



BANPU PUBLIC COMPANY LIMITED
ANNUAL REPORT
2019

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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:



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.



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.



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 Vongkusolkrit 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  **11** Coal Projects **Mongolia**

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

3  **10** Solar Farms **Japan**
 **7** Solar Projects

4  **1** Power Plant **Lao PDR**

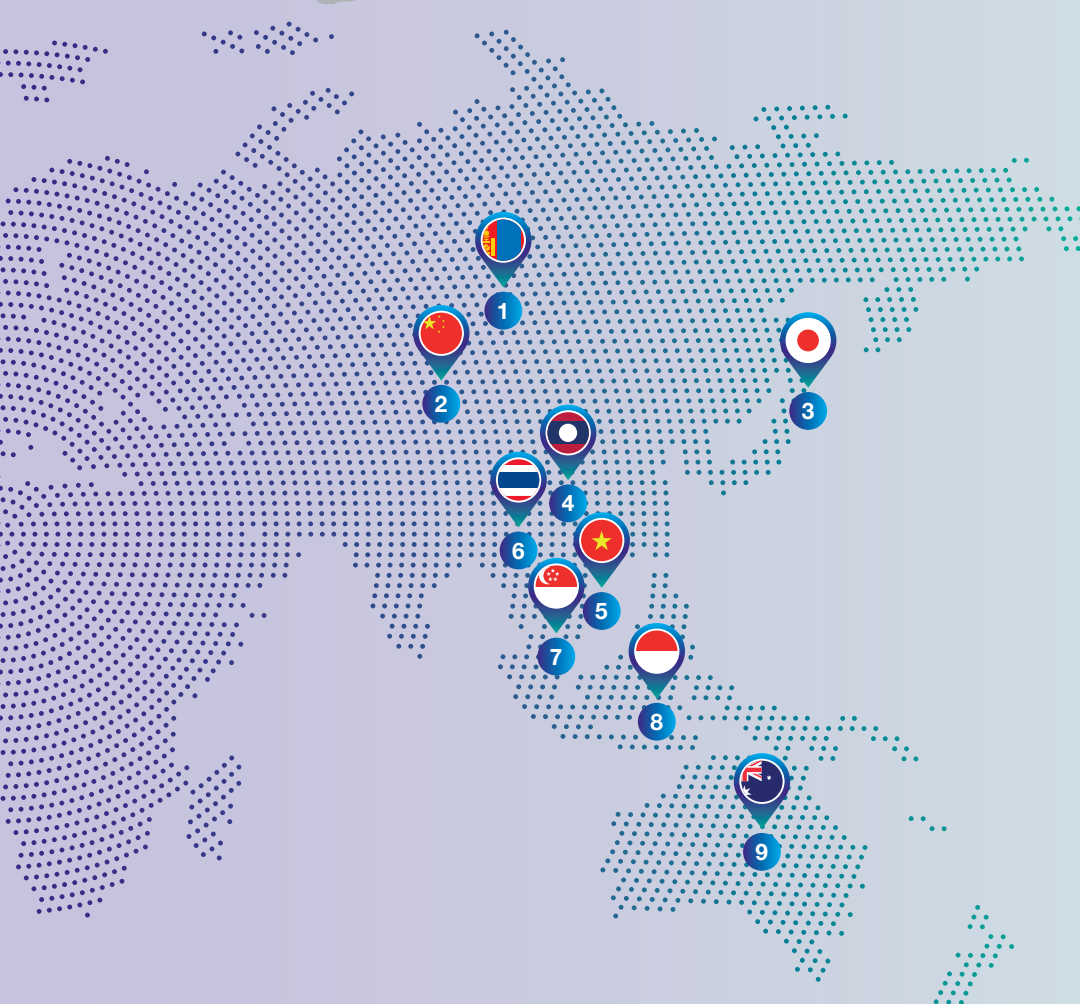
5  **1** Wind Project **Vietnam**





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.**”



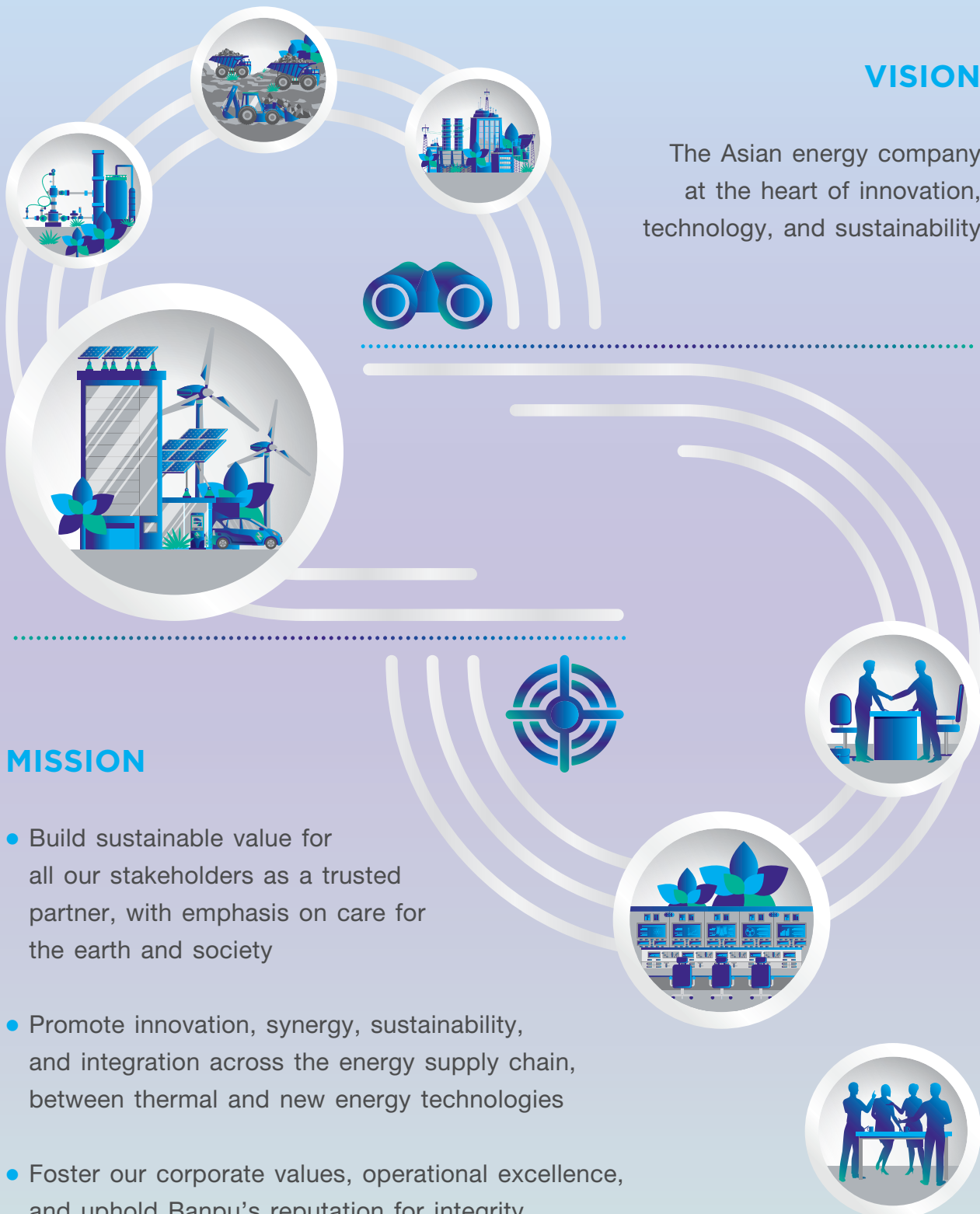
6		1	Thailand Power Plant
7		1	Singapore Sales and Logistics Hub
8		5	Indonesia Coal Mines
		2	Coal Projects
		2	Ports
9		9	Australia Coal Mines
		3	Coal Projects
		2	Ports
10		5	The United States of America (Pennsylvania and Texas) Shale Gas Sites

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



ENERGY RESOURCES

Coal Business

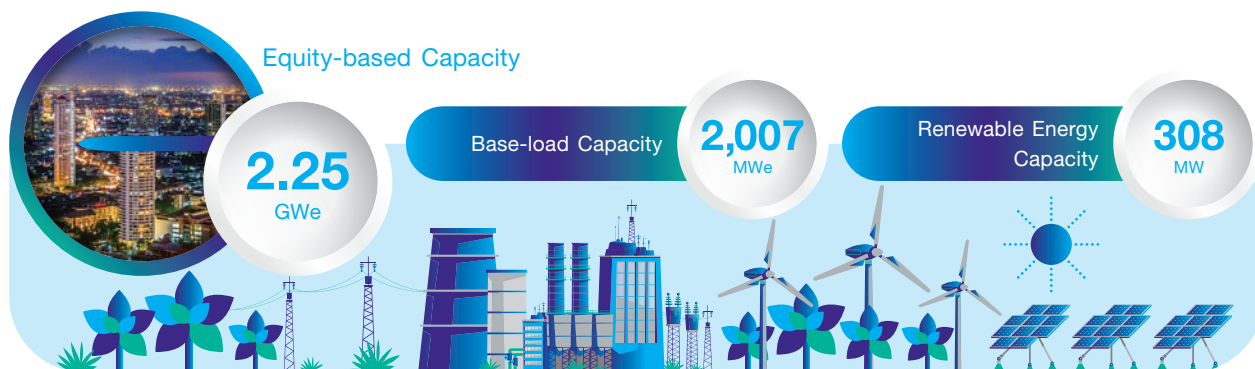


Gas Business



ENERGY GENERATION

Power Business



ENERGY TECHNOLOGY

Solar Rooftop Solutions Business

Equity-based Capacity



Energy Storage Business

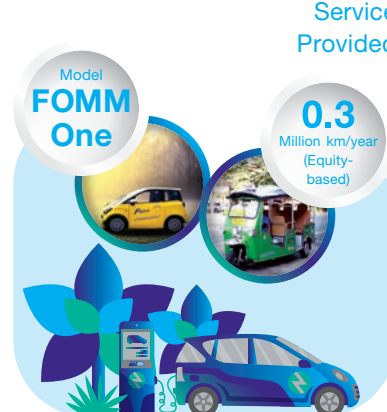
Equity-based Capacity



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.

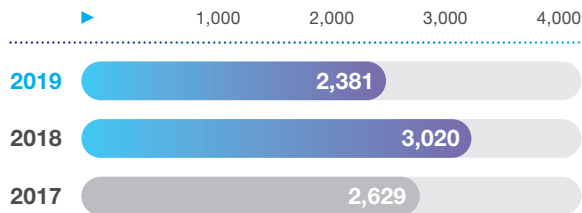
OPERATIONAL RESULTS

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



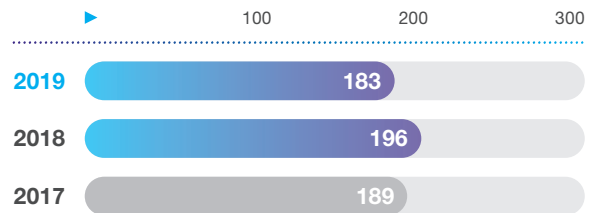
Revenue from Coal Business

(Million USD)



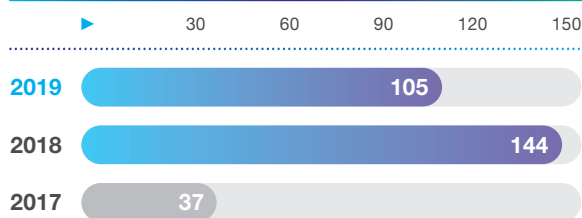
Revenue from Power Business

(Million USD)



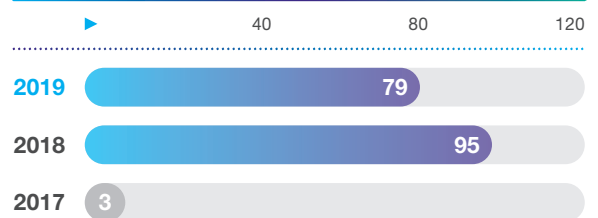
Revenue from Gas Business

(Million USD)



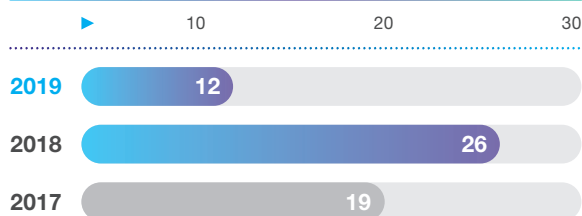
Revenue from Fuel Business

(Million USD)



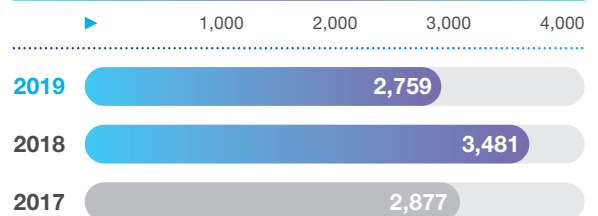
Revenue from Other Businesses

(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 Vongkusolkrit
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 EBITDA¹ 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 China³. 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 NEX⁴ 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 Phaniijphand, 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 2019

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, Barnett 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.

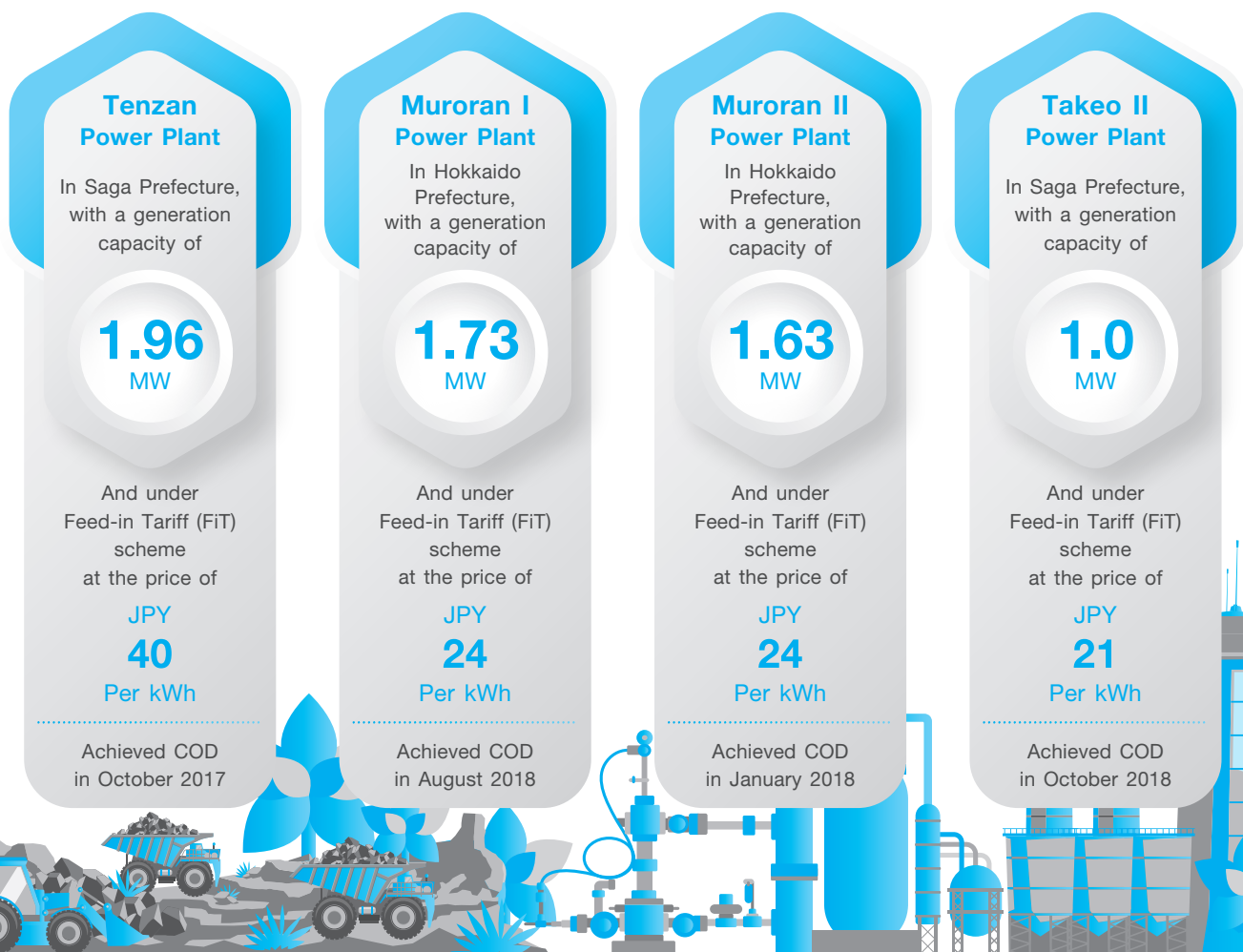
● 25 December 2019

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

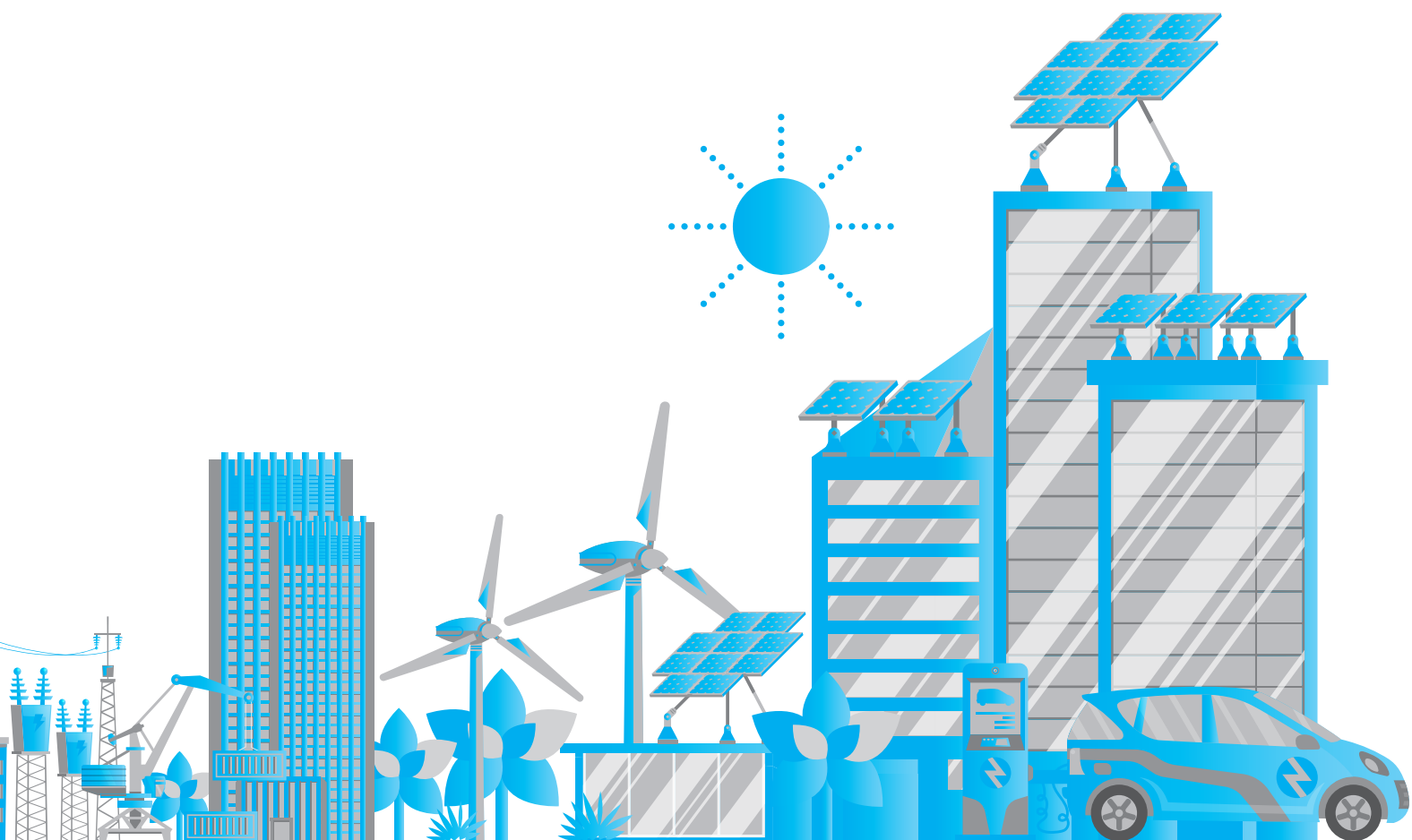
Banpu Renewable Singapore Pte. Ltd. (BRS), Banpu Power's wholly-owned subsidiary, entered into a purchase agreement to acquire 19.9% shares in Global Engineering Co., Ltd., with the transaction value of JPY 1,143 million (approximately THB 315.7 million). The investment will expand into virtual power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



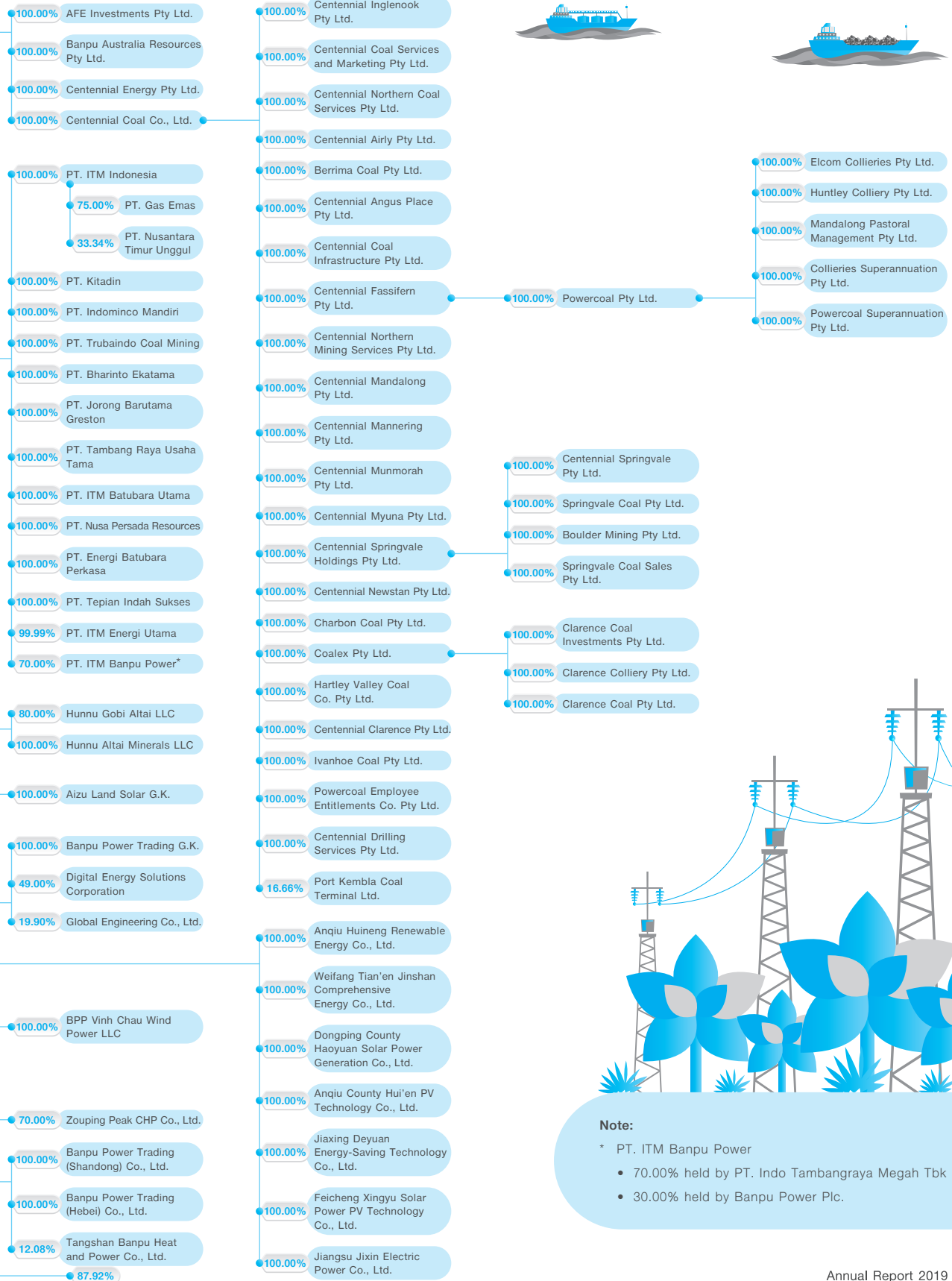
● 20 February 2020

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 Public Company Limited



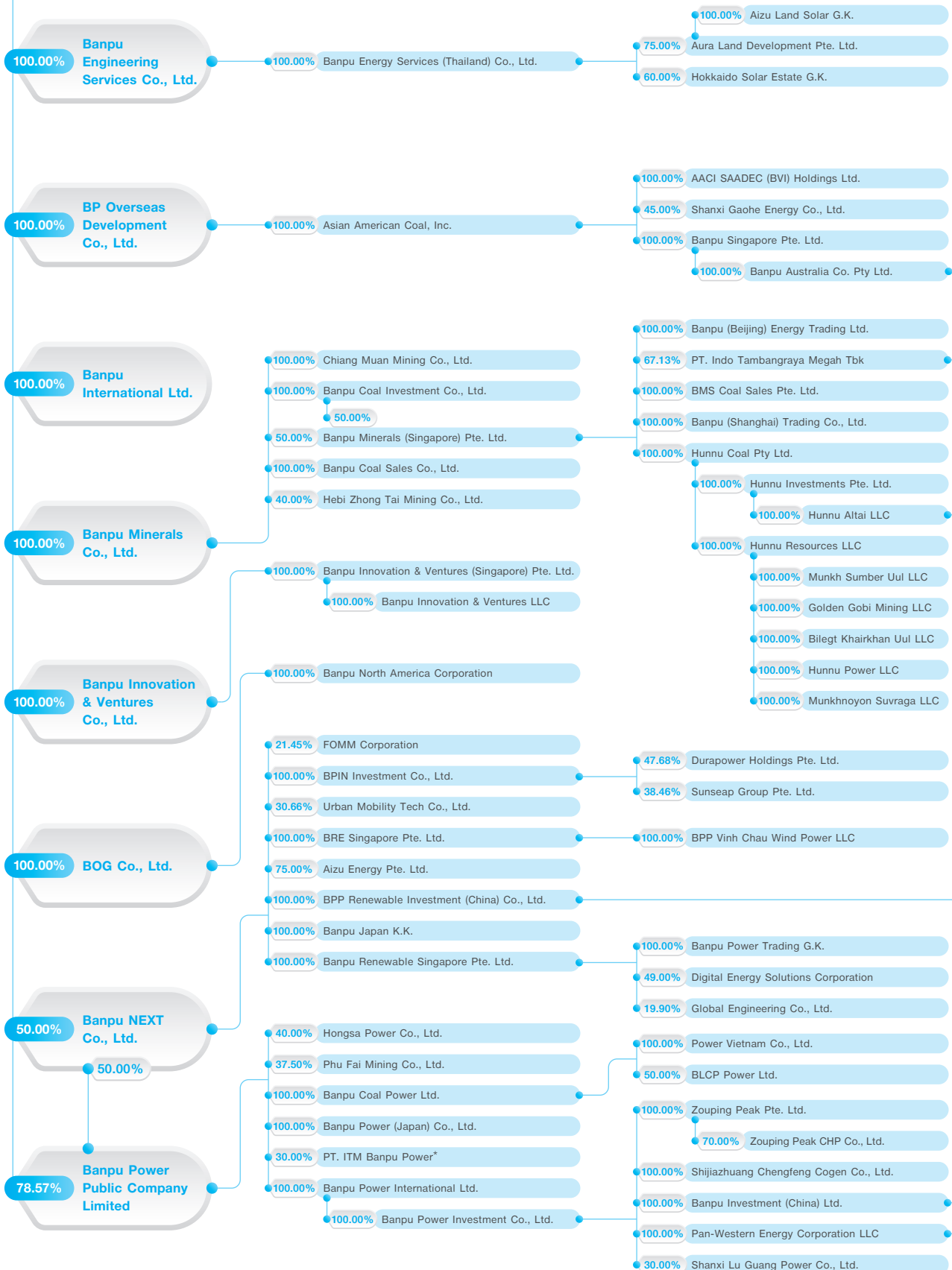


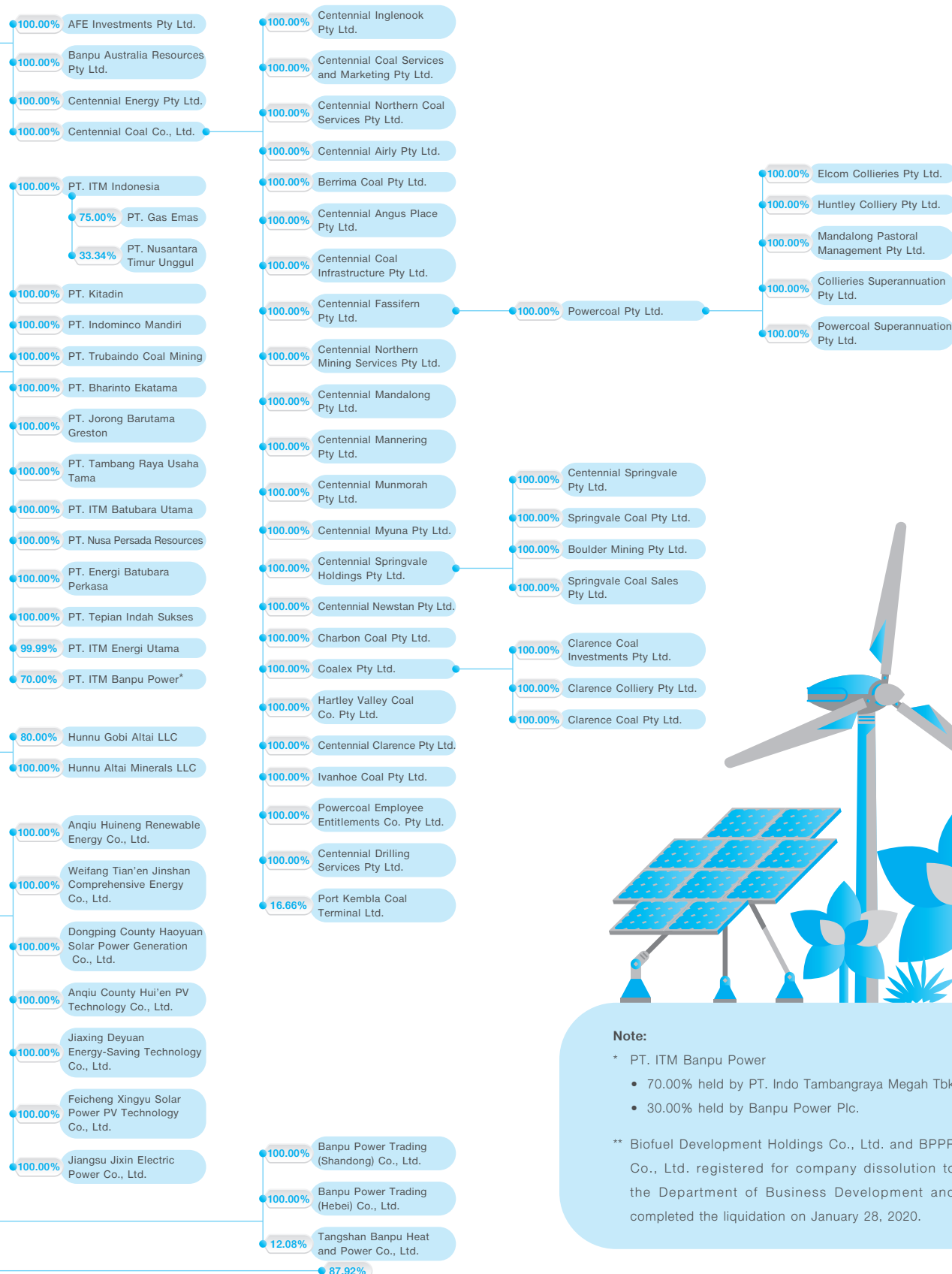
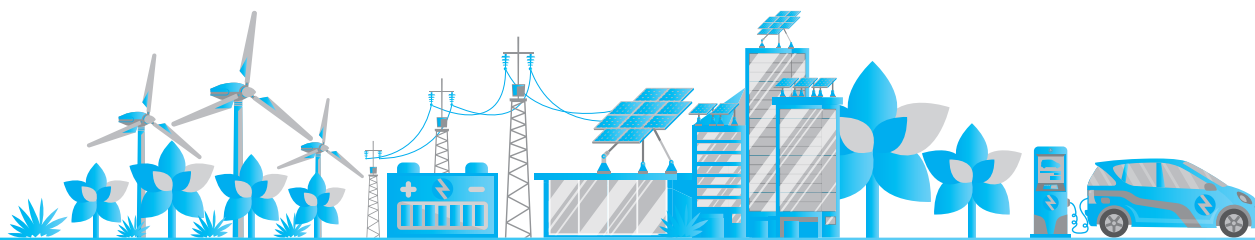
Note:

- * 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





Note:

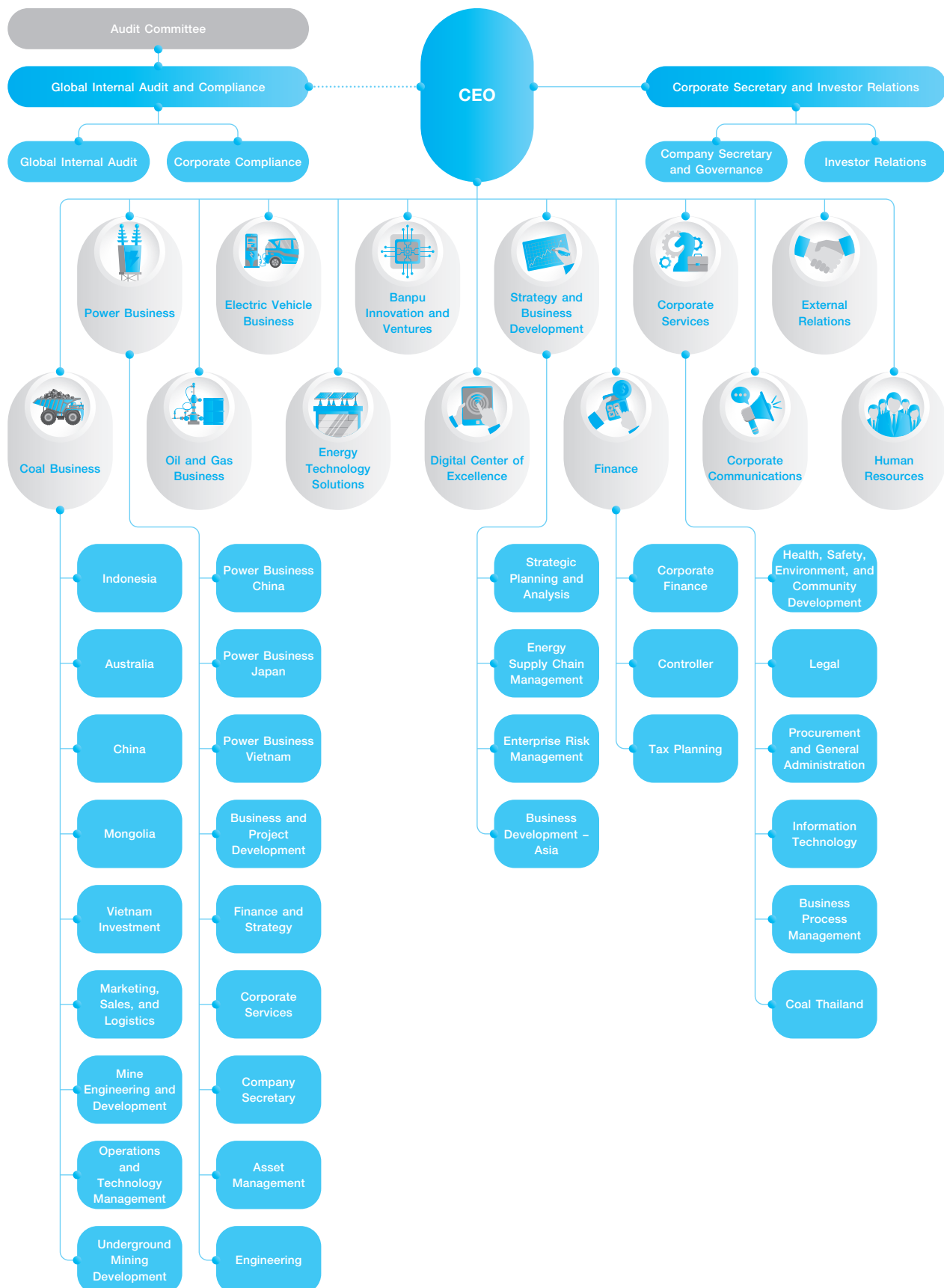
* PT. ITM Banpu Power

- 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 Vongkusolkrit	Chairman of the Board of Directors
2. Mr. Teerana Bhongmakapat	Independent Director
3. Mr. Suthad Setboonsarng	Independent Director
4. Mr. Sudiarmo Prasertio	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 Vongkusolkrit	Director
12. Mr. Verajet Vongkusolkrit	Director
13. Ms. Somruedee Chaimongkol	Director

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 Vongkusolkrit, 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.

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.

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 Resilience 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 Prasetyo | Member |
| 3. Mr. Verajet Vongkusolkrit | 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 Vongkusolkrit | 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 Limjaroen | 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 Prasatio | 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 Business¹

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

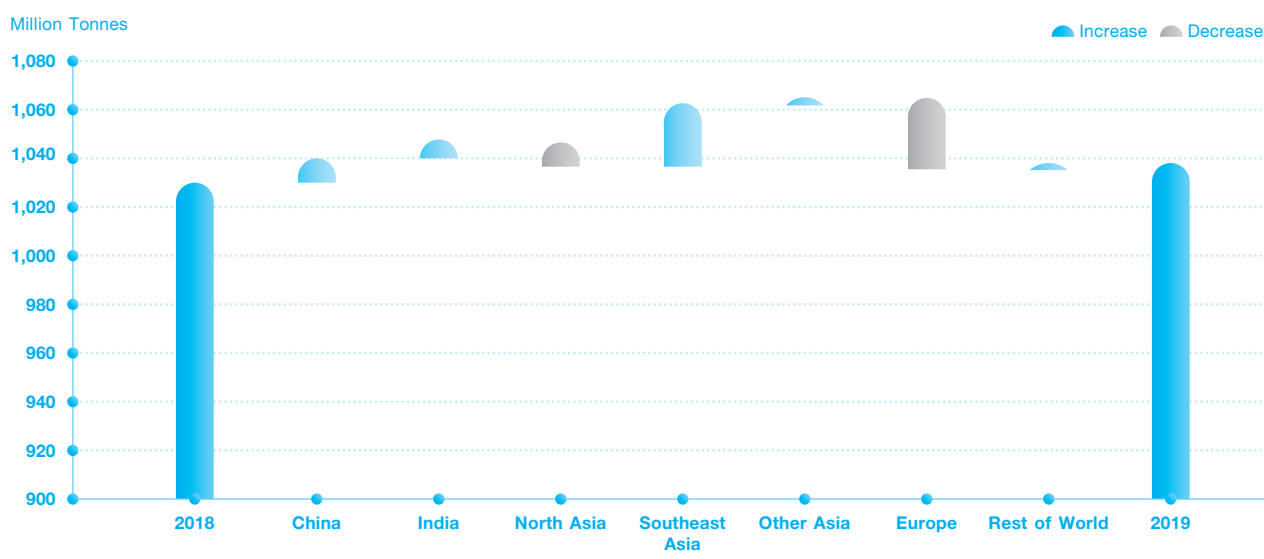
¹The word "coal" in this section of report refers to "thermal coal".

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.

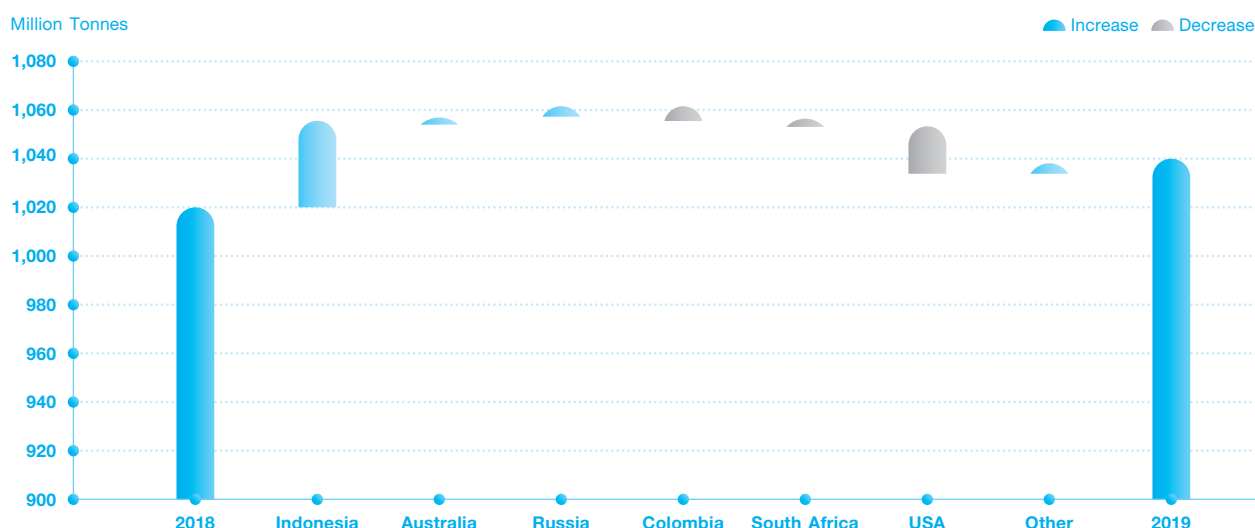
Many countries in Europe accelerated the plan to cancel coal to achieve the GHGs reduction target. At the COP25 UN climate conference at the end of 2019, the European Union announced the European Green Deal, aiming for net-zero GHG emissions by 2050, which will drive the decline of coal in the future.

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



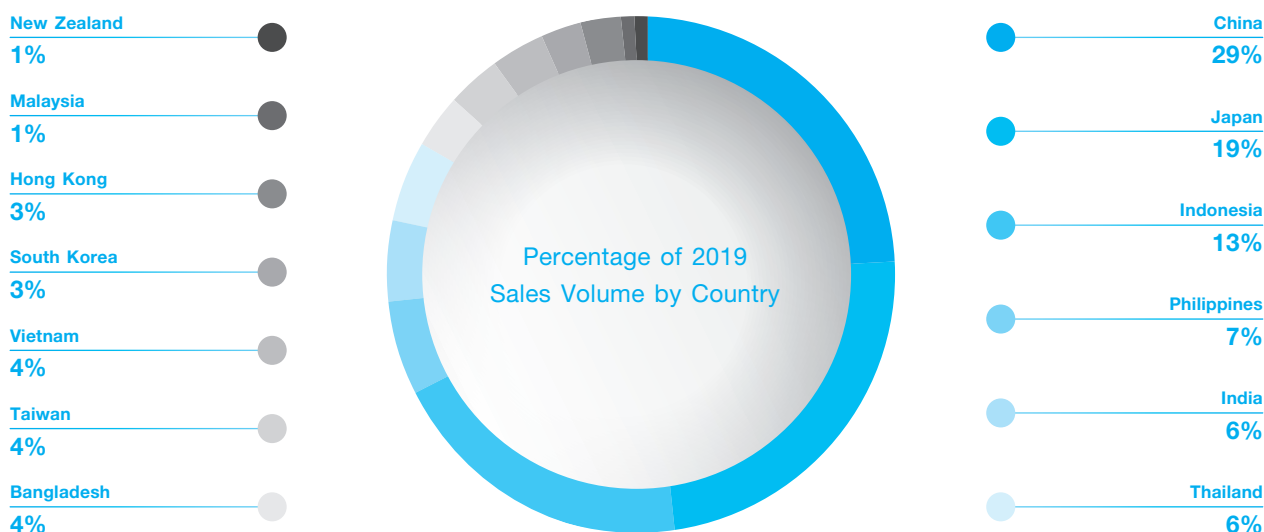
Source: Marketing, Sales and Logistics Analyst, Banpu Plc.

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.

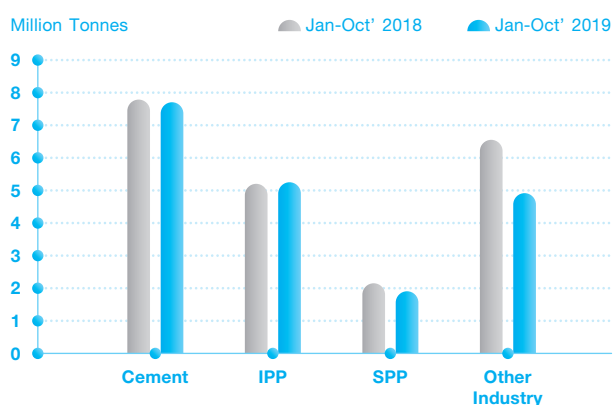
Apart from that, the Indonesian government has enforced the sales verification module platform (MVP) since 1 November 2019, requiring coal producers or traders to fill in the necessary information about sales, mines, coal qualities and coal barges as well as to pay royalty fee online before loading coal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

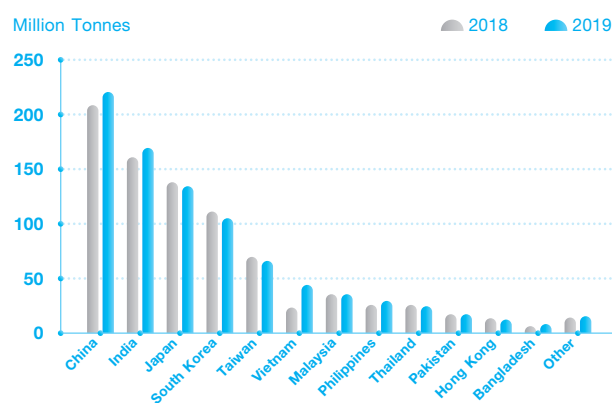
China remained the world's largest coal importer with an import volume of approximately 219 Mt, rising 5.7% from the previous year, despite the Chinese government's stricter restrictions on coal imports and a continual increase in domestic production. The slight increase in coal demand due to the trade 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



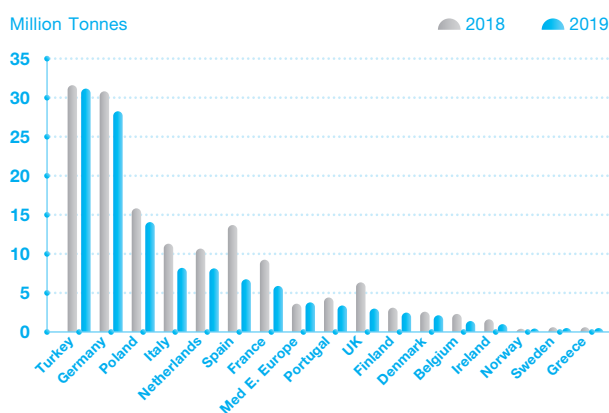
Source: Marketing, Sales and Logistics Analyst, Banpu Plc.

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



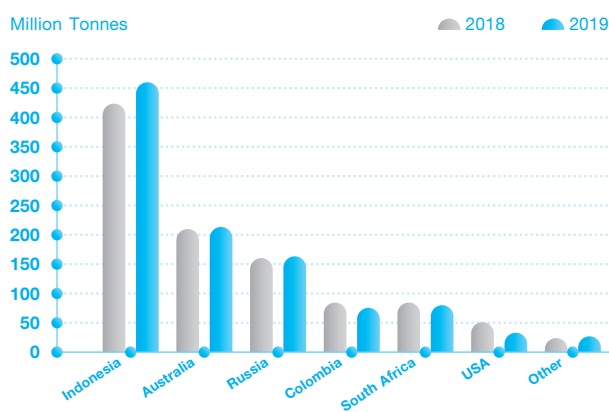
Source: Marketing, Sales and Logistics Analyst, Banpu Plc.

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.

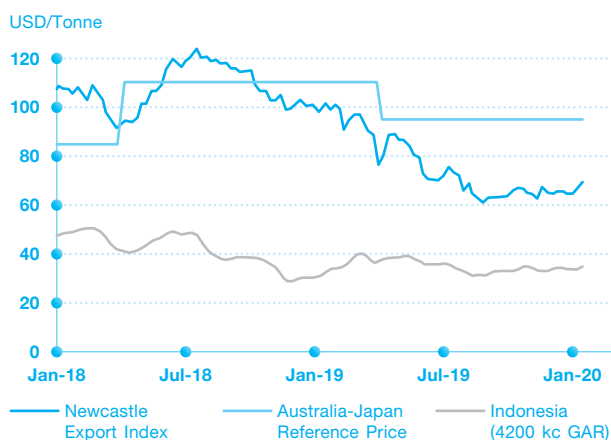
Russia exported approximately 163 Mt of coal to Non-CIS countries, increasing 2.7% over the past year. The country attempted to export more coal to Asia to offset the shrinking demand from the European market. As Russia has successfully expanded its coal terminals, it could export more coal to Asia, 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.

