to 4.0 Mt mainly due to lower production achieved at Springvale at 1.8 Mt. Banpu has recently acquired an additional 50% interest in Springvale with the new 100% interest reflected from 1 December 2019. Clarence achieved stable production at 1.6 Mt. Airly production increased to 1.2 Mt.

China and Mongolia Coal Business

EBITDA at Gaohe, in Shanxi province (45% owned by Banpu) in 2019 was down 21% year-on-year to USD 365 million due to cost increases including plant maintenance and safety fees. Gaohe's average selling price increased 6% to USD 87 per tonne, while output was stable at 10 Mt. At Hebi Zhong Tai Mine (40%-owned by Banpu) in Henan province, output increased slightly to 1.5 Mt.

In Mongolia, work continued at the Tsant Uul pilot project including collaboration with potential pyrolysis and oil upgrading vendors to add more value to tar oil and char products. Feasibility study work continued at the Unst Khudag and Altai Nuurs projects.

U.S. Gas Business

Since 2016 Banpu has been developing an unconventional gas business in the Marcellus Shale in Pennsylvania in the U.S. with six investment transactions totaling just over USD 500 million. In 2019, EBITDA generated was down at USD 68 million (versus USD 101 million in 2018) due mainly to lower gas prices and lower attributable gas sales at 69 billion cubic feet, (versus 71 Bcf in 2018). The Henry Hub benchmark price averaged USD 2.56 in 2019, 19% lower than the average for 2018.

4 The Newcastle Export Index (previously known as the Barlow Jonker Index or 'BJI')

During the year, Banpu established a new office at Tunkhannock in Pennsylvania and has formed a development team from both the U.S. and Thailand with extensive expertise in the upstream oil and gas sectors.

In December 2019, Banpu North America Corporation (BNAC) signed a Purchase & Sale Agreement to acquire a business in the Barnett Shale, in the Fort Worth Basin in Texas. The total consideration is USD 770 million for an 89% working interest in over 4,000 producing wells and net production of just under 600 million cubic feet equivalent of natural gas per day (MMcfed), including around 30% natural gas liquids (LPG, ethane and condensate). Transaction completion is expected by the second quarter of 2020. With the Barnett assets, Banpu will become one of the Top 20 gas producers in the U.S. with production of around 700 million cubic feet per day and total 1P reserves of 4.2 billion cubic feet equivalent.

Energy Generation

Banpu Power

Banpu Power EBITDA in 2019 decreased to USD 145 million, from around USD 182 million in 2018. Banpu Power has a combination of thermal power and renewable power assets in North Asia and the Greater Mekong region. The total operating capacity of Banpu Power's power generation assets on an equity basis reached 2.25 gigawatts equivalent (GWe) by year end 2019, an increase of 5% compared to the previous year. The Company also has a pipeline of around 0.65 GWe currently under development, due for commissioning between now and 2023. Banpu established new growth target of 5.3 GWe for its Power Generation business group by 2025, from a previous target of 4.3 GWe.

Thermal Power Business - Greater Mekong Region

Banpu Power has two major thermal power operations in the Greater Mekong region: a 50% interest in BLCP, a 1,434 MW coal-fired power plant in Thailand and a 40% interest in Hongsa, a 1,878 MW coal-fired mine-mouth power plant in Laos.

In 2019, BLCP recorded an increased Equivalent Availability Factor (EAF) of 90% despite planned inspection of its units 1 and 2. BLCP's EBITDA was down on the year before at USD 129 million due to the availability payment structure decline and the inspection.

Hongsa's EBITDA decreased 12% year-on-year to USD 381 million. Hongsa's EAF was impacted by an earthquake in Laos during November, but maintained at 81% in 2019 versus an average of 87% in 2018, reflecting plant reliability improvements. All three units of Hongsa plants resumed full operation in early January 2020.

Thermal Power Business - China

Banpu Power has three coal-fired combined heat-and-power (CHP) operations in China (Luannan, Zouping and Zhengding) with total capacity of 539 MWe, up 11% from 2018 due to the Luannan phase III expansion with an additional 52 MWe in generation capacity. These CHP operations achieved an aggregate EBITDA of USD 27 million in 2019, down on the previous year due to lower demand from Zouping customers, whereas sales from the Zhengding and Luannan plants was higher compared to 2018.

Construction of the new 1,320 MW Shanxi Lu Guang coal-fired power project has been progressing well and was approximately 73% complete by year-end 2019. Commissioning is expected by the end of 2020.

Renewable Energy Business

Banpu's North Asian solar PV business includes approximately 240 MW of operating capacity: 177 MW in China and 63 MW in Japan. During the year, Banpu acquired one new solar project in China (25 MW Jixin project) and 4 projects (total of 6 MW) in Japan, all in operation. Banpu also has another 177 MW of new solar PV project capacity under development due for commissioning between now and 2023.

Banpu's solar business in China generated EBITDA of USD 18 million in 2019 (+13% year-on-year) from additional capacity from the Jixin project and better weather conditions.

Banpu's solar business in Japan recorded cash distributions of USD 3 million, up 26% year-on-year, due to additional capacity from Kurokawa Japan solar PV farm with capacity of 19 MW commencing operation in December 2019.

Banpu has also secured an 80 MW wind project in the South of Vietnam, in Soc Trang province. The project is due for commissioning in two phases: approximately 30 MW by the end of 2020 and an additional 50 MW planned by the end of 2021. The ground-breaking ceremony for the project was held in February 2020.

Energy Technology

Solar Rooftop Business

Banpu launched a new smart energy business in August 2017, under the name 'Banpu Infinergy'. The new business initially focused on solar rooftop services, with 17 MW installed for residential and commercial customers in Thailand so far. Banpu Infinergy also hold a 38.5% stake in Singapore's leading solar rooftop player, Sunseap. Sunseap has a solar rooftop portfolio of approximately 239 MW across Southeast Asia (Singapore, Philippines, Malaysia and Cambodia) and Taiwan. Sunseap has also recently commissioned a 168 MW solar farm project in Vietnam. Banpu's attributable equity capacity interest in Sunseap is equivalent to around 160 MW (solar rooftop and solar PV farm). Banpu Infinergy's total attributable generation capacity increased by 92% (85 MW) in 2019.

Energy Storage Systems Business

Banpu Infinergy has a 47.7% shareholding in Durapower, a Singaporean battery manufacturing company focused on lithium-ion battery systems for the electric vehicle market. Durapower's production facilities are located in Suzhou in China. During 2019, Durapower increased its production capacity from 80 MWh per year to 1 GWh. Durapower also plans to enter the stationary battery market in 2020.

Electric Vehicle Business

Banpu Infinergy has a 21.5% stake in Japan's leading compact electric vehicle developer, FOMM and a 30.7% stake in an electric tuk-tuk company, Urban Mobility Tech (UMT). UMT also has an on-demand tuk-tuk sharing digital application. In 2019, FOMM sold around 465 vehicles and UMT provided around 0.3 million kilometers of e-tuk-tuk services.

In December 2019, Banpu Infinergy secured a partnership with Thailand Post to provide integrated EV fleet management services for their freight parcel post system. The programme plans to manage over 1,000 electric postal vehicles within four years.

Smart City and Smart Infrastructure Business

In 2019, Banpu Infinergy secured another three smart city partnerships to provide solar rooftop installation services and electric vehicle services for Chulalongkorn University, Phuket Smart City and Bang Saen. Another five smart infrastructure projects are planned by 2025.

Proprietary Technology Development

Banpu's digital transformation programme continued in 2019 with the formation of a Digital Centre of Excellence focused on developing and deploying digital platforms and systems wherever they can generate efficiencies and cost savings for the Banpu group.

At the end of 2018, Banpu Innovation & Ventures (BIV) was launched as a new Banpu business unit with its own Innovation Lab to originate cutting-edge proprietary technologies and fast-track them into value-creating businesses. In 2019, BIV focused on technology development for electric vehicle charging and fleet logistics. BIV has developed relationships

with a network of partners including universities, startups, incubators, venture capital firms and other players in the global technology ecosystem, especially in Silicon Valley and Israel. In the second half of 2019, BIV 'Intellectual Property' group, based in the U.S, was established to analyze and commercialize intellectual property rights. Going forward, BIV in 2020 will focus on technologies which can increase efficiencies and add value to the Banpu group's businesses.

Corporate Social Responsibility

In 2019, Banpu continued a very active CSR (corporate social responsibility) programme focused around supporting educational, sports, social enterprise, charities and disaster relief projects.

In education: Banpu and Thammasat University launched the first batch of socially-minded innovators under the Thammasat-Banpu Innovative Learning Program: Banpu was awarded by King Mongkut's University of Technology Thonburi for supporting Thailand's Higher Education Strategic Plan; Banpu Education for Sustainability Program provided financial support for native English teacher employment at six schools in the Northern part of Thailand; Banpu co-hosted with Mahidol University the 14th Power Green Camp for 'Empowering Youth to Fight Global Warming and Protect Biodiversity'; and Banpu donated THB 1.5 Million to schools in Southern border provinces for the 13th consecutive year focusing on school restoration and educational development.

In sports: Banpu supported Banpu Table Tennis Club athletes to participate in the international Table Tennis tournaments in Taiwan and China.

Banpu Champions for Change, a social enterprise start-up incubation program is in its 9th year.

Banpu also provided disaster relief assistance for victims of the Pabuk storm in Nakhon Si Thammarat and donated solar powered generators for earthquake relief in Hokkaido in Japan.

ESG Performance

Banpu welcomes the trend towards sustainable investment and best practice ESG reporting (environmental, social, governance). Building sustainable stakeholder value through environmental care, social investment and best practice corporate governance has been at the heart of our philosophy for over three decades.

Banpu was honoured to have been listed on the Dow Jones Sustainability Index (DJSI) in 2019, for sixth consecutive year. The DJSI is managed by the world's most prestigious sustainability rating agency, RobecoSAM. In 2019, Banpu maintained its status as the global Industry Leader in the Coal & Consumable Fuels Industry with the top Total Sustainability Score in 2019. Banpu obtained top scores in all ESG areas for 2019 with an overall score three times the industry average.

During the year Banpu was also upgraded to an 'A' rating in the MSCI ESG Ratings 2019 assessment, received the 'Sustainability Awards Honor' for the third year running and was listed as a Thailand Sustainability Investment ('THSI') by the Stock Exchange of Thailand for a 5th consecutive year.

Banpu was also pleased to achieve an 'Excellence' scoring in the Corporate Governance Report of Thailand Listed Companies in 2019 as published by the Securities & Exchange Commission of Thailand (SEC), the Thai Institute of Directors Association (IOD) and the Stock Exchange of Thailand (SET).

Ensuring that we continue to improve our ESG performance - and that our transition to a Greener & Smarter future delivers sustainable returns to both shareholders and stakeholders alike, will remain a top priority in 2020.

Strategic Review and Outlook

Since 2015, Banpu has been going through a fundamental process of strategic transition to a 'Greener & Smarter' value structure designed to provide a more sustainable platform for value growth for stakeholders and shareholders. New investments over the past five years has focused primarily on lower carbon and clean energy technology businesses including gas, renewables, solar rooftop, energy storage systems, electric vehicles and smart cities. In 2019, over 80% of Banpu's discretionary investment expenditure was on these Greener & Smarter businesses.

Banpu has aligned its strategy with the United Nations Sustainable Development Goals (SDGs). We have set our own sustainable development goals for all core businesses including reductions in greenhouse gas emissions. By 2025, our aim is for lower carbon businesses to comprise more than 50% of our asset portfolio.

Gas is now a core Banpu business which we will continue to grow both organically and inorganically. Other gas value-chain businesses are likely to be a focus for growth going forward, both in the U.S. and Asia, including gas-fired power investment.

Banpu is also accelerating its transition by restructuring its renewables and smart energy businesses to create a new flagship clean energy technology company, 'Banpu NEXT'. Banpu NEXT will leverage the '3Ds' – digitalization, decentralization and decarbonization – to establish an integrated clean energy technology portfolio throughout the Asia-Pacific: renewable energy generation, solar rooftop solutions, energy storage systems, energy management systems, e-mobility, smart infrastructure and electricity trading. Banpu NEXT is being formed via an intra-group restructuring and the amalgamation of Banpu Infinergy with Banpu Renewable Energy. The new company will be 50/50 owned by Banpu and Banpu Power and will aim to secure green and clean tech finance to fund its growth plans. Currently Banpu NEXT 2025 growth targets include: 1.1 GW of renewable energy capacity; 0.5 GW of solar rooftop capacity; 1.4 GWh per annum of energy storage systems production capacity; 34,000 of EV sales; 180 million kilometres of e-mobility services; 9 smart infrastructure projects; and 300 GWh per annum of electricity trading.

The Banpu group is proud to be a multi-cultural family with operations in ten countries around the world. To emphasize the importance of a people-centered organization in transition. Since 2018 Banpu has launched a new corporate culture 'Banpu Heart'. Banpu Heart emphasizes Passion, Innovation, and Commitment. Our Passion is for our vision of leading the transition to ever more sustainable energy in the Asia-Pacific region. We are realizing our vision through Innovation, harnessing new technologies and an Integrated Energy Solutions approach which emphasizes ecosystem-thinking and synergy-capture. And last but not least, we have a real sense of urgency and Commitment. We have the grit and courage to break out of our comfort zones. We know the critical importance of delivering results to shareholders and stakeholders, and of 'strategic speed'.

On that note, I would like to thank the Banpu board of directors along with all our stakeholders and shareholders for their active support and engagement in 2019. It will be a great honor and a pleasure for me to serve you all again in 2020.

SUMMARY OF MAJOR CHANGES AND DEVELOPMENT IN 2019 AND MAJOR CURRENT EVENTS

15 January 2019

Banpu announced the inauguration of its field office in the shale gas production site in Tunkhannock, Pennsylvania, the U.S., to manage the shale gas production sites as well as to seek investment opportunities to increase its production capacity. This event reflects Banpu's readiness to build upon the successful investment in the shale gas business under the Company's Energy Resources Group.

4 February 2019

Banpu Infinergy Co., Ltd. (BPIN), a subsidiary of Banpu, invested 21.50% in FOMM Corporation (FOMM) newly-issued shares worth USD 20 million (approximately THB 635 million). FOMM is a leading developer of compact EV in Japan.

Founded in 2013 with its headquarters in Kawasaki, FOMM is engaged in EV business, ranging from design, assembly, warranty and quality assessment, to sales and delivery to Southeast Asian countries.

21 February 2019

The Board of Directors Meeting approved the Company's dividend payment for the 2019 operating profits during 1 January – 31 December 2018, at a dividend rate of THB 0.70 per share. Previously, an interim dividend had been paid out to shareholders at a rate of THB 0.35 per share on 28 September 2018. The remaining 2018 dividend for the operating profits during 1 July - 31 December 2018 was proposed to be paid out to the shareholders at a rate of THB 0.35 per share. The dividend payment was appropriated from the corporate income tax-exempted profit, on which shareholders are not entitled to tax credits. The dividend was paid on 30 April 2019.

21 February 2019

The Company acknowledged the resignation of Mr. Rutt Phanijphand, who had been the Vice-Chairman of the Board of Directors, the Chairman of the Compensation Committee and member of the Audit Committee. The resignation was effective from 4 April 2019 onwards, in line with the Company's good corporate governance practices that require directors to retire when reaching the age of 72.

3 April 2019

The 2019 Annual General Meeting of Shareholders passed the following resolutions:

1. Appointment of Mr. Pichai Dusdeekulchai as a director whose term is effective from 4 April 2019 until the date of the 2020 Annual General Meeting of Shareholders, which is equal to the remaining term of Mr. Rutt Phanijphand, who resigned as he reached his retirement age.
2. Appointment of Mr. Teerapat Sanguankotchakorn as a director because the number of board members was changed from 12 persons to 13 persons. His term of office is effective from 3 April 2019 until the date of the 2022 Annual General Meeting of Shareholders.
3. Reduction of registered capital from the existing THB 5,165,257,100 to THB 5,161,925,515 by canceling 3,331,585 authorized but unissued shares at the par value of THB 1 per share. The capital reduction was officially registered with the Minister of Commerce on 11 April 2019.

13 August 2019

Banpu Power Public Company Limited (BPP), a subsidiary of Banpu, has expanded into another clean energy business by investing in a 25-MW Jixin Solar Power Plant located in Jiangsu province, the People's Republic of China. This power plant has already achieved the commercial operation date (COD) with RMB 189.15 million (approximately THB 876 million) investment cost to acquire 100% shares. The Feed-in Tariff (FiT) scheme is at the price of RMB 1 per kWh and has realized revenue since Q3/2019.

23 August 2019

BPIN, a subsidiary of Banpu, acquired newly-issued preferred shares of Urban Mobility Tech Co., Ltd. (UMT). The transaction value is THB 67 million, thus increasing BPIN's shares of UMT from 22.50% to 30.66% of its registered capital.

29 August 2019

The Board of Directors meeting approved the interim dividend payment for the operating profits for six-month period ending 30 June 2019, at a rate of THB 0.35 per share for 5,161,925,515 shares, totaling THB 1,806.67 million. The dividend payment was appropriated from the corporate income tax-exempted profit, on which shareholders are not entitled to tax credits. The dividend was paid on 27 September 2019.

In addition, the Board of Directors Meeting approved the proposed share repurchase on the Stock Exchange of Thailand for Treasury Stocks management, with the maximum amount not exceeding THB 5,000 million and the number of shares to be repurchased not exceeding 7.5% of the total number of shares sold. The repurchase period covers six months, starting from 13 September 2019 to 10 March 2020.

For the year ended 31 December 2019, Banpu bought back shares from the Stock Exchange of Thailand totaling THB 1,155.82 million with the number of 87.344 million shares or 1.69% of the total number of shares sold.

30 September 2019

The Company issued name registered, unsubordinated, and unsecured debentures in the THB currency for sale at the amount of THB 10,000 million (approximately USD 313.98 million). The maturity period is ten years, and the interest rate is 4% per year. The maturity date is on 22 May 2029.

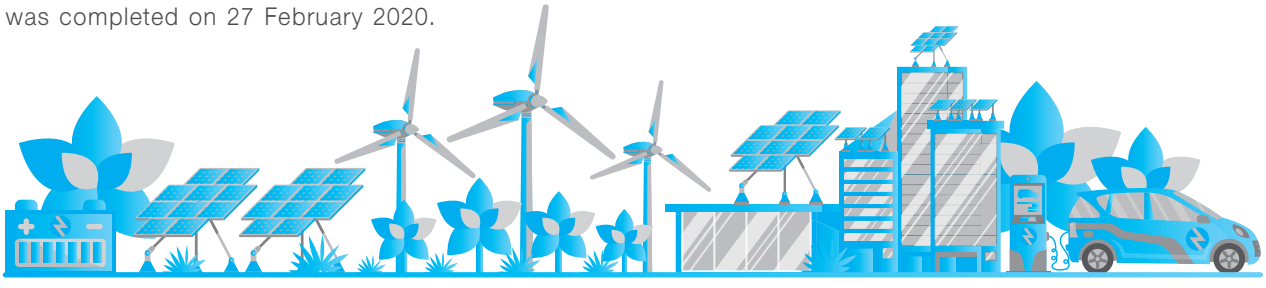
18 October 2019

Durapower Holdings Pte Ltd., a joint venture company of Banpu, specialized in designing, manufacturing, and installation of lithium-ion battery (LiB) for automotive and energy storage systems, officially opened a world-class manufacturing unit for lithium-ion battery in Suzhou, China. The new unit currently has a production capacity of 1 GWh, increasing from the annual total capacity of 80 MWh, which has contributed to the strength and growth of Banpu's Energy Technology Group.

31 October 2109

The Board of Directors Meeting approved the shareholding restructure in Banpu Group by establishing Banpu NEXT through the amalgamation of BPIN, a 99.99% owned subsidiary of Banpu, and Banpu Renewable Energy Co., Ltd. (BRE), an indirect 78.57% owned subsidiary of Banpu through BPP, which holds 99.99% shares of BRE. This restructuring systematized and consolidated all Banpu's clean energy business, energy technology business, subsidiaries, as well as investment and development of clean energy business projects under one flagship company.

Due to the amalgamation, BPIN will cease to exist as a subsidiary of Banpu since Banpu NEXT will legally take on all of the rights, duties and responsibilities previously held by BPIN and BRE, as well as shares in other companies. Banpu and BPP will equally own the shares of Banpu NEXT (approximately 50% each from the issued and sold shares of the new entity). The registration of Banpu NEXT with the Ministry of Commerce was completed on 27 February 2020.



18 December 2019

Banpu North America Corporation (BNAC), a subsidiary of Banpu, entered into a Purchase and Sale Agreement on the acquisition of working interests in the Barnett shale, Fort Worth Basin, Texas, the U.S. The transaction value was worth USD 770 million (approximately THB 23,000 million). The terms and conditions are expected to conclude in Q2/2020.

Following the acquisition, Banpu will be a shale gas production operator in Barnett Shale, with 89% working interests of over 4,200 wells covering a large area of approximately 320,000 acre. In Q3/2019, Barnette Shale had an average production output of 600 million cubic feet per day (MMcfd) and proved reserves (1P) of approximately 3.5 Trillion Cubic Feet (Tcf)

19 December 2019

Centennial Coal Co., Ltd. (CEY), a subsidiary of Banpu, has entered into a sales agreement to acquire additional 50% ownership of the Springvale Joint Venture (JV) from Springvale SK Kores Pty Ltd. (SSKK). This transaction will increase CEY's ownership in Springvale mine and the Angus Place project from 50% to 100%. CEY has assumed the net JV liabilities of SSKK of AUD 40.9 million (approximately THB 864 million) as the transaction value for the JV assets. The transaction incurred no cash payment and was expected to complete in Q1/2020.

This transaction will enable CEY greater flexibility in operations of the western underground mines, New South Wales, including all assets in the Springvale mine, which have been operating since 1992, with a coal reserve of 25.7 Mt and capacity of 5.5 Mt per annum as well as the Angus Place project, which has a coal reserve of 55.2 Mt.

19 December 2019

BPP, a subsidiary of Banpu, commenced the commercial operation of the Kurokawa Solar Power Plant in Miyagi prefecture as planned. The power plant, which is under the TK Structure in Japan, has a total capacity of 18.90 MW. BPP invested in 100% shares of the power plant and entered into sales and purchase agreement with Tohoku Electric Power Co., Inc. under Feed-in Tariff (FiT) scheme for 20 years at the price of JPY 36 per kWh throughout the project period.

25 December 2019

Banpu secured the company rating and the ratings of the existing senior unsecured debentures at "A+ affirmed by TRIS Rating. This rating reflects Banpu's leading position in the coal industry among the companies in Asia-Pacific, including its diverse customer bases and coal resources, reliable stream of revenue from the power business, and strategic move to become a leading integrated energy solutions company in Asia-Pacific.

December 2019

Banpu Renewable Singapore Pte. Ltd. (BRS), Banpu Power's wholly-owned subsidiary, entered into a purchase agreement to acquire 19.9% shares in Global Engineering Co., Ltd., with the transaction value of JPY 1,143 million (approximately THB 315.7 million). The investment will expand into virtual power plants and energy trading business to provide digital and online platforms for power distribution.

BRS also acquired 100% shares in four solar power plants under the TK Structure in Japan with the transaction value of JPY 1,134 million (approximately THB 300.9 million). The four power plants have a total generation capacity of 6.32 MW, as detailed below.

Tenzan Power Plant
In Saga Prefecture, with a generation capacity of
1.96 MW
And under Feed-in Tariff (FiT) scheme at the price of
JPY **40** Per kWh
Achieved COD in October 2017

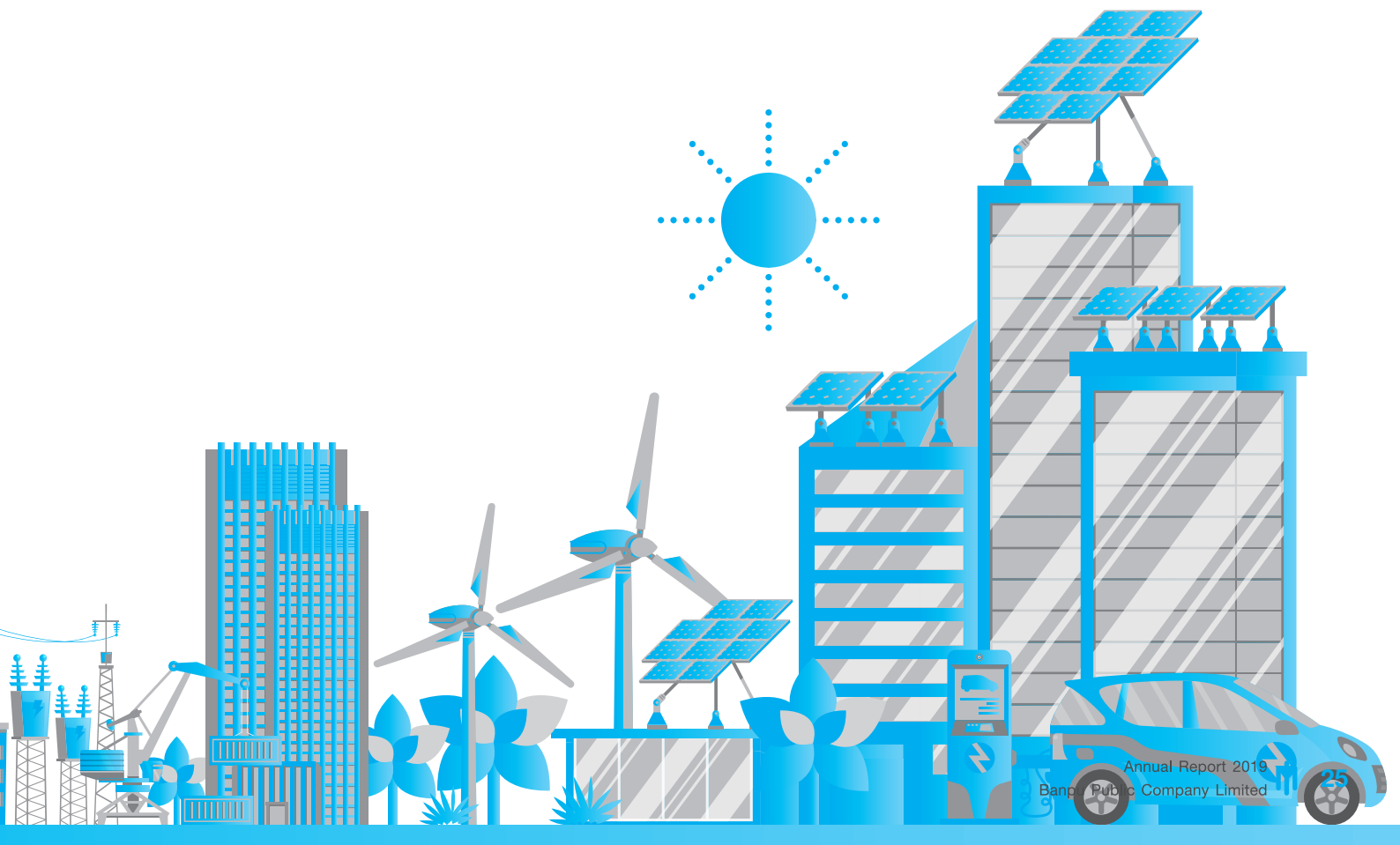
Muroran I Power Plant
In Hokkaido Prefecture, with a generation capacity of
1.73 MW
And under Feed-in Tariff (FiT) scheme at the price of
JPY **24** Per kWh
Achieved COD in August 2018

Muroran II Power Plant
In Hokkaido Prefecture, with a generation capacity of
1.63 MW
And under Feed-in Tariff (FiT) scheme at the price of
JPY **24** Per kWh
Achieved COD in January 2018

Takeo II Power Plant
In Saga Prefecture, with a generation capacity of
1.0 MW
And under Feed-in Tariff (FiT) scheme at the price of
JPY **21** Per kWh
Achieved COD in October 2018

20 February 2020

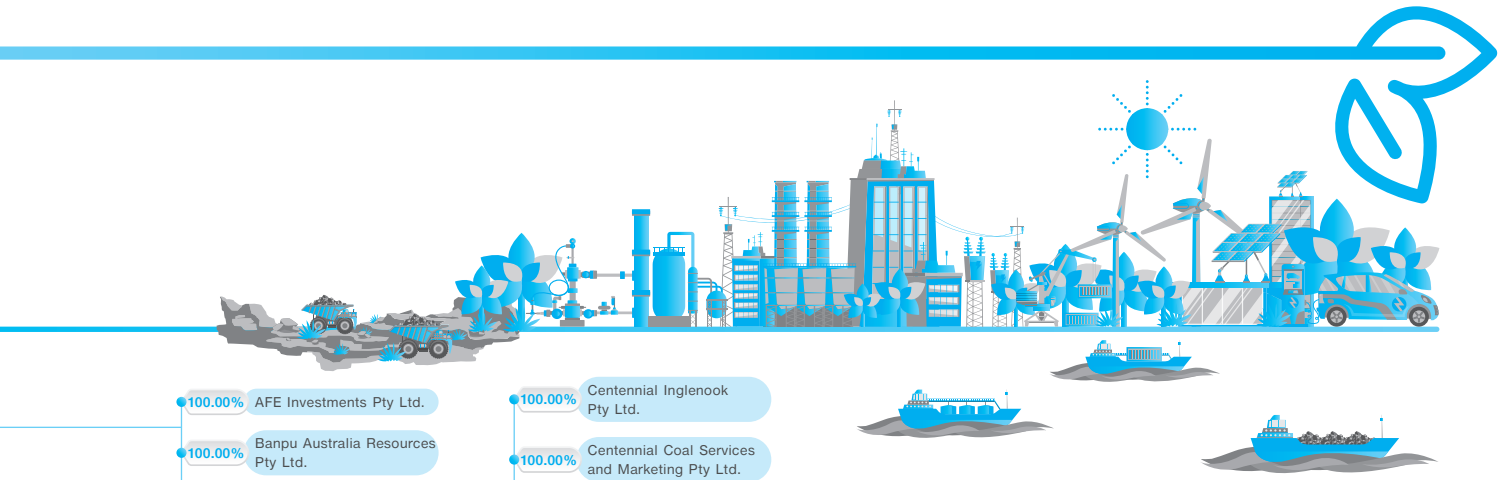
The Board of Directors meeting approved the Company's dividend payment at a rate of THB 0.60 per share for the operating results from 1 January – 31 December 2019, of which a THB 0.35 per share interim dividend was paid out on 27 September 2019. Thus, the remaining THB 0.25 dividend would be further paid out of the retained earnings and operating profits during 2019. The Meeting proposed the Company to pay THB 0.25 per share dividend from accumulated profits and operating profits from 1 July – 31 December 2019, which are appropriated from the corporate tax-exempted profits, on which shareholders are not entitled to tax credits. The dividend payment is scheduled on 30 April 2020.



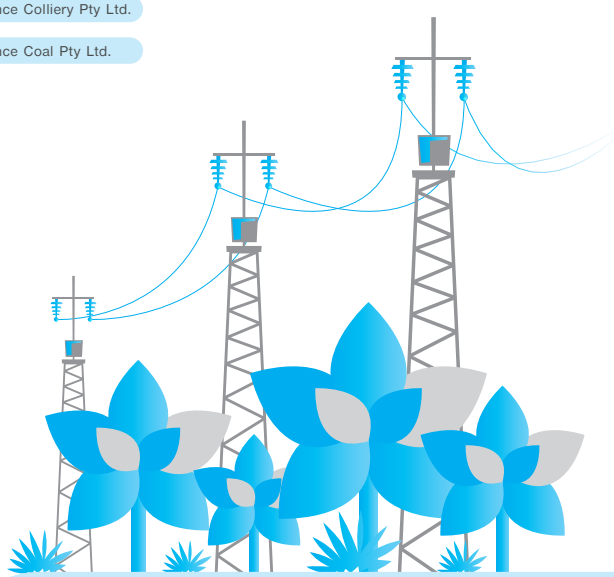
BANPU GROUP STRUCTURE

As of 31 December 2019





- 100.00% AFE Investments Pty Ltd.
- 100.00% Banpu Australia Resources Pty Ltd.
- 100.00% Centennial Energy Pty Ltd.
- 100.00% Centennial Coal Co., Ltd.
  - 100.00% Centennial Inglenook Pty Ltd.
  - 100.00% Centennial Coal Services and Marketing Pty Ltd.
  - 100.00% Centennial Northern Coal Services Pty Ltd.
  - 100.00% Centennial Airly Pty Ltd.
  - 100.00% Berrima Coal Pty Ltd.
  - 100.00% Centennial Angus Place Pty Ltd.
  - 100.00% Centennial Coal Infrastructure Pty Ltd.
  - 100.00% Centennial Fassifern Pty Ltd.
    - 100.00% Powercoal Pty Ltd.
      - 100.00% Elcom Collieries Pty Ltd.
      - 100.00% Huntley Colliery Pty Ltd.
      - 100.00% Mandalong Pastoral Management Pty Ltd.
      - 100.00% Collieries Superannuation Pty Ltd.
      - 100.00% Powercoal Superannuation Pty Ltd.
  - 100.00% Centennial Northern Mining Services Pty Ltd.
  - 100.00% Centennial Mandalong Pty Ltd.
  - 100.00% Centennial Mannering Pty Ltd.
  - 100.00% Centennial Munmorah Pty Ltd.
  - 100.00% Centennial Myuna Pty Ltd.
  - 100.00% Centennial Springvale Holdings Pty Ltd.
    - 100.00% Centennial Springvale Pty Ltd.
    - 100.00% Springvale Coal Pty Ltd.
    - 100.00% Boulder Mining Pty Ltd.
    - 100.00% Springvale Coal Sales Pty Ltd.
  - 100.00% Centennial Newstan Pty Ltd.
  - 100.00% Charbon Coal Pty Ltd.
  - 100.00% Coalex Pty Ltd.
    - 100.00% Clarence Coal Investments Pty Ltd.
    - 100.00% Clarence Colliery Pty Ltd.
    - 100.00% Clarence Coal Pty Ltd.
  - 100.00% Hartley Valley Coal Co. Pty Ltd.
  - 100.00% Centennial Clarence Pty Ltd.
  - 100.00% Ivanhoe Coal Pty Ltd.
  - 100.00% Powercoal Employee Entitlements Co. Pty Ltd.
  - 100.00% Centennial Drilling Services Pty Ltd.
  - 16.66% Port Kembla Coal Terminal Ltd.
- 100.00% PT. ITM Indonesia
  - 75.00% PT. Gas Emas
  - 33.34% PT. Nusantara Timur Unggul
- 100.00% PT. Kitadin
- 100.00% PT. Indominco Mandiri
- 100.00% PT. Trubaindo Coal Mining
- 100.00% PT. Bharinto Ekatama
- 100.00% PT. Jorong Barutama Greston
- 100.00% PT. Tambang Raya Usaha Tama
- 100.00% PT. ITM Batubara Utama
- 100.00% PT. Nusa Persada Resources
- 100.00% PT. Energi Batubara Perkasa
- 100.00% PT. Tepian Indah Sukses
- 99.99% PT. ITM Energi Utama
- 70.00% PT. ITM Banpu Power*
- 80.00% Hunnu Gobi Altai LLC
- 100.00% Hunnu Altai Minerals LLC
- 100.00% Aizu Land Solar G.K.
- 100.00% Banpu Power Trading G.K.
- 49.00% Digital Energy Solutions Corporation
- 19.90% Global Engineering Co., Ltd.
- 100.00% BPP Vinh Chau Wind Power LLC
- 70.00% Zouping Peak CHP Co., Ltd.
- 100.00% Banpu Power Trading (Shandong) Co., Ltd.
- 100.00% Banpu Power Trading (Hebei) Co., Ltd.
- 12.08% Tangshan Banpu Heat and Power Co., Ltd.
  - 87.92% Anqiu Huineng Renewable Energy Co., Ltd.
  - 100.00% Weifang Tian'en Jinshan Comprehensive Energy Co., Ltd.
  - 100.00% Dongping County Haoyuan Solar Power Generation Co., Ltd.
  - 100.00% Anqiu County Hui'en PV Technology Co., Ltd.
  - 100.00% Jiaxing Deyuan Energy-Saving Technology Co., Ltd.
  - 100.00% Feicheng Xingyu Solar Power PV Technology Co., Ltd.
  - 100.00% Jiangsu Jixin Electric Power Co., Ltd.



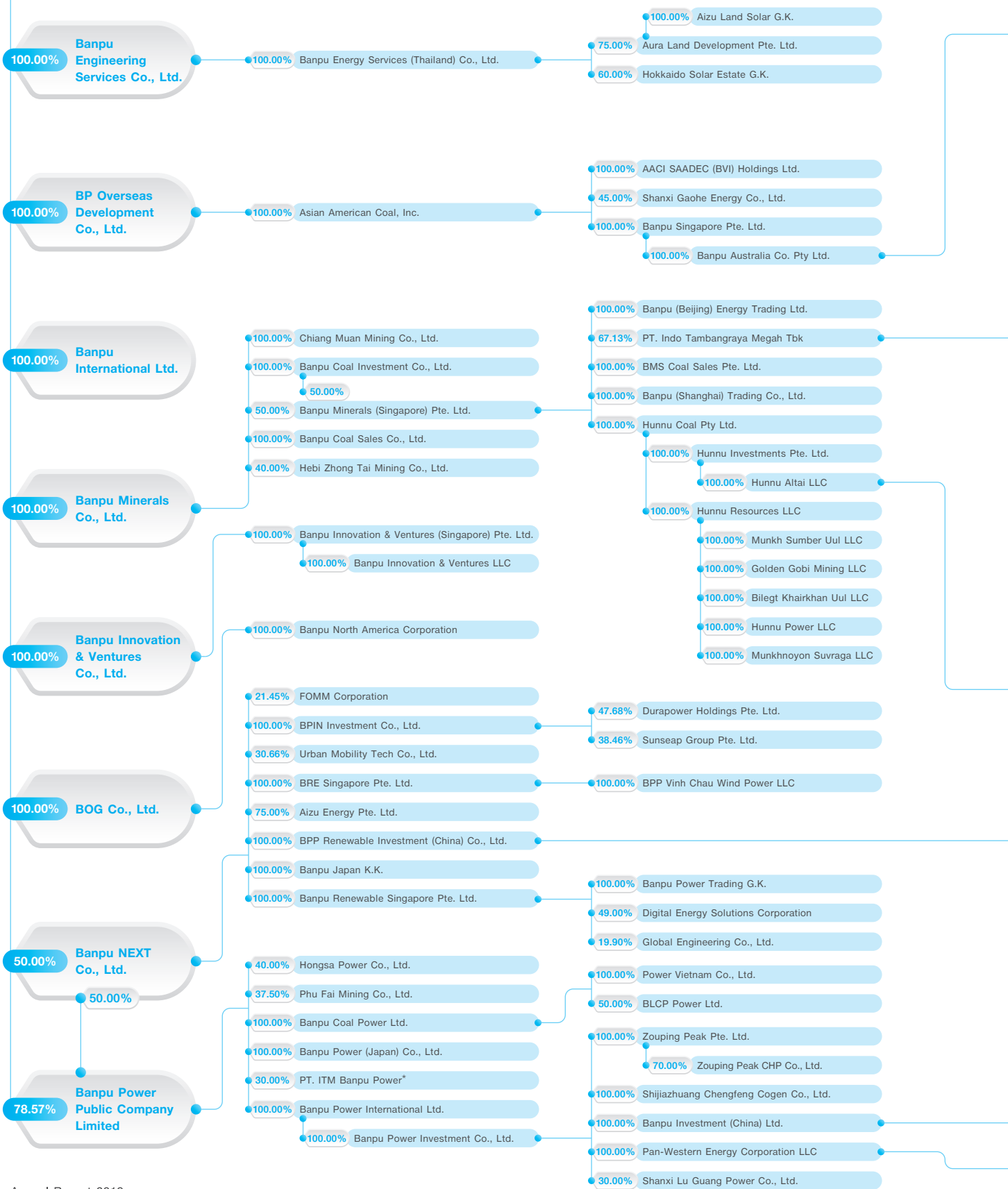
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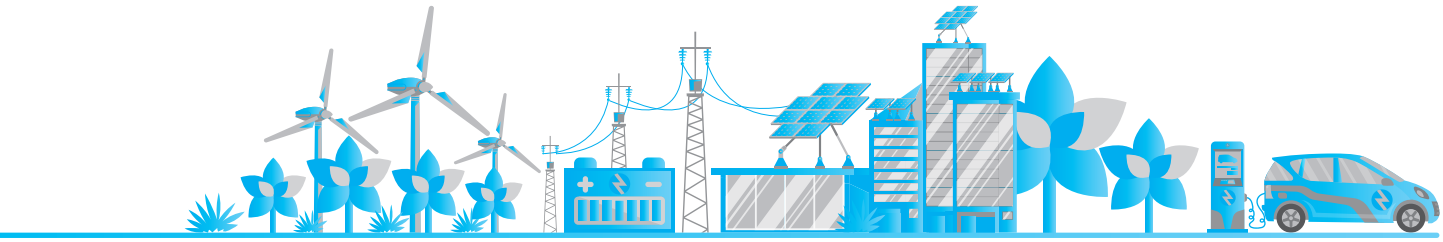
* PT. ITM Banpu Power

- 70.00% held by PT. Indo Tambangraya Megah Tbk
- 30.00% held by Banpu Power Plc.

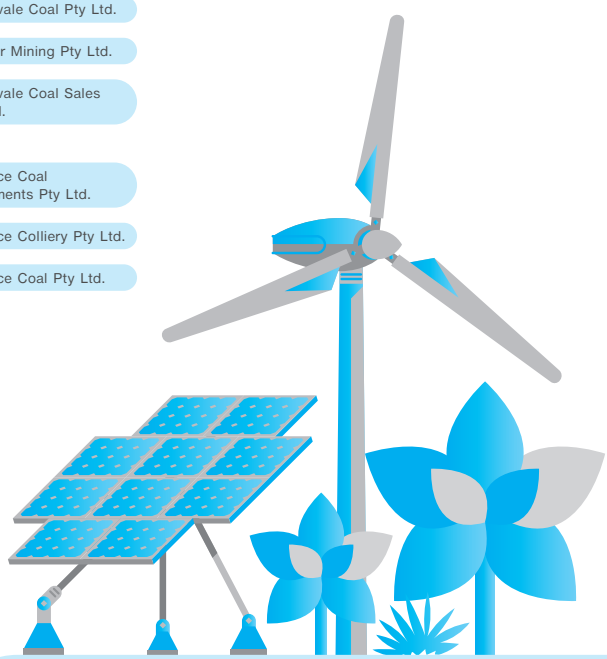
As of 27 February 2020

Banpu Public Company Limited





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- 12.08% Tangshan Banpu Heat and Power Co., Ltd.
- 87.92%



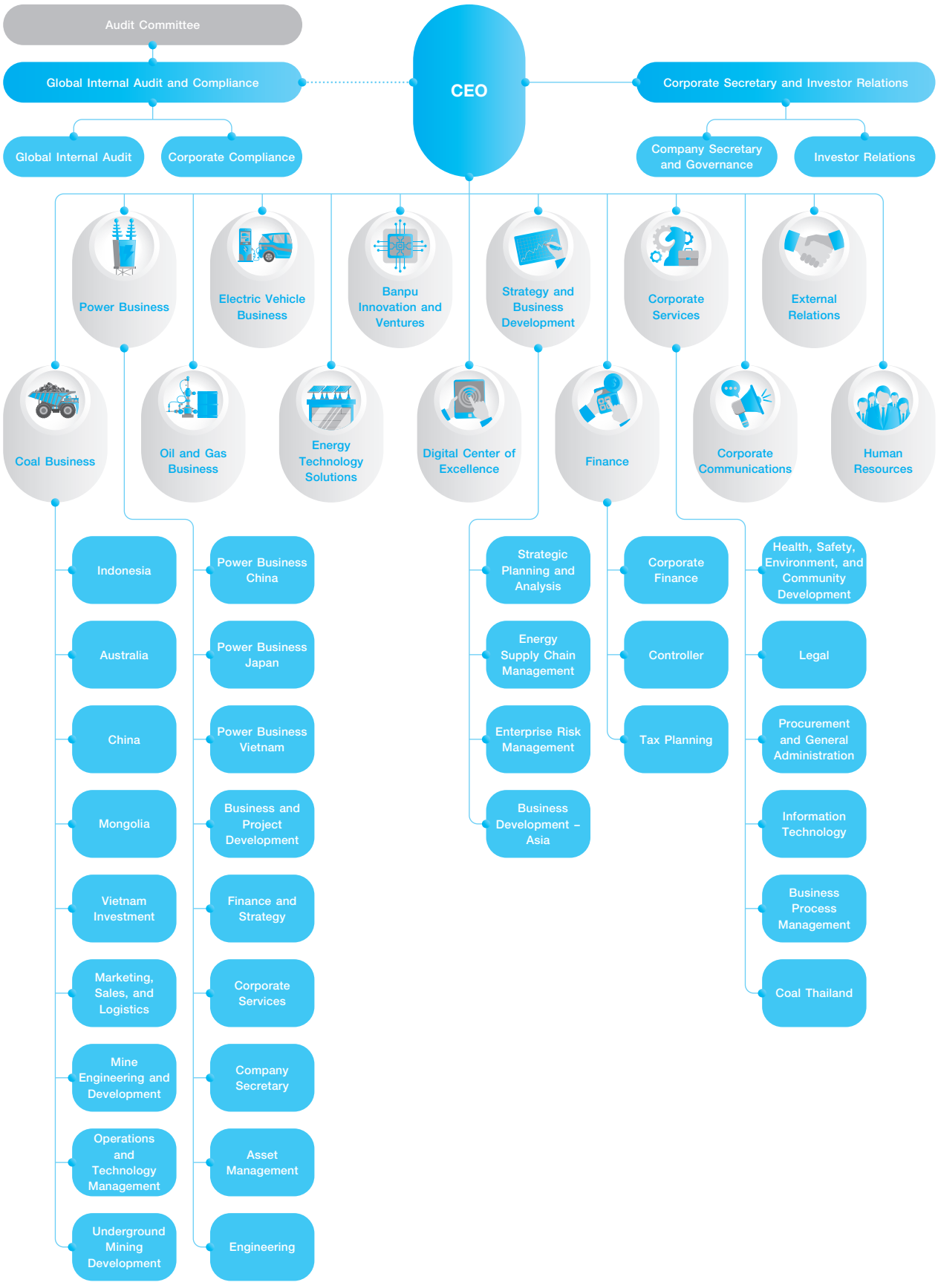
Note:

* PT. ITM Banpu Power
- 70.00% held by PT. Indo Tambangraya Megah Tbk
- 30.00% held by Banpu Power Plc.

** Biofuel Development Holdings Co., Ltd. and BPPR Co., Ltd. registered for company dissolution to the Department of Business Development and completed the liquidation on January 28, 2020.

ORGANIZATIONAL STRUCTURE

As of 1 January 2020



MANAGEMENT STRUCTURE

The Company's management structure as of 31 December 2019 consists of the Board of Directors and executive officers. The Board of Directors consists of independent directors, non-executive directors, and executive directors. Independent directors account for 38% of the Board membership.

The Board set up three sub-committees, namely, the Audit Committee, the Corporate Governance and Nomination Committee, and the Compensation Committee.

The Board also requires that Chairman of the Audit Committee, Chairman of the Corporate Governance and Nomination Committee, Chairman of the Compensation Committee, and all directors in the Audit Committee be independent directors.

1. The Board of Directors consists of:

1. Mr. Chanin Vongkusolkit	Chairman of the Board of Directors
2. Mr. Teerana Bhongmakapat	Independent Director
3. Mr. Suthad Setboonsarng	Independent Director
4. Mr. Sudiarso Prasetio	Independent Director
5. Mr. Pichai Dusdeekulchai	Independent Director
6. Mr. Teerapat Sanguankotchakorn	Independent Director
7. Mr. Anon Sirisaengtaksin	Director
8. Mr. Metee Auapinyakul	Director
9. Mr. Ongart Auapinyakul	Director
10. Mr. Rawi Corsiri	Director
11. Mr. Buntoeng Vongkusolkit	Director
12. Mr. Verajet Vongkusolkit	Director
13. Ms. Somruedee Chaimongkol	Director

Remarks:

1. Mr. Rutt Panijphand retired from directorship, effective after 2019 Annual General Meeting of shareholders on 3 April 2019
2. Annual General Meeting of shareholders for 2019 appointed Mr. Pichai Dusdeekulchai and Mr. Teerapat Sanguankotchakorn to be new directors, effective from 3 April 2019 onwards.

Authorized Signatory Directors on behalf of the Company

Any two of the following five board members have the authority to sign on behalf of the Company: Mr. Chanin Vongkusolkit, Mr. Metee Auapinyakul, Mr. Ongart Auapinyakul, Mr. Rawi Corsiri and Ms. Somruedee Chaimongkol. The two individuals are authorized to sign jointly on a document affixed with the Company's seal.

Duties and Responsibilities of the Chairman of the Board of Directors

To ensure effective management and clear division of duties over Banpu's policy formulation and operation, the role to lead the Board, and the supervision of management's performance, Banpu stipulates that the Chairman of the Board of Directors and the Chief Executive Officer must not be the same person. The Chairman of the Board of Directors' duties and responsibilities are to convene the Board of Directors and Shareholders meeting, determines the agenda for Board meetings together with the Chief Executive Officer, and in the case of an equality of votes, the Chairman of the Board of Directors shall give the casting vote.

Duties and Responsibilities of the Board of Directors

The Board of Directors is accountable to shareholders with respect to managing the Company and supervising its management so that the organization achieves its goals while shareholders' interests are maximized. At the same time, the Board of Directors makes sure that the Company's business operations are in compliance with the Code of Conduct while the interests of all stakeholders are considered.

The Board of Directors has a duty to comply with the laws, objectives, and regulations of the Company, and with resolutions of the shareholders' meeting. It must perform duties with integrity and must safeguard short-term and long-term interests of shareholders. The Board also complies with rules and regulations of the Stock Exchange of Thailand (SET), the Office of the Securities and Exchange Commission (SEC), and the Capital Market Supervisory Board, which was established according to the Securities and Exchange Act, B.E. 2535.

The Board formulated the "Banpu Public Company Limited Board of Directors' Practice" in 2009 as a guideline for the Board of Directors. The handbook details definitions, composition and criteria of the Board, directors' qualifications, terms of office and vacancies, duties and responsibilities of the Board as well as meetings and voting procedures. It was amended and edited in 2011, 2012, 2014, and 2017 to reflect changing responsibilities, business climates, and to enhance good corporate governance of the Board of Directors.

To comply with the practices, the Board entrusts the CEO to run the Company's business and to supervise the Company's operations.

The Board has also formulated a charter for the Audit Committee, the Corporate Governance and Nomination Committee, and the Compensation Committee as a guideline for their duties.

The Board also organizes an orientation session for new directors so that they are aware of what Banpu expects from them. Through orientation, the directors learn about their roles and responsibilities, Banpu's corporate governance policy and practices, and Banpu business and operations. In addition, visits to the Company's different operational units are arranged for new directors. These activities are carried out in order to prepare them thoroughly for their role as Banpu directors.

The Board of Directors has a policy to expand all directors' horizons on corporate governance, industrial outlook, businesses, new technology and innovations, etc. Directors are encouraged to attend seminars or trainings held by the Thai Institute of Directors (IOD) and other reputable institutions to enhance their performance. In addition, seminars are held with the management to transfer technical knowledge and experience directly related to the Company's business. Knowledge sharing sessions, regarding new energy and technology, are also organized between management and the Board of Directors on a regular basis. In 2019, the Board of Directors attended seminars and trainings as follows:

Name	Training Course/Seminar	Institution	Date of Training/Seminar
Mr.Teerana Bhongmakapat (Independent Director, Chairman of the Audit Committee and Member of the Compensation Committee)	- Risk Management for Corporate Leaders (RCL) #15/2019	Thai Institute of Directors Association (IOD)	11-12 February 2019
	- Seminar on "National Director Conference"	Thai Institute of Directors Association (IOD)	24 July 2019
Mr.Suthad Setboonsarng (Independent Director, Member of the Audit Committee and Member of the Compensation Committee)	- Cyber Resillience Leadership Mission in Action 2019	Bank of Thailand	1 May 2019
	- Seminar on "IIA Thailand Annual Conference 2019: Indispensable IA Insightful, Agile & Innovative"	Institute of Internal Auditors Thailand (IIA)	4 September 2019
	- Annual Forum 2019 "Thai Businesses Amidst Mega Trends: Risks and Opportunities"	Thammasat Economics Association	14 November 2019
Mr.Pichai Dusdeekulchai (Independent Director and Member of the Audit Committee)	- Director Certificate Program (DCP) #278/2019	Thai Institute of Directors Association (IOD)	June–August 2019
	- Seminar on "National Director Conference"	Thai Institute of Directors Association (IOD)	24 July 2019
	- Annual Forum 2019 "Thai Businesses Amidst Mega Trends: Risks and Opportunities"	Thammasat Economics Association	14 November 2019
Mr.Teerapat Sanguankotchakorn (Independent Director and Member of the Compensation Committee)	- Seminar on "National Director Conference"	Thai Institute of Directors Association (IOD)	24 July 2019
	- Board Matters and Trends (BMT) #8/2019	Thai Institute of Directors Association (IOD)	13-14 August 2019
	- Annual Forum 2019 "Thai Businesses Amidst Mega Trends: Risks and Opportunities"	Thammasat Economics Association	14 November 2019
Mr.Ongart Auapinyakul (Director)	- Annual Forum 2019 "Thai Businesses Amidst Mega Trends: Risks and Opportunities"	Thammasat Economics Association	14 November 2019

The Board of Directors also holds a joint meeting between independent directors and non-executive directors at least once a year to allow directors to freely express and discuss opinions relating to management. The Company Secretary is required to submit a summary report of these meetings to all directors.

In addition to the Board of Directors' meetings, the Board also requires a "Board Retreat" to be held annually to provide directors an opportunity to raise issues of interest, and to express opinions or provide recommendations with the aim of improving teamwork among the Board of Directors and the management, and to plan administrative direction and a succession plan of senior management.

The Board of Directors requires that the Board itself to be subject to a performance evaluation once a year. The Board started the individual director self-assessment in 2014. This duty is entrusted to the Corporate Governance and Nomination Committee.

The Board requires that the three sub-committees conduct their own self-assessment. The assessment forms are provided by the Corporate Governance and Nomination Committee, and each has the same standard. These forms focus on roles and responsibilities corresponding to each Committee's charter. The sub-committees have used the assessment forms as part of their performance report presented to the Board annually since 2012.

2. The Audit Committee consists of:

1. Mr. Teerana Bhongmakapat	Chairman of the Audit Committee
2. Mr. Suthad Setboonsarng	Member
3. Mr. Pichai Dusdeekulchai	Member

The current Audit Committee's term of office is three years, from May 2019 to April 2022. The Audit Committee has knowledge and experience in accounting and finance. Mr. Pichai Dusdeekulchai, a member of the Audit Committee has a duty to review the Company's financial statements with his knowledge, expertise and sufficient experience.

In the 1/2018 Audit Committee meeting, held on 16 January 2018, Ms. Wiyada Wiboonsirichai was appointed as Secretary of the Audit Committee. This appointment has been effective since 16 January 2018. Ms. Wiyada Wiboonsirichai has more than 26 years of experience in managing and conducting professional internal audit in accordance with international standards. She is a Certified Public Accountant (CPA) with excellent understanding of the Company's operations.

Duties and Responsibilities of the Audit Committee

The Audit Committee has a duty to review the Company's financial statements, its adequacy of internal control and risk management systems, and compliance with applicable laws and regulations. The Audit Committee is also required to prepare a report or to give opinions to the Board of Directors for approval or for submission to the shareholders' meeting, as appropriate. (See more information in Banpu's website at www.banpu.com/committee/)

3. The Corporate Governance and Nomination Committee consists of:

1. Mr. Rawi Corsiri	Chairman of the Corporate Governance and Nomination Committee
2. Mr. Sudiarso Prasetio	Member
3. Mr. Verajet Vongkusolkit	Member
4. Mr. Anon Sirisaengtaksin	Member

The current Corporate Governance and Nomination Committee's term of office is three years, from May 2019 to April 2022.

Duties and Responsibilities of the Corporate Governance and Nomination Committee

According to its charter, the Corporate Governance and Nomination Committee has two major duties. Firstly, to review the Corporate Governance Policy and the Code of Conduct, and to monitor compliance with the policy and practices within Banpu's Code of Conduct. Secondly, to nominate directors and the Chief Executive Officer, to review a succession plan in order to nominate appropriate persons to fill the management positions (for department head level and higher) and to submit recommendations to the Board of Directors for approval or for submission to the shareholders' meeting, as appropriate. (See more information in Banpu's website at www.banpu.com/committee/)

4. The Compensation Committee

consists of:

1. Mr. Buntoeng Vongkusolkit	Chairman of the Compensation Committee
2. Mr. Teerana Bhongmakapat	Member
3. Mr. Suthad Setboonsarng	Member
4. Mr. Teerapat Sanguankotchakorn	Member

The current Compensation Committee's term of office is three years, from May 2019 to April 2022.

Duties and Responsibilities of the Compensation Committee

The Compensation Committee's duty is to provide advice related to compensation management to the Board of Directors for approval or for submission to the shareholders' meeting, as appropriate. (See more information in Banpu's website at www.banpu.com/committee/)

5. The Management* consists of:

1. Ms. Somruedee Chaimongkol	Chief Executive Officer
2. Mr. Somsak Sithinamsuwan	Head of Coal Business
3. Mr. Sutee Sukruan	Head of Power Business
4. Mr. Akaraphong Dayananda	Head of Strategy and Business Development
5. Mr. Varoj Limjaroon	Head of Human Resources
6. Ms. Udomlux Olarn	Head of Corporate Communications
7. Ms. Arisara Sakoongaravek	Chief Financial Officer
8. Mr. Jirameth Achcha	Head of Corporate Services

Note:
* Top executives are the next four executives after CEO.

Duties and Authority of the Chief Executive Officer

The Board of Directors sets operational goals for the CEO and evaluates her performance every year. The CEO then evaluates the performance of executive officers and senior executive officers by using goals and evaluation criteria linked closely with Banpu's strategic plan and annual operating plan and uses this information to set appropriate and attractive compensation packages and incentives. (For more information, please see 56-1 Form: CEO's duties and responsibilities)

6. The Independent Directors, who account for 38% of the Company's Board of Directors members, are as follows:

1. Mr. Teerana Bhongmakapat	Independent Director
2. Mr. Suthad Setboonsarng	Independent Director
3. Mr. Sudiarso Prasetio	Independent Director
4. Mr. Pichai Dusdeekulchai	Independent Director
5. Mr. Teerapat Sanguankotchakorn	Independent Director

Banpu has defined the qualifications of "Independent Directors" according to the Notification of the Capital Market Supervisory Board No. TorJor.39/2559 dated 16 November, B.E. 2559. (For more information, please see 56-1 Form and the Notification of Capital Market Supervisory Board No. TorJor.39/2559 dated 16 November, B.E. 2559).

7. Company Secretary

The Board of Directors has appointed Mr. Virach Vudhidhanaseth as Company Secretary, whose duties and responsibilities are as stipulated in the Securities and Exchange Act, B.E. 2535. The Company Secretary is responsible for organizing meetings for the Board of Directors and shareholders, ensuring compliance with the meetings' resolutions, and advising the Board on rules and regulations to which it must comply. Additionally, the Company Secretary is responsible for preparing and keeping the register of directors, Board meeting invitation letters, Board meeting minutes, the Banpu Annual Report, invitation letters to attend the shareholders' meeting and records of its minutes, the report on conflict of interest of directors or executive officers and other duties as required by the Capital Market Supervisory Board. (The qualifications of Company Secretary is stated in 56-1 report regarding the details of the Board of Directors and the Management.)

Market and Competition

Energy Resources



Coal Business[1]

Market and Competition

Market

1. Global Coal Market

Demand for coal imports in 2019 remained high; however, the global coal prices declined continuously due to oversupply. Demand for coal imports in Asia grew strongly led by China, India, and South-east Asian countries whereas demand for coal in Europe declined because of the economic slowdown and the competition from natural gas-fired power plants. Furthermore, the trade war between superpower rivals slowed down the economic growth in many regions. On top of that, the appreciation of the U.S. dollar has caused global coal prices to fall.

China remained the world's largest coal importer despite the restrictions of coal imports from the government. The demand for coal remained high, driven by the strong economic growth in the first half of 2019. Nonetheless, the demand for coal slightly increased over 2018, given the extreme cold weather. Coal production in early 2019 slowed down due to stricter enforcement of safety measures as there had been fatal mine accidents. The Chinese government's stringent mining safety regulations also forced some mines to shut down temporarily for a safety inspection. This caused coal prices in China to surge since February. Although the government had urged high-safety coal mines to accelerate their production, the output increased slowly. Coal prices began to drop in March since the demand for coal was not very high while the production was getting better.

China's coal imports surged in January 2019 following the restrictions on coal imports over the past year. Coal barges had been suspended for custom clearances since December 2018 after the government slowed down coal imports by extending the custom clearance period, especially for coal imports from Australia, causing coal imports in February to fall and sending Australian coal prices down.

China reduced value-added tax on the import of coal from 16% to 13% since 1 April 2019. Nevertheless, domestic coal prices still did not decrease due to the tight supply from slow production in the country. At the same time, the demand for coal in cement and other industries was rising, driven by a measure to boost the economy to ease the negative impact of the trade war.

Coal imports in China soared in the third and the fourth quarters after buyers speeded up importing fearing that the government would curb coal imports as at the end of 2018. Coal imports at the time were also much cheaper than domestic coal. Meanwhile, domestic coal output was higher when the coal mines suspended for safety inspection passed a safety inspection and resumed their production.

The economic growth in China slowed down in the second half of the year as a result of the trade war. Given mild weather in summer, coupled with higher nuclear and hydropower production, the demand for coal increased very slightly. Coal inventory in power plants thus remained high, and demand for coal from the spot market was low, pushing coal prices down gradually. However, as imported coal remained cheaper than domestic coal, the Chinese government had to restrict coal imports at year-end, leading to a sharp decline in coal imports in the last two months of 2019.

The volume of coal imports to India largely increased in the first half of the year due to favorable economic growth and the additional operations of two large scale

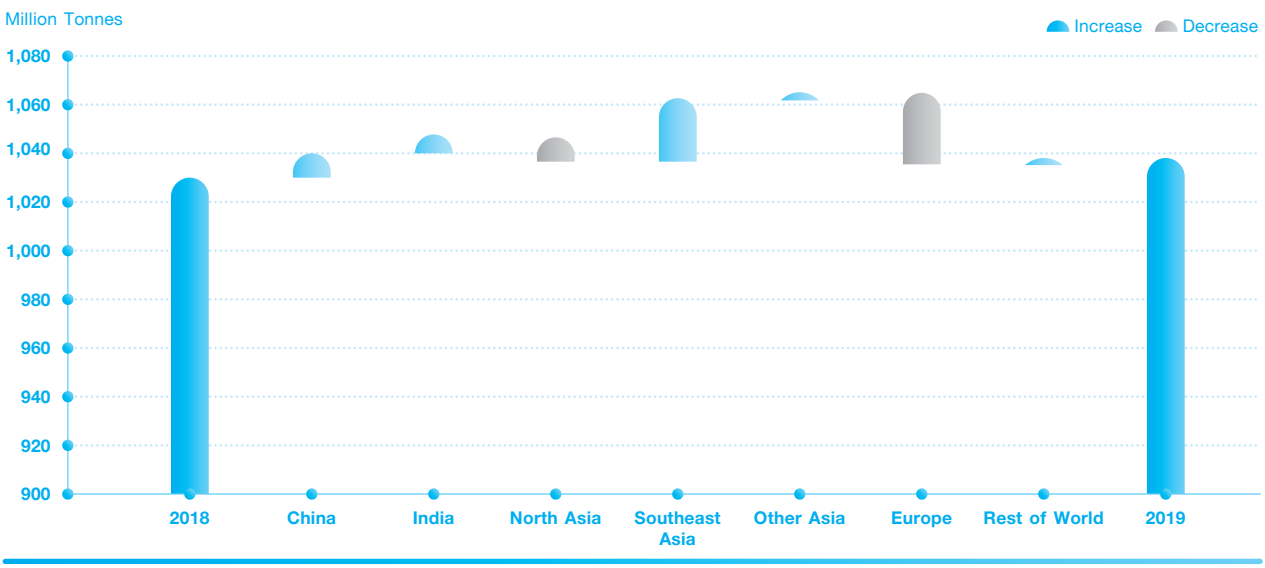
[1]The word "coal" in this section of report refers to "thermal coal".

base-load power plants. Those particular power plants were approved by the government to increase electricity prices to offset additional costs when domestic coal production had not been able to increase enough output to satisfy the rising demand.

However, the import of coal to India slowed down in the second half of 2019 due to the deceleration of economic growth and an increase in the production of hydropower dams. Domestic coal output plunged in the third quarter due to heavy rainfall in the monsoon season, causing coal imports to stay high. Summarily, India saw an increase in coal imports over the past year.

Japan consumed less coal than in 2018 because nuclear and renewable-based power plants had achieved greater capacity while some base-load power plants were during overhauling.

2019 Thermal Coal Import Demand Changes



Source: Marketing, Sales and Logistics Analyst, Banpu Plc.

South Korea had been facing air pollution, particularly fine dust, and the government had to shut down four old coal-fired power plants, with a total generation capacity 2.1 GW, from March to June. Other power plants were ordered to operate 80% of the capacity, while the 48 government-owned power plants had to alternate their operations for an overhaul to reduce dust emission, causing a sharp decline in coal consumption during the first half of 2019.

Apart from that, the South Korean government adjusted the tax system for coal and liquefied natural gas (LNG) to cut down coal use, which will partially help reduce air pollution. Customs tariff increased by 25-30% according to types of coal, while those of LNG dropped from KRW 91,400 to KRW 23,000 per kilogram (or a 75% decrease). The new tax system became active from 1 April 2019. Despite the change in the import tax system, coal is still the cheapest fuel for power production compared to other commercial fuels. Moreover, most of the LNG supply is based on a long-term purchase agreement to ensure energy security. Given the cost of LNG purchased under long-term contracts linked to oil prices, the price of LNG was far higher than spot prices.

In the latter half of 2019, coal consumption in South Korea increased significantly because of better weather and the overhaul of nuclear power plants. However, the National Council on Climate and Air Quality suggested the government shut down several base-load power plants over December 2019 - February 2020 to reduce air pollution. The government subsequently ordered 8-15 base-load power plants to shut down during that period, and the rest of base-load power plants to scale down their operations to 80% of their capacity. The electricity authority was delegated to manage to electricity supply to satisfy the demand. The restriction on base-load power generation has caused a decline in the overall coal consumption in South Korea.

Taiwan likewise suffered from dust problems, thus, limited base-load power plant production at a total capacity of 2.7 GW during winter. Apart from that, the local government ordered that Taichung, the largest coal-fired power plant in Taiwan with a 5.5 GW net capacity, which used to consume about 21 million tonnes (Mt) of coal per year, reduce the consumption of coal to no more than 11.04 Mt per year. However, Taichung's coal consumption went beyond the limit in November, prompting the local government to delay coal import and notifying coal producers of a force majeure event. Taichung Power Plant still maintained the production of some units to stabilize the power transmission system. This situation caused the Electricity Authority of Taiwan to discuss with the local government about further solutions. It is estimated that the Taichung Power Plant will have to settle with the capped amount of coal and to not operate at full capacity. In the next few years, Taichung Power Plant will scale down coal consumption within the amount set by the local government.

Coal demand in South-East Asian countries was higher, especially in Vietnam, where coal imports doubled over the past year. This was driven by rising electricity demand after the new base-load power plant achieved COD with a 1.6 GW generation capacity. In addition, since domestic coal supply was insufficient for the growing demand, coal users needed to import coal to blend with domestic coal.

Malaysia is also a country where a new coal-fired power plant commenced operations in the second half of 2019. The 2 GW capacity power plant will increase coal demand by 7 Mt per annum (Mtpa).

Coal imports in the European market plummeted due to falling electricity demand caused by the economic slowdown. However, there was more gas-fired power generation while gas prices falling and carbon prices rising. The continuous increase in renewables-based power generation also dragged down coal power generation.

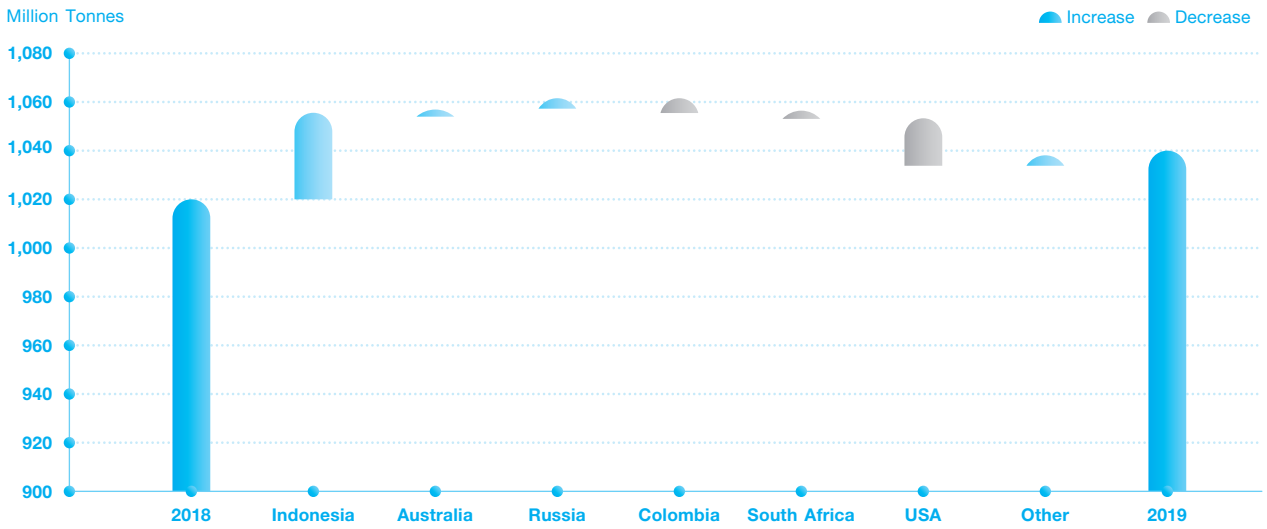
Many countries in Europe accelerated the plan to cancel coal to achieve the GHGs reduction target. At the COP25 UN climate conference at the end of 2019, the European Union announced the European Green Deal, aiming for net-zero GHG emissions by 2050, which will drive the decline of coal in the future.

On the production side, Indonesia could significantly increase coal export due to the Indonesian coal producer's rush to increase production in the previous year when the coal prices were high. Together with fewer rainfalls last year, there was a high surplus of coal in Indonesia despite the government's restriction on coal production.

The U.S. and Colombia were able to export less coal due to falling demand in the European market, their major market, while failing to compete in the long-distance markets in Asia due to high transportation costs. Accordingly, coal producers in the U.S. and Colombia needed to scale down production output.

Coal producers in the Russian Federation had tried to export more coal into the Asian market to offset the impact of the shrinking European market. There was an

2019 Thermal Coal Export Supply Changes

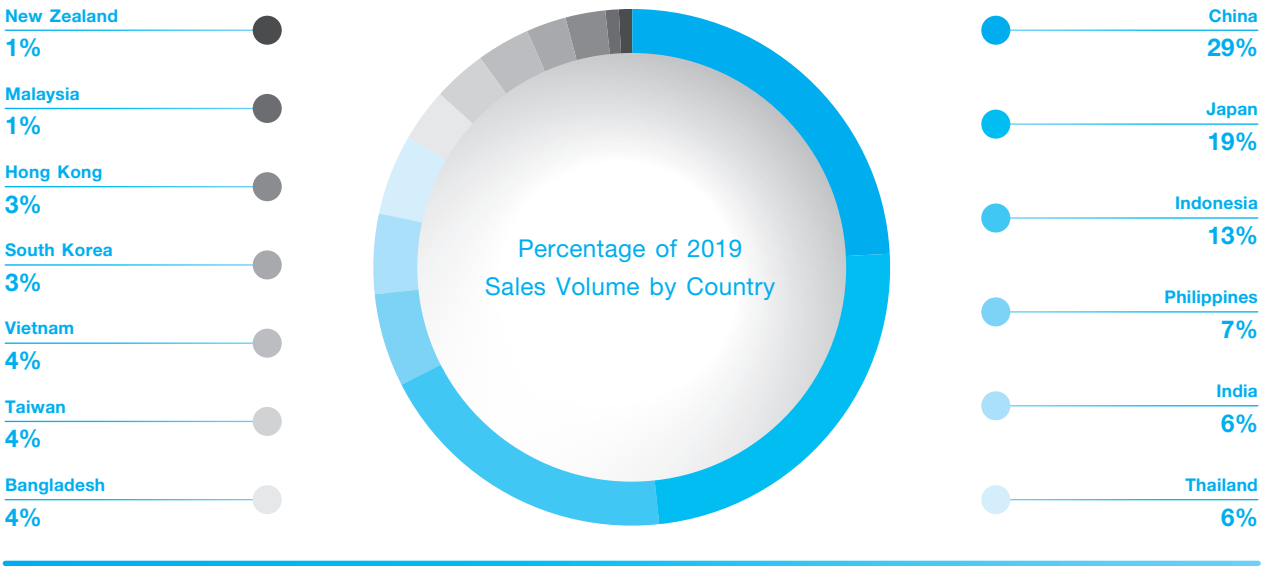


Source: Marketing, Sales and Logistics Analyst, Banpu Plc.

expansion of the coal-transporting Vostochny seaport so that more coal can be transported to Asia. Though there was a bottleneck of coal transportation by train, the development of seaports along the coast of the Black Sea to accommodate large ocean freighters enabled Russia to increase coal export.

South Africa enjoyed a surge in domestic coal demand, attracting coal producers to sell more coal in a domestic market. On the other hand, the export volume of premium coal became more limited because of heavy rainfalls at year-end and strong winds around coal terminals, dragging coal exports down from last year. Banpu's coal sales in Indonesia amounted to 25.3 Mt, growing 4.9% from the previous year. The largest share of 29%, went to China, increasing 50% over 2018. This was driven by Banpu's expansion of coal export to China since imported coal prices in the Chinese market were more stable when compared with other markets that rely on Newcastle spot prices, which had been highly fluctuating and dropped sharply. Banpu's coal sales to Japan were 19%, growing 9% driven by high sales price. Sales volume in Indonesia accounted for 13% of the total sales volume, rising 18% because the country was slightly affected by global coal price fluctuations.

Percentage of 2019 Sales Volume by Country



2. Coal Market in Republic of Indonesia

Coal production in Indonesia continued to increase in response to the expanding coal demand in Asia. In 2019, the total coal production in Indonesia was at approximately 578 Mt, rising 8% over the previous year, despite the government's restrictions on coal production.

Coal exports were at approximately 458 Mt, rising 8.4% over 2018 and accounted for 79% of the total coal production in Indonesia. Major coal importers are China, India, Japan, South Korea, Taiwan and South-East Asian and South Asian countries.

Indonesia's coal demand in 2019 was at approximately 121 Mt, increasing 7.4% from last year. 80% of the demand was from the power sector, growing 7.5%. While 9.5% was from cement industry, and the rest was from other industries.

Banpu's coal sales in Indonesia were 3.3 Mt, contributing to 13% of Banpu's total coal sales, or 2.7% market share of Indonesia's coal demand. Major buyers were coal-fired power plants, accounting for 49% of the total sales. The rest was sold to metal, cement, and other industries at 42%, 8%, and 1%, respectively.

The Indonesian government capped the price of domestic coal for coal-fired power plants at USD 70 per tonne, the FOB coal price for the coal with a gross calorific value (GAR) of 6,322 kcal/kg. Coal producers have to sell coal to power plants at the Indonesian coal reference price (HBA), but not exceeding USD 70 per tonne. However, the reference price fell to lower than USD 70 per tonne in the latter half of 2019 due to a continuous decline in global coal prices. Thus, rather than export to foreign markets, Indonesian producers sold more coal in the domestic market for higher prices.

The Indonesian government continued the Domestic Market Obligation (DMO) measure, which requires coal producers to supply at least 25% of their output to

domestic customers. In the past year, the domestic allocation was set at 128 Mt while the production output was way higher than expected, causing some producers unable to meet the DMO quota and will be subject to sanctions in the form of reduced production for the following year.

The Indonesian government announced the new marine insurance regulations, effective from 1 June 2019, required that all coal barges used for coal transportation must be registered in Indonesia and insured by insurance companies registered in Indonesia. The regulations had little impact on export because insurance premium constituted a small cost to the net value of the product.

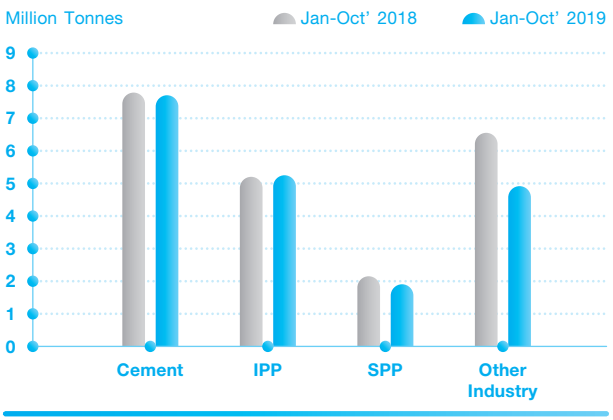
Apart from that, the Indonesian government has enforced the sales verification module platform (MVP) since 1 November 2019, requiring coal producers or traders to fill in the necessary information about sales, mines, coal qualities and coal barges as well as to pay royalty fee online before loading coal onto transportation barges. The government expects to better audit taxation and prevent illicit coal production and trading.

3. Coal Market in Thailand

During the first ten months of 2019, the private sector's total coal consumption was approximately 19.6 Mt, falling 1.9 Mt year-on-year due to economic slowdown. Meanwhile, the cement industry remained the largest coal consumer, accounting for approximately 7.6 Mt of the private sector's coal consumption, decreasing 1.1 Mt year-on-year. Independent power producer (IPP) is the second-largest group of coal consumers whose consumption was at 5.3 Mt, growing 0.6 Mt year-on-year despite economic slowdown because base-load power generation has the lowest costs when compared with power generation from other commercial fuel sources.

Economic slowdown hit small power producer's (SPP) coal consumption and other industrial consumers, such as paper, petrochemical, textile, and food industries. Since their products are to be sold both in domestic and export markets, they suffered direct impacts from economic and export slowdowns. During the first ten months of 2019, SPP's coal consumption was at 1.9 Mt, or a 14.3% decrease year-on-year, while other industries' coal consumption was at 4.9 Mt, down 24.1% year-on-year.

Coal Consumption by Sector



Source: Marketing, Sales and Logistics Analyst, Banpu Plc.

Competition

1. Competition in the Coal Industry

Competition in 2019 was very strong because of oversupply while the European market imported less coal due to the economic slowdown and competition from natural gas. Nonetheless, growing Asian coal demand has offset the European decline, thus attracting more coal producers to Asia market.

Overall, the global demand for coal imports in 2019 increased by 10 Mt or 0.9% over 2018, with a total import volume of 1,038 Mt. The Asian countries accounted for 83% of coal sales via sea transportation mode, with a total volume of 865 Mt, rising 4.4% from the previous year.

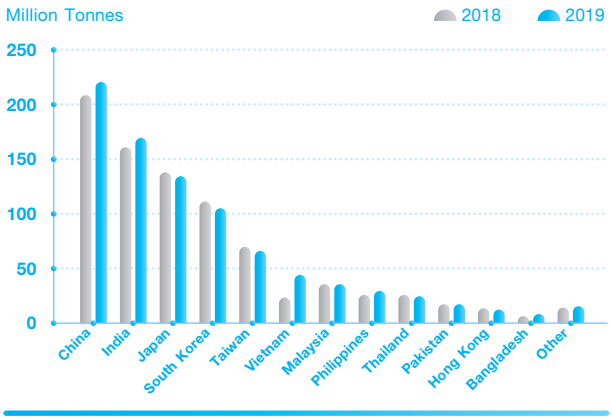
China remained the world's largest coal importer with an import volume of approximately 219 Mt, rising 5.7% from the previous year, despite the Chinese government's stricter restrictions on coal imports and a continual increase in domestic production. The slight increase in coal demand due to the trade war and weather led to supply glut, further dragging down coal prices in the Chinese market. Nonetheless, imported coal delivered to the east coast of China remained cheaper than domestic coal, resulting in such a high import volume that the government had to intervene.

The Chinese government's stricter control on coal imports caused a sharp drop in coal imports in the last two months of 2019. Yet, this factor less affected global coal prices than last year since coal producers had anticipated the scenario and prepared beforehand. However, last year's coal imports increased from the previous year.

India was the second-largest global coal importer with an import volume of approximately 169 Mt, rising 5.5% over 2018. The majority of coal imports were low-quality coal from Indonesia due to its cheap price. The shares of coal imports comprised 62% from Indonesia and 24% from South Africa, and the rest from such countries as the U.S., Australia, and Russia. Coal imports from the U.S. declined as coal prices from elsewhere were comparatively low, making coal from the U.S. unable to compete.

Asian countries imported around 302 Mt of coal, falling 3.8% from last year. In this group, South Korea was the largest importer as the government limited base-load power production over winter to cut dust pollution. Meanwhile, Taiwan also suffered air pollution, and the government likewise restricted operations of coal-fired power plants. Nevertheless, Taiwan has less power generation capacity than South Korea; thus, its proportion of reduced coal imports was lower.

Asian Thermal Coal Import by Country



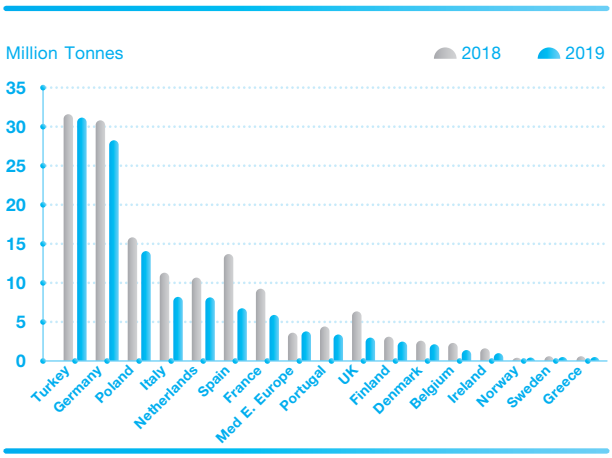
Source: Marketing, Sales and Logistics Analyst, Banpu Plc.

As North Asian countries imported less coal, the market of premium coal became oversupplied and more competitive. Japan imported more coal from Russia and Canada while being less dependent on Australia and Indonesia to raise the bargaining power. South Korea and Taiwan bought more premium coal to reduce the severity of the dust problems, which partially urged them to consume less coal. Exporters from Russia, the U.S., South Africa, and Colombia tried to sell more coal to North Asia to offset the decline in Europe, making the competition in this market more intense.

In 2019, coal imports in Southeast Asia saw a dramatic surge, growing from the previous year by 25 Mt (23.5%) largely driven by Vietnam's doubled import volumes. Although Indonesia is the major producer and exporter in this region thanks to spatial proximity, the competition among producers in Indonesia is very intense due to oversupply. Growing competition from Russian and Australian exporters in this market has made it even more competitive.

Europe's coal imports dropped 19.7% from the past year. Coal imports into Spain, the UK, Italy, and France plunged due to falling natural gas prices and more renewable power generation. Meanwhile, a drastic decrease in coal demand in Europe led to supply glut, fierce competition, and a sharp drop in coal prices. Major coal producers and exporters who used to depend on the European market responded to the problem by exporting more coal elsewhere, especially the Asian market, where growth is still high.

European Thermal Coal Import by Country



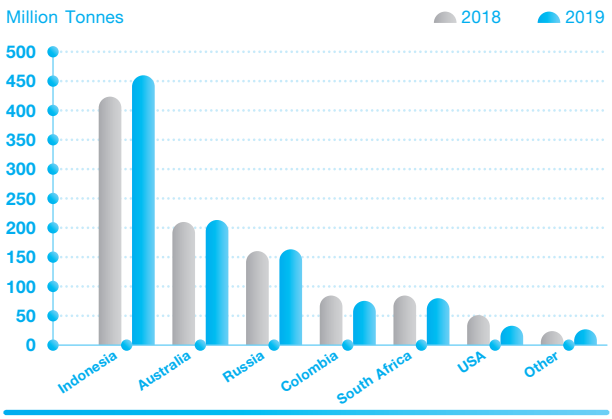
Source: Marketing, Sales and Logistics Analyst, Banpu Plc.

Global coal export in 2019 was at 1,041 Mt, increasing 2.1% from last year, largely due to Indonesia's increase in coal exports.

Indonesia is the world's largest coal exporter. Its market share in 2019 was approximately 458 Mt, growing 8.4% from 2018, driven by a surge in coal output from new mines. However, the majority of additional output was low-quality coal due to abundant reserves. Given the fact that Indonesian coal has low production costs, with close proximity to high-growth markets, Indonesian coal producers have a comparative advantage in coal production over producers from other countries.

Australia is the world's second largest coal exporter. In 2019, Australia exported approximately 210 Mt of coal, rising 1.1% over the previous year. Australia producers also suffered extended customs clearance in China, thus burdening additional costs on export from Australia. As Australian producers lost competitiveness in the Chinese market, they tried to export coal to other markets to mitigate the impact.

Global Thermal Coal Export by Country



Source: Marketing, Sales and Logistics Analyst, Banpu Plc.

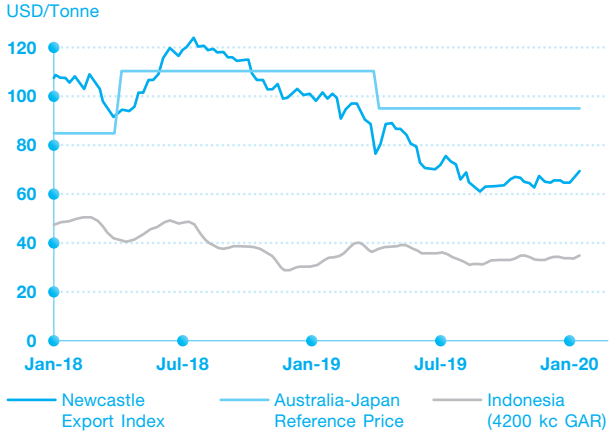
Russia exported approximately 163 Mt of coal to Non-CIS countries, increasing 2.7% over the past year. The country attempted to export more coal to Asia to offset the shrinking demand from the European market. As Russia has successfully expanded its coal terminals, it could export more coal to Asia, especially to Vietnam, the Philippines, and Thailand. The completed coal terminal at the Black Sea also accommodate larger vessels and reduce freight costs. Consequently, Russia has higher competitiveness in Turkey, the Mediterranean, India, and Pakistan.

The U.S. exported 33 Mt of coal (excluding exports to Canada), plunging 31.3% from last year as a result of a continuous decline in global coal prices. Thus, the U.S. coal could not compete in the Asian market.

The Colombian coal exports in 2019 were approximately 73 Mt, down 8.8% due to shrinking demand from the European market, Colombia's major market. The country tried to export more coal to Asia; however, the great distance from Asian consumers, coupled with the falling global coal prices, have made Colombian coal less competitive. The coal producers in Columbia are thus forced to reduce production.

South Africa's coal exports totaled 77 Mt, down by about 3.5% from the previous year given higher domestic demand. Higher coal price offer by the South African Electricity Authority also attracted coal producers to sell more coal in the domestic market. However, South African coal exports decreased only slightly even with heavy rain fall in the end of the year as coal producers are obligated to load the volumes of coal as agreed with the coal terminals to avoid fines. Due to the limited volumes of premium coal, the quality of coal exports from South Africa was lower. A tight supply of premium coal also pushed premium coal prices upward at year-end.

Thermal Coal Export Price, FOB



Source: IHS

Coal prices in 2019 continually declined due to oversupply and shrinking demand for premium coal. The annual average price at Newcastle Port (Newcastle Export Index) was at USD 77 per tonne, a 28% decrease from last year. Buyers from Japan agreed on the contract price with major coal producers from Australia at USD 94.75 per tonne, which is the Australia-Japan Reference Price. Coal delivery in 2019 (April 2019 - March 2020) dropped by 14% from last year. However, as spot prices were much lower than the reference price, most buyers referred more to spot prices.

While premium coal prices plummeted, low-quality coal, most of which came from Indonesia, suffered a lesser decline. The annual average Indonesian coal prices with a calorific value of 4,200 kcal/kg decreased slightly by 14% from last year. In addition, the movement of coal prices over the year was rather stable compared with premium coal prices thanks to a surge of demand in China, India, and South-East Asian countries.

In 2020, demand for coal imports is expected to grow slightly while coal demand in Asia will continue to rise, driven by the fairly high economic growth of developing countries in Asia. This offset the shrinking European demand thanks to falling natural gas prices and rising carbon prices in Europe following the policy to end the use of coal. In 2020, it is estimated that the competition will remain tough as the market is still oversupplied, worsened by political uncertainty, especially the trade rivalry, making markets highly volatile.

In 2020, premium coal demand is expected to stay high as in 2019 because South Korea and Taiwan will continue to restrict operations of base-load power plants to combat dust problems. Meanwhile, coal demand in Japan tends to grow because there will be new coal-fired power plants achieving commercial operation dates. This will offset the decreasing demand in Europe. Coal supply will grow beyond demand.

However, the U.S. and Colombian producers will not be able to increase production or even will have to reduce production because the drop of demands in Europe and their sources were too far from the Asian market to make them strong competitors.

In 2020, the demand for low-quality coal is expected to grow thanks to the launch of new base-load power plants' operations in South-East Asia, South Asia, and Indonesia. However, the economic slowdown is forecast to limit growth in Indian coal imports. Meanwhile, the Chinese government's restrictions on imported coal will slow down coal import into the Chinese market. On the production side, although coal production capacity meets global coal demand, there is a risk that the Indonesian government will limit coal production to keep coal output for domestic use, leading to a tight supply of low-quality coal.

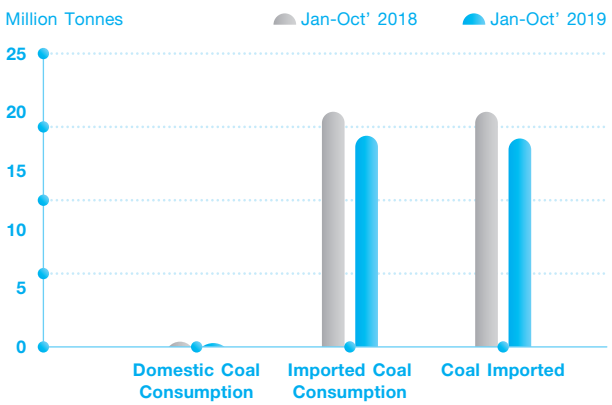
In the long run, investment in new coal mines faces various restrictions as many financial institutions have cut off funding for coal. On top of that, the development of new coal reserves is affected by more stringent environmental policies and social concern. In such a case that existing coal reserves eventually be depleted, and there are no new reserves to replace them in time; tight supply can be expected in the future.

2. Competition in Thailand

The majority of coal consumption by the private sector in Thailand was from imported coal. Domestic coal demand for the first 10 months of 2019 was only at 0.3 Mt, falling 14% from the previous year, accounting for 1.5% of the total coal demand for domestic coal from the private sector due to scarce resources. The total coal imports for the first 10 months of 2019 amounted to 19.3 Mt, decreasing by 8.9% year-over-year, as a result of the economic slowdown.

Competition in Thailand remained high given the market is full of coal entrepreneurs and mostly for coal imports, thus easily attracts foreign coal entrepreneurs, especially during oversupply periods. Highly-competitive markets were cement industry, small power producers, and other industries who buy coal through short-term bidding contracts or from the spot market. On the other hand, independent power producers entered into long-term power purchase agreements with foreign purchasers and rarely buy coal in the spot market.

Thailand Coal Consumption and Imports



Source: Energy Policy and Planning Office.

Market competition in 2020 is anticipated to remain fierce as in 2019, owing to a similar demand for coal resulting from the economic slowdown. The slow economy is forecast to continue in 2020. Besides, there is the volatility caused by the superpower rivalry while coal production stays high. Coal traders will benefit from these situations as there will be more choices for them to choose from.

Competitive Strategies

The trade war between superpower rivalries has caused high market volatility. Moreover, oversupply has toughened the market. Banpu has aligned its strategies with the changing market situations to maintain competitiveness in major markets. Competitive strategies deployed are as follows:

1. Product Development

The Company has used the optimization model for coal blending in which coal from external sources was included to deliver the coal blend that best suits each customer's needs with the least costs. This strategy allows the Company to optimize its own coal and coal purchased from external sources to create highest added value.

2. Targeting the Right Market

The Company positioned its coal products to satisfy customers' needs in each target market by focusing on trading premium coal in high-yield markets such as Japan. Meanwhile, lower-quality coals were sold to customers who can tolerate low-quality coals. With this strategy, the Company could maintain its customer base in major markets amid a huge oversupply.

3. Increasing Potential in Coal Sourcing

The Company increased purchases of coal from external sources to improve coal quality for various uses and deliver the right quality to each market. In addition, the Company sent teams to inspect the coal sources to ensure stable coal delivery both in terms of quantity and quality and collaborate with suppliers to ensure punctual delivery.

4. Stable Delivery

Banpu is among the few coal producers in Indonesia that own a large coal terminal port with vast coal stockyard, which enables production, stockpiling, and quality inspection activities before delivery to customers. Its highly stable delivery of coal has earned the Company trust from customers.

5. Customer Satisfaction Survey

The Company conducted a customer satisfaction survey through questionnaires sent to major customers in all countries. The survey results show that the Company received higher average scores in almost every aspect as a result of the continuous development of products and services to satisfy customer needs. Apart from that, the Company received useful information from customers to further improve its products and services.

Major Competitors

Banpu's major competitors in the global market remained quite the same as it is a tough market for new players. Major competitors are coal producers from Indonesia, Australia, Russia, and South Africa, e.g., Glencore, Yancoal, PT. Bumi Resources Tbk, PT. Bukit Asam Tbk, PT. Adaro Indonesia Tbk, PT. Kideco Jaya Agung, PT. Bayan Resources Tbk, PT. Golden Energy Mines Tbk, SUEK, Exxaro Resources and Anglo American Plc. Meanwhile, it was tougher for the U.S. and Colombian coal producers to compete in the Asian market since the coal sources too distant from Asian users, causing them to cut production. Apart from that, there were numerous small coal traders and producers in the market.

The Company's competitors in Thailand remained the old-time traders, namely SCG Trading Co., Ltd., Lanna Resources Plc., and Asia Green Energy Plc. As the majority of coal used in Thailand is imported coal, numerous coal traders have entered the market. Furthermore, the fact that the market is easily accessible for both small coal traders in Thailand and foreign competitors has made the market highly competitive.

Pricing Policy

The Company's coal prices are determined based on global sales prices at the time of offering and adjusted to the actual quality of coal. The majority of coal was sold based on the index-linked pricing, and derivative instruments are used in managing price volatility. The sales price in the Indonesian market shall not exceed USD 70/tonne for coal with gross calorific value (GAR) of 6,322 kcal/kg.

Customer Profiles

Banpu's major customers are large-scale power plants in many countries such as Japan, South Korea, Taiwan, China, India, the Philippines, Malaysia, and Indonesia. These power plants were owned by large and stable companies purchasing a massive volume of coal yearly. They have a strict and transparent procedure to select coal suppliers, and usually purchase coal through bidding, and enter into both short-term and long-term purchase agreements. They purchase some of the coal from the spot market. In addition, the Company sells coal to other coal users in cement, pulp and paper, as well as brick industries. As most of these customers need less coal for their operations than large-scale power plants, they usually buy coal through short-term bidding contracts and sometimes from the spot market.

Distribution and Distribution Channel

The Company has delegated BMS Coal Sales Pte., Ltd. (BMSCS), its subsidiary based in Singapore, to operate marketing and distribution activities for coal from Indonesia and Australia. BMSCS is also in charge of sourcing coal from external sources for further sales to customers. The majority of sales are direct offers to coal customers. BMSCS is responsible for market search, sales offers, bidding and negotiation with customers as well as coordinating with customers about ship transport and after-sales services, enabling the Company to efficiently focus on customers and market expansion.

Natural Gas Business

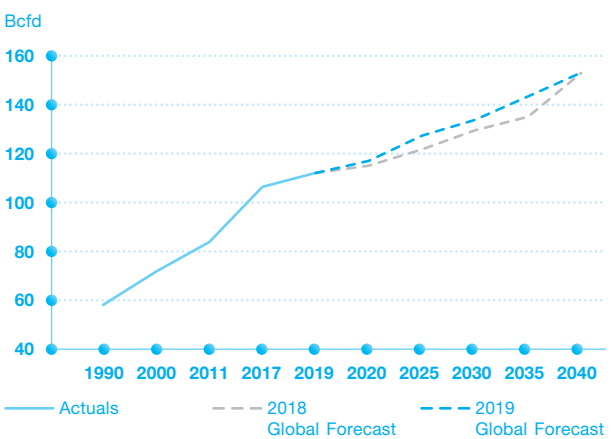
Market and Competition

Natural Gas Market

1. Global Natural Gas Market

Global natural gas demand growth appears potentially optimistic based on released projections from the International Energy Agency (IEA). The IEA releases an annual World Energy Outlook (WEO) each year which forecasts outlook for global primary energy usage. Comparing IEA's WEO forecasts for 2018 to 2019 for global natural gas demand, its New Policies Scenario appeared more optimistic for long-term global natural gas demand in the periods during 2020-2040. The chart below illustrates WEO 2018 and 2019 forecasts by the IEA.

IEA's World Energy Outlook 2018 vs. 2019
Global Natural Gas Demand* (1990-2040)



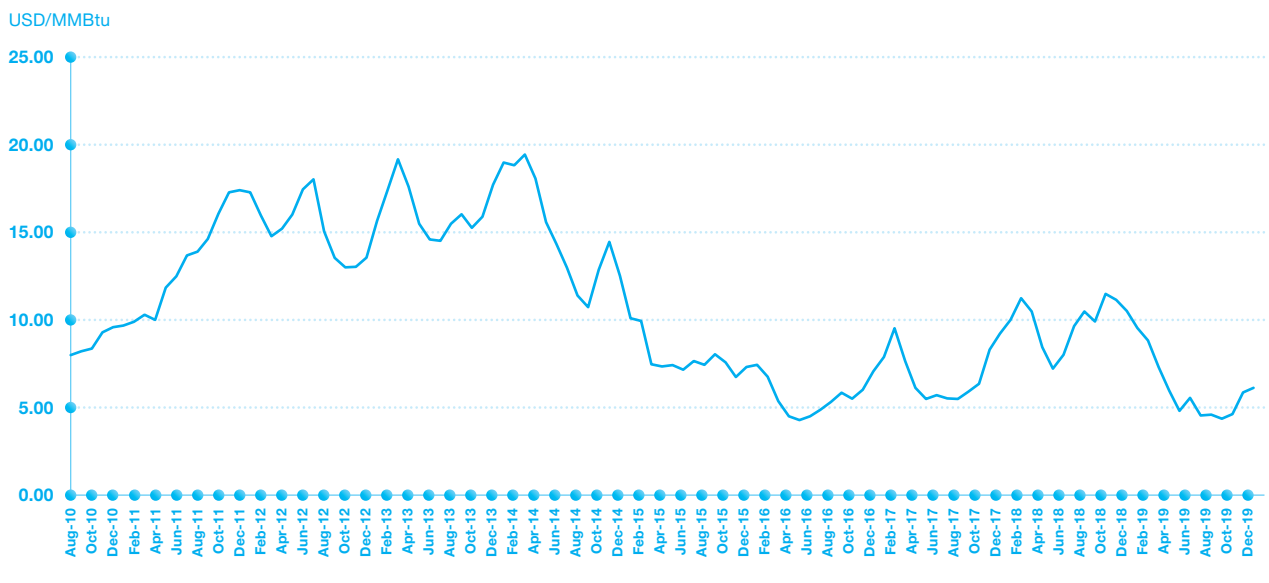
* IEA NEW Policies Scenario where identified new policies where countries adopt and implement stated policy goals; Assumes 1 Bcm = 35.3 Bcf.

Source: IEA – World Energy Outlook 2018, 2019

Natural gas continues to serve as an ideal source of primary energy, which is a bridging fuel between fossil fuels and renewables because of its abundance, relative lower costs, relative lower carbon footprint, and flexibility as a heating or transportation fuel. However, unlike many commodities, natural gas is not easily transported given its standard gaseous state. Therefore, pricing for the commodity is typically much regionalized. In the past few years, there has been increasing attempts to establish Liquified Natural Gas (LNG) import pricing benchmarks which can be used to track pricing performance for the global trade of LNG. In Asia, the Japan-Korea Marker (JKM) is emerging as the favorable price benchmark for imported LNG spot cargoes and trades on a USD per MMBtu basis. In 2019, JKM price declined significantly driven by a significant amount of LNG cargoes coming online from the U.S. and Australia in particular. However, this lower spot LNG price is expected to lead to further demand stimulation and partially explains IEA's projections around increasing global consumption of natural gas. The chart below shows the multi-year trend of JKM pricing for LNG.

Japan Korea Market (JKM) Price

LNG Import Pricing in USD/MMBtu (2010 – 2019)

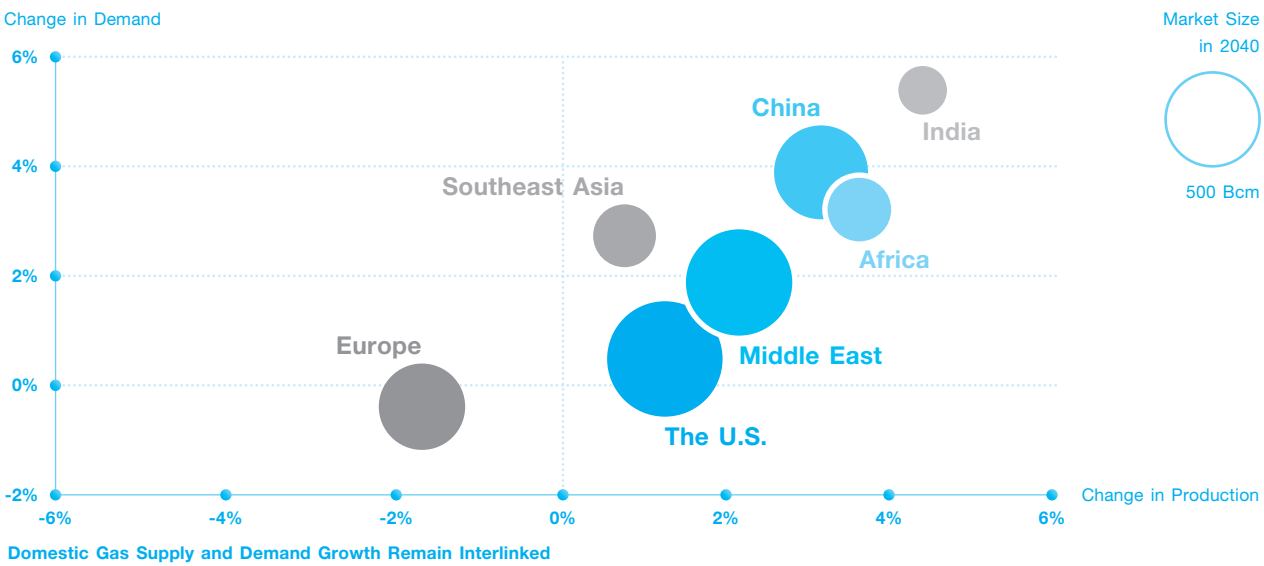


Source: S&P Global, Platts JKM

While the growth in natural demand-supply is expected to be significantly accelerated by the LNG trade, local production and major infrastructure projects i.e. the Power of Siberia project bringing gas from Russia to China, are expected to continue to stimulate overall increased natural gas demand in the Asia-Pacific region as well.

Asian economies continued their strong gas demand growth with China, Middle East, India, and Southeast Asia projected to be the largest consumers of natural gas. The U.S., Russia, Qatar, Mozambique, Iraq, and Australia are to be the largest producers of natural gas. The chart below illustrates IEA's most recent projections of global demand and supply growth across regions under its New Policies Scenario.

Annual Average Change in Gas Demand and Production in Selected Regions in the Stated Policies Scenario, 2018-2040

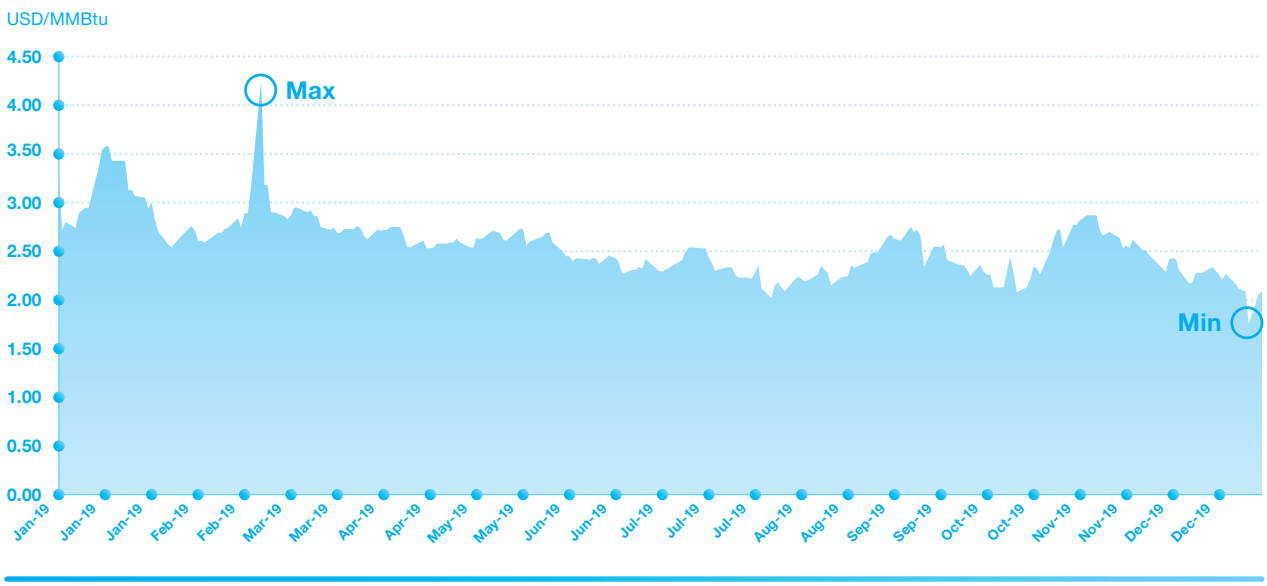


Source: IEA WEO 2019

2. The U.S. Natural Gas Market

The U.S. natural gas market remained very volatile in 2019. The key natural gas pricing benchmark, Henry Hub, traded from a high of USD 4.25 per MMBtu on 4 March 2019 down to a low of USD 1.75 per MMBtu on 27 December 2019. This dramatic reduction in price was the result of significant supply growth from unconventional resource plays in the U.S. coupled with warmer- than-normal winter weather (reducing overall heating demand expectations). The chart below shows Henry Hub price movements over the past year.