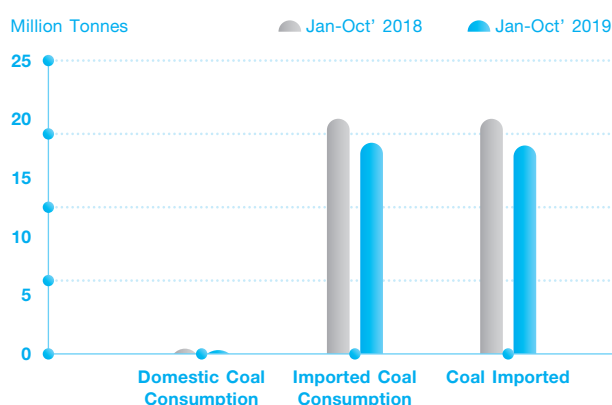
2. Competition in Thailand

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

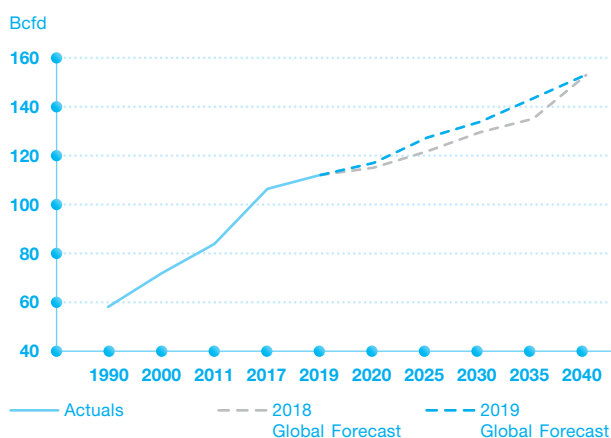
Market and Competition

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)

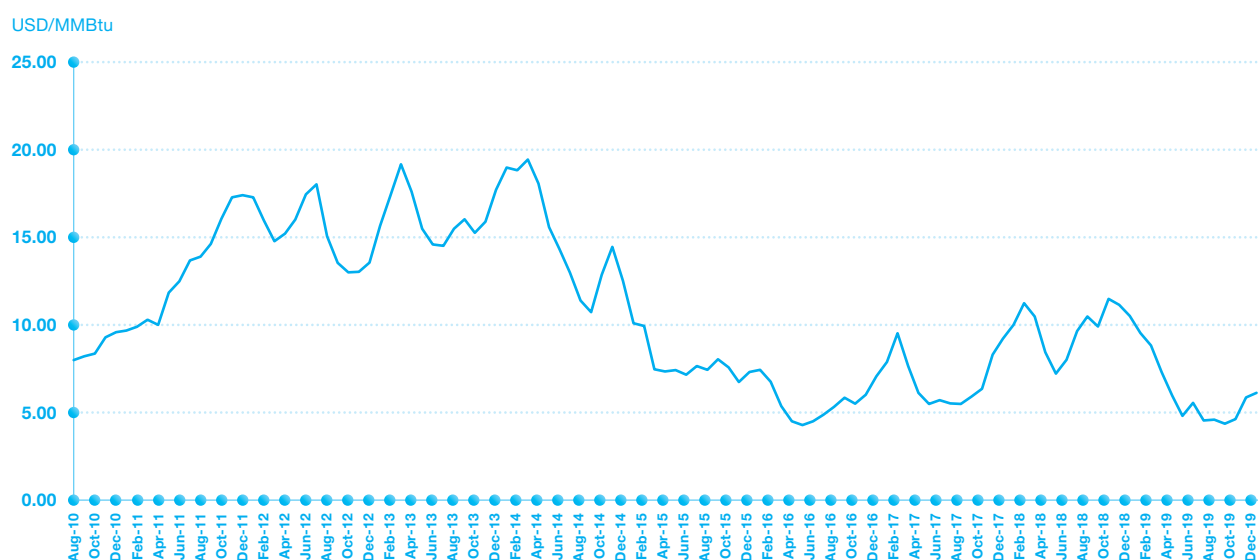


* IEA NEW Policies Scenario where identified new policies where countries adopt and implement stated policy goals; Assumes 1 Bcm = 35.3 Bcf.

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)

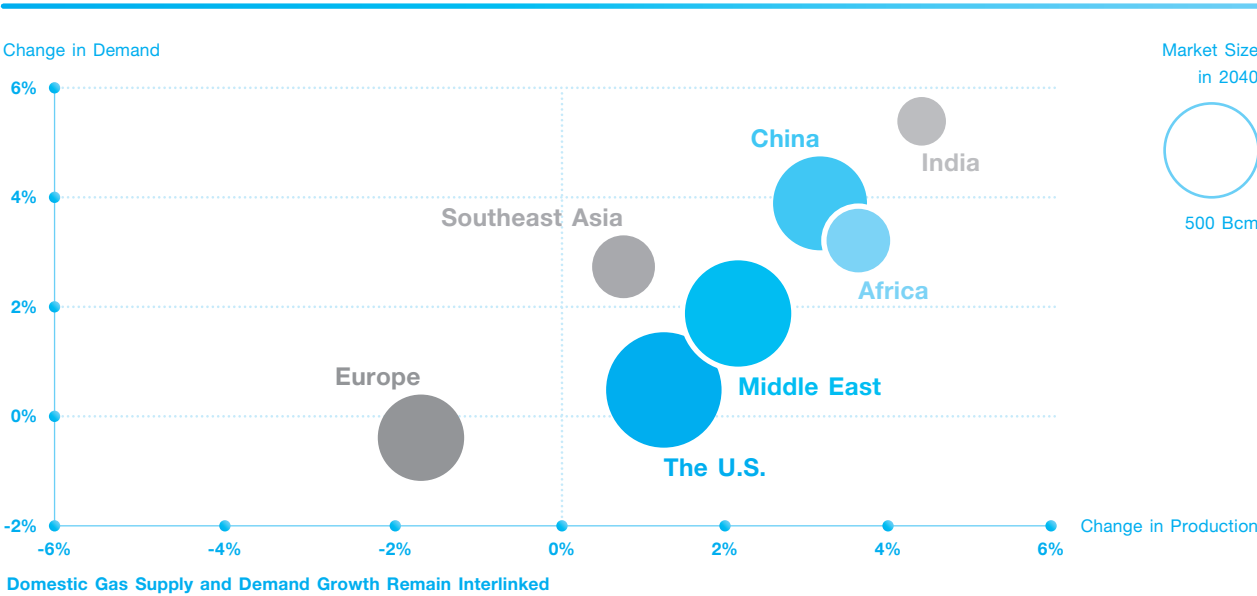


Source: S&P Global, Platts JKM

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

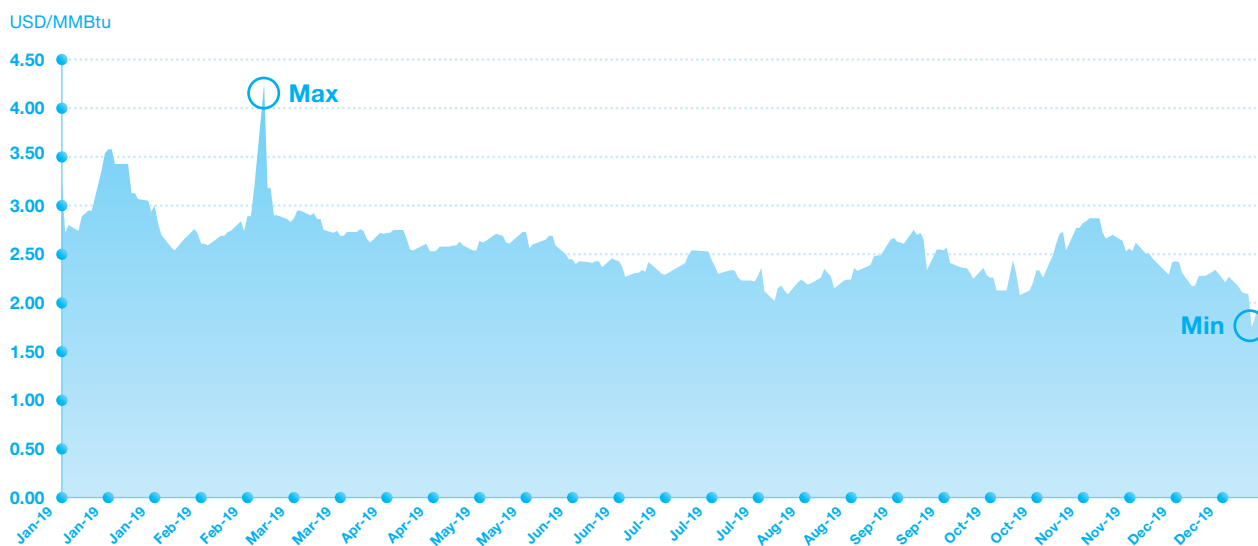


Source: IEA WEO 2019

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.

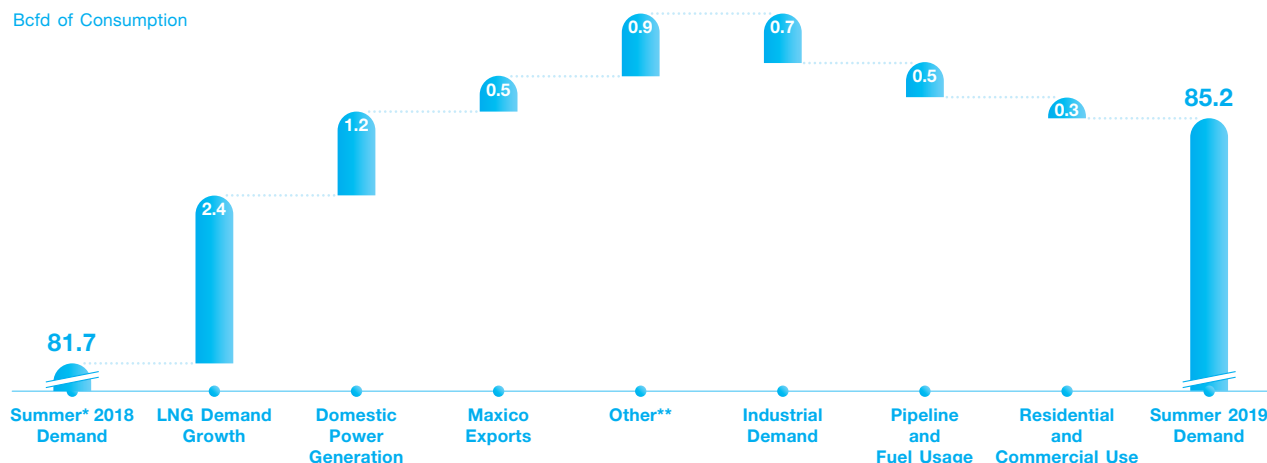
Demand growth was projected to be significant for both seasonal peaks comparing 2018 to 2019. BTU Analytics estimated that the U.S. natural gas demand

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)

Bcfd of Consumption



* 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.

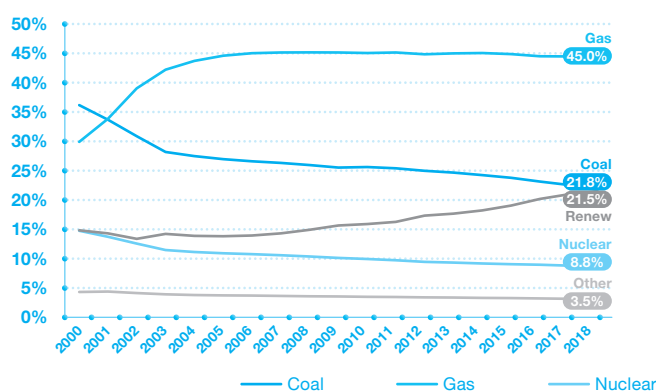
Therefore, the cost of supplying incremental marginal dry gas is the key determinant for long-term Henry Hub price outlook, not associated gas production.

3. Alternative Sources of Primary Energy

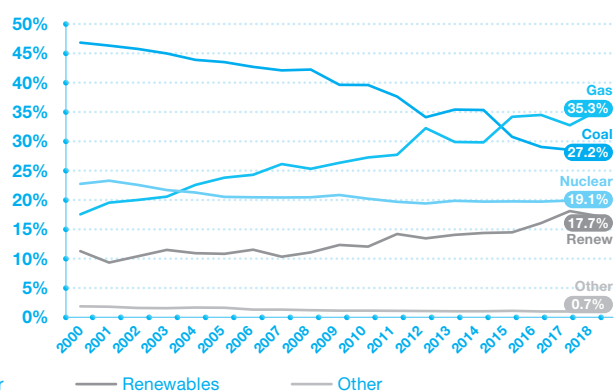
The competition from other primary energy sources: coal and renewable energy, within the U.S., which serves the need of local energy consumption especially in power generation sector, are major competitors to natural gas. However, the past 18 years has seen natural gas growth remain extremely competitive 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

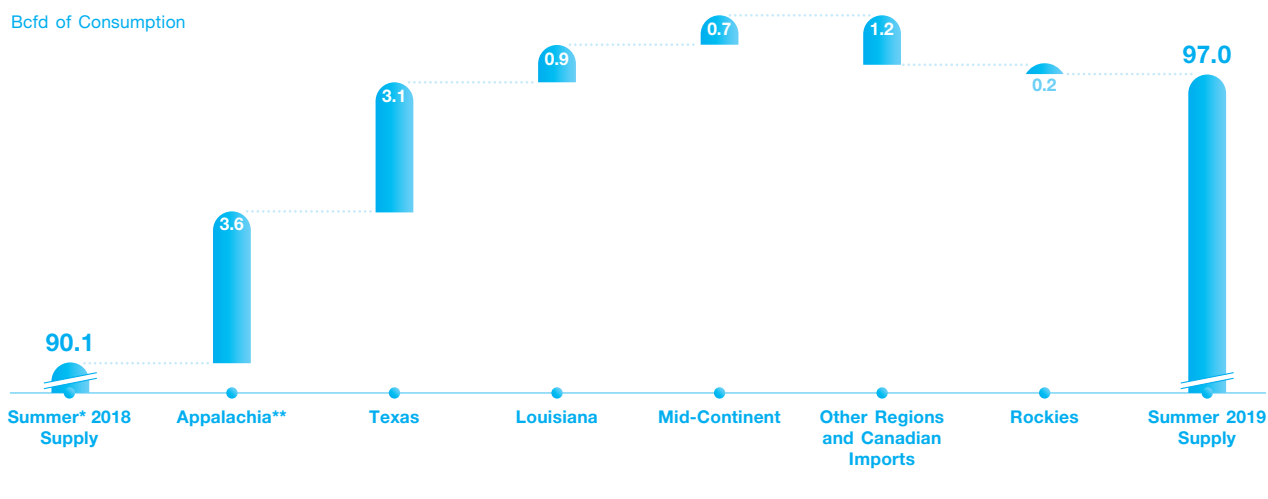
U.S. Asset and Local Basin Gas Markets

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

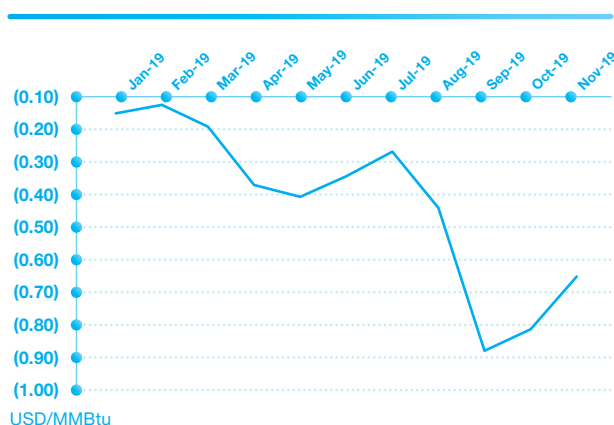
A significant portion of this new supply was developed and delivered to fulfill pipeline commitments to major new pipelines that were commissioned in 2018. For example, the Rover pipeline with capacity of 3.25 Bcfd and Nexus pipeline with capacity of 1.5 Bcfd came

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



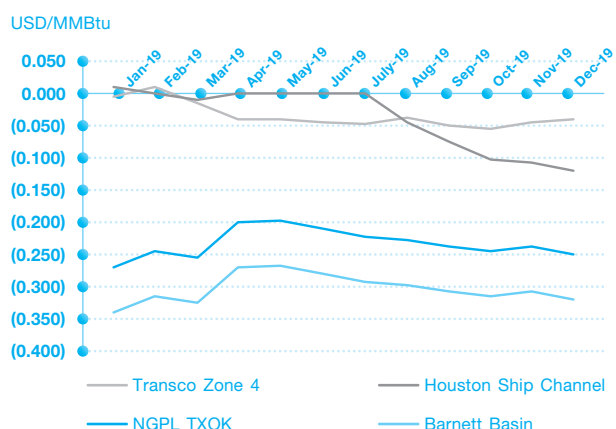
Source: BTU Analytics, Gas Basis Outlook, 4Q 2019

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 Barnett position within the overall natural gas portfolio is significant and expected to close in the second quarter of 2020.

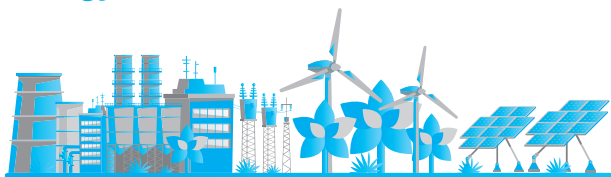
The Barnett asset opens significant market access and hydrocarbon product diversification to Banpu’s U.S. natural gas investments. In particular, the Barnett local markets have proximity to major demand centers in the gulf coast where LNG exports, Mexico exports, and local petrochemical demand are rapidly 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

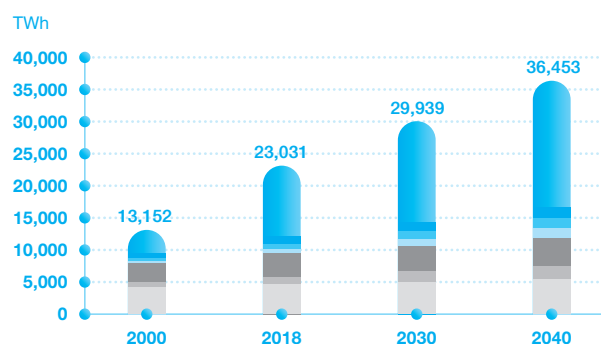
Banpu Power Public Company Limited is a Banpu's subsidiary operating both base-load and renewable power generation businesses across Asia, including in Thailand, Lao PDR, China, Japan and Vietnam.

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%

Natural Gas Increase

45%

Renewables Increase

1.65 Times

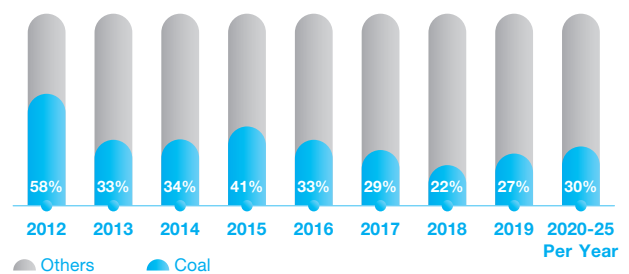
Coal Increase

3%

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.

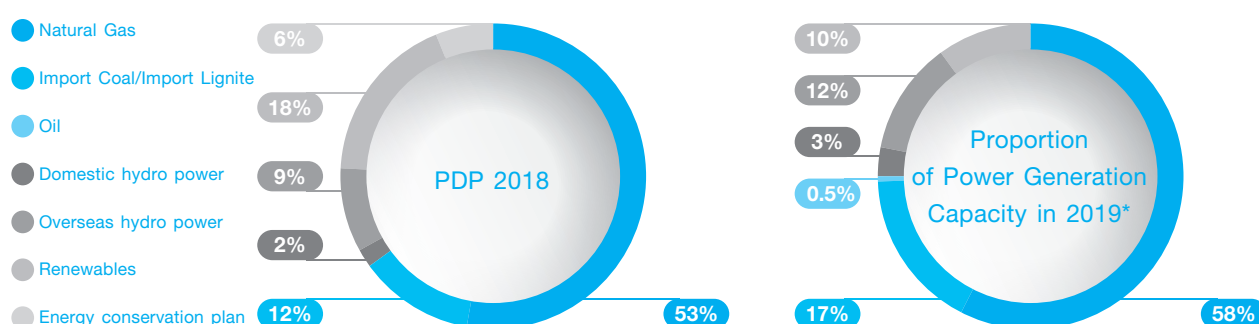
The CAGR of the power generation capacity from natural gas was expected to increase by 45%, driven by the availability of natural gas resources in the U.S., which were abundant and low-cost. U.S. natural gas would affect the natural gas market in many countries and would play a more important role in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

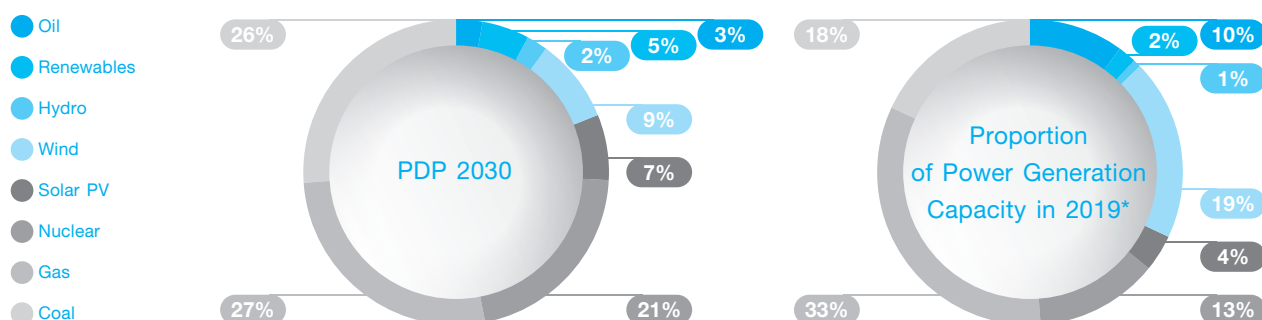
4. Market and Competition in Japan

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)

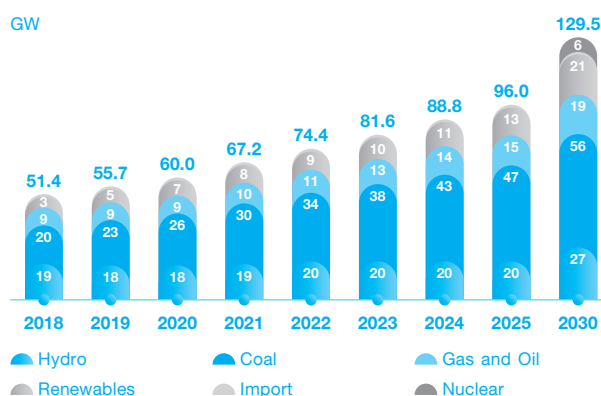
* Information as at end-October 2019

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. Competitive Strategies 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.

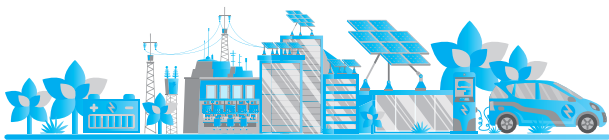
3) Seeking Opportunities for Business Expansion and Added Value Creation

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 sustainably 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 enhance 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		2018		2017	
			Revenue (Million USD)	%	Revenue (Million USD)	%	Revenue (Million USD)	%
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

			2019		2018		2017	
Products/Services	Conducted by	% of Shareholding	Revenue (Million USD)	%	Revenue (Million USD)	%	Revenue (Million USD)	%
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 BLCOP 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 NO_x 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.

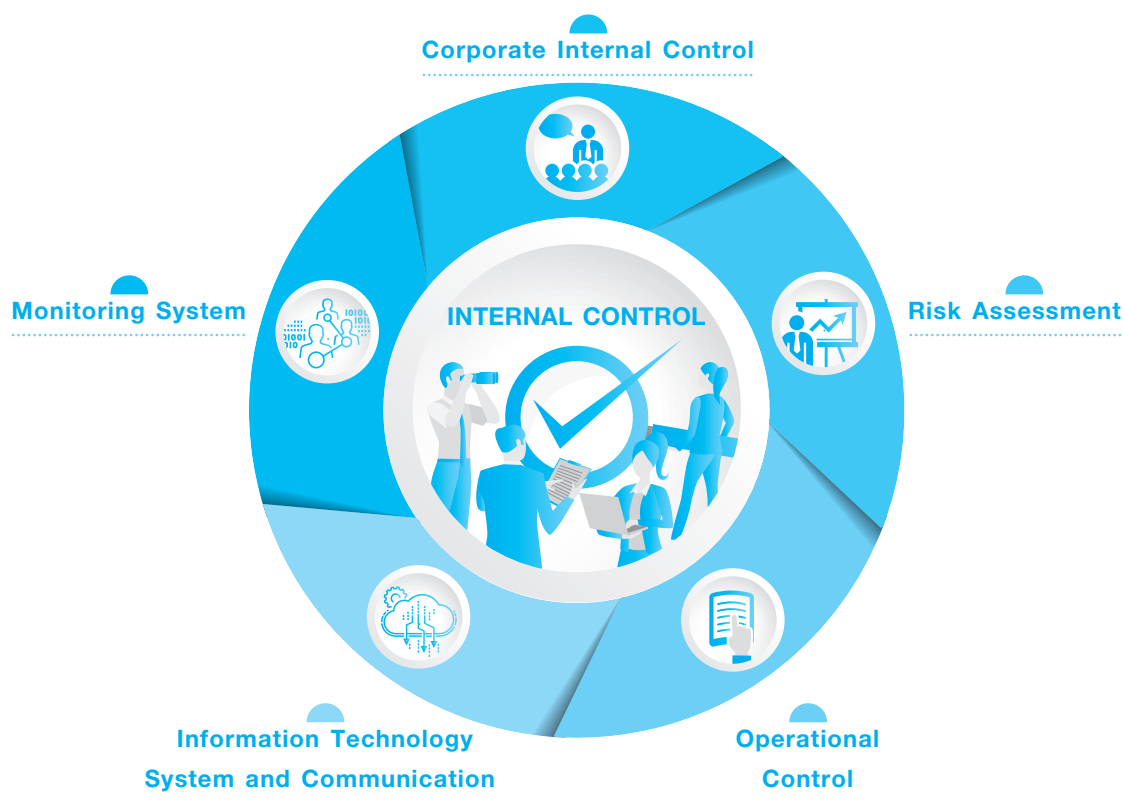
The Company's risk assessment indicates that in the long term, the emerging risk is disruptive energy technologies that affect the energy industry. Nowadays, technological advances and alternative energy play a critical role in the energy industry, for example, high-performance energy storage devices 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.

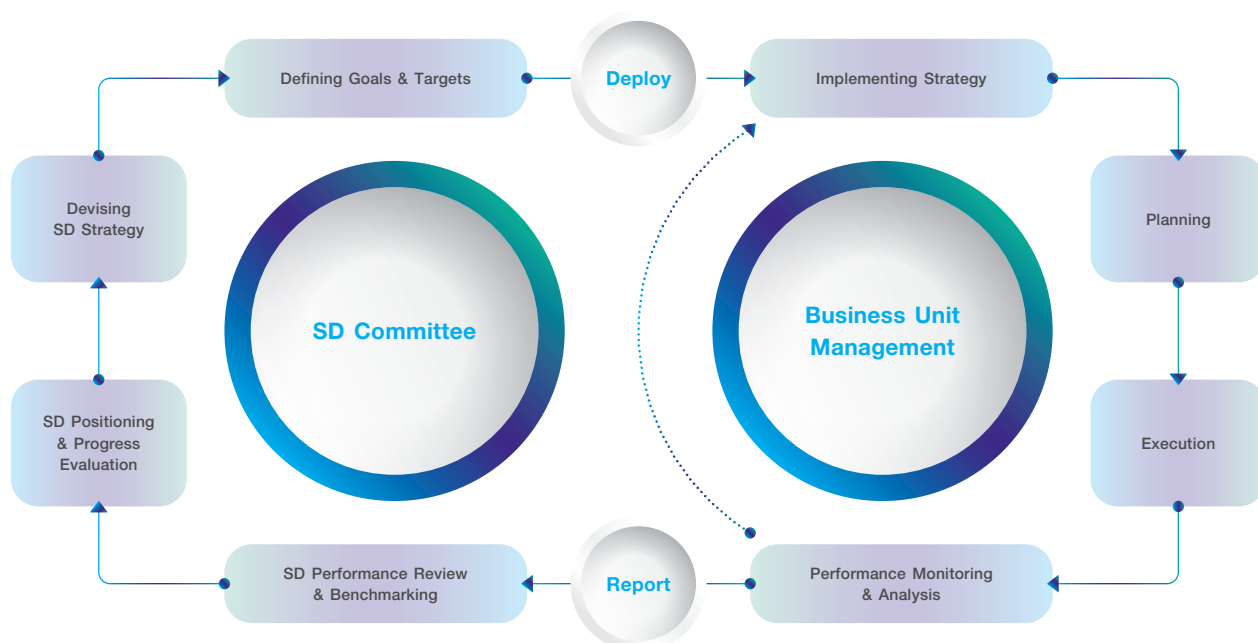


- UN Guiding Principle on Business & Human Rights and Universal Declaration on Human Rights are used as policy inputs for setting up a human resource management policy and a human rights policy
- Assessments by external institution, based on the Environmental, Social, and Governance criteria such as 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.

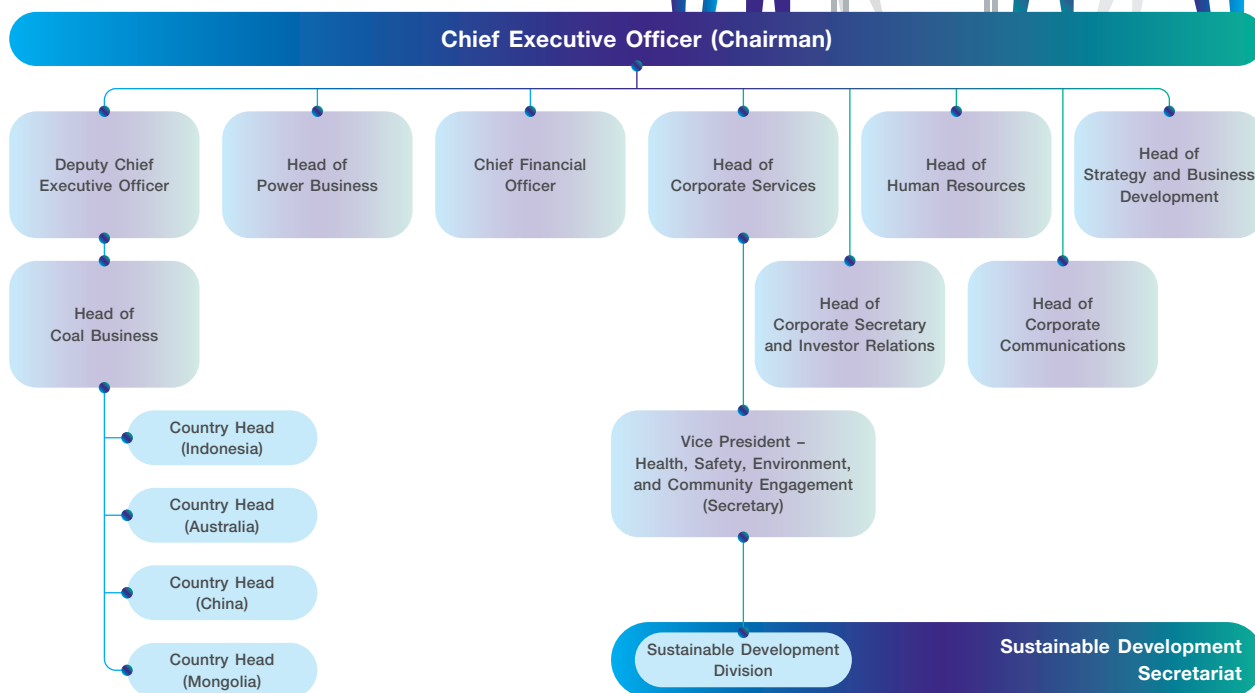


Sustainable Development Committee

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 sustainability 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



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 fourth 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

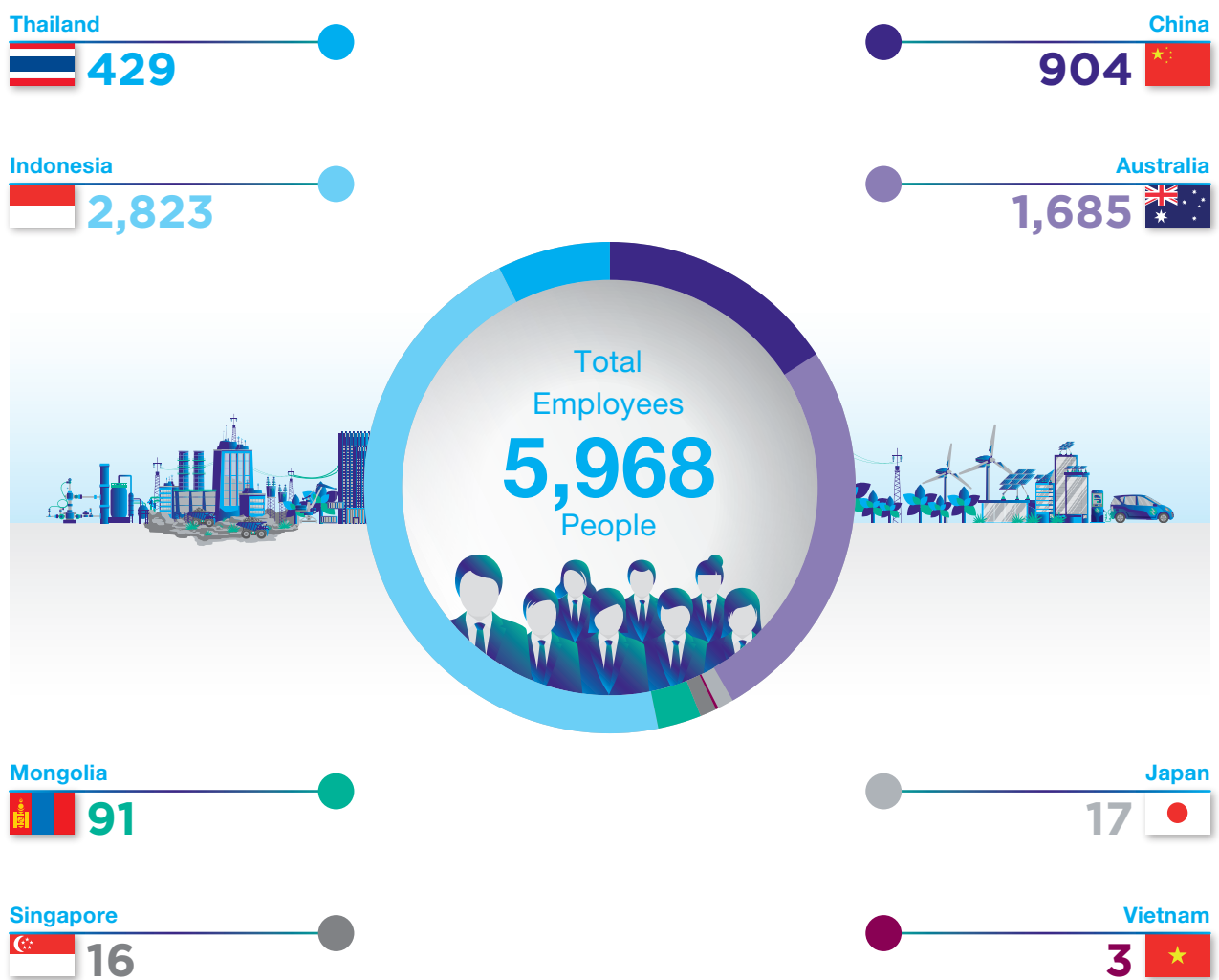
- The Company was granted the Sustainability Award of Honor 2019 from the Stock Exchange of Thailand.
- Banpu was included in the Thailand Sustainability Investment (THSI) list, announced by the Stock Exchange of Thailand for the fifth consecutive year.
- Banpu received the Thailand Corporate Excellence 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 activity “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) Total 1 meeting
			The Board of Directors Total 12 meetings	Non-executive Directors Total 1 meeting	The Audit Committee Total 9 meetings	The Corporate Governance and Nomination Committee Total 4 meetings	The Compensation Committee Total 6 meetings	
1. Mr. Chanin Vongkusolkrit	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 Vongkusolkrit	Director	April 2018 – AGM 2021	12/12	1/1	-	4/4	-	1/1
8. Mr. Buntoeng Vongkusolkrit	Director	April 2018 – AGM 2021	12/12	1/1	-	-	4/6	1/1
9. Mr. Sudiarso Prasetyo	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) Total 1 meeting
			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	
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 Vongkusolkrit 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 Prasatio
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 Directors	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 146

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, License 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 Prasetyo, Mr. Verajet Vongkusolkrit 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 Vongkusolkrit
2. Mr. Teerana Bhongmakapat
3. Mr. Rawi Corsiri
4. Mr. Sudiarso Prasetyo

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 Prasetyo, 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 Vongkusolkrit, 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 Vongkusolkrit

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”**.

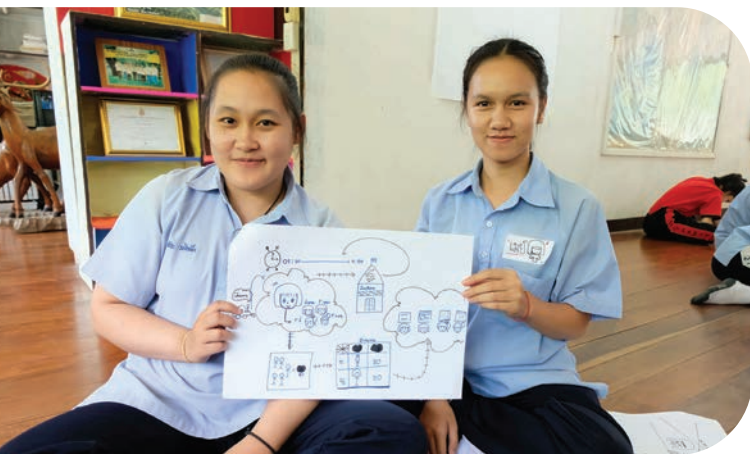
Educational Development

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 systematic 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.



- 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 overseas 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

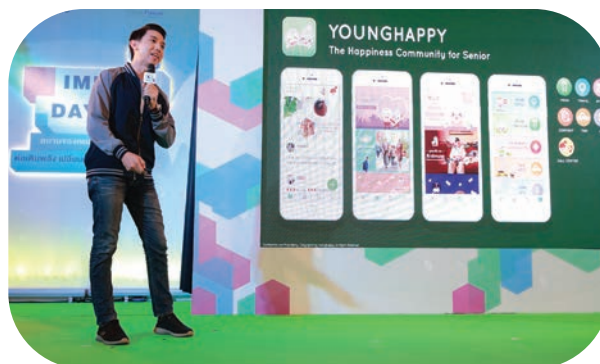
19-24 April 2019 to study the approach to **“Managing biodiversity and creatively increasing its economic value.”** The trip aimed to broaden their knowledge and experience through a wide range of activities about effective environmental management, which can sustainably be applied in Thailand.

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.

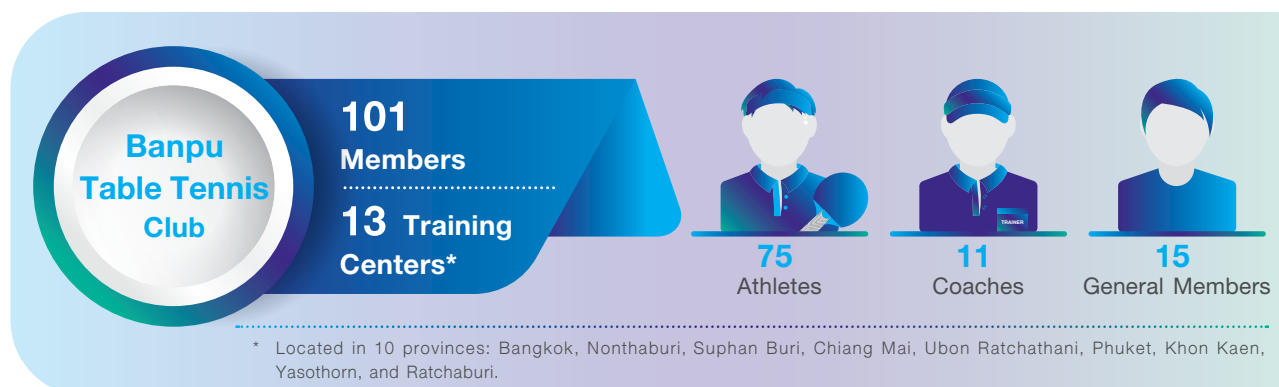


The BTTC has been striving to improve its standards and management system, while also developing a personalized training plan for each individual athlete and adding many other activities in order to promote table tennis such as **“Banpu Table Tennis Club Camp: Build Inspiration for Thai Youth in Remote 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 ITTF 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 Chانبุบผา, 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.

Banpu has provided financial support to **Thammasat-Banpu Innovative Learning Program Season 2** worth THB **8.4** Million



2 Years
Implementation
in total

Incubating
14
youth teams nationwide
to develop their creative thinking skill through the game design process that leads 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 entrepreneurial 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-stricken 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

Mr. Chanin Vongkusolkrit

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



1

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

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



2

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, BLOP 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. Sudiarmo Prasetyo

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 Vongkusolkrit

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, Sasun 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 Vongkusolkrit

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, BLOP 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 January 2019



19

Education/Training

- Master of Science in Accounting, Thammasat University
- Bachelor of Accounting (BA), Thammasat University
- Orchestrating Winning Performance 2016, IMD Business School
- Global Leadership Program for Strategic Leader 2017, IMD Business School
- Certification from School of Tax
- Certified Public Accountant (Thailand) (CPA)
- 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.
- 2009 – 2015 : Vice President – Accounting, Banpu Plc.
- 2019 – Present : Director, Aizu Land Solar G.K.
- 2019 – Present : Director, Banpu Innovation & Ventures Co., Ltd.
- 2019 – Present : Director, Banpu Innovation & Ventures (Singapore) Pte. Ltd.
- 2019 – Present : Director, 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 : Director, Hokkaido Solor Estate G.K.
- 2018 – Present : Director, Banpu North America Corporation

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-Assessment (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 Vongkusolkrit	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 Prasatio	-	-	-
Spouse/Minor Child	-	-	-
7. Mr. Buntoeng Vongkusolkrit	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 Vongkusolkrit	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 Limjaroen	-	-	-
Spouse/Minor Child	-	-	-
20. Ms. Arisara Sakoongaravek	-	-	-
Spouse/Minor Child	-	-	-

* Mr. Chanin Vongkusolkrit sold ordinary shares to family members as detailed below:

1. Ms. Kannikar Vongkusolkrit, 11,059,200 shares
2. Mrs. Arada Vongkusolkrit, 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)
		Audit Committee	Corporate Governance and Nomination Committee	Compensation Committee		
1. Mr. Chanin Vongkusolkrit 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. Sudiarmo Prasertio 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 Vongkusolkrit 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)
		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 Vongkusolkrit 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 Phaniiphand	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 Phaniiphand (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-determined 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 Vongkusolkrit 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 Vongkusolkrit 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 Putongsiriporn Family holds 0.94% of its paid-up capital.
- City Holding Co., Ltd.
 1. The Vongkusolkrit Family holds 90.50% of its paid-up capital.
 2. The Kanjanakamnerd Family holds 6.00% of its paid-up capital.
 3. The Putongsiriporn Family holds 2.00% of its paid-up capital.
 4. The Jenlapwattanukul 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 Vongkusolkrit 2) Mr. Buntoeng Vongkusolkrit 3) Mr. Verajet Vongkusolkrit	1. Mid-Siam Sugar Co., Ltd. 99.99%	1. Mr. Isara Vongkusolkrit 2. Mr. Chanin Vongkusolkrit 3. Mr. Buntoeng Vongkusolkrit 4. Mr. Chusak Vongkusolkrit 5. Mr. Klanarong Sriroth 6. Mrs. Amporn Kanjanakamnerd 7. Mr. Pongsakorn Wongwuttikraikul 8. Mr. Krisda Monthienvichienchai 9. Mr. Verajet Vongkusolkrit 10. Assoc. Prof. Dr. Chiradet Ousawat 11. Mr. Attaphol Vongkusolkrit
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 Vongkusolkrit Family. 3. There is no joint director.	1. The Vongkusolkrit Family 80.01% 2. Ufinves Co., Ltd. 15.23% 3. The Kanjanakamnerd Family 3.82% 4. The Putongsiriporn Family 0.94%	1. Mr. Vitoon Vongkusolkrit 2. Mr. Annop Vongkusolkrit 3. Ms. Phatsawan Vongkusolkrit 4. Ms. Theeranat Vongkusolkrit 5. Ms. Supawee Vongkusolkrit 6. Mr. Banchoet Vongkusolkrit 7. Mr. Kawin Vongkusolkrit 8. Mrs. Arada Vongkusolkrit 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 Vongkusolkrit Family. 3. There is no joint director.	1. The Vongkusolkrit Family 90.50% 2. The Kanjanakamnerd Family 6.00% 3. The Putongsiriporn Family 2.00% 4. The Jenlapwattanukul Family 1.50%	1. Mr. Vitoon Vongkusolkrit 2. Mr. Banchoet Vongkusolkrit 3. Mrs. Arada Vongkusolkrit 4. Ms. Theeranat Vongkusolkrit 5. Ms. Phatsawan Vongkusolkrit 6. Mr. Kawin Vongkusolkrit 7. Mr. Amnuay Kanjanakamnerd 8. Mr. Annop Vongkusolkrit 9. Ms. Supawee Vongkusolkrit
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 Vongkusolkrit 2) Mr. Verajet Vongkusolkrit	1. Mitr Phol Sugar Corp., Ltd. 87.56%	1. Mr. Isara Vongkusolkrit 2. Mr. Buntoeng Vongkusolkrit 3. Ms. Chayawadee Chaianan 4. Mrs. Anchalee Suwattanapim 5. Mr. Sukkan Wattanawekin 6. Mr. Krisda Monthienvichienchai 7. Mr. Verajet Vongkusolkrit 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 Vongkusolkrit 2. Mr. Krisda Monthienvichienchai 3. Mrs. Amporn Kanjanakamnerd 4. Mr. Pariwat Kanchanathana 5. Ms. Kannikar Vongkusolkrit

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)	<ol style="list-style-type: none"> One of the shareholders of Banpu Plc., holding 0.29% of its paid-up capital The major shareholder is Mid-Siam Sugar Co., Ltd. There is one joint director: 1) Mr. Buntoeng Vongkusolkrit 	<ol style="list-style-type: none"> Mid-Siam Sugar Co., Ltd. 99.99% 	<ol style="list-style-type: none"> Mr. Soonthorn Vongkusolkrit Mr. Isara Vongkusolkrit Mr. Buntoeng Vongkusolkrit
7. Pacific Sugar Corp., Ltd. (Import and export of sugar)	<ol style="list-style-type: none"> One of the shareholders of Banpu Plc., holding 0.26% of its paid-up capital The major shareholder is Mitr Phol Sugar Corp., Ltd. There is one joint director: 1) Mr. Verajet Vongkusolkrit 	<ol style="list-style-type: none"> Mitr Phol Sugar Corp., Ltd. 99.99% 	<ol style="list-style-type: none"> Mr. Verajet Vongkusolkrit Mr. Parin Amatyakul Mr. Jirasak Vongkusolkrit
8. Ufinves Co., Ltd. (Holding company)	<ol style="list-style-type: none"> One of the shareholders of Banpu Plc., holding 0.24% of its paid-up capital The major shareholder is TME Capital Co., Ltd. There is no joint director. 	<ol style="list-style-type: none"> TME Capital Co., Ltd. 100.00% 	<ol style="list-style-type: none"> Mr. Vitoon Vongkusolkrit Mr. Annop Vongkusolkrit Ms. Phatsawan Vongkusolkrit Ms. Theeranat Vongkusolkrit Ms. Supawee Vongkusolkrit Mr. Banchoet Vongkusolkrit Mr. Kawin Vongkusolkrit Mrs. Arada Vongkusolkrit Mr. Amnuay Kanjanakamnerd
9. Mitr Phol Bio-Power (Phuviang) Co., Ltd. (Production and distribution of sugar and molasses)	<ol style="list-style-type: none"> One of the shareholders of Banpu Plc., holding 0.24% of its paid-up capital The major shareholder is United Farmer and Industry Co., Ltd. There are two joint directors, as follows: 1) Mr. Buntoeng Vongkusolkrit 2) Mr. Verajet Vongkusolkrit 	<ol style="list-style-type: none"> United Farmer and Industry Co., Ltd. 51.04% 	<ol style="list-style-type: none"> Mr. Isara Vongkusolkrit Mr. Buntoeng Vongkusolkrit Mr. Krisda Monthienvichienchai Mr. Sirasak Tathong Mr. Prawit Prakritsri Mr. Jirasak Vongkusolkrit Ms. Theeranat Vongkusolkrit Mr. Nattapong Vongkusolkrit Mr. Arnat Panya Mr. Watchara Hemruchatanun Mr. Verajet Vongkusolkrit
10. Mitr Kalasin Sugar Co., Ltd. (Production and distribution of sugar and molasses)	<ol style="list-style-type: none"> One of the shareholders of Banpu Plc., holding 0.19% of its paid-up capital The major shareholder is United Farmer and Industry Co., Ltd. There are two joint directors, as follows: 1) Mr. Buntoeng Vongkusolkrit 2) Mr. Verajet Vongkusolkrit 	<ol style="list-style-type: none"> United Farmer and Industry Co., Ltd. 99.99% 	<ol style="list-style-type: none"> Mr. Isara Vongkusolkrit Mr. Buntoeng Vongkusolkrit Mrs. Amporn Kanjanakamnerd Mr. Pongsakorn Wongwuttikraikul Mr. Sukkan Wattanawekin Ms. Chayawadee Chaianan Mr. Krisda Monthienvichienchai Mrs. Anchalee Suwattanapim Mr. Verajet Vongkusolkrit



OTHER REFERENCES

1. Ordinary Share Registrar	<p>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</p>
2. Debenture Registrar	<p>Bangkok Bank Public Company Limited 333 Silom Road, Bangrak, Bangkok 10500 Tel. +66 2230 1893</p>
3. Bond Representative	<p>Siam Commercial Bank Public Company Limited 9 Ratchadapisek Road, Chatuchak, Bangkok 10900 Tel. +66 2544 1111</p> <p>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</p> <p>Bangkok Bank Public Company Limited 333 Silom Road, Bang Rak, Bangkok 10500 Tel. +66 2230 1893</p>
4. Auditor	<p>Ms. Amornrat Pearmpoonvatanasuk Authorised Auditor No. 4599</p> <p>PricewaterhouseCoopers ABAS Ltd. 15th Floor, Bangkok City Tower 179/74-80 South Sathorn Road, Bangkok 10120 Tel. +66 2844 1000</p>
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, 27 th 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, 27 th 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, 27 th 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, 27 th 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, 29 th 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, 27 th 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, 27 th 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, 27 th 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, 27 th 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, 27 th 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, 26 th 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, 26 th 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, 26 th 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, 26 th 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, 26 th 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, 3 rd 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, 3 rd 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, 3 rd Floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	6221 29328100
20 PT. Jorong Barutama Greston	Coal mining in 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, 3 rd 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, 3 rd 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, 3 rd 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, 3 rd 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, 3 rd 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, 3 rd 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, 3 rd 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, 3 rd 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 50 th Floor, Suite 50.06, Jl. Jend Sudirman Kav. 1, Karet Tengsin, Tanah abang, Jakarta Pusat Operational Office: Pondok Indah Office Tower 3, 3 rd 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, 3 rd 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, 3 rd 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, 3 rd 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

Name	Type of Business	Authorized Capital	Paid-up Capital	No. of Paid-up Capital (Shares)	Par Value per Share	% of Holding	Head Office	Telephone
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, 5 th 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 Village, 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.)	1 st Floor, Unit 1, Dafugou Village, 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.)	2 nd Floor, Unit 1, Dafugou Village, 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 Jiaying 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, Yaoshuang Town, Jiashan County, Jiaying 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, 3 rd 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, 5 th 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 Village, 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, 15 th 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, 15 th 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, 15 th 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, 15 th 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, 15 th 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, 15 th 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, 15 th 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, 15 th 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, 15 th 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

*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
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.)	4 th 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)	4 th 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.)	4 th 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)	4 th 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, 2 nd 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, 33 rd 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, 33 rd Floor, 3-2-5, Kasumigaseki, Chiyoda-ku, Tokyo, Japan 100-6033	81 3 6205 4665

*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
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, 33 rd 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 4 th Floor, Jalan AIP II K.S. Tubun Raya No. 77, Palmerah, West Jakarta Corresponding Office: Pondok Indah Office Tower 3, 3 rd 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, Hebij, 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, 33 rd 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 2 nd 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 4 th 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 4 th 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, 27 th Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	0 2694 6600
137 BLCF 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

*Under Corporate Law



INTEGRATED ENERGY
SOLUTIONS
DELIVERING SUSTAINABLE VALUES



BANPU PUBLIC COMPANY LIMITED

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Makkasan, Ratchathewi, Bangkok 10400

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INTEGRATED ENERGY
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BANPU PUBLIC COMPANY LIMITED
FINANCIAL REPORT
2019

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REPORT OF THE BOARD OF DIRECTORS' RESPONSIBILITIES FOR THE FINANCIAL STATEMENTS

The main priority of the Board of Directors is to supervise the Company's operations, making sure they are in line with good corporate governance policy and that the financial statements and financial information appearing in the Company's annual report are accurate, complete and adequate. Its duty is also to make sure that the financial statements are in line with Thai Financial Reporting Standards and that an appropriate accounting policy has been chosen and is being carefully pursued on a regular basis. In addition, the Board of Directors must also ensure that the Company has an effective internal control system to assure the credibility of its financial statements. The Board also ensures protection over potential conflicts of interest through systems which are place to prevent unusual transactions. Connected transactions which might lead to possible conflicts of interest are closely monitored to ensure they are genuine transactions and are reasonably carried out, based on the normal course of business and for the Company's maximum benefits, and that the Company is in compliance with relevant laws and regulations. The Audit Committee has already reported the result of its action to the Board of Directors and has also reported its opinions in the Audit Committee's Report as seen in the annual report.