Henry Hub Natural Gas Spot Price, 2019 (USD/MMBtu)



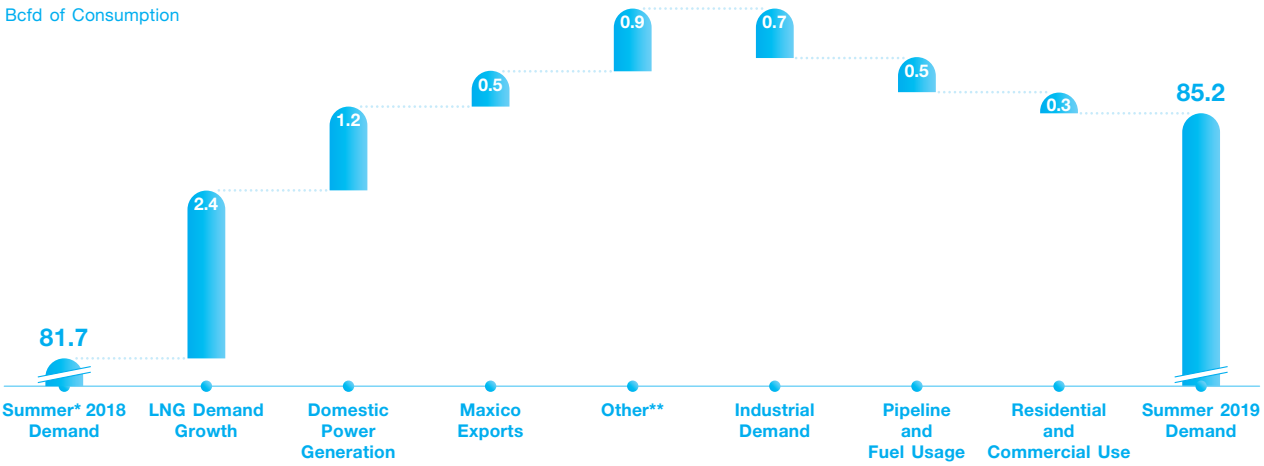
Source: United States Energy Information Agency (EIA).

Use of natural gas in the U.S. has two seasonal peaks, with consumption patterns predominantly driven by weather. The largest peak occurs during the winter (November – March), when cold weather increases the demand for natural gas space heating in the residential and commercial sectors. A second, smaller peak occurs in the summer (June – August) when air conditioning use increases demand for electric power, an increasing portion of which is provided by natural gas-fired generators.

Demand growth was projected to be significant for both seasonal peaks comparing 2018 to 2019. BTU Analytics estimated that the U.S. natural gas demand has increased approximately 3.5 billion cubic feet per day (Bcfd) from the summer months of 2018 versus summer months of 2019. BTU Analytics further projected that winter demand to be increased by approximately 2.2 Bcfd when comparing the winter months of 2018 versus the winter months of 2019. Using summer demand (2018 versus 2019) as the reference, the rise in demand was predominantly driven by increasing LNG exports 2.4 Bcfd, power generation 1.2 Bcfd, and exports to Mexico 0.5 Bcfd.

The chart below illustrates the U.S. natural gas demand growth from summer 2018 to summer of 2019.

The U.S. Natural Gas Summer Demand Growth, (2018 vs. 2019)



* U.S. summer gas demand months include: June, July and August.

** Includes gas consumed through flaring (e.g., in the Permian) or that was shut-in due to constraints.

Source: BTU Analytics Report, Henry Hub Outlook, December 2019

The overall dynamic in the U.S. natural gas market is one in which both supply and demand are growing in tandem with new supply growth outpacing new demand growth in the short-term, and therefore putting significant pressure on domestic gas prices. To compound pricing challenges in late 2019, warmer weather outlooks for core population like the Northeast United States led to reduced heating demand expectations and exacerbated the near-term oversupply situation. While colder weather than normal results in higher expected heating demand.

Competition

The competitive dynamics for natural gas in the U.S. market center around three core dimensions.

1. Local Producer Competition

The competition from local competitor upstream oil and gas producers located in similar basins. The oversupply situation forces local gas-on-gas competition as producers seek to access the most attractive sales points as well as operate with the lowest cost possible. Within the Northeast Pennsylvania, Banpu's affiliate, BKV Oil and Gas Capital Partners, L.P. (BKV) has identified 8 key natural gas producer competitors which it benchmarks its performance against. These competitors are publicly listed companies with significant assets in Appalachia either focused the Marcellus shale or Utica plays. BKV has competitive cash costs and margins when compared against these peers which are generally much larger in size on a production basis.

2. Associated Gas Production

The competition from the associated gas production, which the natural gas is a by-product from oil focused plays. The economics of natural gas production in these plays is mostly irrelevant to the capital deployment focus of these producers, and the marginal costs to produce this natural gas can be negative (making it the lowest source of gas production). In general, the most dominant source of associated gas in the U.S. is from the Permian play area. In 2019, a major pipeline called the Gulf Coast Express Pipeline Project (GCX) was

commissioned into service and added approximately 2 Bcfd of incremental supply of mostly associated gas towards the gulf coast markets. Several analysts predict that as oil prices remain higher, incremental associated gas will grow more rapidly and serve as competition for dry natural gas production.

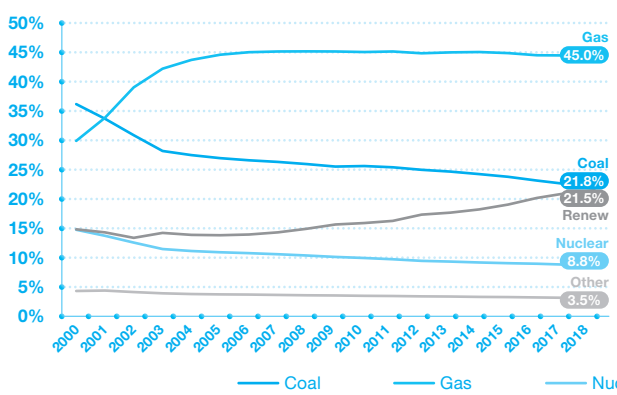
However, with regards to the Permian, most transportation of this associated gas is constrained, and will require significant investments in future pipelines to transport this gas towards demand centers such as the gulf coast markets and Mexico export markets. At present, there are several projects that have been identified to move this associated gas; however, as the last quarter of 2019, a major project (Permian Highway) originally scheduled to come online in 2020 was delayed until 2021 due to regulatory and economic constraints around building additional natural gas pipelines from the Permian. While associated gas will provide an additional source of low-cost gas, the infrastructure constraints and proximity of these plays to core demand markets imply that dry gas will continue to remain the margin producer of gas to the market. Therefore, the cost of supplying incremental marginal dry gas is the key determinant for long-term Henry Hub price outlook, not associated gas production.

3. Alternative Sources of Primary Energy

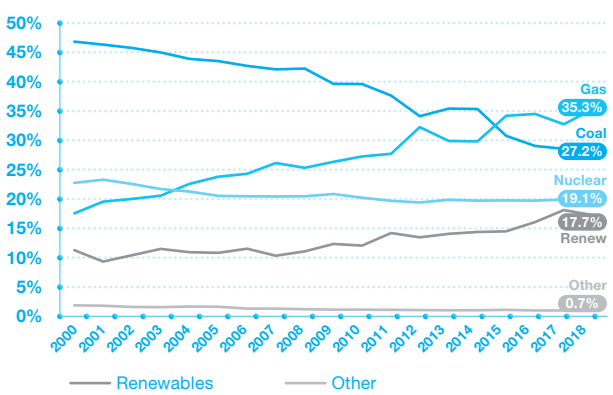
The competition from other primary energy sources: coal and renewable energy, within the U.S., which serves the need of local energy consumption especially in power generation sector, are major competitors to natural gas. However, the past 18 years has seen natural gas growth remain extremely competitive compared to coal and renewables, which is driven by natural gases' cost competitiveness, policies and regulations, and overall existing infrastructure. The chart below demonstrates the rapid growth in natural gas use as a primary power generation fuel in the U.S. versus coal or renewables.

In the long-term, Banpu remains optimistic on the competitiveness of natural gas as the dominant primary energy source for power generation as well as other forms of usage due to the strong competitive position and significant benefits of natural gas.

The U.S. – Total Nameplate Capacity



The U.S. – Net Generation



Source: EIA

Note: Renewables include Wind, Hydro, Solar and Biomass.

Competitive Strategies

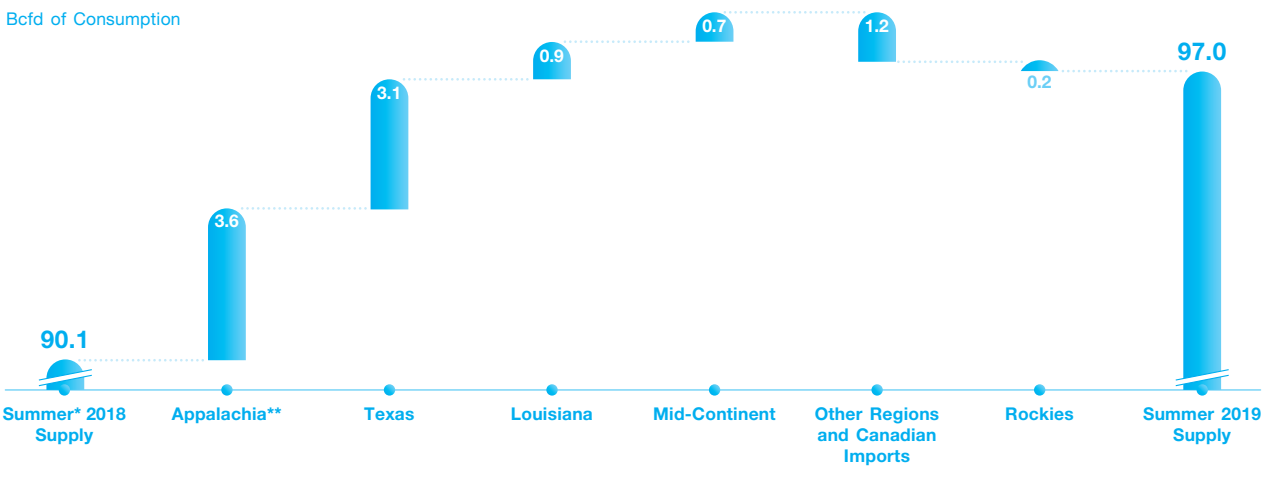
U.S. Asset and Local Basin Gas Markets

Banpu has committed to investing capital in two significant basins within its U.S. natural gas portfolio, and each of these basins has local demand-supply dynamics.

1. Northeast Pennsylvania

The first basin where existing investments have already been made is within the Appalachia basin. Banpu's investments are focused in Northeast Pennsylvania in the northern core of the Marcellus play area. This market area is commonly referred as Northeast Pennsylvania (NEPA). As of 2019, Banpu produced 69.1 billion cubic feet (Bcf) net or an average of 189 million cubic feet per day (MMcfd) with its NEPA portfolio and from approximately 378 gross producing wells, including both operated and non-operated wells. Within NEPA, like the rest of Appalachia, 2019 saw record amounts of new production coming online primarily from local large incumbent producers like Cabot and Chesapeake. Collectively Appalachia accounted for approximately 3.6 Bcfd or 51% of the new supply that hits the market when comparing the summer months of 2018 versus 2019.

The U.S. Natural Gas Summer Supply Growth, (2018 vs. 2019)



* U.S. summer gas supply months include: June, July and August.

** Includes Pennsylvania, Ohio and West Virginia production from mainly the Marcellus and Utica plays.

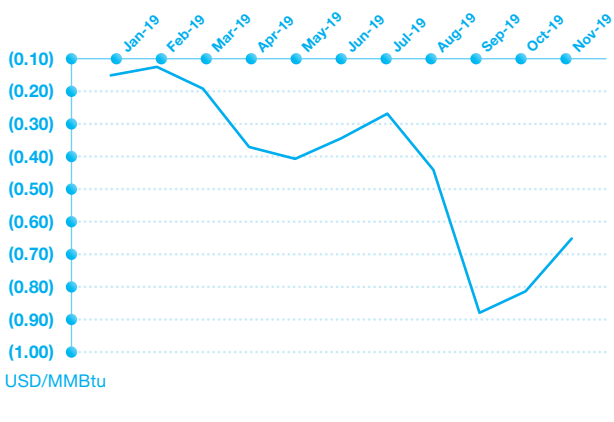
Source: BTU Analytics Report, Henry Hub Outlook, December 2019

A significant portion of this new supply was developed and delivered to fulfill pipeline commitments to major new pipelines that were commissioned in 2018. For example, the Rover pipeline with capacity of 3.25 Bcfd and Nexus pipeline with capacity of 1.5 Bcfd came online in 2018. There are several significant interstate pipelines that are expected to be commissioned over the next few years adding additional take-away capacity to the Appalachia region. However, over the long-term, building interstate pipelines from

Appalachia towards growth markets is challenging and faces significant opposition. Therefore, analysts predict that future interstate pipeline capacity out of Appalachia will be constrained and supply growth from Appalachia will be capped at currently planned take-away capacity levels.

The natural gas price for Appalachia is stated as a "differential" or "basis" to the Henry Hub benchmark price, reflecting local demand-supply dynamics. In 2019, the local basis was favorable during the first half of the year but deteriorated significantly during the second half. The chart below illustrates the local Leidy basis price as compared to Henry Hub price over 2019. The Leidy basis price is the local sales point where BKV Oil and Gas Capital Partners, LP (BKV) has the most NEPA pricing exposure.

Leidy Hub Price Monthly Average Basis



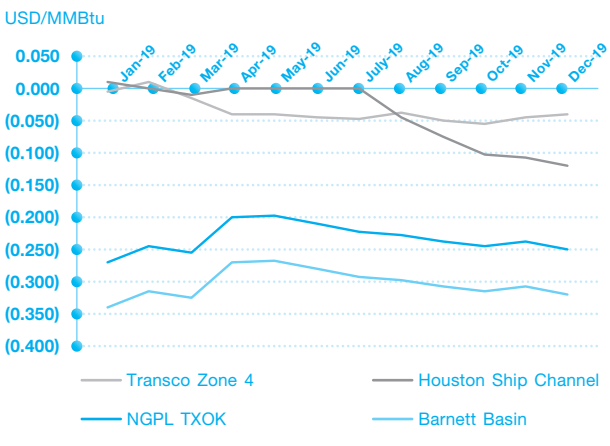
Source: BTU Analytics, Gas Basis Outlook,4Q 2019

2. Texas Barnett

On 18 December 2019, Banpu announced that its affiliate had signed a purchase and sale agreement (PSA) for all of Devon's Barnett assets. The Barnet position within the overall natural gas portfolio is significant and expected to close in the second quarter of 2020.

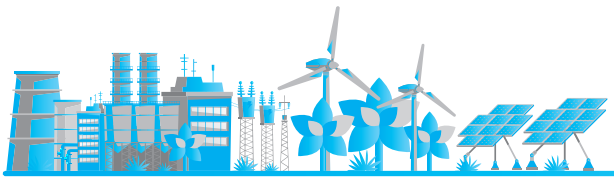
The Barnett asset opens significant market access and hydrocarbon product diversification to Banpu's U.S. natural gas investments. In particular, the Barnett local markets have proximity to major demand centers in the gulf coast where LNG exports, Mexico exports, and local petrochemical demand are rapidly growing. Therefore, the local prices for gas in the Barnett trade close to Henry Hub prices. The chart below illustrates the basis of local Barnett pricing to Henry Hub pricing over fiscal 2019.

Natural Gas Sales Hubs (Local Price Less Henry Hub Price) Accessed by Barnett Transaction



Source: Internal Analysis Based on Information Provided During Due Diligence

Energy Generation



Power Business

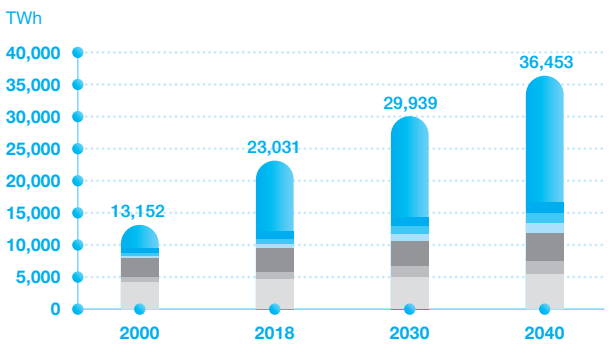
Banpu Power Public Company Limited is a Banpu's subsidiary operating both base-load and renewable power generation businesses across Asia, including in Thailand, Lao PDR, China, Japan and Vietnam.

Market and Competition

Power Industry Outlook: Base-Load and Renewable Power Generation

When considering the power demand of each region, it is projected that over 2018-2040, the growth of power demand in the Asia-Pacific region will significantly contribute 50% of the global power demand due to continuous growth both in the economic, industrial and service sectors.

Electricity Demand by Region

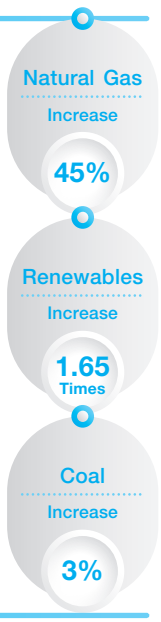


(Unit : Terawatt-hours (TWh))	2000	2018	2030	2040
North America	**4,260**	**4,786**	**5,160**	**5,626**
The U.S.	3,589	4,011	4,226	4,517
Central & South	**660**	**1,081**	**1,445**	**1,837**
Brazil	327	517	675	845
Europe	**3,114**	**3,631**	**3,975**	**4,346**
European Union	2,604	2,884	3,045	3,243
Africa	**380**	**703**	**1,086**	**1,653**
South Africa	190	211	252	319
Middle East	**361**	**954**	**1,309**	**1,817**
Eurasia	**809**	**1,084**	**1,302**	**1,474**
Russia	677	893	1,043	1,149
Asia-Pacific	**3,569**	**10,792**	**15,662**	**19,699**
China	1,174	6,330	9,127	10,912
India	376	1,243	2,417	3,718
Japan	962	994	908	989
Southeast Asia	323	935	1,510	2,091
World	**13,152**	**23,031**	**29,939**	**36,453**

Source: World Energy Outlook 2019 (International Energy Agency: IEA)

Electricity Supply by Source

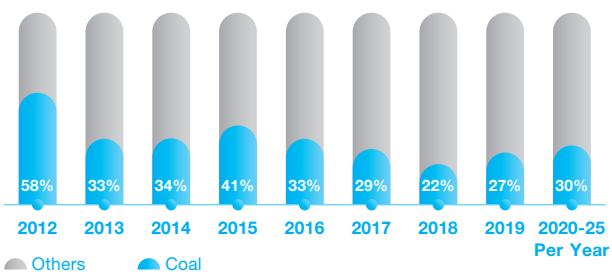
(Unit : TWh)	2000	2018	2025	2030	2035	2040	2018 Share %	2040 Share %
Coal	5,994	10,123	10,291	10,408	10,444	10,431	38%	25%
Natural Gas	2,750	6,118	6,984	7,529	8,165	8,899	23%	22%
Oil	1,207	808	724	622	556	490	3%	1%
Nuclear	2,591	2,718	2,801	3,073	3,282	3,475	10%	8%
Renewables	2,863	6,799	9,972	12,479	15,204	18,049	26%	44%
Hydro	2,613	4,203	4,759	5,255	5,685	6,098	16%	15%
Bioenergy	164	636	916	1,085	1,266	1,459	2%	4%
Wind	31	1,265	2,411	3,317	4,305	5,226	5%	13%
Solar PV	1	592	1,730	2,562	3,551	4,705	2%	11%
Geothermal	52	90	125	182	248	316	0%	1%
CSP (Concentrating Solar Power)	1	12	28	67	124	196	0%	0%
Marine	1	1	2	10	25	49	0%	0%
Total	15,427	26,603	30,803	34,140	37,682	41,373	100%	100%



Source: World Energy Outlook 2019 (International Energy Agency: IEA)

For the global power generation capacity by source over 2018-2040, it is projected that the proportion of capacity from renewable energy sources will continue to rise due to disruptive technology and innovation as well as environmental concerns and government policies prioritizing renewable energy options. For instance, Australia's Renewable Energy Target (RET) targets to increase capacity from renewable sources to 33,000 GWh by 2020, and Taiwan has set renewable energy targets to reach 27.36 GW or 20% of total generation capacity by 2025. Accordingly, it is forecasted that by 2040 the renewable power will make up 44% of net global capacity, increasing by 26% from 2018, or a Compound Annual Growth Rate (CAGR) at 1.65 fold. Meanwhile, coal generation capacity is forecasted to decrease to 25% by 2040 from 38% in 2018. However, coal will remain a primary fuel source in the Asia-Pacific region, especially in China, whose plan is to maintain coal capacity at 30% of the additional capacity to satisfy peak electricity demand in the country.

Net Addition of Coal Power Generation Capacity in China



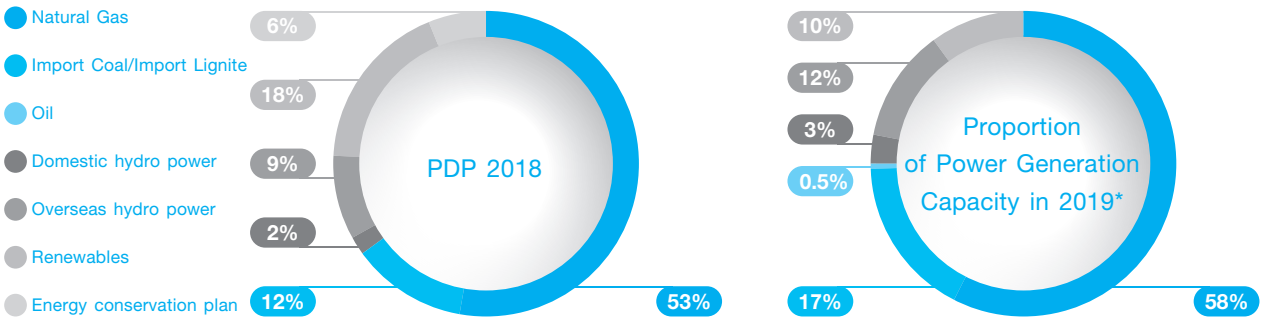
Source: China Electricity Council (CEC), BloombergNEF.

The CAGR of the power generation capacity from natural gas was expected to increase by 45%, driven by the availability of natural gas resources in the U.S., which were abundant and low-cost. U.S. natural gas would affect the natural gas market in many countries and would play a more important role in enhancing the security and flexibility of the power transmission system.

1. Market and Competition in Thailand

In 2019, Thailand had a total installed generation capacity of 45,297 MW, growing 4.4% over 2018. The demand hit its peak in May at 30,853 MW, increasing by 2,515 MW, or 8.9%, from 28,388 MW in 2018. The Electricity Generating Authority of Thailand (EGAT)'s gross energy generation and purchase in 2019 was at 211,990 GWh, or a 4-percent increase over the previous year, due to incentives to encourage business activities in public and private sectors. The proportion of power generation by energy source is 57.5-percent natural gas, 16.9-percent coal, 3-percent hydropower, 12.1-percent imports, 10.1-percent renewables, and 0.5-percent oil.

Comparison of Power Development Plan and Proportion of Power Generation Capacity in 2019



Source: National Energy Policy Agency (NEPA), Ministry of Energy

* Information as at end-November 2019

2. Market and Competition in Lao PDR

Unlike other Southeast Asian countries, Lao PDR's power generation relies solely on hydropower since the country has no oil and natural gas reserves as well as limited coal reserves. The situation has changed from 2016 due to the full operation of all units at Hongsa Power Plant, the first coal-fired power plant in Lao PDR. Given the scarcity of coal source, no further plans have been made for the new construction of coal-fired power plants during 2016 - 2020.

Nevertheless, Lao PDR also remained the major power exporter in the region. By 2025, Lao PDR will have entered into international power purchase agreements to supply electricity of 9,000 MW to Thailand, 5,000 MW to Vietnam, and 200 MW to Cambodia (Source: Department of Energy Business (DEB), October 2017). Thailand and Lao PDR trade electricity generated by seven power plants, of which six are hydropower plants, and one is a coal-fired power plant.

3. Market and Competition in China

The power industry in China saw growth in power consumption as follows:

	Unit	2019	2018	2017
Growth rate of power consumption in all sectors	%	5.6	8.5	6.6
Growth rate in generation capacity	%	4.5	6.3	7.1
Total generation capacity	MW	1,992,135	1,906,215	1,793,979

Source: National Energy Administration (NEA), China

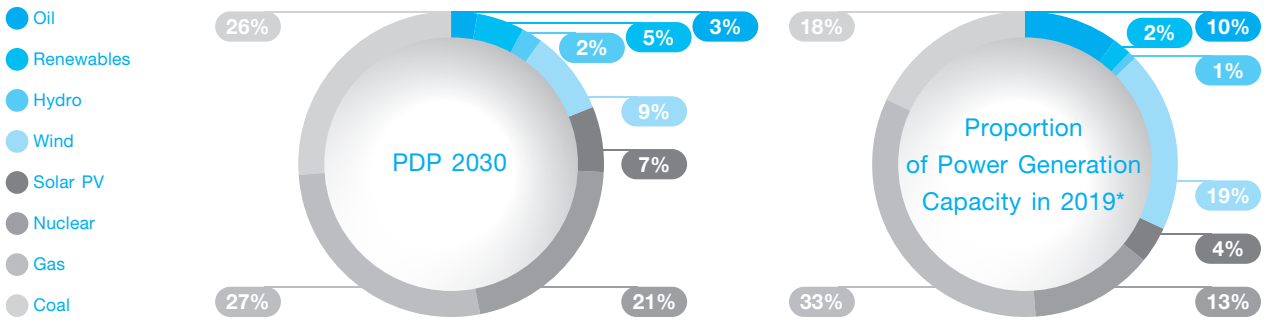
The trade dispute between the U.S. and China resulted in the decline of power demand in 2019. Compounded by the uncertainty in renewable energy policy and delayed approval of base-load power plant project development, the total power capacity grew 4.5%, falling from the previous year. Over half of the increased capacity came from the higher number of solar and wind power plants. Preliminarily estimated by the China Electricity Council, the base-load power generation capacity will rise to 1,250 GW from 1,040 GW in 2019.

4. Market and Competition in Japan

Japan's power consumption has enjoyed a stable growth with the majority of capacity from base-load power generation. The rest of capacity was from renewables, which made up 22% of the total capacity, or 64,576 MW, comprising 3,752 MW from wind power and 55,520 MW from solar power. According to the Fifth Energy Basic Plan, Japan sets to achieve a renewables share target of 22-24% by 2030.

The Government of Japan changed the electricity pricing scheme from the Feed-in Tariff (FiT) scheme to the auction scheme in 2017. Based on the auction scheme, newly developed solar power plants will get the average price of JPY 12.5 per kWh. Besides, there was a regulatory change prescribing that any solar power plant project development of over 40 MW must submit an Environmental Impact Assessment (EIA) report. The new regulation is due to become effective from April 2020 onward.

Comparison of Power Development Plan and Current Proportion of Power Generation Capacity by Fuel Source



Source: The Fourth Strategic Plan on Energy, Ministry of Economy, Trade, and Industry (METI)

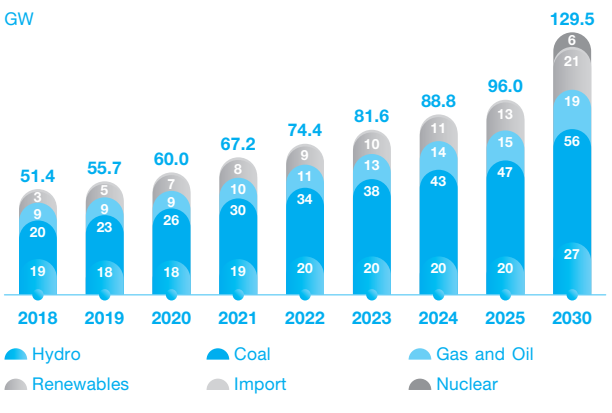
* Information as at end-October 2019

5. Market and Competition in Vietnam

Vietnam has enjoyed steady economic growth with an average GDP (Gross Domestic Product) of 7% thus having a tendency to consume more electricity. In 2019, Vietnam's GDP was at 7.02%, and its peak electricity demand was at 35,126 MW, growing 13.5% from last year.

According to Vietnam Power Development Plan for the 2000-2030 Period, coal is specified as the primary fuel source for power generation. By 2030, coal-fired power generation will constitute 43% of the capacity share, while renewable energy sources, namely wind and solar power, will add up to 15% of the capacity share. It is projected that the total installed capacity in 2030 will reach 129.5 GW.

Proportion of Installed Power Generation Capacity by Fuel Source under Vietnam PDP



Source: Ministry of Investment and Trade Development, Vietnam

Vietnam has set the Feed-in Tariff (FiT) rates at 7.09 US cents per kWh for solar power and 8.5 US cents per kWh for wind power (onshore). However, the FiTs apply only to the projects that achieve commercial operation dates within the specified period.

Competitive Strategies

1. CompetitiveStrategies in Thailand

Banpu Power holds a 50-percent stake of BLCP Power Plant located in Map Ta Phut Industrial Estate. BLCP Power Plant is a major power producer who sells electricity directly to the Electricity Generating Authority of Thailand (EGAT) with a capacity of 1,434 MW and 98.4-percent dispatch rate in 2019, reflecting the plant's reliability in electricity generation and ability in operational readiness management. BLCP's production output accounts for a 5.2% share of total power generation and purchase of Electricity Generating Authority of Thailand.

Competition Strategies

1) Maintaining Efficiency and Operational Readiness of Power Plants

Banpu Power periodically improves the efficiency of power plants and maintains readiness of equipment according to the maintenance plan to ensure the Availability Factor (AF) and Contracted Available Hours (CAH) in accordance with the Power Purchase Agreement (PPA). In 2019, BLCP reported the Equivalent Availability Factor (EAF) of 90.5%

2) Seeking Opportunities for Business Expansion

Banpu Power has always been seeking growth opportunities by aligning the plan to expand the domestic power business with the national Power Development Plan for 2018-2037 (PDP 2018), approved by National Energy Policy Council on 24 January 2019. The plan proposes to increase capacity from the independent power supply (IPS) groups and efficient energy-saving policies. The PDP proposal will reflect in lower power demand than anticipated, while the new policy promotes power generation from renewables.

Banpu Power projected that the development of new power plants would face fiercer competition in project bidding and in applying for an electricity sale license. So, the Company has prepared competent and experienced employees from the Business and Project Development Department to monitor the policies of the government and related government agencies and evaluate the Company's competitiveness. This business development team also prepares for the Company's participation in the government's project, which allows private investment such as the Eastern Economic Corridor (EEC) and responds to the government's promotion of the business sector's role in the Independent Power Supply (IPS) project that uses renewable sources of energy.

3) Stakeholder Relations Management

Banpu Power has supported activities and enhanced mutual understanding in the communities in all locations where the Company operates, resulting in healthy community relations.

Major Competitors

- Banpu Power's base-load power plants that are commercially operational have no direct competition from other power producers because the Company entered into a long-term power purchase agreement with the Electricity Generating Authority of Thailand.
- Major domestic power producers include Electricity Generating Plc., Ratchaburi Electricity Generating Holding Plc., Global Power Synergy Plc., Gulf Energy Development Plc., and international investors.

2. Competitive Strategies in Lao PDR

Banpu Power holds a 40% stake in Hongsa Power Company Limited, which operates Hongsa Power Plant, the only mine-mouth power plant in Lao PDR. Hongsa Power Plant has a total capacity of 1,878 MW and a total equity-based capacity of 751 MW. The

power plant sells the majority of electricity solely to the Electricity Generating Authority of Thailand under the Independent Power Producer (IPP) scheme and some of its output to Lao PDR. The Hongsa Power Plant's production output constitutes 29% of total electricity that Lao PDR supplies to Thailand.

Competitive Strategies

1) Maintaining Efficiency and Readiness of Power Plants

Hongsa Power Plant achieved commercial operation dates of all three production units in 2016, with 100-percent dispatch in 2018. This represents the operational stability and the low operation cost, the two crucial factors for the two countries' electricity system.

2) Managing Relationship with Local Government Agencies and Communities

Banpu Power places importance on community development, focusing on promoting community engagement while improving the quality of life of people in the communities. Such development approach materializes into community development initiatives, for example, infrastructure development (water supply, electricity, and roads), prompt construction of houses for relocated people in appropriate areas, vocational training and promotion of local employment, contract for project design, and equipment procurement.

3) Cost Management and Efficiency

In 2019, Banpu Power improved efficiency and capacity readiness of Hongsa Power Plant in producing and distributing electricity by improving the equipment and coal transportation to the power plant. Hongsa Power Plant was able to maintain EAF at 80.8%. Moreover, the power plant maintained readiness by stocking spare parts for maintenance and keeping all equipment in full capacity, which ensures smooth power generation.

Major Competitors

Banpu Power's base-load power plant is commercially operational and has no direct competitors because the Company has a long-term power purchase agreement with the Electricity Generation Authority of Thailand and Electricite du Laos.

3. Competitive Strategies in China

Banpu Power's CHP power plants and solar power plants in China are more highly efficient than average power plants and meet pollution control standards. Hence, they enjoy various supports from the Chinese government, such as guaranteed electricity sales to local electricity authorities, exclusive rights to sell steam and heat in permitted zones, and local government subsidies.

Competitive Strategies

1) Cost and Efficiency Management

In 2019, the Chinese government continued the policy to reduce the price of electricity and steam in all provinces as well as other related policies. Banpu Power has assessed and anticipated such impact by reflecting in power purchase agreements and adjusted the prices accordingly. For instance, Zouping CHP Plant had agreed to sell steam to customers at a reference price of CNY 125 per tonne, and if there is any change in the coal cost, plus or minus, for every CNY 0.01 per kilocalorie (tax and transportation cost inclusive), the price of steam can be raised or lowered for CNY 5 per tonne. This risk management on the price fluctuation enabled Banpu Power to lessen the impact of higher fuel costs.

Banpu Power still maintains its profitability by improving production efficiency and strictly controlling the costs using the inventory management strategy to buy and stock up coal when coal prices decline to be used during the time coal prices increase. Banpu Power also follows its plan to expand capacity to neighboring areas to respond to an increase in steam demand due to local economic growth.

2) **Environmental Management**

The Chinese government has a stringent policy on environment and pollution control, which restricts the use of coal as a major fuel source in factories. Banpu Power uses highly efficient generation processes that comply with current environmental standards with regular maintenance of all equipment and machinery. It also has a plan to upgrade pollution control equipment to be able to meet future standards. Apart from that, Banpu Power monitors and assesses environmental impacts to ensure that its business operations are in full compliance with environmental laws, rules, and regulations.

The Company has considered deployment of the latest technology called Ultra-Supercritical (USC) technology, which is High Efficiency, Low Emissions (HELE) technology, in such a new project as Shanxi Lu Guang Power Plant to minimize environmental impacts in accordance with international standards. Such technology can trap sulfur dioxide, nitrogen oxide, carbon monoxide, and other pollutants before being emitted to the environment.

3) **High Adaptability**

Banpu Power has a dedicated team to closely monitor changes in the market environment and align business plans and operations with the market conditions or situations in order to embrace business opportunities and mitigate negative impacts. The Company is prompt to adjust the distribution of power, steam, hot water, and chilled water according to the factors affecting the demand. For example, Zhengding CHP Plant would produce electricity, steam, and hot water for sale during winter. In summer, when customer demand changed, it would swap to produce chilled water for sale, which helped generate more income and reduce the impacts of the seasonal decrease in electricity and steam sales.

4) **Service Quality and Stakeholder Relations Management**

Banpu Power prioritizes the quality of products and services. The Company strives to assure readiness and security in the generation and distribution of electricity and steam to respond to customer's needs at all times, especially the distribution of steam and hot water in wintertime. The Company always maintains a good relationship with customers based on mutual trust and benefits, which has earned trust and confidence from customers.

Relationship management with local government agencies and communities is on the basis of mutual benefits by providing basic utility services (electricity and steam) to local communities, building trust and equity as well as lending continued support to the community. This has brought Banpu Power acceptance from local government agencies and communities as an exemplary local enterprise. Despite a setback from external factors, the Company still enjoys full support from local governments, for instance, financial subsidies or approval to raise steam prices when coal price increased.

5) **Seeking Opportunities for Business Expansion and Added Value Creation**

Banpu Power puts greater emphasis on investment in renewable energy to align with the government's policy to promote renewable energy. The Company also focuses on creating added value by expanding investment into related businesses while considering the costs of different fuel sources and appropriate technology. For example, the location of the Luannan CHP Plant is in the urban-industrial area, which gives it a strategic advantage to become a sole distributor of steam. Banpu Power is also considering expanding its customer base to new industrial areas to offer solar rooftop power generation solutions. Apart from that, the Company is conducting a feasibility study for the development of the Company's existing land to develop biomass combined with CHP plants.

Major Competitors

- Domestic and international power producers and investors

4. Competitive Strategies in Japan

Banpu Power's investment in solar power plant projects in Japan has a total installed equity-based capacity of 63 MW from fully-operational plants and a 177-MW capacity from under-development power plants. The Company's business expansion to Japan started from investment in solar power generation together with feasibility study and preparation for assessment of investment and project development opportunities. The Company focuses on teamwork and human resource management as well as establishing trust with business partners to seek significant opportunities for real growth in Japan's renewable energy business. The government's support and investment incentives from financial institutions are still vital factors accelerating Banpu Power's business expansion into Japan.

Competitive Strategies

1) Capability in Investment Management

Banpu Power has a strategy to collaborate with partners in seeking new investment opportunities as well as managing financial cost by tapping from several sources, especially from domestic financial institutions, to achieve long-term investment goals.

2) Project Development

Banpu Power closely monitors policy and regulatory changes of the Japanese government related to energy, with a specific team to follow up and study the changes in details as well as impacts on under-development projects to ensure that all projects achieve commercial operation dates as planned.

3) Seeking Opportunities for Business Expansion and Added Value Creation

Since Japan's energy management is governed by a clear energy policy, Banpu Power faces low investment risk and can keep the risk to a manageable level, given that the Japanese government reduced the Feed-in Tariff (FiT) for solar power and turned to the auction scheme. To achieve target return on investment, Banpu Power has adapted by focusing on cautious cost management, namely preparing important equipment to improve efficiency, and seeking appropriate funding sources. For the new investment, Banpu Power will prioritize projects under the FiT scheme or acquire projects that already achieved commercial operation dates.

Additionally, Banpu Power continually seeks investment opportunities in related businesses by building upon the existing power generation business to create added value, such as energy trading and retail electricity to expand business opportunities with retail customers, as well as solar rooftop to fulfill demands of business and industrial sectors, and renewable energy consumers.

Major Competitors

- Domestic and international power producers and investors

5. Competitive Strategies in Vietnam

Banpu Power has expanded investment in power business into Vietnam since 2016 under an MOU signed with Soc Trang Province People's Committee to carry out a feasibility study of investment in a 200-MW renewable power project. In 2018, Banpu was awarded an Investment Registration Certificate (IRC) and set up a subsidiary company in Soc Trang, Vietnam. The Company has an experienced team with a good understanding of Vietnam's business

environment to drive the existing project to achieve commercial operation date as planned as well as to seek more investment opportunities. The project phase 1 with 30-MW capacity is currently under construction while phase 2 and 3 are under feasibility study.

Competitive Strategies

1) Managing Relationship with Local Government Agencies and Communities

Banpu Power builds a relationship with local government agencies on the basis of understanding of social and cultural differences. The Company focuses on becoming a mutually responsible partner with government agencies to sustainably engage in local community development by providing continuous support for community activities.

2) Project Development and Management

Banpu Power is fully aware of significant factors contributing to a wise investment decision. That is why the Company always conducts preliminary and feasibility studies of every project. The Company seeks advice from experts in many fields such as engineering consultants, environmental consultants, legal consultants, financial consultants, and accounting and taxation consultants in order to conduct feasibility options in a correct manner before investing and to ensure compliance with regulations and investment conditions in Vietnam. The feasibility study also helps monitor the progress of project development and execution of each construction phase against the plan.

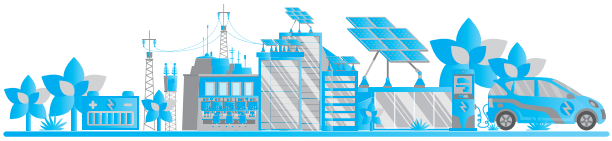
3) Seeking Opportunities for Business Expansion and Added Value Creation

Vietnam has enjoyed a continuous growth rate in recent years and is expected to attain a 6-7% gross domestic product (GDP) growth for the next ten years. Such a high growth rate implies an increase in power demand. Additionally, the government has a clear energy management plan to increase the portfolios of power generation from base-load and renewable energy sources. Banpu Power has seen these opportunities and decided to leverage its strengths in base-load and renewable power generation and fuel supply strategy to seek investment opportunities in Vietnam.

Major Competitors

- Domestic and international power producers and investors

Energy Technology



Provision of One-Stop Service of Total Solar Energy and Smart City Solutions

Banpu Infinergy Company Limited (BPIN), a subsidiary of Banpu, provides one-stop service of total solar energy solutions tailored to customers' needs. Its services include consultation, system design, installation, inspection, and maintenance services for industries and large businesses seeking to cut their electricity costs and play a part in conserving the world sustiably by consuming clean energy.

Market and Competition

In 2019, the overall situation of solar power generation system installation was on an upward trend after the National Energy Policy Council's (NEPC) had approved the Power Development Plan (PDP) 2018-2037, which is poised to increase solar power generation capacity. The plan also promotes more household consumption of solar power by supporting small households to generate their own solar rooftop electricity and sell the excess electricity back to the grid run by the Electricity Sales Department (of the Metropolitan Electricity Authority and the Provincial Electricity Authority).

Apart from that, the government sector also places importance on the Smart City Development Project under the policy to encourage cities to harness modern and smart technologies and innovations for efficient management and services. The Digital Economy Promotion Agency (DEPA) has targeted to develop 30 smart cities in 24 provinces during 2019-2020 by promoting participatory city management and infrastructure development with more technological deployment, particularly the energy infrastructure that enables optimally efficient use of energy, a key factor to realize the country's smart city aspiration. This made 2019 a year of awareness and interest in energy efficiency for both households and industrial sectors, especially the solar rooftop project, thus, prompting more Thai and foreign entrepreneurs to enter into solar power generation business. However, different entrepreneurs have their own marketing strategies.

Competitive Strategy

The majority of solar power system providers focuses on the installation of the rooftop solar power generation system. On the contrary, BPIN stands out in the market as a one-stop service provider of total solar energy solutions. The company goes beyond its solar rooftop system installation service to offer energy solutions, which is a vital stepping stone towards smart cities. Such solutions include design, installation and maintenance of the microgrid system, energy management system (EMS), and energy storage system (ESS) used for controlling production, transmission, and storage of electricity to maximize efficiency. Furthermore, the company also provides service on electric vehicles (EVs) and other accessories, such as smart poles, solar kiosks, on-grid and off-grid solar power systems, and fully solar-powered furniture. All products and services from BPIN are tailored to suit customer's needs in different locations and are part of the forces driving Thailand's toward sustainable future of clean energy and smart cities.

To enchance its expertise in energy technology and service to better satisfy customer's needs in Thailand, BPIN acquired a 38.5% share in Sunseap Group Pte Ltd., a leading provider of solar power service technology in Singapore. The acquisition of the newly issued ordinary shares worth SGD 118 million (equivalent to approximately USD 87.6 million or THB 2,925 million) has made BPIN the largest

shareholder of Sunseap Group Pte Ltd. Furthermore, BPIN acquired a 47.68% share in Durapower Holdings Pte., Ltd., a company specialized in the design and manufacture of lithium-ion batteries for automotive and energy storage systems (ESS), whose battery factory in China has a capacity of 1 GWh. The investment is BPIN's first step to expand into the ESS business in the near future.

Striving toward becoming a leader in integrated energy technology, BPIN invested in electric vehicle business by acquiring 21.50% of FOMM Corporation's (FOMM) newly-issued shares worth USD 20 million (equivalent to THB 635 million). FOMM is a leading developer of compact electric vehicles (EVs) in Japan. In addition, BPIN acquired 30.6% shares of Urban Mobility Tech Company Limited, which currently operates Tuk Tuk Hop – public electric Tuk Tuk business targeting tourists who want to go sightseeing around the Rattanakosin Island. BPIN's business also includes the design and manufacture of compact EVs. Originally, it applied the Internet of Things (IoT) technology in fleet management of public electric Tuk Tuks in Chulalongkorn University area and Bangkok's Ari Road. The company plans to expand its service to other Bangkok areas.

Aside from making a difference in energy technology solutions, BPIN also places importance on integrated customer services, from the system installation phase to different kinds of system development in the post-installation phase. One of the services is the power generation system inspection, which is a real-time system check allowing expert engineers and the Customer Service Department to assess problems in the system and solve them instantly. A computer application was developed to enable customers to monitor the operation of the power generation system, i.e. the amount of power produced and power saved in the power generation system, both in real-time and review modes with CCTV feeds and alerts in case of system malfunctioning. Furthermore, BPIN has the Customer Service Department to provide information, listen to customer's problems, and respond to customer's inquiries via different channels. Customers can report problems about the power generation system to the Customer Service Department 24 hours a day, every day, to enable prompt correction of the problems.

REVENUE STRUCTURE

For the previous 3 years ended 31 December 2019

Banpu Public Company Limited

Products/Services	Conducted by	% of Shareholding	2019 Revenue (Million USD)	2019 %	2018 Revenue (Million USD)	2018 %	2017 Revenue (Million USD)	2017 %
Sales Revenues								
1. Imported Coal	Banpu	-	52.76	95.27	61.69	100.00	97.20	99.46
2. Other Revenues	Banpu	-	2.62	4.73	-	-	0.53	0.54
Total Sales Revenues			**55.38**	**100.00**	**61.69**	**100.00**	**97.73**	**100.00**

Banpu Public Company Limited and Its Subsidiaries

Products/Services	Conducted by	% of Shareholding	2019 Revenue (Million USD)	2019 %	2018 Revenue (Million USD)	2018 %	2017 Revenue (Million USD)	2017 %
Sales Revenues - Domestic								
1. Domestic Coal in Thailand	Banpu	-	52.76	1.91	61.69	1.77	97.20	3.38
	BMC	100.00	39.89	1.45	44.36	1.27	86.05	2.99
2. Domestic Coal in Indonesia	Indominco	67.13	65.27	2.37	91.27	2.62	111.33	3.87
	Bharinto	67.13	17.13	0.62	30.77	0.88	19.08	0.66
	Trubaindo	67.13	99.73	3.61	74.96	2.15	51.63	1.79
	Jorong	67.13	26.22	0.95	16.64	0.48	17.00	0.59
3. Domestic Coal in Australia	CEY	100.00	332.37	12.05	522.01	14.99	469.32	16.31
4. Revenue from Coal trading (China)	BST*	100.00	13.23	0.48	-	-	-	-
4. Other Revenues			122.39	4.44	165.98	4.77	78.34	2.72
Total Sales Revenues - Domestic			**768.99**	**27.87**	**1,007.68**	**28.93**	**929.95**	**32.33**
Sales Revenues - Overseas								
1. Coal - International Trade	Indominco	67.13	646.23	23.42	775.55	22.28	638.74	22.20
	Kitadin	67.13	15.04	0.55	95.73	2.75	67.31	2.34
	Bharinto	67.13	263.45	9.55	241.53	6.94	183.14	6.37
	Trubaindo	67.13	374.59	13.58	498.37	14.32	411.54	14.31
	Jorong	67.13	21.87	0.79	16.85	0.48	26.07	0.91
	CEY	100.00	362.08	13.12	491.91	14.13	413.18	14.36
	BMC	100.00	-	-	36.05	1.04	-	-
	BMS	100.00	48.35	1.75	-	-	-	-
2. Power	BIC	78.57	154.14	5.59	174.04	5.00	169.75	5.90
3. Gas	BNAC	100.00	104.48	3.79	143.73	4.13	36.96	1.28
Total Sales Revenues - Overseas			**1,990.23**	**72.13**	**2,473.76**	**71.07**	**1,946.69**	**67.67**
Total Sales Revenues			**2,759.22**	**100.00**	**3,481.44**	**100.00**	**2,876.64**	**100.00**
Participating Profit (Loss) from Investment in Associated Companies (Equity Method)			**205.85**	**-**	**263.66**	**-**	**204.66**	**-**
Total Revenues			**2,965.07**	**-**	**3,745.10**	**-**	**3,081.30**	**-**

Notes: 1. Other revenues consist of other services.
2. The company did not realize sales revenue from its power business in Thailand as its shareholding is not more than 50%.
3. Basis of preparation of the information presented above is based on the generally accepted accounting principles which eliminate intercompany transactions. The amounts shown should not be reconciled with the statutory accounts of each territory.

*BST: Banpu (Shanghai) Trading Ltd.

RISK MANAGEMENT AND RISK FACTORS



Banpu and its group of companies emphasize the importance of risk management in order to manage risks that may affect business goals and objectives to be a leading integrated energy solutions company in Asia-Pacific. Banpu group endeavors to reduce the likelihood of risks or to mitigate their associated consequences to gain business opportunities that create added value for the Company. Business risk management is the responsibility of all executive levels and under the supervision of committees, such as the Risk Management Committee (RMC), which convenes on a quarterly basis to monitor and implement a risk management plan. The Financial Management Committee (FMC) convenes on a monthly basis to manage financial risks. Also, the monthly meeting of the Commodity Risk Management Committee is aimed at managing the risk from volatility in coal and gas prices, which is a key factor affecting the Company's profitability. In addition, the review of the organizational risk management is reported to the Audit Committee and the Board of Directors on a quarterly basis. In 2019, the Company developed various tools to enhance risk management efficiency, such as developing the Compliance Risk Management (C-RiM) application to improve efficiency in supervision and monitoring of legal compliance and compliance risks of overseas offices, key risk indicators, and risk mitigation plan.

1. Strategic Risks

1.1 Risks in Strategic Planning and Implementation

Amid a changing economic landscape, the US-China trade war, the US-Iran geopolitical tensions, imbalance in energy demand and supply, legal and regulatory changes, rapidly changing development and disruptive technology trends as well as the higher expectations of investors and stakeholders, the Company has established systems and processes to manage the risks in strategic planning. The Company annually reviews its strategy to devise and review its direction and business strategy to appropriately respond to current and future changes and uncertainties. It also holds a monthly meeting to assess the situation, trend, and scenarios, including comparing information from credible institutions and sources and developing tools for a systematic forecast of economic scenarios to be used in making effective business decisions and determining future business directions.

1.2 Risk in Human Resource (HR) Management and Development to Accommodate Future Growth

To accommodate future growth in accordance with the Greener & Smarter strategy, the Company improved the recruiting and HR development processes and reviewed the organizational structure and analyzed the workforce and HR development plans. The Company set forth the Training and Development Policy and has allocated 5% of salary budgets in each host country for HR development. It also developed Banpu Learning and Development Framework for competency-based workforce development at all levels so that the employees at different levels of responsibility can respond to the needs of business expansion with a wide range of versatile potentials. Other than on-the-job training, the framework covers various forms of training, e.g., in-house and external operation training, e-learning and knowledge sharing by the management.

For top executives and other critical positions, the Company set up the Succession Planning Committee to oversee the succession planning and high potential management to ensure business continuity and accommodate business expansion.

Apart from that, the Company supports proactive HR development to embrace digital transformation by establishing the Digital Academy to upskill employees in order to prepare them for new workstyle in line with Banpu's changing concept of digital transformation.

1.3 Corporate Reputation Risk

Banpu prioritizes the management of brand and reputation risk as it could have an immense and rapid effect in both the short-term and long-term, which cannot be measured in money. The Company focuses on the Sustainable Development Policy by integrating appropriate business strategy in accordance with the Environmental, Social, and Governance (ESG) principles to enhance business growth and generate sustainable benefits and returns to all stakeholders.

Banpu adopted Management Framework - Stakeholder Analysis based on AA1000 Stakeholder Engagement Standard (AA1000SES) for materiality assessment in compliance with three principles, namely inclusivity, materiality, and responsiveness. From the operation, resulting in the year 2019, Banpu was upgraded from 'BBB' to 'A' level in MSCI ESG Ratings by MSCI ESG Research, an international organization with expertise and reliability in ESG ratings.

In addition, the Company has established corporate communications and branding management approaches in line with the Company's direction and developed communication strategies to achieve timely and accurate communication of information, which create a good understanding for all stakeholders. The strategies are, for instance, holding a quarterly analyst meeting for investors and analysts, providing a direct communication channel for local and international investors via the Investor Relations Department, maintaining regular communication of its corporate social responsibility (CSR) operations, and building a good community relations. The Company periodically conducts community and stakeholders'

satisfaction surveys, customer satisfaction surveys as well as employee opinion surveys and provides a whistleblower channel to gather information for the improvement of the Company's operations.