The Board of Directors is of the opinion that the Company's internal control system has been prove to be satisfactory. The Board was able to obtain reasonable assurance on the credibility of the Company's financial statements as at 31 December 2019 which the Company's auditor has audited based on the generally-accepted accounting standards. The auditor is of the opinion that the financial statements present fairly the Company's financial position and the results of its operations in accordance with generally accepted accounting principles.

Mr. Chanin Vongkusolkrit
Chairman of the Board of Directors

Ms. Somruedee Chaimongkol
Chief Executive Officer



REPORT OF THE AUDIT COMMITTEE TO SHAREHOLDERS

Dear Shareholders of Banpu Public Company Limited,

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, License | 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

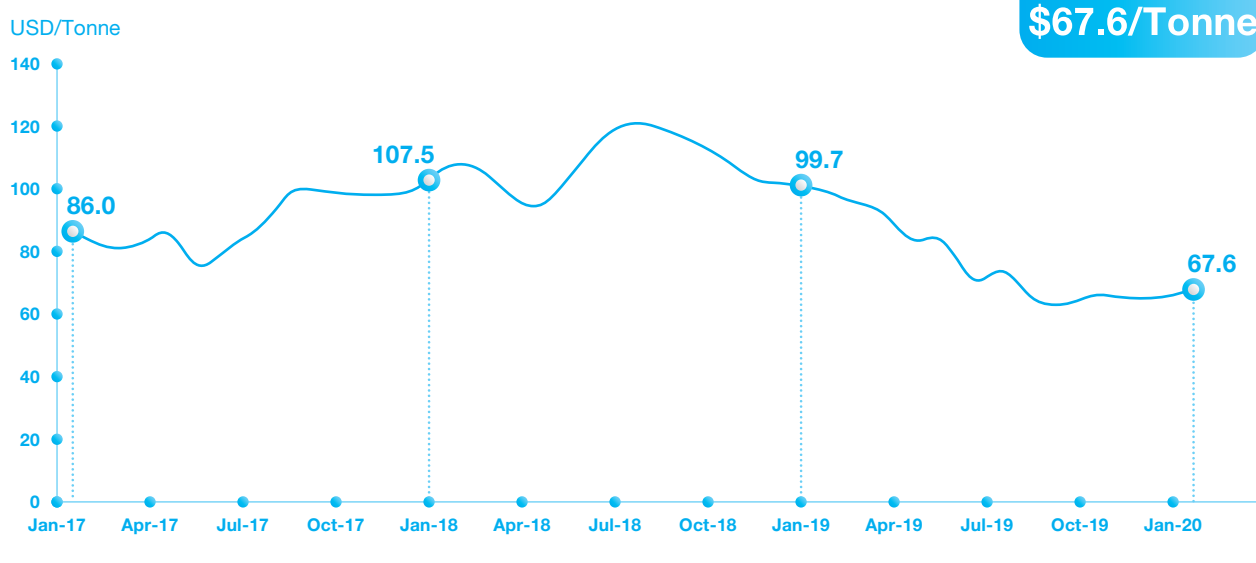
MANAGEMENT'S DISCUSSION AND ANALYSIS OF THE CONSOLIDATED FINANCIAL STATEMENTS

The Group Performance For the Year Ended 31 December 2019

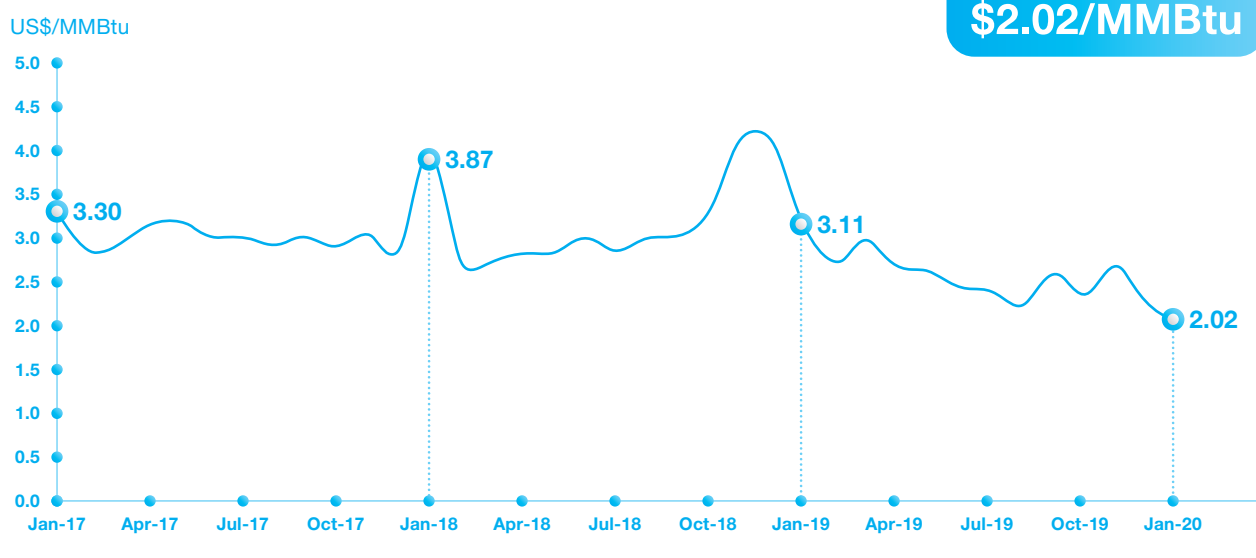
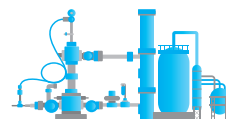
1. Energy Commodities Price Index

The market thermal coal price has gradually decrease starting from January 2019. The following presentations illustrate the coal price index.

Coal Price Index: The Newcastle Export Index (NEX) for January 2017 – 7 February 2020



Average Henry Hub Natural Gas Price for January 2017 – 31 January 2020





2. Management Discussion and Analysis

The business environment in 2019 reflects challenges arising from slowdown in global economy and unusually mild winter in northern hemisphere, impacting energy demand and commodities pricing during 4Q19.

Group EBITDA for 2019 was USD 695 million, 41% less than the previous year due mainly to lower coal and gas prices resulting in EBITDA from coal of USD 482 million (-46%) and EBITDA from gas of USD 68 million (-33%). Power business contributed EBITDA of USD 145 million (-20%).

The net profit excluding foreign exchange was USD 75 million. The continued appreciation of Thai Baht against US Dollar during the year has adversely impacted earnings. A foreign exchange loss of USD 95 million was realized in 2019, resulting in consolidated net loss of 20 million compared to the net profit of USD 206 million in the previous year.

In 4Q19 the group EBITDA was USD 131 million contributed by EBITDA from coal of USD 108 million, EBITDA from gas of USD 14 million and EBITDA from power of USD 9 million. Net loss was USD 28 million in this quarter before loss from foreign exchange.

In 4Q19 Indonesia coal achieved coal sale of 6.34 million tonnes, lower 5% QoQ as the country was approaching wet season. The Average Selling Price (ASP) was USD 60 per tonne, decreased 3% and cost of sale decreased 9% to USD 40.02 per tonne with diesel price unchanged at USD 0.67 per litre. This led to significant improvement in Gross Profit Margin (GPM) at 34% versus 28% in previous quarter.

Australia coal sale volume in 4Q19 was 2.92 million tonnes, higher 6% QoQ. The ASP remained firm at AUD 90.96 per tonne with cost of sale of AUD 78.49 per tonne. Gross profit margin was 13% compared to 27% in previous quarter.

China coal reported an equity income of USD 8 million with smooth coal production and firm domestic demand.

Gas business reported stable sale volume of 18 Billion Cubic Feet (Bcf). The mild weather in North America and high national inventory of gas weighed on gas prices during the period. Its ASP was USD 1.21 per million BTU (MMBtu) with GPM of 23%.

In power business, the Combined Heat and Power (CHP) plants in China contributed a net profit of USD 5.62 million. BLCP successfully fulfilled its electricity sale contract since October, allowing its plants to idle operation thus realized a net equity loss of USD 5 million. Hongsa reported an equity income of USD 7 million as power generation was disrupted by earthquake incident during November. All three units of Hongsa plants resumed its full operation in early January 2020.

The group continue progress on development and construction of projects in pipeline while continue expanding portfolio across strategic countries pursuing Greener & Smarter strategy. This year, with the amalgamation completion to create new flagship company “Banpu NEXT” we believe that it would expand the opportunity landscape in ramping up clean energy portfolio with advancement in Energy technology.

3. Group Performance Analysis

The analysis and explanation of Banpu Group performance for the year ended 31 December 2019 and 2018 as follows:

Consolidated Statement of Income for the year ended 31 December 2019 and 2018

Consolidated Financial Performance (Unit: Million USD)	2019	2018	Change	
			Amount	%
Sales and Service Income	2,759	3,481	(722)	-21%
Cost of Sales and Services	(2,051)	(2,253)	202	9%
Gross Profit	708	1,228	(520)	-42%
Selling Expenses	(195)	(182)	(13)	-7%
Administrative Expenses	(252)	(237)	(15)	-6%
Indemnity Payment	-	(86)	86	100%
Royalty Fee	(241)	(291)	50	17%
Share of Profit from Joint Ventures and Associates	206	264	(58)	-22%
Other Income (Expenses)	78	(17)	95	559%
Finance Cost	(187)	(175)	(12)	-7%
Profit Before Income Taxes	117	504	(387)	-77%
Income Taxes	(76)	(189)	113	60%
Profit for the Year	41	315	(274)	87%
Owners of the Parent	(20)	206	(226)	110%
Non-Controlling Interests	61	109	(48)	-44%
Earnings (Losses) Per Share (Unit: USD)	(0.004)	0.040	(0.044)	110%

In accordance with energy commodities price index that presented falling trends since the beginning of the year of thermal coal price, natural gas price and oil price; also a strength of THB currency against USD currency, the group performance reported net loss for 2019 at \$20 million, decreased by \$226 million compared to 2018. The group focused on cost management and efficient improvement of coal production to cope with gradually lower global market price. Details were described as follows:

3.1 Sales and Cost of sales

(Unit: Million USD)	Revenue			Cost of Sales		
	2019	2018	Inc. (Dec.)	2019	2018	Inc. (Dec.)
Coal Business	2,381	3,020	-21%	1,753	1,917	-9%
Natural Gas Business	105	144	-27%	72	76	-5%
Power & Steam Business	183	196	-7%	149	155	-4%
Others	90	121	-25%	77	105	-27%
Total	2,759	3,481	-21%	2,051	2,253	-9%

Sales

Sales reported at \$2,759 million (equivalent THB 85,718 million), decreased by \$722 million compared to 2018. This was mainly a decrease of \$639 million from coal businesses, a decrease of \$39 million from natural gas business, and a decrease of \$13 million from power and steam business. Details of revenue were described as follows:

- Sales from coal business of \$2,381 million or 86% of total revenue separated by source of coal as below:
 - From Indonesia coal mines of \$1,671 million
 - From Australia coal mines of \$694 million
 - From others of \$16 million
- Sales from natural gas business in USA of \$105 million or 4% of total revenue.
- Sales from Power and steam of \$183 million or 7% of total revenue derived from Combined Heat and Power (CHP) plants, Solar power plants in China and Energy Trading business in Japan that started operation in 4Q19.
- Others of \$90 million represented 3% of total revenue. A decrease of \$31 million was mainly from fuel trading business of a subsidiary in Indonesia.

1. Coal Business

Coal Business		2019	2019	Inc. (Dec.)
Sales Volume	(Million Tonnes)	36.18	38.03	-5%
Average Selling Price	(\$/Tonne)	65.82	78.77	-16%
Average Cost of Sales	(\$/Tonne)	48.15	50.25	-4%

Coal sales of \$2,381 million, decreased by \$639 million or 21% due to a decrease of sales volume and average selling price by \$13.48 per tonne compared to prior year as following details:

Indonesia Mines		2019	2018	Inc. (Dec.)
Sales Volume	(Million Tonnes)	25.41	24.02	6%
Average Selling Price	(\$/Tonne)	65.00	82.62	-21%
Average Cost of Sales	(\$/Tonne)	44.53	47.98	-7%

Coal Business in Indonesia

Sales volume

Coal sales volume was 25.41 million tonnes, increased by 1.39 million tonnes compared to 2018.

Average selling price

Average selling price per tonne was \$65.00, decreased by \$17.62 or 21% compared to 2018, in accordance with a fall of global coal market price.

Average cost of sales

Average cost of sales per tonne was \$44.53, decreased by \$3.45 or 7% compared to 2018. This was due to cost management that cope with a decrease of global coal market price, while maintain quality standards of coal, including quality development to meet customer demand and retain in the long term.

Australia Mines		2019	2018	Inc. (Dec.)
Sales Volume	(Million Tonnes)	10.50	13.70	-23%
Average Selling Price	(\$/Tonne)	93.81	105.33	-11%
Average Cost of Sales	(\$/Tonne)	80.71	72.54	11%

Coal Business in Australia

Sales volume

Coal sales volume was 10.50 million tonnes, decreased by 3.20 million tonnes or 23% compared to 2018, was from a lower of production tonned caused by a difficulty geographical mining conditions.

Average selling price

Average selling price per tonne was A\$93.81, decreased by A\$11.52 or 11% compared to 2018 as the following:

Australia Mines	Sales Volume (Unit: Million Tonnes)			Avg. Price/Tonne (A\$/Tonne)		
	2019	2018	Inc. (Dec.)	2019	2018	Inc. (Dec.)
Domestic	5.98	8.53	-30%	79.43	81.72	-3%
Export	4.52	5.17	-13%	114.90	126.54	-9%
Total	10.50	13.70	-23%	93.81	105.33	-11%

Average selling price of domestic and export sales

Average domestic selling price per tonne was A\$ 79.43, decreased by A\$2.29 due to a less portion of sales from high valued contracts as result of coal production volume was below the plan. Average export selling price per ton was A\$114.90 that decrease from 2018 driven by a decline of global coal market price. Whereas, a depreciation of AUD currency against USD currency promoted higher revenue in AUD currency when converted from USD export sales, then a higher average selling price. Average exchange rate of AUD/USD was \$0.6947 (2018: \$0.7478).

Average cost of sales

Average cost of sales per tonne was A\$80.71, increased by A\$8.17 from lower production volume compared to 2018. Coal production volume was 9.29 milion tonnes (2018: 11.70 million tonnes). This was due to coal production encountered the difficulty mining conditions and relocation of longwall equipment at Mandalong mine. As a result, in 2019 the average cost per tonne was high.

2. Natural Gas Business

Natural Gas Business		2019	2018	Inc. (Dec.)
Sales Volume	(Bcf)	69.14	70.74	-2%
Average Selling Price	(\$/Mcf)	1.38	1.87	-26%
Average Cost of Sales	(\$/Mcf)	1.05	1.07	-2%

Natural Gas Business in USA

Sales from natural gas business of 2019 reported at \$105 million, decreased by \$39 million or 27% as following details:

Sales Volume

Natural gas sale volume was 69.14 billion cubic feet, decreased by 2% compared to 2018. The warmer weather and shorter winter period during the year caused a smaller growth rate of gas demand, impacted to postpone operation from new natural gas wells.

Average Selling Price

Average selling price was \$1.38 per thousand cubic feet, decreased by 26 % from 2018. This was an impact from over natural gas volume in US market from new projects operated from certain sources and from natural gas tied with associated gas. In addition, the selling price affected by the high stock reserves that almost reach the top level among last 5 years, whereas the growth of consumption cannot keep up with such supply.

Average Cost of Sale

Average cost of sales was \$1.05 per Mcf, decreased by 2% compared to 2018 from more efficiency of cost management to cope with a decrease of market price.

3. Power Business

Sales from Power and Steam of \$183 million or 7% of total revenue was from sales from CHP plant and solar power plant in China. Details were described as follows:

Power Business	Combined Heat & Power Plants (CHP)			Solar Power Plants		
	2019	2018	Inc. (Dec.)	2019	2018	Inc. (Dec.)
Sales Volume (GWh)	1,495.75	1,491.09	0%	213.88	185.72	15%
Steam Volume (Million Tonnes)	3.60	4.11	-12%	N/A	N/A	N/A
Average Power Tariff (RMB/kWh)	0.36	0.37	-3%	0.83	0.81	2%
Average Steam Price (RMB/Tonne)	101.67	101.80	0%	N/A	N/A	N/A

Combined Heat and Power (CHP) Plants in China

Sales from power, steam, and others from 3 CHP plants in China \$154 million, decreased by \$20 million compared to the previous year.

Sales Volume

Sales volume of 1,496 GWh, increased by 5 GWh from prior year, whereas steam sales of 4.57 tonne million, decreased by 0.48 tonne million. This was from a lower demand of electricity and steam from customer that caused a decrease of sales volume from Zouping power plant. Whereas, sales from Zhending and Luannan power plant was higher, compared to 2018.

Average Selling Price

A decrease of average power tariff by RMB 0.01 per kWh caused by price adjustment in accordance with local government policy (HEBEI) since 1 September 2018. Whereas, steam price was increased by RMB1.10 per tonne from Luannan power plant compared to 2018.

Cost of Sale

Cost of sales \$135 million, decreased by \$13 million was from a decrease of coal cost that was main fuel by RMB 40 per tonne. Average coal cost was RMB 599 per tonne (2018: RMB 639 per tonne).

Solar Power Plants in China

Sales from solar power plants in China reported at \$24 million an increase of \$2 million from 2018.

Sales Volume

An increase of solar power plant sales volume was from a new solar power plant (Jixin) operated during the period and from weather condition that support better production.

Average Power Tariff

Average power tariff was RMB 0.83, that higher than 2018. This was from a decrease of value added tax from 16% to be 13% that was effective since 1 April 2019.

Cost of Sales

An increase of cost of sales was align with higher sales volume from a new solar power plant (Jixin).

Administrative Expense

Administrative expenses reported at \$252 million, an increase of 15 million or 6% was mainly from professional fees and others from business expansion to Vietnam and USA.

Royalty Fees

Royalty fees reported at \$241 million, a decrease of \$50 million or 17% was from a decrease of royalty fees from Indonesia mines of \$37 million. Moreover, a decrease of royalty fees from Australia mines by \$13 million caused by a decrease of coal sales price and volume compared to 2018.

Profit (Loss) Sharing (Unit: Million USD)	2019	2018	Inc. (Dec.)
BLCP	27	42	-36%
Hongsa & Phufai Mining	91	106	-14%
Holding Company of Solar Power in Japan	(4)	(2)	98%
Coal Business in China	92	118	-22%
Total	206	264	-3%

Share of Profit from Joint Ventures and Associates

Profit sharing from joint ventures and an associate reported \$206 million, decreased by \$58 million or 22% compared to 2018 with major details described as below:

- 1) Recognition of profit sharing from BLCP of \$27 million, decreased by \$15 million according to operating performance, including from a higher of interest expense and income tax under condition of BOI promotion certificate.
- 2) Recognition of profit sharing from Hongsa power and PhuFai mining in Laos of \$91 million, decreased by \$15 million from unplanned outage caused by the earthquake in November 2019 in order to inspect and repair damaged equipment.
- 3) Recognition of shares of profit from coal business in China of \$92 million, decreased by \$26 million from a decrease of selling price aligned with market price compared to the prior year.

Other Income

Other income of \$78 million comprised of :

- 1) Loss on foreign exchange rate of \$95 million was mainly from unrealized loss on foreign exchange rate translation on THB currency borrowings, as result of an appreciation of THB currency against USD currency compared to 2018. Average exchange rate of USD/THB as of 31 December 2019 was 30.15 (31 December 2018: THB 32.45).
- 2) Net gain from financial derivatives of \$33 million comprised of:
 - Realized gain from financial derivatives of \$34 million was gain from coal swap contracts and fuel swap contracts total of \$26 million, also gain from cross currency swap contracts of \$5 million and natural gas swap and option contracts of \$8 million. Whereas, realized loss from interest rate swap contracts of \$3 million and foreign exchange rate forward contracts total of \$2 million.
 - Unrealized gain on fair value of financial derivatives at the end of period of \$0.16 million was mainly from natural gas swap and options contracts.
- 3) Management fee income and others of \$140 million was mainly from:
 - Interest income of \$13 million.
 - Government subsidy of \$5 million from residential steam.
 - Sales of ashes, slag and scraps from mines, power plants and others of \$18 million
 - Gain on sales of Mannering mine in Australia of \$42 million.
 - Gain on acquisition of Springvale mine of \$51million.
 - Reversal entry of reserves for acquiring natural gas resources (West Brom) of \$11 million due to did not meet criterias agreed with counter party.

Corporate Income Tax

Corporate income tax of \$76 million, decreased by \$113 million or 60% was mainly from:

- 1) A decrease of \$40 million was from a decrease of operating profits compared to 2018.
- 2) A decrease of withholding tax of \$2 million caused by a decrease of dividend income during the year.
- 3) A decrease of \$71 million was from an additional recognition of net deferred income tax asset that was a time difference of recognition period between tax and accounting principles.

4. Statements of Consolidated Financial Position

Statements of Consolidated Financial Position as of 31 December 2019 in comparison with the Statements of Consolidated Financial Position as of 31 December 2018.

Financial Position (Unit: Million USD)	31 Dec 2019	31 Dec 2018	Inc. (Dec.)	
			Amount	%
Assets	8,542	8,454	88	1%
Liabilities	5,542	5,279	263	5%
Equity	3,000	3,175	(175)	-6%

4.1 Total assets of \$8,542 million, an increase of \$88 million compared to total assets as of 31 December 2018 with main details described as below:

Financial Position (Unit: Million USD)	Assets		Inc. (Dec.)	
	31 Dec 2019	31 Dec 2018	Amount	%
Cash and Cash Equivalent	433	607	(174)	-29%
Short-Term Investments	110	8	102	1275%
Trade Accounts Receivable and Note Receivables, Net	246	395	(149)	-38%
Current Portion of Dividend Receivables from Related Parties	-	10	(10)	-100%
Other Current Assets	573	375	198	53%
Total Current Assets	1,362	1,394	(33)	-2%
Dividend Receivables from Related Parties	21	210	(189)	-90%
Investments in an Associate and Joint Ventures	1,485	1,374	111	8%
Other Investments, Net	144	148	(4)	-3%
Property, Plant and Equipment, Net	1,950	1,859	91	5%
Deferred Exploration/Stripping Costs, Net	920	869	51	6%

Financial Position (Unit: Million USD)	Assets		Inc. (Dec.)	
	31 Dec 2019	31 Dec 2018	Amount	%
Mining Property Rights, Net	1,665	1,711	(46)	-3%
Goodwill	524	524	-	0%
Other Non-Current Assets	471	364	107	29%
Total Non-Current Assets	7,180	7,059	121	2%
Total Asset	8,542	8,454	88	1%

- Cash and cash equivalents of \$433 million, a decrease of \$174 million (Refer to the explanation in No.5 Consolidated Statement of Cash Flows)
- Non-current portions of dividend receivable from related parties of \$21 million, decreased by \$199 million were dividend receivable from joint ventures who operates power business in Thailand and coal business in China. This was a net results of:
 - 1) A decrease from received dividend during the period of \$413 million.
 - 2) An increase from additional declared dividend of \$210 million.
 - 3) An increase from the effects of foreign exchange rate translation at the end of the period of \$4 million.
- Investment in joint ventures and associates of \$1,485 million, increased by \$111 million or 8% was from:
 - 1) An increase from addition of investments in joint ventures and associates of \$61 million comprised of:
 - 1.1. Electric vehicle (EV) development business in Japan of \$20 million.
 - 1.2. An associate company in Singapore that was a reclassification of prepayment for development of solar power plant in Japan of \$6 million to be investment.
 - 1.3. CHP power plant in China of \$23 million.
 - 1.4. Electric Tuk Tuk projects in Thailand of \$2 million.
 - 1.5. Virtual power plant and energy trading business of \$10 million.
 - 2) An increase from recognition of profit sharing recognized by \$190 million.
 - 3) A decrease from dividend received of \$210 million.
 - 4) An increase from the effects of foreign exchange rate translation at end of period by \$77 million.
 - 5) A decrease from adjustment effects of \$7 million from new Thai Financial Reporting Standard No.15 "Revenue from contracts with customers" that was effective in 2019.
- Other investments of \$144 million, decreased by \$4 million. This was due to capital refund of \$14 million as result of the adjusted debt to equity portion under conditions of project financing from Goudou Kaisha Woodlake (Kurokawa) project and from resale of \$3 million from Goudou Kaisha University (Hiroshima) project because the counter party was unable to follow conditions under the agreement. Moreover, there was disposal of bonds from a subsidiary in Indonesia of \$3 million. Whereas, there was addition of investments in solar power projects in Japan of \$16 million and an increase from changes in fair value at the end of period of \$2 million.

- Property plant and equipment of \$1,950 million, an increase of \$91 million derived from:
 - 1) An increase from additions of machine and equipment of coal business, natural gas business and power business total of \$279 million.
 - 2) An increase from acquisition of solar power plant business in China of \$19 million.
 - 3) An increase from addition of acquisition of investment in joint venture in Australia of \$24 million.
 - 4) A decrease from depreciation charges for the period of \$220 million.
 - 5) A decrease from the effects of foreign exchange rate translation at end of period and others of \$11 million.
- Other non-current assets of \$471 million, increased by \$107 million. This was from an increase of deferred income tax assets of \$45 million, prepaid tax of subsidiaries in Indonesia and restricted cash of \$33 million and \$12 million, respectively. There were an increase of accrued subsidy income from solar power plants in China of \$19 million and other receivables from sales of non-current assets of \$15 million. Whereas, there were a decrease from reclassification of prepayment for project development in Japan to be investment in a joint venture of \$6 million, and a decrease of others of \$11 million that mostly was a decrease of VAT, deposits and land used right.

4.2 Total liabilities of \$5,542 million, increased by \$263 million compared to total liabilities as of 31 December 2018 with movement details as described below:

Financial Position (Unit: Million USD)	Liabilities		Inc. (Dec.)	
	31 Dec 2019	31 Dec 2018	Amount	%
Short-Term Loans from Financial Institutions	455	512	(57)	-11%
Trade Account Payable	60	116	(56)	-48%
Current Portion of Long-Term Borrowings, Net	363	370	(7)	-2%
Current Portion of Debenture, Net	176	88	88	100%
Accrued Overburden and Coal Transportation Costs	74	143	(69)	-48%
Financial Derivative Liabilities Due in One Year	2	5	(3)	-60%
Other Current Liabilities	431	475	(44)	-9%
Total Current Liabilities	1,561	1,790	(148)	-9%
Long-Term Loans from Other Company	1,796	1,655	141	9%
Debentures, Net	1,644	1,397	247	18%
Financial Derivative Liabilities, Net	21	18	3	17%
Other Liabilities	520	500	20	4%
Total Non-Current Liabilities	3,981	3,570	411	12%
Total Liabilities	5,542	5,279	263	5%

- Short-term loans from financial institutions of \$455 million, decreased by \$57 million was from repayment of \$1,131 million, net with additional loans of \$1,058 million, realized loss on foreign exchange rate of \$9 million and an increase from the effects of foreign exchange rate translation at the end of period of \$7 million.
- Current portions of long- term loans of \$363 million, decreased by \$7 million was due to a decrease from refinancing to be non-current portion of \$225 million, also repayment of \$112 million. While, there were an increase from reclassification from non-current portion of \$284 million, additions of \$45 million, and the effects of foreign exchange rate translation at the end of period of \$1 million.
- Current portions of debenture of \$176 million, increased by \$88 million was from reclassification from non-current portion of \$173 million and from the effects of foreign exchange rate translation at the end of period of \$4 million, net with a decrease from redemption of \$89 million.
- Accrued overburden and coal transportation expenses of \$74 million, decreased by \$69 million or 48% was mainly from mining operations of subsidiaries in Indonesia.
- Long- term loans of \$1,796 million, increased by \$141 million or 9% was a net results of:
 - 1) An increase from additional loan of \$297 million.
 - 2) An increase from refinancing from current portion of \$225 million.
 - 3) A decrease from reclassification to current portion of \$283 million.
 - 4) A decrease from early repayment of \$102 million.
 - 5) An increase from the effects of foreign exchange translation at the end of period of \$4 million. Mainly was from AUD currency loan due to a depreciation of AUD currency against USD currency. Average exchange rate of AUD/USD as of 31 Dec 2019 was 0.6981 (31 Dec 2018: 0.7039).
- Debenture of \$1,644 million, increased by \$247 million or 18% was from debenture issuance of \$314 million, net with reclassification to be current portion of \$173 million and an increase from the effects of foreign exchange translation at the end of period of \$106 million.
- Current portion and non-current portion of derivative liabilities reported at \$2 million and \$21 million, respectively, total of \$23 million. This was changes in fair value of financial derivatives at the end of period. These consisted of cross currency swap contracts of \$1 million, interest rate swap contracts of \$22 million.

4.3 Shareholders 'equity of \$3,000 million, a decrease of \$175 million was mainly due to;

Financial Position (Unit: Million USD)	Equity		Inc. (Dec.)	
	31 Dec 2019	31 Dec 2018	Amount	%
Equity Attributable to Owners of the Parent	2,394	2,560	(166)	-6%
Non-Controlling Interests	606	615	(9)	-1%
Total Equity	3,000	3,175	(175)	-6%

- A decrease of \$20 million from net loss for the year 2019.
- An increase of \$77 million from non-controlling interests.
- An increase of \$45 million from the effects of foreign exchange rate translation of subsidiaries' financial statements and others.
- A decrease of fair value reserves for available for sales investment and cash flows hedge reserves of \$32 million.
- A decrease of \$7 million from impact of new Thai Financial Reporting Standard No. 15 "Revenue from contracts with customers" that was effective in 2019.
- A decrease of \$200 million from dividend payment.
- A decrease of \$38 million from repurchase of treasury shares.

4.4 Net debt-to-equity ratio as of 31 December 2019 reported at 1.24 times (31 December 2018: 1.02 times).

5. Statement of Consolidated Cash Flow

Statement of consolidated cash flows for the year ended 31 December 2019 presented a decrease of net cash flow by \$174 million (included the effect from unrealized gain on exchange rate translation of \$17 million). The consolidated cash flows were divided into:

Statement of Cash Flows (Unit: Million USD)	Amount
Cash Flows from Operating Activities	124
Cash Flows from Investing Activities	(348)
Cash Flows from Financing Activities	33
Net Decrease in Cash and Cash Equivalents	(191)
Exchange Gains on Cash and Cash Equivalents	17
Cash and Cash Equivalents at the Beginning of Period	607
Cash and Cash Equivalents at the End of Period	433

5.1 Net cash inflow from operating activities of \$124 million; with major operating items as follows;

- Collections from coal sales of \$2,033 million.
- Payments to contractors and suppliers of \$1,416 million.
- Interest payments of \$186 million.
- Payments of corporate income tax of \$140 million.
- Royalty fee payments of \$204 million.
- Others received of \$37 million.

5.2 Net cash outflow from investing activities of \$348 million; with major items as follows;

- Payments for machines, equipment and project in progress of \$297 million.
- Payments for investment in electric vehicle (EV) development business and solar power business in Japan \$75 million.
- Payments for deferred charge of mine exploration, mine development and overburden of \$239 million.
- Payments for short-term investment of \$155 million.
- Payments for short term loan to related company of \$23 million.
- Dividend receipts from joint ventures of \$414 million.
- Cash payments for placement of restricted deposits at banks of \$79 million.
- Receipts from others of \$106 million.

5.3 Net cash inflow from financing activities of \$33 million; comprised of

- Receipts from short term and long - term loans from financial institutions and others of \$1,707 million.
- Repayments of short term and long - term loans from financial institutions and others of \$ 1,436 million.
- Dividend payment to shareholders of \$200 million.
- Payments for treasury shares of \$38 million.

6. Coal Reserves

The quantity of sales and remaining of coal reserves for the year ended 31 December 2019:

Source (Unit: Million Tons)	Quantity of Coal Sales and Reserves		
	Reserves as of 31 Dec 2018	Sales Full Year 2019	Reserves as of 31 Dec 2019
1. Indonesia			
1.1 Jorong	11.80	1.55	10.25
1.2 Indominco	59.50	12.66	46.84
1.3 Kitadin	4.44	1.39	3.05
1.4 Trubaindo	48.60	4.71	43.89
1.5 Bharinto	152.20	2.86	149.34
1.6 NPR Project	77.40	-	11.40
2. Australia	309.36	10.27	299.09
3. China			
3.1 Gaohe	134.70	9.15	125.55
3.2 Hebi Zhongtai	17.10	1.46	15.64
Total	815.10	44.05	771.05

7. Natural Gas Reserves

The quantity of sales and remaining of natural gas reserves for the year ended 31 December 2019:

Item (Unit: Million Cubic Feet)	Quantity of Natural Gas Sales and Reserves		
	Reserves as of 31 Dec 2018	Sales Full Year 2019	Reserves as of 31 Dec 2019
Natural Gas	1,254,173	69,144	1,185,029
Total	1,254,173	69,144	1,185,029



INDEPENDENT AUDITOR'S REPORT

To the shareholders of Banpu Public Company Limited

My opinion

In my opinion, the consolidated financial statements of Banpu Public Company Limited (the Company) and its subsidiaries (the Group) and the separate financial statements of the Company present fairly, in all material respects, the consolidated and separate financial position of the Group and of the Company as at 31 December 2019, and its consolidated and separate financial performance and its consolidated and separate cash flows for the year then ended in accordance with Thai Financial Reporting Standards (TFRSs).

What I have audited

The consolidated financial statements and the separate financial statements comprise:

- The consolidated and separate statements of financial position as at 31 December 2019;
- The consolidated and separate statements of comprehensive income for the year then ended;
- The consolidated and separate statements of changes in equity for the year then ended;
- The consolidated and separate statements of cash flows for the year then ended; and
- The notes to the consolidated and separate financial statements, which include a summary of significant accounting policies.

Basis for opinion

I conducted my audit in accordance with Thai Standards on Auditing (TSAs). My responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the consolidated and separate financial statements section of my report. I am independent of the Group and the Company in accordance with the Federation of Accounting Professions under the Royal Patronage of his Majesty the King's Code of Ethics for Professional Accountants together with the ethical requirements that are relevant to my audit of the consolidated and separate financial statements, and I have fulfilled my other ethical responsibilities in accordance with these requirements. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Key audit matters

Key audit matters are those matters that, in my professional judgment, were of most significance in my audit of the consolidated and separate financial statements of the current period. These matters were addressed in the context of my audit of the consolidated and separate financial statements as a whole, and in forming my opinion thereon, and I do not provide a separate opinion on these matters.



Key Audit Matter	How My Audit Addressed the Key Audit Matter
Impairment Assessments of Goodwill <p>Refer to Note 20 Goodwill, as at 31 December 2019, the Group has goodwill of US Dollar 524.12 million which represents 6% of the total consolidated assets. Goodwill arose from the acquisitions of mining and electricity generation businesses in other countries. Goodwill of US Dollar 466.93 million arose from the acquisition of coal mining business in Australia and the remaining US Dollar 57.19 million arose from the acquisitions of coal mining business in the Republic of Indonesia and Mongolia and electricity generating business in the People's Republic of China. No impairment charge was recognised by management against these balances in the 2019 financial year.</p> <p>Management tests impairment of goodwill annually. The impairment test is performed at level of cash generating unit (CGU) and calculated its recoverable amount by applying the value-in-use model which involves the management's significant judgements in respect to the future operating results of business, projected cash flows and the discount rate to be applied to the projected cash flows. Key assumptions applied in the value-in-use model are trend of global coal prices, estimated reserves, production plan, cost profiles, growth rate and discount rate applied to the cash flow forecasts.</p> <p>I focused on the valuation of goodwill arising from the acquisition of coal mining business in Australia due to the significant value and the fact that the determination of value-in-use depends on a number of assumptions. Those assumptions involve significant judgement made by the management in assessing the possibility of future business plans.</p>	<p>The audit procedures of this matter were performed by the component auditor in Australia. I understood and evaluated the work of the component auditor to obtain sufficient and appropriate audit evidences for the impairment testing of goodwill arising from the acquisition of coal mining business in Australia. I also satisfied myself as to the appropriateness of management's identification of the Group's CGUs and the continued satisfactory operation of the Group's controls over the impairment assessment process.</p> <p>The component auditor carried out the following to review management's assessment of impairment testing of goodwill.</p> <ul style="list-style-type: none">• Held discussions with the management to understand the basis for the assumptions used and assessed whether the impairment testing process and assumptions had been applied consistently across the Group.• Challenged management's significant assumptions used in impairment testing for goodwill, specifically the global coal price, foreign exchange rate forecasts, production plan, operating costs and discount rate. The procedures included comparing the key assumptions to the external sources for trend of global coal price and foreign exchange rate forecasts and the approved business and mine plan.• Assessed the reasonableness of business plan and mine plan by comparing the plans of 2019 with actual results.

Key Audit Matter

Impairment Assessments of Goodwill

How My Audit Addressed the Key Audit Matter

- Assessed the discount rate taking into account the independently obtained data from available public information of companies in the industry, to see whether the discount rate used by management was within an acceptable range.
- Tested sensitivity analysis over key assumptions in the model prepared by the management in order to assess factors to be sensitive to assumptions and potential impact of a range possible outcomes.

As a result of the procedures performed, the key assumptions used by the management in assessing the recoverable amount of goodwill are within the reasonable range and consistent with supporting evidence.

Acquisition of the Remaining Interest in Springvale Coal Joint Venture

As detailed in Note 36.4 Acquisition of the remaining interest in Springvale Coal Joint Venture (SPJV), during the year 2019, the Group acquired the remaining 50% interest in SPJV which was previously held by another co-venturer for a total consideration of US Dollar 0.68. The SPJV owns the Springvale and Angus Place Collieries. In addition, the co-venturer agreed to pay the Group a total of US Dollar 7.81 million to assume certain liabilities on behalf of the co-venturer as part of the acquisition. Therefore, the Group obtained control over the SPJV since then. This acquisition is a business combination achieved in stages in accordance with Thai Financial Reporting Standard 3 “Business Combination”. This accounting standard required the management to measure the carrying value

The audit procedures of this matter were performed by a component auditor in Australia. I understood and evaluated the work performed by the component auditor to obtain sufficient and appropriate audit evidences.

The component auditor carried out the following procedures in order to obtain evidence for management’s determination of the fair value of previously held interest before obtaining control over the SPJV and fair value of identifiable assets acquired and liabilities assumed:

- Obtained an understanding of the transaction by reading the sale and purchase agreements and all related documents.
- Challenged and assessed management’s conclusions against the requirements of the relevant financial reporting standards, which included the determination

Key Audit Matter

Acquisition of the Remaining Interest in Springvale Coal Joint Venture

of previously held interest in the SPJV to fair value as at the date of obtaining control and recognised any gains or losses arising from fair value measurement in profit or loss. The management is required to determine fair value of net identifiable assets acquired.

The management determined that the fair value of previously held interest in the SPJV is US Dollar 124.89 million, which resulted in loss on a business combination achieved in stages of US Dollar 82.25 million and the fair value of the net identifiable assets acquired as of the date of obtaining control is US Dollar 124.89 million, which mainly comprised US Dollar 59.15 million relating to property, plant and equipment and US Dollar 50.22 million relating to deferred development expenditures. The fair value of the liabilities assumed is US Dollar 35.68 million. The valuation of net identifiable assets acquired was performed as a part of the purchase price allocation. This resulted in a bargain purchase of US Dollar 132.70 million.

I focused on the determination of fair value of previously held interest in SPJV, the loss on a business combination achieved in stages and the fair value of remaining interest acquired because the valuation methodology and assumptions used in the financial model involved significant assumptions and judgement made by management.

How My Audit Addressed the Key Audit Matter

when control has transferred to the Group, assessing the appropriate accounting for the loss on remeasurement of the previously held interest and assessing the appropriate acquisition accounting.

- Assessed the fair value estimated on the previously held interest as at the date of obtaining control and the fair value of the remaining interest acquired by:
 - Tested key assumptions applied in the valuation models that estimated fair value such as comparing cash flow forecasts with the approved mine plans and available public information.
 - Assessed the discount rate adopted by the management, taking into account independently obtained data from available public information of companies in the industry.
 - Considered the valuation methodology in the models with the requirements of the financial reporting standards.
- Tested the mathematical accuracy of the fair value models, loss on a business combination achieved in stages and bargain purchase.

As a result, I determined that the assessment of the acquisition of the remaining interest in SPJV was appropriately performed in accordance with the definition and requirement set out in Thai Financial Reporting Standard 3. The assumptions used to identify the fair values of previously held interest in SPJV and calculation of loss on a business combination achieved in stages and a bargain purchase were reasonable and in accordance with the accounting practices.

Other information

The directors are responsible for the other information. The other information comprises the information included in the annual report, but does not include the consolidated and separate financial statements and my auditor's report thereon. The annual report is expected to be made available to me after the date of this auditor's report.

My opinion on the consolidated and separate financial statements does not cover the other information and I will not express any form of assurance conclusion thereon.

In connection with my audit of the consolidated and separate financial statements, my responsibility is to read the other information identified above when it becomes available and, in doing so, consider whether the other information is materially inconsistent with the consolidated and separate financial statements or my knowledge obtained in the audit, or otherwise appears to be materially misstated.

When I read the annual report, if I conclude that there is a material misstatement therein, I am required to communicate the matter to the audit committee.

Responsibilities of the directors for the consolidated and separate financial statements

The directors are responsible for the preparation and fair presentation of the consolidated and separate financial statements in accordance with TFRSs, and for such internal control as the directors determine is necessary to enable the preparation of consolidated and separate financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated and separate financial statements, the directors are responsible for assessing the Group's and the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the Group and the Company or to cease operations, or has no realistic alternative but to do so.

The audit committee assists the directors in discharging their responsibilities for overseeing the Group's and the Company's financial reporting process.

Auditor's responsibilities for the audit of the consolidated and separate financial statements

My objectives are to obtain reasonable assurance about whether the consolidated and separate financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with TSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated and separate financial statements.

As part of an audit in accordance with TSAs, I exercise professional judgment and maintain professional scepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the consolidated and separate financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's and the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the directors.
- Conclude on the appropriateness of the directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's and the Company's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the consolidated and separate financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Group and the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated and separate financial statements, including the disclosures, and whether the consolidated and separate financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. I am responsible for the direction, supervision and performance of the group audit. I remain solely responsible for my audit opinion.

I communicate with the audit committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

I also provide the audit committee with a statement that I have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on my independence, and where applicable, related safeguards.

From the matters communicated with the audit committee, I determine those matters that were of most significance in the audit of the consolidated and separate financial statements of the current period and are therefore the key audit matters. I describe these matters in my auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, I determine that a matter should not be communicated in my report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

PricewaterhouseCoopers ABAS Ltd.



Amornrat Pearmpoonvatanasuk

Certified Public Accountant (Thailand) No. 4599

Bangkok

20 February 2020



STATEMENT OF FINANCIAL POSITION

As at 31 December 2019

Consolidated financial statements

		US Dollar'000		Baht'000	
	Notes	2019	2018	2019	2018
Assets					
Current assets					
Cash and cash equivalents	9	433,183	607,344	13,062,193	19,708,200
Short-term investments	10	110,302	7,887	3,326,047	255,933
Trade accounts receivable and notes receivable, net	11	245,899	394,731	7,414,844	12,808,938
Amounts due from related parties	34	168	205	5,061	6,667
Current portion of dividend receivables from a related party	34	-	10,170	-	330,000
Advances to related parties	34	-	3	-	88
Inventories, net	12	124,645	149,632	3,758,557	4,855,522
Spare parts and machinery supplies, net		33,925	28,196	1,022,989	914,961
Financial derivative assets due in one year	13	17,886	6,599	539,330	214,125
Short-term loans to related parties	34	16,287	87	491,106	2,828
Short-term loans to other companies		2,908	2,803	87,675	90,967
Current portion of deferred exploration and development expenditures and deferred overburden expenditures/stripping costs, net	18	97,168	30,796	2,929,991	999,327
Other current assets	14	280,469	155,902	8,457,253	5,059,012
Total current assets		1,362,840	1,394,355	41,095,046	45,246,568
Non-current assets					
Dividend receivables from a related party	34	21,186	209,642	638,831	6,802,860
Long-term loans to related parties	34	20,132	17,054	607,048	553,384
Investments in joint ventures and associates	15	1,484,759	1,374,119	44,771,432	44,589,871
Other investments, net		143,674	148,487	4,332,359	4,818,371
Investment property, net		1,573	1,873	47,442	60,774
Property, plant and equipment, net	16	1,949,862	1,859,390	58,796,141	60,336,838
Deferred income tax assets, net	17	158,084	113,499	4,766,872	3,683,006
Financial derivative assets, net	13	11,269	11,125	339,818	360,988
Deferred exploration and development expenditures and deferred overburden expenditures/stripping costs, net	18	920,063	869,257	27,743,585	28,207,228
Mining property rights, net	19	1,664,768	1,710,766	50,199,410	55,514,011
Goodwill	20	524,120	524,120	15,804,325	17,007,600
Other non-current assets	21	280,112	219,906	8,446,499	7,135,896
Total non-current assets		7,179,602	7,059,238	216,493,762	229,070,827
Total assets		8,542,442	8,453,593	257,588,808	274,317,395

The notes to the consolidated and separate financial statements on pages 48 to 177 are an integral part of these financial statements.

STATEMENT OF FINANCIAL POSITION

As at 31 December 2019

Consolidated financial statements

		US Dollar'000		Baht'000	
	Notes	2019	2018	2019	2018
Liabilities and equity					
Current liabilities					
Short-term loans from financial institutions	22	454,861	511,873	13,715,865	16,610,171
Trade accounts payable		59,632	115,797	1,798,142	3,757,579
Accrued interest expenses		27,632	27,735	833,225	900,010
Accrued royalty expenses		9,828	11,746	296,354	381,140
Accrued overburden and coal transportation costs		74,178	143,001	2,236,756	4,640,351
Accrued income taxes		13,187	16,909	397,645	548,691
Accrued employee benefits		87,581	69,813	2,640,925	2,265,411
Financial derivative liabilities due in one year	13	2,237	4,587	67,462	148,853
Current portion of long-term borrowings, net	23	363,115	369,681	10,949,368	11,996,087
Current portion of debentures, net	24	175,725	87,818	5,298,803	2,849,677
Current portion of deferred unfavourable contract liabilities, net		7,199	-	217,068	-
Other current liabilities	25	285,951	350,120	8,622,581	11,361,326
Total current liabilities		1,561,126	1,709,080	47,074,194	55,459,296
Non-current liabilities					
Long-term loans from other company		-	584	-	18,958
Long-term borrowings, net	23	1,796,453	1,654,831	54,170,244	53,698,935
Debentures, net	24	1,644,182	1,397,130	49,578,675	45,336,586
Deferred income tax liabilities, net	17	281,241	272,031	8,480,548	8,827,341
Employee benefits obligation		57,692	45,272	1,739,637	1,469,074
Deferred unfavourable contract liabilities, net		16,451	41,537	496,055	1,347,866
Financial derivative liabilities, net	13	20,827	18,443	628,008	598,466
Other liabilities		163,846	140,157	4,940,600	4,548,063
Total non-current liabilities		3,980,692	3,569,985	120,033,767	115,845,289
Total liabilities		5,541,818	5,279,065	167,107,961	171,304,585

The notes to the consolidated and separate financial statements on pages 48 to 177 are an integral part of these financial statements.

STATEMENT OF FINANCIAL POSITION

As at 31 December 2019

Consolidated financial statements

		US Dollar'000		Baht'000	
	Notes	2019	2018	2019	2018
Liabilities and equity (continued)					
Equity					
Share capital					
Registered share capital					
5,161,925,515 ordinary shares at par					
of Baht 1 each					
(31 December 2018: 5,165,257,100					
ordinary shares at par of Baht 1 each)					
26				5,161,925	5,165,257
Issued and paid-up share capital					
5,161,925,515 ordinary shares at paid-up of					
Baht 1 each					
26		149,961	149,961	5,161,925	5,161,925
26		443,624	443,624	15,372,438	15,372,438
Share-based payment		1,562	1,343	52,248	45,416
Retained earnings					
Appropriated					
- Legal reserve					
27		95,976	95,976	3,171,520	3,171,520
- Other reserves					
28		149,089	83,399	4,725,119	2,708,429
Unappropriated					
		1,734,526	1,942,779	57,895,051	64,294,454
26		(38,138)	-	(1,157,140)	-
Other components of equity		(142,405)	(157,422)	(13,026,580)	(7,693,722)
Equity attributable to owners of the Parent		2,394,195	2,559,660	72,194,581	83,060,460
Non-controlling interests		606,429	614,868	18,286,266	19,952,350
Total equity		3,000,624	3,174,528	90,480,847	103,012,810
Total liabilities and equity		8,542,442	8,453,593	257,588,808	274,317,395

The notes to the consolidated and separate financial statements on pages 48 to 177 are an integral part of these financial statements.

STATEMENT OF FINANCIAL POSITION

As at 31 December 2019

Separate financial statements

		US Dollar'000		Baht'000	
		2019	2018	2019	2018
Notes					
Assets					
Current assets					
Cash and cash equivalents	9	29,479	28,313	888,912	918,752
Short-term investments	10	-	3,082	-	100,000
Trade accounts receivable	11	12,778	19,020	385,301	617,205
Amounts due from related parties	34	380,547	376,826	11,475,008	12,227,937
Current portion of dividend receivables from a related party	34	-	11,639	-	377,681
Advances to related parties	34	272	442	8,208	14,327
Inventories, net	12	3,804	7,861	114,697	255,091
Financial derivative assets due in one year	13	12,095	3,775	364,709	122,488
Other current assets	14	5,614	3,756	169,326	121,950
Total current assets		444,589	454,714	13,406,161	14,755,431
Non-current assets					
Dividend receivables from a related party	34	-	41,826	-	1,357,259
Long-term loans to related parties	34	2,129,886	2,551,384	64,224,592	82,791,909
Investments in subsidiaries	15	1,954,274	1,384,250	58,929,179	44,918,640
Other investments		8,840	8,743	266,555	283,706
Investment property, net		1,020	1,020	30,769	33,112
Property, plant and equipment, net	16	5,706	6,098	172,058	197,870
Financial derivative assets, net	13	11,269	10,601	339,818	344,001
Deferred income tax assets, net	17	48,150	23,978	1,451,912	778,066
Other non-current assets	21	82,851	3,143	2,498,288	102,005
Total non-current assets		4,241,996	4,031,043	127,913,171	130,806,568
Total assets		4,686,585	4,485,757	141,319,332	145,561,999

The notes to the consolidated and separate financial statements on pages 48 to 177 are an integral part of these financial statements.

STATEMENT OF FINANCIAL POSITION

As at 31 December 2019

Separate financial statements

		US Dollar'000		Baht'000	
		2019	2018	2019	2018
Notes					
Liabilities and equity					
Current liabilities					
Short-term loans from financial institutions	22	409,305	466,554	12,342,176	15,139,599
Trade accounts payable to subsidiaries	34	2,803	3,937	84,529	127,769
Advances from and amounts due to related parties	34	1,201	2,074	36,205	67,303
Short-term loan from a related party	34	16,000	-	482,464	-
Accrued interest expenses		26,037	25,584	785,122	830,193
Financial derivative liabilities due in one year	13	417	182	12,564	5,922
Current portion of long-term borrowings, net	23	223,282	235,992	6,732,855	7,657,887
Current portion of debentures, net	24	175,725	87,818	5,298,803	2,849,677
Other current liabilities	25	5,746	16,416	173,278	532,708
Total current liabilities		860,516	838,557	25,947,996	27,211,058
Non-current liabilities					
Long-term borrowings, net	23	1,037,750	1,015,418	31,292,325	32,950,113
Debentures, net	24	1,644,182	1,397,130	49,578,675	45,336,586
Employee benefits obligation		12,659	8,877	381,717	288,071
Financial derivative liabilities, net	13	19,371	17,352	584,112	563,065
Other liabilities		93	110	2,792	3,578
Total non-current liabilities		2,714,055	2,438,887	81,839,621	79,141,413
Total liabilities		3,574,571	3,277,444	107,787,617	106,352,471

The notes to the consolidated and separate financial statements on pages 48 to 177 are an integral part of these financial statements.

STATEMENT OF FINANCIAL POSITION

As at 31 December 2019

Separate financial statements

		US Dollar'000		Baht'000	
	Notes	2019	2018	2019	2018
Liabilities and equity (continued)					
Equity					
Share capital					
Registered share capital					
5,161,925,515 ordinary shares at par of					
Baht 1 each (31 December 2018:					
5,165,257,100 ordinary shares at par					
of Baht 1 each)					
26				5,161,925	5,165,257
Issued and paid-up share capital					
5,161,925,515 ordinary shares at paid-up of					
Baht 1 each					
26		149,961	149,961	5,161,925	5,161,925
26		443,624	443,624	15,372,438	15,372,438
Retained earnings					
Appropriated					
- Legal reserve					
27		14,996	14,996	516,193	516,193
- Other reserves					
28		38,138	-	1,157,140	-
Unappropriated					
		503,016	578,115	15,927,341	18,215,843
26		(38,138)	-	(1,157,140)	-
30		417	21,617	(3,446,182)	(56,871)
Total equity		1,112,014	1,208,313	33,531,715	39,209,528
Total liabilities and equity		4,686,585	4,485,757	141,319,332	145,561,999

The notes to the consolidated and separate financial statements on pages 48 to 177 are an integral part of these financial statements.

STATEMENT OF COMPREHENSIVE INCOME

For the year ended 31 December 2019

Consolidated financial statements

	Notes	US Dollar'000		Baht'000	
		2019	2018	2019	2018
Sales and service income		2,759,217	3,481,442	85,717,849	112,770,519
Cost of sales and services		(2,051,191)	(2,252,967)	(63,736,734)	(72,960,877)
Gross profit		708,026	1,228,475	21,981,115	39,809,642
Dividend income from other investments		1,129	999	34,766	32,392
Management fee and other income		126,192	55,246	3,900,819	1,772,783
Interest income		12,736	8,322	394,996	269,762
Selling expenses		(194,732)	(181,614)	(6,031,198)	(5,879,677)
Administrative expenses		(251,828)	(237,222)	(7,779,080)	(7,679,623)
Indemnity payment		-	(86,049)	-	(2,714,079)
Royalty fee		(240,626)	(290,940)	(7,474,298)	(9,429,609)
Net gains (losses) from financial derivatives		33,352	(62,587)	1,036,435	(2,051,687)
Net losses on exchange rate		(95,050)	(18,980)	(2,962,086)	(617,505)
Interest expenses		(182,206)	(170,311)	(5,657,221)	(5,505,827)
Other finance costs		(5,428)	(4,977)	(168,433)	(160,500)
Share of profit from joint ventures and associates	15	205,845	263,662	6,443,993	8,499,974
Profit before income taxes		117,410	504,024	3,719,808	16,346,046
Income taxes	17	(76,015)	(189,141)	(2,368,151)	(6,109,965)
Profit for the year		41,395	314,883	1,351,657	10,236,081

The notes to the consolidated and separate financial statements on pages 48 to 177 are an integral part of these financial statements.

STATEMENT OF COMPREHENSIVE INCOME

For the year ended 31 December 2019

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Other comprehensive income (expense), net of taxes:				
Items that will not be reclassified to profit or loss				
- Remeasurements of post-employment benefit obligations	(2,643)	2,397	(57,134)	80,585
- Share of other comprehensive expense from a joint venture and associates for using the equity method	(434)	(2)	(12,439)	-
- Translation differences	-	-	(3,446,182)	(343,809)
Total items that will not be reclassified to profit or loss, net of taxes	(3,077)	2,395	(3,515,755)	(263,224)
Items that will be reclassified subsequently to profit or loss				
- Gains (losses) on remeasuring available-for-sale investments	23	(1,934)	10,464	(62,271)
- Losses on cash flow hedge reserve	(18,171)	(10,246)	(500,667)	(330,100)
- Share of other comprehensive income (expenses) from joint ventures and associates for using the equity method	61,127	(11,612)	(1,401,308)	(598,307)
- Translation differences	(11,098)	(125,432)	(875,710)	(4,339,700)
Total items that will be reclassified subsequently to profit or loss, net of taxes	31,881	(149,224)	(2,767,221)	(5,330,378)
Other comprehensive income (expense) for the year, net of taxes	28,804	(146,829)	(6,282,976)	(5,593,602)
Total comprehensive income (expense) for the year	70,199	168,054	(4,931,319)	4,642,479
Attributable to:				
Owners of the Parent	(19,604)	205,475	(552,864)	6,693,731
Non-controlling interests	60,999	109,408	1,904,521	3,542,350
	41,395	314,883	1,351,657	10,236,081
Total comprehensive income (expense) attributable to:				
Owners of the Parent	(6,705)	61,168	(5,933,614)	1,344,866
Non-controlling interests	76,904	106,886	1,002,295	3,297,613
	70,199	168,054	(4,931,319)	4,642,479
	US Dollar		Baht	
Note	2019	2018	2019	2018
Earnings (losses) per share				
Basic earnings (losses) per share 32	(0.004)	0.040	(0.107)	1.297

The notes to the consolidated and separate financial statements on pages 48 to 177 are an integral part of these financial statements.

STATEMENT OF COMPREHENSIVE INCOME

For the year ended 31 December 2019

Separate financial statements

	Note	US Dollar'000		Baht'000	
		2019	2018	2019	2018
Sales		55,383	62,140	1,714,447	2,014,055
Cost of sales		(50,803)	(52,527)	(1,572,470)	(1,702,810)
Gross profit		4,580	9,613	141,977	311,245
Dividend income from subsidiaries		159,917	145,775	4,994,942	4,724,903
Dividend income from other investments		296	248	9,346	7,903
Management fee and other income		33,190	42,227	1,030,717	1,368,291
Interest income		113,437	103,468	3,524,186	3,344,880
Selling expenses		(2,351)	(2,551)	(73,097)	(82,466)
Administrative expenses		(69,378)	(62,790)	(2,146,999)	(2,036,394)
Indemnity payment		-	(28,620)	-	(902,711)
Net gains (losses) from financial derivatives		3,104	(2,326)	101,260	(80,390)
Net losses on exchange rate		(41,422)	(8,879)	(1,295,435)	(285,539)
Interest expenses		(145,202)	(133,634)	(4,508,300)	(4,319,819)
Other financial costs		(2,840)	(2,185)	(88,046)	(70,722)
Profit before income taxes		53,331	60,346	1,690,551	1,979,181
Income taxes	17	25,334	(8,263)	791,211	(270,263)
Profit for the year		78,665	52,083	2,481,762	1,708,918
Other comprehensive income (expense), net of taxes:					
Items that will not be reclassified to profit or loss					
- Remeasurements of post-employment benefit obligations		(11)	(484)	-	(15,818)
- Translation differences		-	-	(2,700,432)	(343,809)

The notes to the consolidated and separate financial statements on pages 48 to 177 are an integral part of these financial statements.

STATEMENT OF COMPREHENSIVE INCOME

For the year ended 31 December 2019

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Total items that will not be reclassified to profit or loss, net of taxes	(11)	(484)	(2,700,432)	(359,627)
Items that will be reclassified subsequently to profit or loss				
- Gains (losses) on remeasuring available-for-sale investments	131	(1,755)	(540)	(57,799)
- Gains (losses) on cash flow hedge reserve	(21,331)	5,819	(688,341)	185,644
Total items that will be reclassified subsequently to profit or loss, net of taxes	(21,200)	4,064	(688,881)	127,845
Other comprehensive income (expense) for the year, net of taxes	(21,211)	3,580	(3,389,313)	(231,782)
Total comprehensive income (expense) for the year	57,454	55,663	(907,551)	1,477,136

	Note	US Dollar		Baht	
		2019	2018	2019	2018
Earnings per share					
Basic earnings per share	32	0.015	0.010	0.483	0.331

The notes to the consolidated and separate financial statements on pages 48 to 177 are an integral part of these financial statements.

STATEMENT OF CHANGES IN EQUITY

For the year ended 31 December 2019

Consolidated financial statements

Attributable to owners of the parent												US Dollar'000		
Notes	Issued and paid-up share capital	Premium on share capital	Treasury stocks	Share-based payment	Retained earnings		Other components of equity					Non-controlling interests	Total equity	
					Legal reserve	Other reserves	Unappropriated	Fair value reserve of available-for-sale investments	Cash flow hedge reserve	Translation differences	Surplus on dilution of investments in subsidiaries			Total other components of equity
Opening balance as at 1 January 2019	149,961	443,624	-	1,343	95,976	83,399	1,942,779	(4,274)	(19,229)	(446,302)	312,383	(157,422)	614,868	3,174,528
Retrospective adjustments from changes in accounting policy 3	-	-	-	-	-	-	(5,226)	-	-	-	-	-	(1,425)	(6,651)
Opening balance after adjustment	149,961	443,624	-	1,343	95,976	83,399	1,937,553	(4,274)	(19,229)	(446,302)	312,383	(157,422)	613,443	3,167,877
Treasury stocks 26	-	-	(38,138)	-	-	-	-	-	-	-	-	-	-	(38,138)
Treasury stocks reserve 26	-	-	-	-	-	38,138	(38,138)	-	-	-	-	-	-	-
Other reserves 28	-	-	-	-	-	27,552	(27,552)	-	-	-	-	-	-	-
Warrant issuance of a subsidiary 29	-	-	-	219	-	-	-	-	-	-	-	-	41	260
Dividend paid 33	-	-	-	-	-	-	(115,615)	-	-	-	-	-	-	(115,615)
Dividend paid of a subsidiary	-	-	-	-	-	-	-	-	-	-	-	-	(83,959)	(83,959)
Total comprehensive income (expense) for the year	-	-	-	-	-	-	(21,722)	23	(31,573)	46,567	-	15,017	76,904	70,199
Closing balance as at 31 December 2019	149,961	443,624	(38,138)	1,562	95,976	149,089	1,734,526	(4,251)	(50,802)	(399,735)	312,383	(142,405)	606,429	3,000,624
Opening balance as at 1 January 2018	149,961	443,624	-	996	95,976	71,081	1,860,685	(2,340)	(13,378)	(308,360)	312,296	(11,782)	600,180	3,210,721
Other reserves 28	-	-	-	-	-	12,318	(12,318)	-	-	-	-	-	-	-
Warrant issuance of a subsidiary 29	-	-	-	347	-	-	-	-	-	-	-	-	57	404
Changes in shareholding interests of subsidiaries	-	-	-	-	-	-	-	-	-	-	87	87	1,936	2,023
Dividend paid 33	-	-	-	-	-	-	(112,483)	-	-	-	-	-	-	(112,483)
Dividend paid of a subsidiary	-	-	-	-	-	-	-	-	-	-	-	-	(94,191)	(94,191)
Total comprehensive income (expense) for the year	-	-	-	-	-	-	206,895	(1,934)	(5,851)	(137,942)	-	(145,727)	106,886	168,054
Closing balance as at 31 December 2018	149,961	443,624	-	1,343	95,976	83,399	1,942,779	(4,274)	(19,229)	(446,302)	312,383	(157,422)	614,868	3,174,528

The notes to the consolidated and separate financial statements on pages 48 to 177 are an integral part of these financial statements.

STATEMENT OF CHANGES IN EQUITY

For the year ended 31 December 2019

Consolidated financial statements											Baht'000	
Attributable to owners of the parent												
Notes	Issued and paid-up share capital	Premium on share capital	Treasury stocks	Share-based payment	Retained earnings			Other components of equity			Non-controlling interests	Total equity
					Legal reserve	Other reserves	Unappropriated	Fair value reserve of available-for-sale investments	Cash flow hedge reserve	Translation differences		
Opening balance												
as at 1 January 2019	5,161,925	15,372,438	-	45,416	3,171,520	2,708,429	64,294,454	(138,670)	(623,968)	(18,272,358)	11,341,274	103,012,810
Retrospective adjustments from changes in accounting policy 3	-	-	-	-	-	-	(168,834)	-	-	-	-	(214,884)
Opening balance after adjustment												
Treasury stocks 26	-	15,372,438	(1,157,140)	45,416	3,171,520	2,708,429	64,125,620	(138,670)	(623,968)	(18,272,358)	11,341,274	102,797,926
Treasury stocks reserve 26	-	-	-	-	-	1,157,140	(1,157,140)	-	-	-	-	(1,157,140)
Other reserves 28	-	-	-	-	-	859,550	(859,550)	-	-	-	-	-
Warrant issuance of a subsidiary 29	-	-	-	6,832	-	-	-	-	-	-	-	7,599
Dividend paid 33	-	-	-	-	-	-	(3,613,123)	-	-	-	-	(3,613,123)
Dividend paid of a subsidiary	-	-	-	-	-	-	-	-	-	-	-	(2,623,096)
Total comprehensive income (expense) for the year	-	-	-	-	-	-	(600,756)	10,464	(907,875)	(4,435,447)	-	(4,931,319)
Closing balance												
as at 31 December 2019	5,161,925	15,372,438	(1,157,140)	52,248	3,171,520	4,725,119	57,895,051	(128,206)	(1,531,843)	(22,707,805)	11,341,274	90,480,847
Opening balance												
as at 1 January 2018	5,161,925	15,372,438	-	34,224	3,171,520	2,317,509	61,556,945	(76,399)	(437,212)	(13,124,515)	11,338,447	104,929,268
Other reserves 28	-	-	-	-	-	390,920	(390,920)	-	-	-	-	-
Warrant issuance of a subsidiary 29	-	-	-	11,192	-	-	-	-	-	-	-	12,999
Changes in shareholding	-	-	-	-	-	-	-	-	-	-	-	-
Interests of subsidiaries	-	-	-	-	-	-	-	-	-	-	2,827	63,111
Dividend paid 33	-	-	-	-	-	-	(3,613,307)	-	-	-	-	(3,613,307)
Dividend paid of a subsidiary	-	-	-	-	-	-	-	-	-	-	-	(3,024,567)
Total comprehensive income (expense) for the year	-	-	-	-	-	-	6,741,736	(62,271)	(186,756)	(5,147,843)	-	4,642,479
Closing balance												
as at 31 December 2018	5,161,925	15,372,438	-	45,416	3,171,520	2,708,429	64,294,454	(138,670)	(623,968)	(18,272,358)	11,341,274	103,012,810

The notes to the consolidated and separate financial statements on pages 48 to 177 are an integral part of these financial statements.

STATEMENT OF CHANGES IN EQUITY

For the year ended 31 December 2019

Separate financial statements										US Dollar'000
Notes	Issued and paid-up share capital	Premium on share capital	Treasury stocks	Retained earnings			Other components of equity			Total equity
				Legal reserve	Other reserve	Unappropriated	Other comprehensive income (expense)			
							Fair value reserve of available-for-sale investments	Cash flow hedge reserve	Total other components of equity	
Opening balance as at 1 January 2019	149,961	443,624	-	14,996	-	578,115	1,955	19,662	21,617	1,208,313
Treasury stocks	-	-	(38,138)	-	-	-	-	-	-	(38,138)
Treasury stocks reserve	-	-	-	-	38,138	(38,138)	-	-	-	-
Dividend paid	-	-	-	-	-	(115,615)	-	-	-	(115,615)
Total comprehensive income (expense) for the year	-	-	-	-	-	78,654	131	(21,331)	(21,200)	57,454
Closing balance as at 31 December 2019	149,961	443,624	(38,138)	14,996	38,138	503,016	2,086	(1,669)	417	1,112,014
Opening balance as at 1 January 2018	149,961	443,624	-	14,996	-	638,999	3,710	13,843	17,553	1,265,133
Dividend paid	-	-	-	-	-	(112,483)	-	-	-	(112,483)
Total comprehensive income (expense) for the year	-	-	-	-	-	51,599	(1,755)	5,819	4,064	55,663
Closing balance as at 31 December 2018	149,961	443,624	-	14,996	-	578,115	1,955	19,662	21,617	1,208,313

The notes to the consolidated and separate financial statements on pages 48 to 177 are an integral part of these financial statements.

STATEMENT OF CHANGES IN EQUITY

For the year ended 31 December 2019

Separate financial statements

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Notes	Issued and paid-up share capital	Premium on share capital	Treasury stocks	Retained earnings		Other components of equity				Total other components of equity	Total equity
				Legal reserve	Other reserve	Unappropriated	Fair value reserve of available-for-sale investments	Cash flow hedge reserve	Translation differences		
Opening balance as at 1 January 2019											
	5,161,925	15,372,438	-	516,193	-	18,215,843	63,457	638,012	(758,340)	(56,871)	39,209,528
26	-	-	(1,157,140)	-	-	-	-	-	-	-	(1,157,140)
26	-	-	-	-	1,157,140	(1,157,140)	-	-	-	-	-
33	-	-	-	-	-	(3,613,123)	-	-	-	-	(3,613,123)
Total comprehensive income (expense) for the year	-	-	-	-	-	2,481,761	(540)	(688,341)	(2,700,431)	(3,389,312)	(907,551)
Closing balance as at 31 December 2019											
	5,161,925	15,372,438	(1,157,140)	516,193	1,157,140	15,927,341	62,917	(50,329)	(3,458,771)	(3,446,183)	33,531,714
Opening balance as at 1 January 2018											
	5,161,925	15,372,438	-	516,193	-	20,136,050	121,256	452,368	(414,531)	159,093	41,345,699
33	-	-	-	-	-	(3,613,307)	-	-	-	-	(3,613,307)
Total comprehensive income (expense) for the year	-	-	-	-	-	1,693,100	(57,799)	185,644	(343,809)	(215,964)	1,477,136
Closing balance as at 31 December 2018											
	5,161,925	15,372,438	-	516,193	-	18,215,843	63,457	638,012	(758,340)	(56,871)	39,209,528

The notes to the consolidated and separate financial statements on pages 48 to 177 are an integral part of these financial statements.

STATEMENT OF CASH FLOWS

For the year ended 31 December 2019

Consolidated financial statements

Notes	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Cash flows from operating activities				
Profit for the year before income taxes	117,410	504,024	3,719,808	16,346,046
Adjustment to reconcile profit before taxes to cash receipts from (payments in) operations				
- Depreciation and amortisation	346,582	326,334	10,760,539	10,544,080
- Write-off property, plant and equipment	16 1,129	1,863	35,097	60,156
- Donation of investment property	318	-	9,873	-
- Write-off other investment	94	-	2,918	-
- Allowance for slow-moving of spare parts and machinery supplies	(2,554)	2,131	(79,296)	68,854
- Allowance for net realisable value of inventory	(4,042)	4,042	(125,494)	130,600
- Interest expenses	182,206	170,311	5,657,221	5,505,827
- Other finance costs	5,428	4,977	168,433	160,500
- Interest income	(12,736)	(8,322)	(394,996)	(269,762)
- Share of profit from joint ventures and associates	15 (205,845)	(263,662)	(6,443,993)	(8,499,974)
- Loss from liquidation of a joint venture	3	-	93	-
- Dividend income from other investments	(1,129)	(999)	(34,766)	(32,392)
- Net gains on disposal of property, plant and equipment	(84)	(2,828)	(2,608)	(91,376)
- Gains from disposal of asset held for sales	(40,096)	-	(1,244,885)	-
- Net gain from acquisition of additional interest	36.4 (50,451)	-	(1,524,933)	-
- Share based payment expenses	260	404	8,072	12,999
- Gains from business combination	-	(30,672)	-	(962,360)
- Net unrealised (gains) losses from financial derivatives	(33,352)	62,587	(1,036,435)	2,051,687
- Net unrealised (gains) losses on exchange rate	116,181	(45,036)	3,481,279	(1,472,444)
Cash flow before changes in working capital	419,322	725,154	12,955,927	23,552,441
Changes in working capital (net of effects from acquisition and disposal of subsidiaries)				
- Trade accounts receivable and notes receivable	168,063	(84,282)	5,217,953	(2,723,210)
- Amounts due from related parties	149	398	4,626	12,860
- Advances to related parties	3	314	93	10,146
- Inventories	37,171	(28,252)	1,154,070	(912,842)
- Spare parts and machinery supplies	(2,889)	(1,200)	(89,697)	(38,773)
- Other current assets	(39,878)	(1,772)	(1,238,116)	(57,255)
- Deferred overburden expenditures stripping costs	31,844	(71,216)	988,680	(2,301,039)
- Other non-current assets	14,514	6,778	450,625	219,002
- Trade accounts payable	(73,467)	2,152	(2,280,974)	69,533
- Accrued overburden and coal transportation costs	(68,823)	39,800	(2,136,789)	1,285,966
- Accrued royalty expenses	(1,918)	(7,204)	(59,549)	(232,766)
- Employee benefits obligation	20,730	2,856	643,617	92,279
- Other current liabilities	(64,275)	85,009	(1,995,584)	2,746,700
- Other liabilities	9,182	1,605	285,079	51,859
Cash generated from operating activities	449,728	670,140	13,899,961	21,774,901
- Interest paid and financial charges paid	(186,283)	(174,652)	(5,783,640)	(5,643,128)
- Income tax paid	(139,711)	(135,029)	(4,337,691)	(4,362,882)
- Income tax refund	242	51,225	7,514	1,655,116
Net cash receipts from operating activities	123,976	411,684	3,786,144	13,424,007

The notes to the consolidated and separate financial statements on pages 48 to 177 are an integral part of these financial statements.

STATEMENT OF CASH FLOWS

For the year ended 31 December 2019

Consolidated financial statements

		US Dollar'000		Baht'000	
		2019	2018	2019	2018
Notes					
Cash flows from investing activities					
Cash receipts from short-term investments		54,011	18,460	1,676,912	596,456
Cash payments for short-term investments		(154,930)	(16,033)	(4,810,205)	(518,038)
Cash receipts from short-term loan to a related party	34	6,383	749	198,182	24,200
Cash payments for short-term loan to related parties	34	(22,535)	(825)	(699,669)	(26,670)
Cash receipts from long-term loan to a related party	34	2,093	2,622	64,982	84,707
Cash payments for long-term loan to a related party	34	(424)	(797)	(13,158)	(25,758)
Cash payments for short-term loan to other company		(104)	(2,803)	(3,229)	(90,567)
Cash receipts from reduction of other investments		16,905	-	524,859	-
Cash payments for purchase of other investments		(15,581)	(32,801)	(483,753)	(1,059,823)
Cash payments for additional investments		(59,847)	(176,887)	(1,858,098)	(5,913,459)
Cash payments for purchase of property, plant and equipment		(297,491)	(273,176)	(9,236,382)	(8,826,508)
Cash receipts from disposal of property, plant and equipment		14,564	12,882	452,177	416,226
Cash payments for deferred exploration and development expenditures		(239,005)	(130,508)	(7,420,532)	(4,216,805)
Interest received		12,388	8,538	384,618	275,869
Cash receipts from dividends from joint ventures		413,008	148,273	12,822,907	4,790,804
Cash receipts from dividends from other investments		1,129	999	34,766	32,392
Cash payments for placement of restricted deposits at banks		(78,958)	(11,401)	(2,451,456)	(368,375)
Net cash payments in investing activities		(348,394)	(452,708)	(10,817,079)	(14,825,349)
Cash flows from financing activities					
Cash receipts from short-term loans from financial institutions	22	1,057,991	872,232	32,848,096	28,182,416
Repayments of short-term loans from financial institutions	22	(1,130,829)	(775,225)	(35,109,527)	(25,048,057)
Cash payments for finance leases		(3,944)	(9,930)	(122,452)	(320,845)
Cash repayment of short-term loans from a related party	34	-	(1,248)	-	(40,320)
Cash receipts from long-term loans from financial institutions	23	335,306	497,644	10,410,444	16,079,238
Repayments of long-term loans from financial institutions	23	(212,197)	(276,349)	(6,588,205)	(8,929,024)
Cash receipts from debentures	24	313,983	50,000	9,748,406	1,615,535
Repayments of debentures	24	(89,485)	(177,867)	(2,778,296)	(5,746,993)
Cash receipts from increase in share capital of a subsidiary from non-controlling interests		-	2,023	-	65,938
Cash payments for treasury stocks	26	(38,138)	-	(1,157,140)	-
Dividend paid to shareholders	33	(115,615)	(112,483)	(3,613,123)	(3,613,307)
Dividend paid to non-controlling interests		(83,959)	(94,191)	(2,623,096)	(3,024,567)
Net cash receipts from (payments in) financing activities		33,113	(25,394)	1,015,107	(779,986)

The notes to the consolidated and separate financial statements on pages 48 to 177 are an integral part of these financial statements.

STATEMENT OF CASH FLOWS

For the year ended 31 December 2019

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Net increase (decrease) in cash and cash equivalents	(191,305)	(66,418)	(6,015,828)	(2,181,328)
Exchange gains (losses) on cash and cash equivalents	17,144	(9,314)	(630,179)	(434,003)
Cash and cash equivalents at beginning of the year	607,344	683,076	19,708,200	22,323,531
Cash and cash equivalents at end of the year	433,183	607,344	13,062,193	19,708,200
Non cash transactions				
Significant non-cash transactions as at 31 December are as follows:				
Other payables and finance lease				
from purchase of property, plant and equipment	28,205	20,909	850,494	925,801
Purchase consideration for business acquisition				
- Other payables from business acquisition	2,182	2,784	65,796	90,340
Transfer of advance payment				
for developing solar power plant projects	-	9,149	-	295,601
Increase in deferred exploration and development expenditures				
by advance received	-	6,486	-	210,469
Other receivables from disposal of machinery and equipment	-	2,053	-	66,587
Other receivables from disposal of assets held for sale	29,398	-	913,994	-

The notes to the consolidated and separate financial statements on pages 48 to 177 are an integral part of these financial statements.

STATEMENT OF CASH FLOWS

For the year ended 31 December 2019

Separate financial statements

	Note	US Dollar'000		Baht'000	
		2019	2018	2019	2018
Cash flows from operating activities					
Profit for the year before income taxes		53,331	60,346	1,690,551	1,979,181
Adjustment to reconcile profit before income taxes to cash receipts from (payments in) operations					
- Depreciation and amortisation		1,284	1,351	39,873	43,667
- Write-off property, plant and equipment	16	-	1	-	12
- Interest expenses		145,202	133,634	4,508,300	4,319,819
- Other finance costs		2,840	2,185	88,046	70,722
- Interest income		(113,437)	(103,468)	(3,524,186)	(3,344,880)
- Dividend income from subsidiaries		(159,917)	(145,775)	(4,994,942)	(4,724,903)
- Dividend income from other investments		(296)	(248)	(9,346)	(7,903)
- Gains on disposal of property, plant and equipment		(232)	(2,565)	(7,204)	(82,881)
- Share-based payment expenses		70	139	2,172	4,496
- Net unrealised (gains) losses from financial derivatives		237	(6,389)	7,344	(206,445)
- Net unrealised losses on exchange rate		44,714	7,829	1,381,305	212,213
Cash flow before changes in working capital		(26,204)	(52,960)	(818,087)	(1,736,902)
Changes in working capital					
- Trade accounts receivable		6,242	(2,392)	193,815	(77,275)
- Amounts due from related parties		4,702	(99)	145,975	(3,183)
- Advances to related parties		169	(259)	5,256	(8,364)
- Inventories		4,057	(1,573)	125,973	(50,833)
- Other current assets		(7,999)	(2,689)	(248,353)	(86,879)
- Other non-current assets		(2,857)	853	(88,714)	27,570
- Trade accounts payable to a subsidiary		(1,134)	116	(35,215)	3,750
- Advances from and amounts due to related parties		(883)	324	(27,427)	10,456
- Employee benefits obligation		3,000	379	93,142	12,232
- Other current liabilities		(10,188)	8,708	(316,299)	281,350
- Other liabilities		(17)	(80)	(549)	(2,576)
Cash generated from (used in) operating activities		(31,112)	(49,672)	(970,483)	(1,630,654)
- Interest paid and finance costs paid		(144,138)	(133,311)	(4,475,139)	(4,307,364)
Net cash payments in operating activities		(175,250)	(182,983)	(5,445,622)	(5,938,018)

The notes to the consolidated and separate financial statements on pages 48 to 177 are an integral part of these financial statements.

STATEMENT OF CASH FLOWS

For the year ended 31 December 2019

Separate financial statements

		US Dollar'000		Baht'000	
	Notes	2019	2018	2019	2018
Cash flows from investing activities					
Cash receipt from short-term loan to a related party	34	1,886	168,476	58,560	5,443,587
Cash payments for short-term loan to a related party	34	(11,678)	(175,675)	(362,564)	(5,676,170)
Cash receipts from long-term loans to a related party	34	520,585	11,312	16,162,929	365,509
Cash payments for long-term loans to a related party	34	(41,393)	(116,463)	(1,285,154)	(3,763,003)
Cash payments for increase in investment in subsidiaries	15.1	(570,094)	-	(17,700,046)	-
Cash payments for investment		(77,000)	-	(2,390,665)	-
Cash receipts from short-term investments		3,160	-	98,122	-
Cash payments for purchase of property, plant and equipment		(1,307)	(1,083)	(40,573)	(35,007)
Cash receipts from disposal of property, plant and equipment		2,366	709	73,452	22,909
Interest received		111,681	44,374	3,467,440	1,433,763
Cash receipts from dividends from subsidiaries		213,472	209,009	6,627,806	6,753,226
Cash receipts from dividends from other investments		296	248	9,346	7,903
Net cash receipts from (payments in) from investing activities		151,974	140,907	4,718,653	4,552,717
Cash flows from financing activities					
Cash receipts from short-term loans from financial institutions	22	843,206	700,102	26,179,513	22,620,798
Repayments of short-term loans from financial institutions	22	(916,325)	(577,837)	(28,449,688)	(18,670,302)
Cash receipts from short-term loan from a related party	34	16,000	-	496,762	-
Repayments of short-term loan from a related party	34	-	(4,449)	-	(143,739)
Cash receipts from long-term loans from financial institutions	23	141,000	289,000	4,377,712	9,337,792
Repayments of long-term loans from financial institutions	23	(132,000)	(137,000)	(4,098,283)	(4,426,566)
Cash receipts from debentures	24	313,983	50,000	9,748,406	1,615,535
Repayments of debentures	24	(89,485)	(177,867)	(2,778,296)	(5,746,993)
Cash payments for treasury stocks	26	(38,138)	-	(1,157,140)	-
Dividend paid to shareholders	33	(115,615)	(112,483)	(3,613,123)	(3,613,307)
Net cash receipts from financing activities		22,626	29,466	705,863	973,218
Net decrease in cash and cash equivalents		(650)	(12,610)	(21,106)	(412,083)
Exchange gains (losses) on cash and cash equivalents		1,816	109	(8,734)	(2,996)
Cash and cash equivalents at beginning of the year		28,313	40,814	918,752	1,333,831
Cash and cash equivalents at end of the year		29,479	28,313	888,912	918,752
Non cash transactions					
Significant non-cash transactions as at 31 December are as follows:					
Other payables for purchase of property, plant and equipment					
	25	203	686	6,136	22,256

The notes to the consolidated and separate financial statements on pages 48 to 177 are an integral part of these financial statements.



NOTES TO THE CONSOLIDATED AND SEPARATE FINANCIAL STATEMENTS

For the year ended 31 December 2019

1 General information

Banpu Public Company Limited (the Company) is a public limited company incorporated and resident in Thailand. The address of the Company's registered office is 1550 Thanapoom Tower, 27th Floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok.

The Company is listed on the Stock Exchange of Thailand. For reporting purposes, the Company and its subsidiaries are referred to as the Group.

The Group is engaged in coal mining and power businesses.

The Group has operations in Thailand and overseas mainly in Indonesia, the People's Republic of China, Australia, Mongolia, and the United States of America.

These consolidated and separate financial statements were authorised by the Board of Directors on 20 February 2020.

2 Accounting policies

The principal accounting policies adopted in the preparation of these consolidated and separate financial statements are set out below.

2.1 Basis of preparation

The consolidated and separate financial statements have been prepared in accordance with Thai Financial Reporting Standards (TFRS) and the financial reporting requirements issued under the Securities and Exchange Act.

Management has determined that the US Dollar is the Company's functional currency and has presented the consolidated and separate financial statements in US Dollar, in accordance with TAS 21, The Effects of Changes in Foreign Exchange Rates. The Company is required to present its consolidated and separate financial statements in Thai Baht by converting the US Dollar to Thai Baht, using the basis as described in Note 2.4 (c) to comply with the regulations of the Stock Exchange of Thailand and the Department of Business Development.

The consolidated and separate financial statements have been prepared under the historical cost convention except for certain accounts as disclosed in the accounting policies below.

The preparation of financial statements in conformity with Thai generally accepted accounting principles requires the use of certain accounting estimates. It also requires management to exercise its judgement in the process of applying the Group's accounting policies. The areas involving a higher degree of judgement or complexity, or areas where assumptions and estimates are significant to the consolidated and separate financial statements are disclosed in Note 5.

An English version of the consolidated and separate financial statements has been prepared from the statutory financial statements that are in the Thai language. In the event of a conflict or a difference in interpretation between the two languages, the Thai language statutory financial statements shall prevail.



2.2 New and amended financial reporting standards that are relevant and have significant impacts to the Group

2.2.1 New and amended financial reporting standards that are effective for accounting period beginning or after 1 January 2019.

Commencing from 1 January 2019, the Group adopted new Thai Financial Reporting Standards effective for the period beginning on or after 1 January 2019 and relevant to the Group. The adoption of these standards does not have a significant impact to the Group, except TFRS 15, Revenue from contracts with customers as described in Note 3.

2.2.2 New and amended financial reporting standards that are effective for accounting period beginning or after 1 January 2020. The Group has not yet early adopted these standards.

a) Financial instruments

The new financial standards relate to financial instruments are:

TAS 32	Financial Instruments: Presentation
TFRS 7	Financial Instruments: Disclosures
TFRS 9	Financial Instruments
TFRIC 16	Hedges of a Net Investment in a Foreign Operation
TFRIC 19	Extinguishing Financial Liabilities with Equity Instruments

These new standards address the classification, measurement, derecognition of financial assets and financial liabilities, impairment of financial assets, hedge accounting, and presentation and disclosure of financial instruments.

The Group's management is currently assessing the impact of adoption of these standards.

b) TFRS 16, Leases

Where the Group is a lessee, TFRS 16, Leases will result in almost all leases being recognised on the statement of financial position as the distinction between operating and finance leases is removed. A right-of-use asset and a lease liability will be recognised, with exception on short-term and low-value leases.

The Group's management is currently assessing the impact of adoption of this standard.

2.3 Group accounting - Investments in subsidiaries, associates and joint arrangements

2.3.1 Subsidiaries

Subsidiaries are all entities (including structured entities) over which the Group has control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. Subsidiaries are fully consolidated from the date on which control is transferred to the Group. They are deconsolidated from the date that control ceases.

The Group applies the acquisition method to account for business combinations except business combination under common control. The consideration transferred for the acquisition of a subsidiary is the fair value of the assets transferred, the liabilities incurred to the former owners of acquiree and the equity interests issued by the Group. The consideration transferred includes the fair value of any asset or liability resulting from a contingent consideration arrangement. Acquisition-related costs are expensed as incurred. Identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date. On an acquisition-by-acquisition basis, the Group recognises any non-controlling interest in the acquiree either at fair value or at the non-controlling interest's proportionate share of the acquiree's net assets.

If the business combination is achieved in stages, the acquisition date carrying value of the acquirer's previously held equity interest in the acquiree is re-measured to fair value at the acquisition date; any gains or losses arising from such re-measured are recognised in profit or loss.

Any contingent consideration to be transferred by the Group is recognised at fair value at the acquisition date. Subsequent changes to the fair value of the contingent consideration that is deemed to be an asset or liability is recognised in profit or loss. Contingent consideration that is classified as equity is not re-measured, and its subsequent settlement is accounted for within equity.

The excess of the consideration transferred, the amount of any non-controlling interest in the acquiree and the acquisition-date fair value of any previous equity interest in the acquiree over the fair value of the identifiable net assets acquired is recorded as goodwill. If the total of consideration transferred, non-controlling interest recognised and previously held interest measured is less than the fair value of the net assets of the subsidiary acquired in the case of a bargain purchase, the difference is recognised directly in profit or loss.

Intercompany transactions, balances and unrealised gains on transactions between group companies are eliminated. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment of the transferred asset. Accounting policies of subsidiaries have been changed where necessary to ensure consistency with the policies adopted by the Group.

A list of the Group's subsidiaries is shown in Note 15.6.

2.3.2 Transactions with non-controlling interests

The Group treats transactions with non-controlling interests as transactions with equity owners of the Group. For purchases from non-controlling interests, the difference between any consideration paid and the relevant share acquired of the carrying value of net assets of the subsidiary is recorded in equity. Gains or losses on disposals to non-controlling interests are also recorded in equity.

2.3.3 Disposal of subsidiaries

When the Group ceases to have control it shall cease to consolidate its subsidiaries. Any retained interest in the entity is re-measured to its fair value, with the change in carrying amount recognised in profit or loss. The fair value is the initial carrying amount for the purposes of subsequently accounting for the retained interest as an associate, joint venture or financial asset. In addition, any amounts previously recognised in other comprehensive income in respect of that entity are accounted for as if the Group had directly disposed of the related assets or liabilities.

2.3.4 Business combination under common control

The Group accounts for business combination under common control by measuring acquired assets and liabilities of the acquiree in the proportion of interests under common control at the carrying values of the acquiree presented in the highest level of the consolidation prior to the business combination under common control at the acquisition date. The Group retrospectively adjusted the business combination under common control transactions as if the combination occurred from the beginning of the period for which the financial statements in the previous period are comparatively presented in accordance with the guidance of business combination under common control as issued by the Federation of Accounting Professions.

Costs of business combination under common control are the aggregated amount of fair value of assets transferred, liabilities incurred and equity instruments issued by the acquirer at the date of which the exchange in control occurs. Other costs directly attribute to business combination under common control, such as professional fees of legal advisors and other advisors, registration fees, and costs relating to preparation of information for shareholders, are capitalised as an investment in the separate financial statements while immediately recognised as expenses in the consolidated financial statements in the period of which the business combination occurs.

The difference between costs of business combination under common control and the acquirer's interests in the carrying value of the acquiree is presented as "Surplus arising from business combination under common control" in equity and is derecognised when the investment is disposed and transferred to retained earnings.

2.3.5 Associates

Associates are all entities over which the Group has significant influence but not control or joint control. Investments in associates are accounted for using the equity method of accounting.

A list of the Group's associates is shown in Note 15.6.

2.3.6 Joint arrangements

Investments in joint arrangements are classified as either joint operations or joint ventures depending on the contractual rights and obligations of each investor, rather than the legal structure of the joint arrangements.

Joint operations

A joint operation is a joint arrangement whereby the Group has rights to the assets, and obligations for the liabilities relating to the arrangement. The Group recognises its direct right to the assets, liabilities, revenues and expenses of joint operations and its share of any jointly held or incurred assets, liabilities, revenues and expenses. These have been incorporated in the financial statements under the appropriate headings.

Joint ventures

A joint venture is a joint arrangement whereby the Group has rights to the net assets of the arrangement. Interests in joint ventures are accounted for using the equity method in the consolidated financial statements.