1.4 Risks from the Inability to Increase Coal Reserves for Commercial Purpose

As of 31 December 2019, the Company has a total amount of 771.05 million tonnes (Mt) of coal reserves in Indonesia, Australia, and China. The coal reserves by countries are, as follows: Indonesia 330.77 Mt, Australia 299.09 Mt, and China 141.19 Mt. The coal reserves were checked and verified by the consulting firm complying with the Australian Code for Reporting Mineral Resources and Ore Reserves or the 2012 JORC Code. The Company has a plan in place to assess and estimate the quantities of coal reserves when certain commercial factors significantly change and show a tendency to affect the existing reserves. Such commercial factors include coal price trends, cost factors, and development of coal production technology. The Company has also employed various strategies to increase the coal reserves by exploring the mine areas and improving mining plan, purchasing and blending coals from nearby areas to meet the customers' quality requirements, coal trading, and studying the acquisition plans for new mines to help lift coal reserves or to extend the mine life.

1.5 Risks of Investing in New Businesses

In managing the risks, Banpu has strived to ensure that its new investments create value to the Company no less than what had been estimated prior to the acquisition. In doing so, the Company has set the investment decision-making process in which the Investment Committee, comprising executive officers and experts, carefully considers and provides opinions on the alignment of new investments with the Company's growth strategies, the return on investment against the Company's criteria and project's risk assessment. The Committee is also in charge of regular monitoring of investment performance and changes in the factors affecting the target rate of return to ensure a fast and efficient response to problems. Furthermore, Banpu periodically monitors and analyzes its investment portfolio.

Banpu emphasizes the management to achieve the synergy between the Company and the new entities via resource planning, staff capacity building, and appropriate restructuring to facilitate change management, which will, in turn, ensure a smooth investment, sustainable growth, and secure investment return according to the strategic plan.

In 2019, the Company continued expansion of investments in the clean energy business according to its Greener & Smarter strategy. It is dedicated to environmentally friendly business operations in response to the energy demand of consumers, communities, and society, which is aligned with the Banpu's brand promise "Our Way in Energy." The new investments include investment in the Barnett shale gas assets in the United States of America, providing one-stop service solutions in solar system installation as well as energy technologies such as electric vehicles (EVs), and energy storage and management systems. This offers a new alternative and helps promote clean energy solutions of the highest efficiency.

1.6 Risks of Climate Change

The Company realizes the potential risks of climate change that may affect its operations and growth, such as storms, floods, carbon tax, stricter climate change laws, and the energy trend toward the use of eco-friendly energy sources. In 2010, the Company set policies and targets for greenhouse gas (GHG) management to increase energy efficiency and the usage of clean energy technologies. Currently, the Company has a five-year target to reduce GHG emissions, from 2016 to 2020, against the baseline in 2012 – the year the Company included the operating results of the Australian business unit. The Company targets to reduce GHG emissions per production

unit by 25% in the coal business and 15% in the power business. In addition, the Company has closely monitored the laws and regulations associated with GHG emissions to accommodate changing business practices, including the Paris Agreement, which is the outcome of 21st Conference of the Parties to the UNFCCC (COP21), other agreements resulting from the COP, and the policies on energy and GHG emissions reduction in the countries where the Company has invested.

The Company devised a climate change strategy and practices addressing four operational areas, namely mitigation of GHG emissions, adaptation to climate change, being a part of a low-carbon society and participation in the climate change community. Guidelines, time frames, and responsible parties for each particular area were clearly defined to achieve the most effective implementation of the strategic plan. In 2019, the Company considered the costs based on carbon pricing of the new potential projects as information for management's decision-making, which is one of the drivers toward the 2020 GHG emission reduction target according to the Greener & Smarter strategy. The Company is also on the lookout for opportunities to invest in renewables and other alternative energy sources to reduce GHG emissions and to better respond to the demands of a low-carbon society. In 2019, Banpu Infinergy Company Limited installed solar energy solutions for customers, which generated solar power of over 8 million kWh in total equivalent to planting more than 200,000 trees, saved approximately 8 million liters of water, and reduced GHG emissions by over 4,000 tonnes.

2. Financial Risks

2.1 Exchange Rate Risk

The Company follows the risk mitigation plan to reduce impacts associated with fluctuating exchange rates at both the corporate and group levels in Thailand, Indonesia, China and Australia by balancing cash flow from foreign revenues and expenses, adjusting its foreign currency forward contracts based on its estimated revenues, expenses, loan payments and other financial instruments as appropriate.

As of 31 December 2019, 7% of the Company's denominated debt was in Thai Baht; 64% in US Dollar; 26% in Australian Dollar, and 3% in Chinese Yuan Renminbi. The Company also raised capital in US Dollar or converted to other foreign currencies to accommodate overseas investments.

2.2 Taxation Risks

To mitigate taxation risks, Banpu and its group of companies pay taxes within the period of time specified by law. The Company has created tax guidelines and prepared complete documents for settling tax payment. The investment structure is regularly reviewed. Additionally, all executives in each country are assigned to closely monitor changes in rules and policies of the country, both at the central and local government levels. This includes hiring local legal consulting firms to provide advice on practices toward legal compliance.

In case there are taxation disputes with the government offices, the Company would provide such offices with accurate tax information relating to its business. If necessary, the Company would also hire expert tax consultants to offer opinions and handle the disputes.

2.3 Risk from Volatility in Coal, Oil, and Natural Gas Prices

Volatile coal, oil, and natural gas prices in the current business scenario have an impact on the Company's operating results; therefore, the Company has delegated the commodity risk management committee (CRMC) to manage the risk. The CRMC analyses coal, oil and natural gas price trends and mitigate the potential adverse impact by using financial derivative instruments – coal swap, gas oil swap, and gas collar. The Company also closely monitors and assesses the global market situation to seek the most opportune

time to settle customer sales contracts, taking into account the appropriate proportion of coal sold on an index-linked basis to that sold on a fixed-price basis to the market situation.

3. Operating Risks

3.1 Risks in Coal Business

3.1.1 Risks in Coal Delivery

To ensure punctual delivery of coal to customers with the right quality and quantity as set forth in the agreement, in 2019, the Company managed its delivery risks with the following activities:

- Improving computational efficiency of the tugboat monitoring system (TMS), which foster processing, and adding search and visualization features to enable searching for barges, track the status, and locate barges in real-time. This also helps staff and involved persons to calculate the delivery time more accurately and conveniently.

- Expanding storage capacity for coal and reclaim system equipment at Bunyut Port to accommodate Bharinto mine's increasing coal production and improve coal storage according to the coal quality, resulting in better production flexibility and delivery of quality coal according to customers' demands.

- Improving the preventive maintenance at Bunyut Port by scheduling shift change to prevent loss of time, which could increase operational time by 20% and enabled continuous delivery of coal, especially during the last quarter when sales were increasing.

- Deploying digital technologies in 24-hour monitoring operations in the mine and control rooms at Trubaindo mine and installing a coal haul tracking system, which enables real-time monitoring and control to ensure smooth and safe operations.

- Studying development and maintenance plans for facilities and logistics to accommodate coal production plans at all Indonesian mines to ensure continued operations according to the Company's strategic plan. In 2019, the Company improved both short-term and long-term plans for logistic facilities to ensure adequate supplies of coal and effective coal delivery.

3.1.2 Risk from Rising Production Costs

Production costs can significantly affect the Company's operating results. Hence, Banpu places importance on managing the risk from production cost to ensure that it can achieve target operating results and increase profits. In 2019, the Company managed this risk as follows:

- Using drones at Trubaindo mine to survey the amount of overburden and calculate regular production outputs in order to evaluate contractors' performance. This method not only enables regular and close monitoring of contractors' performance but also precisely controls the costs for overburden transport.

- Conducting a regular technical audit on geology, geotechnical modeling, and mine planning and developing a reconciliation plan to accurately identify differences between modeling and real performance, which improved work standards.

- Initiating deployment of short-term supply chain optimization system in planning delivery of coal to meet the required quality and delivery plan, which improved the management of the transportation costs.

3.1.3 Risk from Contractors' Operations

Since the Company's mining operations and coal transportation rely on contractors' operations, there is a possible risk of delays from various problems, such as machinery installation delay,

poor maintenance, ineffective operation planning, or labor problems both in terms of efficiency and quantity. To handle such risk, the Company closely monitors contractors' performances through a contractor management system (CMS) and evaluate their qualifications. The results will then be considered before signing or renewing a contract, which helps reduce the risk of hiring inefficient subcontractors. Moreover, the Company set up its own excavation and transportation company. In 2019, the Company increased the number of machinery and equipment to reduce the risk from contractors' operations and raise the bargaining power from other contractors.

3.2 Risks in Power Business

3.2.1 Risk from Power Buyers

The Company's BLCP Power Plant and Hongsa Power Plant (HPC) are investments under the independent power producer (IPP) scheme. The BLCP Power Plant's electricity is supplied solely to the Electricity Generating Authority of Thailand (EGAT) under a long-term power purchase agreement (PPA). Similarly, the Hongsa Power Plant entered into a long-term PPA with EGAT and Électricité du Laos (EDL). Both power plants are base-load power stations with stable revenue from electricity sales as the agreements guarantee quantities purchased, and the pricing structure may be adjusted according to the changes in fuel prices, Thai Baht exchange rates, and inflation rate. Consequently, the Company's power plants face a low risk of power purchase.

Meanwhile, the Company's power business in China is faced with the risk from power and steam purchase since the country does not enter into a long-term power purchase agreement as in Thailand and Lao PDR. However, the Company's combined heat and power plants in China are high-efficiency power plants that enjoy government support and are guaranteed sole distribution of steam and heat in specially promoted areas and are allowed to sell electricity to local electricity authorities. They also received good support from the local governments. All of these factors contribute greatly to effective purchase risk management.

Additionally, the Chinese government policy to increase energy efficiency and environmental conservation policy have improved related regulations on power business operations in China. In response to those changes, the Company had improved equipment in the environmental control system in 2018 and 2019. The Company also managed the risk using such measures as boosting energy efficiency in power plants and control environmental impacts in compliance with the Chinese government's policies. Banpu's Zhengding, a Combined Heat Power plant (CHP), was well-accepted and supported by the Chinese government as a clean CHP plant with impressive economic value for production of steam.

3.2.2 Risk in Coal Supply

The BLCP Power Plant entered into a long-term contract to purchase coal from major and reliable suppliers, with a clearly specified amount and quality of coal, to ensure sufficient supply for electricity generation in accordance with the PPA signed with the EGAT. Accordingly, the risk associated with the failure to access good-quality coal is low. Nonetheless, under certain circumstances, it may be necessary for the BLCP to procure coal outside of the said contract. For example, the supplier may be unable to deliver coal as planned due to an event of force majeure. In such cases, the BLCP may purchase coal from other suppliers in the coal market. The amount of coal purchased outside of the long-term contract has been between 5-10% of annual coal demand, whose risk is manageable and has no significant

impact on its operating results. Besides, the BLCP has closely and regularly monitored coal market situations and coal prices to mitigate the risks in coal supply.

The HPC has been granted the license to develop and operate a lignite mine in the concession area adjacent to the Hongsa Power Plant, which is a part to project development. Before launching a new project, a feasibility study was conducted to assess the quantity, quality, production, and coal transportation plan for the entire project period. The risks in accessing quality coal are low, and the cost can be controlled corresponding to the plant's operational plan. The Company has also prepared a coal reserve plan to ensure sufficient coal stockpiles to cope with operational disruptions due to such uncontrollable factors as poor climate conditions, natural disasters, transport delays, and accidents.

For the CHP plants in China, domestic coal prices were stable, and the government's coal production policy and coal import restrictions had made the coal prices less volatile. These factors brought down the 2019 average coal price 3% lower than planned. However, the Company managed the risks by closely monitoring coal prices and improving its procurement plan according to its cost and operation plan. To minimize the risk, the Company also entered into an agreement to sell electricity to some clients, which allows electricity and steam's pricing structure to be adjusted to the actual fuel costs at that time.

3.2.3 Risk in Power Generation Operations

There were potential risks that the Hongsa Power Plant may fail to achieve its operations as planned caused by problems with machinery. The Company has managed the risk by closely monitoring the operations, focusing on investigating the root cause to achieve reliable operations. Besides, the Company has prepared adequate critical spare parts for the power plant and organized staff's capacity building programs and knowledge sharing among the companies in its group. The Company effectively handled the earthquake in November 2019 and revised mitigation measures in preparation for future incidents to be more efficient.

3.2.4 Risks from the Construction and Management of Power Plants

The Company has managed the risks from the construction and management of power plant projects by closely monitoring the projects' progress and constantly coordinating with contractors to ensure that project quality is in accordance with the contractors' agreements. In 2019, one solar power plant in Japan achieved commercial operation date (COD) with a total generation capacity of 18.9 MW. At year-end, the Company has a total installed generation capacity of 77.78 MW (total equity-based generation capacity of 56.30 MW). The Shanxi Lu Guang (SLG) Power Plant Project in China, in which Banpu Power holds a 30% stake, is expected to achieve COD of Unit 2 by the end of 2020. The 80-MW Soc Trang wind power plant project in Vietnam, in which Banpu Power holds a 100% stake. The project is divided into 3 phases; Phase 1 with a capacity of 30 MW, Phase 2 with a capacity of 30 MW, and Phase 3 with a capacity of 20 MW, which the Company holds a 100% stake. The project is expected to achieve COD for phase 1 by early 2021, Phase 2 and 3 by the end of 2021.

3.2.5 Risks from Solar Power Generation

The major factors affecting solar power generation are the intensity of the sun's radiation, which depends on weather conditions and leakage during generation. The Company addresses these risks by using statistics of the intensity of the sun's radiation to estimate the minimum

amount of electricity the plant can generate and compare it with the actual amount of electricity output. Besides, the Company deploys advanced technologies for solar power plants and carries out regular maintenance to ensure minimum leakage, which is lower than the Company's predefined acceptable rate.

Natural disasters also affect the Company's solar power plants. For instance, September is the time of the typhoon season, which causes production output to drop. However, such an incident does not affect the Company's power generation since the power plants were designed to withstand natural disasters.

3.3 Risks in Shale Gas Business

3.3.1 Risk from Gas Producers' Operations

As the Company's investment in the natural gas business has been conducted through an investment fund, the Company's role in the investment is mainly about the approval of the budget and annual operation plan over the assets owned by the fund both as a producer and investor. The Company thus faces the risk arising from the gas producer's performance. However, the Company managed the risk by devising selection strategies for the fund manager to deploy in order to select good gas assets and reliable producers as well as to insure the assets owned as a producer. Apart from that, the Company regularly reviews monthly performance and maintains a good relationship with stakeholders, which partially mitigates the operational risk.

In 2019, the Company slowed down the well completion, though it is partially completed in response to falling natural gas prices, resulting in lower annual natural gas production compared with CAPAX. Nevertheless, the Company has a plan to continue the well completion when natural gas prices increase to maximize benefits from the well.

3.4 Risk in Solar Rooftop Power Generation Business

3.4.1 Competitive Risk

Technological advances have lowered the prices of equipment and tools and allowed easier market penetration, resulting in wider market options and a fiercer price competition. As the Company supplies with high-quality and highly-efficient tools of international standards and provides integrated solutions as well as 24-hour after-sales service, its prices are quite different from competitors. However, the Company sees the opportunity to create value for customers and make a difference by providing fully-integrated solutions. The Company has invested in the business that builds on sustainable energy technology, for instance, energy management, energy storage, energy efficiency improvement to offer integrated solutions personalized to each customer's needs.

Additionally, the Company has applied the quick response strategy to improve efficiency in responding to consumers as well as rapid policy and regulatory changes. It developed a program to elevate communication effectiveness and service quality and analyze databases to deal with fundamental problems. The Company is also looking for partners to build a predictive analytics platform to respond more quickly and accurately to customers' needs while reducing costs.

3.4.2 Risk from Engineering, Procurement, and Construction (EPC) Contractors

Since the Company's business relies on engineering, procurement, and construction (EPC) contractors, it enhances efficiency by delegating a working group to closely communicate with the contractors and monitor their progress. This enables the Company to identify problems when

they first occur and align work standards with the Company's policy, which ensures quality delivery of work.

3.4.3 Risks from Solar Power Generation

Major risk factors affecting solar power generation can be divided into two categories as follows:

1. Risk from lower intensity of solar radiation than projected

Solar power generation relies mainly on solar radiation. The lower intensity of solar radiation caused by changing weather conditions or thick clouds may affect the solar power generation and lead to lower output, which affects the Company's revenue from electricity sales. However, thanks to Thailand's location, which is close to the equator, the intensity of solar radiation is normally high. The Company has also installed a device at every solar project to monitor solar radiation and weather conditions. Apart from that, the Company uses solar radiation references provided by a reliable technical consultant in the industry in monitoring and analyzing weather conditions.

2. Risk from early degradation of solar panels

Solar panels are important equipment for converting solar radiation into electricity. Therefore, if solar panels degrade too early, the output can be lower and will affect the expected earnings. Nonetheless, the Company entered into a contract in which contractors are to guarantee the system's production efficiency as agreed in the initial phase. Consequently, the Company can claim compensation or replacement of solar panels throughout the entire project period when finding that solar panels degrade sooner than prescribed.

3.5 Occupational Health, Safety, and Environmental Risks

3.5.1 Occupation Health and Safety Risks and Business Continuity Management

The Company places importance on occupational health and safety management throughout the supply chain to prevent occupational health and safety risks. In 2019, the Company continued its focus on the 3-Zeros policy, which includes:

- Zero Incident: Prevention of unsafe incidents.
- Zero Repeat: Prevention of recurrence of incidents.
- Zero Compromise: Strict adherence to safety rules and standards of the Company and host countries without compromise.

In 2019, the Company expanded the evaluation of safety culture maturity level conducted at Luannan and Zouping power plants in China, in addition to Trubaindo and Bharinto mines in 2018. The evaluation was carried out by questionnaires, individual interviews, group interviews, and site visits. The results were used in improving the three dimensions of the safety culture as follows:

- Occupational Health and Safety (OHS) Management System
- Occupational Health and Safety (OHS) Awareness and Behavior
- Occupational Health and Safety (OHS) Competency

The Company reviewed the standards, definitions, formula for calculating OHS indicators to align with the global reporting initiative (GRI), and standard in each country. Moreover, It sets short-term and long-term OHS with business units in each country. It has also monitored progress through meetings and quality assurance review (QAR).

Additionally, the Company has continuously applied a business continuity management system (BCMS) as mitigation against such risk factors as natural and man-made incidents that might impact the Company's operations. The results of risk assessment are strategic inputs for devising a business continuity plan (BCP) to ensure that the Company's business operations will not be interrupted by possible incidents such as fires, floods, earthquakes, epidemics, protests or riots. The Company has prepared the necessary resources and annual rehearsal to respond to emergencies at operational, nationwide, and management levels.

In 2019, the Bangkok office was certified with ISO 22301:2012 standards for its business continuity management system by Bureau Veritas Thailand Ltd. Moreover, there was a rehearsal of an annual fire drill and an emergency plan, organized by the crisis management team (CMT), to respond to the situation that might cause a corporate-level impact. The Company has set both short-term and long-term goals for the incident management team (IMT) in each country to rehearse the BCP at the national level.

3.5.2 Environmental Risk

The Company complies with environmental standards and strives to maximize resource utilization so as to preserve natural resources and to control direct and indirect environmental impacts such as climate change, land utilization, water resources utilization, and biodiversity.

Climate Change

The Company closely monitors environmental changes related to its business operations throughout the value chain in order to formulate policy and investment schemes in response to those changes, particularly climate change, which has become more intense in terms of frequency and severity. The society hence expects the use of alternative energy with lower greenhouse gas (GHG) emissions, which will help reduce the impact of climate change. The Company's production activities, including coal mining and power and heat generation, rely on energy resources which inevitably releases GHG into the atmosphere. Realizing its responsibility in reducing the GHG emissions, in 2010, the Company devised corporate policies and defined goals in GHG management to enhance energy consumption efficiency and promote the use of cleaner technologies. The Company has set a five-year GHG emissions target, from 2016 to 2020, against the baseline in 2012 - the year the Company included the operating results of the Australian business unit. It aims to achieve the target to reduce GHG emissions per production unit by 25% in the coal business and 15% in the power business. Furthermore, the Company has closely monitored the laws and regulations related to greenhouse gas emissions to accommodate changing business practices, including the Paris Agreement, which is the outcome of 21st Conference of the Parties to the UNFCCC (COP21), other agreements resulting from the COP, and the Company's policy on energy and reduction of GHG emissions in the countries where the Company operates.

Environmental Compliance

The Company prioritizes compliance of its operations with environmental laws and regulations as well as relevant environmental standards, e.g., environmental protection law and measures to reduce environmental impact, both of which are required to include in the environmental impact report. In 2019, the Company's compliance with environmental requirements remained impressive and had continuous improvement. Banpu focused on managing such major risks as follows:

- Soil Erosion Control: The Company prioritizes

preventive measures against possible impacts. Slope ratios are calculated for the appropriate ones, and vegetation and trees are planted around mine pits to secure the topsoil.

• Water Management: The Company has a project to reduce the quantity of water used in its production and various water treatment processes, such as settling basins and constructed wetlands, which are attuned to fit the locations, limitations, and water quality of each operation area. The quality of mine effluent discharged to public waterways is determined by the pH value and the turbidity as well as heavy metal compounds before discharge to the natural environment to ensure that the quality of discharge water meets the legal standards of each host country. Moreover, the Company evaluated if its business units are located in water-stressed areas based on the World Resources Institute's Aqueduct Water Risk Atlas. The results will be used to devise a plan and approaches to mitigate risks to the environment and communities and engage the communities in risk management.

• Acid Mine Drainage Management: The Company determined preventive measures and treatment for acid mine drainage, focusing on the management that covers all stages of mining from mine survey, production planning, land management, and mine rehabilitation. Various technologies are used to prevent the generation of and treat acid mine drainage. For instance, at Jorong mine in Indonesia, constructed wetland, where local plants are grown, is used to reduce acidity and remove heavy metals in mine drainage. The quality of water in the wetland is regularly checked before being discharged into natural water sources to minimize impacts on the environment. Wetland not only reduces the impact on water quality but also increase green areas providing habitat for birds and insects, which helps restore the ecosystem in the affected areas. The Company also has a plan to construct more wetlands in other affected areas to sustainably mitigate impacts from acid mine drainage.

• Cooling Water Management: The Company utilizes a semi-closed cooling system in its power plants to reduce water exchange with external sources and reduce discharge to the external environment to maximize water use. Waterways are designed to allow exposure to cooling air as long as possible to lower the temperature to the level required by law.

• Air Quality Management: The quality of air exiting to the atmosphere is determined by the quantities of sulfur dioxide, nitrogen oxides, and particulate matter. At its power plants in Thailand, Lao PDR, and China, the Company has installed various state-of-the-art technologies to reduce sulfur dioxide and nitrogen oxides, including the Low NOx burners, the circulating fluidized bed (CFB), the electrostatic precipitators (ESP) used for trapping fly ash and the flue gas desulphurization (FGD) system, both semi-dry and wet, the selective non-catalytic reduction (SNCR) and selective catalytic reduction (SCR). A continuous emission monitoring system (CEMS) was installed in smokestacks and in the communities surrounding the plants to ensure that ambient air quality meets the standards required by law. In particular, the Company has improved its air treatment system at the power plants in China to meet the stricter air quality standards and to improve urban air quality.

• Dust Management: Dust is naturally generated by mining activities such as pit opening, overburden removal, coal quality improvement, and coal transportation. The Company has implemented several measures appropriate to each specific operation area, for example, planting trees as a wind-blocking barrier in high-risk areas, reducing the vehicle speed limit in mining areas to reduce dust and for safety reasons, spraying roads and coal stockpiles with

water, and covering stockpiles and coal trucks with canvas tarpaulins. Dust levels in mining areas, coal stockyards, and nearby communities are also regularly measured to ensure effective control of dust.

• Hazardous Waste Management: The Company has appropriate measures in place to ensure the proper management of waste to prevent environmental impact. The management of hazardous wastes is in compliance with local laws. In some cases, the Company may sell the wastes such as used lubricants, automobile batteries and fly ash, to government authorized buyers for recycling. The Company also sells fly ash from coal-fired power generation to buyers to be recycled as building materials. The Company separates fly ash according to size in order to meet the market needs and to increase the sales price.

Effective Resource Utilization

Effective resource utilization plays a pivotal role in environmental conservation and cost reduction. The Company focuses on the four areas of resource management as follows

1. Climate Change: The Company is committed to reducing greenhouse gas emissions by implementing an energy conservation project and conducting a feasibility study to replace the use of diesel with alternative fuels. In addition, the Company annually discloses its carbon emissions information to the public through the Dow Jones Sustainability Index (DJSI), Carbon Disclosure Project (CDP), and its sustainability report.

2. Fuel Reduction in Power and Steam Production: The Company has deployed High Efficiency-Low Emissions (HELE) technologies in the Shanxi Lu Guang Power Plant in China. Moreover, improvements were made on machinery conditions in the Zouping Power Plant, as well as the recycling of gas from the steel production process in customer's factories, which causes air pollution as an alternative fuel for power generation in place of coal.

3. Land Use and Biodiversity: Recognizing the importance of effective land management and land use, the Company has carefully developed its mining plan to minimize impacts on the geography, biodiversity, and ecological system and developed mine closure plans before mining. In order to effectively manage biodiversity, PT. Indo Tambangraya Megah Tbk (ITM), a Banpu's subsidiary in Indonesia, in collaboration with Purwodadi Botanical Garden, initiated a project to study and preserve biodiversity at the Bharinto mine located on Kalimantan island since 2010. From 2012 to 2013, the study was expanded to the Indominco mine, which has made good progress in the study of biodiversity. The study was later expanded to other areas. The findings obtained from this study will be used to construct a model for future land and biodiversity rehabilitation. In 2017, the Company declared the Biodiversity Policy, with the aim of creating a net positive impact in all areas after mine closure. In 2018, the Company aimed to conduct value of biodiversity assessment of highly biodiverse areas in Indonesia, including at Bharinto and Indominco mines. Underground mines in Australia, namely Airly, Springvale, Clarence, Mandalong, and Myuna, also have a plan to conduct value of biodiversity assessment every year and will use the information gained to develop a rehabilitation plan to minimize the impacts on biodiversity.

4. Water Resource Utilization: The Company places a high priority on the preservation of water resources and has carried out many projects to reduce water use in production processes, recycle water, and prevent surface waters from being contaminated by wastewater. Besides, the treated effluent from underground mines is used to supplement community use. To enhance water management efficiency, the Company declared

the Water Policy, to set the water management scope and targets as well as the standards for data collection and reporting on water resource utilization. In 2019, the Company developed a water flow diagram for power and steam business. It is now developing a water flow diagram for mining business, which is expected to complete in 2020.

3.6 Risk from Social and Community Impact

The Company believes that "an industry will be strong only when it is developed in tandem with social and environmental responsibility." Accordingly, apart from emphasizing preventive measures to minimize impacts on the communities and society, such as environmental and safety impacts, the Company also promotes community development activities that stress "engagement" among relevant stakeholders, including communities, the government authorities, and involved organizations. The key objective of the Company's community development operation is to prepare the communities and lay foundation for future growth so that they become strong, sustainable and self-reliant.

To align all community development activities in the same direction, the Company issued the community development policy and management standards. It also devised strategies and set targets for the community development activities based on the local government's regulations and such international standards as the UN's Sustainable Development Goals (SDGs). Carried out under the collaboration of communities, the government sector, and the Company, the community development activities cover six areas: 1) economy and income generation, 2) education, 3) basic public utilities, 4) hygiene, sanitation, and primary health care, 5) environmental conservation, and 6) social and cultural promotion and community relations. Moreover, the Company has employed the social return on investment (SROI) framework in evaluating the social impacts of community development activities to maximize the efficiency of its operation in line with its sustainability policy.

The Company has the following community development measures in place to manage a social and community risk:

- The Company has formulated a standard practice manual on community development work, which includes mitigation of risk from social and community impact. The manual provides community development officers clear operational guidelines of the same standards for all operational areas. The guidelines are regularly updated to appropriately respond to changing situations.

- The Company has allocated sufficient Community Development Officers (CDO) at each mine site to work closely with the communities in improving their quality of life. These officers also act as mediators between the Company and communities to build mutual understanding. The CDOs can also assess the sensitivities or detect harmful incidents at an early stage, allowing them to find timely solutions or mitigation measures.

- The Company places importance on community engagement in every stage of development, starting from drawing up a community development plan which meets community needs and is consistent with the government's development plan. The Company and the community jointly set up a Community Consultative Committee (CCC), consisting of representatives from the local government, local communities, and the Company. The committee work on planning, monitoring progress, and solving problems for the optimal benefits for the society and the betterment of the local people, which is another means of risk prevention and mitigation.

- Community development projects are carried

out to meet each community's needs, stressing community engagement, and capability-building so that the community can become a self-reliant and sustainable community. The projects supported by the Company cover six areas of development: 1) economy and income generation, 2) education, 3) basic public utilities, 4) hygiene, sanitation, and primary health care, 5) environmental conservation, and 6) social and cultural promotion and community relations. These projects have contributed to the better quality of lives of the locals in the communities surrounding mining sites and business units, leading to satisfaction and a good relationship with the Company.

- Close inter-departmental collaboration enables the Company to jointly plan, monitor, and evaluate risks against the community and society. The Company can also prevent and mitigate such potential risks arising from the Company's operations, especially the ones that relate to the environment, safety, and product transportation.

- The Community Development Division can be an effective communication channel between the Company and communities and related external organizations, such as local administration organizations, government authorities, and media. This enables the Company to receive immediate alerts for the impacts, and coordinate with involved departments to find a prompt response.

- The Company has cooperated with contractors in Indonesia on community development work. Many of the major contractors have carried out community development operations, and the Company has worked with them from the planning process, budget allocation, and staff allocation to exchange knowledge, expertise, and information. The cooperation enhances the efficiency and benefits for the wider local community while reducing redundancies of social development management in the area.

- Follow-up assessments by all levels of management, including site visits, are regularly conducted, allowing the management to track the progress of their work. This is also an opportunity for the management to meet with community leaders and members and get suggestions for efficiency improvement to ensure that the Company has run careful operations with a clear working plan and well-defined risk management that causes no adverse impacts but benefits, satisfying both the communities and society.

- Stakeholder satisfaction surveys on community development programs in Indonesia are conducted every year to assess satisfaction and to identify concerns and potential risks as well as to elicit suggestions from the communities and related parties. The results of the surveys are used to set benchmarks for improvement to ensure that the Company's operations benefit and satisfy all stakeholders.

- The Company has its staff who are not responsible for community development work perform quality assurance review to ensure transparency and highest efficiency.

- The Company has employed the social return on investment (SROI) framework in evaluating the social impacts of community development activities in order to improve its operation to achieve the highest efficiency and minimize potential impacts and sustainable community and social development.

4. Risks in Compliance with Applicable Laws and Regulations

4.1 Compliance Risk

Recognizing the impacts of non-compliance on the Company's operations and reputation, Banpu places importance on compliance with applicable laws and regulations both in Thailand and abroad

to ensure that its operations are in line with good governance principles, namely, accountability, transparency, and fairness.

Compliance risk may arise from various factors, e.g., legal complexities, frequent legal changes, misinterpretations of practices. Even the foreign languages in which the laws are written can lead to wrong practices and affect the Company's finance and operations, resulting in such penalties as fines and suspension or expulsion of permits. On top of that, the Company's reputation and image can be damaged. Banpu thus prioritizes management of compliance risk and delegated to Compliance Department the duty to supervise legal compliance of all units to assure shareholders, the Board, executives, and employees that the Company has strictly complied with applicable laws. In addition, the Company regularly monitors the status of draft laws that will affect the Company in order to comply with the law when being enforced.

4.2 Risks from Policy and Regulatory Changes in the Countries Where the Company Has Invested

Since most of its businesses are located overseas, the Company encounters policy and regulatory changes in those countries. Therefore, the Company stresses the development of processes and tools to handle the risks from policy and regulatory changes in the countries where it has invested. The executives in each country are entrusted with the duty to closely monitor policy and regulatory changes. In 2019, the Compliance Department developed Laws In-Hand application to help monitor policy and regulatory changes. The Department also worked with the Enterprise Risk Management Department to develop Compliance Risk Management (C-RiM) mobile application to improve risk management efficiency. In addition, the Company has co-operated with many governmental and private organizations as well as stakeholders to monitor policy and regulatory changes. The Company also hires local consulting firms to help interpret local laws and advise on practices to achieve full compliance with applicable laws and regulations.

Over the past year, the countries where regulations, rules, and policies were substantially changed include China, Indonesia, and Japan. The Company managed these risks as follows:

People's Republic of China

- On 22 December 2016, the Chinese government announced a three-year action plan on air pollution control for 2018 to 2020 (Fight for Blue Sky) to control and reduce pollution in 82 cities across China. The regions of Beijing, Tianjin, Hebei, and Shandong are to reduce coal consumption by 10%, while the Yangtze Delta Region has to cut coal use by 5%. The plan also restricts that coal-fired power plants whose fuel consumption rates are equal to or greater than 65 tonnes per hour reduce energy consumption and improve production efficiency. The Company regularly reviews its business strategy and direction to ensure compliance with the aforementioned regulations. It has improved the efficiency of the production system and truck transportation to meet the emissions standard required by law, and explore investment opportunities in clean energy sources such as shale gas.

- In 2015, the Chinese government started the electricity system reform to regulate monopolies and encourage competition by cutting costs and enhancing quality, resulting in lower electricity price that is fair to both corporate and individual customers. In September 2019, the Chinese government enforced the policy on electricity price reform that replaced on-grid tariff by basic-tariff-plus-floating mechanism. The floating mechanism can deviate up to 10% higher or 15%

lower than the base price. A higher float rate had not been effective until 1 January 2020. The Company has closely monitored the new pricing policy to assess the potential impact and adjust its strategy to achieve growth in China.

Republic of Indonesia

• On 5 January 2018, the Ministry of Energy and Natural Resources proclaimed Law No. 23K/2018 about Domestic Market Obligation (DMO), which required that coal producers sell at least 25% of estimated and planned output according to Rencana Kerja dan Anggaran Biaya (RKAB) license. Those who fail to meet the requirement will face a penalty; their production quotas shall be deducted from the RKAB license in the following year and their export quota shall be cut. The Company strictly complied with the law by selling more coal in the domestic market and buying quotas from domestic producers whose DMO has exceeded the minimum limit.

• In March 2018, the Ministry of Energy and Natural Resources proclaimed Law No. 1395/2018 and No. 1410/2018 about selling price of coal for power generation for the public interest at USD 70 per tonne for the pre-specified type of coal. The price was subject to change according to the set formula. The restricted sales period was valid from 12 March 2018 until 31 December 2019 for up to 100 million tonnes of coal per year. The Company expanded sales portfolio and increased sales in more profitable markets.

• In August 2019, the Ministry of Energy and Natural Resources proclaimed Law No. 205K/2019 about the regulations for technical information verification of coal sales and transportation. Using an online system, the Ministry tracks and monitors permit holders' compliance with the law to ensure that their production and sales are in accordance with the RKAB permits. The Company complied with the regulations and revised its operational regulations to comply with the regulatory change.

Japan

• On 5 December 2018, the Ministry of Economy, Trade and Industry (METI) announced additional amendment on the Feed-in Tariff (FiT) agreements for under-development solar projects with a capacity exceeding 10 KW which meet the following conditions:

- Projects that were approved by METI from 1 July 2012 to 31 March 2014.

- Projects that were not under the requirements of the Three-year Rule with reference to the additional amendment issued on 1 April 2017. Projects under such conditions will have their FiT lowered to JPY 21 per kWh unless their project development meets the following requirements:

1. Projects whose "construction plans" were approved by the authorities before 5 December 2018, or

2. Projects which commenced construction before 5 December 2018 or whose "construction plans" are approved by the authorities before 30 September 2019 and commenced construction by 31 October 2019.

The qualified projects have to submit an application for a grid connection by 31 August 2019 and get approval by 30 September 2019 to maintain the current FiT price. Such projects also need to achieve COD before 30 September 2020. If they fail to achieve COD within the agreed period, they will suffer a shorter period of the FiT agreement based on their project delay. The Company has closely monitored the progress of those projects to submit the application for approval in time to

be eligible for the exception clause to minimize possible risks to under-development projects. In 2019, Banpu's Kurokawa solar power plant in Japan achieved COD as planned with a total capacity of 18.9 MW.

- The Japanese government announced the change in the electricity price policy from the FiT scheme throughout the lifecycle of a power plant project to the bidding scheme for projects that were approved after 1 April 2017. This change might decrease return on investment for new projects under the bidding scheme. Nevertheless, in preparation for this risk, the Company has been seeking methods to increase competitive advantage, such as financial cost-cutting or joint venture development with business alliances.

5. Emerging Risks

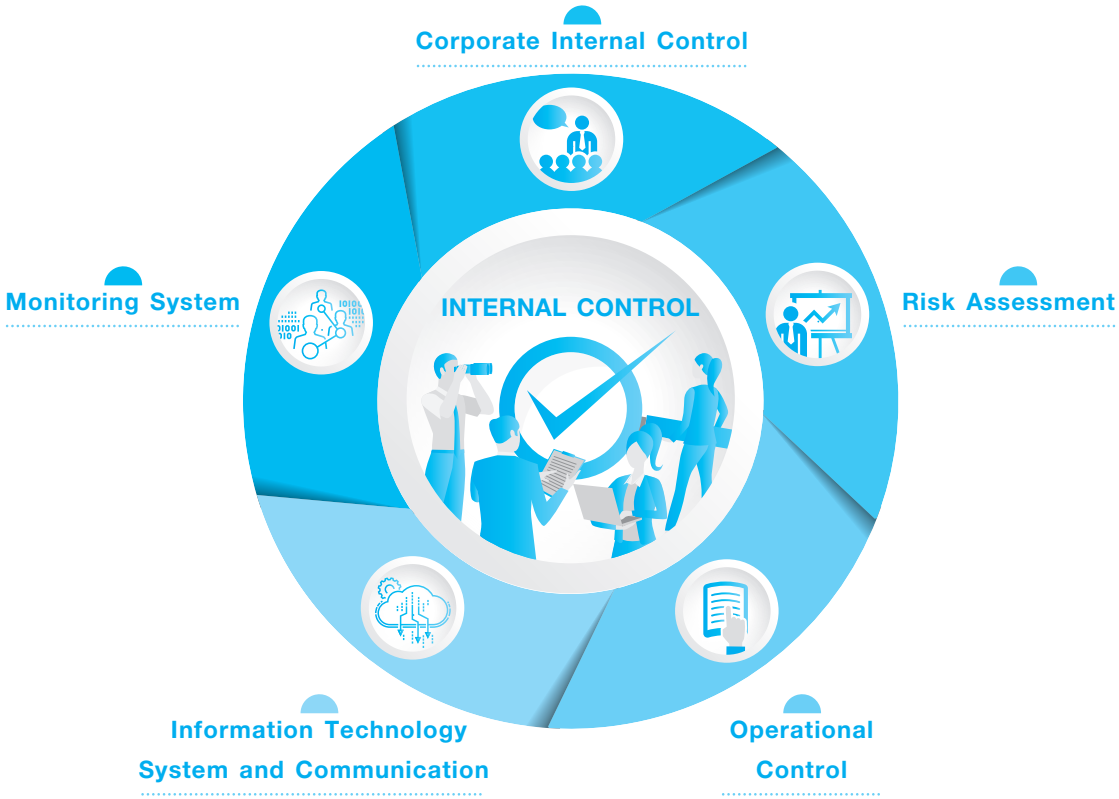
Emerging risks are risks that have never been in existence, or the Company has not yet encountered, but may cause adverse effects as unexpected future changes may occur, such as political, legal, social, technological, physical environmental, or natural changes. In some situations, the impacts of changes cannot be foreseen, or risks cannot be precisely identified.

The Company's risk assessment indicates that in the long term, the emerging risk is disruptive energy technologies that affect the energy industry. Nowadays, technological advances and alternative energy play a critical role in the energy industry, for example, high-performance energy storage devices and systems and electric vehicles. Production costs in the renewable energy business are decreasing as a result of modern technological development. The governmental sector also issued policies to curb greenhouse gases (GHGs) according to the Paris Agreement to combat climate change and promote renewable and alternative energy sources. All these disruptive technologies have altered business operations in the energy industry.

In 2019, the Company aligned its business strategy with technological advancements according to its Greener & Smarter strategy. The Company focused on renewable energy development through the integration of state-of-the-art technologies into power generation to respond to global environmental change, including greater demand for clean energy and growing renewable energy consumption, development of a wind power project in Vietnam. Built on its expertise in energy business, the Company developed solar solutions to support leading organizations in Thailand to achieve sustainable business growth while being eco-friendly. It also offers additional services of such energy technologies as electric vehicles (EVs) and energy storage and management system.

Banpu has set up the Digital Center of Excellence to drive corporate changes. Several projects were being carried out in 2019, such as Underground Mining Assistant (UMA) - a project to install wireless devices for real-time communication between machinery in underground mines and the ground control room. Apart from that, the Company is on the lookout for new potential business opportunities to improve its competitive edge and achieve sustainable growth in the future.

INTERNAL CONTROL



Banpu places great importance on an efficient and effective internal control system in accordance with international enterprise risk management and internal control standards of the Committee of Sponsoring Organizations of the Treadway Commission (COSO). This enables the Company to achieve its strategic and operational goals with effectiveness and efficiency, the reliability of financial statements and other reports, as well as legal and regulatory compliance. The Company has promoted awareness among executives and employees about the importance of internal control and established appropriate internal control at the corporate and department levels as well as in various operational processes. This will drive sustainable growth and the achievement of objectives, mission, and strategies under the Board of Directors and the Management's good governance based on the principles of corporate governance and transparency, which assures stakeholders that the Company's business operations have an adequate and appropriate internal control.

At the Board of Directors' Meeting on 30 January 2020, the Board evaluated the adequacy of the internal control system based on the Security Exchange Commission (SEC)'s evaluation form prepared by the Management and reviewed by the Audit Committee. The overall evaluation results revealed that the Company has sufficient, appropriate, and efficient internal control system and risk management that meets international standards covering the organizational level to activity level. This ensures that the Company is able to achieve its predefined goals. The internal control system consists of five key components, which can be summarized as follows:

1. Corporate Internal Control

The Company has created the control environment that contributes the efficiency and effectiveness under the corporate governance principle and the Code of Conduct to achieve the Company's targets with decentralized organization structure enhancing agility and adaptability to changes in business practices. The delegation of responsibility and authority is explicitly written while performances of executives and employees are assessed with Key Performance Indicator (KPI) in order to provide operational guidelines for the executives and employees. The performance assessment is regularly compared with the target, which will be annually reviewed so that all employees are aware of their roles, authorities, and responsibilities. Apart from that, the Company has a checks and balances system, a clear chain of command, and scopes of authorization for each level of management, which ensures that management and operations are effective. Policies, procedures, and practices have been appropriately formulated to cover all businesses and new projects. They are subject to be reviewed and updated in response to the changing work environment both inside and outside of the organization.

The Company strives to foster employees' understanding and practice of the corporate culture, "Banpu Heart," which comprises being "Passionate, Innovative, and Committed," to move the Company forward firmly into the future. The corporate culture will strengthen Banpu from within to attain the goal of being a leading integrated energy solutions company in Asia-Pacific driven by the Greener & Smarter strategy, which emphasizes more environmentally friendly business operations and smart deployment of technologies and innovations.

With a commitment to integrity and transparency, Banpu adheres to the principles of good corporate governance and the Code of Conduct. Moreover, the Company has Anti-Corruption Policy and practices as well as a Whistleblower Channel. In 2019, the Company reviewed and updated the Corporate Fraud Management Policy to enhance its effectiveness in the oversight of international business expansion.

2. Risk Assessment

The Company puts a high priority on the management of risks from changes caused by both internal and external factors as well as global megatrends by getting ready to respond to situations that may affect its business activities at various levels ranging from department, business unit, to corporate level. Risk management is supposed to be a key component of every process of business operations with which all employees comply.

The Risk Management Committee is responsible for devising a policy and risk management approaches, overseeing and monitoring the overall management of critical risks. The management and employees in all units also take part in the assessment of the risk factors and determining measures to minimize risk to an acceptable level. The risks in all areas are assessed, namely strategy, operation, finance, regulatory compliance, information technology, and corruption. Risk management situations are reported to the Risk Management Committee, reviewed by the Audit Committee, and reported to the Board of Directors on a quarterly basis.

In 2019, the Company developed a Mobile Application called C-RiM (Compliance Risk Management) to improve the efficiency of online supervision and monitoring of legal compliance and compliance risks of the Company and its overseas subsidiaries.

3. Operational Control

Banpu has been operating its business under a sound and effective system of internal control. The Company has put into place internal control procedures to oversee business investments based on the corporate structure to ensure alignment with policies, practices, and strategic directions. The operational control activities are as follows:

1. Formulation of policies, regulations, practices, and the update of approval authority in an explicit writing
2. The clear roles and delegation of authorities with effective checks and balances system
3. Establishing a clear policy on related party transaction based on the maximum benefits for the Company on a similar basis to the transactions at arm's length
4. Safeguarding of the Company's assets to prevent misuse of the assets for personal purposes
5. Establishing an appropriate and effective IT control system
6. Management, monitoring, and supervision of operations to ensure compliance with the Company's action plans, policies, regulations, procedures, and external compliance as well as Key Performance Indicators (KPIs) that are relevant to the Company's targets
7. Regularly organizing of knowledge sharing and training sessions about internal control

In 2019, the Company improved procedures to align with the Greener & Smarter strategy aiming to move forward to being a leading integrated energy solutions company in Asia-Pacific. The Company highlights environmentally-sound business and deployment of cutting-edge technologies to increase efficiency, such as Compliance Risk Management (C-RiM) Application, and Laws In-Hand Application, to keep executives well-informed about laws and regulations, especially recent ones in the countries where Banpu operates. In addition, an improvement in a working system using electronic workflow helps to prevent mistakes and negligence of key operations.

4. Information Technology System and Communication

The Company has developed an effective and secure information technology (IT) system in compliance with applicable laws to enable sustainable business expansion as well as to successfully adapt to digital disruption. There has been an implementation of a digital transformation plan by deploying key digital technologies in operations and general control of information systems to support the transformation from traditional energy business into the new ecosystem of the energy business.

In 2019, the Company improved the infrastructure of the information technology system to enhance agility and capacity to connect the Company's businesses with business partners based on the digital transaction, such as Micro-Services Architecture, Open APIs Management, and Integration Hub. It also built a data management and analytics platform to enable insight analysis that facilitates business decisions. Apart from that, the Company has improved the infrastructure of mobile networks to reduce overall business operating costs.

However, the Company is aware of cyber threats resulting from relying on digital technology in business operations. It, therefore, set up a cyber-risk assessment team that is responsible for assessing risks in Information Technology (IT) and Operational Technology (OT). Cyber security system risk management has been upgraded into a cyber-resilience system, which is made ready to withstand cyber-attacks. The cyber risk assessment team reports progress to the Audit Committee, improves IT Services Operation to support business continuity management according to ISO 22301, and tests the disaster recover system annually. The team also ensures legal compliance with relevant laws and regulations, such as the Computer Crime Act and the Personal Data Protection Act. Besides, the

Company has streamlined the IT department's work processes to enhance agility by the deployment of the "Agile Development Approach" and the "DevOps" tool to accelerate digital product development process and simplify maintenance.

The Company has also focused on communication of key information through the website and online networks linking multi-country business operations via Google Collaboration Platform (Email, Site, Drive, Sheet, Form, and Hangout). The Company has also used the electronic document management system to facilitate communication and transfer of data and information both inside and outside of the organization, which is fast and modern while guaranteeing information security by restricting access authorization according to responsibilities and uses of information. There are effective internal communication channels, such as email systems, public relations through a wide range of activities, and general meetings, all of which enable effective collaboration and operation. Investor Relations Department and Corporate Communications Department are responsible for information disclosure and communication to all stakeholders in an adequate, appropriate, and equitable manner.

5. Monitoring System

Banpu has implemented a monitoring system both at the management and operational levels. There are regular reviews and monitoring of performance by supervisor and department heads, and executive meetings are held regularly to monitor whether the performance meets the predefined goals. Global Internal Audit and Compliance Unit review and monitor the performance as follows:

- Global Internal Audit Department is responsible for auditing and assessing the efficiency and effectiveness as well as adequacy of the Company's internal audit system and performance in compliance with the corporate policies and procedures. It emphasizes risk-based auditing, and advises on the improvement of work processes and monitoring the performance to ensure that appropriate and timely corrective actions are taken. It has also developed a GIA Digitalization project to deploy technologies in order to improve audit efficiency and effectiveness as well as create added value to achieve "Smart Audit."
- Corporate Compliance Department is responsible for reviewing and monitoring external compliance with applicable laws and regulations and reporting the results to the management and the Audit Committee on a regular basis. Moreover, it devises the annual plan to supervise overseas subsidiaries to ensure legal compliance. In 2019, the Company developed applications and systems to improve efficiency as follows:
  - C-RiM (Compliance Risk Management) to improve efficiency in supervision and monitoring of legal compliance and compliance risks of overseas offices
  - Laws In-Hand for legal updates in different countries to enable timely responses
  - COL (Compliance Obligation List) to protect and monitor legal and regulatory compliance in every country where the Company operates both prior to investment and during operations covering end-to-end process. As the Company has rapidly expanded to international markets, it focuses on pro-active compliance management to create added value and sustainable business growth.

SUSTAINABLE DEVELOPMENT

Sustainable Development Policy

Banpu firmly adheres to its credo: **"an industry will be strong only when it is developed in tandem with social and environmental responsibility".** The Company is committed to conducting its business with good corporate governance and a sustainable balance of management of economic, environmental, and social management. The Company also incorporates international standards and practices to formulate a strategy for sustainable development in order to increase business competitiveness as well as value creation to all stakeholders as follows:

Competitiveness

People

Respect for employees' human rights by fair treatment, build a strong corporate culture and employee development, enhance leadership and technical competency.

Operational Excellence

Focus on the flexible and efficient business process along the supply chain, with innovation and continuous improvement, provide superior products and services to customers and enhance customer relationship management and seek new business opportunities.

Value Creation for Stakeholders

Compliance

Adhere to good corporate governance and comply with stipulated laws and regulations, including international standards.

Occupational Health and Safety

Care for occupational health and safety of our employees and business partners by setting the target of 3 principles: Zero incident, Zero repeat, and Zero compromise, to prevent fatalities, injuries and occupational illness.

Environment

Find a balance between business development and environmental protection, study and evaluate environmental impact before project implementation to determine preventive measures for each project, reduce or optimize resource utilization, provide pollution prevention at its source, and proper environmental management throughout the entire supply chain.

Community

Create sustainable values to our host communities and society through community engagement, tax contribution, local employment, and other programs to win stakeholders' acceptance.

To achieve successful implementation of the policy, the Company established measurable indicators to monitor and review the performance to ensure that the Sustainable Development Policy has been put into practice.

Sustainable Strategies

With a vision to be **"The Asian energy company at the heart of innovation, technology, and sustainability"**, Banpu endeavors to create trustworthiness and sustainable value for stakeholders on the basis of social and global responsibility. It incorporates the sustainability and the business practices concerning Environmental, Social, and Governance (ESG) principles from local to international contexts in setting sustainable development strategies, for instance:

- UN's Sustainable Development Goals (SDGs) and the UN Global Compact, which are used as guidelines for determining sustainable development issues.

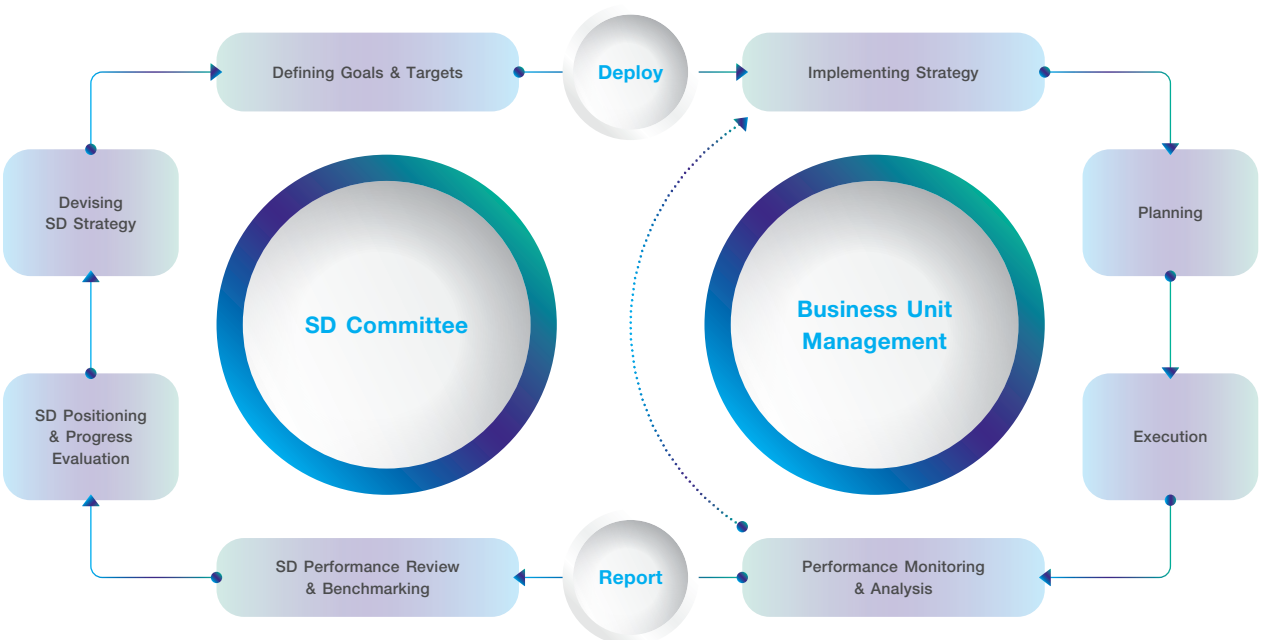
- UN Guiding Principle on Business & Human Rights and Universal Declaration on Human Rights are used as policy inputs for setting up a human resource management policy and a human rights policy
- Assessments by external institution, based on the Environmental, Social, and Governance criteria such as MSCI ESG Ratings, RobecoSAM Corporate Sustainability, are integrated with corporate performance assessment.

Banpu's sustainability or ESG principles are not only limited to the Company's operations but also cover all business partners throughout the value chain. The Company stresses value creation for business development as well as incubating innovation with synergy. All business units are in full alignment in terms of sustainable development and maintaining a balance between enhancing a competitive edge and creating value for all stakeholders.

Managing Sustainable Development

Banpu drives sustainable development by integrating sustainability management into operations management strategies. By doing so, each unit assesses economic, social, and environmental risks, which have possible impacts on the Company's sustainability and stakeholders. The risk assessment report is then submitted to the Risk Management Committee, the Audit Committee, and the Board of Directors, respectively. The Board of Directors reviews the report to define corporate strategies and provides suggestions on the management of those risks to the Chief Executive Officer, who is in charge of implementing the strategies. Additionally, the sustainability issues are incorporated in the Key Performance Indicators (KPIs) of the Chief Executive Officer and senior management. The compensation of business unit management will then be evaluated according to the KPIs.





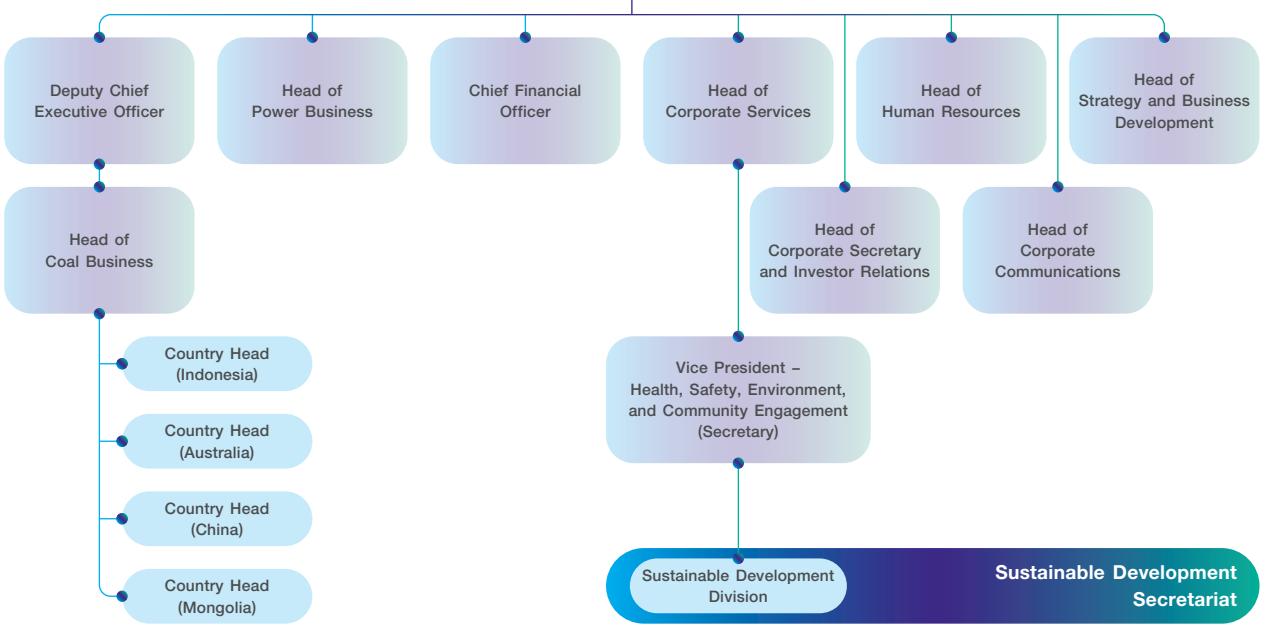
Sustainable Development Committee

At Banpu, sustainability management is under the supervision of the Sustainability Development Committee chaired by the CEO, who is also a Board member. Members are top executives and heads of business units in all the countries where Banpu has operations. The SD Committee has the following duties and roles:

- Monitor and evaluate sustainabilty or ESG performance in the past year.
- Devise and review a policy or management system standards to enhance competitive advantage and ensure that the Company's business grows in tandem with social and environmental responsibility.

To ensure smooth sustainability management, the Sustainable Development Committee convenes biannually to review and evaluate the sustainability performance of each business unit according to the sustainability management plan, as well as to consider the stakeholder analysis and material issues. The analysis, together with the Board's suggestions, are considered to devise additional policies, management standards or practices to enhance sustainability and maximize stakeholder's value in the following year.





Human Rights Policy

Banpu prioritizes respect for human rights and has incorporated the policy into its sustainable development strategy. The Company respects human rights principles, both locally and internationally. Observing the UN Guiding Principle on Business & Human Rights and the Universal Declaration on Human Rights, the Company strives to find measures to prevent human rights violations and mitigate the impacts caused by the Company's operations. These practices are part of the implementation to foster the corporate culture.



MEMBER OF
Dow Jones
Sustainability Indices
In Collaboration with RobecoSAM

SAM | Sustainability Award
Gold Class 2020

SAM | Sustainability Award
Industry mover 2020

MSCI
ESG RATINGS
A
CCC | B | BB | BBB | A | AA | AAA

Tax Management Approach

Being a good corporate citizen in every country where it operates is the Company's top concern and is considered as one of the sustainable development strategies. In addition to compliance with applicable laws and regulations of each country, the Company demonstrates its commitment to transparency through disclosure of tax payments. Moreover, all business transactions between Banpu's subsidiaries are based on transparency and fairness for the benefit of the host countries and all stakeholders.

Sustainability Reporting

The Company discloses sustainability strategies and performance, covering ESG principles to stakeholders through the Sustainability Report since 2011. SD reports are published both in hard copy version and online version, which are accessible via the Company's website. The preparation of the reports strictly follows the Global Reporting Initiative (GRI) Sustainability Reporting Standards. The Company has also commissioned external assessors to verify reports and performance on energy, greenhouse gases, and occupational health and safety to ensure that core indicators comply with the GRI Standards, and performance data conforms to the required standards.

Global Recognition for Sustainability

- In 2019, Banpu has been recognized as a member of Dow Jones Sustainability Indices (DJSI) for the sixth consecutive year.
- Banpu has received the Gold Class for the sixth consecutive year and the Industry Mover for the forth consecutive year in Coal & Consumable Fuels industry from the sustainability ranking by the Robeco Sustainable Asset Management (RobecoSAM) in 2020.
- In 2019, Banpu received a rating of A (on a scale of AAA to CCC) based on environmental, social and corporate governance assessment of the MSCI ESG Ratings.

National Recognition for Sustainability

- The Company was granted the Sustainability Award of Honor 2019 from the Stock Exchange of Thailand.
- Banpu was included in the Thailand Sustainability Investment (THSI) list, announced by the Stock Exchange of Thailand for the fifth consecutive year.
- Banpu received the Thailand Corporate Excellence Awards 2019 in the category of Sustainable Development Excellence from the Thailand Management Association (TMA) and Sasin Graduate Institute of Business Administration of Chulalongkorn University.

HUMAN RESOURCE MANAGEMENT

The heart of Banpu's human resource management is the continuous fostering of strong corporate culture to manage diversity in the workplace in 10 countries where the Company operates, in terms of race, religion, language, culture, age, knowledge, perspective and work experience. The Company leverages diversity to create a happy and harmonious workplace and achieve fast and smooth operations. This has improved value creation, competitiveness and created synergy to drive innovations for the organization in the long run.

As of 31 December 2019, the number of Banpu's and its subsidiaries' employees is as follows:

(Unit: People)



Corporate Culture "Banpu Heart"

All Banpu's staff and executives have upheld Banpu's **"corporate culture"** as common practice for over three decades. The previous corporate culture has transformed into **"Banpu Heart"**, which aligns with the Company's current vision and business strategies. It is the force driving all Banpu people to steer Banpu toward being **"the Asian energy company at the heart of innovation, technology, and sustainability"** with three shared corporate values: **Passionate, Innovative and Committed**.

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





To strengthen and sustain the corporate culture, the Company has implemented **"Banpu Heart"** as concrete practices in all processes involving employees from various countries, such as employee recruitment, new employee orientation and employee performance appraisal. In addition, the Company conducts annual surveys of employee views toward the corporate culture and employee engagement. The surveys measure the levels of engagement and alignment of employee behavior with the corporate culture, both as an internal customer and a stakeholder. The survey results in 2019 are as follows:



77%

Average alignment levels of employee behaviors to corporate culture in all countries

78%

Average levels of employee engagement in all countries

Cultivation and Development of Workplace Creativity and Innovative Thinking

Over the past decade, Banpu has trusted in the power of creative and innovative thinking, which empowered Banpu people to tackle ever-challenging changes by creating and extending new concepts. Accordingly, Banpu is committed to cultivating and developing **"Innovation"** a corporate core value, under the concept of **"Working Agility"**. The Company encourages employees to embrace agility through job rotation, cross-functional working, cross-country working and short-term and long-term overseas assignments. Moreover, the Company has continually promoted various forms of inspirational and knowledge-sharing activities and set up a creative work environment to encourage innovations from employees in every country as follows:

- The initiation of **"Wow Ideas"** project as an employee's forum to showcase their creative ideas for inventing smart working styles.
- Encouraging employees to think and act fast, and be bold to experiment with new things by submitting their innovation projects to contest. Outstanding projects from each country will be selected to compete in the final round in the **"Banpu Innovation Convention"**. In 2019, the convention was organized for the 7th consecutive year in Bangkok to showcase innovative projects to employees and extend innovative ideas to organizational practices.





Banpu's 3 Principles of Human Resource Management



1 Equitability



2 Performance Base



3 Competency Base

Banpu strives to align human resource management with corporate vision and timely respond to the changing business scenarios. The Company is moving forward to becoming a leading integrated energy solutions company in Asia-Pacific. It thus always prioritizes strengths in employee's capabilities and working agility to enable cooperation among employees for smooth operations. The Company also provides opportunities for employees to build new skills and advance their careers cross-functionally and equally in all countries. In 2019, the Company implemented major human resource management strategies as follows:

1. Continuous Employee Capability Development

People Capability Development Policy

In 2019, the Company not only organized basic training and development programs but also designed tailor-made training programs for executives and employees of all levels to promote lifelong learning. With support from leading consulting firms and management training institutes, locally and abroad, the Company offered training courses for reskilling and upskilling employees to accelerate the speed of change and strength in employee's capabilities to best suit their positions and align with the Company's business direction. In 2019, the Company organized training sessions for all executives and staff in Thailand, with an average time of 22 hours per person, as follows:

Selective Learning Program

This program offers in house and external training courses as well as short courses. Banpu has an explicit policy to earmark training budgets at a minimum of 5% of the total yearly salary budget. In 2019, the Company organized the following skills training programs:

- **Leadership skills** such as 7 habits for highly effective people, enhancement of problem-solving and decision-making skills, leadership for change and global mindset.
- **Functional skills** such as strategic thinking and planning, project management, designing business operating models and Banpu group's sustainability principles.

Global Leadership Program

This program is participated by Banpu's executives from all countries. The program promotes diversity and inclusion in the workplace and cross-functional networking to instigate international cooperation and collaboration. It features a range of training topics such as self-development to enhance leadership skills, development of team leadership skills and development of business leadership skills.

To fulfill the demand for sustainable growth, the Company has continued the **"Learning Application Project" (LAP)**, which promotes the application of knowledge in real work situations. This year's focus was on the application of **"Design Thinking"** in the learning process and development of training projects together with the development of new skill sets and continuous self-learning facilitated by **"Banpu Digital Academy"**. The Company started the Academy with the aim of preparing employees for the digital world. To build Banpu people's capabilities and essential skills for the digital age, the Academy offers four compulsory courses: Power of Digital, Agile 101, Intro to Design Thinking and Defining a Minimum Viable Product, as well as supports other courses of employee's choice and interest.

Succession Planning and High Potential Management

To accommodate stable growth, Banpu is always aware of the continuity of workforce planning and management. In 2019, Banpu's Succession Planning Committee selected potential successors for top leadership positions and constantly monitored their development through assessment of competency, personality and Individual Development Programs (IDPs) to ensure alignment of the succession plan to the Company's business strategies. The Company has identified key and critical positions and provide the screen profile of key and critical positions as well as constantly deliberate selection criteria to strengthen succession management in the long term and increase agility in full alignment with Banpu's businesses.

2. Supporting Working Agility

Global People Management System Project

One of the projects Banpu has supported to improve working agility is the development of employee information in every country as a single source of information to enable easy data access and increase efficiency in analytics for fast human resource management and international work. In 2019, the Company gradually launched the system and collected user feedback for system improvement to make it compatible with new forms of work as much as possible. The system will be completed in June 2020.

Effective Organization Structure

Banpu is well aware that the organizational structures with a flatter hierarchy enhances agility of new work styles and facilitates quick business operations to maximize efficiency. In 2019, Banpu and its subsidiaries reviewed and adjusted the organizational structure to become better aligned with the Company's ever growing business. This included the review and adjustment of key management positions to strengthen the Company and significantly increase its competitive edges.

CORPORATE GOVERNANCE

Corporate Governance Policy

The Board of Directors of Banpu Public Company Limited announced the implementation of the Corporate Governance Policy to directors, executives, and employees at all levels in 2002. The Board annually reviews the policy to ensure compliance with business contexts, laws, regulations, rules, and guidelines of related agencies. The Corporate Governance and Nomination Committee is delegated to conduct a preliminary review of the policy and submit the results to the Board.

In 2019, the Company Governance (CG) division organized the event "CG Switch It On – Launch New CG Policy and Code of Conduct," aiming to communicate the new 2018 Corporate Governance Policy and Code of Conduct to employees. The Board of Directors had approved the revision of the essence of CG policy and Code of Conduct to be in line with the Securities and Exchange Commission (SEC)'s Corporate Governance Code for Listed Companies 2017 to maintain ethical standards for the benefits of all stakeholders.

The Company monitored and evaluated the effectiveness of the implementation of the CG Policy and the Code of Conduct in the organization based on the results of the 2019 Corporate Culture and Employee Engagement Survey, using "Committed" as an indicator. The respondents were classified according to the level of work and work location, and the survey results were satisfying.

Formulation of Corporate Governance Policy

The Board of Directors formulated the Corporate Governance Policy as guidelines for the directors, executives, and employees in compliance with the SEC's 2017 Corporate Governance Code for Listed Companies, which comprises 8 principles as follows:

- **Principle 1** Establish Clear Leadership Role and Responsibilities of the Board
- **Principle 2** Define Objectives that Promote Sustainable Value Creation
- **Principle 3** Strengthen Board Effectiveness
- **Principle 4** Ensure Effective CEO and People Management
- **Principle 5** Nurture Innovation and Responsible Business
- **Principle 6** Strengthen Effective Risk Management and Internal Control
- **Principle 7** Ensure Disclosure and Financial Integrity
- **Principle 8** Ensure Engagement and Communication with Shareholders

Communication of Corporate Governance Policy

Committed to compliance with the Policy and Practices on Corporate Governance and the Code of Conduct, in 2019, the Company set out action plans to promote corporate culture and corporate governance attitudes. The plans aim at educating and raising awareness among employees at all levels about the CG Policy and the Code of Conduct through a wide range of activities as follows:

1. Regularly organized an orientation session on the principles of good corporate governance for new employees.
2. Internally communicated about corporate governance best practices via "CG Switch It On," to promote ethical conduct among employees, executives, and directors and reaffirm that anyone can be a role model in corporate governance, regardless of title or position.
3. Hosted an activitiy "CG Switch It On – Launch New CG Policy and Code of Conduct," aiming to communicate to Banpu employees about the new 2018 CG Policy and the Code of Conduct. The Board of Directors had approved the revision of the essence of Banpu's CG policy and Code of Conduct in accordance with the SEC's 2017

Corporate Governance Code for Listed Companies.

4. Published articles on corporate governance trends and directions in Thailand and ASEAN countries in the "Corporate Governance Update" column in a quarterly Banpu e-Bulletin, an electronic channel for internal communication, distributed to Banpu's subsidiaries in all countries where Banpu has business operations. The articles published in this column aim to create an understanding as well as awareness of corporate governance among employees. The topics presented in the past year were:
    - The new 2018 CG Policy and Code of Conduct
    - Roll out of three new PR material formats for the updated CG Policy and Code of Conduct
    - Corporate Governance Report of Thai Listed Companies 2019
5. Organized "CG Day" to raise awareness among employees at all levels about the importance of the Code of Conduct and commitment to integrity. The 2019 event was held under the theme "CG Switch It On" to promote compliance with the new CG Policy and the Code of Conduct. The Company's Governance Division also provided a two-way communication channel for employees to share their opinions during "You Wonder, We Answer" session. This session allowed employees to ask questions about guidelines for the CG Policy and Code of Conduct, and their inquiries were clarified by related business units to ensure that all employees conform to the same standards.

Awards and Recognitions on Corporate Governance

Due to its commitment to corporate governance and creating equitable value for all stakeholders, in 2019, Banpu received the following awards and recognition from both national and international institutions.

- The Company was awarded "Gold Class 2019" in the Coal and Consumable Fuels sector for the fifth consecutive year from the Robeco Sustainable Asset Management (RobecoSAM). This recognition reiterates Banpu's excellent sustainability performance compared to other international companies in the same industry and the Company's commitment to being a sustainability leader aiming at creating sustainable growth and added value for shareholders.
- In 2019, the Company was listed on the Dow Jones Sustainability Indices (DJSI) – Emerging Markets for six consecutive years. Banpu secured its status as the global DJSI Industry Leader in the Coal & Consumable Fuels Industry based on the SAM Corporate Sustainability Assessment (CSA) by RobecoSAM, the world's sustainability rating agency. Banpu obtained the highest total sustainability scores in all dimensions including economic, environment, and social development, affirming the Company's commitment and achievements in ESG.
- Banpu received the royally-bestowed Thailand Corporate Excellence Awards 2019 in the category of Sustainable Development Excellence Award. The Company was recognized for its expertise in corporate management to achieve sustainable growth and development while incorporating technology and innovation to elevate business potentials and competitive advantage both at the corporate and national levels.
- Banpu was listed as one of the 193 Listed Companies with Excellent CG Scoring from the survey on Corporate Governance of Thai Listed Companies (CGR) 2019 conducted by the Thai Institute of Directors Association (IOD), with support from the Stock Exchange of Thailand (SET). Having attained "Excellent" level of recognition for three consecutive years underlines the Company's commitment to sustainability by adhering to the ESG principles aiming to sustain business growth and create long-term returns for shareholders as well as sustainable benefits for all stakeholders.

Principle 1

Establish Clear Leadership Role and Responsibilities of the Board

Leadership Role and Responsibilities of the Board of Directors

Since 2009, the Board of Directors has explicitly formulated duties and responsibilities to the Board in "The Practices for the Board of Directors B.E. 2552, Banpu Public Company Limited," which was periodically amended to align with duties and responsibilities and accommodate changes in business scenarios, regulations, rules, and corporate governance guidelines. The most recent amendment was in 2017. The Practices of the Board of Directors specifies compositions and rules about the Board, general qualifications of directors, qualifications of independent directors, expertise, terms of office and retirement, roles and responsibilities, and the Board of Directors' meeting and voting.

In the past fiscal year, the Board of Directors had a pivotal role in overseeing the formulation of the Company's vision and mission, which are the Company's goals to achieve a sustainable business, monitored the business operations, and at least once a year reviewed the performance to ensure goal achievement. The Board approved the setting of financial KPIs and targets as well as plans, regularly monitored the implementation, and oversaw the Management's performance to ensure that the predetermined goals were achieved as planned. The Board also reviews the Company's vision and mission at least once every five years to ensure that the Company adheres to the predetermined goal toward sustainable development.

To determine the vision and mission of the Company, the Board of Directors and the Management have collaboratively devised a long-term strategic plan and business directions every five years for more than 20 years. The Board appointed and entrusted a CEO with clearly defined authorities and responsibilities to take charge of business management, development, and implementation of strategies. The CEO cascades management authorities to senior management in business units in Thailand and abroad in accordance with the delegations of authority.

Apart from that, the Board of Directors prioritizes business operations that maximize shareholders' substantial benefits, with adherence to the principles of good corporate governance. Thus, the Board of Directors has aligned the Corporate Governance Policy and the Code of Conduct with the Company's vision, mission, business credo, values, principles and recommendations to ensure clarity and convenience for directors, executives and employees. Employees are clearly advised about what they should do and should not do, about standards of practice that the Company expects and adheres to in all operations concerning employees, shareholders, customers, partners, creditors, competitors and society at large, all of which concretely comply with the Corporate Governance Policy.

Banpu entrusted directors, executives, and all employees with a duty and a responsibility to acknowledge, understand, and comply with the Company's policies and guidelines as set forth in the Code of Conduct. All employees must sign an acknowledgement of and comply with the Corporate Governance Policy and the Code of Conduct. Promotional materials and activities are created to improve awareness and understanding among employees both domestically and abroad. The Company also assigns management in each area of operations to ensure that employees under their supervision know, understand and strictly comply with the policies and guidelines. The employees at all levels must act as good exemplars.

In addition to the standard practices stipulated in the Code of Conduct, the executives and employees collaboratively determined the "Banpu Heart" to nurture shared values and good corporate culture for all levels of employees both in Thailand and abroad.

Principle 2

Define Objectives that Promote Sustainable Value Creation

Define and monitor a strategic approach to sustainability

Based on the Board of Directors' guidance and suggestions, the Management formulated and presented to the Board the business direction, a long-term strategic plan, an action plan, budget, and an annual workforce planning. The Board will openly share opinions and discuss with the Management to reach a mutual agreement before approval.

In 2019, the Board of Directors and the Management collaboratively worked on strategic plans and business directions for the years 2019-2025, in the 4th Board Meeting in April 2019 and the Board Retreat in November 2019, to accommodate the rapidly changing business environment. Risk assessment and mitigation plans were carried out in preparation for future scenarios.

The Board of Directors devised business strategies and a strategic plan for the next five years based on the sustainable development plan, focusing on the creation of competitive advantage and stakeholder value as well as adaptability to changes in business and industry to align with the Greener & Smarter strategy. The Company has set to achieve the target portfolio of 40% coal business, 30% power business, 20% natural gas, and 10% renewable energy by 2025. Supervision of the plan implementation is also set as a regular agenda of the Board's monthly meetings. The Board of Directors has monitored the Management's implementation of the strategy. In April 2019, the Board delegated the Management to review if the annual plan and strategic plans were successfully implemented. The Board would provide suggestions or comments on any improvement where necessary.

Principle 3

Strengthen Board Effectiveness

Balancing of Power by Non-executive Directors

The Board of Directors ensures that the proportion of its existing directors is appropriate to the Company's size. At present, Banpu's Board of Directors consists of 13 members. One of them is an executive director; seven are non-executive directors, and five are independent directors, which accounts for 38.46% of the Board.

In 2019, the Corporate Governance and Nomination Committee reconsidered the composition of the Board with regards to the proportion of non-executive directors and independent directors, and concluded that the proportion of non-executive directors was appropriate.

Consolidation or Separation of Office

The Board of Directors requires that its Chairman and CEO be different persons. Their roles, responsibilities, and authorities are clearly separated to achieve a balance between management and good corporate governance.

The Board of Directors' Meeting

The Board of Directors convenes at least once a month on the last Thursday of each month. Any additional meetings may be held if necessary. At the meeting, there are clear meeting agenda items. A complete set of supporting documents is sent to the Board of Directors at least seven days in advance of the meeting to allow the Board an opportunity to properly review the agenda before the meeting. Adding an agenda item after documents are distributed to the Board is allowed only when it is extremely necessary and justified, and when the item has been approved by the Chairman of the Board. Each meeting lasts approximately three and a half hours. During the meeting, all directors may openly voice their opinions. The Chairman of the Board must summarize views and board resolutions. If any director has a conflict of interest in a matter being considered by the Board, the director must leave the meeting room.

Minutes of all the meetings are recorded in written form and after approval are signed by the Chairman of the Board and the Company Secretary. Records of the meetings are kept as hard copies and scanned electronic files, to facilitate quick reference for directors or related persons. These also include other documents attached to a particular agenda. All are kept secure for reference for at least five years with a safeguard system to prevent any alteration and other risks of catastrophe.

Meeting of Non-Executive Directors

On 9 November 2019 during 10:00 A.M. – 12:00 P.M., 11 non-executive directors convened a meeting without the presence of management at Meeting Rooms 4-5, the Holiday Inn Pattaya, Chonburi, on the following agendas:

1. Director Nomination to Replace Retired Director
2. Senior Management Succession Plan
3. CEO Performance

The Board of Directors' meetings in 2019

Name	Title	Terms of Office	2019 Meeting Attendance					2019 Annual General Meeting of Shareholders (AGM)
			The Board of Directors	Non-executive Directors	The Audit Committee	The Corporate Governance and Nomination Committee	The Compensation Committee	
			Total 12 meetings	Total 1 meeting	Total 9 meetings	Total 4 meetings	Total 6 meetings	Total 1 meeting
1. Mr. Chanin Vongkusolkit	Chairman	April 2019 – AGM 2022	12/12	1/1	-	-	-	1/1
* Mr. Rutt Phanijphand	Vice Chairman	April 2017 – AGM 2020	3/3	-	3/3	-	2/2	1/1
2. Mr. Teerana Bhongmakapat	Independent Director	April 2019 – AGM 2022	12/12	1/1	9/9	-	6/6	1/1
3. Mr. Suthad Setboonsarng	Independent Director	April 2017 – AGM 2020	12/12	1/1	9/9	-	3/3	1/1
4. Mr. Metee Auapinyakul	Director	April 2017 – AGM 2020	11/12	1/1	-	-	-	1/1
5. Mr. Ongart Auapinyakul	Director	April 2018 – AGM 2021	12/12	1/1	-	-	-	1/1
6. Mr. Rawi Corsiri	Director	April 2019 – AGM 2022	11/12	1/1	-	4/4	-	1/1
7. Mr. Verajet Vongkusolkit	Director	April 2018 – AGM 2021	12/12	1/1	-	4/4	-	1/1
8. Mr. Buntoeng Vongkusolkit	Director	April 2018 – AGM 2021	12/12	1/1	-	-	4/6	1/1
9. Mr. Sudiarso Prasetio	Independent Director	April 2019 – AGM 2022	11/12	0/1	-	3/4	-	1/1

Name	Title	Terms of Office	2019 Meeting Attendance					2019 Annual General Meeting of Shareholders (AGM)
			The Board of Directors	Non-executive Directors	The Audit Committee	The Corporate Governance and Nomination Committee	The Compensation Committee	
			Total 12 meetings	Total 1 meeting	Total 9 meetings	Total 4 meetings	Total 6 meetings	Total 1 meeting
10. Ms. Somruedee Chaimongkol	Executive Director	April 2018 – AGM 2021	12/12	-	-	-	-	1/1
11. Mr. Anon Sirisaengtaksin	Director	April 2017 – AGM 2020	12/12	1/1	-	4/4	-	1/1
12. Mr. Pichai Dusdeekulchai	Independent Director	April 2017 – AGM 2020	8/9	1/1	6/6	-	-	1/1
13. Mr. Teerapat Sanguankotchakorn	Independent Director	April 2019 – AGM 2022	9/9	1/1	9/9	-	3/3	1/1

Notes :

1. Mr. Rutt Phanijphand resigned from the position of Director and the member of the Compensation Committee, effective the day following the 2019 AGM.
2. Mr. Buntoeng Vongkusolkit was appointed as the Chairman of the Compensation Committee, effective 25 April 2019.
3. Mr. Suthad Setboonsarng and Mr. Teerapat Sanguankotchakorn were appointed as the member of the Compensation Committee, effective 25 April 2019.
4. Mr. Pichai Dusdeekulchai was appointed as Director, effective 4 April 2019, and the member of the Audit Committee, effective 25 April 2019.
5. Mr. Teerapat Sanguankotchakorn was appointed as Director, effective 3 April 2019, and the member of the Compensation Committee, effective 25 April 2019.

The Board of Directors' Report

The Board of Directors is responsible for Banpu's and its subsidiaries' consolidated financial statements and the financial information that appears in Banpu's Annual Report. The financial statements are prepared under the Generally Accepted Accounting Principles (GAAP) in Thailand, where an appropriate accounting policy has been selected and implemented. The Audit Committee and auditors jointly review the accounting policy to ensure it remains practical. While preparing the financial statements, the Board of Directors insists that the working team carefully exercise its discretion, and that important information is adequately disclosed in the notes to the financial statements.

The Board entrusted the Audit Committee with a responsibility to oversee the quality of financial statements and the internal control system and to ensure that any opinions of the Audit Committee on these issues have been included in its report, which is also included in the Banpu's Annual Report.

The Board of Directors considered that the financial statements of the Company and its subsidiaries as of 31 December 2019 are accurate, complete, adequate, and reliable.

Sub-committees

The Board structure of the Company as of 31 December 2019, consisted of the Board of Directors and the executives. The Board of Directors consists of independent directors, non-executive directors, and executive directors. There are five independent directors out of a total of 13 directors.

The Board set up three sub-committees; namely, the Audit Committee, the Corporate Governance

and Nomination Committee, and the Compensation Committee. The term of office of these committees is three years, from April 2017 to the date of the Annual Shareholder's Meeting in 2020.

1. The Audit Committee

The Audit Committee consists of three independent directors whose duties are to review the accuracy and reliability of the Company's financial statements, the sufficiency of internal control and risk management system, financial derivative transactions, commodity hedging, and compliance with relevant rules, laws, and regulations. The Audit Committee is also responsible for selecting an auditor and determining the remuneration. The Audit Committee is required to review connected transactions and potential conflicts of interest to ensure that all are accurate, complete, and transparent. In addition, the Committee has to review key risk management measures, operational plans, and results, budgets, and workforce plan of the Global Internal Audit Unit.

2. The Corporate Governance and Nomination Committee

The Corporate Governance and Nomination Committee consists of four directors. Among these, three are non-executive directors, and one is an independent director. The Committee has two major duties:

1. To review the Corporate Governance Policy and the Code of Conduct and to monitor compliance with the policy and practices within Banpu's Code of Conduct.
2. The Committee also screens and nominates directors and the Chief Executive Officer, reviews a succession plan in order to nominate appropriate persons to fill the management positions (for department head level and higher) and submits recommendations to the Board of Directors for approval or submission to the shareholders' meeting on a case-by-case basis.

Additionally, the Corporate Governance and Nomination Committee also suggests the Board of Directors the method used to evaluate the directors, completes the evaluation and monitors improvements following the evaluation. In 2013, the Committee began using an evaluation form to evaluate the annual performance of three sub-committees, starting with 2012 performance onward. In 2014, the Committee started using the individual director assessment in performance evaluation.

3. The Compensation Committee

The Compensation Committee consists of four members: three are independent directors, and one is a non-executive director. The Committee is responsible for providing opinions regarding compensation management to the Board of Directors for approval or submission to the shareholders' meeting, on a case-by-case basis.

Directors and Nomination of Directors and the Chief Executive Officer

The Independent directors who account for 38.46% of the Company's Board of Directors, are as follows:

1. Mr. Teerana Bhongmakapat
2. Mr. Suthad Setboonsarng
3. Mr. Sudiarso Prasetio
4. Mr. Pichai Dusdeekulchai
5. Mr. Teerapat Sanguankotchakorn

Independent directors are regarded as an important mechanism of good corporate governance. For the benefit of the Company and shareholders, there should be sufficient independent directors to balance the decision-making process of the Board and to share opinions independently under no external influences. The independent director serves a maximum of three terms or nine years.

Banpu has defined the qualifications of independent directors in the stricter sense than that stipulated in the regulation of the SEC and the SET Re: Proportion of Shareholding, which determines the qualifications of "Independent Directors", as follows:

1. holding shares not exceeding 0.5% (legally not exceeding 1%) of the total number of shares with voting rights of Banpu, its parent company, subsidiary companies, associate companies, major shareholders or controlling persons, including shares held by related persons of such independent director;

2. neither being nor used to be an executive director, employee, staff, advisor who receives a salary, or controlling person of Banpu, its parent company, subsidiary companies, associate companies, same level subsidiary companies, major shareholder or controlling person, unless the foregoing status has ended not less than two years prior to the date of filing an application with the Office. Such prohibited conditions shall not include the case where the independent director used to be a government official or an advisor of a government unit which is a major shareholder or controlling person of Banpu;

3. not being a person related by blood or legal registration as father, mother, spouse, sibling, and child, including the spouse of child, executive, major shareholder, controlling person, or person to be nominated as an executive or controlling person of Banpu or its subsidiary companies;

4. neither having nor used to have a business relationship with Banpu, its parent company, subsidiary companies, associate companies, major shareholders or controlling persons, in the manner which may interfere with his independent judgment, and neither being nor used to be a significant shareholder or controlling person of any person having a business relationship with Banpu, its parent company, subsidiary companies, associate companies, major shareholders or controlling persons, unless the foregoing relationship has ended not less than two years prior to the date of filing an application with the Office.

The term 'business relationship' under the first paragraph includes any normal business transaction, rental or lease of immovable property, the transaction relating to assets or services or granting or receipt of financial assistance through receiving or extending loans, guarantee, providing assets as collateral and any other similar actions, which results in Banpu or his counterparty being subject to indebtedness payable to the other party in the amount of 3% or more of the net tangible assets of Banpu, or THB 20 million or more, whichever is lower. The amount of such indebtedness shall be calculated according to the method for calculation of the value of connected transactions under the Notification of the Capital Market Supervisory Board governing rules on connected transactions mutatis mutandis. The consideration of such indebtedness shall include indebtedness occurred during the period of one year prior to the date on which the business relationship with the person commences;

5. neither being nor used to be an auditor of Banpu, its parent company, subsidiary companies, associate companies, major shareholders or controlling persons, and not being a significant shareholder, controlling person, or partner of an audit firm which employs auditors of Banpu, its parent company, subsidiary companies associate companies, major shareholder or controlling person, unless the foregoing relationship has ended not less than two years prior to the date of filing an application with the Office;

6. neither being nor used to be a provider of any professional services including those as legal advisor or financial advisor who receives service fees exceeding THB 2 million per year from Banpu, its parent company, subsidiary companies, associate companies, major shareholders or controlling persons, and not being a significant shareholder, controlling person or partner of the provider of professional services, unless the foregoing relationship has ended not less than two years prior to the date of filing an application with the Office;

7. not being a director appointed as a representative of directors of Banpu, major shareholders or shareholders who are related to a major shareholder;

8. not undertaking any business in the same nature and in competition to the business of Banpu or its subsidiary companies or not being a significant partner in a partnership or being an executive director, employee, staff, advisor who receives a salary or holding shares exceeding 1% of the total number of shares with voting rights of other company which undertakes business in the same nature, and in competition to the business of Banpu or its subsidiary companies;

9. not having any other characteristics which may cause the inability to express independent opinions with regards to Banpu's business operations.

After being appointed as an independent director with the qualifications under 1.-9., the independent director may be assigned by the Board of Directors to take part in the business decision of Banpu, its parent company, subsidiary companies, associate companies, same-level subsidiary companies, major shareholders, or controlling persons, provided that such decision shall be in the form of collective decision.

The provisions in 2., 4., 5., and 6. relating to the consideration of qualifications of Banpu's independent directors during the two-year period prior to the date of filing an application with the Office was applied to applications filed with the Office from 1 July 2010 onwards.

In the case where the person appointed by Banpu as an independent director has, or used to have a business relationship or provide professional services exceeding the value specified under 4. or 6. the person shall be granted an exemption from such prohibition only if it has provided the opinion of the company's board of directors indicating that, by taking into account the provision in Section 89/7, the appointment of such person does not affect performing of duty and expressing of independent opinions. The following information shall be disclosed in the notice calling the shareholders meeting under the agenda for the appointment of independent directors:

A. The business relationship or professional service which makes such person's qualifications not in compliance with the prescribed rules;

B. The reason and the necessity for maintaining or appointing such person as an independent director;

C. The opinion of Banpu's Board of Directors for proposing the appointment of such a person as an independent director.

For the purpose of 5. and 6. of the first paragraph, the term "partner" shall mean a person assigned by an audit firm or a provider of professional service to sign on the audit report or the professional service report (as the case may be) on behalf of such juristic person.

Regulations Governing Directors Holding Positions in Other Companies

To ensure that directors will be able to dedicate adequate time to perform duties to the Company, it is required that directors not hold positions in more than five listed companies. (The Practices for the Board of Directors of Banpu Public Company Limited's Section 5.1 Clause (5) General Qualifications of Directors, effective from 19 December 2014 onward)

Voting Procedure in the Board of Directors' Meeting

The Company set the procedure of the Board of Directors' meeting and voting as follows "no less than half of all directors must attend the meeting to form a quorum, and to agree on a resolution there must be no less than 2/3 of all directors" (The Practices for the Board of Directors of Banpu Public Company Limited, on Board of Directors, section 8.5, effective from 19 December 2014 onward).

Performance Evaluation of the Board of Directors

The Company requires that the Board of Directors, sub-committees, and individual directors be evaluated for their performance, with criteria, procedures, and evaluation results disclosed in the annual report and the report of the Corporate Governance and Nomination Committee. The Company also requires that Board self-evaluation be conducted at least once a year to allow all board members to consider the Board's performance and problems they had encountered in the past year, which will improve the Board's efficiency according to the principles of

good corporate governance. The Secretary of the Corporate Governance and Nomination Committee will provide each director forms for evaluating individual board directors and the whole Board's performance. The completed evaluation forms will be returned to the Company Secretary, and the evaluation results will be concluded and reported to the Board of Directors for consideration to achieve the above objective. The overall evaluation results are illustrated below:

Performance Evaluation of the Board and Directors

The evaluation form for the Board of Directors consists of five major categories as follows:

1. The structure and composition of the Board
2. Roles, duties, and responsibilities of the Board
3. Nomination of directors
4. Remuneration of directors
5. Board meeting and performance of the Board

Performance Evaluation of Sub-committees

The evaluation form for the three sub-committees, namely the Audit Committee, the Compensation Committee, and the Corporate Governance and Nomination Committee, consists of items in four major categories as follows:

1. Qualifications of the Directors
2. Duties and responsibilities of the Directors
3. Duties and responsibilities of each sub-committee according to the Charter
4. Meeting and reporting

Performance Evaluation of the individual directors

The evaluation form consists of seven major categories as follows:

1. Structure and composition of the Board
2. Roles, duties, and responsibilities of the Board
3. Ethics and corporate governance
4. Development of directors
5. Relationship with the Management
6. The Board of Directors' meeting
7. Overall performance of directors

Performance Evaluation of the Board	Average	Evaluation
Board of Diectors	4.76 out of 5	Very Good
Individual Directors	4.51 out of 5	Very Good
Performance Evaluation of Sub-committees		
The Audit Committee	4.90 out of 5	Very Good
The Corporate Governance and Nomination Committee	4.95 out of 5	Very Good
The Compensation Committee	4.83 out of 5	Very Good

Nomination of Directors and Senior Executive Officers

The Corporate Governance and Nomination Committee is responsible for the nomination of directors whose terms expire or terminated for other reasons. The nomination procedure is as follows:

1. Review the structure and the composition of the Board in order to strengthen the Board of Directors as a whole.

2. Review general and specific qualifications, qualifications of independent directors and set additional criteria for candidate screening and nomination, regarding the conditions and requirements of the Company in accordance with the Company's business strategy and in compliance with the SET's rules and regulations. After the screening process, the Corporate Governance and Nomination Committee will nominate the candidate to be approved by the Board of Directors and to be elected at the Annual General Meeting of Shareholders (AGM).

The Corporate Governance and Nomination Committee is responsible for nominating candidates to replace the directors whose terms expired by rotation or to fill vacancies. The Committee considers candidates from the director pool and allows each member to nominate the candidates. The Committee determined and disclosed the Board Diversity Policy, then announce via the Company's website to invite the minority shareholders to nominate qualified candidates within the specified duration of time and under stated conditions. All the candidates will then undergo a nomination process in which knowledge, capability, experience, general qualifications, and board skills mix contributive for board composition and collaboration are considered. There must be twice as many nominated candidates as there are vacancies, and the nomination must be approved by the Board. The Shareholder's meeting will approve the appointment of directors with a minimum of 50% of the voting rights of the total shareholders attending the meeting and having the right to vote. The voting is carried out for each individual director.

For the nomination of executives, the Corporate Governance and Nomination Committee semi-annually monitors a succession plan covering the CEO, COO, and senior management to ensure that the Company will have competent management with proper expertise and experiences to fill critical positions in the future.

Corporate Governance of Subsidiaries and Affiliates

The Company has managed its subsidiaries and devised business procedures to ensure effective and capable operations, as follows:

Investment Policies by Banpu and Its Subsidiaries

1. The Management shall study and assess preliminary findings of the Investment Committee before reporting the results and investment outlook summary to the Board of Directors. The Board then considers and approves the project for funding, development, and expansion as well as subsidiaries' policies. The Board of Directors also has the authority to approve the establishment of subsidiaries, as well as their dissolution as necessary to ensure that Banpu's operations and portfolio can be most efficiently managed.

2. The Board of Directors considers and approves investments that meet the criteria set by the SEC, such as connected transactions and decisions that involve receipts or sales of assets.

3. The Board of Directors has a governance mechanism to oversee subsidiaries and safeguard the Company's investment. The Board is responsible for the consideration of suitable CEO and top executives to serve as directors of the Company's subsidiaries to ensure that the management is aligned with the Company's policies and all transactions comply with securities and exchange laws and regulations as well as the SET's announcements.

4. The subsidiaries shall submit reports on their performance and operations, particularly of their major businesses. They shall also conduct sensitivity analysis and evaluate it against set goals or benchmarks. These management reviews provide a basis for policy formulation and business model improvement to embrace continued growth and development so that the Company's subsidiaries grow in a sustainable manner.

Internal Control Policy and Central Management Policy

The Board of Directors and the Management allow the Global Internal Audit Unit to work independently by submitting an internal audit report directly to the Audit Committee. The Unit is also required to report on the progress of internal audit to the Board of Directors on a quarterly basis.

Management within each subsidiary is determined based on the Company's investment share. The Board of Directors has responsibility for appointing an executive to serve as a director in each subsidiary to ensure that the business direction is in alignment with Banpu's policies and strategies. Director selection is decided based on knowledge, relevant capabilities to the subsidiary, work location (in case of a foreign subsidiary), and health and readiness of the director. Director positions in Banpu's subsidiaries are reviewed at least once a year.

Budget Policy

Investment budget preparation and implementation must be in accordance with the budget regulations of each subsidiary and consistent with Banpu's budget rules. Budget preparation and review must be completed within the deadline, and the corresponding information must be submitted according to Banpu's standard operation. The project investments, which cost more than THB 1,500 million and exceed the approved budget by 15%, must be approved by the Board of Directors.

Anti-Corruption

The Company has always upheld the principles of good corporate governance in its management, focusing on transparency, integrity, and accountability. It also underlines effective operations as well as responsibilities to society, the environment, and all stakeholders. There is a specific department in the organization which has a clear mission to supervise and monitor business operations to make them comply with laws and corporate governance principles.

The Company set up the Corporate Compliance Unit to manage risks from operations that may infringe rules and regulations and to oversee the compliance with laws of all business units' operations based on their activities. Each unit is required to file a Regulatory Compliance Checklists, to be reviewed by the Corporate Compliance Unit, who will compile a report semi-annually. All business units must review updates about rules and regulations to be fully responsive to changes.

The Risk Management Department is responsible for continuous risk assessment in all businesses, strategic plans, and annual action plans and preparation for preventive measures and solutions. The Department quarterly reviews the risks and reports the results to the Board of Directors at least twice a year.

The Company expressed its intention to combat corruption as part of the Private Sector Collective Action Against Anti-Corruption (CAC) in 2010. In 2015, the Company became a certified CAC member and was recertified in 2018.

In 2019, the Company organized training and communicated to employees about the Anti-Corruption Policy and practices as well as other related policies, such as the Corporate Governance Policy and the Code of Conduct, the Standard Practice Manual for Accepting and Offering of Gifts, Hospitality, or Other Similar Forms of Reward. Employees can access the policies via internal communication channels and the Company's website. The Company also formulated the Supplier Code of Conduct as practices for suppliers to comply with as the Company is committed to social and environmental responsibility, good governance, and respect for human rights in line with the Sustainable Supply Chain Policy.

Reporting of Interests of Directors and Executives

In compliance with Clause 89/1/4 of the Securities and Exchange Act (No. 4) B.E. 2551 and with Notification of Capital Market Supervisory Board TorChor 2/2552 on Reporting of Interests of Directors, Executives and Related Persons, members of the Board of Directors are required to report the securities held by themselves, their spouses, and minor children who are not sui juris to the Board meeting after they are appointed as Board members. Subsequently, if any Board members, their spouses, and minor children who are not sui juris buy or sell the Company's securities, they are required to report such transactions to the next Board meeting.

Details on shareholding of the Board of Directors and Management as of 31 December 2019 (For further details in Shareholding of the Board of Directors and Management, see the table on page 157)

Principle 4

Ensure Effective CEO and People Management

Succession Planning Policy

The Board of Directors has devised a succession plan for the CEO and senior executives to ensure that the Company has knowledgeable and capable executives to fill critical positions in the future. The CEO is invited to report to the succession plan to the Corporate Governance and Nomination Committee twice a year and report to the Board.

Orientation for New Directors and Enhancement of Business Knowledge and Perspective for Directors

The Board organizes an orientation session for new directors so that they are aware of what Banpu expects from them. Through orientation, the directors learn about their roles and responsibilities, Banpu's Corporate Governance Policy and practices as well as Banpu's business and operations. These activities are carried out to prepare them thoroughly for their role as Banpu directors. In addition, the Board of Directors has the policy to expand all directors' horizons on such topics as corporate governance, industrial outlook, businesses, new technology, and innovations to improve the Board's performance. In 2019, directors attended seminars and training courses, as shown in the table on page 33

Principle 5

Nurture Innovation and Responsible Business

The Company focuses on balanced value creation throughout the supply chain, placing importance on both corporate governance and management of risks and opportunities. International standards are integrated with sustainable development strategies covering economic, social, and environmental aspects for improvement of the Company's competitiveness and creation of added values for all stakeholders through a 2-level management system as follows:

- **Strategic Integration of Sustainability:** The Board of Directors considers sustainability risk issues and suggests appropriate mitigation for the CEO to implement.
- **Operational Integration of Sustainability:** The Sustainable Development Committee oversees, monitors, and evaluates the sustainability performance as well as determines and reviews policies that support sustainable development.

The Company requires that sustainability indicators are part of short-term and long-term performance goals for both management and employee. Sustainability is integrated with the corporate culture and has been inculcated in all Banpu members in all countries where it has business operations. Management processes and business performance are regularly disclosed to stakeholders through appropriate channels.

In addition, the Company announced the Innovation Policy in response to the new vision, which shall drive all Banpu's businesses by focusing on innovative development and become a core part of the Company's growth. Implementation of the Innovation Policy is as follows:

- Establish an infrastructure that allows and supports all employees to propose ideas for improvement of the Company's processes and technologies.
- Support activities on innovation to continuously enhance the Company's productivity.
- Cultivate an innovative culture in the Company by creating motivations and work conditions which are supportive of creative and innovative processes.
- Develop specific training programs or projects for enhancement of creative thinking skills by putting in innovation topics as part of the programs.
- Create infrastructure and promote innovation creation as well as focusing on future trends and development of products, services, processes, or tools which could promptly and effectively respond to future demands.

Roles of Stakeholders

Banpu strives to maintain fairness for all stakeholders and set forth a policy toward stakeholders in the Corporate Governance Policy and the Code of Conduct as guidelines for the directors, executives, and employees to follow based on fair and equitable mutual benefit. Important guidelines pertain to conflicts of interest, the responsibility to shareholders, and policies on the treatment of employees, customers, trading partners, creditors, competitors, and society in general. It is considered the duty and responsibility that directors, executives, and employees shall acknowledge, understand, and strictly comply with the guidelines, in order to ensure that all stakeholders are well treated and their rights protected.

In addition, Banpu has created an online channel on the Company's website under the Corporate Governance section to receive complaints and grievances regarding corporate governance and business ethics, which reaches out to and covers all groups of stakeholders. Information can be sent directly to the Chairman of the Corporate Governance and Nomination Committee, with the contact address; GNCchairman@banpu.co.th, and/or the Secretary of the Corporate Governance and Nomination Committee, with the contact address; GNCSecretariat@banpu.co.th, which is regularly monitored and reported to the Corporate Governance and Nomination Committee on a quarterly basis and the Board of Directors on an annual basis. In 2015, Banpu also announced and implemented the Whistleblower Policy to protect those filing grievances and to foster a culture of transparency. The investigation into the grievances is carried out as follows:

1. In case there is sufficient evidence to support the allegation of misconduct, a full investigation into the case will be conducted. The investigation pattern may vary depending on circumstances. The investigation will be carried out under strict terms of confidentiality, and the whistleblower may be contacted for further information.
2. The investigation team will inform the whistleblowers of investigation results and outcome through appropriate communication channels.
3. Senior management will decide which action to take, e.g., disciplinary punishment or any other appropriate measures.
4. The Company affirms that whistleblowers who report in good faith of any wrongdoing or suspected wrongdoing against the law, rules, and regulations, and the Code of Conduct will not be affected.

Apart from that, the Company announced the practices on refraining from receiving gifts and other benefits from stakeholders and informed all stakeholders through the Company's website as well as requiring registration of gifts in the database system for which the Board members, executives, employees, and

subsidiaries are required to understand and comply with, in accordance with the Anti-Corruption Policy. The Company stipulated the practices on giving and receiving bribery, gifts, and business entertainment in its Code of Conduct as follows:

No. 3.4 Giving and Receiving Bribery

1. Executives and employees are prohibited from demanding or receiving any benefits from trading parties, contractors, suppliers, advisors, and those with whom the Company is conducting business.
2. Executives and employees are strictly prohibited from offering any benefit to government officers, customers, labor unions, or any other external parties in an attempt to persuade them to commit a fraudulent action.

No. 3.5 Gifts, Gratuities, and Business Entertainment

1. Executives and employees should refrain from giving gifts or gratuities to, or receiving them, from, any trading partner or others with whom the Company is doing business with gifts given or received during festive occasions are excluded from this requirement provided that they have an appropriate value and are not related to any business commitment.
2. Executives and employees should refrain from giving or receiving unusually lavish entertainment to or from those with whom the Company is doing business with.

Employees

Recognizing that human capital is a pivotal factor for success, Banpu has put in its Code of Conduct, a policy and practices toward employees, to ensure fair treatment to employees of all nationalities and languages, including gaining equal access to career opportunity, remunerations, appointments, transfers, capacity-building and safe workplace environment for their lives and properties. Banpu has conducted adequate and appropriate Health, Safety, and Environmental (HSE) measures to prevent loss from an accident and work-related illness and injury.

The Company announced the HR Philosophy in the management and development of human resources based on three principles:

1. Equitability
2. Performance Based
3. Competency Based

To deal with business changes and the global economy, the Company takes responsibility in developing employees to embrace changes with adaptability, flexibility, mobility, positive creativity, and professionalism beyond the chain of command. In summary, Banpu focuses on creating “professional employees” who are equitably treated and provided with equal opportunities, regardless of nationality, race, religion, language, and gender. The Company strictly adheres to a shared vision and goals for all operations, creating harmonious collaboration among all members who are bonded together with the corporate culture, “Banpu Heart.”

The Company has a remuneration policy in terms of bonus and promotion that is consistent with the Company’s performance both in short and long terms and is committed to providing employees with fair compensation in forms of salary, welfare, and other benefits, e.g., health insurance, provident fund, and Flexi Benefit Welfare. Human resources management is fair, and inclusively provides opportunities for learning and development to the full capacity of each employee. The Company set up a Job Evaluation Committee and the Organization Development Committee, and has given full support to the Compensation Committee and the Corporate Governance and Nomination Committee to maintain transparency and drive the workforce toward steady and sustainable growth.

Customers

Banpu strives to seek methods that efficiently and effectively respond to the needs of its customers. This has been stipulated as a policy and practices toward customers in the Code of Conduct that it will strictly adhere to the commitment made with customers. The Company is committed to the delivery of quality products and services that meet customer expectations at a fair price, provision of accurate and enough information in a timely fashion, and compliance with conditions given to customers. The Company has established a grievance process to allow customers to file complaints about quality, volume, and the safety of products and services. It also advises on how to effectively use its products and services for customers' best interests. The customers' information is kept strictly confidential and will never be exploited.

Trading Partners/Creditors

Banpu has a policy to equitably and fairly treat its trading partners and/or creditors by taking into consideration the Company's maximum interests. This is pursued on the basis of a mutual benefit for both parties where conflicts of interest shall be avoided, and contractual obligations shall be complied with. Practices are as follows:

(1) The Company shall not demand, receive or pay any improper benefits to its trading partners and/or creditors.

(2) Should there be demand for or receipt of or payment of any improper benefits, the information shall be disclosed to the trading partners and/or creditors, and the Company shall collaborate with the involved parties to resolve the problem on a fair and timely basis.