A list of the Group's principal joint arrangements is shown in Note 15.6.

2.3.7 Accounting under the equity method

Under the equity method, the investment is initially recognised at cost, and the carrying amount is increased or decreased to recognise the investor's share of the profit or loss of the investee after the date of acquisition. The Group's investment in associates includes goodwill identified on acquisition.

If the ownership interest in associates and joint ventures is reduced but significant influence is retained, only a proportionate share of the amounts previously recognised in other comprehensive income is reclassified to profit or loss where appropriate. Profit or loss from a reduced ownership interest in associates and joint ventures is recognised in profit or loss.

The Group's share of its associates and joint ventures' post-acquisition profits or losses is recognised in the profit or loss, and its share of post-acquisition movements in other comprehensive income is recognised in other comprehensive income. The cumulative post-acquisition movements are adjusted against the carrying amount of the investment. When the Group's share of losses in associates and joint ventures equals or exceeds its interest in the associates and joint ventures, together with any long-term interests that, in substance, form part of the entity's net investment in the associates or joint ventures, the Group does not recognise further losses, unless it has incurred obligations or made payments on behalf of the associates and joint ventures.

The Group determines at each reporting date whether there is any objective evidence that the investments in the associates and joint ventures are impaired. If this is the case, the Group calculates the amount of impairment as the difference between the recoverable amount of the investments and its carrying value and recognises the amount adjacent to share of profit (loss) of associates and joint ventures in profit or loss.

Unrealised gains on transactions between the Group and its associates and joint ventures are eliminated to the extent of the Group's interest in the associates and joint ventures. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment of the asset transferred. Accounting policies of associates and joint ventures have been changed where necessary to ensure consistency with the policies adopted by the Group.

2.3.8 Separate financial statements

In the separate financial statements, investments in subsidiaries, associates and joint ventures are accounted for at cost less impairment. Cost is adjusted to reflect changes in consideration arising from contingent consideration amendments. Cost also includes direct attributable costs of investment.

A test for impairment of investments in subsidiaries is carried out when there is a factor indicating that an investment might be impaired. If the carrying value of the investment is higher than its recoverable amount, impairment loss is charged to profit or loss.

2.4 Foreign currency translation

(a) Functional and presentation currency

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which each entity operates (the Functional Currency). The financial statements are presented in US Dollar, which is the Company's functional currency and presentation currency.

(b) Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transaction. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognised in the profit or loss.

When a gain or loss on a non-monetary item is recognised in other comprehensive income, any exchange component of that gain or loss is recognised in other comprehensive income. Conversely, when a gain or loss on a non-monetary item is recognised in profit and loss, any exchange component of that gain or loss is recognised in profit and loss.

(c) Group companies

The results and financial position of all of the Group's entities (none of which has the currency of a hyper-inflationary economy) that have a functional currency different from the presentation currency are translated into the presentation currency as follows:

- assets and liabilities for each statement of financial position presented are translated at the closing rate at the date of that statement of financial position;
- income and expenses for each statement of comprehensive income are translated at average exchange rates; and
- all resulting exchange differences are recognised in other comprehensive income.

Goodwill arising after 1 January 2013 and fair value adjustments arising on the acquisition of a foreign operation are treated as assets and liabilities of the foreign operation and translated at the closing rate.

To comply with the regulations of the Stock Exchange of Thailand and Department of Business Development, the Group has to present the financial statements in Thai Baht that are converted from the US Dollar financial statements by using the basis as described in Note 2.4 (c).

2.5 Cash and cash equivalents

In the consolidated and separate statements of cash flows, cash and cash equivalents includes cash on hand, deposits held at call with banks, other short-term highly liquid investments with original maturities of three months or less and bank overdrafts. Bank overdrafts are shown within borrowings in current liabilities in the consolidated and separate statements of financial position.

2.6 Trade accounts receivable and notes receivable

Trade receivables are amounts due from customers for goods sold or service performed in the ordinary course of business.

Trade receivables are recognised initially at the amount of consideration that is unconditionally unless they contain significant financing components, when they are recognised at its present value. The Group presented trade receivables at cost less allowance for doubtful accounts. Bad debts are recognised in the profit or loss within administrative expenses.

Notes receivable are notes received from customers that are issued by financial institutions from sales of electricity and steam from subsidiaries in the People's Republic of China in the ordinary course of business. If collection is expected in one year or less, they are classified as current assets. If not, they are presented as non-current assets.

2.7 Inventories, spare parts and machinery supplies

Inventories

Inventories consist of coal and fuel and are valued at the lower of cost or net realisable value. Cost is determined on a weighted average method. The cost of coal comprises direct labour, other direct costs and related production overhead. The cost of fuel comprises both the purchase price and costs directly attributable to the acquisition of fuel.

Net realisable value is the estimate of the selling price in the ordinary course of business, less the costs of completion and selling expenses. The Group recognises allowance for slow-moving of coal and fuel based on a specific case.

Spare parts and machinery supplies

Spare parts and machinery supplies are stated at cost less allowance for obsolescence, slow-moving and defective. Cost is determined on a weighted average method. The cost of purchase comprises both the purchase price and costs directly attributable to the acquisition of spare parts and machinery supplies, such as import duties and transportation charge, less all attributable discounts, allowances or rebates. Spare parts and machinery supplies are charged to production costs in the period in which they are used.

Allowance is made for obsolete, slow-moving and defective spare parts and machinery supplies on a specific case.

2.8 Accounting for derivative financial instruments and hedging activities

The Group recognises derivative financial instruments at fair value on the date a derivative financial instrument contract is entered into and subsequently remeasured to their fair value. Changes in fair value of any derivative financial instrument that does not qualify for hedge accounting are recognised in profit and loss within “net gains (losses) from financial derivatives”.

When the Group applies hedge accounting, which is appropriate based upon the specific criteria in accordance to hedging, the impact of recording the derivatives is offset to the extent that the hedging relationship is effective. If a hedge is designated and qualified as a cash flow hedge, the portion of the gain or loss on the hedging instrument that is determined to be an effective hedge shall be recognised in other comprehensive income and amounts accumulated in equity are reclassified to profit or loss in the periods when the hedged items affects profit or loss. The gain or loss relating to the ineffective portion is recognised immediately in profit or loss. If a hedge is designated and qualified as a fair value hedge, changes in the fair value of derivative financial instruments are recorded in profit or loss, together with any changes in fair value of the hedged items that are attributable to the hedged risk.

2.9 Other investments

Investments other than investments in subsidiaries, associates and joint ventures are classified into three categories:

1) held-to-maturity, 2) available-for-sale and 3) general investments. The classification depends on the purpose for which the investments were acquired. Management determines the appropriate classification of its investments at the time of the purchase and re-evaluates such designation on a regular basis.

- Investments with a fixed maturity that the management has the intent and ability to hold to maturity are classified as held-to-maturity.
- Investments intended to be held for an indefinite period of time, which may be sold in response to liquidity needs or changes in interest rates, are classified as available-for-sale.
- Investments in non-marketable equity securities are classified as general investments.

All categories of investment are initially recognised at cost, which is equal to the fair value of consideration paid plus transaction cost.

Available-for-sale investments are subsequently measured at fair value. The unrealised gains and losses of available for sale investments are recognised in other comprehensive income.

Held-to-maturity investments are carried at amortised cost using the effective yield method less impairment loss.

General investments are carried at cost less impairment.

A test for impairment is carried out when there is a factor indicating that an investment might be impaired. If the carrying value of the investment is higher than its recoverable amount, impairment loss is charged to the profit or loss.

On disposal of an investment, the difference between the net disposal proceeds and the carrying amount is recognised to the profit or loss. When disposing of part of the Group's holding of a particular investment in debt or equity securities, the carrying amount of the disposed part is determined by the weighted average carrying amount of the total holding of the investment.

2.10 Investment property

Property that is held for long-term rental or for capital appreciation or both, and that is not occupied by the companies in the Group, is classified as investment property. Investment property also includes property that is being constructed or developed for future use as investment property or land held for a currently undetermined future use. The Group's investment property is land held for a currently undetermined future use.

Investment property is measured initially at its cost including related transaction costs. Subsequently, the investment property is carried at cost less accumulated impairment losses.

Subsequent expenditure is capitalised to the asset's carrying amount only when it is probable that future economic benefits associated with the expenditure will flow to the Group and the cost of the item can be measured reliably. All other repair and maintenance costs are expensed when incurred.

2.11 Property, plant and equipment

Property, plant and equipment are initially recorded at cost. All plant and equipment are stated at historical cost less accumulated depreciation and allowance for impairment.

Subsequent costs are included in the asset's carrying amount or recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to the Group and the cost of the item can be measured reliably. The carrying amount of the replaced part is derecognised. All other repairs and maintenance are charged to profit or loss during the financial period in which they are incurred.

Land is not depreciated. Depreciation on other assets is calculated using the straight-line method to allocate their cost to their residual values over their estimated useful lives as follows:

Land improvement	10 years
Buildings, construction and building improvement	depend on period of the mine or 5 to 30 years and 30 years for power plants
Machinery and equipment	5 to 40 years
Furniture	3 and 5 years
Office equipment and tools	3 and 5 years
Motor vehicles	4 and 5 years
Equipment under finance lease	5 to 15 years

The assets' residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period.

Where the carrying amount of an asset is greater than its estimated recoverable amount, it is written down immediately to its recoverable amount.

Gains or losses on disposals are determined by comparing proceeds with carrying amount and are recognised in the profit or loss.

Probable reserves represent reserves that are assessed by the Group at the time when there is an acquisition of business. Probable reserves will be classified as gas properties once they are proved reserves and amortised using the unit of production method.

Gas exploration and producing assets

Costs of properties comprise total acquisition costs of natural gas rights or the acquisition costs of the portion of properties, decommissioning costs as well as equipment and support equipment.

Exploratory drilling costs are capitalised and will be classified as natural gas of the projects if their exploratory wells have identified proved reserves that have been found to be commercially viable. However, if proved reserves are not identified or are not commercially viable, such drilling costs will be expensed in the profit or loss.

Exploration costs, comprising geological and geophysical costs as well as area reservation fees during the exploration stage, are charged to expenses in the profit or loss when incurred.

Development costs, whether relating to the successful or unsuccessful development of wells, are capitalised.

The capitalised acquisition costs of natural gas rights are amortised using the unit of production method based on proved reserves. Depreciation of exploratory wells, development costs and decommissioning costs, except unsuccessful projects, are calculated using the unit of production method based on proved reserves or proved developed reserves. The Group recognises changes in reserve estimates prospectively.

Proved reserves and proved developed reserves are calculated by the Group's engineers based on the information received from the joint operators.

Midstream assets

Costs of properties comprise purchase prices and other direct costs necessary to bring the asset to working condition suitable for its intended use. Depreciation is calculated on the straight-line method over their estimated useful life as follows:

Compressor station and meter station	25 years
Pipelines	40 years

2.12 Goodwill

Goodwill represents the excess of the cost of an acquisition over the fair value of the Group's share of the net assets of the acquired subsidiary, joint venture or associated undertaking at the date of acquisition. Goodwill on acquisitions of subsidiaries is separately reported in the consolidated statement of financial position. Goodwill on acquisitions of interests in joint ventures or associates is included in interests in joint ventures and investments in associates and is tested for impairment as part of the overall balance.

Separately recognised goodwill is tested annually for impairment and carried at cost less accumulated impairment losses. Impairment losses on goodwill are not reversed. Gains and losses on the disposal of an entity include the carrying amount of goodwill relating to the entity sold.

Goodwill is allocated to cash-generating units for the purpose of impairment testing. The allocation is made to those cash-generating units or group of cash-generating units that are expected to benefit from the business combination in which the goodwill arose, identified according to operating segment.

2.13 Other non-current assets

2.13.1 Computer software

Computer software development costs recognised as assets are amortised over their estimated useful lives, which do not exceed 5 years.

2.13.2 Mining property rights

Mining property rights represent the excess of the cost of an acquisition over the fair value of net assets, which in managements' view represents future economic benefits attributable to the mining rights held by subsidiaries. Mining property rights are amortised using the units of coal production.

2.13.3 Deferred unfavourable contract liabilities

Deferred unfavourable contract liabilities are recognised as identifiable liabilities of acquiree as part of the purchase price allocation at the acquisition date. The unfavourable contract liabilities incurred from an excess of the fair value of long-term coal sales contracts than sales values specified in such coal sales contracts. The deferred unfavourable contract liabilities are amortised based on delivered units of coal.

2.13.4 Deferred exploration and development expenditures

Exploration expenditures are capitalised on an area of interest basis. Such expenditures comprise net direct costs such as licence, geology and geophysics expenditures and do not include general overheads or administrative expenditures not directly attributable to a particular area of interest. Exploration expenditures are capitalised as deferred expenditures when the following conditions are met:

- a) such costs are expected to be recouped through successful development and exploitation of the area of interest or, by its sales; and
- b) exploration activities in the area of interest have not yet reached the stage which permits a reasonable assessment of the existence of economically recoverable reserves, and active operations in the area are continuing.

Recoupment of exploration expenditure carried forward is dependent upon successful development and commercial exploitation, or sale of the respective area. Each area of interest is reviewed at the end of period. Exploration expenditures in respect of an area of interest, which has been abandoned or for which a decision has been made by the Group against the commercial viability of the area of interest, are written-off in the period the decision is made to the profit or loss.

Development expenditures and incorporated costs in developing an area of interest prior to commencement of operations in the respective area, as long as they meet the criteria for deferral, are capitalised.

Deferred exploration and development expenditure is principally amortised using the units of coal production of each area of interest starting from the commencement of commercial operations.

2.13.5 Stripping costs/Overburden costs

The Group recognises the production stripping costs as assets if, and only if, all of the following are met:

- a) It is probable that the future economic benefit associated with the stripping activity will flow to the entity;
- b) The entity can identify the component of the ore body for which access has been improved; and
- c) The costs relating to the stripping activity associated with that component can be measured reliably.

The deferred overburden expenditures/stripping costs shall be initially measured at cost and subsequently stated at cost less accumulated amortisation and impairment loss, if any. Amortisation is calculated using the units of production method.

2.13.6 Rights to operate the power plants

The rights to operate the power plants arising on acquisition of subsidiaries are amortised over the periods of estimated useful life of the power plants.

2.13.7 Rights in patents

The rights in patents arising from purchase of investments are amortised over the periods of estimated useful life of the assets.

2.14 Impairment of assets

Assets that have an indefinite useful life, for example goodwill, are not subject to amortisation and are tested annually for impairment. Assets that are subject to amortisation are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognised for the amount by which the carrying amount of the assets exceeds its recoverable amount which is the higher of an asset's fair value less costs to sell and value in use. For the purposes of assessing impairment, assets are grouped at the lowest level for which there are separately identifiable cash flows. Non-financial assets other than goodwill that suffered an impairment are reviewed for possible reversal of the impairment at each reporting date.

2.15 Long-term leases

The determination of whether an arrangement is or contains a lease shall be based on the substance of the arrangement, and not merely the legal form. It requires an assessment of whether (a) the fulfilment of the arrangement is dependent on the use of specific assets and (b) the arrangement conveys a right to use such assets.

If the arrangement is a lease or contains a lease, payments and other consideration required by the arrangement shall be separated into those for the lease and those for other elements (e.g. for services and the cost of inputs) on the basis of their relative fair values. The lease element of the arrangement shall be classified as a finance lease or an operating lease.

Leases - where the Group is the lessee

Leases of assets where the Group has substantially all the risks and rewards of ownership are classified as finance leases. Finance leases are capitalised at the inception of the lease at the lower of the fair value of the leased property and the present value of the minimum lease payments. Each lease payment is allocated between the liability and finance charges so as to achieve a constant rate on the finance balance outstanding. The corresponding rental obligations, net of finance charges, are included in other long-term payables. The interest element of the finance cost is charged to profit or loss over the lease period so as to achieve a constant periodic rate of interest on the remaining balance of the liability for each period.

The property, plant or equipment acquired under finance leases is depreciated over the shorter period of the useful life of the asset and the lease term.

Long-term leases in which a significant portion of the risks and rewards of ownership are retained by the lessor are classified as operating leases. Payments made under operating leases (net of any incentives received from the lessor) are charged to profit or loss on a straight-line basis over the period of the lease.

Leases - where the Group is the lessor

Leases in which a significant portion of risks and rewards of ownership are retained by the lessee are classified as finance lease. When assets are leased out under a finance lease, the present value of the lease payments is recognised as a receivable. The difference between the gross receivable and the present value of the receivable is recognised as unearned finance income. Finance lease income (interest income from finance leases) is recognised over the term of the lease using the net investment method, which reflects a constant periodic rate of return. The recognition follows accounting policy in Note 2.22.

Leases in which a significant portion of risks and rewards of ownership are retained by lessor are classified as operating leases. Assets leased out under operating leases are included in property, plant and equipment in the statement of financial position. They are depreciated over their expected useful lives on a basis consistent with other similar property, plant and equipment owned by the Group. Rental income is recognised on a straight-line basis over the lease term. The recognition follows accounting policy in Note 2.22.

2.16 Borrowings

Borrowings are recognised initially at the fair value of proceeds received, net of transaction costs incurred. Borrowings are subsequently stated at amortised cost using the effective yield method; any difference between proceeds (net of transaction costs) and the redemption value is recognised in the statement of comprehensive income over the period of the borrowings.

Fees paid on the establishment of loan facilities are recognised as transaction costs of the loan to the extent that it is probable that some or all of the facility will be drawn down. In this case, the fee is deferred until the draw-down occurs. To the extent that there is no evidence that it is probable that some or all of the facility will be draw down, the fee is capitalised as a pre-payment for liquidity services and amortised over the period of the facility to which it relates.

Borrowings are classified as current liabilities unless the Group has an unconditional right to defer settlement of the liability for at least 12 months after the end of reporting date.

General and specific borrowing costs directly attributable to the acquisition, construction or production of qualifying assets, which are assets that necessarily take a substantial period of time to get ready for their intended use or sale, are added to the cost of those assets, until such time as the assets are substantially ready for their intended use or sale.

Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalisation.

All other borrowing costs are recognised in profit or loss in the period in which they are incurred.

2.17 Employee benefits

The Group operates various post-employment benefits schemes. The Group has both defined benefit and defined contribution plans.

Defined contribution

The Group operates a provident fund that is funded by payments from employees and by the relevant Group companies which are managed by trustee. The Group has no legal or constructive obligations to pay further contributions once the contributions have been paid even if the fund does not hold sufficient assets to pay all employees the benefits relating to employee service in the current and prior periods. Contributions to the provident fund are charged to the profit or loss in the year in which they are due.

Furthermore, the Group contributes to a monthly defined contribution retirement benefit plan administered by the government of the People's Republic of China. The relevant government agencies undertake to assume the retirement benefit obligation payable to all existing and future retired employees under this plan and the Group has no further obligation for post-retirement benefits beyond the contributions made. Contributions to this plan are recognised as an expense in profit or loss when incurred.

Retirement benefits

Employees are entitled to receive benefits reaching normal retirement age under the labour law applicable in Thailand and those countries in which the Group operates, or such other dates of entitlement as may be agreed between the Group and employees. Retirement benefits depend on one or more factors such as age, years of service and compensation.

The liability recognised in the statement of financial position in respect of defined benefit retirement plans is the present value of the defined benefit obligation at the end of the reporting period. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using the interest rates of government securities that are denominated in the currency in which the benefits will be paid, and that have terms to maturity approximating to the terms of the related retirement liability.

Remeasurement of gains and losses arising from experienced adjustments and changes in actuarial assumptions are charged or credited to equity in other comprehensive income in the period in which they arise.

Past-service costs are recognised immediately in profit or loss.

Other employee benefits

Other employee benefits of the Indonesian subsidiaries, which consist of long service reward and long leave benefit, are recognised in the consolidated statement of financial position at the present value of the defined benefit obligation. The actuarial gains and losses and the past service costs are recognised immediately in the profit or loss.

Other employee benefits of the Australian subsidiaries, which consist of annual leave, sick leave and long service leave, are paid monthly in accordance with Coal Mining Industry (Long Service Leave Funding Corporation) and recognised as expenses in profit or loss.

2.18 Share-based payment

The Group operates a number of equity-settled, share-based compensation plans, under which the entity receives services from employees as consideration for equity instruments (warrants) of the Group. The fair value of the employee services received in exchange for the grant of the warrants is recognised as an expense. The total amount to be expensed is determined by reference to the fair value of the warrants granted:

- including any market performance conditions;
- excluding the impact of any service and non-market performance vesting conditions (for example, profitability, sales growth targets and remaining an employee of the entity over a specified time period); and
- excluding the impact of any non-vesting conditions (for example, the requirement for employees to save or hold shares for a specific period of time).

Non-market performance and service conditions are included in assumptions about the number of warrants that are expected to vest. The total expense is recognised over the vesting period, which is the period over which all of the specified vesting conditions are to be satisfied. At the end of each reporting period, the entity revises its estimates of the number of warrants that are expected to vest based on the non-marketing vesting conditions. It recognises the impact of the revision to original estimates, if any, in profit or loss, with a corresponding adjustment to equity.

When the warrants are exercised, an entity issues new shares. The proceeds received net of any directly attributable transaction costs are credited to share capital (nominal value) and share premium.

The grant by an entity of warrants over its equity instruments to the employees of subsidiary undertakings in the Group is treated as a capital contribution. The fair value of employee services received, measured by reference to the grant date fair value, is recognised over the vesting period as an increase to investment in subsidiary, in separate financial statements undertakings, with a corresponding credit to equity.

2.19 Provisions

Provisions are recognised when the Group has a present legal or constructive obligation as a result of past events, it is probable that an outflow of resources will be required to settle the obligation, and a reliable estimate of the amount can be made.

Provision for environmental rehabilitation is recognised by units of sale at the rate determined by the Group's geologist. The provisioning rate is based on the estimated cost for mine rehabilitation through to the end of the mine. The Group reviews and revises the rate to reflect the actual expenses incurred on a regular basis.

The Group records a provision for decommissioning costs whenever it is probable that there would be an obligation as a result of a past event and the amount of that obligation is reliably estimated by the Group's engineers and management's judgement. The Group recognises provision for decommissioning costs as part of oil and gas properties, using the discounted present value on the estimated eventual costs that relate to the removal of the production facilities and amortised based on the unit of production of the proved reserve or the proved developed reserve. The Group recognises an increase that reflects the passage of time from the unwinding discount in each period, as a finance cost in profit or loss. The provisions are based on the current situation such as regulations, technologies and prices. The actual results could differ from these estimates as future confirming events occur.

2.20 Current and deferred income taxes

The tax expense for the year comprises current and deferred tax. Tax is recognised in profit or loss, except to the extent that it relates to items recognised in other comprehensive income or directly in equity. In this case the tax is also recognised in other comprehensive income or directly in equity, respectively.

The current income tax charge is calculated on the basis of the tax laws enacted or substantively enacted at the end of reporting period in the countries where the Company and its subsidiaries operate and generate taxable income. Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. It establishes provisions where appropriate on the basis of amounts expected to be paid to the tax authorities.

Deferred income tax is recognised, using the liability method, on temporary differences arising from differences between the tax base of assets and liabilities and their carrying amounts in the financial statements. However, the deferred income tax is not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss. Deferred income tax is determined using tax rates (and laws) that have been enacted or substantially enacted by the end of the reporting period and are expected to apply when the related deferred income tax asset is realised or the deferred income tax liability is settled.

Deferred income tax assets are recognised only to the extent that it is probable that future taxable profit will be available against which the temporary differences can be utilised. Deferred income tax is provided on temporary differences arising from investments in subsidiaries and associates, except where the timing of the reversal of the temporary difference is controlled by the Group and it is probable that the temporary difference will not reverse in the foreseeable future.

Deferred income tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets against current tax liabilities and when the deferred income tax assets and liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities where there is an intention to settle the balances on a net basis.

2.21 Share capital

Ordinary shares with discretionary dividends are classified as equity.

Incremental external costs directly attributable to the issue of new shares are shown in equity as a deduction, net of tax, from the proceeds.

Where any Group company purchases the Company's equity share capital (treasury shares), the consideration paid, including any directly attributable incremental costs (net of income taxes) is deducted from equity attributable to the company's equity holders until the shares are cancelled or reissued. Where such shares are subsequently reissued, any consideration received, net of any directly attributable incremental transaction costs and the related income tax effects, is included in equity attributable to the company's equity holders.

2.22 Revenue recognition

Revenue are recorded net of value added tax. They are recognised in accordance with the provision of goods or services, provided that collectibility of the consideration is probable.

Multiple element arrangements involving delivery or provision of multiple products or services are separated into distinct performance obligations. Total transaction price of the bundled contract is allocated to each performance obligation based on their relative standalone selling prices or estimated standalone selling prices. Each performance obligation is recognised as revenue on fulfillment of the obligation to the customer. Revenue is recognised as follows;

Revenue from coal sales

The Group recognises revenue from coal sales at a certain point in time when the products is delivered to customers at the delivery point. The transfer of products takes place when the Group delivers products to its destination as specified according to the contracts. Revenue represents the revenue earned from the sale of Group's products with realisable value net of value-added tax, rebate and discounts.

Sales of electricity and steam not under finance lease agreements

The Group recognises revenue from sales of electricity and steam relating to Power Purchase Agreement and Steam Purchase Agreement at certain points in time when the control of products is transferred to the customer at the delivery point. Revenue represents the revenue earned from the sale of Group's products with realisable value net of value-added tax, rebate and discounts.

Service income under finance lease agreements

Finance lease income under power purchase agreements is recognised on an effective interest method over the period of the agreements.

Service income under finance lease agreements related to the Power Purchase Agreements is recognised when the services have been rendered. Service income comprises income in relation to the availabilities of the power plants, other servicing income and fuel cost received from leases with respect to the leased assets. If the considerations exceed the services rendered, a contract liability is recognised. On the other hand, if the considerations less than the services rendered, a contract asset is recognised.

Contingent rents are recognised in the income statement in the period in which they are incurred. Contingent rent is that portion of lease payments that is not fixed in amount but varies based on a future factor, such as the amount of use or production.

Revenue from sales of natural gas

Revenues from sales of natural gas are recorded upon transfer of title, according to the terms of related contracts and based on actual volumes sold.

Revenue from pipeline transportation are recognised when services are rendered based on quantities transported and measured according to the underlying contract.

Revenue from freight income

Freight income is recognised when the Group satisfies the performance obligation at a point in time generally when the significant acts have been completed and when transfer of control occurs or for services that are not significant transactions, revenue is recognised as the services are provided.

Revenue from rendering of services

The Group recognised service contracts with a continuous service provision as revenue on a straight-line basis over the contract term, regardless of the payment pattern.

Others

Other revenues earned by the group are recognised on the following bases:

- Interest income is recognised using the effective interest method.
- Dividend income is recognised when the group's right to receive payment is established.

2.23 Dividends

Dividends distribution to the Group's shareholders is recognised as a liability in the consolidated and separate financial statements in the period in which the dividends are approved by the shareholders and interim dividends are approved by the Board of Directors.

2.24 Segment reporting

Operating segments are reported in a manner consistent with the internal reporting provided to the chief operating decision-maker. The Chief Executive Officer is the chief operating decision-maker, responsible for allocating resources, assessing performance of the operating segments, and making strategic decisions.

3 Change in accounting policies

The Group has adopted the new Thai Financial Reporting Standard 15, "Revenue from contracts with customers" (TFRS 15) from 1 January 2019 under the modified retrospective approach and the comparative figures have not been restated. The Group apply practical expedients as it relates to completed contracts and contract modifications as allowed by TFRS 15.

Joint ventures of the Group principally generate revenue from finance lease income and service income under the Power Purchase Agreements with the Electricity Generating Authority of Thailand (EGAT). The adoption of TFRS 15 mainly affects the accounting treatment on revenue recognition of service income in relation to the availabilities of the power plants, as agreed with the EGAT and in accordance with terms of the Power Purchase Agreements. This service income is recognised over time as the services rendered. If the considerations exceed the services rendered, a contract liability is recognised. On the other hand, if the considerations less than the services rendered, a contract asset is recognised.

Effects from changes in accounting policy of the Group are as follows:

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	US Dollar'000			Baht'000		
	As at 31 December 2018 Previously reported	Adjustments	As at 1 January 2019 Restated	As at 31 December 2018 Previously reported	Adjustments	As at 1 January 2019 Restated
Statement of financial position						
Investments in joint ventures and associates	1,374,119	(6,651)	1,367,468	44,589,871	(214,884)	44,374,987
Retained earnings - Unappropriated	1,942,779	(5,226)	1,937,553	64,294,454	(168,834)	64,125,620
Non-controlling interests	614,868	(1,425)	613,443	19,952,350	(46,050)	19,906,300

The following tables show the amounts by each financial statements line item in the current year from the adoption of the new revenue standard compared to the previous revenue standards.

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	US Dollar'000			Baht'000		
	Balance as reported	Impacts from TFRS 15	Balances under previous revenue standard	Balance as reported	Impacts from TFRS 15	Balances under the previous revenue standard
Statement of financial position as at 31 December 2019						
Investments in joint ventures and associates	1,484,759	5,750	1,490,509	44,771,432	186,921	44,958,353
Retained earnings - Unappropriated	1,734,526	4,518	1,739,044	57,895,051	146,864	58,041,915
Non-controlling interests	606,429	1,232	607,661	18,286,266	40,057	18,326,323
Statement of comprehensive income for the year ended 31 December 2019:						
Share of profit from joint ventures and associates	205,845	(901)	204,944	6,443,993	(27,963)	6,416,030
Profit for the year	41,395	(901)	40,494	1,351,657	(27,963)	1,323,694
Total comprehensive income (expense) for the year	70,199	(901)	69,298	(4,931,319)	(27,963)	(4,959,282)
Attributable to:						
Owners of the parent	(19,604)	(708)	(20,312)	(552,864)	(21,970)	(574,834)
Non-controlling interests	60,999	(193)	60,806	1,904,521	(5,993)	1,898,528
Total comprehensive income (expense) attributable to:						
Owners of the parent	(6,705)	(708)	(7,413)	(5,933,614)	(21,970)	(5,955,584)
Non-controlling interests	76,904	(193)	76,711	1,002,295	(5,993)	996,302

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	US Dollar			Baht		
	Balance as reported	Impacts from TFRS 15	Balances under the previous revenue standard	Balance as reported	Impacts from TFRS 15	Balances under the previous revenue standard
Statement of comprehensive income for the year ended 31 December 2019:						
Earnings (loss) per share						
Basic earnings (loss) per share	(0.004)	-	(0.004)	(0.107)	(0.004)	(0.111)

4 Financial risk management

4.1 Financial risk factors

The Group's activities expose it to a variety of financial risks, including the effects of changes in foreign currency exchange rates, interest rates, coal price, oil price and natural gas price. The Group's overall risk management programme focuses on the unpredictability of financial markets and seeks to minimise potential adverse effects on the financial performance of the Group. The Group uses derivative financial instruments such as forward foreign exchange contracts, currency swaps contracts, interest rate swap contracts, coal swap contracts, fuel swap contracts and natural gas swap and options to hedge certain exposure.

Risk management is carried out by a central treasury department under policies approved by the Board of Directors. Group Treasury identifies, evaluates and hedges financial risks in close co-operation with the Group's operating units.

4.2 Foreign exchange rate risk

The Group operates internationally and is exposed to foreign exchange rate risk arising from various currency exposures, primarily with respect to Thai Baht, Indonesian Rupiah, Australian Dollar and Chinese Yuan. The Group uses forward foreign exchange contracts and currency swaps contracts to hedge their exposure to foreign exchange rate risk in connection with their measurement currency.

4.3 Interest rate risk

The Group manages interest rate risk by closely monitoring the trend of interest rates in the world's markets as well as in Thailand. The Group allocates its debt portfolio in either short and long term contracts or loans with fixed and floating interest rates corresponding to their types of investments. The Company has chosen financial instruments to create an alternative source of funding and to manage its financial structure properly in which it invests. For example, interest rate swaps are being used to manage the proportion of fixed interest rates necessary to meet the market trends.

4.4 Coal price fluctuation risk

The Group is exposed to coal price risk from substantial fluctuations in coal prices in the world market. The Group uses coal swap contracts to minimise its exposure to fluctuations in coal prices in its business operations and maintains on emphasis on a balance of overall coal price in the Group by entering into both short-term and long-term sales agreements.

4.5 Oil price fluctuation risk

The Group is exposed to oil price risk from substantial fluctuations in oil prices in the world market. The Group uses fuel swap contracts to minimise its exposure to fluctuation in oil prices in its business operations of the Group.

4.6 Natural gas price fluctuation risk

The Group is exposed to substantial fluctuations in the price of natural gas price on the world market. The Group uses natural gas swap and options to minimise its exposure to actual prices in its business operations of the Group.

4.7 Credit risk

The Group has no significant concentrations of credit risk. The Group has policies in place to ensure that sales of goods and services are made to customers with an appropriate credit history. Derivative counter parties and cash transactions are limited to high credit quality financial institutions. The Group has policies that limit the amount of credit exposure to any financial institutions.

4.8 Liquidity risk

Prudent liquidity risk management implies maintaining sufficient cash and marketable securities, the availability of funding through an adequate amount of credit facilities and the ability to close out market positions. Due to the dynamic nature of the underlying business, Group Treasury aims at maintaining flexibility in funding by keeping credit lines available.

5 Critical accounting estimates and assumptions and judgements

Estimates, assumption and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances.

During 2019, the Group makes estimates and assumptions concerning the future. The results of accounting estimates will, by definition, seldom equal the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are outlined below.

Coal reserves

The Group estimates coal reserves based on its best estimate of products that can be economically extracted from the relevant mining area. Estimates are supported by geological studies and drilling samples to determine the reserves.

Estimated impairment of goodwill

The Group annually tests for impairment of goodwill in accordance with the accounting policy stated in Note 2.12. The recoverable amounts of cash-generating units have been determined based on value-in-use calculations. These calculations use cash flow projections based on financial budgets covering the lives of mine in each country and estimation of discount rate used in the calculation of impairment testing over goodwill as discussed in Note 20.

Estimated recoverable amounts of prepaid taxes

Prepaid taxes are recognised as assets in the financial statements. The Group considers the recoverable amounts of these prepaid taxes by assessing the evidence, including related taxation law and the conformity of the Group's tax management, tax objection, and tax appeals. However, recoverable amounts of prepaid taxes depend on the tax investigation and decision by the related tax bureau and/or tax court.

Estimated allowance for doubtful accounts of a trade receivable

Management makes the estimation on the allowance for doubtful accounts to estimate losses from each accounts receivable considering the collectability, aging and economic condition.

6 Capital risk management

The Group's objectives when managing capital are to safeguard the Group's ability to continue as a going concern, so that they can continue to provide returns for shareholders and benefits for other stakeholders and to maintain an optimal capital structure to reduce the cost of capital.

In order to maintain or adjust the capital structure, the Group may adjust the amounts of dividends paid to shareholders, return capital to shareholders, issue new shares, or sell assets to reduce debt.

7 Segment Information

Consolidated financial statement														US Dollar'000
	Coal					Power			Natural gas	Head Office	Total	Eliminated entries	Total	
	Thailand	Republic of Indonesia	Australia	People's Republic of China and Mongolia	Thailand	People's Republic of China	Lao People's Democratic Republic	Japan	The United States of America					
For the year ended 31 December 2019														
Quantity of coal sales (unit : thousand tons)	2,300	25,258	10,500	499	-	-	-	-	-	-	38,557	(2,191)		36,366
Sales and service income	157,691	1,725,394	702,636	17,969	-	178,424	-	4,685	104,475	1,600	2,892,874	(133,657)		2,759,217
Cost of sales and services	(155,091)	(1,190,200)	(599,366)	(18,830)	-	(143,994)	-	(4,427)	(72,486)	(1,652)	(2,186,046)	134,855		(2,051,191)
Gross profit	2,600	535,194	103,270	(861)	-	34,430	-	258	31,989	(52)	706,828	1,198		708,026
Gross profit margin (%)	2%	31%	15%	(5%)	-	19%	-	6%	31%	(3%)	24%	-		26%
Share of profit (loss) from joint ventures and associates	-	-	1,634	92,490	26,540	(132)	90,452	488	-	(5,627)	205,845	-		205,845
Selling expenses	(10,485)	(104,707)	(78,205)	(420)	-	-	-	-	-	(915)	(194,732)	-		(194,732)
Administrative expenses	-	(28,375)	(18,624)	(2,850)	(9,623)	(19,573)	-	(6,060)	(26,790)	(69,387)	(181,282)	40		(181,242)
Royalty fee	-	(198,003)	(42,623)	-	-	-	-	-	-	-	(240,626)	-		(240,626)
Interest income	119,901	6,214	655	19	14,966	4,769	-	11	15,999	92,249	254,783	(242,047)		12,736
Profit (loss) from operation before interest expenses and income taxes	112,016	210,323	(33,893)	88,378	31,883	19,494	90,452	(5,303)	21,198	16,268	550,816	(240,809)		310,007

* Revenue is allocated to the geographic areas where the sale originated and there is no customer who generates significant revenue in the Group.

Consolidated financial statement

US Dollar'000

	Coal			Power				Natural gas	Head Office	Total	Eliminated entries	Total
	Thailand	Republic of Indonesia	Australia	People's Republic of China and Mongolia	Thailand	People's Republic of China	Lao People's Democratic Republic	Japan	The United States of America			
For the year ended												
31 December 2019 (continued)												
Profit from operation before interest expenses and income taxes												310,007
Net losses on exchange rate												(95,050)
Net gain from financial derivatives												33,352
Others												51,307
Interest expenses												(182,206)
Income taxes												(76,015)
Non-controlling interests												(60,999)
Losses for the year - owners of the parent												(19,604)
Total segmented assets	26,047	902,728	3,157,511	579,638	84,074	465,809	-	7,419	656,323	-	(10,432)	5,869,117
Total unallocated assets												2,673,325
Total assets												8,542,442
Timing of revenue recognition:												
- Point in time	157,691	1,725,394	702,636	17,969	-	178,424	-	4,685	104,475	1,600	(133,657)	2,759,217
- Over time	-	-	-	-	-	-	-	-	-	-	-	-
	157,691	1,725,394	702,636	17,969	-	178,424	-	4,685	104,475	1,600	(133,657)	2,759,217

Consolidated financial statement

US Dollar'000

	Coal			Power			Natural gas The United States of America	Head Office	Total	Eliminated entries	Total
	Thailand	Republic of Indonesia	Australia	People's Republic of China and Mongolia	Thailand	People's Republic of China	Lao People's Democratic Republic	Japan			
For the year ended											
31 December 2018											
Quantity of coal sales (unit : thousand tons)	1,697	23,504	13,702	314	-	-	-	-	39,217	(1,190)	38,027
Sales and service income	158,946	2,015,134	1,039,260	21,617	-	196,182	-	-	3,576,111	(94,669)	3,481,442
Cost of sales and services	(136,613)	(1,188,444)	(768,326)	(20,646)	-	(156,628)	-	-	(2,347,621)	94,654	(2,252,967)
Gross profit	22,333	826,690	270,934	971	-	39,554	-	-	1,228,490	(15)	1,228,475
Gross profit margin (%)	14%	41%	26%	4%	-	20%	-	-	34%	-	35%
Share of profit (loss) from joint ventures and associates	-	-	696	117,891	41,925	(578)	105,872	945	263,662	-	263,662
Selling expenses	(7,928)	(104,129)	(68,713)	(868)	-	-	-	-	(182,466)	852	(181,614)
Administrative expenses	-	(28,340)	(15,282)	(5,031)	(7,086)	(19,354)	-	(3,706)	(161,532)	1,658	(159,874)
Indemnity payment	-	-	-	-	(28,809)	-	-	-	(86,049)	-	(86,049)
Royalty fee	-	(234,611)	(56,329)	-	-	-	-	-	(290,940)	-	(290,940)
Interest income	108,872	4,850	800	36	7,745	3,725	-	1	223,780	(215,458)	8,322
Profit (loss) from operation before interest expenses and income taxes	123,277	464,460	132,106	112,999	13,775	23,347	105,872	(2,760)	994,945	(212,963)	781,982

* Revenue is allocated to the geographic areas where the sale originated and there is no customer who generates significant revenue in the Group.

Consolidated financial statement

US Dollar'000

	Coal		Power				Natural gas		Head Office	Total	Eliminated entries	Total
	Thailand	Republic of Indonesia	Australia	People's Republic of China and Mongolia	Thailand	People's Republic of China	Lao People's Democratic Republic	Japan	The United States of America			
For the year ended												
31 December 2018 (continued)												
Profit from operation before interest expenses and income taxes												781,982
Net losses on exchange rate												(18,980)
Net losses from financial derivatives												(62,587)
Others												(26,080)
Interest expenses												(170,311)
Income taxes												(189,141)
Non-controlling interests												(109,408)
Profit for the year - owners of the parent												205,475
Total segmented assets	50,112	1,197,319	3,101,910	586,657	170,263	459,845	484,369	1,516	647,381	-	(8,709)	6,690,663
Total unallocated assets												1,762,930
Total assets												8,453,593

* Revenue reported in segment information for the year ended 31 December 2018 was disaggregated under Thai Accounting Standard 18, Revenue. Consequently, disaggregated revenue for the current and comparative period cannot be comparable. However, the comparative disaggregated revenue information is disclosed in Note 3.

Consolidated financial statement

Baht'000

	Coal			Power			Natural gas		Head Office	Total	Eliminated entries	Total
	Thailand	Republic of Indonesia	Australia	People's Republic of China and Mongolia	Thailand	People's Republic of China	Lao People's Democratic Republic	Japan	The United States of America			
For the year ended 31 December 2019												
Quantity of coal sales (unit : thousand tons)	2,300	25,258	10,500	499	-	-	-	-	-	38,557	(2,191)	36,366
Sales and service income	4,895,605	53,607,370	21,807,053	578,166	-	5,543,525	-	141,851	3,252,614	48,500	(4,156,835)	85,717,849
Cost of sales and services	(4,811,502)	(36,991,353)	(18,617,623)	(604,387)	-	(4,473,350)	-	(134,043)	(2,248,913)	(50,090)	4,194,527	(63,736,734)
Gross profit	84,103	16,616,017	3,189,430	(26,221)	-	1,070,175	-	7,808	1,003,701	(1,590)	37,692	21,981,115
Gross profit margin (%)	2%	31%	15%	(5%)	-	19%	-	6%	31%	(3%)	-	26%
Share of profit (loss) from joint ventures and associates	-	-	49,465	2,889,746	838,058	(4,064)	2,824,372	15,038	-	(168,622)	-	6,443,993
Selling expenses	(324,329)	(3,241,601)	(2,422,983)	(14,174)	-	-	-	-	-	(28,111)	-	(6,031,198)
Administrative expenses	-	(880,346)	(578,362)	(88,688)	(300,409)	(606,008)	-	(187,695)	(830,246)	(2,146,777)	1,222	(5,617,309)
Royalty fee	-	(6,151,760)	(1,322,538)	-	-	-	-	-	-	-	-	(7,474,298)
Interest income	3,725,264	193,798	20,053	597	463,942	147,520	-	352	498,514	2,865,330	(7,520,374)	394,996
Profit (loss) from operation before interest expenses and income taxes	3,485,038	6,536,108	(1,064,935)	2,761,260	1,001,591	607,623	2,824,372	(164,497)	671,969	520,230	(7,481,460)	9,697,299

* Revenue is allocated to the geographic areas where the sale originated and there is no customer who generates significant revenue to the Group.

Consolidated financial statement

	Baht'000												
	Coal			Power				Natural gas	Head Office	Total	Eliminated entries	Total	
	Thailand	Republic of Indonesia	Australia	People's Republic of China and Mongolia	Thailand	People's Republic of China	Lao People's Democratic Republic	Japan	The United States of America				
For the year ended													
31 December 2019 (continued)													
Profit from operation before interest expenses and income taxes												9,697,299	
Net losses on exchange rate												(2,962,086)	
Net gain from financial derivatives												1,036,435	
Others												1,605,381	
Interest expenses												(5,657,221)	
Income taxes												(2,368,151)	
Non-controlling interests												(1,904,521)	
Losses for the year - owners of the parent												(552,864)	
Total segmented assets	785,414	27,220,862	95,211,587	17,478,405	2,535,155	14,046,003	-	223,720	19,790,761	-	177,291,907	(314,556)	176,977,351
Total unallocated assets													80,611,457
Total assets													257,588,808
Timing of revenue recognition:													
- Point in time	4,895,605	53,607,370	21,807,053	578,166	-	5,543,525	-	141,851	3,252,614	48,500	89,874,684	(4,156,835)	85,717,849
- Over time	-	-	-	-	-	-	-	-	-	-	-	-	-
	4,895,605	53,607,370	21,807,053	578,166	-	5,543,525	-	141,851	3,252,614	48,500	89,874,684	(4,156,835)	85,717,849

Consolidated financial statement

	Coal				Power			Natural gas	Head Office	Total	Eliminated entries	Total
	Thailand	Republic of Indonesia	Australia	People's Republic of China and Mongolia	Thailand	People's Republic of China	Lao People's Democratic Republic	Japan	The United States of America			
For the year ended 31 December 2018												
Quantity of coal sales (unit : thousand tons)	1,697	23,504	13,702	314	-	-	-	-	-	39,217	(1,190)	38,027
Sales and service income	5,142,666	65,349,235	33,607,227	703,682	-	6,322,461	-	-	4,657,798	40,615	(3,053,165)	112,770,519
Cost of sales and services	(4,416,923)	(38,528,606)	(24,857,009)	(672,092)	-	(5,050,673)	-	-	(2,449,219)	(39,960)	3,053,605	(72,960,877)
Gross profit	725,743	26,820,629	8,750,218	31,590	-	1,271,788	-	-	2,208,579	655	440	39,809,642
Gross profit margin (%)	14%	41%	26%	4%	-	20%	-	-	47%	2%	-	35%
Share of profit (loss) from joint ventures and associates	-	-	22,843	3,809,843	1,340,126	(18,410)	3,414,706	31,274	-	(100,408)	-	8,499,974
Selling expenses	(256,732)	(3,382,851)	(2,212,830)	(28,390)	-	-	-	-	-	(26,818)	27,944	(5,879,677)
Administrative expenses	-	(917,748)	(492,970)	(162,366)	(229,245)	(626,446)	-	(120,546)	(653,902)	(2,022,104)	53,396	(5,171,931)
Indemnity payment	-	-	-	-	(908,656)	-	-	-	-	(1,805,423)	-	(2,714,079)
Royalty fee	-	(7,607,467)	(1,822,142)	-	-	-	-	-	-	-	-	(9,429,609)
Interest income	3,519,552	157,310	26,163	1,167	250,256	120,238	-	42	669,801	2,490,766	(6,965,533)	269,762
Profit (loss) from operation before interest expenses and income taxes	3,988,563	15,069,873	4,271,282	3,651,844	452,481	747,170	3,414,706	(89,230)	2,224,478	(1,463,332)	(6,883,753)	25,384,082

* Revenue is allocated to the geographic areas where the sale originated and there is no customer who generates significant revenue to the Group.

Baht'000

Consolidated financial statement

Baht'000

	Coal		Power			Natural gas	Head Office	Total	Eliminated entries	Total
	Thailand	Republic of Indonesia	Australia	People's Republic of China and Mongolia	Thailand	People's Republic of China	Lao People's Democratic Republic	Japan	The United States of America	
For the year ended										
31 December 2018 (continued)										
Profit from operation before interest expenses and income taxes										25,384,082
Net losses on exchange rate										(617,505)
Net losses from financial derivatives										(2,051,687)
Others										(863,017)
Interest expenses										(5,505,827)
Income taxes										(6,109,965)
Non-controlling interests										(3,542,350)
Profit for the year - owners of the parent										6,693,731
Total segmented assets	1,626,119	38,852,775	100,656,351	19,036,901	5,524,986	14,921,885	15,717,691	49,186	21,007,372	- 217,393,266
Total unallocated assets										57,206,742
Total assets										274,317,395

* Revenue reported in segment information for the year ended 31 December 2018 was disaggregated under Thai Accounting Standard 18, Revenue. Consequently, disaggregated revenue for the current and comparative period cannot be comparable. However, the comparative disaggregated revenue information is disclosed in Note 3.

8 Fair value estimation

The following table presents the Group's financial assets and liabilities that are measured at fair value at 31 December 2019 and 31 December 2018

Consolidated financial statements	US Dollar'000				Bant'000			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Assets as at 31 December 2019								
Financial derivative assets recognised at fair value through profit or loss								
- Foreign exchange rate forward	-	896	-	896	-	27,027	-	27,027
Derivatives used for hedging								
- Interest rate swap	-	142	-	142	-	4,272	-	4,272
- Foreign exchange rate forward	-	510	-	510	-	15,380	-	15,380
- Cross currency and interest rate swap	-	23,222	-	23,222	-	700,255	-	700,255
- Coal swap	-	2,632	-	2,632	-	79,353	-	79,353
- Fuel swap	-	1,753	-	1,753	-	52,861	-	52,861
Available-for-sale investments - Equity securities	8,164	-	-	8,164	246,192	-	-	246,192
Total assets	8,164	29,155	-	37,319	246,192	879,148	-	1,125,340
Liabilities as at 31 December 2019								
Financial derivative liabilities recognised at fair value through profit or loss								
- Foreign exchange rate forward	-	376	-	376	-	11,351	-	11,351
Derivatives used for hedging								
- Interest rate swap	-	22,012	-	22,012	-	663,723	-	663,723
- Cross currency and interest rate swap	-	676	-	676	-	20,396	-	20,396
Total liabilities	-	23,064	-	23,064	-	695,470	-	695,470

Consolidated financial statements

	US Dollar'000				Bant'000			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Assets as at 31 December 2018								
Financial derivative assets recognised at fair value through profit or loss								
- Foreign exchange rate forward	-	524	-	524	-	16,987	-	16,987
- Foreign exchange rate forward	-	70	-	70	-	2,261	-	2,261
- Natural gas swap and options	-	2,387	-	2,387	-	77,441	-	77,441
Derivatives used for hedging								
- Interest rate swap	-	2,660	-	2,660	-	86,320	-	86,320
- Foreign exchange rate forward	-	11,646	-	11,646	-	377,908	-	377,908
- Coal swap	-	437	-	437	-	14,196	-	14,196
Available-for-sale investments - Equity securities	8,282	-	-	8,282	268,739	-	-	268,739
Total assets	8,282	17,724	-	26,006	268,739	575,113	-	843,852
Liabilities as at 31 December 2018								
Financial derivative liabilities recognised at fair value through profit or loss								
- Foreign exchange rate forward	-	182	-	182	-	5,922	-	5,922
Derivatives used for hedging								
- Interest rate swap	-	6,435	-	6,435	-	208,825	-	208,825
- Foreign exchange rate forward	-	1,968	-	1,968	-	63,866	-	63,866
- Cross currency and interest rate swap	-	12,540	-	12,540	-	406,918	-	406,918
- Fuel swap	-	413	-	413	-	13,388	-	13,388
- Coal swap	-	1,492	-	1,492	-	48,400	-	48,400
Total liabilities	-	23,030	-	23,030	-	747,319	-	747,319

Separate financial statements

	US Dollar'000			Bant'000				
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Assets as at 31 December 2019								
Derivatives used for hedging								
- Interest rate swap	-	142	-	142	-	4,272	-	4,272
- Cross currency and interest rate swap	-	23,222	-	23,222	-	700,255	-	700,255
Available-for-sale investments - equity securities	6,023	-	-	6,023	181,614	-	-	181,614
Total assets	6,023	23,364	-	29,387	181,614	704,527	-	886,141
Liabilities as at 31 December 2019								
Financial derivative liabilities recognised at fair value through profit or loss								
- Foreign exchange rate forward	-	349	-	349	-	10,533	-	10,533
Derivatives used for hedging								
- Interest rate swap	-	18,763	-	18,763	-	565,747	-	565,747
- Cross currency and interest rate swap	-	676	-	676	-	20,396	-	20,396
Total liabilities	-	19,788	-	19,788	-	596,676	-	596,676

Separate financial statements

	US Dollar'000				Bant'000			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Assets as at 31 December 2018								
Financial derivative assets recognised at fair value through profit or loss								
- Foreign exchange rate forward	-	70	-	70	-	2,261	-	2,261
Derivatives used for hedging								
- Interest rate swap	-	2,660	-	2,660	-	86,320	-	86,320
- Cross currency and interest rate swap	-	11,646	-	11,646	-	377,908	-	377,908
Available-for-sale investments - equity securities	5,926	-	-	5,926	192,297	-	-	192,297
Total assets	5,926	14,376	-	20,302	192,297	466,489	-	658,786
Liabilities as at 31 December 2018								
Financial derivative liabilities recognised at fair value through profit or loss								
- Foreign exchange rate forward	-	182	-	182	-	5,922	-	5,922
Derivatives used for hedging								
- Interest rate swap	-	4,812	-	4,812	-	156,147	-	156,147
- Cross currency and interest rate swap	-	12,540	-	12,540	-	406,918	-	406,918
Total liabilities	-	17,534	-	17,534	-	568,987	-	568,987

There were no transfers between Level 1, 2, and 3 during the year.

(a) Financial instruments in level 1

The fair value of financial instruments traded in active markets is based on quoted market prices on the statement of financial position date referring to the Stock Exchange of Thailand and Australian Securities Exchange. The quoted market price used for financial assets held by the Group is the closing price. These instruments are included in Level 1.

(b) Financial instruments in level 2

The fair value of financial instruments that are not traded in an active market (for example, over-the-counter derivatives) is determined by using valuation techniques. These valuation techniques maximise the use of observable market data where it is available and rely as little as possible on entity specific estimates. If all significant inputs required to fair value an instrument are observable, the instrument is included in level 2.

Specific valuation techniques used to value financial instruments include:

- Quoted market prices or dealer quotes for similar instruments.
- The fair value of interest rate swaps is calculated as the present value of the estimated future cash flows based on observable yield curves.
- The fair value of forward foreign exchange contracts is determined by using forward exchange rates on the statement of financial position date, with the resulting value discounted back to present value.
- The fair value of coal and fuel swap is determined by using forward price on the statement of financial position date, with the resulting value discounted back to present value.
- Other techniques, such as discounted cash flow analysis, are used to determine fair value for the remaining financial instruments.

(c) Financial instruments in level 3

The Group has no financial instrument in level 3.

9 Cash and cash equivalents

As at 31 December, cash and cash equivalents consist of:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Cash on hand	315	555	9,504	18,009
Deposits held at call with banks	350,892	310,733	10,580,798	10,083,223
Fixed deposits with banks	81,976	296,056	2,471,891	9,606,968
Total cash and cash equivalents	433,183	607,344	13,062,193	19,708,200

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Cash on hand	20	18	595	595
Deposits held at call with banks	29,459	28,295	888,317	918,157
Total cash and cash equivalents	29,479	28,313	888,912	918,752

As at 31 December 2019, the interest rates on deposits held at call with banks were 0.05% to 3.90% per annum (2018: 0.35% to 1.80% per annum).

As at 31 December 2019, the interest rates on fixed deposits with banks were 0.75% to 6.75% per annum (2018: 0.75% to 8.00% per annum). These fixed deposits have an original maturities of three months.

10 Short-term investments

Consolidated financial statements

As at 31 December 2019, the Group has investments in bonds which mature within one year of 235.44 million or equivalent to US Dollar 7.81 million which bore interest at the rates of 1.79% to 3.21% per annum and fixed deposits at financial institutions in Thailand and the People's Republic of China of Baht 3,000 million or equivalent to US Dollar 99.49 million and CNY 21 million or equivalent to US Dollar 3 million which bore interest at the rates of 1.25% to 2.80% per annum and maturities within 180 days and one year. (2018: investment in bond which mature within one year of Baht 100 million or equivalent to US Dollar 3.08 million and boring interest at the rate of 4.95% per annum and fixed deposits at financial institutions in the People's Republic of China of CNY 22 million or equivalent to US Dollar 4.81 million bearing interest at the rates between 2.80% to 3.30% per annum and maturities within one year).

Separate financial statements

As at 31 December 2018, the Company had investments in bonds which nature within one year of Baht 100 million or equivalent to US Dollar 3.08 million and bore interest at the rate of 4.95% per annum.

11 Trade accounts receivable and notes receivable, net

As at 31 December, trade accounts receivable and notes receivable consist of:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Trade accounts receivable - third parties	245,331	395,701	7,397,743	12,840,436
Notes receivable	2,061	523	62,134	16,963
Total trade accounts receivable and notes receivable	247,392	396,224	7,459,877	12,857,399
<u>Less</u> Allowance for doubtful accounts	(1,493)	(1,493)	(45,033)	(48,461)
Trade accounts receivable and notes receivable, net	245,899	394,731	7,414,844	12,808,938

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Trade accounts receivable - third parties	12,778	19,020	385,301	617,205
Total trade accounts receivable	12,778	19,020	385,301	617,205

Trade accounts receivable and notes receivable are aged as follows:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Trade accounts receivable and notes receivable under credit term	193,168	314,289	5,824,794	10,198,611
Trade accounts receivable due for payment				
- Less than 3 months	44,549	75,655	1,343,327	2,455,007
- Over 3 months but less than 6 months	1,504	4,387	45,373	142,353
- Over 6 months but less than 12 months	5,568	386	167,883	12,514
- Over 12 months	2,603	1,507	78,500	48,914
Total trade accounts receivable and notes receivable	247,392	396,224	7,459,877	12,857,399
<u>Less</u> Allowance for doubtful accounts	(1,493)	(1,493)	(45,033)	(48,461)
Trade accounts receivable and notes receivable, net	245,899	394,731	7,414,844	12,808,938

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Trade accounts receivable under credit term	12,547	16,732	378,327	542,957
Trade accounts receivable due for payment				
- Less than 3 months	231	2,288	6,974	74,248
- Over 3 months but less than 6 months	-	-	-	-
- Over 6 months but less than 12 months	-	-	-	-
- Over 12 months	-	-	-	-
Total trade accounts receivable	12,778	19,020	385,301	617,205

12 Inventories, net

As at 31 December, inventories consist of:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Coal	99,077	103,643	2,987,580	3,363,182
Fuel	5,946	24,860	179,287	806,708
Others	71	1	2,146	37
Coal in transits	23,620	29,238	712,232	948,771
Total	128,714	157,742	3,881,245	5,118,698
<u>Less</u> Allowance for slow-moving of coal	(4,069)	(4,069)	(122,688)	(132,029)
Allowance for net realisable value of fuel	-	(4,041)	-	(131,147)
Inventories, net	124,645	149,632	3,758,557	4,855,522

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Coal	7,658	11,715	230,919	380,162
<u>Less</u> Allowance for slow-moving of coal	(3,854)	(3,854)	(116,222)	(125,071)
Inventories, net	3,804	7,861	114,697	255,091

13 Derivative financial instruments

Consolidated financial statements

	US Dollar'000		Baht'000	
	Assets	Liabilities	Assets	Liabilities
As at 31 December 2019				
Interest rate swap contracts	142	22,012	4,272	663,723
Foreign exchange rate forward contracts	1,406	376	42,407	11,351
Cross currency and interest rate swaps contracts	23,222	676	700,255	20,396
Coal swap contracts	2,632	-	79,353	-
Fuel swap contracts	1,753	-	52,861	-
Total derivative financial instruments	29,155	23,064	879,148	695,470
<u>Less</u> Non-current portion:				
Interest rate swaps contracts	(128)	(20,151)	(3,859)	(607,612)
Cross currency and interest rate swaps contracts	(11,141)	(676)	(335,959)	(20,396)
Total non-current portion	(11,269)	(20,827)	(339,818)	(628,008)
Total current portion	17,886	2,237	539,330	67,462
As at 31 December 2018				
Interest rate swap contracts	3,184	6,435	103,307	208,825
Foreign exchange rate forward contracts	70	2,151	2,262	69,788
Cross currency and interest rate swaps contracts	11,646	12,540	377,908	406,918
Coal swap contracts	437	1,491	14,196	48,400
Fuel swap contracts	-	413	-	13,388
Natural gas swap and options contracts	2,387	-	77,440	-
Total derivative financial instruments	17,724	23,030	575,113	747,319
<u>Less</u> Non-current portion:				
Interest rate swaps contracts	(2,979)	(5,903)	(96,665)	(191,548)
Cross currency and interest rate swaps contracts	(8,146)	(12,540)	(264,323)	(406,918)
Total non-current portion	(11,125)	(18,443)	(360,988)	(598,466)
Total current portion	6,599	4,587	214,125	148,853

Separate financial statements

	US Dollar'000		Baht'000	
	Assets	Liabilities	Assets	Liabilities
As at 31 December 2019				
Interest rate swap contracts	142	18,763	4,272	565,747
Foreign exchange rate forward contracts	-	349	-	10,533
Cross currency and interest rate swap contracts	23,222	676	700,255	20,396
Total derivative financial instruments	23,364	19,788	704,527	596,676
Less Non-current portion:				
Interest rate swaps contracts	(128)	(18,695)	(3,859)	(563,716)
Cross currency and interest rate swaps contracts	(11,141)	(676)	(335,959)	(20,396)
Total non-current portion	(11,269)	(19,371)	(339,818)	(584,112)
Total current portion	12,095	417	364,709	12,564
As at 31 December 2018				
Interest rate swap contracts	2,660	4,812	86,320	156,146
Foreign exchange rate forward contracts	70	182	2,262	5,922
Cross currency and interest rate swap contracts	11,646	12,540	377,907	406,919
Total derivative financial instruments	14,376	17,534	466,489	568,987
Less Non-current portion:				
Interest rate swaps contracts	(2,455)	(4,812)	(79,678)	(156,146)
Cross currency and interest rate swaps contracts	(8,146)	(12,540)	(264,323)	(406,919)
Total non-current portion	(10,601)	(17,352)	(344,001)	(563,065)
Total current portion	3,775	182	122,488	5,922

The fair value of derivative financial instruments is in Level 2 that are not traded in an active market. These valuation techniques are disclosed in Note 8.

The Group manages the risks by using the instruments as follows:

Foreign exchange rate forward contracts

As at 31 December 2019, the Group had foreign exchange rate forward contracts amounting to US Dollar 51 million at the exchange rate of Australian Dollar 0.6756 to 0.7155 per US Dollar 1 and US Dollar 40 million at the exchange rates of Baht 30.0670 to 30.3880 per US Dollar 1 and US Dollar 79.30 million at exchange rates of Indonesian Rupiah 13,937 to 14,179 per US Dollar 1 (2018: US Dollar 158.00 million at the exchange rates of Australian Dollar 0.7020 to 0.7603 per US Dollar 1 and US Dollar 53.94 million at the exchange rates of Baht 32.2740 to 32.7140 per US Dollar 1).

Cross currency and interest rate swap contracts

As at 31 December 2019, the Group had cross currency and interest rate swap contracts with the financial institutions to manage exposure of fluctuations in foreign currency exchange rates and interest rates for the debentures from Baht 12,869.42 million to be US Dollar 321.66 million at fixed interest rates, starting from 10 June 2011 to 2026 (2018: Baht 14,596.93 million to be US Dollar 461.49 million at fixed interest rates, starting from 10 June 2011 to 1 April 2026).

Interest rate swap contracts

As at 31 December 2019, the Group had interest rate swap contracts with the financial institutions to manage exposure of fluctuations in interest rates for the borrowings of US Dollar 827 million, Australian Dollar 170 million and Thai baht 350 million (2018: of US Dollar 940 million and Australian Dollar 120 million) by converting floating interest rates to fixed interest rates, starting from 16 July 2013 to 26 June 2025.

Coal swap contracts

As at 31 December 2019, the Group had coal swap contracts with no physical delivery of selling and buying side of 780,000 tons at the rates between US Dollar 72.45 to 76.00 per ton. (2018: 600,000 tons at the rates between US Dollar 88.00 to 108.25 per ton). Such contracts are due within one year.

Fuel swap contracts

As at 31 December 2019, the Group had fuel swap contracts with no physical delivery of selling and buying side of 300,000 barrels at the rates between US Dollar 71.50 to 73.25 per barrel. (2018: 120,000 barrels at the rates between US Dollar 68.25 to 73.00 per barrel). Such contracts are due within one year.

14 Other current assets

As at 31 December, other current assets consist of:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Prepaid expenses	28,735	24,133	866,466	783,099
Advance for prepayment	28,851	32,095	869,985	1,041,479
Value added tax receivables	16,861	20,102	508,413	652,315
Prepaid income tax	4,941	3,946	148,986	128,032
Restricted deposits at banks (Note 15.1 d)	70,002	8,910	2,110,855	289,140
Other receivables	49,463	27,638	1,491,477	896,854
Receivable from assets held for sale	14,547	-	438,660	-
Long service leave coal industry fund receivable in Australia	47,370	38,189	1,428,388	1,239,228
Others	19,699	889	594,023	28,865
Total other current assets	280,469	155,902	8,457,253	5,059,012

As at 31 December 2019, receivable from assets held for sale amounting to Australian Dollar 20.83 million or equivalent to USD Dollar 14.55 million is receivable from sales of certain area of the Mannering, Myuna and Munmorah mining tenements in Australia to third party under Asset Sale Agreement entered in December 2018. The Group completely sold such assets on 17 January 2019.

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Prepaid expenses	3,186	979	96,103	31,757
Value added tax receivables	1,534	237	46,248	7,704
Prepaid income tax	774	388	23,337	12,592
Other receivables	112	2,134	3,382	69,309
Others	8	18	256	588
Total other current assets	5,614	3,756	169,326	121,950

15 Investments in subsidiaries, associates and joint ventures

As at 31 December, investments in associates and joint ventures are as follows:

Consolidated financial statements (Equity method)

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Joint ventures				
BLOP Power Ltd.	201,936	187,649	6,089,170	6,089,170
BPPR Co., Ltd.	-	17	-	555
Hebi Zhong Tai Mining Co., Ltd.	48,320	48,320	1,457,053	1,567,987
Shanxi Gaohe Energy Co., Ltd.	308,933	308,933	9,315,557	10,024,805
Shanxi Luguang Power Co., Ltd.	64,848	43,081	1,955,430	1,397,966
Hongsa Power Company Limited	434,189	403,470	13,092,534	13,092,534
Phu Fai Mining Company Limited	28	26	836	836
Aura Land Development Pte. Ltd.	3,094	2,875	93,290	93,290
Aizu Energy Pte. Ltd.	32,245	24,287	972,304	788,113
Sunseap Group Pte. Ltd.	88,293	88,293	2,662,382	2,865,085
Hokkaido Solar Estate G.K.	2,003	1,861	60,396	60,396
Springvale Coal Sales Pty Limited	-	289	-	9,380
Digital Energy Solutions Corporation	160	158	4,829	5,129
PT. Nusantara Timur Unggul	491	491	14,800	15,926
Associates				
Urban Mobility Tech Co., Ltd.	3,051	770	92,000	25,000
Durapower Holdings Pte. Ltd.	34,174	34,174	1,030,493	1,108,951
FOMM Corporation (Note 36.3)	21,080	-	635,650	-
Global Engineering Co., Ltd.	10,468	-	315,665	-
Port Kembla Coal Terminal Ltd.	83	83	2,495	2,707
Investments in joint ventures and associates - cost method	1,253,396	1,144,777	37,794,884	37,147,830
Add Cumulative equity account of investments in joint ventures and associates	231,363	229,342	6,976,548	7,442,041
Total investments in joint ventures and associates	1,484,759	1,374,119	44,771,432	44,589,871

As at 31 December 2019, under the condition of loans for project finance of joint ventures, the Group pledged its investments in two joint ventures with a cost of US Dollar 370.82 million (2018: The Group pledged its investment in a subsidiary and three joint ventures with a cost of Baht 12,010.76 million and US Dollar 370.82 million), as collateral for loans from financial institutions of such joint ventures.

As at 31 December, investments in subsidiaries are as follows:

Separate financial statements (Cost Method)

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Subsidiaries				
Banpu Minerals Co., Ltd.	102,434	102,434	3,088,805	3,323,973
BP Overseas Development Co., Ltd.	517,963	517,963	15,618,659	16,807,799
Banpu Power Public Company Limited	687,224	687,293	20,722,528	22,302,524
Banpu Engineering Services Co., Ltd.	7,787	7,787	234,823	252,702
BOG Co., Ltd.	569,753	43,679	17,180,343	1,417,370
Banpu International Limited	7,260	7,260	218,902	235,568
Banpu Infinergy Co., Ltd.	58,856	17,834	1,774,753	578,704
Banpu Innovation & Ventures Co., Ltd.	2,997	-	90,366	-
Total investments in subsidiaries	1,954,274	1,384,250	58,929,179	44,918,640

15.1 Changes in investments in subsidiaries, associates and joint ventures

Movements of investments in associates and joint ventures for the years ended 31 December are as follows:

Consolidated financial statements (Equity method)

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Opening balance	1,374,119	1,170,426	44,589,871	38,250,589
Adjustment from changes in accounting policy (Note 3)	(6,651)	-	(214,884)	-
Opening balance after adjustment	1,367,468	1,170,426	44,374,987	38,250,589
Additional of investments	61,097	77,824	1,896,908	2,514,536
Decrease in investment	(3)	-	(98)	-
Dividend received from joint ventures	(210,341)	(126,179)	(6,530,598)	(4,076,921)
Add Share of profit from joint ventures and associates	205,845	263,662	6,443,993	8,499,974

Consolidated financial statements (Equity method)

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Share of other comprehensive income (expense) from joint ventures and associates				
- Cash flow hedge reserve	(15,448)	5,139	(452,357)	169,311
- Remeasurement of post-employment benefit obligations	(434)	(2)	(12,439)	-
- Translation differences	76,575	(16,751)	(948,964)	(767,618)
Closing balance	1,484,759	1,374,119	44,771,432	44,589,871

Movements of investments in subsidiaries for the years ended 31 December are as follows:

Separate financial statements (Cost method)

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Opening balance	1,384,250	1,384,389	44,918,640	45,243,088
Additional of investments	570,094	-	17,700,046	-
Share-based payment of a subsidiary	(70)	(139)	(2,172)	(4,496)
Translation differences	-	-	(3,687,335)	(319,952)
Closing balance	1,954,274	1,384,250	58,929,179	44,918,640

a) Additional investments

Consolidated financial statements

In 2019, the Group additionally invested in Aizu Energy Pte. Ltd. and Shanxi Luguang Power Co., Ltd., joint ventures, in the same proportion of shareholding at the consideration of JPY 660.67 million or equivalent to US Dollar 6.06 million and CNY 157.25 million or equivalent to US Dollar 22.40 million. The Group fully paid for this investment.

On 25 January 2019, the Group invested in newly issued shares of FOMM Corporation, which is a limited company registered in Japan, and engages Electric Vehicle (EV) business, at the consideration of US Dollar 20 million. The Group owns 21.45% of shareholding in such company. The Group fully paid for this investment, which is classified as an investment in an associate as described in Note 36.3

On 23 August 2019, the Group additionally invested the newly issued preference shares of Urban Mobility Tech Co., Ltd., an Associated, at the consideration of Baht 67 million or equivalent to US Dollar 2.19 million. As a result, the interest increased from 22.50% to 30.66% of the registered capital. The Group fully paid

for this investment. The investment is considered as an associate due to the Group has representatives in the board who have voting rights in accordance with conditions in relevant contracts.

On 18 December 2019, Banpu Renewable Singapore Pte. Ltd., an indirect subsidiary of Banpu Power Public Company Limited, a subsidiary held by the Group in proportion of 78.57% of the shareholding, purchase investment in Global Engineering Co., Ltd. from third party, which is incorporated in Japan and its business objective is virtual power plant and power trading. The Group had 19.90% shareholding of registered share capital. The total amount of investment is JPY 1,143.96 million or equivalent to US Dollar 10.45 million. The Group paid the whole amount for such shares. The investment is considered as an associate due to the Group has representatives in the board who have voting rights in accordance with conditions in relevant contracts.

Separate financial statements

In 2019, the Company additionally invested in BOG Co., Ltd. and Banpu Infinergy Co., Ltd. which are subsidiaries of US Dollar 526.07 million and US Dollar 41.02 million in the same proportion of shareholding. Moreover, the Company has established Banpu Innovation & Ventures Co., Ltd., which is a limited company in Thailand. The Company owned 100% of shareholding in such subsidiary with registered share capital of US Dollar 3 million. The Company fully paid for such investments.

b) Group restructuring for clean energy technology businesses

At the Board of Directors' meeting on 31 October 2019, the Board approved the formation of a new company from the amalgamation between Banpu Infinergy Co., Ltd. (BPIN), a direct subsidiary, and Banpu Renewable Energy Co., Ltd. (BRE), an indirect subsidiary of the Company in which the Company holds a 78.57% stake through Banpu Power Public Company Limited (BPP). The amalgamation of these companies is intended to rationalise and group all clean energy technology businesses under the Group. The Company and BPP entered into an Amalgamation and Shareholders Agreement on 31 October 2019. Under this agreement, the shares of the new company shall be allocated based on the fair value of BPIN and BRE. As at 31 December 2019, the Company has been under the process of the amalgamation.

c) Dividend income from joint ventures

Dividend income from joint ventures during the years ended 31 December are as follows:

	Million US Dollar	
	2019	2018
BLCP Power Ltd.	63.12	32.72
Hongsa Power Company Limited	70.52	30.13
Phu Fai Mining Company Limited	7.07	10.91
Shanxi Gaohe Energy Company Limited	67.48	48.86
Hebi Zhong Tai Mining Co., Ltd.	1.69	1.90
Aizu Energy Pte. Ltd	0.46	-
Hokkaido Solar Estate G.K.	-	1.66
Total dividend income from joint ventures	210.34	126.18

Regarding the dividend income from Hongsa Power Company Limited, Banpu Power Public Company Limited, a subsidiary, has provided the Standby Letters of Credit, issued by commercial banks under the subsidiary's name amounting to Baht 1,600 million or equivalent to US Dollar 53.06 and US Dollar 22 million as a guarantee for lenders of Hongsa Power Company Limited (2018: amounting to Baht 1,120 million or equivalent to US dollar 34.51 million and US Dollar 22 million).

d) Significant restrictions

As at 31 December 2019, the Group has restricted cash of a subsidiary in the United State of America amounting to US Dollar 70 million, to invest in natural gas, which is presented as other current assets (Note 35.4 g) and restricted cash used in mine closure activities of subsidiaries in Indonesia amounting to US Dollar 24.94 million, which is represented as other non-current assets.

As at 31 December 2018, the Group has restricted deposits at banks amounting to CNY 11.01 million or equivalent to US Dollar 1.60 million which represented deposits held at banks as reserve for serving bank acceptance bills provided by the banks for a subsidiary in the People's Republic of China. The Group classified these restricted deposits at banks as short-term investments and restricted deposits at banks of subsidiaries in Indonesia for used in mine closure activities of subsidiaries amounting to US Dollar 13.42 million, which is presented as non-current assets and capital injection commitment amounting to US Dollar 8.91 million, which is presented as other current assets.

15.2 Material subsidiaries

As at 31 December, the Group had the following significant subsidiaries:

Name of company	Country	Business	Proportion of ordinary shares held by the Group (%)		Proportion of ordinary shares held by non-controlling interests (%)	
			2019	2018	2019	2018
PT. Indo Tambangraya Megah Tbk. and its subsidiaries	Republic of Indonesia	Investment in coal mining	67.13	67.13	32.87	32.87
Banpu Australia Co., Pty Ltd. and its subsidiaries	Australia	Investment in coal mining	100.00	100.00	-	-
Banpu Power Public Company Limited and its subsidiaries	Thailand	Investment in coal mining	78.57	78.57	21.43	21.43

List of subsidiaries of the Group is disclosed in Note 15.6.

15.3 Non-controlling interests

Set out below are the summarised financial information for each subsidiary that has non-controlling interests that are material to the Group. The amounts disclosed for each subsidiary are before inter-company eliminations.

Summarised statement of financial position

US Dollar'000				
	PT Indo Tambangraya Megah Tbk.		Banpu Power Public Company Limited	
As at 31 December	2019	2018	2019	2018
Current assets	472,517	766,484	295,102	130,312
Current liabilities	(233,290)	(389,898)	(127,459)	(147,645)
Total current net assets	239,227	376,586	167,643	(17,333)
Non-current assets	736,522	676,243	1,439,620	1,527,571
Non-current liabilities	(91,284)	(83,045)	(170,739)	(172,387)
Total non-current net assets	645,238	593,198	1,268,881	1,355,184
Net assets	884,465	969,784	1,436,524	1,337,851
Accumulated non-controlling interest	280,988	310,871	326,990	305,393

Baht'000				
	PT Indo Tambangraya Megah Tbk.		Banpu Power Public Company Limited	
As at 31 December	2019	2018	2019	2018
Current assets	14,248,282	24,872,238	8,898,505	4,228,621
Current liabilities	(7,034,616)	(12,652,109)	(3,843,388)	(4,791,064)
Total current net assets	7,213,666	12,220,129	5,055,117	(562,443)
Non-current assets	22,209,093	21,943,962	43,410,294	49,569,366
Non-current liabilities	(2,752,585)	(2,694,796)	(5,148,454)	(5,593,929)
Total non-current net assets	19,456,508	19,249,166	38,261,840	43,975,437
Net assets	26,670,174	31,469,295	43,316,957	43,412,994
Accumulated non-controlling interest	8,472,921	10,087,705	9,860,069	9,909,937

Summarised statement of comprehensive income

US Dollar'000

For the years ended 31 December	PT Indo Tambangraya Megah Tbk.		Banpu Power Public Company Limited	
	2019	2018	2019	2018
Revenue	1,725,394	2,015,134	183,171	195,669
Profit before income tax	185,908	367,363	103,291	128,279
Income tax expense	(59,406)	(108,607)	(6,573)	(9,060)
Post-tax profit from continuing operations	126,502	258,756	96,718	119,219
Other comprehensive income (expense)	1,825	1,993	(70,061)	(21,689)
Total comprehensive income	128,327	260,749	26,657	97,530
Total comprehensive income allocated to non-controlling interests	40,396	83,685	35,237	23,573
Dividend paid to non-controlling interests	70,363	81,980	13,596	12,211

Baht'000

For the years ended 31 December	PT Indo Tambangraya Megah Tbk.		Banpu Power Public Company Limited	
	2019	2018	2019	2018
Revenue	53,569,348	65,110,391	5,687,010	6,322,203
Profit before income tax	5,771,995	11,869,738	3,206,924	4,144,797
Income tax expense	(1,844,414)	(3,509,156)	(204,083)	(292,729)
Post-tax profit from continuing operations	3,927,581	8,360,582	3,002,841	3,852,068
Other comprehensive income (expense)	56,675	64,403	(2,175,236)	(700,784)
Total comprehensive income	3,984,256	8,424,985	827,605	3,151,284
Total comprehensive income allocated to non-controlling interests	1,254,194	2,703,930	1,094,017	761,660
Dividend paid to non-controlling interests	2,200,138	2,628,552	424,984	392,264

Summarised statement of cash flows

US Dollar'00				
	PT Indo Tambangraya Megah Tbk.		Banpu Power Public Company Limited	
For the years ended 31 December	2019	2018	2019	2018
Cash flow from operating activities				
Cash generated from (used in) operations	200,743	464,152	(5,109)	(11,058)
Interest paid	-	-	(8,955)	(6,239)
Income tax paid	(111,287)	(109,257)	(6,214)	(7,735)
Net cash generated from (used in) operating activities	89,456	354,895	(20,278)	(25,032)
Net cash generated from (used in) investing activities	(95,924)	(108,631)	169,389	11,982
Net cash generated from (used in) financing activities	(203,420)	(249,373)	(84,689)	23,844
Net increase (decrease) in cash and cash equivalents	(209,888)	(3,109)	64,422	10,794
Cash and cash equivalents at beginning of the year	368,216	374,230	44,468	34,552
Exchange gains (losses) on cash and cash equivalents	881	(2,905)	1,965	(878)
Cash and cash equivalents at ending of the year	159,209	368,216	110,855	44,468

Baht'000				
	PT Indo Tambangraya Megah Tbk.		Banpu Power Public Company Limited	
For the years ended 31 December	2019	2018	2019	2018
Cash flow from operating activities				
Cash generated from (used in) operations	6,232,588	14,997,076	(158,626)	(357,288)
Interest paid	-	-	(278,045)	(201,573)
Income tax paid	(3,455,194)	(3,530,170)	(192,913)	(249,920)
Net cash generated from (used in) operating activities	2,777,394	11,466,906	(629,584)	(808,781)
Net cash generated from (used in) investing activities	(2,978,210)	(3,509,944)	5,259,115	387,142
Net cash generated from (used in) financing activities	(6,315,703)	(8,057,416)	(2,629,394)	770,432
Net increase (decrease) in cash and cash equivalents	(6,516,519)	(100,454)	2,000,137	348,793
Cash and cash equivalents at beginning of the year	11,948,536	12,230,173	1,442,979	1,129,197
Exchange losses on cash and cash equivalents	(631,229)	(181,183)	(100,406)	(35,011)
Cash and cash equivalents at ending of the year	4,800,788	11,948,536	3,342,710	1,442,979

15.4 Investments in associates

The Group has interests in a number of individually immaterial associates that are accounted for using the equity method.

Consolidated financial statements				
	US Dollar*000		Baht*000	
	2019	2018	2019	2018
Aggregate carrying amount of individually immaterial associates	67,582	35,207	2,037,870	1,142,472
Aggregate amounts of the reporting entity's share of:				
Profit (loss) from continuing activities	(1,916)	701	(56,016)	23,005
Other comprehensive income (expense)	1,652	-	(67,322)	-
Total comprehensive income (expense)	(264)	701	(123,338)	23,005

15.5 Investments in joint ventures

Below are the joint ventures that are material to the Group. These joint ventures have share capital consisting solely of ordinary shares, which are held directly by the Group, which has voting rights in proportion to the ordinary shares.

Percent of ownership interest					
Name of company	Country	Business	Measurement method	2019	2018
				%	%
BLOP Power Ltd.	Thailand	Power production and trading	Equity	50.00	50.00
Hongsa Power Company Limited	Lao People's Democratic Republic	Power concession	Equity	40.00*	40.00*
Shanxi Gaohe Energy Co., Ltd.	People's Republic of China	Coal mining and trading	Equity	45.00*	45.00*

* Shareholder agreements of the Group's joint ventures determine the management structure including strategic financial decisions and operations which required unanimous votes from all shareholders or their representatives. The Group has classified these as investments in joint ventures.

Commitments and contingent liabilities in respect of joint ventures

Significant commitments in the ownership proportion of the Group's joint ventures:

Consolidated financial statements				
	Million US Dollar		Million Baht	
	2019	2018	2019	2018
Letter of Guarantee	2	2	68	68
Significant contracts	505	540	15,232	17,521
Total	507	542	15,300	17,589

Commitments relating to its joint ventures to the Group are disclosed in Note 35.1.

Summarised financial information for joint ventures

Set out below are the summarised financial information for the joint ventures that are material to the Group. The information disclosed reflects the amounts presented in the financial statements of the relevant joint ventures (not the Group's shares of those amounts). They have been amended to reflect adjustments made using the equity method, including fair value adjustments and modifications for differences in the accounting policies of the Group and its joint ventures.

Summarised statement of financial position

US Dollar'000						
As at 31 December	BLCP Power Limited		Hongsa Power Company Limited		Shanxi Gaohe Energy Co., Ltd.	
	2019	2018	2019	2018	2019	2018
Current assets						
Cash and cash equivalents	154,714	1,840	178,607	270,757	28,090	38,438
Deposits at financial institutions used as collateral	-	181,850	63,495	65,969	4,317	21,163
Current portion of lease accounts receivable, net	16,742	61,325	146,299	147,123	-	6,110
Other current assets	155,134	150,665	158,083	166,017	136,616	195,554
Total current assets	326,590	395,680	546,484	649,866	169,023	261,265
Non-current assets						
Lease accounts receivable	269,651	275,747	2,463,880	2,473,798	-	-
Property, plant and equipment, net	87,503	94,887	131,656	106,048	648,299	664,433
Mining property rights, net	-	-	-	-	765,181	790,834
Other assets	174,721	140,331	405,454	331,226	56,338	38,506
Total non-current assets	531,875	510,965	3,000,990	2,911,072	1,469,818	1,493,773
Current liabilities						
Current portion of long-term borrowings, net	50,901	39,129	201,895	172,429	28,669	29,141
Other current liabilities	92,190	513,786	67,999	91,616	451,058	644,029
Total current liabilities	143,091	552,915	269,894	264,045	479,727	673,170

US Dollar'000

As at 31 December	BLCP Power Limited		Hongsa Power Company Limited		Shanxi Gaohe Energy Co., Ltd.	
	2019	2018	2019	2018	2019	2018
Non-current liabilities						
Long-term borrowings, net	432,106	26,705	2,062,776	2,154,782	14,334	43,856
Other liabilities	31,444	29,275	36,104	28,399	79,169	6,309
Total non-current liabilities	463,550	55,980	2,098,880	2,183,181	93,503	50,165
Net assets	251,824	297,750	1,178,700	1,113,712	1,065,611	1,031,703

Baht'000

As at 31 December	BLCP Power Limited		Hongsa Power Company Limited		Shanxi Gaohe Energy Co., Ltd.	
	2019	2018	2019	2018	2019	2018
Current assets						
Cash and cash equivalents	4,665,239	59,700	5,385,721	8,786,011	847,014	1,247,296
Deposits at financial institutions used as collateral	-	5,900,983	1,914,635	2,140,697	130,165	686,726
Current portion of lease accounts receivable, net	504,837	1,989,997	4,411,497	4,774,104	-	198,276
Other current assets	4,677,933	4,889,061	4,766,840	5,387,227	4,119,530	6,345,696
Total current assets	9,848,009	12,839,741	16,478,693	21,088,039	5,096,709	8,477,994
Non-current assets						
Lease accounts receivable	8,131,068	8,947,944	74,295,833	80,274,261	-	-
Property, plant and equipment, net	2,638,579	3,079,062	3,969,953	3,441,239	19,548,817	21,560,727
Mining property rights, net	-	-	-	-	23,073,230	25,662,360
Other assets	5,268,478	4,553,712	12,226,061	10,748,209	1,698,829	1,249,505
Total non-current assets	16,038,125	16,580,718	90,491,847	94,463,709	44,320,876	48,472,592
Current liabilities						
Current portion of long-term borrowings, net	1,534,865	1,269,731	6,087,954	5,595,274	864,482	945,617

Baht'000

	BLCP Power Limited		Hongsa Power Company Limited		Shanxi Gaohe Energy Co., Ltd.	
As at 31 December	2019	2018	2019	2018	2019	2018
Other current liabilities	2,779,897	16,672,258	2,050,448	2,972,939	13,601,195	20,898,608
Total current liabilities	4,314,762	17,941,989	8,138,402	8,568,213	14,465,677	21,844,225
Non-current liabilities						
Long-term borrowings, net	13,029,718	866,561	62,200,945	69,922,261	432,241	1,423,105
Other liabilities	948,172	949,959	1,088,688	921,527	2,387,251	204,714
Total non-current liabilities	13,977,890	1,816,520	63,289,633	70,843,788	2,819,492	1,627,819
Net assets	7,593,482	9,661,950	35,542,505	36,139,747	32,132,416	33,478,542

Summarised statement of comprehensive income

US Dollar'000

	BLCP Power Limited		Hongsa Power Company Limited		Shanxi Gaohe Energy Co., Ltd.	
For the years ended 31 December	2019	2018	2019	2018	2019	2018
Sales and service income	451,163	447,739	645,966	681,349	795,213	899,068
Cost of sales and services	(383,754)	(347,178)	(258,604)	(251,548)	(369,053)	(373,097)
Depreciation and amortisation	(1,043)	(3,582)	(2,256)	(2,088)	(148,399)	(164,131)
Interest income	1,725	1,756	4,744	4,254	990	1,397
Interest expense	(12,967)	(5,491)	(153,249)	(162,361)	(7,089)	(14,565)
Income taxes	(6,249)	(6,902)	-	-	(75,489)	(95,025)
Profit for the year	53,080	83,850	210,085	242,002	196,173	253,647
Other comprehensive income (expense) for the year	28,575	2,654	46,844	17,129	(12,312)	(35,512)
Total comprehensive income for the year	81,655	86,504	256,929	259,131	183,861	218,135
Dividend receivables from related parties	125,656	65,397	177,720	74,798	149,953	108,571

Baht'000

	BLCP Power Limited		Hongsa Power Company Limited		Shanxi Gaohe Energy Co., Ltd.	
	2019	2018	2019	2018	2019	2018
For the years ended 31 December						
Sales and service income	14,007,536	14,466,747	20,055,696	22,014,862	24,689,450	29,049,923
Cost of sales and services	(11,914,633)	(11,217,552)	(8,029,026)	(8,127,704)	(11,458,202)	(12,055,017)
Depreciation and amortisation	(32,372)	(115,729)	(70,031)	(67,472)	(4,607,391)	(5,303,203)
Interest income	53,549	56,748	147,279	137,455	30,724	45,152
Interest expense	(402,591)	(177,409)	(4,758,023)	(5,245,992)	(220,103)	(470,610)
Income taxes	(194,014)	(223,008)	-	-	(2,343,762)	(3,070,332)
Profit for the year	1,676,116	2,680,253	6,557,205	7,797,541	6,090,716	8,195,513
Other comprehensive income (expense) for the year	321,588	40,719	(1,170,051)	423,278	(2,781,148)	(1,345,316)
Total comprehensive income for the year	1,997,704	2,720,972	5,387,154	8,220,819	3,309,568	6,850,197
Dividend receivables from related parties	4,003,986	2,100,000	5,524,920	2,454,000	4,655,694	3,508,008

Reconciliation of the summarised financial information

Reconciliation of the summarised financial information presented to the carrying amount of its interest in joint ventures.

US Dollar'000

	BLCP Power Limited		Hongsa Power Company Limited		Shanxi Gaohe Energy Co., Ltd.	
	2019	2018	2019	2018	2019	2018
Net assets as at 1 January	297,750	276,643	1,113,712	929,379	1,031,703	922,139
Impact from change in accounting policies	(1,925)	-	(14,221)	-	-	-
Profit for the year	53,080	83,850	210,085	242,002	196,173	253,647
Other comprehensive income (expense)	28,575	2,654	46,844	17,129	(12,312)	(35,512)
Dividend paid	(125,656)	(65,397)	(177,720)	(74,798)	(149,953)	(108,571)
Net assets as at 31 December	251,824	297,750	1,178,700	1,113,712	1,065,611	1,031,703
Ownership percentage in joint ventures by the Group	50%	50%	40%	40%	45%	45%
Interests in joint ventures	125,912	148,875	471,480	445,485	479,525	464,266
Impacts of change in functional currency of joint ventures	-	-	63,258	32,540	-	-
Carrying value as at 31 December	125,912	148,875	534,738	478,025	479,525	464,266

Baht'000

	BLCP Power Limited		Hongsa Power Company Limited		Shanxi Gaohe Energy Co., Ltd.	
	2019	2018	2019	2018	2019	2018
Net assets as at 1 January	9,661,950	9,040,978	36,139,747	30,372,928	33,478,542	30,136,353
Impact from change in accounting policies	(62,186)	-	(459,476)	-	-	-
Profit for the year	1,676,116	2,680,253	6,557,205	7,797,541	6,090,716	8,195,513
Other comprehensive income (expense)	321,588	40,719	(1,170,051)	423,278	(2,781,148)	(1,345,316)
Dividend paid	(4,003,986)	(2,100,000)	(5,524,920)	(2,454,000)	(4,655,694)	(3,508,008)
Net assets as at 31 December	7,593,482	9,661,950	35,542,505	36,139,747	32,132,416	33,478,542
Ownership percentage in joint ventures by the Group	50%	50%	40%	40%	45%	45%
Interests in joint ventures	3,796,741	4,830,975	14,217,002	14,455,899	14,459,587	15,065,344
Impacts of change in functional currency of joint ventures	-	-	1,907,495	1,055,912	-	-
Carrying value as at 31 December	3,796,741	4,830,975	16,124,497	15,511,811	14,459,587	15,065,344

Individually immaterial joint ventures

In addition to the interests in joint ventures disclosed above, the Group also has interests in a number of individually immaterial joint ventures that are accounted for using the equity method.