(3 The Company shall strictly comply with all the terms and conditions agreed upon in a transaction. In the event that any particular condition cannot be met, the Company will inform any creditor(s) concerned beforehand and seek a mutually acceptable solution.

Competitors

The Company set forth in the Code of Conduct a policy and practices to treat competitors in a way that complies with international practices and within a legal framework for business competition. Banpu will not fraudulently infringe upon or seek to obtain trade secrets of any competitors. The Company is also committed to fair business conduct by following the guidelines indicated in its Code of Conduct. In 2019, Banpu had no disputes with competitors.

Community and Society

Banpu has the policy to conduct businesses that are beneficial to the economy and the society while maintaining a balance between business growth and community, social, and environmental development. The Company is also committed to being a good corporate citizen and full compliance with the relevant laws and regulations. Banpu has endeavored to improve the quality of society, either through the Company's activities or collaboration with the government, the community, or non-governmental organizations.

Additionally, the Sustainable Development Policy has been implemented, with the Company's standard being benchmarked against the global standard for activities such as global warming reporting and the formulation of best practice guidelines to effectively achieve safety, health, and environmental standards. Also included in such guidelines are risk management resulting from the Company's operations, which may affect employees, business partners, the environment, and the communities in which the Company conducts its business.

In support of the above policy, the Company has carried out various Corporate Social Responsibility (CSR) activities. Over the past three decades of its business operation, Banpu has always allocated part of its earnings to CSR projects both at the local and corporate levels, including CSR projects in those countries where Banpu has operations.

The Company believes that "Learning is the Power of Change and Development," and a foundation for "People" development, particularly for younger generations, who will be the major driving force behind social and national development in the future. In addition, the Company has raised awareness about corporate social responsibility among its workforce at all levels with a sustainable community and society as its ultimate goal.

Communication Channels with Banpu

Stakeholders may submit their opinions through the following channels:

Headquarters::
27th Floor, Thanapoom Tower, 1550 New Petchburi Road, Makkasan, Ratchathewi, Bangkok 1040

Telephone : +66 2694 6600
Website : www.banpu.com

Company Secretary :
Telephone : +66 2694 6859
Email : bod_sec@banpu.co.th

Investor Relations :
Telephone : +66 2694 6747
Email : investor_relations@banpu.co.th

Corporate Communications :
Telephone : +66 2694 6923
Email : cc@banpu.co.th

Principle 6

Strengthen Effective Risk Management and Internal Control

Risk Management Policy

The Board of Directors has established a comprehensive risk management system covering risk factors related to vision, goals, business strategies, finance, production, and other operations. The Board considers the appropriateness of risk management system, likelihood of risk, and level of impacts. The Board has set clear measures for risk management and ensures that there are people responsible for the risks. In addition, the Board determines measures for reporting, monitoring, and evaluating risk management. The Risk Management Committee is set up at the management level to regularly submit a risk management plan and performance to the Audit Committee and periodically report them to the Board. The Committee reviews the risk management system and evaluates the performance at least once a year and when the risk level changes.

Internal Control Policy

The Board of Directors has set up an internal control system that covers all aspects of Banpu's business, ranging from finance and compliance with related laws, rules, and regulations. The Board has also established sufficient and effective checks and balances mechanism to protect shareholders' equities and Banpu's assets. Moreover, the Board has determined authorization levels and responsibilities of the executives and employees under checks and balances mechanism, while the operational regulations are explicitly written. The Global Internal Audit Unit works independently and reports directly to the Audit Committee, who audits operating results of all business and support units to ensure regulatory compliance.

Principle 7

Ensure Disclosure and Financial Integrity

Conflict of Interest

Banpu considers that it is important to prohibit directors, executives, and employees from using their positions for personal gains. As stipulated in the Code of Conduct, directors, executives, and employees are to avoid connected transactions that could lead to a conflict of interest with the Company. If necessary, the transactions are to be carried out at arm's length, and directors or employees having an interest in the transactions must not be involved in the approval process. If any transaction is considered connected under the SET's notification, rules, procedures, and

the disclosure of connected information of listed companies must be strictly complied with.

The Board of Directors also stipulated that directors, executives, or employees shall be prohibited from either using any opportunity or information acquired from their position for personal benefits, or to compete with the Company or related business, or using insider information to sell or buy shares. If an executive or employees involved in a special project of which information has not yet been disclosed to the public; or that it is under negotiation where the project's information has to be kept confidential, as it could affect share prices, the executive or employee is to sign a confidentiality agreement until the information is disclosed to the SET and the SEC.

Banpu announced the Market Sensitive Information Policy and practices on the management of confidential information which potentially affects the stock exchange in 2017. It is the duty of directors, executives, employees, consultants, and subsidiary companies to understand and follow the policy and practices as follows:

1. Establish an internal control system to prevent the leak of confidential information.
2. Cultivate a culture of information safety through constant communication to raise awareness of relevant persons of their duty to keep confidential.
3. Limit the number of persons who have access to confidential information based on a need-to-know basis. Set up an information access control system for contract parties and service persons.
4. Exercise extreme caution receiving and sending information to and from third parties, being aware of one's duties in using and controlling confidential information.
5. Establish an appropriate information technology and control system.

Disclosure of Information to Investors

The Board of Directors oversees disclosure of information and its transparency to ensure that both financial and non-financial information relating to the Company's business and operating results is revealed in a complete, accurate, adequate, regular, and timely manner. In addition, the information must reflect the Company's actual performance and its true financial status, as well as its business future while strictly complying with the laws, rules, and regulations relating to information disclosure of both the SEC and the SET. Aside from disclosing information as required by the SET and the SEC, Banpu also communicates with shareholders and investors through other channels. The Investor Relations Department directly communicates with shareholders, investors, and securities analysts both domestically and abroad, while the Corporate Communications Department disseminates corporate information to shareholders, investors, and the public through the local and international press.

In 2019, Banpu offered the following activities to disclose information to international investors, institutional investors, small investors, securities analysts, and press:

No.	Information Disclosure and Presentation	Time(s)
1.	International Road Show	2
2.	Local Road Show	4
3.	Quarterly and Annual Analyst Meeting	4
4.	Opportunity Day for listed companies to release quarterly performance to investors	4
5.	Participation in "SET Digital Roadshow" to release quarterly performance to investors	1
6.	Company visits by local and international investors	38
7.	Information provision to investors via conference call	13
8.	Interviews with executive officers	12
9.	Press conference on the Company's performance and key progress	2
10.	Press release on the Company's performance and business strategies	20
11.	Activities for the press and public relations on Corporate Social Responsibility (CSR)	20
12.	Site visits and information provided for shareholders and analysts	1
13.	Exhibitions	1

The Company's information and news are also made available and equally accessible to all stakeholders on the Company's website: www.banpu.com. Interested parties may contact or make inquiries to the Company's Investor Relations via telephone: +66 2694 6747 or email: investor_relations@banpu.co.th.

Policy on the Uses of Internal Information

Banpu places great importance on information disclosure and transparency and has formulated a policy on information disclosure, transparency in financial statements, and corresponding policy implementation in Banpu's Corporate Governance Policy. This is to ensure that financial and non-financial information about the businesses and the performance of the Company is disclosed to shareholders, investors, securities analysts, and the general public in an accurate, complete, sufficient, reliable, and timely manner.

The Board of Directors is committed to strict compliance with laws and regulations regarding information disclosure and transparency. Sales or purchases of shares by any director or executive are duly reported to the SEC. Changes in securities holding of directors or executives are also subject to be reported to the Board of Directors' meeting on a monthly basis.

To supervise the use of the Company's internal information, the Company stipulated preventive measures against leakage of internal information as practices in the Code of Conduct under the section "Conflict of Interests and Keeping Confidential Corporate Information."

It is the responsibility of the Company's directors, executives and employees to strictly comply with the policy, especially the internal information which has not been disclosed to the public or any data or information that may affect the business of the Company or its share prices. The Directors shall follow guidelines stated in the Practices for the Board of Directors B.E. 2552 and the Code of Conduct as follows:

1. Directors shall not use the information they receive from their directorship or employment for personal benefit or for conducting business or other activities in competition with the Company.
2. Directors, executives, and employees in possession of Company information which may influence the share prices (Inside Information) must refrain from dealing in the share of the Company. Inside information shall not be given to any third party for the purpose of their dealing in the shares of the Company.
3. Confidential business information shall not be disclosed to any third party, especially to competitors, even after a director, executive, or employee has left the Company.

Additionally, the Company stipulated in the Corporate Governance Policy that directors, executives, and employees must not exploit their relationship with the Company for personal gains, refrain from doing business that competes with the Company and avoid any transactions related to oneself, which may lead to a conflict of interest with the Company. If necessary, the transactions are to be carried out at arm's length with fairness and transparency, and directors or employees having an interest in the transactions must not be involved in the approval process. If any transaction is considered connected under the SET's notification, all rules, procedures, and the disclosure of connected information of listed companies must be strictly complied with. Besides, the Board of Directors' Code of Conduct stipulated a guideline of practice for directors in the case of gaining information not yet disclosed to the public and requires directors and executive offices to report securities ownership in the Board of Directors' meetings on a monthly basis.

Regarding the development of an internal control system, the Company has deployed the information technology (IT) system to supervise the use of Company information. Systems are in place to prevent access to information from third parties and to limit the employees' information access level according to their individual responsibility. In the case where an executive or employee participates in a special task using information which has yet to be publicly disclosed, is still under negotiation, or may be subject to internal control given its possible impact on the Company's share prices, such executive and employee must sign a Confidentiality Agreement with the Company. The Agreement shall remain in effect until the information is disclosed to the SEC and the SET.

The internal information usage control is prescribed in the Company's rules under the "Disciplinary Action" section. The rule, which applies to all levels of employees, states that any employee who fails to comply or violates the set disciplinary requirements is considered to have breached Company rules, and is subject to disciplinary actions and punishments according to the nature of the offense. Regarding information use, it is stated that anyone "disclosing the Company's confidential information with an intention to destroy its reputation, credibility or products, resulting in a financial loss or a loss in a business opportunity to Banpu," may be subject to severe punishment up to dismissal.

In 2019, there were no reports of insider trading violations or non-compliance with the SET's and the SEC's rules and regulations on the securities exchange.

In addition, the Board of Directors and executives had disclosed their ownership of the Company's securities on the date they were appointed and reported any changes in securities, including those of their spouses and minor children as well as connected persons, to the Board of Directors for acknowledgment.

Principle 8

Ensure Engagement and Communication with Shareholders

Shareholder's Rights

The Board of Directors emphasizes the importance of rights and equality between shareholders and institutional investors. This has been clearly specified in the Corporate Governance Policy, that shareholders are entitled to receive share certificates, transfer shares, and acquire adequate information in a timely fashion and a format conducive for decision making. Shareholders are also entitled to attend a meeting, cast their votes at shareholders' meetings to deliberate over Banpu's important policies, elect and remove directors, approve appointments of auditors and receive their shares of profit.

At each shareholders' meeting, the Board of Directors facilitates shareholders by providing sufficient, clear, and comprehensive information in a timely fashion. The Board encourages shareholders to attend the meeting and cast their votes, or to appoint an individual or an independent director as their proxy, to cast votes on their behalf in case they could not attend. Moreover, shareholders are allowed to equally express opinions, seek explanations, or pose questions.

The 2019 Annual General Meeting of Shareholders (AGM) was convened on 3 April 2019, at 1:00 P.M. at the Royal Paragon Hall 3, 5th Floor of Siam Paragon, No.991, Siam Paragon Shopping Center, Rama 1 Road, Pathumwan, Bangkok 10330. All 12 directors attended the meeting. Banpu assigned the Thailand Securities Depository Co., Ltd., its share registrar, to send invitation letters to shareholders in advance, as well as posted it on the Company's website at www.banpu.com/AGM_EGM/ 30 days prior to the meeting date. The minutes of the 2019 AGM was also posted on the Company's website 14 days after the meeting took place so that the shareholders could propose amendments if they found the minutes to be inaccurate, within the 30-day period after the minutes were posted.

The Company informed the SET to notify the minority shareholders of the opportunities to propose agenda items to be included in the AGM and to nominate candidates to be considered for the director positions in December 2018. The procedures and methods for considering proposals were clearly stated on the Company's website: www.banpu.com/AGM_EGM/). In the 2019 AGM, no shareholder proposed any additional agenda item or nominated candidates for director positions.

Equitable Treatment of Shareholders

Shareholders' Meeting

The Board of Directors has the policy to engage shareholders in a decision-making process and to ensure that shareholders receive comprehensive and adequate information in a timely fashion for such a process. As such, Banpu sent out an invitation letter for the meeting together with supporting documents for each agenda to shareholders prior to the meeting. Opinions from the Board of Directors also accompany each agenda item. The meeting is attended by 12 directors, including the Chairman of the Audit Committee, the Chairman of the Corporate Governance and Nomination Committee, and the Chairman of the Compensation Committee. Senior executives, the auditors, and independent observers from a law firm also attend the meeting.

The Chairman of the meeting allows every shareholder to examine the Company's operations and to present questions in each of the agenda items. The Chairman also encourages shareholders to voice their opinions and make inquiries about the Company's operations. In addition, the Board of Directors completes the

minutes of the meeting and releases them on the Company's website 14 days after the meeting, so that shareholders can review the minutes, and if necessary, propose amendments within 30 days.

Shareholders' Meeting Date

The 2019 Annual General Meeting of Shareholders (AGM) was convened on 3 April 2019 at 1:00 P.M. at the Royal Paragon Hall 3, 5th Floor of Siam Paragon, No. 991, Siam Paragon Shopping Center, Rama 1 Road, Pathumwan, Bangkok 10330. The 2019 AGM was attended by all 12 directors, 807 shareholders, and 1,276 proxies, bringing the total to 2,083 persons, representing 1,989,098,541 shares. This accounted for 38.53% of all 5,161,925,515 shares.

Site Visits and Information Provided to Shareholders

To enhance the shareholders' understanding of its businesses and allow them to monitor its operations, Banpu regularly arranged for shareholders to visit Banpu's operation sites and meet with the executives. On Friday, 31 May 2019, 80 shareholders visited the BLCP Power Plant in Rayong Province, Thailand.

Compliance with Other Corporate Governance Principles

Banpu had adhered to the SET Principles of Corporate Governance for Listed Companies 2012, except for some cases, with details and reasons, as follows:

1. The Chairman of the Board should be an independent director.

   The Company's practice: The Chairman of the Board is a non-executive director whose roles and duties are clearly defined by the Board of Directors. The emphasis is placed on the balanced benefits for the Company, shareholders, and all stakeholders.

2. The Nomination Committee should consist entirely of independent directors.

   The Company's practice: Currently, the Corporate Governance and Nomination Committee consists of four members, namely one independent director and three non-executive members. The Chairman of the Committee is a non-executive member. However, the Board of Directors clearly delegated in the Charter of the Board the roles and duties of the members of the Corporate Governance and Nomination Committee, covering all aspects of corporate governance and nomination.

3. The Chairman of the Sub-committee shall be an independent director.

   The Company's practice: At present, the Chairman of the Corporate Governance and Nomination Committee and the Chairman of the Compensation Committee are non-executive directors. However, the Board of Directors clearly delegated and defined the roles and duties of the Sub-committees in the Charters.

4. The Board should appoint an external consultant to facilitate a board assessment and suggest performance issues on a board assessment at least once every three years, and assessment results should be disclosed in the annual report.

   The Company's practice: Banpu has annual performance assessments of the Board of Directors as a whole, assessment of sub-committees, and individual assessment of each director. The Corporate Governance and Nomination Committee considered the issue and decided not to appoint an external consultant to facilitate the development of assessment approaches and suggest issues on a board assessment.

5. In 2018, the Board of Directors considered and adopted the SEC's 2017 Corporate Governance Code for Listed Companies as a guideline for revising Banpu's Corporate Governance Policy, the Code of Conduct, Practices of the Board of Directors and Charters of Sub-committees.

Report of the Audit Committee

The Audit Committee of Banpu Public Company Limited consists of three independent directors, who are competent and have relevant experiences in Accounting, Finance, Business Management, and Economics, namely Mr. Teerana Bhongmakapat, as Chairman of the Audit Committee, Mr. Suthad Setboonsarng, and Mr. Pichai Dusdeekulchai, as committee members. While Ms. Wiyada Wiboonsirichai, Head of Global Internal Audit and Compliance, is the Secretary of the Audit Committee.

The Audit Committee performs its duty independently within the scope and responsibility entrusted by the Board of Directors and as stipulated in the Audit Committee Charter, which is annually reviewed to align with current situations and best practices. The Audit Committee is determined to oversee the Company's operations to ensure adherence to good corporate governance principles and legal compliance. The Committee also ensures that the Company has in place an efficient and effective risk management system, an appropriate and adequate internal control system, an effective internal audit to achieve the predefined goals and sustainable business growth.

In 2019, the Audit Committee convened ten times at which a quorum was established with the participation of the executives, Global Internal Audit, and the external auditors on the related agenda. The Audit Committee also held a private meeting with the external auditors without the presence of the management. The results of the Audit Committee meetings were regularly reported to the Board of Directors. The Audit Committee's main activities can be summarized as follows:

1. Review of Financial Information

The Audit Committee reviewed Banpu's quarterly financial information, and the 2019 financial statements on key matters, including related party transactions, the transactions with a possible conflict of interest, and the appropriateness of accounting policies. The Audit Committee also reviewed key matters, significant changes in accounting, accounting estimates, the disclosure of notes to the financial statements, and the external auditor's observations from the review and audit of the financial statements. Sufficient explications from auditors and management were applied to assure that the financial statement reporting was prepared in accordance with applicable laws and Thai Financial Reporting Standards (TFRS), which is in accordance with International Financial Reporting Standards (IFRS). Based on the auditors' unqualified opinion, the Audit Committee agreed that the Company's financial statements are accurate, reliable, and in compliance with the applicable laws and the Generally Accepted Accounting Principles. Additionally, disclosure of the information is sufficient and timely for the benefit of investors and users of the financial statements.

2. Review of Internal Control and Internal Audit

The Audit Committee reviewed the internal control system by considering a report on internal audit results and their follow-up of Banpu Group on a quarterly basis. The internal audit covered strategy and business development, operation, resource utilization, safeguarding of assets, legal and regulatory compliance, anti-corruption, reliability of financial statements, and evaluation of the adequacy of the internal control based on the form designed by Thailand's Securities and Exchange Commission (SEC). The Audit Committee is confident that Banpu has adequate and appropriate internal control for strategic management and business operations. Apart from that, the Company has developed electronic systems and processes to improve efficiency and speed, prevent errors, and reduce the negligence of duties.

The Audit Committee supervised the operation of the Global Internal Audit and Compliance Unit by reviewing and approving the strategy and annual audit plan of the Global Internal Audit Department and Corporate Compliance Department that are aligned with the Company's business plan to become a leading integrated energy solutions company

in Asia-Pacific. The Company is driving digital transformation and sustainable operation to satisfy the needs of customers, communities, and society. The Audit Committee oversaw the internal audit in providing recommendations on preventive controls focusing on embedding key control of overseas businesses expansion. The Global Internal Audit Department audited the management and operations of new businesses regarding financial management, digital and information technology operation, the cybersecurity protection system, and followed-up timely corrective actions of critical findings. Moreover, the Audit Committee placed importance on the improvement of internal audit in accordance with international standards and safeguarded the benefits of involved stakeholders.

In addition, in 2019, the Company deployed the GIA Digitalization technology to advance internal audit, focusing on harnessing in-depth data analytics to improve efficiency and effectiveness of critical risk management and internal audit in each business to step forward to be "Smart Audit" and create added value for businesses that have expanded investments abroad. The Company promotes all Banpu people to understand and place importance on sound and sufficient internal control. Moreover, the Company has an independent internal audit and risk-based audit approach covering businesses, units, and key processes in accordance with the levels of critical corporate risks.

3. Review of Compliance

The Audit Committee reviewed Banpu Group's compliance with laws and regulations relevant to its businesses. The Corporate Compliance Department is responsible for compliance auditing and monitoring of legal changes in the countries where the Company has invested. In 2019, the Company developed Compliance Risk Management (C-RiM) application to supervise compliance risk of the Company and its subsidiaries in each country via an online system. Laws In-Hand is an application developed for monitoring of latest legal and regulatory updates in all countries the Company has invested as those updates may pose significant impacts on the Company's businesses. Apart from that, Compliance Obligation List (COL) is used as a proactive mechanism to monitor legal and regulatory compliance. The application enables monitoring of draft laws being considered which may have impacts on the Company in order to prepare for the risk prior to their enforcement and report the results to the management and the Audit Committee on a regular basis. In addition, the Company reported risk management performance and internal audit results covering key compliance risks. The overall review results revealed that there were no significant compliance issues or problems found.

4. Good Corporate Governance

The Audit Committee reviewed compliance with the Code of Conduct as well as the efficiency and effectiveness of corporate governance executed by the Board members, management, and employees. In the opinion of the Audit Committee, the Board members and the management are a role model for corporate governance, supporting the implementation of anti-corruption policy and promoting every employee to strictly adhere to the Company's Corporate Governance Policy. The Audit Committee also reviewed related party transactions or the transactions that may cause conflicts of interests between Banpu, its subsidiaries, and other related parties, agreeing that those transactions were fair and reasonable and were carried out for the Group's benefit in accordance with the SEC's and the Stock Exchange of Thailand (SET)'s rules and regulations. To combat corruption, the Company has established whistleblower channels to receive complaints or grievances of corruption and unethical business practices and ensured that the complaint handling process is fair to all parties and that there is appropriate protection for whistleblowers and the alleged. In 2019, the Company reviewed and updated the "Corporate Fraud Management Policy" to improve efficiency in sustainable corporate governance.

5. Oversight of Risk Management

The Audit Committee reviewed the efficiency and effectiveness of the risk management process and closely monitored key risks that may impact the Company's business operations, measures to manage those risks at an acceptable level, as well as trends of the new businesses in which the Company has invested. The risks facing the Company may arise from changing business situations and scenarios, including strategic, operational, financial, compliance, information technology, and anti-corruption risks. The progress of risk management is quarterly reported to the Audit Committee to monitor the management of critical risks and mitigation approaches, and to acknowledge scenarios that may affect the businesses. The approach to risk management focuses on systematic management that timely responds to rapidly changing business situations and trends. In 2019, the Company developed the Compliance Risk Management (C-RiM) mobile application to enhance efficiency in the oversight of compliance risk relevant to business growth.

6. Appointment of Auditors and Audit Fees for 2020

The Audit Committee considered the selection of auditors based on Banpu's evaluation criteria, including their experience, knowledge, expertise, independence, timeliness, and reasonable audit fees compared with the audit work and the Company's business. The Committee also reviewed the auditors' qualifications to ensure that they meet the SET's requirements. The Audit Committee proposed the appointment of auditors to the Board of Directors for consideration and for a further proposal to shareholders for approval. The following individuals of PricewaterhouseCoopers ABAS Ltd. (PwC) were nominated:

1. Ms. Rodjanart Banyatananusard, CPA, License No. 8435; and/or
2. Ms. Amornrat Permpoonwattanasuk, CPA, License No.4599; and/or
3. Mr. Pongthavee Ratanakoses, CPA, Licens No. 7795; and/or
4. Mr. Vichien Khingmontri, CPA, License No. 3977;

For the year 2020, the total audit fee for Banpu was proposed at THB 2,580,900. Some of Banpu's subsidiaries appointed auditors from other audit offices that suit their businesses, and the Board of Directors is responsible for the supervision of the timely preparation of financial statements.

In summary, in 2019, the Audit Committee performed its duties and responsibilities set forth in the Audit Committee Charter with accuracy, independence, and prudence for the equitable benefit of the stakeholders. The Audit Committee maintained its opinion that Banpu's financial report is accurate and reliable with sufficient disclosure of information. Banpu is committed to a sound corporate governance policy, has an appropriate risk management system, complies with applicable laws and regulations, has an adequate and effective internal control and internal audit, and is able to properly respond to all changes influenced by both internal and external factors.

20 February 2020
On behalf of the Audit Committee



Mr. Teerana Bhongmakapat
Chairman of the Audit Committee
Banpu Public Company Limited

Report of the Corporate Governance and Nomination Committee

The Corporate Governance and Nomination Committee of Banpu Public Company Limited consists of Mr. Rawi Corsiri, the Chairman of the Committee, with Mr. Sudiarso Prasetio, Mr. Verajet Vongkusolkit and Mr. Anon Sirisaengtaksin as directors. The Committee independently performs duties to the full extent as entrusted by the Board of Directors, in compliance with principles and guidelines of the Corporate Governance and Nomination Committee and the SEC's 2017 Corporate Governance Code (CG Code).

In 2019, the Corporate Governance and Nomination Committee convened four meetings with full attendance. The Corporate Governance and Nomination Committee summarized its performance in 2019 as follows:

The Corporate Governance Mission

1. **Monitoring of Compliance with the Corporate Governance Policy and the Code of Conduct**

   In 2019, the Corporate Governance and Nomination Committee monitored the implementation of Banpu's Corporate Governance Policy and the Code of Conduct, which was approved by the Board of Directors to be in line with the SEC's 2017 Corporate Governance Code for Listed Companies in order to achieve the Company's business goals and maintain ethical standards for the benefits of all stakeholders.

2. **Promotion of Corporate Culture and Positive Attitude toward Corporate Governance**

   The Corporate Governance and Nomination Committee monitored the implementation of the communication plan to promote the corporate culture and positive attitude toward corporate governance through a wide range of activities in 2019, which yielded satisfactory results.

3. **Receiving Complaints regarding Corporate Governance**

   Banpu has created a communication channel for receiving complaints regarding corporate governance, covering all groups of stakeholders, via the Company's website under the Corporate Governance section. Complaints can be sent directly to the Secretary of the Corporate Governance and Nomination Committee at GNCSecretariat@banpu.co.th and/or GNCchairman@banpu.co.th, who will report the complaints and grievances to the Corporate Governance and Nomination Committee on a quarterly basis and submit a summarized report to the Board of Directors on an annual basis. In 2019, there were ten complaints from stakeholders that were addressed and solved. Furthermore, the Board also approved the launch of an additional complaint channel to allow direct submission of complaints to the Chairman of the Corporate Governance and Nomination Committee.

4. **Performance Evaluation of the Board and Directors**

   The Corporate Governance and Nomination Committee has reviewed and subsequently approved the appropriateness of the approach and evaluation documents used in the annual performance evaluation of the Board. The documents include the evaluation form for the Board, the form for the Sub-Committee, and the form for individual directors.

   The Corporate Governance and Nomination Committee reported the annual evaluation results to the Board of Directors' meeting. Overall, the Board of Directors' performance was satisfactory with a score of 4.76 out of 5. Specifically, each topic received a score in the "good to excellent" range (between 4.5 and 5.0). The Board acknowledged the evaluation results and suggestions, and directors also exchanged views in the Board of Directors' meeting on ways to enhance their performance to best benefit the Company.

   The evaluation results of the three sub-committees, namely, the Audit Committee, the Compensation Committee, and the Corporate Governance and Nomination Committee, received a "very good" score range with an average score of 4.89 out of 5. Each sub-committee submitted its annual self-evaluation report to the Board of Directors as part of their annual performance report.

Apart from that, each individual director performed a self-assessment. The annual evaluation of each director's individual performance earned an average score of 4.51 out of 5. The directors acknowledged the results and suggestions and found the individual performance evaluation satisfactory. They exchanged views on how to enhance their performance to best benefit the Company.

Mission on the Nomination of Directors and Succession Plans for Senior Executive Officers

Nomination of Directors Retired by Rotation in 2019

The Corporate Governance and Nomination Committee reviewed the qualifications and appropriateness of the directors who have served their 3-year term and proposed to the Board of Directors to re-nominate their names to the 2019 Annual General Meeting of Shareholders for consideration and approval. In the 2019 AGM, four directors re-elected by the shareholders were as follows:

1. Mr. Chanin Vongkusolkit
2. Mr. Teerana Bhongmakapat
3. Mr. Rawi Corsiri
4. Mr. Sudiarso Prasetio

After the Corporate Governance and Nomination Committee had reviewed the qualifications and appropriateness of the four directors whose terms of office expired, they agreed that the directors have appropriate qualifications and impressive performance. The Committee then proposed their names to be nominated to the 2019 Annual General Meeting of Shareholders for consideration and approval of re-election according to the nomination process, of which has been completed.

Apart from that, in 2019, the Corporate Governance and Nomination Committee updated the Board Skills Matrix to align with the Company's current business strategy and direction.

Nomination of Director to Replace Directors Reaching Retirement Age

The Corporate Governance and Nomination Committee has updated the Board Skills Matrix to be consistent with the Company's current strategy and business direction. The Committee also selected candidates to replace Mr. Sudiarso Prasetio, the director reaching retirement age on the date of the 2020 Annual General Meeting of Shareholders. The selection followed the specified requirements, procedure, and period of time. The candidate will be proposed for the Board's approval; the Board will then nominate the candidate to the 2020 Annual General Meeting of Shareholders for approval.

Succession Plan for Senior Executive Officers

In 2019, the Corporate Governance and Nomination Committee received a progress report on the succession plan for senior executive officers twice and reported the succession plan to the Board of Directors once.



Mr. Rawi Corsiri
Chairman of the Corporate Governance
and Nomination Committee
Banpu Public Company Limited

Report of the Compensation Committee

The Compensation Committee of Banpu Public Company Limited comprises four members, namely three independent directors and one non-executive director, who were appointed by the Board of Directors consideration from their expertise, competence, skills, and experience in both Thailand and abroad.

The Compensation Committee consists of Mr. Buntoeng Vongkusolkit, the Chairman of the Compensation Committee, and the other three members, namely Mr. Teerana Bhongmakapat, Mr. Suthad Setboonsarng, and Mr. Teerapat Sanguankotchakorn.

The Compensation Committee Charter B.E. 2552 prescribed duties and responsibilities of the Compensation Committee as follows:

- To provide recommendations on remuneration management to the Board of Directors regarding the remuneration of the Board of Directors, Sub-committees appointed by the Board, and any other persons attending the Board of Directors meetings or sub-committee meetings.
- To consider and recommend remuneration and other benefits, including annual remuneration by taking duties and responsibilities of the Chief Executive Officer into consideration and deliberate the overall budget for annual salary increase, annual bonuses as well as other benefits for employees.
- To review and recommend the amendment of the scope of work as well as the duties and responsibilities of the Compensation Committee in response to changing circumstances, and determine appropriate structure and criteria for consideration and deliberation on remuneration.
- To submit performance report to the Board of Directors at least once a year.

In 2019, the Compensation Committee convened total six meetings, comprising five regular meetings and one special meeting, in which the Committee considered agenda prepared by the Secretary of the Committee. The Committee also provided recommendations to the Board of Directors for consideration and approval. The meetings can be summarized as follows.

1. Remuneration and Other Benefits

In 2019, the Compensation Committee considered and provided recommendations on remuneration of the Board of Directors, Sub-committees, Chief Executive Officer, and Banpu group's employees in all countries based on duties, responsibilities, and performance in the previous year, the Company's operating results, key economic information, and remuneration surveys of leading companies in Thailand and abroad. The Secretary of the Committee presented the relevant information to support the Compensation Committee's deliberation on remuneration.

The Compensation Committee considered and provided recommendations on remuneration in a thorough, careful, and transparent manner to keep employees motivated with attractive incentives so that they perform to their full potential to further create benefits and added value for the Company and shareholders.

2. Business Directions of the Company

In 2019, the Compensation Committee participated in determining the Company's realistic and actionable business operations by considering and providing recommendations on performance indicators of the Chief Executive Officer, which appropriately reflected the Company's practical short- and long-term business directions and benefited both internal and external

stakeholders. The Committee also considered the Chief Executive Officer's performance in the first half and the second half of 2019 and provided recommendations for the Board of Directors on the matter.

3. Improvement of Work Processes

In the past year, the Compensation Committee adjusted the period of deliberation on the annual salary increase and variable bonus payment for employees, which was to be completed within 2019, similarly to the remuneration of Chief Executive Officer. The adjustments help boost the employees' morale and motivate them to leverage their full capabilities in the following year.

4. Collaboration with Employees and the Management

In performing its duties, the Compensation Committee regularly invited involved executives to join its meetings on related agenda items to provide information and detailed explanation to support the Compensation Committee's deliberations. Such practice not only contributed to the accurate, precise, and timely decisions, but also built good rapport between the Compensation Committee and the Company's management, which enables smooth and aligned operations of both parties.

In addition, the Compensation Committee performed a self-assessment of its performance over the past year regarding qualifications, duties and responsibilities of the Compensation Committee, meeting, reports, and presentation of the assessment results to the Board of Directors together with those of other sub-committees.

In conclusion, in 2019, the Compensation Committee adequately performed its duties and responsibilities as prescribed in the Compensation Committee Charter B.E. 2552 of Banpu Public Company Limited and as entrusted by the Board of Directors. The Committee also provided valuable opinions and recommendations to the executives, the Board of Directors, and stakeholders on a regular basis.

20 February 2020

On behalf of the Compensation Committee



Mr. Buntoeng Vongkusolkit

Chairman of the Compensation Committee

Banpu Public Company Limited

CORPORATE SOCIAL RESPONSIBILITY (CSR)

CSR After Process and Environmental Activities in 2019

Thailand

Almost four decades, Banpu has operated its business by embracing Environmental, Social, and Governance (ESG) principles to achieve business growth in tandem with creating sustainable values for all stakeholders. In 2019, Banpu continued focusing on social aspects through the implementation of CSR activities, covering the development of education, youth capacity, community, and environment. All programs and activities have strived to drive change and sustainable social, economic, and environmental development with a key theme of learning, both in and outside the classrooms, as Banpu believes that **"Learning is the Power of Change and Development".**

Educational Development

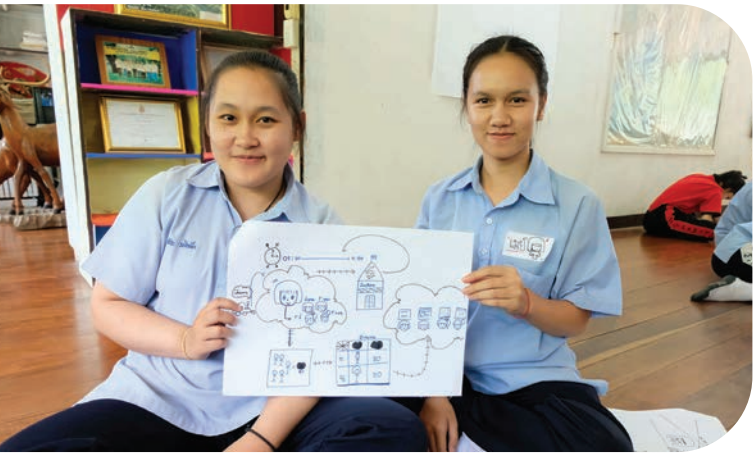
Banpu Education for Sustainability

In 2019, Banpu carried out the 16th year of the **"Banpu Education for Sustainability"** project with an aim to develop education – the country's pillar of sustainable development. The Company has supported integrated learning in three dimensions, which are the development of schools to become sustainable community learning centers, teacher capacity development, and promotion of students' learning for six schools in Lamphun, Lampang, and Phayao – the provinces where Banpu used to have operations.





Banpu has also supported the improvement of English communication skills for teachers and students at Banpu-sponsored schools through the provision of native speakers for eight consecutive years. In early 2019, Banpu hosted a **"Visual Thinking Workshop"** for 305 teachers and students. The skill serves as a new tool for teachers to make classes more interesting as well as helps students with note-taking and enhances their memorization while developing their systemetic thinking.



Besides, the Company has sponsored all the six schools to promote learning and improve teachers' and students' capabilities through various projects according to the school development plan. The projects are, for instance, English camps for students, training bilingual junior guides, creating life and job opportunities for students, teacher development through Professional Learning Community (PLC) process, development of information technology (IT) support system for students, youth science camp to promote locally environmental care and natural resources conservation, and English skill enhancement for the community. All of these projects not only benefit students, schools, and surrounding communities, but also is a step forward to sustainable educational development and a better quality of life of the local people.

Banpu's support for learning and teaching activities over the past 16 years is worth up to THB 43 million. **"Banpu Education for Sustainability"** project has contributed to the sponsored schools and involved stakeholders' improvement. Students are able to enhance academic potential as well as ethics and life skills, which are necessary for young people to grow as valuable resources for their own communities. Teachers are also equipped with the knowledge and ability to facilitate exciting and effective teaching and learning. The schools have improved their audio-visual equipment and teaching and learning system, organized activities to develop students' skills and enhanced learning achievement. The educational standard was; therefore, lifted, transforming the schools into community learning centers. The schools were also recognized as exemplary schools, model schools, or pilot schools in many aspects.

Scholarships

In 2019, Banpu granted scholarships for the 4th year university students to support education in various areas as follows:

- Three scholarships for geology and mining engineering students since 2009.
- Two scholarships for electrical engineering and electrical power engineering students at King Mongkut's Institute of Technology Ladkrabang.
- Two scholarships for accounting students at Chiang Mai University and Prince of Songkla University.
- Five scholarships for IT students, starting in 2019. Over the past 11 years, Banpu has granted 116 scholarships to university students.

Sponsorship for Schools in Southern Border Provinces

In 2019, Banpu provided financial support of THB 1.575 million to 13 schools in the specially targeted development zone through the Office of the Basic Education Commission to develop the schools affected by the unrest. For 13 consecutive years, Banpu has sponsored 129 schools in the five southern provinces, namely Narathiwat, Pattani, Yala, Songkhla, and Satun.





CONNEXT ED Project

Since mid-2016, Banpu has joined the CONNEXT ED Project hosted by the Ministry of Education and the private and the civil society sectors. The Company has supported 12 schools in three provinces: five schools in Khon Kaen, three schools in Maha Sarakham, and four schools in Roi Et. The project aims to build school directors and teachers' capacity to reform teaching and learning activities to become more effective and modern, and prepare students for the 21st century. In 2019, the following activities were carried out:

1. Fourteen Banpu volunteer staff worked with school administrators and teachers in devising teaching and learning development plans, and facilitated the school projects.
2. The Company hosted a two-week intensive "High Scope" curriculum for early childhood teachers to develop their potential and improve the quality of teaching and learning.





3. The Company organized workshops for elementary school teachers taking care of the students at all grades by adopting the curriculum of Chulalongkorn University Demonstration Elementary School on the subjects of Thai, English, Mathematics, and Science. These workshops endowed participating teachers with new pedagogical and active learning skills as well as techniques and uses of diverse teaching materials. The workshops enabled effective teaching while enhancing students' motivation to learn and improving their national test scores. In addition, school teachers who teach Thai, Math, Science, English, and Social Studies also had an opportunity to join the workshops and improve and modernize their classroom teaching.
4. The Company organized the "Professional Learning Community (PLC)" to provide a communication platform for school administrators and teachers to access information and share knowledge as well as teaching preparation experiences. The teachers participating in the project are encouraged to share teaching techniques with non-participating teachers in other schools. The participating schools are also promoted to become a model school with an aim to allow other schools to learn from and to improve the quality of teaching and learning as well as school management in wider scope.

Partnership School Project

On 5 June 2018, Banpu signed the Memorandum of Understanding (MoU) on Partnership School Project, an initiative to create management innovation in educational institutions. As an extension of the public-private school project, this project is organized under the collaboration among the Ministry of Education and companies, foundations, organizations, or institutions who provide resources and take part in school management. The Partnership School project aims to improve teacher and student quality, school management, and transforming schools into lifelong learning centers in communities to raise academic achievement, prepare students for the future, and reduce educational inequality. With collaboration among involved parties in the community, this project covers five academic years from June 2018 to May 2023. Banpu sponsors three partner schools under the CONNEXT ED project, namely Non Sa-at Phitthaya School, Khon Kaen Province; Phon Ngam Phon Sawang School, Maha Sarakham Province; and Rong Kham Hong Thong Witthaya School, Roi Et Province. The activities carried out are as follows:

1. Teaching and Learning Training and Development

    1.1 "High Scope" curriculum, a training course focusing on both the theory and practice for early childhood teachers by trainers from RIECE-High Scope Project, the University of the Thai Chamber of Commerce.

    1.2 Workshop for elementary school teachers, teaching Thai, math, science, and English, by trainers from Chulalongkorn University Demonstration Elementary School.

    1.3 Workshop for secondary school teachers, teaching Thai, English, math, science, and social studies, by trainers from Chulalongkorn University Demonstration Secondary School.

โครงการโรงเรียนร่วมพัฒนา
Partnership School Project



    1.4 Promoting teachers to transform the classroom into an active learning environment to offer diverse and modern teaching strategies.

2. Renovating computer rooms and providing computers for the three partner schools; hiring IT teachers to teach computer for students and train staff on technological literacy; and training computing science for elementary and secondary school teachers.

3. Hiring four English teachers for three schools to support English teaching at early childhood level and providing English teaching and learning materials to create classroom more engaging and fun.

4. Providing financial support for vocational and life skills training for students and promoting teaching and learning in such subjects as western music, folk music, and sports.



Light and Learn: Solar Project for Education

In 2019, Banpu Infinergy Company Limited, a subsidiary of Banpu, carried out the third year of the **"Light and Learn"** project. The aim of this project is to develop an electric utility system for needy schools to facilitate teaching and learning as well as provide access to information and resources, e.g., satellite systems. The project will improve the knowledge and capacity of the students in remote areas. It is also hoped that the students will be able to apply their knowledge and capacity to their future career and live a sustainable life while empowering hill tribe communities. In this third year, Banpu Infinergy installed solar panel systems for Mae Fa Luang Hilltribe Community Learning Center, Baan Ta La Khong, Tak Province. The Company also joined hands with the Armed Forces Development Command, the Royal Thai Armed Forces, to survey schools in Mae Hong Son that are in need of electricity access and installed solar panel systems for 15 schools worth more than THB 1.6 million. Over the past three years, Banpu Infinergy has sponsored 53 schools under this project.

Apart from that, the Company promotes extracurricular learning activities by taking some youths from Mae Fa Luang Hilltribe Community Learning Center, Baan Ta La Khong, Tak Province to visit Don Bosco Institute of Technology, Bangkok – a model of clean energy school supported by Banpu Infinigy. During the trip, the youths learned about a solar power system and its process. They were cultivate environmental awareness and educated about how clean energy works.



Environmental Development

Power Green Camp

Banpu collaborated with the Faculty of Environment and Resource Studies, Mahidol University, in hosting the **"Power Green Camp"** for the 14th consecutive year to enhance knowledge and understanding of environmental science and natural resources as well as to raise environmental awareness among young people. The camp encourages participants to systematically apply scientific knowledge to solve environmental problems. It also aims to build future youth leaders and an environmental youth network. The target group of the "Power Green Camp" is the students at grade 10-11 majoring in Science from all over Thailand.



The Power Green Camp's activities have been organized based on the concept of Envi-Science: Learning through Actions with an aim to develop a thinking process for students through theoretical learning and practice in the environmental science laboratory. Students also join a field trip to study about the environment and natural resources so that they can have hands-on experience and relate to what they have learned through different activities.

In 2019, **"Power Green Camp 14"** was organized under the theme **"Empowering Youth to Fight Global Warming and Protect Biodiversity"**, bringing together 70 young students to learn about the impacts of



global warming on living creatures and think of how to manage, prevent, and solve the crisis in order to protect biodiversity and human well-being. During the camp, participants went on a field trip to Khao Sam Roi Yot National Park in Prachuap Khiri Khan Province – one of Thailand's most abundant sources of biodiversity. The national park has a diverse ecosystem, including freshwater resources, caves, mangrove forest, mixed deciduous forest, and beach forest, and traces of natural changes resulting from climate change. The field trip helped students realize the impact of climate change and have environmental awareness. The young participants also joined the CSR activity to do beach cleanup in which they learned how to sort out the trash and the impact of trash on the environment.

They also gained inspiration and a positive attitude toward environmental conservation while attending the special talk by environmental experts, including academics, conservationists, and environmental activists in the industrial sector. At the end of the camp, the students developed their environmental science projects based on the knowledge they have learned from the camp.

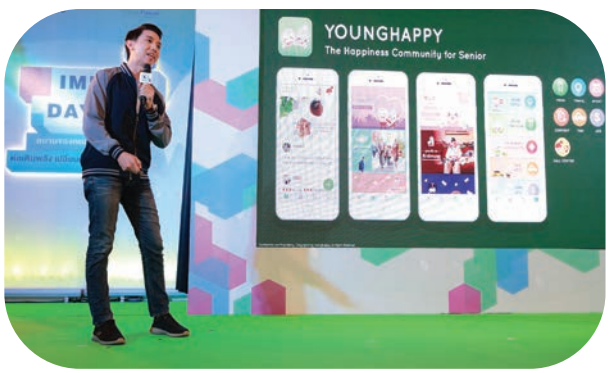
Additionally, in the last four years, Banpu has brought outstanding young participants to oversea field trips to Indonesia and Japan, the countries where Banpu has operations, to learn sustainable environmental management. Three students from Power Green Camp 13, held in October 2018, traveled to Japan between 19-24 April 2019 to study the approach to **"Managing biodiversity and creatively increasing its economic value."** The trip aimed to broaden their knowledge and experience through a wide range of activities about effective environmental management, which can sustainably be applied in Thailand.

Over the past 14 years, 980 students have participated in Banpu's Power Green Camp. Among these, 174 participants were trained to be environmental youth leaders to serve as facilitators at the camps and help expand the environmental network.

Youth Capacity Development

Banpu Champions for Change

In 2019, **"Banpu Champions for Change"** continued into its 9th year to promote the development of the new generation and network of social entrepreneurs and support **"Social Enterprise"** focusing on the connection between business, society, and the environment via business management and social enterprise ethics. This year, the Company organized roadshow activities in all regions of Thailand to share experiences and lessons learned from many social enterprises. The roadshow attracted more social enterprise enthusiasts to apply for the 2019 project. The project also extended its performance on learning platform via Social Enterprise (SE) School's website (https://se.school), Thailand's first online learning platform for those interested in becoming social entrepreneurs.





This year, 16 applicants from the first round were selected to attend a workshop on developing business ideas and models. There were many outstanding social enterprise participants whose projects can solve social problems, for instance, waste and environmental management, health care and wellness, vocational training and support for the underprivileged, and sustenance of local arts and crafts. The judging committee selected 10 social enterprises that respond to the demands of a modern world with digital platforms and clear goals in solving social and environmental problems while being commercially viable. Each of them received THB 80,000 seed funding to execute their business for three months. After that, five social enterprises that had an impressive performance, good progress, and positive social impacts received THB 250,000 to continue their plans for another six months.

The project later organized the **"Impact Day"** for the 3rd consecutive year, under the theme **"Impact Day 2019: A Creative Playground for Social Transformation"** to announce five distinguished social enterprises who are the winners of Banpu Champions for Change 9. The event was also a venue for participating social entrepreneurs and their networks to publicize their enterprises and sell products and services to the public. Besides, interested individuals and students could learn about social enterprise from insiders through a wide range of activities such as workshops, panel talks, and exhibitions.





Throughout the past nine years, **"Banpu Champions for Change"** has provided consultancy and organized a wide variety of training and activities such as business model development, financial planning, social impact assessment, brand developmet, team management,

and business risk management. The project has provided financial and skill supports to 92 social enterprises to start up their businesses based on their ideas and interests. Among these, 60% of the sponsored projects with outstanding performance were supported to enhance their potential and develop into sustainable social enterprises. They not only generate business profits, but also benefit 141 communities and organizations, as well as over two million beneficiaries who enjoy better health and quality of life. Social issues that have been solved cover seven categories, including education, agriculture, health, social work volunteers, environment, career development, and finance. Some of these social enterprises even won international awards and earned a stable income.



Apart from organizing capacity-building workshops for participating social entrepreneurs, the project has continuously developed the SE. School's online learning platform to deliver up-to-date content and new knowledge. Easy access platform resulted in new 390 registered users of SE School this year, a 66% increase from last year, corresponding with digital transformation trends and behaviors of a new generation of learners.

Banpu Table Tennis Club

Established early in 2008, Banpu Table Tennis Club (BTTC) has organized activities for Thai athletes to help them develop their skills and broaden their perspectives with an aim of raising the standards of Thai table tennis. In 2019, the Club maintained its focus on athletes' development both physically and mentally through a wide range of activities such as daily training, competing in major domestic and international tournaments as well as building relationships and interaction among team members.

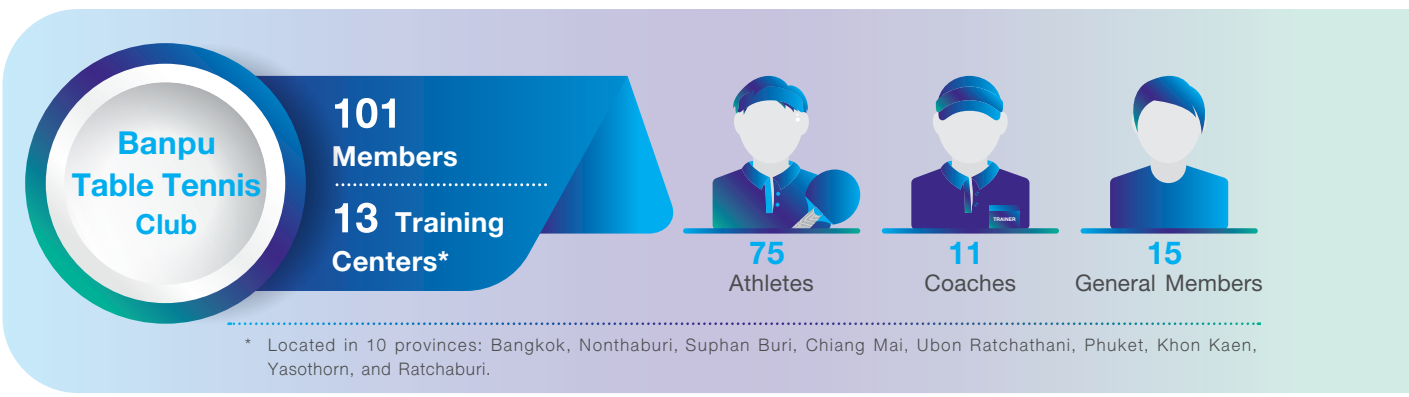


The BTTC has been striving to improve its standards and management system, while also developing a personalized training plan for each individual athlete and adding many other activities in order to promote table tennis such as **"Banpu Table Tennis Club Camp: Build Inspiration for Thai Youth in Remote Areas"** by coaches who have international experience. In addition, this activity helps encourage public awareness and social contribution of the Club's athletes by inviting the volunteer athletes with experiences at both national and international levels to coach young and needy table tennis athletes in different regions. In 2019, the BTTC hosted a camp in Satun Province, which was well responded by 108 young athletes and 16 coaches from Satun and nearby provinces. The BTTC has organized the camp for nine consecutive years since 2014.

Apart from sending the athletes to compete in nine national tournaments each year, in this year, the BTTC selected athletes to compete in two international tournaments. Six athletes competed in ITTF World Junior Circuit's 2019 China Junior & Cadet Open (Golden Series) in Taichang, China, and seven athletes competed in ITFF Junior Circuit Premium's 2019 Chinese Taipei Junior & Cadet Open in Taipei, Republic of Taiwan. These were great opportunities for the BTTC athletes to broaden their perspectives and gain international experience from international tournaments.

Currently, the BTTC has 101 members, comprising 75 athletes, 11 coaches, and 15 general members. The Club's 13 training centers are located in ten provinces, including Bangkok, Nonthaburi, Suphan Buri, Chiang Mai, Ubon Ratchathani, Phuket, Khon Kaen, Yasothorn, and Ratchaburi.





Throughout the past 11 years, two BTTC's athletes were selected to join the national team for the Southeast Asian Games (SEA Games), 40 athletes were recruited into the national youth teams and two into the national junior team. Twenty athletes passed the direct admission to universities using their table tennis portfolios. The Club's athletes also won prizes from many domestic and international tournaments. Over 1,000 young people have attended the Banpu Table Tennis Club Camp and got opportunity to practice their skills with the BTTC's volunteer coaches.

Support for a Young Tennis Athlete

Banpu continued to support Mr. Songrit Chanbubpha, a strongly determined but underprivileged junior tennis player aged under 16 years, to pursue his dream of being the world's top-ranked player by sponsoring his sports equipment and physical fitness training courses as well as facilitating his continuous daily training. The Company has also supported his competitions in Thailand and abroad to expose him to real tournament experiences and to help him enhance his life skills while improving professional athletic disciplines.

In 2019, Banpu also supported Mr. Songrit in the competitions hosted by International Tennis Federation (ITF) in Cambodia, China, Sri Lanka, and Indonesia. Mr. Songrit was ranked 1,800th in the ITF junior ranking and 8th in the U16 category in the Lawn Tennis Association of Thailand's ranking. All the experience and performance this year is another important step for him to become a professional tennis player in the future.





Thammasat-Banpu Innovative Learning Program

Since 2016, Banpu and the Faculty of Learning Sciences and Education, Thammasat University, has co-organized the **"Thammasat-Banpu Innovative Learning Program"**. The program aims to equip high school and vocational students with essential skills for young innovators such as critical and analytical thinking, creative communication, responsibility, and leadership via a design process of **"Learning Games".**

In early 2019, the **"Thammasat-Banpu Innovative Learning Program"** Season 1 ended successfully and closed with the award presentation ceremony. The royally-bestowed trophy from Her Royal Highness Princess Maha Chakri Sirindhorn was presented to the winner, and other prizes were awarded to the winning teams in each category. The **"Thammasat-Banpu Innovative Learning Program"** Season 2 started in August 2019, which Banpu has provided financial support worth THB 8.4 million in total for the implementation of the program for two years. With an aim at initiating positive social change, 14 youth teams selected from schools nationwide were incubated through the game design processes, which were able to develop their creative thinking skill and help them become young innovators. Each team had to design a board game and ensure that the game really works before introducing it to the target group. The game should educate people and lead to behavior change, which will contribute to positive change in society.