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	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Aggregate carrying amount of individually immaterial joint ventures	277,002	247,745	8,352,737	8,039,270
Aggregate amounts of the reporting entity's share of:				
Profit from continuing activities	8,909	10,094	298,247	329,845
Other comprehensive income (expense)	(31,702)	(36,353)	(1,695,190)	(1,238,498)
Total comprehensive income (expense)	(22,793)	(26,259)	(1,396,943)	(908,653)

15.6 List of subsidiaries and associates and joint arrangements

			Percentage of direct shareholding	
Name of company	Country	Business	2019	2018
			%	%
Direct shareholding				
Banpu Minerals Co., Ltd.	Thailand	Coal trading and investment in coal mining	100.00	100.00
BP Overseas Development Co., Ltd.	Mauritius Islands	Investment in coal mining and trading	100.00	100.00
Banpu Power Public Company Limited	Thailand	Investment in power	78.57	78.57
Banpu Engineering Services Co., Ltd.	Thailand	Investment in renewable energy	100.00	100.00
BOG Co., Ltd.	Thailand	Investment in power	100.00	100.00
Banpu International Limited	Thailand	Coal trading and project feasibility study	100.00	100.00
Banpu Infinergy Co., Ltd.	Thailand	Investment in renewable energy business, to generate and sell electricity from solar rooftop system and sell solar rooftop system	100.00	100.00
Banpu Innovation & Ventures Co., Ltd.	Thailand	Research and development	100.00	-
Indirect shareholding				
<u>Banpu Minerals Co., Ltd.</u>				
and its subsidiaries and a joint venture are as follows:				
<u>Subsidiaries</u>				
1) Chiang Muan Mining Co., Ltd.	Thailand	Coal mining and trading	100.00	100.00
2) Banpu Coal Sales Co., Ltd.	Thailand	Coal trading	100.00	100.00
3) Banpu Coal Investment Company Limited	Mauritius Islands	Investment in coal mining	100.00	100.00
- Banpu Minerals (Singapore) Pte. Ltd	Singapore	Investment in coal mining	50.00 ⁽²⁾	50.00 ⁽²⁾
4) Banpu Minerals (Singapore) Pte. Ltd. and subsidiaries	Singapore	Investment in coal mining	50.00 ⁽²⁾	50.00 ⁽²⁾
- PT. Indo Tambangraya Megah Tbk (ITM) and subsidiaries	Republic of Indonesia	Investment in coal mining	67.13	67.13
<u>Subsidiaries</u>				
- PT. Indominco Mandiri (IMM)	Republic of Indonesia	Coal mining and trading	100.00	100.00
- PT. Kitadin (KTD)	Republic of Indonesia	Coal mining and trading	100.00	100.00

Name of company	Country	Business	Percentage of direct shareholding	
			2019	2018
			%	%
- PT. Trubaindo Coal Mining (TCM)	Republic of Indonesia	Coal mining and trading	100.00	100.00
- PT. Bharinto Ekatama (BEK)	Republic of Indonesia	Coal mining and trading	100.00	100.00
- PT. Jorong Barutama Greston (JBG)	Republic of Indonesia	Coal mining and trading	100.00	100.00
- PT. Tambang Raya Usaha Tama	Republic of Indonesia	Coal mining and trading	100.00	100.00
- PT. ITM Energi Utama	Republic of Indonesia	Investment in power	99.99	99.99
- PT. Energi Batubara Perkasa	Republic of Indonesia	Coal Trading	100.00	100.00
- PT. Nusa Persada Resources	Republic of Indonesia	Coal mining and trading	100.00	100.00
- PT. ITM Banpu Power	Republic of Indonesia	Investment in power	70.00 ⁽⁴⁾	70.00 ⁽⁴⁾
- PT. ITM Batubara Utama	Republic of Indonesia	Investment in coal mining	100.00	100.00
- PT. Tepian Indah Sukses	Republic of Indonesia	Coal mining and trading	100.00	70.00
- PT. ITM Indonesia and a subsidiary and a joint venture	Republic of Indonesia	Coal mining and trading	100.00	100.00
<u>Subsidiary</u>				
- PT. Gas Emas	Republic of Indonesia	Fuel trading	75.00	75.00
<u>Joint arrangement - Joint venture</u>				
PT. Nusantara Timur Unggul	Republic of Indonesia	Logistic service	33.34 ⁽¹⁾	33.34 ⁽¹⁾
- BMS Coal Sales Pte. Ltd.	Singapore	Coal trading and provide service in mining	100.00	100.00
- Banpu (Shanghai) Trading Ltd.	People's Republic of China	Coal trading	100.00	100.00
- Banpu (Beijing) Energy Trading Ltd.	People's Republic of China	Coal trading	100.00	-
- Hunnu Coal Pty Ltd. and subsidiaries	Australia	Investment in coal mining and trading	100.00	100.00
- Hunnu Resources LLC and subsidiaries	Mongolia	Coal trading	100.00	100.00
- Munkh Sumber Uul LLC	Mongolia	Coal mining and trading	100.00	100.00
- Golden Gobi Mining LLC	Mongolia	Coal mining and trading	100.00	100.00
- Great East Minerals LLC	Mongolia	Coal mining and trading	-	99.99
- Bilegt Khaikhan Uul LLC	Mongolia	Coal mining and trading	100.00	100.00
- Hunnu Power LLC	Mongolia	Coal trading	100.00	100.00
- Munkhnoyon Suvraga LLC	Mongolia	Business consult in coal mining and trading	100.00	100.00
- Hunnu Investments Pte. Ltd. and a subsidiary	Singapore	Coal trading	100.00	100.00
- Hunnu Altai LLC and subsidiaries	Mongolia	Coal mining and trading	100.00	100.00
- Hunnu Global Altai LLC	Mongolia	Coal mining and trading	80.00	80.00
- Hunnu Altai Minerals LLC	Mongolia	Coal mining and trading	100.00	100.00

			Percentage of direct shareholding	
Name of company	Country	Business	2019	2018
			%	%
<u>Joint arrangement – Joint Venture</u>				
- Hebi Zhong Tai Mining Co., Ltd.	People's Republic of China	Coal mining and trading	40.00 ⁽¹⁾	40.00 ⁽¹⁾
BP Overseas Development Co., Ltd.				
Subsidiaries are as follows:				
<u>Subsidiaries</u>				
- Asian American Coal Inc. and subsidiaries and a joint venture	British Virgin Islands	Investment in coal mining	100.00	100.00
1) AACI SAADEC (BVI) Holdings Limited	British Virgin Islands	Investment in coal mining	100.00	100.00
2) Banpu Singapore Pte. Ltd. and subsidiaries	Singapore	Coal trading	100.00	100.00
- Banpu Australia Co. Pty Ltd. and subsidiaries	Australia	Investment in coal mining	100.00	100.00
- AFE Investments Pty Ltd.	Australia	Investment in coal mining	100.00	100.00
- Banpu Australia Resources Pty. Ltd.	Australia	Investment in coal mining	100.00	100.00
- Centennial Energy Pty. Ltd.	Australia	Investment in renewable energy	100.00	-
- Centennial Coal Co., Ltd. and subsidiaries and an associate and joint ventures	Australia	Investment in coal mining and trading	100.00	100.00
<u>Subsidiaries</u>				
- Centennial Inglenook Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Centennial Coal Services and Marketing Pty Ltd.	Australia	Sales and marketing	100.00	100.00
- Centennial Northern Coal Services Pty Ltd.	Australia	Mining Services	100.00	100.00
- Centennial Airly Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Berrima Coal Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Centennial Angus Place Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Centennial Coal Infrastructure Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Centennial Fassifern Pty Ltd. and subsidiaries	Australia	Coal mining and trading	100.00	100.00
- Powercoal Pty Ltd. and subsidiaries	Australia	Investment in coal mining and trading	100.00	100.00
- Elcom Collieries Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Huntley Colliery Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Mandalong Pastoral Management Pty Ltd.	Australia	Investment in coal mining and trading	100.00	100.00
- Collieries Superannuation Pty Ltd.	Australia	Manage provident fund	100.00	100.00
- Powercoal Superannuation Pty Ltd.	Australia	Manage provident fund	100.00	100.00
- Centennial Northern Mining Services Pty Ltd.	Australia	Coal service provider	100.00	100.00

Name of company	Country	Business	Percentage of direct shareholding	
			2019	2018
			%	%
- Centennial Mandalong Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Centennial Mannering Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Centennial Munmorah Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Centennial Myuna Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Centennial Springvale Holdings Pty Ltd. and subsidiaries and a joint venture	Australia	Coal mining and trading	100.00	100.00
<u>Subsidiaries</u>				
- Centennial Springvale Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Boulder Mining Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Springvale Coal Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Springvale Coal Sales Pty Ltd.	Australia	Coal trading	100.00	-
<u>Joint arrangement – Joint Venture</u>				
- Springvale Coal Sales Pty Ltd.	Australia	Coal trading	-	50.00
- Centennial Newstan Pty. Ltd.	Australia	Coal mining and trading	100.00	100.00
- Charbon Coal Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Coalex Pty Ltd. and subsidiaries	Australia	Coal mining and trading	100.00	100.00
- Clarence Coal Investments Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Clarence Coal Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Clarence Colliery Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Hartley Valley Coal Company Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Centennial Clarence Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Ivanhoe Coal Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
- Powercoal Employee Entitlements Company Pty Ltd.	Australia	Manage provident fund	100.00	100.00
- Centennial Drilling Services Pty Ltd.	Australia	Coal mining and trading	100.00	100.00
<u>Associate</u>				
- Port Kembla Coal Terminal Ltd.	Australia	Port service	16.66	16.66
<u>Joint arrangement - Joint operations</u>				
- Charbon Joint Venture	Australia	Coal mining and trading	95.00	95.00
- Clarence Joint Venture	Australia	Coal mining and trading	85.00	85.00
- Springvale Joint Venture	Australia	Coal mining and trading	100.00	50.00
- Angus Place Joint Venture	Australia	Coal mining and trading	100.00	50.00
<u>Joint arrangement - Joint venture</u>				
- Shanxi Gaohe Energy Co., Ltd.	People's Republic of China	Coal mining and trading	45.00 ⁽¹⁾	45.00 ⁽¹⁾

			Percentage of direct shareholding	
Name of company	Country	Business	2019	2018
			%	%
Banpu Power Public Company Limited				
Subsidiaries and joint ventures and an associate are as follows;				
<u>Subsidiaries</u>				
1) Banpu Coal Power Limited and a subsidiary and a joint venture are as follows;	Thailand	Investment in power	100.00	100.00
<u>Subsidiary</u>				
- Power Vietnam Co., Ltd.	Thailand	Investment in power	100.00	-
<u>Joint arrangement - Joint venture</u>				
- BLCP Power Limited	Thailand	Power production and trading	50.00 ⁽¹⁾	50.00 ⁽¹⁾
2) Banpu Renewable Energy Co., Ltd. and subsidiaries and a joint venture are as follows;	Thailand	Investment in renewable energy	100.00	100.00
<u>Subsidiaries</u>				
1) Banpu Renewable Singapore Pte. Ltd. and subsidiary and a joint venture and an associate are as follows;	Singapore	Investment in renewable energy	100.00	100.00
<u>Subsidiary</u>				
- Banpu Power Trading GK	Japan	Power and purchase and trading	100.00	100.00
<u>Joint arrangement – Joint venture</u>				
- Digital Energy Solutions Corporation	Japan	Power and purchase and trading	49.00 ⁽¹⁾	35.00 ⁽¹⁾
<u>An associate</u>				
- Global Engineering Co., Ltd.	Japan	Virtual power plant and power trading	19.90	-
2) Akira Energy Limited and subsidiaries	Hong Kong	Investment in power	-	100.00
- Akira Energy (South) Limited	Hong Kong	Investment in power	-	100.00
3) BPP Renewable Investment (China) Co., Ltd. and subsidiaries	People's Republic of China	Investment in renewable energy	100.00	100.00
- Anqiu Huineng Renewable Energy Co.,Ltd.	People's Republic of China	Solar power generation	100.00	100.00
- Weifang Tian'en Jinshan Comprehensive Energy Co., Ltd.	People's Republic of China	Solar power generation	100.00	100.00
- Dongping County Haoyuan Solar Power Generation Co., Ltd.	People's Republic of China	Solar power generation	100.00	100.00
- Anqiu County Hui'en PV Technology Co., Ltd.	People's Republic of China	Solar power generation	100.00	100.00
- Jiaxing Deyuan Energy-Saving Technology Co., Ltd.	People's Republic of China	Solar power generation	100.00	100.00

Name of company	Country	Business	Percentage of direct shareholding	
			2019	2018
			%	%
- Feicheng Xingyu Solar Power PV Technology Co., Ltd.	People's Republic of China	Solar power generation	100.00	100.00
- Jiangsu Jixin Electric Power Co., Ltd.	People's Republic of China	Solar power generation	100.00	-
4) BRE Singapore Pte.Ltd. and subsidiaries	Singapore	Investment in renewable energy	100.00	100.00
- BPP Vinh Chau Wind Power Limited Liability Company	The Socialist Republic of Vietnam	Investment in renewable energy	100.00	100.00
5) Banpu Japan K.K.	Japan	Investment in renewable energy	100.00	-
<u>Joint arrangement – Joint venture</u>				
- Aizu Energy Pte. Ltd.	Singapore	Investment in renewable energy	75.00 ⁽¹⁾	75.00 ⁽¹⁾
3) Banpu Power International Limited and subsidiaries and joint venture are as follows;	Mauritius Islands	Investment in power	100.00	100.00
<u>Subsidiaries</u>				
- Banpu Power Investment Co., Ltd. and subsidiaries and a joint venture are as follows	Singapore	Investment in power	100.00	100.00
<u>Subsidiaries</u>				
1) Shijiazhuang Chengfeng Cogen Co., Ltd.	People's Republic of China	Power and steam production and trading	100.00	100.00
2) Zouping Peak Pte. Ltd. and a subsidiary	Singapore	Investment in power	100.00	100.00
- Zouping Peak CHP Co., Ltd.	People's Republic of China	Power and steam production and trading	70.00	70.00
3) Banpu Investment (China) Ltd. and subsidiaries	People's Republic of China	Investment in power	100.00	100.00
- Tangshan Banpu Heat & Power Co., Ltd.	People's Republic of China	Power and steam production and trading	12.08 ⁽³⁾	12.08 ⁽³⁾
- Banpu Power Trading (Shandong) Co., Ltd.	People's Republic of China	Power and purchase and trading	100.00	100.00
- Banpu Power Trading (Hebei) Co., Ltd.	People's Republic of China	Power and purchase and trading	100.00	100.00
4) Pan-Western Energy Corporation LLC and a subsidiary	Cayman Islands	Investment in power	100.00	100.00
- Tangshan Banpu Heat & Power Co., Ltd.	People's Republic of China	Power and steam production and trading	87.92 ⁽³⁾	87.92 ⁽³⁾
<u>Joint arrangement - Joint venture</u>				
- Shanxi Lu Guang Power Co., Ltd.	People's Republic of China	Power and steam production and trading	30.00 ⁽¹⁾	30.00 ⁽¹⁾

Name of company	Country	Business	Percentage of direct shareholding	
			2019	2018
			%	%
4) Banpu Power (Japan) Co., Ltd.	Thailand	Investment in renewable energy	100.00	100.00
<u>Joint arrangement - Joint ventures</u>				
- Hongsai Power Company Limited	Lao People's Democratic Republic	Power concession	40.00 ⁽¹⁾	40.00 ⁽¹⁾
- Phu Fai Mining Company Limited	Lao People's Democratic Republic	Mining concession	37.50 ⁽¹⁾	37.50 ⁽¹⁾
<u>An associate</u>				
- PT. ITM Banpu Power	Republic of Indonesia	Investment in power	30.00 ⁽⁴⁾	30.00 ⁽⁴⁾
BOG Co., Ltd.				
A subsidiary is as follows;				
1) Banpu North America Corporation and a structured entity	United State of America	Natural gas business	100.00	100.00
- BKV Oil and Gas Capital Partners, L.P. and subsidiaries and joint operations are as follows;	United State of America	Natural gas business	100.00 ⁽⁵⁾	100.00 ⁽⁵⁾
<u>Subsidiaries</u>				
- BKV Chaffee Corners, LLC	United State of America	Natural gas business	100.00	100.00
- BKV Chelsea, LLC	United State of America	Natural gas business	100.00	100.00
- BKV Operating, LLC	United State of America	Natural gas business	100.00	100.00
- BKV Barnett, LLC	United State of America	Natural gas business	100.00	100.00
<u>Joint arrangement - Joint venture</u>				
- Chaffee project	United State of America	Natural gas business	29.40*	29.40*
- Chelsea project	United State of America	Natural gas business	12.80*	12.80*
- Radler project	United State of America	Natural gas business	13.00*	13.00*
- Zurich project	United State of America	Natural gas business	12.06*	12.06*
- Cardiff project	United State of America	Natural gas business	80.00*	80.00*
- West Brom project	United State of America	Natural gas business	88.00*	88.00*

* Average ownership interest

			Percentage of direct shareholding	
Name of company	Country	Business	2019	2018
			%	%
Banpu Engineering Services Co., Ltd.				
Subsidiaries are as follows:				
1) Biofuels Development Holding Co., Ltd.	Thailand	Investment in renewable energy	100.00	100.00
2) Banpu Energy Services (Thailand) Co., Ltd. and a subsidiary and joint ventures	Thailand	Investment in renewable energy	100.00	100.00
<u>A subsidiary</u>				
- Banpu Energy Services Japan Co., Ltd.	Japan	Investment in power	-	100.00
<u>Joint arrangement - Joint ventures</u>				
- Aura Land Development Pte. Ltd.	Singapore	Investment in renewable energy	75.00 ⁽¹⁾	75.00 ⁽¹⁾
- BPPR Co., Ltd.	Thailand	Investment in advisory for power business	75.00 ⁽¹⁾	75.00 ⁽¹⁾
- Hokkaido Solar Estate G.K.	Japan	Investment property	60.00 ⁽¹⁾	60.00 ⁽¹⁾
Banpu Infinergy Co., Ltd.				
A subsidiary and associates are as follows;				
<u>A subsidiary</u>				
- BPIN Investment Co., Ltd. and its joint venture and its associate	Mauritius Islands	Investment in renewable energy	100.00	100.00
<u>An associate</u>				
- Durapower Holdings Pte. Ltd.	Singapore	Energy storage system	47.68	47.68
<u>Joint arrangement - Joint venture</u>				
- Sunseap Group Pte. Ltd. and its subsidiaries	Singapore	Investment in renewable energy	38.46 ^{(1), (6)}	38.46 ^{(1), (6)}
<u>Associates</u>				
- Urban Mobility Tech Co., Ltd.	Thailand	Electric vehicle business	30.66 ⁽⁷⁾	22.50 ⁽⁷⁾
- FOMM Corporation	Japan	Electric vehicle business	21.45	-
Banpu Innovation & Ventures Co., Ltd.				
A subsidiary is as follows;				
- Banpu Innovation & Ventures (Singapore) Pte. Ltd. and subsidiary	Singapore	Research and development	100.00	-
- Banpu Innovation & Ventures LLC	United States of America	Research and development	100.00	-

Percentage of shareholding by the Group

- (1) Shareholder agreements of the Group's joint ventures have determined the management structure including strategic financial decisions and operations which required unanimous votes/consents from all shareholders or their representatives. The Group has classified these as investments in joint ventures.
- (2) The Group owns 100% shareholding in Banpu Minerals (Singapore) Pte. Ltd., which is held by Banpu Mineral Co., Ltd. and Banpu Coal Investment Company Limited in the proportion of 50% each
- (3) The Group owns 100% shareholding in Tangshan Banpu Heat & Power Co., Ltd. of which 12.08% shareholding held by Banpu Investment (China) Ltd. and 87.92% shareholding held by Pan-Western Energy Corporatio LLC.
- (4) PT. ITM Banpu Power is owned by Banpu Power Public Company Limited and PT. Indo Tambangraya Megah Tbk. in the proportion of 30% and 70%.
- (5) BKV Oil and Gas Capital Partners, L.P. is a structured entity incorporated as a fund which is held by Banpu North America Corporation to invest in natural gas business in the United States of America totalling US Dollar 598 million.

Preference shares held by the Group

- (6) The Group holds an investment in Sunseap Group Pte. Ltd. by non-cumulative convertible preference shares in the proportion of 38.46 of total registered shares.
- (7) The Group holds investments in Urban Mobility Tech Co., Ltd. by newly issued preference shares which are entitled to dividends and voting rights equal to the number of ordinary shares in the proportion of 30.66 of total registered shares (2018: 22.50% of total registered shares).

16 Property, plant and equipment, net

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US Dollar'000

	Land	Land improvement	Building and infrastructures	Machinery and equipment and gas exploration and producing assets and pipelines	Furniture and office equipment	Tools	Motor vehicles	Construction in progress	Total
As at 1 January 2018									
Cost	55,303	161,221	295,975	2,676,314	23,555	26,941	7,520	55,618	3,302,447
<u>Less</u> Accumulated depreciation	-	(108,802)	(179,396)	(1,189,081)	(18,664)	(22,902)	(4,869)	-	(1,523,714)
Net book amount	55,303	52,419	116,579	1,487,233	4,891	4,039	2,651	55,618	1,778,733
Year ended 31 December 2018									
Opening net book amount	55,303	52,419	116,579	1,487,233	4,891	4,039	2,651	55,618	1,778,733
Additions	1,841	-	1,178	187,265	2,058	1,732	372	69,697	264,143
Increase from business acquisition	-	-	-	141,884	-	2	30	200	142,116
Disposals - Net book value	(1,432)	-	(15)	(10,421)	(6)	-	(161)	(72)	(12,107)
Reclassification	(1,658)	14,222	10,728	34,519	240	294	133	(61,681)	(3,203)
Write-off	-	-	(17)	(334)	(45)	(45)	(57)	(1,365)	(1,863)
Translation differences	(5,100)	(1,015)	(3,905)	(84,350)	(76)	(92)	(64)	(2,034)	(96,636)
Depreciation charge	-	(9,065)	(13,046)	(185,547)	(1,472)	(1,817)	(846)	-	(211,793)
Closing net book amount	48,954	56,561	111,502	1,570,249	5,590	4,113	2,058	60,363	1,859,390
As at 31 December 2018									
Cost	48,954	174,154	300,951	2,790,336	24,791	27,136	7,127	60,363	3,433,812
<u>Less</u> Accumulated depreciation	-	(117,593)	(189,449)	(1,220,087)	(19,201)	(23,023)	(5,069)	-	(1,574,422)
Net book amount	48,954	56,561	111,502	1,570,249	5,590	4,113	2,058	60,363	1,859,390

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US Dollar'000

	Land	Land improvement	Building and infrastructures	Machinery and equipment and gas exploration and producing assets and pipelines	Furniture and office equipment	Tools	Motor vehicles	Construction in progress	Total
Year ended 31 December 2019									
Opening net book amount	48,954	56,561	111,502	1,570,249	5,590	4,113	2,058	60,363	1,859,390
Additions	111	42	1,797	234,006	1,938	2,065	425	57,725	298,109
Increase from business acquisition	179	-	659	32,793	11	-	20	22	33,684
Disposals - Net book value	(692)	-	-	(13,713)	(7)	-	(67)	-	(14,479)
Reclassification	-	10,123	13,690	39,520	5,957	683	59	(65,762)	4,270
Write-off	-	-	(48)	(543)	(48)	(10)	-	(480)	(1,129)
Translation differences	(384)	(378)	(1,320)	(7,729)	31	(10)	4	(16)	(9,802)
Depreciation charge	-	(11,070)	(12,447)	(192,242)	(1,972)	(1,720)	(730)	-	(220,181)
Closing net book amount	48,168	55,278	113,833	1,662,341	11,500	5,121	1,769	51,852	1,949,862
As at 31 December 2019									
Cost	48,168	163,807	313,960	3,038,801	31,390	29,291	7,222	51,852	3,704,491
Less Accumulated depreciation	-	(128,529)	(200,127)	(1,376,460)	(19,890)	(24,170)	(5,453)	-	(1,754,629)
Net book amount	48,168	55,278	113,833	1,662,341	11,500	5,121	1,769	51,852	1,949,862

Consolidated financial statements

Baht'000

	Land	Land improvement	Building and infrastructures	Machinery and equipment and gas exploration and producing assets and pipelines	Furniture and office equipment	Tools	Motor vehicles	Construction in progress	Total
As at 1 January 2018									
Cost	1,807,343	5,268,837	9,672,738	87,464,351	769,811	880,449	245,773	1,817,646	107,926,948
<u>Less</u> Accumulated depreciation	-	(3,555,753)	(5,862,816)	(38,860,233)	(609,951)	(748,465)	(159,129)	-	(49,796,347)
Net book amount	1,807,343	1,713,084	3,809,922	48,604,118	159,860	131,984	86,644	1,817,646	58,130,601
Year ended 31 December 2018									
Opening net book amount	1,807,343	1,713,084	3,809,922	48,604,118	159,860	131,984	86,644	1,817,646	58,130,601
Additions	59,475	-	38,054	6,050,648	66,484	55,967	12,033	2,251,908	8,534,569
Increase from business acquisition	-	-	-	4,462,660	-	94	970	6,597	4,470,321
Disposals - Net book value	(46,270)	-	(483)	(336,695)	(191)	-	(5,197)	(2,333)	(391,169)
Reclassification	(53,561)	459,518	346,633	1,115,319	7,767	9,484	4,298	(1,992,937)	(103,479)
Write-off	-	-	(547)	(10,805)	(1,443)	(1,451)	(1,841)	(44,069)	(60,156)
Translation differences	(178,437)	(44,332)	(153,816)	(2,935,828)	(3,503)	(3,898)	(2,796)	(78,046)	(3,400,656)
Depreciation charge	-	(292,891)	(421,532)	(5,995,153)	(47,570)	(58,705)	(27,342)	-	(6,843,193)
Closing net book amount	1,588,550	1,835,379	3,618,231	50,954,264	181,404	133,475	66,769	1,958,766	60,336,838
As at 31 December 2018									
Cost	1,588,550	5,651,263	9,765,785	90,545,859	804,455	880,556	231,270	1,958,766	111,426,504
<u>Less</u> Accumulated depreciation	-	(3,815,884)	(6,147,554)	(39,591,595)	(623,051)	(747,081)	(164,501)	-	(51,089,666)
Net book amount	1,588,550	1,835,379	3,618,231	50,954,264	181,404	133,475	66,769	1,958,766	60,336,838

Consolidated financial statements

Baht'000

	Land	Land improvement	Building and infrastructures	Machinery and equipment and gas exploration and producing assets and pipelines	Furniture and office equipment	Tools	Motor vehicles	Construction in progress	Total
Year ended 31 December 2019									
Opening net book amount	1,588,550	1,835,379	3,618,231	50,954,264	181,404	133,475	66,769	1,958,766	60,336,838
Additions	3,449	1,305	55,801	7,265,332	60,170	64,108	13,187	1,792,213	9,255,565
Increase from business acquisition	5,411	-	20,354	1,003,684	331	-	611	694	1,031,085
Disposals - Net book value	(21,495)	-	(13)	(425,743)	(228)	-	(2,071)	-	(449,550)
Reclassification	-	314,308	425,042	1,226,988	184,942	21,212	1,830	(2,041,746)	132,576
Write-off	-	-	(1,487)	(16,895)	(1,498)	(322)	-	(14,895)	(35,097)
Translation differences	(123,455)	(140,448)	(298,974)	(3,912,672)	(17,158)	(10,659)	(4,349)	(131,467)	(4,639,182)
Depreciation charge	-	(343,686)	(386,441)	(5,968,660)	(61,230)	(53,417)	(22,660)	-	(6,836,094)
Closing net book amount	1,452,460	1,666,858	3,432,513	50,126,298	346,733	154,397	53,317	1,563,565	58,796,141
As at 31 December 2019									
Cost	1,452,460	5,542,509	9,467,163	91,632,018	946,537	883,255	217,775	1,563,565	111,705,282
Less Accumulated depreciation	-	(3,875,651)	(6,034,650)	(41,505,720)	(599,804)	(728,858)	(164,458)	-	(52,909,141)
Net book amount	1,452,460	1,666,858	3,432,513	50,126,298	346,733	154,397	53,317	1,563,565	58,796,141

Separate financial statements

US Dollar'000									
	Land	Land improvement	Building and infrastructures	Machinery and equipment	Furniture and office equipment	Tools	Motor vehicles	Construction in progress	Total
As at 1 January 2018									
Cost	2,028	2,638	3,859	41,747	4,605	406	1,339	180	56,802
<u>Less</u> Accumulated depreciation	-	(2,524)	(2,574)	(41,562)	(3,519)	(381)	(606)	-	(51,166)
Net book amount	2,028	114	1,285	185	1,086	25	733	180	5,636
Year ended 31 December 2018									
Opening net book amount	2,028	114	1,285	185	1,086	25	733	180	5,636
Additions	-	-	778	6	822	10	-	74	1,690
Disposals - Net book value	-	-	(15)	-	(4)	-	(104)	(72)	(195)
Write-off	-	-	-	-	(1)	-	-	-	(1)
Depreciation charge	-	(31)	(235)	(75)	(470)	(8)	(213)	-	(1,032)
Closing net book amount	2,028	83	1,813	116	1,433	27	416	182	6,098
As at 31 December 2018									
Cost	2,028	2,638	4,592	21,191	5,399	348	1,016	182	37,394
<u>Less</u> Accumulated depreciation	-	(2,555)	(2,779)	(21,075)	(3,966)	(321)	(600)	-	(31,296)
Net book amount	2,028	83	1,813	116	1,433	27	416	182	6,098

Separate financial statements

US Dollar'000

	Land	Land improvement	Building and infrastructures	Machinery and equipment	Furniture and office equipment	Tools	Motor vehicles	Construction in progress	Total
Year ended 31 December 2019									
Opening net book amount	2,028	83	1,813	116	1,433	27	416	182	6,098
Additions	-	42	33	-	629	12	-	108	824
Disposals - Net book value	-	-	-	(10)	(5)	-	(67)	-	(82)
Depreciation charge	-	(33)	(246)	(62)	(612)	(8)	(173)	-	(1,134)
Closing net book amount	2,028	92	1,600	44	1,445	31	176	290	5,706
As at 31 December 2019									
Cost	2,028	2,680	3,781	13,203	5,771	283	849	290	28,885
Less Accumulated depreciation	-	(2,588)	(2,181)	(13,159)	(4,326)	(252)	(673)	-	(23,179)
Net book amount	2,028	92	1,600	44	1,445	31	176	290	5,706

Separate financial statements

	Baht'000								
	Land	Land improvement	Building and infrastructures	Machinery and equipment	Furniture and office equipment	Tools	Motor vehicles	Construction in progress	Total
As at 1 January 2018									
Cost	66,278	86,219	126,123	1,364,320	150,503	13,274	43,749	5,899	1,856,365
Less Accumulated depreciation	-	(82,512)	(84,131)	(1,358,285)	(115,032)	(12,423)	(19,753)	-	(1,672,136)
Net book amount	66,278	3,707	41,992	6,035	35,471	851	23,996	5,899	184,229
Year ended 31 December 2018									
Opening net book amount	66,278	3,707	41,992	6,035	35,471	851	23,996	5,899	184,229
Additions	-	-	25,148	202	26,569	309	-	2,392	54,620
Disposals - Net book value	-	-	(483)	-	(137)	-	(3,376)	(2,333)	(6,329)
Write-off	-	-	-	-	(12)	-	-	-	(12)
Translation differences	(469)	(30)	(224)	(52)	(203)	(6)	(214)	(41)	(1,239)
Depreciation charge	-	(985)	(7,601)	(2,470)	(15,178)	(266)	(6,899)	-	(33,399)
Closing net book amount	65,809	2,692	58,832	3,715	46,510	888	13,507	5,917	197,870
As at 31 December 2018									
Cost	65,809	85,609	149,003	687,630	175,197	11,295	32,972	5,917	1,213,432
Less Accumulated depreciation	-	(82,917)	(90,171)	(683,915)	(128,687)	(10,407)	(19,465)	-	(1,015,562)
Net book amount	65,809	2,692	58,832	3,715	46,510	888	13,507	5,917	197,870

Separate financial statements

Baht'000

	Land	Land improvement	Building and infrastructures	Machinery and equipment	Furniture and office equipment	Tools	Motor vehicles	Construction in progress	Total
Year ended 31 December 2019									
Opening net book amount	65,809	2,692	58,832	3,715	46,510	888	13,507	5,917	197,870
Additions	-	1,306	1,023	-	19,536	364	-	3,368	25,597
Disposals - Net book value	-	-	(13)	(310)	(144)	-	(2,071)	-	(2,538)
Translation differences	(4,656)	(200)	(3,972)	(198)	(3,301)	(66)	(741)	(516)	(13,650)
Depreciation charge	-	(1,012)	(7,633)	(1,937)	(19,016)	(247)	(5,376)	-	(35,221)
Closing net book amount	61,153	2,786	48,237	1,270	43,585	939	5,319	8,769	172,058
As at 31 December 2019									
Cost	61,153	80,820	114,008	398,117	174,011	8,544	25,586	8,769	871,008
Less Accumulated depreciation	-	(78,034)	(65,771)	(396,847)	(130,426)	(7,605)	(20,267)	-	(698,950)
Net book amount	61,153	2,786	48,237	1,270	43,585	939	5,319	8,769	172,058

Leased assets included above, where the Group is a lessee under finance lease, are presented below:

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	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Cost of assets under finance lease	10,872	10,911	327,839	354,048
<u>Less</u> Accumulated depreciation	(4,679)	(4,993)	(141,089)	(162,012)
Net book amount	6,193	5,918	186,750	192,036

As at 31 December 2019, assets with net book value of CNY 289.02 million or equivalent to US Dollar 41.36 million were mortgaged and pledged as collateral for long-term loans from financial institutions of a subsidiary in the People's Republic of China (2018: CNY 301.35 million or equivalent to US Dollar 43.87 million).

As at 31 December 2019 and 2018, the Group has capital commitments which are shown in Note 35.1.

17 Deferred income taxes and Income tax

Corporate income tax for the years ended 31 December 2019 and 2018 are calculated based on the net profit (tax base) which excludes the interests in joint ventures and associates. The rates are as follows:

	2019	2018
Thailand	20%	20%
Australia	30%	30%
Republic of Indonesia	25%	25%
Japan	23.2%	23.2%
Singapore	17%	17%
Republic of Mauritius	15%	15%
People's Republic of China	0% to 25%	0% to 25%
Mongolia	10% to 25%	10% to 25%
The United States of America	21%	21%
The Socialist Republic of Vietnam	20%	20%
Hong Kong Special Administrative Region of the People's Republic of China	-	6.5%
Macau Special Administrative Region of the People's Republic of China	-	0% to 12%

17.1 Deferred income tax assets and deferred income tax liabilities

17.1.1 The analysis of deferred tax assets and deferred tax liabilities is as follows:

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	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Deferred tax assets:				
Deferred tax asset to be recovered within 12 months	2,269	952	68,415	30,874
Deferred tax asset to be recovered after more than 12 months	155,815	112,547	4,698,457	3,652,132
	158,084	113,499	4,766,872	3,683,006
Deferred tax liabilities:				
Deferred tax liability to be settled within 12 months	-	-	-	-
Deferred tax liability to be settled after more than 12 months	(281,241)	(272,031)	(8,480,548)	(8,827,341)
	(281,241)	(272,031)	(8,480,548)	(8,827,341)
Deferred income taxes, net	(123,157)	(158,532)	(3,713,676)	(5,144,335)

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	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Deferred tax assets:				
Deferred tax asset to be recovered within 12 months	70	23	2,107	732
Deferred tax asset to be recovered after more than 12 months	48,080	23,955	1,449,805	777,334
Total	48,150	23,978	1,451,912	778,066

Deferred income tax assets are recognised for tax loss and carried forwards only to the extent that realisation of the related tax benefit through the future taxable profits is probable. The Group did not recognised deferred income tax assets amounting to US Dollar 96.29 million from tax losses of US Dollar 481.44 million that could be carried forward against future taxable income, these tax losses will be expired in 2024 (2018: deferred income tax asset amounting to US Dollar 73.19 million from tax losses of US Dollar 365.93 million that could be carried forward against future taxable income, these tax losses will be expired in 2023).

17.1.2 The movement of deferred tax assets and deferred tax liabilities is as follows:

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	US Dollar'000					
	At 1 January 2019	Charged (credited) to profit or loss	Charged (credited) to other compre- hensive income or expense	Increase (decrease) from business combination	Translation differences	At 31 December 2019
Deferred tax assets:						
Employee benefit obligation	11,457	2,073	834	-	71	14,435
Loss carried forward	203,627	48,064	-	-	(1,442)	250,249
Financial derivative	18,145	(149)	(2,591)	-	-	15,405
Depreciation and amortisation	44,631	2,111	-	-	(211)	46,531
Investments in joint ventures	23,297	-	-	-	-	23,297
Provision for mine rehabilitation	9,453	(2,083)	-	-	-	7,370
Provision for decommissioning	898	87	-	-	-	985
Allowance for slow moving of spare part	3,180	(1,202)	-	-	-	1,978
Other reserves	34,111	3,162	-	-	(265)	37,008
Others	63,357	9,262	92	-	362	73,073
Total	412,156	61,325	(1,665)	-	(1,485)	470,331
Deferred tax liabilities:						
Investments in joint ventures	(19,929)	(7,207)	-	-	6,748	(20,388)
Mining property rights	(395,669)	1,527	-	-	(943)	(395,085)
Financial derivative	(193)	-	193	-	-	-
Depreciation and amortisation	(168,592)	(51,112)	-	-	988	(218,716)
Fair value uplift from the acquisition of power plant in the People's Republic of China	(2,733)	-	-	(118)	25	(2,826)
Amortisation of fair value of building and equipment from the acquisition of power plants	1,093	109	-	-	-	1,202
Connection fee	(1,267)	566	-	-	15	(686)
Tax effect of currency translation on tax base	21,215	26,207	-	-	-	47,422
Others	(4,613)	164	-	-	38	(4,411)
Total	(570,688)	(29,746)	193	(118)	6,871	(593,488)
Net	(158,532)	31,579	(1,472)	(118)	5,386	(123,157)

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	US Dollar'000					
	At 1 January 2018	Charged (credited) to profit or loss	Charged (credited) to other compre- hensive income or expense	Increase (decrease) from business combination	Translation differences	At 31 December 2018
Deferred tax assets:						
Employee benefit obligation	11,836	464	(605)	-	(238)	11,457
Loss carried forward	263,515	(36,913)	-	-	(22,975)	203,627
Financial derivative	13,029	71	5,045	-	-	18,145
Depreciation and amortisation	39,125	6,349	-	-	(843)	44,631
Investments in joint ventures	23,486	-	-	-	(189)	23,297
Provision for mine rehabilitation	6,506	2,947	-	-	-	9,453
Provision for decommissioning	898	-	-	-	-	898
Allowance for slow moving of spare part	2,136	1,044	-	-	-	3,180
Other reserves	39,362	(1,323)	-	-	(3,928)	34,111
Others	53,193	4,402	636	-	5,126	63,357
Total	453,086	(22,959)	5,076	-	(23,047)	412,156
Deferred tax liabilities:						
Investments in joint ventures	(17,658)	(7,158)	-	-	4,887	(19,929)
Mining property rights	(385,236)	1,722	-	-	(12,155)	(395,669)
Financial derivative	(151)	-	(42)	-	-	(193)
Depreciation and amortisation	(167,295)	(15,607)	-	-	14,310	(168,592)
Fair value uplift from the acquisition of power plant in the People's Republic of China	(2,763)	-	-	(47)	77	(2,733)
Amortisation of fair value of building and equipment from the acquisition of power plants	1,012	80	-	-	1	1,093
Connection fee	(2,595)	1,231	-	-	97	(1,267)
Tax effect of currency translation on tax base	18,386	2,830	-	-	(1)	21,215
Others	(5,567)	314	-	-	640	(4,613)
Total	(561,867)	(16,588)	(42)	(47)	7,856	(570,688)
Net	(108,781)	(39,547)	5,034	(47)	(15,191)	(158,532)

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	Baht'000					
	At 1 January 2019	Charged (credited) to profit or loss	Charged (credited) to other compre- hensive income or expense	Increase (decrease) from business combination	Translation differences	At 31 December 2019
Deferred tax assets:						
Employee benefit obligation	371,768	63,657	25,615	-	(25,777)	435,263
Loss carried forward	6,607,666	1,476,052	-	-	(537,701)	7,546,017
Financial derivative	588,803	(4,583)	(79,565)	-	(40,134)	464,521
Depreciation and amortisation	1,448,257	64,820	-	-	(109,995)	1,403,082
Investments in joint ventures	755,994	-	-	-	(53,487)	702,507
Provision for mine rehabilitation	306,755	(63,967)	-	-	(20,544)	222,244
Provision for decommissioning	29,140	2,685	-	-	(2,110)	29,715
Allowance for slow moving of spare part	103,193	(36,914)	-	-	(6,632)	59,647
Other reserves	1,106,895	97,117	-	-	(88,079)	1,115,933
Others	2,055,896	284,452	2,832	-	(139,760)	2,203,420
Total	13,374,367	1,883,319	(51,118)	-	(1,024,219)	14,182,349
Deferred tax liabilities:						
Investments in joint ventures	(646,677)	(221,326)	-	-	253,237	(614,766)
Mining property rights	(12,839,360)	46,897	-	-	879,109	(11,913,354)
Financial derivative	(6,253)	-	5,917	-	336	-
Depreciation and amortisation	(5,470,762)	(1,569,654)	-	-	445,254	(6,595,162)
Fair value uplift from the acquisition of power plant in the People's Republic of China	(88,683)	-	-	(3,639)	7,093	(85,229)
Amortisation of fair value of building and equipment from the acquisition of power plants	35,462	3,346	-	-	(2,565)	36,243
Connection fee	(41,127)	17,377	-	-	3,074	(20,676)
Tax effect of currency translation on tax base	688,430	804,822	-	-	(63,283)	1,429,969
Others	(149,732)	5,014	-	-	11,668	(133,050)
Total	(18,518,702)	(913,524)	5,917	(3,639)	1,533,923	(17,896,025)
Net	(5,144,335)	969,795	(45,201)	(3,639)	509,704	(3,713,676)

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Baht'000

	At 1 January 2018	Charged (credited) to profit or loss	Charged (credited) to other compre- hensive income or expense	Increase (decrease) from business combination	Translation differences	At 31 December 2018
Deferred tax assets:						
Employee benefit obligation	386,833	14,978	(19,542)	-	(10,501)	371,768
Loss carried forward	8,611,891	(1,192,695)	-	-	(811,530)	6,607,666
Financial derivative	425,780	2,303	163,021	-	(2,301)	588,803
Depreciation and amortisation	1,278,636	205,137	-	-	(35,516)	1,448,257
Investments in joint ventures	767,524	-	-	-	(11,530)	755,994
Provision for mine rehabilitation	212,616	95,232	-	-	(1,093)	306,755
Provision for decommissioning	29,348	-	-	-	(208)	29,140
Allowance for slow moving of spare part	69,801	33,740	-	-	(348)	103,193
Other reserves	1,286,411	(42,740)	-	-	(136,776)	1,106,895
Others	1,738,373	142,261	20,537	-	154,725	2,055,896
Total	14,807,213	(741,784)	164,016	-	(855,078)	13,374,367
Deferred tax liabilities:						
Investments in joint ventures	(577,015)	(231,287)	-	-	161,625	(646,677)
Mining property rights	(12,589,878)	55,645	-	-	(305,127)	(12,839,360)
Financial derivative	(2,379)	-	(1,363)	-	(2,511)	(6,253)
Depreciation and amortisation	(5,467,234)	(504,288)	-	-	500,760	(5,470,762)
Fair value uplift from the acquisition of power plant in the People's Republic of China	(92,809)	-	-	(1,531)	5,657	(88,683)
Amortisation of fair value of building and equipment from the acquisition of power plants	33,068	2,593	-	-	(199)	35,462
Connection fee	(84,819)	39,773	-	-	3,919	(41,127)
Tax effect of currency translation on tax base	600,857	91,429	-	-	(3,856)	688,430
Others	(182,056)	19,642	-	-	12,682	(149,732)
Total	(18,362,265)	(526,493)	(1,363)	(1,531)	372,950	(18,518,702)
Net	(3,555,052)	(1,268,277)	162,653	(1,531)	(482,128)	(5,144,335)

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	US Dollar'000			
	At 1 January 2019	Charged (credited) to profit or loss	Charged (credited) to other comprehensive income or expense	At 31 December 2019
Deferred tax assets:				
Employee benefit obligation	1,775	754	3	2,532
Loss carried forward	-	-	-	-
Financial derivative	633	(149)	(1,199)	(715)
Tax effect of currency translation on tax base	20,825	24,915	-	45,740
Others	745	(186)	34	593
Total	23,978	25,334	(1,162)	48,150
Deferred tax liability:				
Tax effect of currency translation on tax base	-	-	-	-
Total	-	-	-	-
Net	23,978	25,334	(1,162)	48,150

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	US Dollar'000			
	At 1 January 2018	Charged (credited) to profit or loss	Charged (credited) to other comprehensive income or expense	At 31 December 2018
Deferred tax assets:				
Employee benefit obligation	1,568	86	121	1,775
Loss carried forward	8,818	(8,818)	-	-
Financial derivative	3,787	(1,330)	(1,824)	633
Tax effect of currency translation on tax base	18,800	2,025	-	20,825
Others	526	(226)	445	745
Total	33,499	(8,263)	(1,258)	23,978
Deferred tax liability:				
Tax effect of currency translation on tax base	-	-	-	-
Total	-	-	-	-
Net	33,499	(8,263)	(1,258)	23,978

Separate financial statement

Baht'000

	At 1 January 2019	Charged (credited) to profit or loss	Charged (credited) to other comprehensive income or expense	Translation adjustment	At 31 December 2019
Deferred tax assets:					
Employee benefit obligation	57,614	23,423	-	(4,694)	76,343
Loss carried forward	-	-	-	-	-
Financial derivative	20,499	(4,780)	(17,992)	(19,298)	(21,571)
Tax effect of currency translation on tax base	675,796	778,359	-	(74,879)	1,379,276
Others	24,157	(5,791)	2,137	(2,639)	17,864
Total	778,066	791,211	(15,855)	(101,510)	1,451,912
Deferred tax liability:					
Tax effect of currency translation on tax base	-	-	-	-	-
Total	-	-	-	-	-
Net	778,066	791,211	(15,855)	(101,510)	1,451,912

Separate financial statement

Baht'000

	At 1 January 2018	Charged (credited) to profit or loss	Charged (credited) to other comprehensive income or expense	Translation adjustment	At 31 December 2018
Deferred tax assets:					
Employee benefit obligation	51,248	2,804	3,954	(392)	57,614
Loss carried forward	288,183	(289,344)	-	1,161	-
Financial derivative	123,748	(42,746)	(57,800)	(2,703)	20,499
Tax effect of currency translation on tax base	614,444	66,301	-	(4,949)	675,796
Others	17,153	(7,278)	14,651	(369)	24,157
Total	1,094,776	(270,263)	(39,195)	(7,252)	778,066

Separate financial statement

	Baht'000				
	At 1 January 2018	Charged (credited) to profit or loss	Charged (credited) to other comprehensive income or expense	Translation adjustment	At 31 December 2018
Deferred tax liability:					
Tax effect of currency translation on tax base	-	-	-	-	-
Total	-	-	-	-	-
Net	1,094,776	(270,263)	(39,195)	(7,252)	778,066

17.2 Income taxes

17.2.1 Income taxes for the years ended 31 December are as follows:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Current tax:				
Current tax on profit for the year	90,995	131,429	2,818,395	4,259,475
Withholding tax for dividends	16,599	18,165	519,551	582,213
Total current taxes	107,594	149,594	3,337,946	4,841,688
Deferred tax:				
Origination and reversal of temporary differences	(31,579)	39,547	(969,795)	1,268,277
Total deferred tax	(31,579)	39,547	(969,795)	1,268,277
Total tax expenses	76,015	189,141	2,368,151	6,109,965

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Current tax:				
Current tax on profit for the year	-	-	-	-
Total current tax	-	-	-	-
Deferred tax:				
Origination and reversal of temporary differences	(25,334)	8,263	(791,211)	270,263
Total deferred tax	(25,334)	8,263	(791,211)	270,263
Total tax expenses	(25,334)	8,263	(791,211)	270,263

17.2.2 The tax on the Group's profit before tax differs from the theoretical amount that would arise using the basic tax rate of the home country of the company as follows:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Profit before tax	117,410	504,024	3,719,808	16,346,046
Tax calculated at a tax rate of 20%	23,482	100,805	743,962	3,269,209
Tax effect of:				
Income not subject to tax	(20,668)	(28,781)	(641,676)	(929,918)
Expenses not deductible for tax purpose	5,645	11,663	175,258	376,835
Tax losses for which no deferred income tax asset was recognised	55,950	33,965	1,737,108	1,097,421
Write-off deferred tax asset	-	17,404	-	562,337
Utilisation of previously unrecognised tax losses	(1,882)	(346)	(58,438)	(11,181)
Deferred income tax assets (liabilities) from exchange rate translation	(25,377)	405	(787,889)	13,073
Effect from difference of tax rate from the privilege of International Headquarter	(1,202)	324	(37,329)	10,465
Tax assessment	5,518	13,386	171,324	432,511
Withholding tax for dividends	16,599	18,165	515,365	586,929
Tax effect from different tax rates of foreign entities	6,678	16,882	207,351	545,456
Others	11,272	5,269	343,115	156,828
Tax expense	76,015	189,141	2,368,151	6,109,965

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Profit before tax	53,331	60,346	1,690,551	1,979,181
Tax calculated at a tax rate of 20%	10,666	12,069	338,110	395,836
Tax effect of:				
Income not subject to tax	(32,042)	(29,205)	(994,842)	(943,619)
Expenses not deductible for tax purpose	(427)	838	(13,246)	27,049
Write-off deferred tax assets	-	8,818	-	284,919
Recognition of previously unrecognised tax losses	22,234	18,760	690,307	606,158
Deferred income tax assets (liabilities) from exchange rate translation	(24,064)	234	(747,115)	7,571
Effect from difference of tax rate from the privilege of International Headquarter	(1,701)	(3,251)	(52,823)	(105,055)
Others	-	-	(11,602)	(2,596)
Income taxes	(25,334)	8,263	(791,211)	270,263

On 30 June 2015, the Revenue Department approved the Company as an International Headquarters (IHQ) for management, technical, and supportive services. The Company will receive tax privileges for 15 accounting periods, effective from 1 July 2015 to 31 December 2029. Tax privileges are as follows:

1. Corporate income tax exemption on net profit from providing services and royalties from its overseas affiliates.
2. Corporate income tax rate reduction from 20% to 10% on net profit from providing services and royalties from its Thai affiliates. However, the Company made a request to cancel this privilege on 11 February 2016.
3. Personal income tax rate reduction for expatriate employees of the IHQ to 15% of their income.

In 2019, the Revenue Department cancelled the tax privileges related to IHQ which was effective on 1 June 2019. The tax privileges related to IHQ ended on 31 May 2019.

18 Deferred exploration and development expenditures and deferred overburden expenditures/stripping costs, net

Deferred exploration and development expenditures and deferred overburden expenditures/stripping costs, net as at 31 December consist of:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Current portion:				
- Deferred longwall development costs	97,168	30,796	2,929,991	999,327
	97,168	30,796	2,929,991	999,327
Non-current portion:				
- Deferred exploration and development expenditures	777,571	707,539	23,446,893	22,959,502
- Deferred stripping costs	142,492	161,718	4,296,692	5,247,726
	920,063	869,257	27,743,585	28,207,228
Total deferred exploration and development expenditures and deferred overburden expenditures/stripping costs, net	1,017,231	900,053	30,673,576	29,206,555

Movement of deferred exploration and development expenditures and deferred overburden expenditures/stripping costs, net for the years ended 31 December are as follows:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
As at 1 January				
Cost	4,650,423	3,905,856	150,905,307	127,646,935
<u>Less</u> Accumulated amortisation	(3,748,871)	(3,080,060)	(121,650,094)	(100,659,146)
Allowance for impairment	(1,499)	(1,499)	(48,658)	(49,004)
Net book amount	900,053	824,297	29,206,555	26,938,785
For the years ended 31 December				
Opening net book amount	900,053	824,297	29,206,555	26,938,785
Additions	893,845	829,846	27,751,732	26,812,960
Amortisation	(770,190)	(695,475)	(23,912,552)	(22,471,316)
Translation differences	(6,477)	(58,615)	(2,372,159)	(2,073,874)
Net book amount	1,017,231	900,053	30,673,576	29,206,555

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
As at 31 December				
Cost	5,345,529	4,650,423	161,189,067	150,905,307
<u>Less</u> Accumulated amortisation	(4,328,298)	(3,748,871)	(130,515,491)	(121,650,094)
Allowance for impairment	-	(1,499)	-	(48,658)
Net book amount	1,017,231	900,053	30,673,576	29,206,555

The majority of additions and amortisation represents overburden expenditures. The Group presents the amortisation incurred during the year under cost of sales in the consolidated statements of comprehensive income.

19 Mining property rights, net

Movements of mining property rights for the years ended 31 December are as follows:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Opening net book amount	1,710,766	1,767,883	55,514,011	57,776,009
Amortisation	(45,998)	(57,117)	(1,428,128)	(1,845,493)
Translation differences	-	-	(3,886,473)	(416,505)
Closing net book amount	1,664,768	1,710,766	50,199,410	55,514,011

20 Goodwill

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
As at 1 January				
Cost	524,120	524,267	17,007,600	17,133,737
<u>Less</u> Allowance for impairment	-	(147)	-	(5,013)
Net book amount	524,120	524,120	17,007,600	17,128,724
For the years ended 31 December				
Opening net book amount	524,120	524,120	17,007,600	17,128,724
Decrease from disposal of subsidiary	-	(147)	-	(4,750)
Reversal of impairment charge	-	147	-	4,750
Translation differences	-	-	(1,203,275)	(121,124)
Closing net book amount	524,120	524,120	15,804,325	17,007,600
As at 31 December				
Cost	524,120	524,120	15,804,325	17,007,600
<u>Less</u> Allowance for impairment	-	-	-	-
Net book amount	524,120	524,120	15,804,325	17,007,600

Goodwill is not considered as taxable expenses for the Group.