Community Development

Public Infrastructure Development

The Lamphun Mine replaced the roof of a shabby pavilion in Ban Hong Village, Moo 11, Li District, Lamphun Province, for the benefit of the villagers. The mine improved the landscape and areas in the village to be more beautiful and decent. Besides, the mine built a roof to cover the Mother Earth statue at Banpu Temple, Moo. 3, Li Sub-district, Li District, and worked with the villagers to lay a concrete path up to Phra That Wat Banpu so that villagers can safely walk up there to pay respect to Lord Buddha's relics.





Environmental Development

The Lamphun Mine and Li District Municipal Office organized a volunteer activity to build check dams at Huay Khaeng Upstream Forest in Moo 17, Li Sub-district, Li District, to preserve forests. The mine also joined with villagers of Ban Hong to host a community cleanup and create local awareness of waste management.



Healthcare Development

The Lamphun Mine hosted a mobile medical service unit to provide free health examinations, dental care, and medical consultation to the villagers of Ban Hong, Ban Waen-Narin, Ban Pha Yong, and Ban Na Klang. The mine also carried out a community health care project in which the staff visited and donated necessities to 44 bed-ridden patients, disabled people, and the elderly people in Ban Hong, Ban Waen-Narin.



Educational Development

In the academic year 2019, the Lamphun Mine granted 105 scholarships worth THB 200,000 in total to students from 17 villages surrounding the mine. Throughout the 11 consecutive years since 2009, the Lamphun Mine has awarded about a total of THB 2.4 million scholarships to students in the surrounding communities. In addition to continued support for schools on a wide range of activities, the Lamphun Mine participated in activities on Children's Day 2019 held at Ban Hong School, Ban Hom To School, as well as in Banpu and Ban Waen-Narin Villages.



Religious and Cultural Development

In 2019, the Lamphun Mine offered Lent candles to nine temples in Li, Na Sai, and Pa Phai Sub-districts, including Wat Ban Klang, Wat Ban Waen, Wat Puang Kham, Wat Phra Bat Huay Tom, Wat Pang Pratheep, Wat Pha Nam, Wat Banpu, Wat Na Klang, and Wat Ban Hong as a way to nurture Buddhism. Moreover, during the Songkran festival, the Company held a ceremony to pour water on senior government officials and the elders to show respect and to build a strong relationship with the community.



Economic Development

The Lamphun Mine supported career development by organizing training of natural farming on how to make compost fertilizer and liquid bio-fertilizer for the villagers living in the communities around the mine. Moreover, the mine allocated area for organic farming and installed solar water pump system for the locals. These activities aimed to generate additional income for the villagers and help them cut expenses and live healthily.

Nan Forest Rehabilitation Project

Banpu has implemented the **"Nan Forest Rehabilitation Project"** in collaboration with the local governmental organization and involved government agencies to rehabilitate the Nan Forest and to improve the quality of life in the communities. The Company selected two villages in Bo Sub-district, Mueang District, Nan Province, to undergo the pilot project. In 2017, Banpu supported the construction of 23 check dams to increase the humidity of the forest areas, as well as two mountain irrigation systems to pipe water from the mountains down to a tank before distributing the water to cultivation areas, which benefits 52 households. The irrigation systems enable year-round farming, including vegetable and fruit farming, fish farming, and farming of other animals without encroachment on protected forest areas to extend cultivation areas. In 2018, the Company extended the project to another two villages, which benefits another 20 households. As of December 2018, the Company's support to vocational training to lessen the subsistence forest activities ended. In March 2019, the project was transferred to Bo Sub-district Administrative Organization and the communities to continue the activities and develop the project into a model of forest rehabilitation.

Additionally, Banpu has granted scholarships to vocational and university students who are members of the communities. These grantees are required to perform community services in the hope that they will help drive the development of their local communities. In 2019, the Company awarded eight scholarships and will continue the scheme until 2020 to ensure that every grantee can complete their education.



Helping Disaster Victims

Tropical Storm Pabuk, which hit Nakhon Si Thammarat in January 2019, disastrously affected numerous people in the province. The Company took prompt action by sending an emergency response team to survey the affected areas as well as to help the victims and schools. The Company provided 500 mattresses worth THB 500,000 to ease the affected people in Pak Nakhon municipal area in Mueang District. The Company also donated THB 2.3 million to fund the recovery of five schools in Mueang, Tha Sala, and Phrom Khiri Districts, Nakhon Si Thammarat. The fund aims at repairing and restoring the buildings, educational hardware, and facilities as well as improving the damaged landscape. The disaster relief reaffirms the Company's long-term commitment to being a good corporate citizen.





Other CSR Projects

CSR Ideas of the Year Projects

Banpu has been organizing the **"CSR Ideas of the Year"** project to encourage its employees to have a volunteering spirit and contribute to society. The project allows employees to form a team and propose their own **"CSR Project"** relating to three major issues: community, society, and the environment. Then, the Company selected some outstanding projects that could contribute positive outcomes to the public and supported the implementation of each project with THB 50,000 – 75,000 fund. Moreover, employees are entitled to carry out the project away from work for one working day without being considered as leave.

In 2019, Banpu's employees proposed eight **"CSR Ideas of the Year"** projects: Virtual Run for 3 Countries Kids, Phor Phop Suk (Enough-Meet-Happiness), Livable School, BNK Handshake Project (BNK stands for Ban Na Ka School in Nan Province), Rain-and-Sun-Proof Pavilion, Reaching the Heart and Dream of the Elderly, Community Income Generation, and Sap Sua (Bitter Bush). Banpu granted approximately THB 500,000 in total to support CSR activities in all those projects.

Apart from that, Banpu selected the five most outstanding projects that best reflect Banpu's corporate culture, including being Passionate, Innovative, and Committed as well as allowed Banpu people to vote online for the most popular project. These activities not only promoted volunteering spirit of Banpu's people, but also enhanced their involvement and positive engagement with the Company.



Republic of Indonesia

PT. Indo Tambangraya Megah Tbk (ITM), a subsidiary of Banpu in the Republic of Indonesia, places top priority on Corporate Social Responsibility (CSR) and community development activities, aligning with Banpu's policy and implementation guideline. ITM underlines the improvement of education, quality of life for those with disabilities, waste management, as well as, the enhancement of the quality of life of people through community development activities nearby the Company's five mine sites on Kalimantan Island: Indominco Mandiri, Trubaindo, Bharinto Ekatama, Kitadin-Embalut, and Jorong. There are three major aspects of the company's CSR contributions with an aim to achieve sustainable growth and development, including Educational Development, Environmental Protection, and Community Development.

Educational Development

ITM prioritizes educational development, which is one of the key factors of strong and sustainable community development. In 2019, ITM carried out the following activities:

- Granting the scholarships to the students and organizing the training classes to improve teachers' competencies, and knowledge sharing programs for the schools and universities.
- Launching the Community Learning Center (CLC) with the purpose of resolving literacy and school-dropout rates of the students in the surrounding community by raising community awareness of how important of learning and attending to the classes. ITM in collaboration with the local government have fostered three CLCs in East Kutai Regency, including CLC Malahing, CLC Damai Mandiri, and CLC Salaka. This program has made positive impact on 11,574 beneficiaries since 2011.





- Supporting local university surrounding operation area by signing the Memorandum of Understanding (MoU) in October 2019 with Mulawarman University, which is one of the biggest universities in Kalimantan, with an objective to empower local university in education, research, and community services. The event had around 100 attendees from universities, NGO, and local government in East Kalimantan.
- Conducting Bimbingan Karir (Career Guidance) for extraordinary senior high school students at Deaf Santi Rama in Jakarta to introduce jobs in mining industry and to offer career support for the students with disabilities. There were 16 students and three teachers attended to the event. This is an initial step of disabled people empowerment, which leads further to an internship program for the handicapped.

Environmental Protection

There are three activities in 2019:

- Cisampay River cleaning was held to commemorate World Environment Day, which was attended by 50 ITM employees. The purpose of this event is to improve water quality and raise employees' awareness on the important of the river, which is the upstream of Ciliwung River, the biggest River in Jakarta.
- ITM started Zero Waste Office program at Jakarta Office with an aim to reduce ITM's waste, especially the plastic waste. The program aimed to raise employees' awareness about waste management through various activities, including field visit to the biggest landfill in Indonesia and workshop for zero waste management. Moreover, ITM employees had separated trash and sent to the garbage bank "Bank Sampah" Soka (Kebayoran Lama), which belongs to the community near ITM in Jakarta, in order to help them manage waste easier and properly.



Community Development

Being committed to community development, ITM executed 281 community development programs and activities in 2019, which were divided into four major categories as follow:

1. Economic Development

In 2019, ITM provided training programs to improve farmers' competencies focusing on agriculture, fisheries, animal husbandry, plantations, and enterpreneurial developments. ITM also organized training programs to several vulnerable business groups in nearby communities, including Bokashi Organic Fertilizer Development, Integrated Farming System (IFS), Indominco Mandiri Home Industry Team (HITIM) and the development of processed fish products in order to strengthen their capabilities and efficiencies.



2. Improving Public Health

ITM has been promoting health and sanitation development for the communities through the following activities:

- Providing counsels about the danger of the HIV to the students around Indominco Mandiri mine site.
- Organizing four times of workshop on maternal care and child health, including health checkup for women in phases: after marriage, during pregnancy, and delivery, and providing supplementary food to the pregnant women and pre-school children who live around mining area.





- Arranging mobile medical units to provide the medical checkup and health care promotion activities for the students and elderly in West Kutai Regency, Tanah Laut Regency, East Kutai Regency, and Bontang city, which benefits 2,000 people in all area.
- Organizing anti-drugs workshops for over 1,000 high school students from East Kutai, West Kutai, and Bontang.
- Providing clean drinking water to 600 families in the vicinity of Indominco Mandiri mine site and 900 families in Bharinto Ekatama mine site.



3. Environmental Conservation

ITM planted mangrove and 500 corals in Bontang to recover mangrove ecosystem from coastal erosion. This activity not only preserves ecosystem and biodiversity, but also benefits angler community.

4. Public Infrastructure Development

ITM supported the construction of multi-utility community buildings, pre-school learning centers, bridges linking villages and cultivation fields as well as roads and bridges in many villages in order to facilitate safer and more comfortable transportation.

Disaster Response

In 2019, ITM took part in providing support to affected people from two natural disasters; earthquake in Begkulu and flood in Samarinda. The assistance was divided into two phases. The urgent assistance in the first phase was to host mobile medical services and donations for the affected communities. In the other phase – the evacuation phase, the company in coordination with government of Indonesia sent the Joint-ERT (Emergency Response Team) consisting of ERT from mine sites to help evacuate and provide medical services to the victims as well as donated necessities such as rice and tents for refugees and people in the disaster areas.

People's Republic of China

In 2019, Banpu Investment (China) Co., Ltd. (BIC), Banpu's subsidiary in China, continued to promote social and community development activities in the communities where it has mining operations, which is aligned with the Chinese government's community development policy. The community development activities included:





- Providing office furniture and supplies worth CNY 268,840 (USD 38,755) in total, to help improve the working environment of five local government offices in the towns near Gaohe mine.
- Delivering warmth to the elderly of the nursing home in Songcun Town by donating 35 pieces of down coats.
- Donating household appliances and essential items worth CNY 20,000 (USD 2,855) to the charity supermarket of Goumenqian village, a poverty-striken village in Xingxian county, Shanxi province. The charity supermarket was set up for receiving donations from enterprises and society to reward the villagers who are selected as **"civilized villagers"** or get high scores in daily behavior appraisal. The charity aims to encourage the villagers to get out of poverty through hard work and create harmony and civilized community.
- Donating bookshelves, tables, chairs, and air-conditioners to the primary school in Luoshan County and helping the setup of a small reading room for the financially disadvantaged students and greatly improved the reading conditions of the children.





BOARD OF DIRECTORS AND MANAGEMENT

1 Mr. Chanin Vongkusolkit

Age: 67

- **Chairman of the Board of Directors**
  Appointed Date: 28 April 2016
- **Director**
  Appointed Date: 16 May 1983

* An uncle of person number 6 and 9



Education/Training

- M.B.A. (Finance), St. Louis University, Missouri, U.S.A.
- B.Econ., Thammasat University
- DCP Refresher Course #3/2006,
  Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP) #20/2002,
  Thai Institute of Directors Association (IOD)
- TLCA Leadership Development Program (LDP) - Enhancing
  Competitiveness #0/2012, Thai Listed Companies Association

% Share Held

- Own share: 0.35
- Spouse: 0.13

Work Experience in the Last Five Years

Banpu Group

- 2016 – Present : Chairman, Banpu Plc.
- 1983 – Present : Director, Banpu Plc.
- 2015 – 2016 : Senior Executive Officer, Banpu Plc.
- 1983 – 2015 : Chief Executive Officer, Banpu Plc.
- 2015 – Present : Member of the Corporate Governance
  and Nomination Committee, Banpu Power Plc.
- 1996 – Present : Director, Banpu Power Plc.

Other Listed Companies

- 2018 – Present : Chairman, The Erawan Group Plc.
- 2004 – Present : Director, The Erawan Group Plc.

Other Company

- 1983 – Present : Director, Mitr Phol Sugar Corp., Ltd.

Other Organisations

- 2019 – Present : Director, Thai Listed Companies Association
- 2015 – Present : Director, Private Sector Collective Action Coalition
  Against Corruption Council (CAC)
- 2012 – Present : Director, Faculty of Economics, Thammasat University
- 2012 – Present : Chairman, Thammasat Economics Association
- 2008 – Present : President, The Foundation for Better Life
- 2016 – 2018 : Commissioner, The Securities
  and Exchange Commission, Thailand
- 2015 – 2018 : Task Force Chairperson, Task Force for Sustainability
  in Listed Companies, The Securities
  and Exchange Commission, Thailand

2 Mr. Teerana Bhongmakapat

Age: 63

- **Independent Director**
  Appointed Date: 5 April 2012
- **Chairman of the Audit Committee**
  Appointed Date: 30 April 2014
- **Member of**
  the Compensation Committee
  Appointed Date: 30 April 2014



Education/Training

- Ph.D. (Econ), University of Wisconsin at Madison, U.S.A.
- M.Econ., Thammasat University
- B.Econ. (Quantitative Economics), Chulalongkorn University
- Capital Market Academy Leader Program #14/2012,
  Capital Market Academy (CMA)
- Director Certification Program (DCP) #161/2012,
  Thai Institute of Directors Association (IOD)
- Financial Institutions Governance Program (FGP) #7/2013,
  Thai Institute of Directors Association (IOD)
- Director Certification Program Update (DCPU) #2/2014,
  Thai Institute of Directors Association (IOD)
- IT Governance Program (ITG) #2/2016,
  Thai Institute of Directors Association (IOD)
- Audit Committee Forum 2016, Federation of Accounting Professions
  Under the Royal Patronage of His Majesty the King, and Thai Institute
  of Directors Association (IOD)
- Audit Committee Effectiveness Seminar 2012, Federation of Accounting
  Professions Under the Royal Patronage of His Majesty the King
- Audit Committee Forum 2017, Thai Institute of Directors Association (IOD)
- Cyber Incident Management for Executive Committees
  of Listed Companies, The Securities and Exchange Commission
- Boards that Make a Difference (BMD) #8/2018,
  Thai Institute of Directors Association (IOD)
- Risk Management for Corporate Leaders (RCL) #15/2019,
  Thai Institute of Directors Association (IOD)

% Share Held

- Own share: -
- Spouse: -

Work Experience in the Last Five Years

Banpu Group

- 2014 – Present : Chairman of Audit Committee/
  Member of Compensation Committee, Banpu Plc.
- 2012 – Present : Independent Director, Banpu Plc.

Other Listed Company

- 2013 – Present : Director/Chairman of Corporate Governance Committee/
  Chairman of the Risk Oversight Committee,
  Tisco Financial Group Plc.

Other Organisations

- 2018 – Present : Chairman of Evaluation Board,
  Thai Health Promotion Foundation
- 2016 – 2019 : Chairman of the Research Support Committee,
  National Anti-Corruption Commission (NACC)
- 2011 – 2016 : Professor of Economics (C11),
  Chulalongkorn University
- 2006 – 2011 : Professor of Economics, Chulalongkorn University
- 2010 – 2015 : Eminent Member, Anti-Money Laundering Office (AMLO)

Mr. Rawi Corsiri

Age: 70

- **Director**
  Appointed Date: 5 April 2012
- **Chairman of the Corporate Governance and Nomination Committee**
  Appointed Date: 28 April 2016



3

Education/Training

- M.B.A., Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Bachelor of Science (Geology), Chulalongkorn University
- Director Certification Program (DCP) #32/2003, Thai Institute of Directors Association (IOD)
- Capital Market Academy Leader Program #2/2006, Capital Market Academy (CMA)
- Nida-Wharton Executive Leadership Program, Co-program between National Institute of Development Administration (NIDA), and The Wharton School, University of Pennsylvania, U.S.A.
- Top Executive Program in Energy (TEA) #3, Thailand Energy Academy

% Share Held

- Own share: -
- Spouse: 0.02

Work Experience in the Last Five Years

Banpu Group

- 2016 – Present : Chairman of the Corporate Governance and Nomination Committee, Banpu Plc.
- 2012 – Present : Director, Banpu Plc.
- 2012 – 2016 : Member of the Corporate Governance and Nomination Committee, Banpu Plc.
- 2012 – 2016 : Advisor, Banpu Plc.
- 2015 – Present : Member of the Corporate Governance and Nomination Committee, Banpu Power Plc.
- 2001 – Present : Director, Banpu Power Plc.
- 2009 – Present : Director, Hongsa Power Co., Ltd.
- 2009 – Present : Director, Phu Fai Mining Co., Ltd.
- 2001 – Present : Director, BLCP Power Ltd.
- 2010 – 2017 : Director, Centennial Coal Co., Ltd.

Mr. Suthad Setboonsarng

Age: 68

- **Independent Director**
  Appointed Date: 3 April 2014
- **Member of the Audit Committee**
  Appointed Date: 30 April 2014
- **Member of the Compensation Committee**
  Appointed Date: 25 April 2019



4

Education/Training

- Ph.D. in Economics, University of Hawaii, U.S.A.
- M.A. in Agricultural Economics, University of Hawaii, U.S.A.
- B.A. in Economics, Thammasat University
- Director Certification Program (DCP) #194/2014, Thai Institute of Directors Association (IOD)
- Boards that Make a Difference (BMD) #8/2018, Thai Institute of Directors Association (IOD)
- Cyber Resilience Leadership Mission in Action 2019, Bank of Thailand

% Share Held

- Own share: 0.001
- Spouse: 0.0001

Work Experience in the Last Five Years

Banpu Group

- 2019 – Present : Member of the Compensation Committee, Banpu Plc.
- 2014 – Present : Independent Director/Member of the Audit Committee, Banpu Plc.

Other Listed Company

- 2019 – Present : Director/Audit Committee, Somboon Advance Technology Plc.

Other Organisations

- 2018 – Present : Special Subcommittee for Public Sector Audit and Evaluation #2 (Eastern Economic Corridor), Public Sector Development Commission
- 2015 – Present : Director/Chairman of the Audit Committee/ Member of the Risk Oversight Committee, Bank of Thailand
- 2013 – Present : Chairman, NawaChiOne Foundation
- 2013 – Present : Director/Chairman of Finance, Board of Trustee International Rice Research Institute (IRRI) Los Banos, Philippines

Mr. Sudiarso Prasetio

Age: 72

- **Independent Director**
  Appointed Date: 3 April 2014
- **Member of the Corporate Governance and Nomination Committee**
  Appointed Date: 30 April 2014



5

Education/Training

- Civil Engineering, Brawijaya University, Malang, Indonesia
- Astra Middle Management Program, INSEAD
- Astra Executive Program, INSEAD
- Professional Director Program
- Leadership, Focus & Execution

% Share Held

- Own share: -
- Spouse: -

Work Experience in the Last Five Years

Banpu Group

- 2014 – Present : Independent Director/Member of the Corporate Governance and Nomination Committee, Banpu Plc.

Other Company

- 2013 – Present : President Director, PT. Unitras Energy

Other Organisation

- Present : Chairman/Member of Advisory Board, Indonesian Mining Services Association

Mr. Buntoeng Vongkusolkit

Age: 63

- **Director**
  Appointed Date: 3 April 2014
- **Chairman of the Compensation Committee**
  Appointed Date: 25 April 2019

* A nephew of person number 1 and a cousin of person number 9



6

Education/Training

- Doctor of Agriculture (Innovative Agriculture), Khon Kaen University
- M.S. in Political Science, Ramkhamhaeng University
- B.S. in Political Science, Ramkhamhaeng University
- Ultra Wealth – Invest Like a Master (UW) #2
- Top Executive Program in Energy (TEA) #5, Thailand Energy Academy
- TLCA Leadership Development Program (LDP) #1, Thai Listed Companies Association
- Top Executive Program in Commerce and Trade (TEPCOT) #5, University of the Thai Chamber of Commerce (UTCC)
- Director Certification Program (DCP) #161/2012, Thai Institute of Directors Association (IOD)
- Senior Executive Program #9, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Management Problem Solving and Decision Making Program, Kepner-Tregoe, International, Princeton, New Jersey, U.S.A.

% Share Held

- Own share: 0.05
- Spouse: -

Work Experience in the Last Five Years

Banpu Group

- 2019 – Present : Chairman of the Compensation Committee, Banpu Plc.
- 2014 – Present : Director, Banpu Plc.
- 2014 – 2019 : Member of the Compensation Committee, Banpu Plc.

Other Companies

- 2018 – Present : Vice Chairman/Chairman of Executive Director, Mitr Phol Group
- 2015 – Present : Chief Operating Officer – Cane Management Business, Mitr Phol Group
- 1982 – Present : Director, Mitr Phol Group
- 2011 – 2018 : Senior Executive Vice President, Sugarcane Development & Management Group, Mitr Phol Group

Other Organisation

- 2019 – Present : Honorary Member, King Mongkut's Institute of Technology Ladkrabang Council

Mr. Metee Auapinyakul

Age: 66

- **Director**
  Appointed Date: 16 May 1983
- **Advisor**
  Appointed Date: 1 January 2014

* An older brother of person number 8



7

Education/Training

- Doctor of Business, Engineering and Technology, (Honoris Causa), St. Louis University, Missouri, U.S.A.
- B.Sc. (Management), St. Louis University, Missouri, U.S.A.
- Infrastructure for the Market Economy, Harvard University John F. Kennedy School of Government, Boston, U.S.A.
- National Defence College of Thailand (Class 377)
- National Defence College of Thailand, College of Management (Class 1)
- Director Certification Program (DCP) #61/2005, Thai Institute of Directors Association (IOD)

% Share Held

- Own share: 0.08
- Spouse: 0.01

Work Experience in the Last Five Years

Banpu Group

- 2014 – Present : Advisor, Banpu Plc.
- 1983 – Present : Director, Banpu Plc.
- 2015 – Present : Director, Banpu Power Plc.

Other Listed Company

- 2004 – Present : Chairman of Advisors, GENCO Plc.

Mr. Ongart Auapinyakul

Age: 63

- **Director**
  Appointed Date: 29 July 1983
- **Advisor**
  Appointed Date: 1 January 2017

* A younger brother of person number 7



8

Education/Training

- B.S. (Mechanical Engineering), University of Missouri, Columbia, U.S.A.
- Senior Executive Program #3, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- National Defence College of Thailand (Class 4414)
- Director Certification Program (DCP) #23/2002, Thai Institute of Directors Association (IOD)
- Capital Market Academy Leader Program #8, Capital Market Academy (CMA)
- Bangkok Metropolitan Administration Executive Program (Mahanakorn Class 1), Urban Green Development Institute Bangkok
- Top Executive Program in Energy (TEA) #1, Thailand Energy Academy
- Top Executive Program #17, Judicial Training Institute
- Executive Management with Business Development and Investment #1, Institute of Business and Industrial Development
- Top Executive Program in Commerce and Trade (TEPCOT) #4, University of the Thai Chamber of Commerce (UTCC)
- Business Revolution and Innovation Network (BRAIN) #1, The Federation of Thai Industries
- Tourism Management Program for Executives (TME) #1, TAT Academy
- Academy of Business Creativity (ABC) #8/2018, Sripatum University

% Share Held

- Own share: 0.14
- Spouse: 0.07

Work Experience in the Last Five Years

Banpu Group

- 2017 – Present : Advisor, Banpu Plc.
- 1983 – Present : Director, Banpu Plc.
- 1983 – 2016 : Executive Officer, Banpu Plc.

Mr. Verajet Vongkusolkit

Age: 55

- **Director**
  Appointed Date: 1 June 2010
- **Member of the Corporate Governance and Nomination Committee**
  Appointed Date: 1 June 2010

* A nephew of person number 1 and a cousin of person number 6



9

Education/Training

- Bachelor of Science (Finance), Babson College, Massachusetts, U.S.A.
- Director Certification Program (DCP) #24/2002, Thai Institute of Directors Association (IOD)
- TLCA Executive Development Program #13, Thai Listed Companies Association
- TLCA Leadership Development Program (LDP) #2, Thai Listed Companies Association and International Institute for Management Development (IMD)
- Strategy and Innovation for Businesses in ASIA (SIBA) 2016, Mahidol University Joint Program with the MIT Sloan School of Management
- Senior Executive Program 2019 (SEP) #33, Sasin Graduate Institute of Business Administration of Chulalongkorn University Cooperation with the Kellogg School of Management and the Wharton school

% Share Held

- Own share: 0.12
- Spouse: 0.005

Work Experience in the Last Five Years

Banpu Group

- 2010 – Present : Director/Member of the Corporate Governance and Nomination Committee, Banpu Plc.

Other Companies

- Present : Chief Executive Officer – Thai Sugar, Energy and New Business, Mitr Phol Sugar Corp., Ltd.
- 2008 – Present : Director, Mitr Phol Sugar Corp., Ltd.
- 2008 – Present : Director, Mitr Siam Sugar Corp., Ltd.
- 2008 – Present : Director, United Farmer and Industry Co., Ltd.

Ms. Somruedee Chaimongkol

Age: 58

- **Chief Executive Officer**
  Appointed Date: 10 April 2015
- **Director**
  Appointed Date: 4 April 2015



10

Education/Training

- B.Sc. (Accounting), Bangkok University
- Program for Global Leadership, Harvard University Graduate School of Business Administration, Boston, U.S.A.
- Director Certification Program (DCP) #78/2006, Thai Institute of Directors Association (IOD)
- Capital Market Academy Leader Program #18, Capital Market Academy (CMA)
- Executive Management with Business Development and Investment #2, Institute of Business and Industrial Development

% Share Held

- Own share: 0.10
- Spouse: -

Work Experience in the Last Five Years

Banpu Group

- 2015 – Present : Chief Executive Officer/Director, Banpu Plc.
- 2006 – 2015 : Chief Financial Officer, Banpu Plc.
- 2009 – Present : Director, Banpu Power Plc.
- Present : Director, BLCP Power Ltd.
- Present : Director, Hunnu Investments Pte. Ltd.
- Present : Director, AFE Investments Pty Ltd.
- Present : Director, BMS Coal Sales Pte. Ltd.
- Present : Director, Banpu Singapore Pte. Ltd.
- Present : Director, Banpu Minerals Co., Ltd.
- Present : Director, Banpu International Ltd.
- Present : Director, BP Overseas Development Co., Ltd.
- Present : Director, Centennial Coal Co., Ltd.
- Present : Director, Hunnu Coal Pty Ltd.
- Present : Director, Banpu Minerals (Singapore) Pte. Ltd.
- Present : Director, Chiang Muan Mining Co., Ltd.
- Present : Director, Banpu Coal Investment Co., Ltd.
- Present : Director, Asian American Coal, Inc.
- Present : Director, AACI SAADEC (BVI) Holdings Ltd.
- Present : Director, PT. Indo Tambangraya Megah Tbk
- Present : Director, Banpu Australia Resources Pty Ltd.
- Present : Director, Banpu Australia Co. Pty Ltd.
- Present : Director, BPIN Investment Co., Ltd.
- Present : Director, Sunseap Group Pte. Ltd.
- Present : Director, Banpu Infinergy Co., Ltd.
- Present : Director, Banpu North America Corporation
- Present : Director, BOG Co., Ltd.
- Present : Director, Banpu Coal Sales Co., Ltd.
- Present : Director, Durapower Holdings Pte. Ltd.
- Present : Director, Power Vietnam Co., Ltd.
- Present : Director, Banpu Coal Power Ltd.
- Present : Director, Banpu Innovation & Ventures Co., Ltd.
- Present : Director, FoMM Corporation
- Present : Director, Banpu Japan K.K.
- Present : Director, Centennial Energy Pty Ltd.

Mr. Anon Sirisaengtaksin

Age: 67

- **Director**
  Appointed Date: 19 April 2016
- **Member of the Corporate Governance and Nomination Committee**
  Appointed Date: 28 April 2016
- **Executive Advisor**
  Appointed Date: 1 April 2014



11

Education/Training

- Honorary Doctor of Public Administration, Bangkok Thonburi University
- M.B.A. Thammasat University
- B.Sc. (Geology), Chulalongkorn University
- Certificates in Project Investment Appraisal and Management and Global Leadership, Harvard University, U.S.A.
- Director Accreditation Program (DAP) #52/2006, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP) #73/2006, Thai Institute of Directors Association (IOD)

% Share Held

- Own share: 0.0004
- Spouse: 0.0003

Work Experience in the Last Five Years

Banpu Group

- 2016 – Present : Director/Member of the Corporate Governance and Nomination Committee, Banpu Plc.
- 2014 – Present : Executive Advisor, Banpu Plc.

Other Companies

- Present : Chairman, Emery Oleochemical (M) Sdn. Bhd.
- Present : Chairman, Emery Specialty Chemical Sdn. Bhd.
- Present : Chairman, Natureworks LLC
- Present : Chairman, Venecorex Holding
- Present : Chairman, PTTGC International Private Ltd.
- Present : Chairman, PTTGC Innovation America Corp.
- Present : Chairman, PTTGC International (USA) Inc.
- Present : Chairman, PTTGC International (Netherlands) B.V.

Mr. Pichai Dusdeekulchai

Age: 58

- **Independent Director**
  Appointed Date: 4 April 2019
- **Member of the Audit Committee**
  Appointed Date: 25 April 2019



12

Education/Training

- Master of Business Administration (MBA), Ashland University, Ohio, U.S.A.
- Bachelor of Arts Program in Mathematics and Statistics, Thammasat University
- TLCA Leadership Development Program (LDP) #1, Thai Listed Companies Association
- Director Certification Program (DCP) #278/2019, Thai Institute of Directors Association (IOD)

% Share Held

- Own share: -
- Spouse: -

Work Experience in the Last Five Years

Banpu Group

- 2019 – Present : Independent Director, Banpu Plc.
- 2019 – Present : Member of the Audit Committee, Banpu Plc.

Other Organisations

- 2018 – 2018 : General Manager & Deputy Country Head of Thailand, Sumitomo Mitsui Banking Corporation
- 2002 – 2018 : Head of Business Promotion, Sumitomo Mitsui Banking Corporation

Mr. Teerapat Sanguankotchakorn

Age: 54

- **Independent Director**
  Appointed Date: 3 April 2019
- **Member of the Compensation Committee**
  Appointed Date: 25 April 2019



13

Education/Training

- Doctor of Philosophy Program in Information Processing, Tokyo Institute of Technology
- Master of Engineering Program in Information Processing, Tokyo Institute of Technology
- Bachelor of Engineering Program in Electrical Engineering, Chulalongkorn University
- Director Certification Program (DCP) #148/2011, Thai Institute of Directors Association (IOD)
- Advance Audit Committee Program (AACP) #14/2014, Thai Institute of Directors Association (IOD)
- Board Matters and Trends (BMT) #8/2019, Thai Institute of Directors Association (IOD)

% Share Held

- Own share: -
- Spouse: -

Work Experience in the Last Five Years

Banpu Group

- 2019 – Present : Independent Director, Banpu Plc.
- 2019 – Present : Member of the Compensation Committee, Banpu Plc.

Other Organisations

- 2018 – Present : Chairman of the Audit Committee, Thai Public Broadcasting Service (Thai PBS)
- 2018 – Present : Board of Governors, Thai Public Broadcasting Service (Thai PBS)
- 2004 – Present : Associate Professor, Telecommunications Field of Study, School of Engineering and Technologies Asian Institute of Technology (AIT)
- 2018 – 2018 : Member of the Committee for Sustainable Development and Planning of National Education, Ministry of Education
- 2014 – 2018 : Audit Committee, Thai Public Broadcasting Service (Thai PBS)
- 2012 – 2016 : Board of Governors, Thai Public Broadcasting Service (Thai PBS)

Mr. Somsak Sithinamsuwan*

Age: 59

- **Head of Coal Business**
  Appointed Date: 1 January 2020

* **Remark:** Mr. Somsak Sithinamsuwan was appointed as Head of Coal Business, effective on 1 January 2020



14

Education/Training

- M.P.A. (Public Policy and Strategic Management), National Institute of Development Administration (NIDA)
- B.Eng. (Mining and Metallurgical Engineering), Prince of Songkhla University
- TLCA Executive Development Program 2017, Thai Listed Companies Association
- Global Leadership Program for Strategic Leader 2017, IMD Business School

% Share Held

- Own share: 0.0013
- Spouse: -

Work Experience in the Last Five Years

Banpu Group

- Present : Head of Coal Business, Banpu Plc.
- Aug – Dec 2019 : Head of Coal Business, Banpu Plc.
- Jan – Jul 2019 : Chief Operating Officer – Coal Business, Banpu Plc.
- 2018 – 2018 : Assistant Chief Operating Officer – Coal Business, Banpu Plc.
- 2011 – 2015 : Vice President – Power Business, Banpu Plc.
- 2015 – 2017 : Senior Vice President – Office of Chief Executive Officer, Banpu Power Plc.
- 2019 – Present : Director, Hunnu Coal Pty Ltd.
- 2019 – Present : Director, BP Overseas Development Co., Ltd.
- 2019 – Present : Director, Banpu Minerals (Singapore) Pte. Ltd.
- 2019 – Present : Director, Banpu Singapore Pte. Ltd.
- 2019 – Present : Director, BMS Coal Sales Pte. Ltd.
- 2019 – Present : Director, Hunnu Investments Pte. Ltd.
- 2019 – Present : Director, Aura Land Development Pte. Ltd.
- 2019 – Present : Director, Banpu Energy Services (Thailand)
- 2019 – Present : Director, Banpu Engineering Services Co., Ltd.
- 2019 – Present : Director, Banpu International Ltd.
- 2019 – Present : Director, Banpu Mineral Co., Ltd.
- 2019 – Present : Director, Chaing Muan Mining Co., Ltd.
- 2019 – Present : Director, Banpu Coal Sales Co., Ltd.
- 2018 – Present : Commissioner, PT. Indo Tambangraya Megah Tbk
- 2018 – Present : Director, Banpu Coal Power Ltd.
- 2015 – 2017 : Managing Director, Hongsa Power Co., Ltd.
- 2011 – 2015 : Managing Director, Phu Fai Mining Co., Ltd.

Mr. Sutee Sukruan

Age: 55

- **Head of Power Business**
  Appointed Date: 1 August 2019
- **Chief Executive Officer – Banpu Power Public Company Limited**
  Appointed Date: 1 January 2018



15

Education/Training

- M.B.A. (Finance), Chulalongkorn University
- Bachelor of Accounting, Chulalongkorn University
- TLCA Executive Development Program #11, Thai Listed Companies Association
- Economic Leader Forum, Thammasat Economics Association
- Director Certification Program (DCP) #254/2018, Thai Institute of Directors Association (IOD)
- Global Leadership Program for Strategic Leader 2019, IMD Business School
- TLCA Leadership Development Program (LDP) #5, Thai Listed Companies Association and International Institute for Management Development (IMD)

% Share Held

- Own share: -
- Spouse: -

Work Experience in the Last Five Years

Banpu Group

- 2019 – Present : Head of Power Business, Banpu Plc.
- 2018 – 2019 : Chief Operating Officer – Power Business, Banpu Plc.
- 2009 – 2017 : Senior Vice President – Corporate Finance, Banpu Plc.
- 2018 – Present : Chief Executive Officer, Banpu Power Plc.
- 2019 – Present : Director, Power Vietnam Co., Ltd.
- 2019 – Present : Director, Banpu Japan K.K.
- 2018 – Present : Director, Pan-Western Energy Corporation LLC
- 2018 – Present : Director, Shanxi Lu Guang Power Co., Ltd.
- 2018 – Present : Director, PT. ITM Banpu Power
- 2018 – Present : Director, Banpu Power International Ltd.
- 2018 – Present : Director, Zouping Peak Pte. Ltd.
- 2018 – Present : Director, BRE Singapore Pte. Ltd.
- 2018 – Present : Director, Banpu Coal Power Ltd.
- 2018 – Present : Director, Banpu Renewable Energy Co., Ltd.
- 2018 – Present : Director, BLCP Power Ltd.
- 2018 – Present : Director, Banpu Power Japan Co., Ltd.
- 2018 – Present : Director, BPP Vinh Chau Wind Power LLC

Mr. Akaraphong Dayananda*

Age: 60

- **Head of Strategy and Business Development**
  Appointed Date: 1 January 2011

* **Remark:** Mr. Akaraphong Dayananda retired since 31 December 2019



16

Education/Training

- M.B.A., Bowling Green State University, Ohio, U.S.A.
- B.S. (Engineering), Chulalongkorn University
- Executive Program in Strategy and Organization, Stanford University, California, U.S.A.
- Director Certification Program (DCP) #91/2007, Thai Institute of Directors Association (IOD)
- Director Diploma Examination #22/2007, Thai Institute of Directors Association (IOD)

% Share Held

- Own share: 0.002
- Spouse: -

Work Experience in the Last Five Years

Banpu Group

- 2011 – Present : Head of Strategy and Business Development, Banpu Plc.
- 2015 – 2017 : Director, Banpu Power Plc.
- 2015 – Present : Director, Banpu North America Corporation
- 2016 – Present : Director, Hunnu Gobi Altai LLC
- 2014 – Present : Director, BOG Co., Ltd.
- 2013 – Present : Director, AFE Investments Pty Ltd.
- 2013 – Present : Director, BMS Coal Sales Pte. Ltd.
- 2011 – Present : Director, AACI SAADEC (BVI) Holdings Ltd.
- 2011 – Present : Director, Chiang Muan Mining Co., Ltd.
- 2011 – Present : Director, Hunnu Coal Pty Ltd.
- 2011 – Present : Director, Hunnu Investment Pte. Ltd.
- 2010 – Present : Director, Banpu Australia Co. Pty Ltd.
- 2010 – Present : Director, Banpu Infinergy Co., Ltd.
- 2009 – Present : Director, Banpu Minerals Co., Ltd.
- 2009 – Present : Director, Banpu International Ltd.

Ms. Udomlux Olarn

Age: 59

- **Head of Corporate Communications**
  Appointed Date: 1 July 2009



17

Education/Training

- B.A., Journalism and Mass Communication
  (Advertising and Public Relations), Thammasat University

% Share Held

- Own share: 0.003
- Spouse: -

Work Experience in the Last Five Years

Banpu Group

- 2009 – Present : Head of Corporate Communications, Banpu Plc.

Mr. Varoj Limjaroon

Age: 59

- **Head of Human Resources**
  Appointed Date: 1 January 2018



18

Education/Training

- M.B.A. (Strategic Management), Thammasat University
- B.B.A. Finance and Accountancy, Thammasat University

% Share Held

- Own share: -
- Spouse: -

Work Experience in the Last Five Years

Banpu Group

- 2018 – Present : Head of Human Resources, Banpu Plc.
- 2009 – 2017 : Senior Vice President – Human Resources, Banpu Plc.

Ms. Arisara Sakoongaravek

Age: 49

- **Chief Financial Officer**
  Appointed Date: 1 March 2019



19

Education/Training

- Master of Science in Accounting, Thammasat University
- Bachelor of Accounting (BA), Thammasat University
- Certified Public Accountant (Thailand) (CPA)
- Orchestrating Winning Performance 2016, IMD Business School
- Global Leadership Program for Strategic Leader 2017, IMD Business School
- Certification from School of Tax
- TLCA Leadership Development Program (LDP) – Crafting agile strategies to enhance competitiveness of your organization, Thai Listed Companies Association
- Refreshment of the Role and Expectation of a CFO, Federation of Accounting Professions Under The Royal Patronage of His Majesty the King
- Beyond Treasury Management, Federation of Accounting Professions Under The Royal Patronage of His Majesty the King

% Share Held

- Own share: -

Work Experience in the Last Five Years

Banpu Group

- 2019 – Present : Chief Financial Officer, Banpu Plc.
- 2018 – 2018 : Senior Vice President – Corporate Finance, Banpu Plc.
- 2016 – 2017 : Senior Vice President – Controller, Banpu Plc.
- 2011 – 2015 : Vice President – Accounting, Banpu Plc.
- 2019 – Present : Director, Banpu Innovation & Ventures Co., Ltd.
- 2019 – Present : Director, Banpu Innovation & Ventures (Singapore) Pte. Ltd.
- 2019 – Present : Vice President, Banpu Innovation & Ventures LLC
- 2018 – Present : Director, Banpu Singapore Pte. Ltd.
- 2018 – Present : Director, Banpu Minerals (Singapore) Pte. Ltd.
- 2018 – Present : Director, BP Overseas Development Co., Ltd.
- 2018 – Present : Director, Banpu Coal Investment Co., Ltd.
- 2018 – Present : Director, Aura Land Development Pte. Ltd.
- 2018 – Present : Director, Hunnu Investments Pte. Ltd.
- 2018 – Present : Director, Banpu Engineering Services Co., Ltd.
- 2018 – Present : Director, Banpu Renewable Energy Co., Ltd.
- 2018 – Present : Director, Banpu Energy Services (Thailand) Co., Ltd.
- 2018 – Present : Director, BOG Co., Ltd.
- 2018 – Present : Business Executor, Hokkaido Solor Estate G.K.
- 2018 – Present : Vice President, Banpu North America Corporation
- 2018 – Present : Executive Manager, Aizu Land Solar G.K.

Mr. Jirameth Achcha

Age: 50

- **Head of Corporate Services**
  Appointed Date: 1 January 2018



20

Education/Training

- Master of Economics (Business Economics), Kasetsart University
- Bachelor of Economics (Fiscal Economics), Ramkhamhaeng University

% Share Held

- Own share: -
- Spouse: 0.0005

Work Experience in the Last Five Years

Banpu Group

- 2018 – Present : Senior Vice President – Corporate Services, Banpu Plc.
- 2016 – 2017 : Vice President – Corporate Compliance, Banpu Plc.
- 2015 – 2016 : Vice President – Business Process Management, Banpu Plc.
- 2014 – 2015 : Vice President – Human Resources, Banpu Plc.

Mr. Virach Vudhihanaseth

Age: 45

- **Company Secretary**
  Appointed Date: 1 January 2018



21

Education/Training

- Master of Arts in Economics, State University of New York, Albany, U.S.A.
- Master of Science in Finance, Bentley College, U.S.A.
- Master in Business Administration, Clark University, U.S.A.
- Bachelor of Economics (International Economics), Bangkok University
- TLCA Executive Development Program 2018,
  Thai Listed Companies Association
- Company Secretary Program #96,
  Thai Institute of Directors Association (IOD)
- CG Code Workshop, Deloitte Touche Tohmatsu Jaiyos Audit Co., Ltd. (Deloitte)

% Share Held

- Own share: 0.0004
- Spouse: -

Work Experience in the Last Five Years

Banpu Group

- Present : Head of Corporate Secretary and Investor Relations, Banpu Plc.
- 2018 – 2019 : Vice President – Corporate Secretary and Investor Relations, Banpu Plc.
- 2015 – 2017 : Vice President – Investor Relations, Banpu Plc.
- 2004 – 2015 : Manager – Investor Relations, Banpu Plc.

Ms. Wiyada Wiboonsirichai

Age: 50

- **Secretary of the Audit Committee**
  Appointed Date: 16 January 2018



22

Education/Training

- Master Business Administration, Financial Management, National Institute of Development Administration (NIDA)
- Bachelor of Accounting, Thammasat University
- Certified Public Accountant (Thailand) (CPA)
- Certified Internal Auditor (CIA), The Institute of Internal Auditors (IIA)
- Certified Control Self-Assesment (CCSA), Institute of Internal Auditors (IIA)
- TLCA Executive Development Program #13, Thai Listed Companies Association

% Share Held

- Own share: 0.0007

Work Experience in the Last Five Years

Banpu Group

- 2018 – Present : Head of Global Internal Audit and Compliance, Banpu Plc.
- 2018 – Present : Secretary of the Audit Committee, Banpu Plc.
- 2014 – 2017 : Senior Vice President – Information Technology, Banpu Plc.

SHAREHOLDING OF THE BOARD OF DIRECTORS AND MANAGEMENT

Members of the Board of Directors are required to report the number of shares owned by themselves, their spouses, and minor children being non sui juris, to the Board meeting after they are appointed as Board members. Subsequently, if any Board members, their spouses, and minor children being non sui juris, buy or sell the Company's shares, they are required to report such transactions to the next Board meeting.

Shareholding of the Board of Directors and Management, as of 31 December 2019

Name	Ordinary Share		
	31 Dec 2019	31 Dec 2018	+/(-)
1. Mr. Chanin Vongkusolkit	17,887,176	31,146,376	-13,259,200*
Spouse/Minor Child	6,488,580	6,488,580	-
2. Mr. Teerapat Sanguankotchakorn	-	-	-
Spouse/Minor Child	-	-	-
3. Mr. Teerana Bhongmakapat	-	-	-
Spouse/Minor Child	-	-	-
4. Mr. Rawi Corsiri	-	-	-
Spouse/Minor Child	1,200,000	1,200,000	-
5. Mr. Suthad Setboonsarng	50,188	50,188	-
Spouse/Minor Child	5,000	10,000	-5,000
6. Mr. Sudiarso Prasetio	-	-	-
Spouse/Minor Child	-	-	-
7. Mr. Buntoeng Vongkusolkit	2,660,000	2,660,000	-
Spouse/Minor Child	-	-	-
8. Mr. Metee Auapinyakul	4,301,200	4,301,200	-
Spouse/Minor Child	645,200	645,200	-
9. Mr. Ongart Auapinyakul	7,439,200	11,911,700	-4,472,500
Spouse/Minor Child	3,690,000	3,120,000	570,000
10. Mr. Verajet Vongkusolkit	6,075,536	6,075,536	-
Spouse/Minor Child	238,970	238,970	-
11. Mr. Anon Sirisaengtaksin	20,000	20,000	-
Spouse/Minor Child	13,518	13,518	-
12. Ms. Somruedee Chaimongkol	5,255,910	5,255,910	-
Spouse/Minor Child	-	-	-
13. Mr. Somsak Sithinamsuwan	65,525	65,525	-
Spouse/Minor Child	-	-	-
14. Mr. Pichai Dusdeekulchai	-	-	-
Spouse/Minor Child	-	-	-
15. Mr. Sutee Sukruan	-	-	-
Spouse/Minor Child	-	-	-
16. Mr. Jirameth Achcha	90	90	-
Spouse/Minor Child	23,097	23,097	-
17. Mr. Akaraphong Dayananda	100,000	100,000	-
Spouse/Minor Child	-	-	-
18. Ms. Udomlux Olarn	165,000	165,000	-
Spouse/Minor Child	-	-	-
19. Mr. Varoj Limjaroon	-	-	-
Spouse/Minor Child	-	-	-
20. Ms. Arisara Sakoongaravek	-	-	-
Spouse/Minor Child	-	-	-

* Mr. Chanin Vongkusolkit sold ordinary shares to family members as detailed below:

1. Ms. Kannikar Vongkusolkit, 11,059,200 shares
2. Mrs. Arada Vongkusolkit, 2,200,000 shares

REMUNERATION OF THE BOARD OF DIRECTORS

1. Remuneration in Cash for the Year Ended 31 December 2019

1.1 Total cash remuneration of the Board of Directors in forms of monthly compensation, meeting allowance, and annual remuneration amounted to THB 51,689,700.04, the details of which are as follows:

Name/Position	Monthly Compensation and Meeting Allowance (THB)	Meeting Allowance (THB)			Annual Remuneration (THB)	Total Remuneration (THB)
	Director	Audit Committee	Corporate Governance and Nomination Committee	Compensation Committee		
1. **Mr. Chanin Vongkusolkit** Chairman of the Board of Directors	1,404,000.00	-	-	-	3,759,036.14	5,163,036.14
2. **Mr. Teerana Bhongmakapat** Independent Director/ Chairman of the Audit Committee/ Member of the Compensation Committee	1,080,000.00	421,200.00	-	180,000.00	2,891,566.27	4,572,766.27
3. **Mr. Rawi Corsiri** Director/ Chairman of the Corporate Governance and Nomination Committee	1,050,000.00	-	156,000.00	-	2,891,566.27	4,097,566.27
4. **Mr. Suthad Setboonsarng** Independent Director/ Member of the Audit Committee/ Member of the Compensation Committee	1,080,000.00	288,000.00	-	90,000.00	2,891,566.27	4,349,566.27
5. **Mr. Sudiarso Prasetio** Independent Director/ Member of the Corporate Governance and Nomination Committee	1,050,000.00	-	90,000.00	-	2,891,566.27	4,031,566.27
6. **Mr. Buntoeng Vongkusolkit** Director/ Chairman of the Compensation Committee	1,080,000.00	-	-	138,000.00	2,891,566.27	4,109,566.27

Name/Position	Monthly Compensation and Meeting Allowance (THB)	Meeting Allowance (THB)			Annual Remuneration (THB)	Total Remuneration (THB)
	Director	Audit Committee	Corporate Governance and Nomination Committee	Compensation Committee		
7. Mr. Metee Auapinyakul Director	1,050,000.00	-	-	-	2,891,566.27	3,941,566.27
8. Mr. Ongart Auapinyakul Director	1,080,000.00	-	-	-	2,891,566.27	3,971,566.27
9. Mr. Verajet Vongkusolkit Director/ Member of the Corporate Governance and Nomination Committee	1,080,000.00	-	120,000.00	-	2,891,566.27	4,091,566.27
10. Ms. Somruedee Chaimongkol Director	720,000.00	-	-	-	2,891,566.27	3,611,566.27
11. Mr. Anon Sirisaengtaksin Director/ Member of the Corporate Governance and Nomination Committee	1,080,000.00	-	120,000.00	-	2,891,566.27	4,091,566.27
12. *Mr.Pichai Dusdeekulchai Independent Director/ Member of the Audit Committee	720,000.00	216,000.00	-	-	-	936,000.00
13. *Mr.Teerapat Sanguankotchakorn Independent Director/ Member of the Compensation Committee	810,000.00	-	-	90,000.00	-	900,000.00
14. *Mr. Rutt Phanijphand	310,500.00	108,000.00	-	78,000.00	3,325,301.20	3,821,801.20
Total						**51,689,700.04**

Notes:

- Mr. Pichai Dusdeekulchai (person number 12) was appointed as an Independent Director, effective on 4 April 2019 and a member of the Audit Committee effective on 25 April 2019.
- Mr. Teerapat Sanguankotchakorn (person number 13) was appointed as an Independent Director, effective on 3 April 2019 and a member of the Compensation Committee effective on 25 April 2019.
- Mr. Rutt Phanijphand (person number 14) resigned from being a Director (retirement), effective after the date of the Annual General Meeting on 3 April 2019.
- In addition to the above remuneration, each Director received other benefits, including annual medical check-up fee of THB 50,000.00 and fees for attending seminars held by the Thai Institute of Directors Association (IOD) and other related institutions as regulated by the Company.

1.2 Cash remuneration of the Chief Executive Officer and Company's executives in forms of salaries and bonuses are rewarded based on performance against the pre-determinded Key Performance Indicators and individual achievement.

Unit: THB	Number of Executives	2019	Number of Executives	2018
Total Salaries	9	70,691,225.00	8	78,992,400.00
Total Bonuses	9	16,928,200.00	8	40,274,400.00
Total		**87,619,425.00**		**119,266,800.00**

Notes:

- 2019: There were nine executives, namely, Ms. Somruedee Chaimongkol, Mr. Somyot Ruchirawat (as Deputy Chief Executive Officer - Coal Business until July 2019), Mr. Akaraphong Dayananda, Mr. Sutee Sukruan, Mr. Somsak Sithinamsuwan, Mr. Varoj Limjaroon, Ms. Udomlux Olarn, Mr. Jirameth Achcha, and Ms. Arisara Sakoongaravek.
- 2018: There were eight executives, namely, Ms. Somruedee Chaimongkol, Mr. Somyot Ruchirawat, Mr. Akaraphong Dayananda, Mr. Sutee Sukruan, Mr. Varoj Limjaroon, Ms. Udomlux Olarn, Mr. Jirameth Achcha, and Ms. Arisara Sakoongaravek.

2. Other Remuneration

Contributions to Provident Fund

Details of the Company's contributions to the provident fund for the Chief Executive Officer and Company's executives, are as follows:

Unit: THB	Number of Executives	2019	Number of Executives	2018
Contribution to Provident Fund	9	3,356,710.00	8	3,406,464.00

Notes:

- 2019: There were nine executives, namely, Ms. Somruedee Chaimongkol, Mr. Somyot Ruchirawat (as Deputy Chief Executive Officer - Coal Business until July 2019), Mr. Akaraphong Dayananda, Mr. Sutee Sukruan, Mr. Somsak Sithinamsuwan, Mr. Varoj Limjaroon, Ms. Udomlux Olarn, Mr. Jirameth Achcha, and Ms. Arisara Sakoongaravek.
- 2018: There were eight executives, namely, Ms. Somruedee Chaimongkol, Mr. Somyot Ruchirawat, Mr. Akaraphong Dayananda, Mr. Sutee Sukruan, Mr. Varoj Limjaroon, Ms. Udomlux Olarn, Mr. Jirameth Achcha, and Ms. Arisara Sakoongaravek.

MAJOR SHAREHOLDERS

Top 10 major shareholders, as of 31 December 2019

Major Shareholders	No. of Shares	%
1. The Vongkusolkit Family	514,306,463	9.96
Mitr Phol Sugar Corp., Ltd.	288,309,528	5.59
TME Capital Co., Ltd.	95,943,700	1.86
United Farmer & Industry Co., Ltd.	35,611,300	0.69
MP Particle Board Co., Ltd.	30,438,448	0.59
City Holding Co., Ltd.	27,144,200	0.53
Mid-Siam Capital Co., Ltd.	14,916,382	0.29
Pacific Sugar Corporation Co., Ltd.	13,646,682	0.26
Mitr Phol Bio-Power (Phu Wiang) Co., Ltd.	12,311,744	0.24
Ufinves Co., Ltd.	12,283,000	0.24
Mitr Kalasin Sugar Co., Ltd.	9,606,042	0.19
2. Thai NVDR Co., Ltd.	535,777,175	10.38
3. South East Asia UK (Type C) Nominees Ltd.	142,617,397	2.76
4. State Street Europe Ltd.	112,037,647	2.17
5. Social Security Office	100,041,000	1.94
6. Banpu Plc.	87,344,000	1.69
7. Credit Suisse AG, Singapore Branch	76,461,450	1.48
8. The Bank of New York (Nominees) Ltd.	69,555,654	1.35
9. Maybank Kim Eng Securities (Thailand) Plc.	51,463,100	1.00
10. East Fourteen Limited-Dimensional EMER MKTS Value FD	38,441,050	0.75
Total	**2,268,255,962**	**43.96**

Notes:

- Mitr Phol Sugar Corp., Ltd.: Mid-Siam Sugar Corp., Ltd. holds 99.99% of its paid-up capital.
- TME Capital Co., Ltd.
    1. The Vongkusolkit Family holds 80.01% of its paid-up capital.
    2. Ufinves Co., Ltd. holds 15.23% of its paid-up capital.
    3. The Kanjanakamnerd Family holds 3.82% of its paid-up capital.
    4. The Putpongsiriporn Family holds 0.94% of its paid-up capital.
- City Holding Co., Ltd.
    1. The Vongkusolkit Family holds 90.50% of its paid-up capital.
    2. The Kanjanakamnerd Family holds 6.00% of its paid-up capital.
    3. The Putpongsiriporn Family holds 2.00% of its paid-up capital.
    4. The Jenlapwattanakul Family holds 1.50% of its paid-up capital.
- United Farmer and Industry Co., Ltd.: Mitr Phol Sugar Corp., Ltd. holds 87.56% of its paid-up capital.
- MP Particle Board Co., Ltd.: United Farmer and Industry Co., Ltd. holds 99.99% of its paid-up capital.
- Mid-Siam Capital Co., Ltd.: Mid-Siam Sugar Corp., Ltd. holds 99.99% of its paid-up capital.
- Pacific Sugar Corporation Ltd.: Mitr Phol Sugar Corp., Ltd. holds 99.99% of its paid-up capital.
- Ufinves Co., Ltd.: TME Capital Co., Ltd. holds 100.00% of its paid-up capital.
- Mitr Phol Bio-Power (Phu Wiang) Co., Ltd.: United Farmer and Industry Co., Ltd. holds 51.04% of its paid-up capital.
- Mitr Kalasin Sugar Co., Ltd.: United Farmer and Industry Co., Ltd. holds 99.99% of its paid-up capital.

DIVIDEND POLICY

Banpu has a policy to pay approximately 50% of its net profits from the consolidated financial statements, less all kinds of statutory and corporate reserves.

However, the dividend payout rate will depend on cash flows, investment obligations of the Company and its affiliates as well as legal restrictions and other requirements.





CONNECTED PERSONS AND TRANSACTIONS

As of 31 December 2019

Company / Type of Business	Description of Relationship	Major Shareholders	Members of the Board of Directors
1. Mitr Phol Sugar Corp., Ltd. (Production and distribution of sugar and molasses)	1. One of the shareholders of Banpu Plc., holding 5.59% of its paid-up capital 2. The major shareholder is Mid-Siam Sugar Co., Ltd. 3. There are three joint directors, as follows: 1) Mr. Chanin Vongkusolkit 2) Mr. Buntoeng Vongkusolkit 3) Mr. Verajet Vongkusolkit	1. Mid-Siam Sugar Co., Ltd. 99.99%	1. Mr. Isara Vongkusolkit 2. Mr. Chanin Vongkusolkit 3. Mr. Buntoeng Vongkusolkit 4. Mr. Chusak Vongkusolkit 5. Mr. Klanarong Sriroth 6. Mrs. Amporn Kanjanakamnerd 7. Mr. Pongsakorn Wongwuttikraikul 8. Mr. Krisda Monthienvichienchai 9. Mr. Verajet Vongkusolkit 10. Assoc. Prof. Dr. Chiradet Ousawat 11. Mr. Attaphol Vongkusolkit
2. TME Capital Co., Ltd. (Investment company)	1. One of the shareholders of Banpu Plc., holding 1.86% of its paid-up capital 2. The major shareholder is the Vongkusolkit Family. 3. There is no joint director.	1. The Vongkusolkit Family 80.01% 2. Ufinves Co., Ltd. 15.23% 3. The Kanjanakamnerd Family 3.82% 4. The Putpongsiriporn Family 0.94%	1. Mr. Vitoon Vongkusolkit 2. Mr. Annop Vongkusolkit 3. Ms. Phatsawan Vongkusolkit 4. Ms. Theeranat Vongkusolkit 5. Ms. Supawee Vongkusolkit 6. Mr. Banchoet Vongkusolkit 7. Mr. Kawin Vongkusolkit 8. Mrs. Arada Vongkusolkit 9. Mr. Amnuay Kanjanakamnerd
3. City Holdings Co., Ltd. (Holding Company)	1. One of the shareholders of Banpu Plc., holding 0.53% of its paid-up capital 2. The major shareholder is the Vongkusolkit Family. 3. There is no joint director.	1. The Vongkusolkit Family 90.50% 2. The Kanjanakamnerd Family 6.00% 3. The Putpongsiriporn Family 2.00% 4. The Jenlapwattanakul Family 1.50%	1. Mr. Vitoon Vongkusolkit 2. Mr. Banchoet Vongkusolkit 3. Mrs. Arada Vongkusolkit 4. Ms. Theeranat Vongkusolkit 5. Ms. Phatsawan Vongkusolkit 6. Mr. Kawin Vongkusolkit 7. Mr. Amnuay Kanjanakamnerd 8. Mr. Annop Vongkusolkit 9. Ms. Supawee Vongkusolkit
4. United Farmer and Industry Co., Ltd. (Production and distribution of sugar and molasses)	1. One of the shareholders of Banpu Plc., holding 0.69% of its paid-up capital 2. The major shareholder is Mitr Phol Sugar Corp., Ltd. 3. There are two joint directors, as follows: 1) Mr. Buntoeng Vongkusolkit 2) Mr. Verajet Vongkusolkit	1. Mitr Phol Sugar Corp., Ltd. 87.56%	1. Mr. Isara Vongkusolkit 2. Mr. Buntoeng Vongkusolkit 3. Ms. Chayawadee Chaianan 4. Mrs. Anchalee Suwattanapim 5. Mr. Sukkan Wattanawekin 6. Mr. Krisda Monthienvichienchai 7. Mr. Verajet Vongkusolkit 8. Mr. Pongsakorn Wongwuttikraikul
5. MP Particle Board Co., Ltd. (Investment company)	1. One of the shareholders of Banpu Plc., holding 0.59% of its paid-up capital 2. The major shareholder is United Farmer and Industry Co., Ltd. 3. There is no joint director.	1. United Farmer and Industry Co., Ltd. 99.99%	1. Mr. Isara Vongkusolkit 2. Mr. Krisda Monthienvichienchai 3. Mrs. Amporn Kanjanakamnerd 4. Mr. Pariwat Kanchanathana 5. Ms. Kannikar Vongkusolkit

Company / Type of Business	Description of Relationship	Major Shareholders	Members of the Board of Directors
6. Mid-Siam Capital Co., Ltd. (Sugar cane planting and stock investment)	1. One of the shareholders of Banpu Plc., holding 0.29% of its paid-up capital 2. The major shareholder is Mid-Siam Sugar Co., Ltd. 3. There is one joint director: 1) Mr. Buntoeng Vongkusolkit	1. Mid-Siam Sugar Co., Ltd. 99.99%	1. Mr. Soonthorn Vongkusolkit 2. Mr. Isara Vongkusolkit 3. Mr. Buntoeng Vongkusolkit
7. Pacific Sugar Corp., Ltd. (Import and export of sugar)	1. One of the shareholders of Banpu Plc., holding 0.26% of its paid-up capital 2. The major shareholder is Mitr Phol Sugar Corp., Ltd. 3. There is one joint director: 1) Mr. Verajet Vongkusolkit	1. Mitr Phol Sugar Corp., Ltd. 99.99%	1. Mr. Verajet Vongkusolkit 2. Mr. Parin Amatyakul 3. Mr. Jirasak Vongkusolkit
8. Ufinves Co., Ltd. (Holding company)	1. One of the shareholders of Banpu Plc., holding 0.24% of its paid-up capital 2. The major shareholder is TME Capital Co., Ltd. 3. There is no joint director.	1. TME Capital Co., Ltd. 100.00%	1. Mr. Vitoon Vongkusolkit 2. Mr. Annop Vongkusolkit 3. Ms. Phatsawan Vongkusolkit 4. Ms. Theeranat Vongkusolkit 5. Ms. Supawee Vongkusolkit 6. Mr. Banchoet Vongkusolkit 7. Mr. Kawin Vongkusolkit 8. Mrs. Arada Vongkusolkit 9. Mr. Amnuay Kanjanakamnerd
9. Mitr Phol Bio-Power (Phuviang) Co., Ltd. (Production and distribution of sugar and molasses)	1. One of the shareholders of Banpu Plc., holding 0.24% of its paid-up capital 2. The major shareholder is United Farmer and Industry Co., Ltd. 3. There are two joint directors, as follows: 1) Mr. Buntoeng Vongkusolkit 2) Mr. Verajet Vongkusolkit	1. United Farmer and Industry Co., Ltd. 51.04%	1. Mr. Isara Vongkusolkit 2. Mr. Buntoeng Vongkusolkit 3. Mr. Krisda Monthienvichienchai 4. Mr. Sirasak Tathong 5. Mr. Prawit Prakritsri 6. Mr. Jirasak Vongkusolkit 7. Ms. Theeranat Vongkusolkit 8. Mr. Nattapong Vongkusolkit 9. Mr. Arnat Panya 10. Mr. Watchara Hemruchatanun 11. Mr. Verajet Vongkusolkit
10. Mitr Kalasin Sugar Co., Ltd. (Production and distribution of sugar and molasses)	1. One of the shareholders of Banpu Plc., holding 0.19% of its paid-up capital 2. The major shareholder is United Farmer and Industry Co., Ltd 3. There are two joint directors, as follows: 1) Mr. Buntoeng Vongkusolkit 2) Mr. Verajet Vongkusolkit	1. United Farmer and Industry Co., Ltd. 99.99%	1. Mr. Isara Vongkusolkit 2. Mr. Buntoeng Vongkusolkit 3. Mrs. Amporn Kanjanakamnerd 4. Mr. Pongsakorn Wongwuttikraikul 5. Mr. Sukkan Wattanawekin 6. Ms. Chayawadee Chaianan 7. Mr. Krisda Monthienvichienchai 8. Mrs. Anchalee Suwattanapim 9. Mr. Verajet Vongkusolkit

OTHER REFERENCES

1. Ordinary Share Registrar	**Thailand Securities Depository Company Limited** 1st Floor, The Securities Exchange of Thailand 93 Ratchadapisek Road, Din Daeng, Bangkok 10400 Tel. +66 2009 9000 Contact center +66 2009 9999
2. Debenture Registrar	**Bangkok Bank Public Company Limited** 333 Silom Road, Bangrak, Bangkok 10500 Tel. +66 2230 1893
3. Bond Representative	**Siam Commercial Bank Public Company Limited** 9 Ratchadapisek Road, Chatuchak, Bangkok 10900 Tel. +66 2544 1111 **Kasikornbank Public Company Limited** **Head Office:** 1 Soi Rat Burana 27/1, Rat Burana Road, Rat Burana, Bangkok 10140 **Contact:** 400/22 Phaholyothin Road, Phaya Thai, Bangkok 10400 Tel. +66 2470 3687, +66 2470 1946 **Bangkok Bank Public Company Limited** 333 Silom Road, Bang Rak, Bangkok 10500 Tel. +66 2230 1893
4. Auditor	**Ms. Amornrat Pearmpoonvatanasuk** Authorised Auditor No. 4599 **PricewaterhouseCoopers ABAS Ltd.** 15th Floor, Bangkok City Tower 179/74-80 South Sathorn Road, Bangkok 10120 Tel. +66 2844 1000
5. Financial Advisor	--None--
6. Advisor or Manager under Management Agreement	The Company did not hire any advisors or managers under any permanent management agreement. Advisors, including financial advisors, were hired on a case-by-case basis as necessary to support its operations from time to time. The Company's management is mainly supervised by the Board of Directors.
7. Financial Institutions Regularly in Contact	The Company is regularly in contact with around 30 local and international commercial banks and financial institutions.

DETAIL OF THE COMPANY, ITS SUBSIDIARIES AND ASSOCIATED COMPANIES, AND JOINT VENTURES

As of 31 December 2019

	Name	Type of Business	Authorized Capital	Paid-up Capital	No. of Paid-up Capital (Shares)	Par Value per Share	% of Holding	Head Office	Telephone
1	Banpu Public Company Limited	Energy	5,161,925,515 THB	5,161,925,515 THB	5,161,925,515	1	-	1550, Thanapoom Tower, 27th Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	0 2694 6600
Subsidiary Companies									
Thailand									
2	Banpu Minerals Co., Ltd.	Coal mining and trading	3,200,000,000 THB	3,200,000,000 THB	3,200,000	1,000	100.00% (held by Banpu Public Company Limited)	58/1, Moo 1, Tambon Thungkwaw, Amphoe Muang Phrae, Phrae Province 54000, Thailand	0 2694 6600
3	Chiang Muan Mining Co., Ltd.	Coal mining and trading	57,837,500 THB	57,837,500 THB	5,783,750	10	100.00% (held by Banpu Minerals Co., Ltd.)	1550, Thanapoom Tower, 27th Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	0 2694 6600
4	Banpu Coal Sales Co., Ltd.	Coal trading	320,000,000 THB	320,000,000 THB	3,200,000	100	100.00% (held by Banpu Minerals Co., Ltd.)	1550, Thanapoom Tower, 27th Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	0 2694 6600
5	Banpu International Ltd.	Investment studying	250,000,000 THB	250,000,000 THB	25,000,000	10	100.00% (held by Banpu Public Company Limited)	1550, Thanapoom Tower, 27th Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	0 2694 6600
6	Banpu Infinergy Co., Ltd.	Investment in alternative energy and energy technology solution	1,919,000,000 THB	1,919,000,000 THB	191,900,000	10	100.00% (held by Banpu Public Company Limited)	1550, Thanapoom Tower, 29th Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	0 2095 6595
7	BOG Co., Ltd.	Investment in energy business	17,602,000,000 THB	17,602,000,000 THB	176,020,000	100	100.00% (held by Banpu Public Company Limited)	1550, Thanapoom Tower, 27th Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	0 2694 6600
8	Banpu Engineering Services Co., Ltd.	Investment in alternative energy	247,000,000 THB	247,000,000 THB	24,700,000	10	100.00% (held by Banpu Public Company Limited)	1550, Thanapoom Tower, 27th Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	0 2694 6600
9	Banpu Energy Services (Thailand) Co., Ltd.	Investment in alternative energy	236,124,430 THB	236,124,430 THB	23,612,443	10	100.00% (held by Banpu Engineering Services Co., Ltd.)	1550, Thanapoom Tower, 27th Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	0 2694 6600
10	Biofuel Development Holdings Co., Ltd.	Investment in alternative energy	76,000,000 THB	76,000,000 THB	7,600,000	10	100.00% (held by Banpu Engineering Services Co., Ltd.)	1550, Thanapoom Tower, 27th Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	0 2694 6600

Name	Type of Business	Authorized Capital	Paid-up Capital	No. of Paid-up Capital (Shares)	Par Value per Share	% of Holding	Head Office	Telephone
11 Banpu Innovation & Ventures Co., Ltd.	Research and development in disruptive technology	95,000,000 THB	95,000,000 THB	950,000	100	100.00% (held by Banpu Public Company Limited)	1550, Thanapoom Tower, 27th Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	0 2694 6600
12 Banpu Power Public Company Limited	Investment in power business	31,044,920,000 THB	30,510,217,000 THB	3,051,021,700	10	78.57% (held by Banpu Public Company Limited)	1550, Thanapoom Tower, 26th Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	0 2007 6000
13 Banpu Coal Power Ltd.	Investment in power business	5,921,587,160 THB	5,921,587,160 THB	592,158,716	10	100.00% (held by Banpu Power Public Company Limited)	1550, Thanapoom Tower, 26th Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	0 2007 6000
14 Banpu Renewable Energy Co., Ltd.	Investment in renewable energy business	6,000,000,000 THB	4,314,740,000 THB	600,000,000	10	100.00% (held by Banpu Power Public Company Limited)	1550, Thanapoom Tower, 26th Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	0 2007 6000
15 Banpu Power (Japan) Co., Ltd.	Investment in renewable energy business	5,000,000 THB	5,000,000 THB	500,000	10	100.00% (held by Banpu Power Public Company Limited)	1550, Thanapoom Tower, 26th Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	0 2007 6000
16 Power Vietnam Co., Ltd.	Investment in power business	359,000,000 THB	359,000,000 THB	35,900,000	10	100.00% (held by Banpu Coal Power Ltd.)	1550, Thanapoom Tower, 26th Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	0 2007 6000
Republic of Indonesia								
17 PT. Indo Tambangraya Megah Tbk	Construction, trading, transportation, industry, repair and services related to coal mining and electricity business	1,500,000,000,000 IDR	564,962,500,000 IDR	1,129,925,000	500	67.13% (held by Banpu Minerals (Singapore) Pte. Ltd.)	Pondok Indah Office Tower 3, 3rd Floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	6221 29328100
18 PT. Kitadin	Coal mining and related business	1,000,000,000,000 IDR	377,890,000,000 IDR	188,945	2,000,000	99.99% (held by PT. Indo Tambangraya Megah Tbk)	Pondok Indah Office Tower 3, 3rd Floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	6221 29328100
19 PT. Indominco Mandiri	Coal mining in Indonesia	20,000,000,000 IDR	12,500,000,000 IDR	12,500	1,000,000	100% (held by PT. Indo Tambangraya Megah Tbk)	Pondok Indah Office Tower 3, 3rd Floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	6221 29328100
20 PT. Jorong Barutama Greston	Coal mining n Indonesia	318,855,000,000 IDR	318,855,000,000 IDR	21,257	15,000,000	100% (held by PT. Indo Tambangraya Megah Tbk)	Pondok Indah Office Tower 3, 3rd Floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	6221 29328100

	Name	Type of Business	Authorized Capital	Paid-up Capital	No. of Paid-up Capital (Shares)	Par Value per Share	% of Holding	Head Office	Telephone
21	PT. Trubaindo Coal Mining	Coal mining in Indonesia	100,000,000,000 IDR	63,500,000,000 IDR	63,500	1,000,000	100% (held by PT. Indo Tambangraya Megah Tbk)	Pondok Indah Office Tower 3, 3rd Floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	6221 29328100
22	PT. Bharinto Ekatama	Coal mining in Indonesia	68,000,000,000 IDR	17,000,000,000 IDR	17,000	1,000,000	100% (held by PT. Indo Tambangraya Megah Tbk)	Pondok Indah Office Tower 3, 3rd Floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	6221 29328100
23	PT. ITM Indonesia	Trading, land transportation, industry, agriculture, construction, repair and services	40,000,000,000 IDR	11,000,000,000 IDR	11,000	1,000,000	100% (held by PT. Indo Tambangraya Megah Tbk)	Pondok Indah Office Tower 3, 3rd Floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	6221 29328100
24	PT. Tambang Raya Usaha Tama	Mining support services	500,000,000,000 IDR	353,980,000,000 IDR	35,398	10,000,000	100% (held by PT. Indo Tambangraya Megah Tbk)	Pondok Indah Office Tower 3, 3rd Floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	6221 29328100
25	PT. ITM Batubara Utama	Coal mining business	40,000,000,000 IDR	11,000,000,000 IDR	11,000	1,000,000	100% (held by PT. Indo Tambangraya Megah Tbk)	Pondok Indah Office Tower 3, 3rd Floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	6221 29328100
26	PT. ITM Energi Utama	Energy business	1,200,000,000,000 IDR	300,000,000,000 IDR	300,000	1,000,000	99.99% (held by PT. Indo Tambangraya Megah Tbk)	Pondok Indah Office Tower 3, 3rd Floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	6221 29328100
27	PT. ITM Banpu Power	Investment in power business	1,200,000,000,000 IDR	300,000,000,000 IDR	300,000	1,000,000	70.00% (held by PT. Indo Tambangraya Megah Tbk) 30.00% (held by Banpu Power Public Company Limited)	Pondok Indah Office Tower 3, 3rd Floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	6221 29328100
28	PT. Gas Emas	Fuel distributor for mining business	38,900,000,000 IDR	16,532,500,000 IDR	1,700,000	9,725	75.00% (held by PT. ITM Indonesia)	Wisma 46 Kota BNI 50th Floor, Suite 50.06, Jl. Jend Sudirman Kav. 1, Karet Tengsin, Tanah abang, Jakarta Pusat Operational Office: Pondok Indah Office Tower 3, 3rd Floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	6221 29328100
29	PT. Tepian Indah Sukses	Coal mining in Indonesia	3,000,000,000 IDR	1,000,000,000 IDR	1,000	1,000,000	100% (held by PT. Indo Tambangraya Megah Tbk)	Jl. A.M. Sangaji No. 38F No. 9-10, Kel. Bandara, Kec. Sungai Pinang, Prov. Samarinda Corresponding Office: Pondok Indah Office Tower 3, 3rd Floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	6221 29328100

	Name	Type of Business	Authorized Capital	Paid-up Capital	No. of Paid-up Capital (Shares)	Par Value per Share	% of Holding	Head Office	Telephone
30	PT. Nusa Persada Resources	Coal mining in Indonesia	10,000,000,000 IDR	3,700,000,000 IDR	37,000	100,000	100% (held by PT. Indo Tambangraya Megah Tbk)	Jl. Ir. H. Juanda No. 36 D RT. 007/001, Kel. Rempoa Kec. Ciputat Timur, Kota Tangerang Selatan Corresponding Office: Pondok Indah Office Tower 3, 3rd Floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	6221 29328100
31	PT. Energi Batubara Perkasa	Coal trading	1,000,000,000 IDR	1,000,000,000 IDR	1,000	1,000,000	100% (held by PT. Indo Tambangraya Megah Tbk)	Jalan Pendreh No. 173, Kelurahan Melayu, Muara Teweh. Corresponding Office: Pondok Indah Office Tower 3, 3rd Floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	6221 29328100
Australia									
32	Banpu Australia Co. Pty Ltd.	Investment in coal mining in Australia	2,428,021,000 AUD	2,428,021,000 AUD	2,428,021,000	1	100.00% (held by Banpu Singapore Pte., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
33	Centennial Coal Co., Ltd.	Coal mining and marketing	2,449,783,562 AUD	2,449,783,562 AUD	395,126,381	6.2	100.00% (held by Banpu Australia Co. Pty Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
34	Centennial Northern Coal Services Pty Ltd.	Employer company for Newstan Washery	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
35	Berrima Coal Pty Ltd.	Dormant	2 AUD	2 AUD	2	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
36	Centennial Airly Pty Ltd.	Coal mining	2 AUD	2 AUD	2	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
37	Centennial Angus Place Pty Ltd.	Coal mining	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
38	Centennial Coal Infrastructure Pty Ltd.	Coal exporting logistics and infrastructure	2 AUD	2 AUD	2	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
39	Centennial Coal Services and Marketing Pty Ltd.	Coal marketing	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
40	Centennial Northern Mining Services Pty Ltd.	Dormant	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
41	Centennial Inglenook Pty Ltd.	Coal mining	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
42	Centennial Mandalong Pty Ltd.	Coal mining	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
43	Centennial Mannering Pty Ltd.	Coal mining	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
44	Centennial Munmorah Pty Ltd.	Coal mining (Now dormant)	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700

	Name	Type of Business	Authorized Capital	Paid-up Capital	No. of Paid-up Capital (Shares)	Par Value per Share	% of Holding	Head Office	Telephone
45	Centennial Myuna Pty Ltd.	Coal mining	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
46	Centennial Newstan Pty Ltd.	Coal mining	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
47	Charbon Coal Pty Ltd.	Coal mining	2 AUD	2 AUD	2	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
48	Centennial Clarence Pty Ltd.	Coal mining – Clarence JV	8,800,000 AUD	8,800,000 AUD	8,800,000	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
49	Centennial Fassifern Pty Ltd.	Coal mining	2 AUD	2 AUD	2	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
50	Powercoal Pty Ltd.	Dormant holding company	4,590,001 AUD	4,590,001 AUD	4,590,001	1	100.00% (held by Centennial Fassifern Pty Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
51	Powercoal Superannuation Pty Ltd.	Superannuation company (Dormant)	2 AUD	2 AUD	2	1	100.00% (held by Powercoal Pty Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
52	Coalex Pty Ltd.	Coal mining – Clarence JV	7,500,000 AUD	7,500,000 AUD	750,000	10	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
53	Clarence Coal Investments Pty Ltd.	Coal mining – Clarence JV	19,500,002 AUD	19,500,002 AUD	15,500,002 Ord A shares 4,000,000 Ord B shares	1	100.00% (held by Coalex Pty Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
54	Clarence Colliery Pty Ltd.	Coal mining – Clarence JV	10,000 AUD	10,000 AUD	10,000	1	100.00% (held by Coalex Pty Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
55	Clarence Coal Pty Ltd.	Coal mining – Clarence JV	2 AUD	2 AUD	2	1	100.00% (held by Coalex Pty Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
56	Collieries Superannuation Pty Ltd.	Superannuation company (Dormant)	2 AUD	2 AUD	2	1	100.00% (held by Powercoal Pty Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
57	Elcom Collieries Pty Ltd.	Dormant	1,500,000 AUD	1,500,000 AUD	750,000	2	100.00% (held by Powercoal Pty Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
58	Huntley Colliery Pty Ltd.	Dormant	354,000 AUD	354,000 AUD	177,000	2	100.00% (held by Powercoal Pty Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
59	Mandalong Pastoral Management Pty Ltd.	Dormant	2,736,028 AUD	2,736,028 AUD	10,000,000 Ord partly paid shares - $0.20 368,014 Ord shares - $2.00	2	100.00% (held by Powercoal Pty Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
60	Powercoal Employee Entitlements Co. Pty Ltd.	Employee trust company Ex Powercoal	2 AUD	2 AUD	2	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
61	Hartley Valley Coal Co. Pty Ltd.	Dormant	1,000,000 AUD	1,000,000 AUD	1,000,000	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
62	Ivanhoe Coal Pty Ltd.	Coal mining	2 AUD	2 AUD	2	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
63	Centennial Drilling Services Pty Ltd.	Drilling services	1,250,000 AUD	1,250,000 AUD	750,000 A Class shares 250,000 B Class shares 250,000 C Class shares	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700

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64	Centennial Springvale Holdings Pty Ltd.	Coal mining	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co., Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
65	Centennial Springvale Pty Ltd.	Coal mining	1,000,000 AUD	1,000,000 AUD	1,000,000	1	100.00% (held by Centennial Springvale Holdings Pty Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
66	Springvale Coal Pty Ltd.	Coal mining	2,000,000 AUD	2,000,000 AUD	2,000,000	1	100.00% (held by Centennial Springvale Holdings Pty Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
67	Boulder Mining Pty Ltd.	Coal mining	1,000 AUD	1,000 AUD	1,000	1	100.00% (held by Centennial Springvale Holdings Pty Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	62 2 9266 2700
68	AFE Investments Pty Ltd.	Mining investment	2 AUD	2 AUD	2	1	100.00% (held by Banpu Australia Co. Pty Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	62 2 9266 2700
69	Banpu Australia Resources Pty Ltd.	Investment in coal mining	2 AUD	2 AUD	2	1	100.00% (held by Banpu Australia Co. Pty Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
70	Springvale Coal Sales Pty Ltd.	Coal marketing	2 AUD	2 AUD	2	1	100.00% (held by Centennial Springvale Holding Pty Ltd.)	Level 18, BT Tower, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
71	Centennial Energy Pty Ltd.	Renewable energy	2 AUD	2 AUD	2	1	100.00% (held by Banpu Australia Co. Pty Ltd.)	Level 18, 1 Market Street, Sydney NSW 2000, Australia	61 2 9266 2700
72	Hunnu Coal Pty Ltd.	Coal mining and trading	284,688,631 AUD	284,688,631 AUD	400,752,717	No par value*	100.00% (held by Banpu Minerals (Singapore) Pte. Ltd.)	Level 18, 1 Market Street, Sydney NSW 2000, Australia	61 2 9166 2700
People's Republic of China									
73	Banpu (Shanghai) Trading Co., Ltd.	Coal trading	50,000,000 CNY	50,000,000 CNY	N/A	N/A	100.00% (held by Banpu Minerals (Singapore) Pte. Ltd.)	Unit 507, No.20 Jiafeng Road, Pilot Free Trade Zone (Shanghai), P.R.China	(8610) 57580337
74	Shijiazhuang Chengfeng Cogen Co., Ltd.	Power and steam generation and sales	30,516,000 USD	30,516,000 USD	N/A	N/A	100.00% (held by Banpu Power Investment Co., Ltd.)	East of Jingshen Highway, Zhengding County, Shijiazhuang City, Hebei Province, P.R.China, 050800	(86311) 85176918
75	Banpu Investment (China) Ltd.	Investment in energy business and other industrial areas	30,000,000 USD	30,000,000 USD	N/A	N/A	100.00% (held by Banpu Power Investment Co., Ltd.)	Unit 508, 5th Floor, Tower 21, No. 10 Jiuxianqiao Road, Chaoyang District, Beijing, P.R.China	(8610) 57580388
76	Tangshan Banpu Heat and Power Co., Ltd.	Power and steam generation and sales	78,082,200 USD	47,504,217 USD	N/A	N/A	87.92% (held by Pan-Western Energy Corporation LLC) 12.08% (held by Banpu Investment (China) Ltd.)	West of Gujiaying Villiage, Bencheng Town, Luannan County, Tangshan City, Hebei Province, P.R.China, 063500	(86315) 4168274
77	Zouping Peak CHP Co., Ltd.	Power and steam generation and sales	261,800,000 CNY	261,800,000 CNY	N/A	N/A	70.00% (held by Zouping Peak Pte. Ltd.)	Handian Town, Zouping County, Binzhou City, Shandong Province, P.R.China, 256209	(86543) 4615655

*Under Corporate Law

	Name	Type of Business	Authorized Capital	Paid-up Capital	No. of Paid-up Capital (Shares)	Par Value per Share	% of Holding	Head Office	Telephone
78	BPP Renewable Investment (China) Co., Ltd.	Investment in renewable energy business	160,000,000 USD	97,620,000 USD	N/A	N/A	100.00% (held by Banpu Renewable Energy Co., Ltd.)	Unit 108, No. 26 Jiafeng Road, Pilot Free Trade Zone (Shanghai), P.R.China	(8610) 57580388
79	Anqiu Huineng Renewable Energy Co., Ltd.	Solar power generation	66,000,000 CNY	66,000,000 CNY	N/A	N/A	100.00% (held by BPP Renewable Investment (China) Co., Ltd.)	1st Floor, Unit 1, Dafugou Villiage, Wushan Town, Anqiu County, Weifang City, Shandong Province, P.R.China	(8610) 57580310
80	Weifang Tian'en Jinshan Comprehensive Energy Co., Ltd.	Solar power generation	83,000,000 CNY	83,000,000 CNY	N/A	N/A	100.00% (held by BPP Renewable Investment (China) Co., Ltd.)	2nd Floor, Unit 1, Dafugou Villiage, Wushan Town, Anqiu County, Weifang City, Shandong Province, P.R.China	(8610) 57580310
81	Dongping County Haoyuan Solar Power Generation Co., Ltd.	Solar power generation	69,000,000 CNY	69,000,000 CNY	N/A	N/A	100.00% (held by BPP Renewable Investment (China) Co., Ltd.)	East side of the north section of Xishan Road, Dongping County, Taian City, Shandong Province, P.R.China	(8610) 57580310
82	Anqiu County Hui'en PV Technology Co., Ltd.	Solar power generation	62,000,000 CNY	62,000,000 CNY	N/A	N/A	100.00% (held by BPP Renewable Investment (China) Co., Ltd.)	Unit 2, Longwangmiao Village, Dasheng Town, Anqiu County, Weifang City, Shandong Province, P.R.China	(8610) 57580310
83	Jiaxing Deyuan Energy-Saving Technology Co., Ltd.	Solar power generation	150,740,000 CNY	150,737,586 CNY	N/A	N/A	100.00% (held by BPP Renewable Investment (China) Co., Ltd.)	No. 999 Xianghu Road, Yaozhuang Town, Jiashan County, Jiaxing City, Zhejiang Province, P.R.China	(8610) 57580310
84	Banpu Power Trading (Shandong) Co., Ltd.	Power trading	20,000,000 CNY	0 CNY	N/A	N/A	100.00% (held by Banpu Investment (China) Ltd.)	Unit 2608, Tower C, No.11 Jingshi Road, Shizhong District, Jinan Province, P.R.China	(86543) 4866099
85	Banpu Power Trading (Hebei) Co., Ltd.	Power trading	20,000,000 CNY	0 CNY	N/A	N/A	100.00% (held by Banpu Investment (China) Ltd.)	(West Wing, 3rd Floor, Office Building of Shijiazhuang Chengfeng CogenCo., Ltd.) North of Beiguan Village, Zhengding County, Shijiazhuang City, Hebei Province, P.R.China	(86311) 85176969
86	Feicheng Xingyu Solar Power PV Technology Co., Ltd.	Solar power generation	55,000,000 CNY	55,000,000 CNY	N/A	N/A	100.00% (held by BPP Renewable Investment (China) Co., Ltd.)	Huangtuling Village, Anzhan Town, Feicheng County, Tai'an City, Shandong Province, P.R.China	(8610) 57580310
87	Banpu (Beijing) Energy Trading Ltd.	Coal trading	40,000,000 CNY	15,000,000 CNY	N/A	N/A	100.00% (held by Banpu Minerals (Singapore) Pte. Ltd.)	Unit 508A, 5th Floor, Tower 21, No.10 Jiuxianqiao Road, Chaoyang District, Beijing, P.R.China	(8610) 57580337
88	Jiangsu Jixin Electric Power Co., Ltd.	Solar power generation	64,000,000 CNY	64,000,000 CNY	N/A	N/A	100.00% (held by BPP Renewable Investment (China) Co., Ltd.)	Zhengwei Villiage, Qianfeng Town, Jinhu County, Huai'an City, Jiangsu Province, P.R.China	(8610) 57580310
Mongolia									
89	Hunnu Altai LLC	Foreign trade, investment in coal mining	94,143,561,104.47 MNT	94,143,561,104.47 MNT	679,785	138,490	100.00% (held by Hunnu Investments Pte. Ltd.)	Suite 1502, Fides Tower, Gegeenten Complex, 15th Khoroo, Khan-Uul District, Ulaanbaatar-17011, Mongolia	(976) 75551221, (976) 75551551

	Name	Type of Business	Authorized Capital	Paid-up Capital	No. of Paid-up Capital (Shares)	Par Value per Share	% of Holding	Head Office	Telephone
90	Hunnu Gobi Altai LLC	Foreign trade, minerals exploration, mining	155,000,000 MNT	155,000,000 MNT	155,000	1,000	80.00% (held by Hunnu Altai LLC)	Suite 1502, Fides Tower, Gegeenten Complex, 15th Khoroo, Khan-Uul District, Ulaanbaatar-17011, Mongolia	(976) 75551221, (976) 75551551
91	Hunnu Altai Minerals LLC	Foreign trade, minerals mining	17,242,032,000 MNT	17,242,032,000 MNT	17,242,032	1,000	100.00% (held by Hunnu Altai LLC)	Suite 1502, Fides Tower, Gegeenten Complex, 15th Khoroo, Khan-Uul District, Ulaanbaatar-17011, Mongolia	(976) 75551221, (976) 75551551
92	Hunnu Resources LLC	Foreign trade, investment in coal mining	358,566,594,196.57 MNT	358,566,594,196.57 MNT	223,465,465	1,604.57	100.00% (held by Hunnu Coal Pty Ltd.)	Suite 1502, Fides Tower, Gegeenten Complex, 15th Khoroo, Khan-Uul District, Ulaanbaatar-17011, Mongolia	(976) 75551221, (976) 75551551
93	Munkh Sumber Uul LLC	Foreign trade	3,148,769,582.83 MNT	3,148,769,582.83 MNT	314,876	10,000	100.00% (held by Hunnu Resources LLC)	Suite 1502, Fides Tower, Gegeenten Complex, 15th Khoroo, Khan-Uul District, Ulaanbaatar-17011, Mongolia	(976) 75551221, (976) 75551551
94	Golden Gobi Mining LLC	Foreign trade, minerals exploration	18,417,657,766.51 MNT	18,417,657,766.51 MNT	1,841,764	10,000	100.00% (held by Hunnu Resources LLC)	Suite 1502, Fides Tower, Gegeenten Complex, 15th Khoroo, Khan-Uul District, Ulaanbaatar-17011, Mongolia	(976) 75551221, (976) 75551551
95	Bilegt Khairkhan Uul LLC	Foreign trade, minerals mining	30,465,045,204.99 MNT	30,465,045,204.99 MNT	3,046,504	10,000	100.00% (held by Hunnu Resources LLC)	Suite 1502, Fides Tower, Gegeenten Complex, 15th Khoroo, Khan-Uul District, Ulaanbaatar-17011, Mongolia	(976) 75551221, (976) 75551551
96	Hunnu Power LLC	Foreign trade	40,702,000 MNT	40,702,000 MNT	4,070	10,000	100.00% (held by Hunnu Resources LLC)	Suite 1502, Fides Tower, Gegeenten Complex, 15th Khoroo, Khan-Uul District, Ulaanbaatar-17011, Mongolia	(976) 75551221, (976) 75551551
97	Munkhnoyon Suvraga LLC	Foreign trade, minerals mining, tourism, construction materials sale	184,702,055,850 MNT	184,702,055,850 MNT	184,702,055	1,000	100.00% (held by Hunnu Resources LLC)	Suite 1502, Fides Tower, Gegeenten Complex, 15th Khoroo, Khan-Uul District, Ulaanbaatar-17011, Mongolia	(976) 75551221, (976) 75551551
Republic of Singapore									
98	Banpu Minerals (Singapore) Pte. Ltd.	Investment in coal mining	N/A	17,670,002 SGD 11,000,000 USD	17,670,002 17,670,002	No par value*	50.00% Ordinary Shares (held by Banpu Minerals Co., Ltd.) 50.00% Preference Shares (held by Banpu Coal Investment Co., Ltd.)	One Marina Boulevard, #28-00 Singapore 018989	65 6890 7188
99	BMS Coal Sales Pte. Ltd.	Coal trading including coal agent and coal blending	N/A	5,000,000 USD	5,000,000	No par value*	100.00% (held by Banpu Minerals (Singapore) Pte. Ltd.)	One Marina Boulevard, #28-00 Singapore 018989	65 6890 7188
100	Banpu Singapore Pte. Ltd.	Investment in coal business	N/A	1,500,000 SGD 2,636,094,931.94 USD	1,500,000 2,608,711,709	No par value*	100.00% (held by Asian American Coal, Inc.)	One Marina Boulevard, #28-00 Singapore 018989	65 6890 7188

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101	Hunnu Investments Pte. Ltd.	Investment in coal business	N/A	100 SGD 35,100,188.82 USD	100 35,100,188	No par value*	100.00% (held by Hunnu Coal Pty Ltd)	One Marina Boulevard, #28-00 Singapore 018989	65 6890 7188
102	Banpu Power Investment Co., Ltd.	Investment in power business	N/A	90,177,391 USD	83,132,663	No par value*	100.00% (held by Banpu Power International Ltd.)	8 Marina Boulevard, #05-02 Marina Bay Financial Centre, Singapore 018981	65 6338 1888
103	Zouping Peak Pte. Ltd.	Investment in power business	N/A	2 SGD 140,495,758 CNY	2 140,495,758	No par value*	100.00% (held by Banpu Power Investment Co., Ltd.)	8 Marina Boulevard, #05-02 Marina Bay Financial Centre, Singapore 018981	65 6338 1888
104	Banpu Renewable Singapore Pte. Ltd.	Investment in renewable energy business	N/A	5,925,442,364 JPY 55,987,676.69 USD	5,925,442,364 55,987,675	No par value*	100.00% (held by Banpu Renewable Energy Co., Ltd.)	8 Marina Boulevard, #05-02 Marina Bay Financial Centre, Singapore 018981	65 6338 1888
105	BRE Singapore Pte. Ltd.	Investment in renewable energy business	N/A	17,110,001 USD	17,110,001	No par value*	100.00% (held by Banpu Renewable Energy Co., Ltd.)	8 Marina Boulevard, #05-02 Marina Bay Financial Centre, Singapore 018981	65 6338 1888
106	Banpu Innovation & Ventures (Singapore) Pte. Ltd.	Research and development in disruptive technology	N/A	3,000,000 USD	3,000,000	No par value*	100.00% (held by Banpu Innovation & Ventures Co., Ltd.)	8 Marina Boulevard, #05-02 Marina Bay Financial Centre, Singapore 018981	66 6338 1888
Mauritius									
107	Banpu Coal Investment Co., Ltd.	Investment in coal mining	11,050,500 USD	11,050,500 USD	11,050,500	1	100.00% (held by Banpu Minerals Co., Ltd.)	4th Floor, Ebene Skies, Rue de L'Institut, Ebene, Republic of Mauritius	230 404 8000
108	BP Overseas Development Co., Ltd.	Investment in coal mining	515,533,002 USD	515,533,002 USD	515,533,002	1	100.00% (held by Banpu Public Company Limited)	4th Floor, Ebene Skies, Rue de L'Institut, Ebene, Republic of Mauritius	230 404 8000
109	BPIN Investment Co., Ltd.	Investment in renewable energy	135,660,100 USD	135,660,100 USD	135,660,100	1	100.00% (held by Banpu Infinergy Co., Ltd.)	4th Floor, Ebene Skies, Rue de L'Institut, Ebene, Republic of Mauritius	230 404 8000
110	Banpu Power International Ltd.	Investment in power business	85,050,000 USD	85,050,000 USD	85,050,000	1	100.00% (held by Banpu Power Public Company Limited)	4th Floor, Ebene Skies, Rue de L'Institut, Ebene, Republic of Mauritius	230 404 8000
British Virgin Islands									
111	Asian American Coal, Inc.	Investment in coal mining	50,000,000 USD	40,917,026 USD	40,917,026	1	100.00% (held by BP Overseas Development Co., Ltd.)	Geneva Place, 2nd Floor, #333 Waterfront Drive, Road Town, Tortola, British Virgin Islands	284 494 4388
112	AACI SAADEC (BVI) Holdings Ltd.	Investment in coal mining	50,000 USD	1 USD	1	1	100.00% (held by Asian American Coal, Inc.)	Vistra Corporate Services Centre, Wickhams Cay II, Road Town, Tortola, VG1110, British Virgin Islands	284 494 4640
Cayman Islands									
113	Pan-Western Energy Corporation LLC	Investment in power business	100,000 USD	100,000 USD	10,000,000	0.01	100.00% (held by Banpu Power Investment Co., Ltd.)	PO Box 309, Ugland House, Grand Cayman, KY1-1104, Cayman Islands	1 345 949 8066
Japan									
114	Aizu Land Solar G.K.	Land owner of solar project	N/A	100,000 JPY	N/A	No par value*	100.00% (held by Aura Land Development Pte. Ltd.)	Kasumigaseki Building, 33rd Floor, 3-2-5, Kasumigaseki, Chiyoda-ku, Tokyo, Japan 100-6033	81 3 6205 4665
115	Banpu Power Trading G.K.	Energy Trading	N/A	100,000,000 JPY	N/A	No par value*	100.00% (held by Banpu Renewable Singapore Pte. Ltd.)	Kasumigaseki Building, 33rd Floor, 3-2-5, Kasumigaseki, Chiyoda-ku, Tokyo, Japan 100-6033	81 3 6205 4665

*Under Corporate Law

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116 Banpu Japan K.K.	Investment in renewable energy business	N/A	30,000,000 JPY	3,000	No par value*	100.00% (held by Banpu Renewable Energy Co., Ltd.)	Kasumigaseki Building, 33rd Floor, 3-2-5, Kasumigaseki, Chiyoda-ku, Tokyo, Japan 100-6033	81 3 6205 4665
United States of America								
117 Banpu North America Corporation	Investment in oil and gas business	521,000,100 USD	521,000,100 USD	521,000,100	1	100.00% (held by BOG Co., Ltd.)	2711 Centerville Road, Suite 400, Wilmington, Delaware 19808	1 302 654 7584
118 Banpu Innovation & Ventures LLC	Research and development in disruptive technology	1,000,000 USD	1,000,000 USD	N/A	No par value*	100.00% (held by Banpu Innovation & Ventures (Singapore) Pte. Ltd.)	1150 North Market Street, Suite 1300, Wilmington, Delaware 19801	1 302 427 7650
Socialist Republic of Vietnam								
119 BPP Vinh Chau Wind Power LLC	Wind power production, power transmission and distribution	356,392,530,000 VND	330,922,790,000 VND	N/A	No par value*	100.00% (held by BRE Singapore Pte. Ltd.)	22 Bui Thi Xuan Street, Quarter 1, Ward 2, Soc Trang City, Soc Trang Province, Vietnam	849 0988 5015
Associated Companies								
Australia								
120 Port Kembla Coal Terminal Ltd.	Ship loading coal port	600,000 AUD	600,000 AUD	600,000	1	16.66% (held by Centennial Coal Co., Ltd.)	Port Kembla Road, Inner Harbour, Wollongong NSW 2520, Australia	61 2 4228 0288
Japan								
121 FOMM Corporation	Planning, developing, manufacturing and selling of compact electric vehicle	N/A	3,505,170,250 JPY	2,046,635	No par value*	21.45% (held by Banpu Infinergy Co., Ltd.)	7-7 Shinkawasaki, Saiwai-ku, Kawasaki-shi, Kanagawa 212-0032	81 4 4200 4020
Republic of Singapore								
122 Durapower Holdings Pte. Ltd.	Manufacturing of lithium-ion battery (LiB) for EV and energy storage system (ESS)	N/A	59,737,835.50 SGD	385,699	No par value*	47.68% (held by BPIN Investment Co., Ltd.)	66 Kallang Pudding Road, #05-02 Hor Kew Business Centre, Singapore 349324	65 6846 0180
Thailand								
123 Urban Mobility Tech Co., Ltd.	Electric vehicle business	1,442,120 THB	1,442,120 THB	144,212	10	30.66% Preference Shares (held by Banpu Infinergy Co., Ltd.)	256 Soi Soonvijai, Rama IX Soi 17 Road, Bangkapi, Huaykwang, Bangkok 10310, Thailand	086 887 4796
Joint Ventures								
Republic of Indonesia								
124 PT. Nusantara Timur Unggul	Fuel distributor	1,000,000,000 IDR	600,000,000 IDR	600	1,000,000	33.34% (held by PT. ITM Indonesia)	Gedung Graha Indramas 4th Floor, Jalan AIP II K.S. Tubun Raya No. 77, Palmerah, West Jakarta Corresponding Office: Pondok Indah Office Tower 3, 3rd Floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	6221 29328100
People's Republic of China								
125 Shanxi Gaohe Energy Co., Ltd.	Coal mining in China	1,519,860,000 CNY	1,519,860,000 CNY	N/A	N/A	45.00% (held by Asian American Coal, Inc.)	Haojiazhuang Town, Changzhi County, Changzhi City, Shanxi Province, P.R.China	(8610) 5820 3663

*Under Corporate Law

Name	Type of Business	Authorized Capital	Paid-up Capital	No. of Paid-up Capital (Shares)	Par Value per Share	% of Holding	Head Office	Telephone
126 Hebi Zhong Tai Mining Co., Ltd.	Investment in coal mining	783,330,000 CNY	783,330,000 CNY	N/A	N/A	40.00% (held by Banpu Minerals Co., Ltd.)	Sikuang Industrial Park, Hebiji, Hebei City, Henan Province, P.R.China	(8639) 2291 7401-2
127 Shanxi Lu Guang Power Co., Ltd.	Power generating and sales	1,745,818,000 CNY	1,500,000,000 CNY	N/A	N/A	30.00% (held by Banpu Power Investment Co., Ltd.)	Songcun Town, Zhangzi County, Changzhi City, Shanxi Province, P.R.China	(86355) 8580511
Japan								
128 Hokkaido Solar Estate G.K.	Land owner of solar project	N/A	10,000,000 JPY	N/A	No par value*	60.00% (held by Banpu Energy Services (Thailand) Co., Ltd.)	1-1-7 Moto-akasaka, Minato-ku, Tokyo, Japan	81 3 3560 1115
129 Digital Energy Solutions Corporation	Electricity sales and management	N/A	50,000,000 JPY	5,000	No par value*	49.00% (held by Banpu Renewable Singapore Pte. Ltd.)	Kasumigaseki Building, 33rd Floor, 3-2-5, Kasumigaseki, Chiyoda-ku, Tokyo, Japan 100-6033	81 3 6205 4665
130 Global Engineering Co., Ltd	Electricity sales and resource aggregator of virtual power plant	N/A	274,000,000 JPY	3,620,000	No par value*	19.90% (held by Banpu Renewable Singapore Pte. Ltd.)	Nishiko Living Kashii 2nd Floor, 1-1-1, Kashii, Higashi-ku, Fukuoka city, Fukuoka pref. Japan 813-0011	81 92 692 7547
People's Democratic Republic of Laos								
131 Hongsa Power Co., Ltd.	Power generating and sales	927,000,000 USD	927,000,000 USD	92,700,000	10	40.00% (held by Banpu Power Public Company Limited)	NNN Building 4th Floor, Room No.D5 Bourichan Road, Phonsinouane Village, Sisattanak District, Vientiane Capital, Lao PDR	856 (0) 2122 483
132 Phu Fai Mining Co., Ltd.	Mining concession	50,000 USD	50,000 USD	5,000	10	37.50% (held by Banpu Power Public Company Limited)	NNN Building 4th Floor, Room No.D5 Bourichan Road, Phonsinouane Village, Sisattanak District, Vientiane Capital, Lao PDR	857 (0) 2122 483
Republic of Singapore								
133 Aura Land Development Pte. Ltd.	Investment in property for solar energy business	N/A	3,840,989.20 USD	3,840,988	No par value*	75.00% (held by Banpu Energy Services (Thailand) Co., Ltd.)	8 Marina Boulevard, #05-02 Marina Bay Financial Centre, Singapore 018981	65 6338 1888
134 Aizu Energy Pte. Ltd.	Investment in renewable energy business	N/A	17,630,952.87 USD 2,271,979,544.11 JPY	17,630,949 2,271,979,543	No par value*	75.00% (held by Banpu Renewable Energy Co., Ltd.)	8 Marina Boulevard, #05-02 Marina Bay Financial Centre, Singapore 018981	65 6338 1888
135 Sunseap Group Pte. Ltd.	Investment in renewable energy business	N/A	6,322,808.83 SGD 173,031,195.57 SGD	995,725 1,438,283	No par value*	38.46% (held by BPIN Investment Co., Ltd.)	2 Boon Leat Terrace, #04-03/04 Harbourside Building 2, Singapore 119844	65 6816 1000
Thailand								
136 BPPR Co., Ltd.	Investment in consultancy services to the operator of power generation	740,000 THB	740,000 THB	7,400	100	75.00% (held by Banpu Energy Services (Thailand) Co., Ltd.)	1550, Thanapoom Tower, 27th Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	0 2694 6600
137 BLCP Power Ltd.	Power generation and sales	12,010,000,000 THB	12,010,000,000 THB	120,100,000	100	50.00% (held by Banpu Coal Power Ltd.)	9 I-8 Road, Map Ta Phut Industrial Estate, Muang District, Rayong, Thailand	038 925 100

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INTEGRATED ENERGY
SOLUTIONS
DELIVERING SUSTAINABLE VALUES

BANPU

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