Goodwill allocation for each material cash generation unit (CGU) is presented as:

Consolidated financial statements

	2019			2018		
	Indonesia	Australia	Mongolia	Indonesia	Australia	Mongolia
Goodwill allocation						
- US Dollar'000	17,418	466,928	38,506	17,418	466,928	38,506
- Baht'000	525,216	14,079,753	1,161,113	565,204	15,151,727	1,249,515

Impairment tests for goodwill

Goodwill arising from the acquisition of a group of mining businesses in each country is tested annually for impairment by comparing the carrying amount to the recoverable amount for each cash-generating unit, which is determined based on value-in-use calculations. These calculations use cash flow projections based on financial budgets approved by the management covering the mine lives in each country. Cash inflow from revenues is based on the estimated coal production quantities of each mine and estimated selling prices and cash outflow using the inflation rate for the five-year period and using the constant inflation rate for periods beyond five years. The discount rates used are WACC for mines in each country as detailed below:

Consolidated financial statements

	2019			2018		
	Indonesia	Australia	Mongolia	Indonesia	Australia	Mongolia
Inflation rate used in the projections of cash outflow	4.00%	2.50%	3.40% to 6.00%	4.20%	2.20% to 2.40%	3.40%
Discount rate	8.54%	8.60%	11.63%	10.21%	9.15%	13.35%

If the discount rate used in the calculation of goodwill arising from acquisition of mining in Indonesia and Mongolia increase by 0.5% per annum, there is no impairment of goodwill recorded in the consolidated financial statements for the year ended 31 December 2019. If the discount rate used in the calculation of goodwill arising from acquisition of mining in Australia increase by 0.28% per annum, the recoverable amount will be equal to the carrying amount.

21 Other non-current assets

Other non-current assets consist of:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Advances to a joint venture	-	5,601	-	181,736
Value added tax receivable	23,508	28,319	708,869	918,942
Prepaid income tax	75,817	43,267	2,286,197	1,404,001
Deposits	10,837	17,259	326,774	560,060
Restricted deposits at banks (Note 15.1 d)	24,936	13,425	751,923	435,626

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Accrued income	51,348	32,705	1,548,352	1,061,274
Rights to operate the power plants, net	6,627	6,558	199,845	212,815
Land used right, net	9,676	10,783	291,766	349,902
Others	77,363	61,989	2,332,773	2,011,540
Total other non-current assets	280,112	219,906	8,446,499	7,135,896

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Advance to subsidiary (Note 34)	77,000	-	2,321,858	-
Prepaid income tax	316	140	9,521	4,556
Deposits	263	247	7,919	8,009
Others	5,272	2,756	158,990	89,440
Total other non-current assets	82,851	3,143	2,498,288	102,005

22 Short-term loans from financial institutions

Movements of short-term loans from financial institutions for the years ended 31 December are as follows:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Opening balance	511,873	419,100	16,610,171	13,696,553
Cash flows:				
Additions	1,057,991	872,232	32,848,096	28,182,416
Repayments of loans	(1,130,829)	(775,225)	(35,109,527)	(25,048,057)
(Gains) losses on exchange rate	15,869	(3,243)	492,710	(104,280)
Translation differences	(43)	(991)	(1,125,585)	(116,461)
Closing net book amount	454,861	511,873	13,715,865	16,610,171

As at 31 December 2019, short-term loans from financial institutions are unsecured liabilities, which were dominated in CNY of 205.49 million or equivalent to US Dollar 29.42 million, Thai Baht of 8,000 million or equivalent to US Dollar 265.31 million, Indonesian Rupiah of 42,912.32 million or equivalent to US Dollar 4.29 million, Australian dollar of 7.93 million or equivalent to US Dollar 5.54 million, and US Dollar 150.30 million (31 December 2018: CNY loan of 243.58 million or equivalent to US Dollar 35.45 million, Thai Baht of 7,120 million or equivalent to US Dollar 219.42, and US Dollar of 257 million). These loans bore interest at the rates of 1.37% to 5.22% per annum (31 December 2018: 1.71% to 5.67%). The repayments are due within one year.

The fair value of short-term loans equal their carrying amount, as short-term borrowings had a short period of maturity.

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Opening balance	466,554	348,000	15,139,599	11,372,953
Cash flows:				
Additions	843,206	700,102	26,179,513	22,620,798
Repayments of loans	(916,325)	(577,837)	(28,449,688)	(18,670,302)
Other non-cash movements:				
(Gains) losses on exchange rate	15,870	(3,711)	492,710	(119,500)
Translation differences	-	-	(1,019,958)	(64,350)
Closing net book amount	409,305	466,554	12,342,176	15,139,599

As at 31 December 2019, short-term loans from financial institutions are unsecured liabilities, which were dominated in US Dollar of 144 million and Thai baht loans of 8,000 million or equivalent to US Dollar 265.31 million (31 December 2018: US Dollar of 257 million, Thai Baht loan of 6,800 million or equivalent to and US Dollar of 209.55 million) Such loans bore interest at the rates of 1.78 % to 2.65% per annum (2018: 1.71% to 3.72%). The repayments are due within one year.

The fair value of short-term loans equal their carrying amount, as short-term borrowings had a short period of maturity.

23 Long-term borrowings, net

As at 31 December, long-term borrowings consist of:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	201	2019	201
<u>Current portion</u>				
Long-term loans from financial institutions, net	359,699	369,057	10,846,351	11,975,824
Finance lease liabilities, net	3,416	624	103,017	20,263
Total current portion, net	363,115	369,681	10,949,368	11,996,087
<u>Non-current portion</u>				
Long-term loans from financial institutions, net	1,570,227	1,427,814	47,348,656	46,332,295
Private placement notes, net	224,060	224,180	6,756,273	7,274,564
Finance lease liabilities, net	2,166	2,837	65,315	92,076
Total non-current portion, net	1,796,453	1,654,831	54,170,244	53,698,935
Total long-term borrowings, net	2,159,568	2,024,512	65,119,612	65,695,022

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Long-term loans from financial institutions				
- Current portion, net	223,282	235,992	6,732,855	7,657,887
- Non-current portion, net	1,037,750	1,015,418	31,292,325	32,950,113
Total long-term borrowings, net	1,261,032	1,251,410	38,025,180	40,608,000

Long-term loans from financial institutions

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Long-term US Dollar loans	1,386,000	1,357,000	41,793,444	44,034,379
Long-term foreign currency loans	551,391	448,414	16,626,646	14,550,947
Total	1,937,391	1,805,414	58,420,090	58,585,326
<u>Less</u> Deferred financing service fee	(7,465)	(8,543)	(225,083)	(277,207)
	1,929,926	1,796,871	58,195,007	58,308,119
<u>Less</u> Current portion of long-term loans from financial institutions	(359,699)	(369,057)	(10,846,351)	(11,975,824)
Long-term loans from financial institutions, net	1,570,227	1,427,814	47,348,656	46,332,295

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Long-term US Dollar loans	1,266,000	1,257,000	38,174,964	40,789,399
<u>Less</u> Deferred financing service fee	(4,968)	(5,590)	(149,784)	(181,399)
	1,261,032	1,251,410	38,025,180	40,608,000
<u>Less</u> Current portion of long-term loans from financial institutions	(223,282)	(235,992)	(6,732,855)	(7,657,887)
Long-term loans from financial institutions, net	1,037,750	1,015,418	31,292,325	32,950,113

Movements in long-term loans from financial institutions of the Group for the years ended 31 December are as follows:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Opening net balance	1,796,871	1,605,098	58,308,119	52,456,051
Cash flows:				
Additions	335,306	497,644	10,410,444	16,079,238
Repayment of loans	(212,197)	(276,349)	(6,588,205)	(8,929,024)
Financing service fees	(1,834)	(2,551)	(56,927)	(82,414)

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Other non-cash movements:				
Amortisation of deferred financing service fees	3,188	2,660	98,971	85,952
Gains on exchange rate	-	(945)	-	(30,527)
Translation differences	8,592	(28,686)	(3,977,395)	(1,271,157)
Closing net balance	1,929,926	1,796,871	58,195,007	58,308,119

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Opening net balance	1,251,410	1,100,055	40,608,000	35,950,784
Cash flows:				
Additions	141,000	289,000	4,377,712	9,337,792
Repayment of loans	(132,000)	(137,000)	(4,098,283)	(4,426,566)
Financing service fees	(1,316)	(2,137)	(40,847)	(69,033)
Other non-cash movements:				
Amortisation of deferred financing service fees	1,938	1,492	60,184	48,192
Translation differences	-	-	(2,881,586)	(233,169)
Closing net balance	1,261,032	1,251,410	38,025,180	40,608,000

As at 31 December, long-term loans of subsidiaries were unsecured loans from banks, except long-term loans of a subsidiary in the assets were secured liabilities. The long-term loans are secured over assets as described in Note 16. Details of loans are shown as follow:

Million US Dollar (Original currency)				
No.	2019	2018	Interest rate	Due of loan payment
1	120.00	100.00	BBA LIBOR plus applicable fixed margin	Repayment on 31 May 2024.
	120.00	100.00		

Million Australian Dollar (Original currency)				
No.	2019	2018	Interest rate	Due of loan payment
1	330.00	330.00	BBSY plus applicable fixed margin	Repayment on 18 December 2022.
2	170.00	20.00	BBSY plus applicable fixed margin	Revolving loan maturity in 2020
	500.00	350.00		

As at 31 December, long-term loans of subsidiaries were unsecured loans from banks. Details of loans are shown as follow:

Million Australian Dollar (Original currency)				
No.	2019	2018	Interest rate	Due of loan payment
1	46.94	53.73	BBA LIBOR plus applicable fixed margin	Repayment every 3 months commencing 21 February 2018 to expiry of agreement on 21 August 2020.
2	18.80	43.87	BBA LIBOR plus applicable fixed margin	Repayment every 6 months commencing 11 June 2018 to expiry of agreement on 9 June 2020.
3	2.33	5.43	BBA LIBOR plus applicable fixed margin	Repayment every 6 months commencing 11 June 2018 to expiry of agreement on 9 June 2020.
4	0.86	2.01	BBA LIBOR plus applicable fixed margin	Repayment every 6 months commencing 11 June 2018 to expiry of agreement on 9 June 2020.
5	197.35	203.30	BBA LIBOR plus applicable fixed margin	Repayment every 3 months commencing 11 April 2018 to expiry of agreement on 11 January 2027.
6	98.66	-	BBA LIBOR plus applicable fixed margin	Repayment every 6 months commencing 30 May 2020 to expiry of agreement on 30 May 2022.
7	29.39	-	BBA LIBOR plus applicable fixed margin	Repayment every 6 months commencing 30 November 2020 to expiry of agreement on 23 May 2022.
	394.33	308.34		

Million Baht (Original currency)				
No.	2019	2018	Interest rate	Due of loan payment
1	1,400.00	2,100.00	THB FIX plus applicable fixed margin	Repayment every 6 months commencing 27 June 2019 to expiry of agreement on 27 December 2021.
2	1,500.00	1,500.00	THB FIX plus applicable fixed margin	Repayment every 6 months commencing 21 August 2022 to expiry of agreement on 21 August 2025.
3	1,500.00	1,500.00	THB FIX plus applicable fixed margin	Repayment every 6 months commencing 20 December 2022 to expiry of agreement on 21 December 2025.
	4,400.00	5,100.00		

As at 31 December, long-term loans of the Company were unsecured loans denominated in US Dollar as details below:

Million US Dollar (Original currency)				
No.	2019	2018	Interest rate	Due of loan payment
1	-	23.00	Fixed interest rate	Repayment every 6 months commencing 12 November 2015 to expiry of agreement on 12 November 2019
2	60.00	80.00	BBA LIBOR plus applicable fixed margin	Repayment annually commencing 27 June 2018 to expiry of agreement on 25 June 2022.
3	100.00	100.00	BBA LIBOR plus applicable fixed margin	Repayment of principal as agreement expires on 25 December 2022.
4	90.00	90.00	BBA LIBOR plus applicable fixed margin	Repayment of principal as agreement expires on 29 March 2024.
5	70.00	75.00	BBA LIBOR plus applicable fixed margin	Repayment of principal as agreement expires on 16 September 2023.
6	20.00	40.00	BBA LIBOR plus applicable fixed margin	Repayment annually commencing 27 April 2016 to expiry of agreement on 26 April 2020.
7	15.00	15.00	BBA LIBOR plus applicable fixed margin	Repayment every 6 months commencing 6 February 2021 to expiry of agreement on 5 February 2025.
8	85.00	85.00	BBA LIBOR plus applicable fixed margin	Repayment every 6 months commencing 6 February 2021 to expiry of agreement on 5 February 2025.
9	60.00	60.00	BBA LIBOR plus applicable fixed margin	Repayment of principal as agreement expires on 22 December 2021.
10	160.00	160.00	BBA LIBOR plus applicable fixed margin	Repayment every 6 months commencing 22 March 2020 to expiry of agreement on 23 March 2022.
11	240.00	240.00	BBA LIBOR plus applicable fixed margin	Repayment of principal as agreement expires on 22 December 2021.

Million US Dollar (Original currency)				
No.	2019	2018	Interest rate	Due of loan payment
12	50.00	50.00	BBA LIBOR plus applicable fixed margin	Repayment annually commencing 26 June 2021 to expiry of agreement on 26 June 2025.
13	100.00	75.00	BBA LIBOR plus applicable fixed margin	Repayment of principle as agreement expires on 11 April 2024.
14	44.00	100.00	BBA LIBOR plus applicable fixed margin	Revolving loan maturity in 2022.
15	72.00	34.00	BBA LIBOR plus applicable fixed margin	Repayment every 6 months commencing 10 September 2019 to expiry of agreement on 10 September 2025.
16	100.00	30.00	BBA LIBOR plus applicable fixed margin	Repayment every 6 months commencing 18 June 2020 to expiry of agreement on 18 December 2025.
	1,266.00	1,257.00		

As at 31 December, the effective interest rates are as follows:

	Consolidated financial statements		Separated financial statements	
	2019	2018	2019	2018
	%	%	%	%
Loans from financial institutions	2.21 - 6.125	2.87 - 5.74	3.49 - 4.85	3.67 - 5.71
Finance lease	4.57	6.49	-	-

Interest rate risk on long-term loans of the Group is as follows:

Consolidated financial statements				
	US Dollar'000		Baht'000	
	2019	2018	2019	2018
- at fixed rates	-	23,000	-	746,345
- at floating rates	1,937,391	1,782,414	58,420,090	57,838,981
Total loans	1,937,391	1,805,414	58,420,090	58,585,326

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
- at fixed rates	-	23,000	-	746,345
- at floating rates	1,266,000	1,234,000	38,174,964	40,043,054
Total loans	1,266,000	1,257,000	38,174,964	40,789,399

The fair value of long-term borrowings equal their carrying amount, as the impact of discounting is not significant. The fair value is based on discounted cash flows using a discount rate based on the current lending rate as at the reporting date and are within level 2 of the fair value hierarchy.

Maturities of long-term loans from financial institutions are as follows:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Within 1 year	360,544	369,648	10,871,832	11,994,998
Later than 1 year but not later than 5 years	1,311,358	1,229,316	39,542,694	39,891,051
Later than 5 years	265,489	206,450	8,005,564	6,699,277
Total loans	1,937,391	1,805,414	58,420,090	58,585,326

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Within 1 year	224,000	236,400	6,754,496	7,671,133
Later than 1 year but not later than 5 years	876,000	906,600	26,414,903	29,418,989
Later than 5 years	166,000	114,000	5,005,565	3,699,277
Total loans	1,266,000	1,257,000	38,174,964	40,789,399

The Group is required to comply with certain criteria and conditions; for example, maintaining debt to equity ratio.

Private Placement Notes

As at 31 December 2019 and 2018, Private Placement Notes amounting to US Dollar 225 million which are unsecured liabilities comprise senior debt notes to the institutional investor in the United States of America with a range of maturities of 10 to 15 years. The notes have the weighted average effective interest rate of 4.55% per annum.

The fair value of current Private Placement Notes equals their carrying amount, as the impact of discount is not significant. The fair values are based on discounted cash flows using the weighted average interest rate of 4.39% per annum. This fair value estimation is in level 2.

Finance lease liabilities

Minimum lease payments under finance lease liabilities are as follows:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Not later than 1 year	3,416	624	103,017	20,263
Later than 1 year but not later than 5 years	2,166	2,837	65,315	92,076
Present value of finance lease liabilities	5,582	3,461	168,332	112,339
Finance lease liabilities:				
- Current portion	3,416	624	103,017	20,263
- Non-current portion	2,166	2,837	65,315	92,076
Total finance lease liabilities	5,582	3,461	168,332	112,339

24 Debentures, net

Consolidated and separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
US Dollar debentures	200,000	200,000	6,030,800	6,489,960
Thai Baht debentures	1,621,675	1,286,603	48,900,000	41,750,000
Total	1,821,675	1,486,603	54,930,800	48,239,960
<u>Less</u> Deferred financing service fee	(1,768)	(1,655)	(53,322)	(53,697)
	1,819,907	1,484,948	54,877,478	48,186,263
<u>Less</u> Current portion of debentures	(175,725)	(87,818)	(5,298,803)	(2,849,677)
Debentures, net	1,644,182	1,397,130	49,578,675	45,336,586

Movements of debentures for the years ended 31 December are as follows:

Consolidated and separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Opening net balance	1,484,948	1,593,894	48,186,263	52,089,875
Cash flows:				
Additions	313,983	50,000	9,748,406	1,615,535
Repayment of debentures	(89,485)	(177,867)	(2,778,296)	(5,746,993)
Financing service fee	(454)	(67)	(14,095)	(2,170)
Other non-cash movements:				
Amortisation of deferred financing fee	340	317	10,570	10,257
Net losses on exchange rate	110,575	18,671	3,433,093	603,262
Translation differences	-	-	(3,708,463)	(383,503)
Closing net balance	1,819,907	1,484,948	54,877,478	48,186,263

Issued debentures

In May 2019, the Company issued Thai Baht, specifying name, senior and unsecured debentures totalling Baht 10,000 million or equivalent to US Dollar 313.98 million. Such debentures have fixed interest rate at 4.00% per annum paid every 6 months. The maturity date is at 10 years.

Debentures are unsecured liabilities. However, the Group is required to comply with certain procedures and conditions; for example, maintaining debt to equity ratio.

The interest rates on the debentures of the Group are as follows:

Consolidated and separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
- at fixed rates	1,821,675	1,486,603	54,930,800	48,239,960
- at floating rates	-	-	-	-
Total debentures	1,821,675	1,486,603	54,930,800	48,239,960

The weighted average effective interest rate of debentures of the Group after recognising the effect from interest rate swap contracts is 4.42% per annum (2018: 4.53% per annum).

Book value and fair value of debentures are as follow:

Consolidated and separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Book value	1,821,675	1,486,603	54,930,800	48,239,960
Fair value	1,941,127	1,556,849	58,532,733	50,519,434

Fair value estimation of debentures is in level 2. The fair values are based on discounted cash flows carrying interest rates of debentures published in Thai Bond Market Association.

Maturities of debentures are as follows:

Consolidated and separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Within 1 year	175,764	87,828	5,300,000	2,850,000
Later than 1 year but not later than 5 years	697,191	667,723	21,023,100	21,667,470
Later than 5 years	948,720	731,052	28,607,700	23,722,490
Total debentures	1,821,675	1,486,603	54,930,800	48,239,960

25 Other current liabilities

As at 31 December, other current liabilities consist of:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Accrued expenses	239,689	294,239	7,227,566	9,548,005
Value added tax payable	5,886	8,984	177,500	291,526
Withholding tax payable	7,463	6,227	225,025	202,076
Other payables for purchase of property, plant and equipment	28,205	28,530	850,497	925,801
Accrued expense for purchase of investment	2,182	11,684	65,793	379,150
Others	2,526	456	76,200	14,768
Total other current liabilities	285,951	350,120	8,622,581	11,361,326

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Accrued expenses	4,512	14,596	136,046	473,646
Value added tax payable	193	410	5,828	13,308
Withholding tax payable	838	724	25,269	23,498
Other payables for purchase of property, plant and equipment	203	686	6,135	22,256
Total other current liabilities	5,746	16,416	173,278	532,708

26 Share capital and premium on share capital

	Number of registered shares Share	Issued and paid-up share capital		Share premium US Dollar'000	Treasury shares US Dollar'000	Total US Dollar'000
		Number of shares Share	Ordinary shares US Dollar'000			
As at 31 December 2018	5,165,257,100	5,161,925,515	149,961	443,624	-	593,585
As at 1 January 2019	5,165,257,100	5,161,925,515	149,961	443,624	-	593,585
Less Decreased in registered share capital	(3,331,585)	-	-	-	-	-
Treasury shares	-	-	-	-	(38,138)	(38,138)
As at 31 December 2019	5,161,925,515	5,161,925,515	149,961	443,624	(38,138)	555,447

	Number of registered shares Share	Issued and paid-up share capital		Share premium Baht'000	Treasury shares Baht'000	Total Baht'000
		Number of shares Share	Ordinary shares Baht'000			
As at 31 December 2018	5,165,257,100	5,161,925,515	5,161,925	15,372,438	-	20,534,363
As at 1 January 2019	5,165,257,100	5,161,925,515	5,161,925	15,372,438	-	20,534,363
Less Decreased in registered share capital	(3,331,585)	-	-	-	-	-
Treasury shares	-	-	-	-	(1,157,140)	(1,157,140)
As at 31 December 2019	5,161,925,515	5,161,925,515	5,161,925	15,372,438	(1,157,140)	19,377,223

At the Annual General Shareholders' meeting of the Company on 3 April 2019, the shareholders approved the reduction of the Company's registered share capital from Baht 5,165,257,100 to Baht 5,161,925,515 by cancelling 3,331,585 authorised but unissued shares of the Company at par value of 1 Baht per share. The Company registered such reduction of the Company's registered share capital with the Ministry of Commerce on 11 April 2019.

During the year ended 31 December 2019, the Company repurchased the ordinary share in accordance to the share repurchase project from the main board of Stock Exchange of Thailand of Baht 1,157.14 million or equivalent to US Dollar 38.14 million for the ordinary share of 87.34 million shares. The payment for treasury shares presented as reduction in equity. The Company has set up reserve for this treasury shares in the same amount of payment. The Company has determined the maximum amount of treasury shares of Baht 5,000 million for approximately 385 million shares within 10 March 2020. After the completion date of repurchase treasury shares, the Company will resell this treasury shares which shall not be lower than 85% of the average closing price of the last 5 trading dates. If the company cannot resell the treasury shares within the share resale period, the Company will write off such registered share capital. As at 31 December 2019, the Company has not decreased the registered share capital.

27 Legal reserve

Under the Public Company Act, the Company is required to set aside a statutory reserve of at least 5% of its net profit after accumulated deficit is brought forward (if any) until the reserve reaches not less than 10% of the registered capital. The legal reserve is non-distributable. As at 31 December 2019 and 2018, the legal reserve was fully recognised at 10% of registered capital.

28 Other reserves

Other reserves of the Group comprised reserves for treasury stocks (Note 26) and reserves resulting from holding a joint venture in the People's Republic of China. These reserves are in accordance with the regulation of a government unit in the People's Republic of China with the objective of future development, safety and transformation.

29 Share-based payment

In 2016, Banpu Power Public Company Limited (BPP), a subsidiary, issued rights to purchase of ordinary shares of BPP to the directors and employees of Banpu Group (BPP-W) (excluding directors, management and employees of the Banpu Power Group). In 2017, BPP issued rights to purchase of ordinary shares of BPP to the directors and employees of Banpu Power Group (BPP-ESOP) based on their position, duty, and responsibility towards BPP and its subsidiaries. The Group has no legal or constructive obligation to repurchase or settle such rights in cash. The terms and conditions of the rights to purchase ordinary shares are summarised as follows:

Descriptions	Detail		
Number of issued and offered shares	Not exceeding 58,800,000 shares. 49,300,000 shares (as at 31 December 2019) to be allocated and not exceeding 9,500,000 shares, which BPP's ad-hoc Compensation Committee will consider and allocate as appropriate.		
Term of the plan	Not exceeding 5 years from the date of approval by BPP shareholders' meeting. The offering will be completed by 19 October 2021.		
Exercise price, period and conditions	Exercise price (Baht per share)	Exercise period	Number of exercised shares
	23.10	The date of issue and offering ordinary shares - 19 October 2021	10% of the total allocated shares
	25.20	From 19 October 2017 to 19 October 2021	15% of the total allocated shares
	27.30	From 19 October 2018 to 19 October 2021	20% of the total allocated shares
	29.40	From 19 October 2019 to 19 October 2021	25% of the total allocated shares
	31.50	From 19 October 2020 to 19 October 2021	30% of the total allocated shares
Subscription dates	ESOP can be exercised 4 times a year on the last business day of March, June, September and December from the first exercise date, except for the last exercise date, which is 19 October 2021.		

The Group recognised and presented the rights to purchase ordinary shares for the selected directors and employees of Banpu Group under BPP-W and the right to purchase ordinary shares for the directors and employees of Banpu Power Group under BPP-ESOP totalling Baht 7.60 million or equivalent to US Dollar 0.26 million in the consolidated statement of changes in equity for the year ended 31 December 2019 (2018: Baht 13 million or equivalent to US Dollar 0.4 million).

The number of the rights to purchase ordinary shares and the related weighted average exercise prices are as follows:

Consolidated financial statements

	2019		2018	
	Weighted average exercise price Baht per share	Number of warrants	Weighted average exercise price Baht per share	Number of warrants
At 1 January	28.92	42,670,300	28.90	41,910,300
Granted during the period	29.09	1,300,000	29.09	900,000
Exercised during the period	-	-	23.10	(140,000)
At 31 December	28.92	43,970,300	28.92	42,670,300

For the rights to purchase ordinary shares for the selected directors and employees of Banpu Group under BPP-W, the weighted average fair value of granted the rights to purchase determined using the Black-Scholes valuation model was Baht 0.19 per unit. The significant inputs into the model were a weighted average share price of Baht 21.00 at the grant date, exercise price was Baht 23.10 to Baht 31.50, volatility of 20%, dividend yield of 4.60%, an expected life of 5 years, and an annual risk-free interest rate of 1.78%.

For share-based payment to the directors and employees of Banpu Power Group under BPP-ESOP, the weighted average fair value of granted the rights to purchase determined using the Black-Scholes valuation model was Baht 2.11 per unit. The significant inputs into the model were a weighted average share price of Baht 25.75 at the grant date, exercise price was Baht 23.10 to Baht 31.50, volatility of 20%, dividend yield of 4.60%, an expected life of 5 years, and an annual risk-free interest rate of 2.13%.

30 Other components of equity

Movements of other components of equity for the years ended 31 December are as follows:

Consolidated financial statements	US Dollar'000					Baht'000				
	Surplus on changes of percentage shareholding in subsidiaries	Fair value reserve of available-for-sale investments	Cash flow hedge	Translation differences	Total	Surplus on changes of percentage shareholding in subsidiaries	Fair value reserve of available-for-sale investments	Cash flow hedge	Translation differences	Total
Opening balance as at 1 January 2019, net of taxes	312,383	(4,274)	(19,229)	(446,302)	(157,422)	11,341,274	(138,670)	(623,968)	(18,272,358)	(7,693,722)
Changes in fair value	-	(58)	-	-	(58)	-	(1,623)	-	-	(1,623)
Share of other comprehensive income	-	-	(29,608)	46,567	16,959	-	-	(922,013)	-	(922,013)
Tax charge (credit) to other comprehensive income	-	81	(1,965)	-	(1,884)	-	2,479	(82,025)	-	(79,546)
Translation differences	-	-	-	-	-	-	9,608	96,163	(4,435,447)	(4,329,676)
Closing balance as at 31 December 2019, net of taxes	312,383	(4,251)	(50,802)	(399,735)	(142,405)	11,341,274	(128,206)	(1,531,843)	(22,707,805)	(13,026,580)
Opening balance as at 1 January 2018, net of taxes	312,296	(2,340)	(13,378)	(308,360)	(11,782)	11,338,447	(76,399)	(437,212)	(13,124,515)	(2,299,679)
Changes portion in investment in subsidiaries	87	-	-	-	87	2,827	-	-	-	2,827
Changes in fair value	-	(2,457)	-	-	(2,457)	-	(78,253)	-	-	(78,253)
Share of other comprehensive income	-	-	(21,265)	(137,942)	(159,207)	-	-	(692,236)	-	(692,236)
Tax charge (credit) to other comprehensive income	-	523	15,414	-	15,937	-	16,670	505,466	-	522,136
Translation differences	-	-	-	-	-	-	(688)	14	(5,147,843)	(5,148,517)
Closing balance as at 31 December 2018, net of taxes	312,383	(4,274)	(19,229)	(446,302)	(157,422)	11,341,274	(138,670)	(623,968)	(18,272,358)	(7,693,722)

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	US Dollar'000			Bant'000		
	Fair value reserve of available- for-sale investments	Cash flow hedge	Total	Fair value reserve of available- for-sale investments	Cash flow hedge	Translation differences Total
Opening balance as at 1 January 2019, net of taxes	1,955	19,662	21,617	63,457	638,012	(758,340) (56,871)
Changes in fair value	97	(20,133)	(20,036)	3,202	(642,928)	- (639,726)
Tax charge (credit) to other comprehensive income	34	(1,198)	(1,164)	1,032	(34,791)	- (33,759)
Translation differences	-	-	-	(4,774)	(10,622)	(2,700,431) (2,715,827)
Closing balance as at 31 December 2019, net of taxes	2,086	(1,669)	417	62,917	(50,329)	(3,458,771) (3,446,183)
Opening balance as at 1 January 2018, net of taxes	3,710	13,843	17,553	121,256	452,368	(414,531) 159,093
Changes in fair value	(2,200)	7,644	5,444	(69,680)	233,063	- 163,383
Tax charge (credit) to other comprehensive income	445	(1,825)	(1,380)	14,099	(56,769)	- (42,670)
Translation differences	-	-	-	(2,218)	9,350	(343,809) (336,677)
Closing balance as at 31 December 2018, net of taxes	1,955	19,662	21,617	63,457	638,012	(758,340) (56,871)

31 Expenses by nature

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Staff costs	346,718	325,369	10,764,774	10,512,871
Depreciation and amortisation	992,589	909,007	30,817,517	29,370,617
Write-off of assets	1,129	1,863	35,097	60,193
Operating leases	38,426	41,980	1,193,024	1,356,402
(Reverse) provision of net realisable value of inventory	(4,042)	4,042	(125,480)	130,600
(Reverse) allowance for slow-moving of spare parts and machinery supplies	(2,554)	2,131	(79,296)	68,854

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Staff costs	30,635	27,067	951,149	874,563
Depreciation and amortisation	1,284	1,351	39,873	43,667
Write-off of assets	-	1	-	12
Operating leases	1,545	1,332	47,964	43,042
Management expense to related parties	6,517	6,733	202,351	217,532

32 Earnings (losses) per share

Basic earnings (losses) per share

Basic earnings (losses) per share is calculated by dividing the net profit (loss) attributable to shareholders by the weighted average number of ordinary shares outstanding, excluding treasury shares during the year.

Basic earnings (losses) per share for the years ended 31 December are as follows:

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
US Dollar				
Net profit (loss) attributable to ordinary shareholders of the Parent (US Dollar'000)	(19,604)	205,475	78,665	52,083
Weighted average ordinary shares outstanding, excluding treasury shares (Thousand shares)	5,143,047	5,161,926	5,143,047	5,161,926
Basic earnings (losses) per share (US Dollar)	(0.004)	0.040	0.015	0.010
Baht				
Net profit (loss) attributable to ordinary shareholders of the Parent (Baht'000)	(552,864)	6,693,731	2,481,762	1,708,918
Weighted average ordinary shares outstanding, excluding treasury shares (Thousand shares)	5,143,047	5,161,926	5,143,047	5,161,926
Basic earnings (losses) per share (Baht)	(0.107)	1.297	0.483	0.331

33 Dividend paid

At the Annual General Shareholders' meeting on 3 April 2019, the shareholders approved a payment of final dividend 2018 of Baht 0.35 per share for 5,161,925,515 shares, totalling of Baht 1,806.67 million or equivalent to US Dollar 56.95 million. The Thailand Securities Depository Company Limited notified the Company that certain shareholders were not entitled to receive dividend totalling Baht 0.02 million or equivalent to US Dollar 683. Such dividends were paid to the shareholders on 30 April 2019.

At the Board of Directors' meeting on 29 August 2019, the Board approved a payment of interim dividend for 2019 of Baht 0.35 per share for 5,161,925,515 shares, totalling Baht 1,806.67 million or equivalent to US Dollar 58.67 million.

The Thailand Securities Depository Company Limited notified the Company that certain shareholders were not entitled to receive dividend totalling Baht 0.20 million or equivalent to US Dollar 6,443. Such dividends were paid to the shareholders on 27 September 2019.

At the Annual General Shareholders' meeting on 3 April 2018, the shareholders approved a payment of final dividends for 2017 of Baht 0.35 per share for 5,161,925,515 shares, totalling Baht 1,806.67 million or equivalent to US Dollar 57.79 million. The Thailand Securities Depository Company Limited notified the Company that certain shareholders were not entitled to receive dividend totalling Baht 0.02 million or equivalent to US Dollar 655. This dividend was paid to the shareholders on 30 April 2018.

At the Board of Directors' meeting on 30 August 2018, the Board approved a payment of interim dividends for 2018 of Baht 0.35 per share for 5,161,925,515 shares, totalling Baht 1,806.67 million or equivalent to US Dollar 54.69 million. The Thailand Securities Depository Company Limited notified the Company that certain shareholders were not entitled to receive dividend totalling Baht 0.02 million or equivalent to US Dollar 614. This dividend was paid to the shareholders on 28 September 2018.

34 Related party transactions

Enterprises and individuals that directly, or indirectly through one or more intermediaries, control, or are controlled by, or are under common control with, the Company, including holding companies, subsidiaries and fellow subsidiaries are related parties of the company. Associates and individuals owning, directly or indirectly, an interest in the voting power of the company that gives them significant influence over the enterprise, key management personnel, including directors and officers of the company and close members of the family of these individuals and companies associated with these individuals also constitute related parties.

In considering each possible related party relationship, attention is directed to the substance of the relationship, and not merely the legal form.

The pricing policies for transactions between subsidiaries, joint ventures and related parties are:

- Coal sales and purchase within the Group are generally set based on international indices as benchmarks adjusted for coal specifications and the location of deliveries.
- Management income represents service fee charged between the Group and joint ventures for rendering the management services in the normal course of business. The fees are based on the service provided in accordance with the conditions in the agreement.
- Marketing Service Agreement to overseas subsidiaries for rendering the marketing consultant and management in transportation. The fees are based on a certain percentage of gross revenue of coal exports which is comparable to other companies.
- The prices of other sales and services charged between the Company and subsidiaries approximate to those charged to third parties.
- For loans to joint ventures and an associate and interest income, the Group charges interest by considering the average cost of borrowing and market interest rate.
- Advance to/from related parties represent the advance payment for related parties which will be reimbursed within the normal credit term.

Significant transactions carried out with related parties are as follows:

34.1 Transactions during the years ended 31 December are as follows:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Interest income from joint ventures	580	5	17,843	158
Management income from joint ventures	999	2,053	31,038	66,082

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	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Purchases of goods from subsidiaries	4,265	235	131,574	7,425
Cost of service from subsidiaries	36,439	38,259	1,127,053	1,236,374
Dividend from subsidiaries	159,917	145,775	4,994,942	4,724,903
Interest income from subsidiaries	112,852	103,031	3,505,944	3,330,818
Interest expense to subsidiaries	10	11	303	353
Management income from subsidiaries	32,652	39,244	1,014,168	1,270,796
Management expense to subsidiaries	6,517	6,733	202,453	217,651

34.2 Amount due from and dividend receivables from related parties as at 31 December comprised:

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	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Interest receivable - joint ventures	126	14	3,812	475
Other receivables - joint ventures	42	191	1,249	6,192
Total amounts due from related parties	168	205	5,061	6,667
Dividends receivable from a joint venture				
- Current portion	-	10,170	-	330,000
- Non-current portion	21,186	209,642	638,831	6,802,860
Total dividends receivable from a joint venture	21,186	219,812	638,831	7,132,860

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Interest receivables - subsidiaries	375,622	367,200	11,326,513	11,915,569
Other receivables - subsidiaries	4,925	9,626	148,495	312,368
Total amounts due from related parties	380,547	376,826	11,475,008	12,227,937
Dividends receivable from a subsidiary				
- Current portion	-	11,639	-	377,681
- Non-current portion	-	41,826	-	1,357,259
Total dividends receivable from a subsidiary	-	53,465	-	1,734,940

34.3 Advances to and loans to related parties as at 31 December consist of:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Advances to joint ventures				
- Current	-	3	-	88
- Non-current*	-	5,601	-	181,736
Total advances to related parties	-	5,604	-	181,824
Short-term loans to joint ventures	16,287	87	491,106	2,828
Long-term loans to				
- An associate	20,117	16,971	606,598	550,706
- Joint venture	15	83	450	2,678
Total long-term loans to related parties	20,132	17,054	607,048	553,384

* Advance to joint ventures (Non-current) are advance payment for developing solar power plants projects in Japan, which presented under other non-current assets.

Movements of short-term loans to related parties for the years ended 31 December are as follows:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Opening balance	87	7	2,828	225
Transfer to long-term loans	(7)	-	(225)	-
Addition	22,535	825	699,669	26,670
Repayment	(6,383)	(749)	(198,182)	(24,200)
Gains (losses) on exchange rate	(139)	4	(4,305)	133
Translation differences	194	-	(8,679)	-
Closing balance	16,287	87	491,106	2,828

As at 31 December 2019, short-term loans to three joint ventures represents JPY loan of JPY 360.79 million or equivalent to US Dollar 3.26 million, Thai Baht loan of Baht 100 million or equivalent to US Dollar 3.32 million and US Dollar loan of 9.71 million. These loans bear interest at rate of 5.00% to 7.23% per annum (2018: Thai Baht loan of 0.23 million or equivalent to US Dollar 0.01 million, JPY loan of 9 million or equivalent to US Dollar 0.08 million. These loans bear interest at rate of 2.64% to 4.23% per annum). The maturity date is within 1 year.

Movements of long-term loans to related parties for the years ended 31 December are as follows:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Opening balance	17,054	18,412	553,384	601,731
Transfer investment	7	-	225	-
Addition	424	797	13,158	25,758
Repayment	(2,093)	(2,622)	(64,982)	(84,707)
Offset with access fee	4,864	2,272	151,018	73,403
Gains (losses) on exchange rate	4	(1)	137	(19)
Translation differences	(128)	(1,804)	(45,892)	(62,782)
Closing balance	20,132	17,054	607,048	553,384

As at 31 December 2019, long-term loan to an overseas associate and a joint venture represents an interest free Australian Dollar loan of 28.82 million or equivalent to US Dollar 20.12 million and US Dollar loan of 0.01 million (2018: interest free Australian Dollar loan of 24.11 million or equivalent to US Dollar 16.97 million and US Dollar loan of 0.08 million). These loans bear interest rate of 0% to 4.17% per annum (2018: bearing interest rate at the rate of 0% to 4.17% per annum).

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Advances to subsidiaries				
- Current portion	272	442	8,208	14,327
- Non-current portion	77,000	-	2,321,858	-
Total advances to related parties	77,272	442	2,330,066	14,327
Long-term loans to subsidiaries	2,129,886	2,551,384	64,224,592	82,791,909

As at 31 December 2019, the Company has an advance to a subsidiary in the United States of America of US Dollar 77 million. This advance is classified as other non-current asset and its objective is for investing in natural gas business.

Movements of short-term loans to subsidiaries for the years ended 31 December are as follows:

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Opening balance	-	-	-	-
Addition	11,678	175,675	362,564	5,676,170
Repayment	(1,886)	(168,476)	(58,560)	(5,443,587)
Transfer to long-term loans to related party	(9,792)	(9,408)	(304,004)	(303,972)
Translation differences	-	2,209	-	71,389
Closing balance	-	-	-	-

Movements of long-term loans to related parties for the years ended 31 December are as follows:

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Opening balance	2,551,384	2,372,966	82,791,909	77,550,679
Addition	41,393	116,463	1,285,154	3,763,003
Convert from dividend receivable from a subsidiary to long-term loan to a related party	-	62,979	-	2,034,886
Repayment	(520,585)	(11,312)	(16,162,929)	(365,509)
Transfer from short-term loans to a related party	9,792	9,408	304,004	303,972
Gains on exchange rate	47,902	880	1,487,272	28,453
Translation differences	-	-	(5,480,818)	(523,575)
Closing balance	2,129,886	2,551,384	64,224,592	82,791,909

As at 31 December 2019, long-term loans to subsidiaries represent a US Dollar loan of 1,456.69 million and Thai Baht loan of 20,299.47 million or equivalent to US Dollar 673.19 million (2018: US Dollar loan of 2,391.73 million and Thai Baht loan of 5,180.68 million or equivalent to US Dollar 159.65 million) bearing interest at rates of 4.25% to 4.50% per annum (2018: 4.25% to 4.84% per annum).

The fair value of loans to related parties are based on discounted cash flows using a discount rate based on current lending rate as at the reporting date and are within level 2 of the fair value hierarchy.

The fair value of short-term loans to subsidiaries equal their carrying amount, as short-term loans to subsidiaries had a short period of maturity. The fair value of long-term loans to subsidiaries are based on discounted cash flows using a discount rate based upon the current lending rate.

34.4 Trade accounts payable, advances from and loan from related parties as at 31 December consist of:

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Trade accounts payable to a subsidiary	2,803	3,937	84,529	127,769
Other payables - a subsidiary	1,148	2,038	34,619	66,125
Accrued interest expenses - a subsidiary	10	-	302	-
Advances from subsidiaries	43	36	1,284	1,178
Total advances from and amounts due to related parties	1,201	2,074	36,205	67,303
Short-term loan from a subsidiary	16,000	-	482,464	-

Movements of short-term loan from a subsidiary for the years ended 31 December are as follows:

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Opening balance	-	4,284	-	140,000
Addition	16,000	-	496,762	-
Repayment	-	(4,449)	-	(143,739)
Losses on exchange rate	-	165	-	5,325
Translation differences	-	-	(14,298)	(1,586)
Closing balance	16,000	-	482,464	-

As at 31 December 2019, short-term loan from a domestic subsidiary represents US Dollar loan of 16 million bearing interest of 4.50% per annum. The repayment is at call.

The fair value of a short-term loan from a subsidiary equals their carrying amount as short-term loan from a subsidiary had a short period of maturity.

34.5 Key management compensation is presented as follows:

Consolidated financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Salaries and short-term employee benefits	3,412	3,780	105,583	122,673
Post-employment benefits	108	86	3,353	2,768
Long-term employee benefits	-	-	-	-
Share-based payment	95	142	2,938	4,573
	3,615	4,008	111,874	130,014

Separate financial statements

	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Salaries and short-term employee benefits	3,080	3,368	95,320	109,301
Post-employment benefits	88	75	2,721	2,440
Long-term employee benefits	-	-	-	-
Share-based payment	16	32	491	1,024
	3,184	3,475	98,532	112,765

35 Commitment, significant contracts and contingent liabilities

As at 31 December, the Group had the following obligations with banks:

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	Million	Million	Million	Million
	(Original currency)	(Original currency)	(Original currency)	(Original currency)
Letters of Guarantee				
- US Dollar	24.25	3.35	-	-
- Thai Baht	1,648.40	1,407.05	47.58	46.64
- Indonesian Rupiah	300,881.14	246,059.93	-	-
- Australian Dollar	219.86	218.17	-	-
- Japanese Yen	-	390.00	-	-
Letters of Credit				
- US Dollar	10.64	22.84	2.80	3.94
- Indonesian Rupiah	8,043.70	-	-	-

The obligations of joint ventures with banks are disclosed in Note 15.5

35.1 Capital commitments

As at 31 December, the Group had capital commitments that were not recognised in the consolidated financial statements as follows:

Consolidated financial statements				
	US Dollar'000		Baht'000	
	2019	2018	2019	2018
Property, plant and equipment	60,982	72,747	1,838,857	2,360,610
Investments in joint ventures	1,728	33,568	52,104	1,089,270
Investments in joint operations	770,000	-	23,218,580	-
Investments in subsidiaries	3,879	17,806	116,978	577,812
Other investments	30,263	55,534	912,557	1,802,064
	866,852	179,655	26,139,076	5,829,756

35.2 Coal Supply Agreement commitments

As at 31 December 2019, a group of Indonesian subsidiaries had coal supply commitments in accordance with the Coal Supply Agreement for 16.20 million tonnes (2018: 16.20 million tonnes) at the market price. The coal will be delivered within 2022.

35.3 Operating lease commitments

The Group has entered into office rental and equipment and service contracts. The future aggregate minimum lease payments under non-cancellable operating leases as at 31 December 2019 are as follows:

	Consolidated financial statements		Separate financial statements	
	US Dollar'000	Baht'000	US Dollar'000	Baht'000
Not later than 1 year	11,094	334,521	1,537	46,343
Later than 1 year but not later than 5 years	11,079	334,068	536	16,160
Later than 5 years	15,191	458,067	-	-
	37,364	1,126,656	2,073	62,503

35.4 Significant contracts

- A subsidiary in Thailand has entered into a contract to remove coal ash from the area under the silo at two power plants. The subsidiary is responsible for any damage incurred from the service. Payment is determined in accordance with the removed quantity. The contract duration is 2 years from the date of operation on 1 January 2019.
- Indonesian subsidiaries have entered into the mining services contracts with other companies in Indonesia. Each agreement governs the price rate and other factors. Contract values are dependent on volumes of overburden moved and coal mined. These contracts will expire between December 2019 and June 2022.
- Four Indonesian subsidiaries have entered into a shared contract with the Government of Indonesia for 13.50% of the coal produced with the Government.
- An Indonesian subsidiary, holding the mining rights, has an obligation to pay an exploitation fee ranging from 3% to 7% of sales, net of selling expenses.
- Under a Coal Agreement, an Indonesian subsidiary is obligated to pay the Government a Dead-rent fee during the terms of the agreement. Dead-rent is calculated by reference to the number of hectares in the Coal Agreement, in accordance with the rates stipulated in the Coal Agreement. Land and building tax payable for the pre-production period is equal to the amount of Dead-rent. During the production period, the subsidiary is required to pay land and building tax equal to the Dead-rent plus 0.15% of gross revenue from the mining operations.

- f) Four Indonesian subsidiaries that have production activities in a protected forest area but not related to forestry activities will have the obligation to pay a forestry fee ranging from Indonesian Rupiah 1.6 to 4.0 million per hectare.
- g) On 17 December 2019, BKV Barnett, LLC (indirect subsidiary) has drawn up a Purchase and Sale Agreement (PSA) with Devon Energy Production Company, L.P. for managing the shale gas business in the United States of America. with a total investment of US Dollar 770 million to acquire a gas operation in the Barnett shale in the United States of America (Barcelona project). Such subsidiary deposit US Dollar 70 million in escrow account for this investment according to PSA, this amount is presented as other current assets in the consolidated statement of financial position. As at 31 December 2019, the Group has not share operation over such project.

35.5 Significant litigation

- a) In 2007, a group of individuals and corporate entities (Plaintiffs), who were ex-developers of a coal mine and a power plant in Lao PDR (Hongsa Project), filed a civil lawsuit against the Company, Banpu International Limited, and Banpu Power Public Company Limited (a subsidiary holding equity in Hongsa Power Company Limited which holds coal mine and power concessions awarded by the Government of Lao PDR (GOL)) and three members of management as defendants, based on the allegations that the Defendants had deceptively entered into a joint development agreement with the Plaintiffs for the purpose of gaining access to the information of the Hongsa Project, and had, in bad faith, misinformed the GOL to terminate their Hongsa Project concessions in order that the Banpu Group could directly enter into a concession contract with the GOL. The Plaintiffs demanded the Defendants pay damages of Baht 2,000 million for the value of the Hongsa Project information, another Baht 2,000 million for the investment costs to the studies and expenditures in the Hongsa Project, and Baht 59,500 million for the lost profits due to the GOL having terminated the Hongsa Project concessions, totalling Baht 63,500 million plus interest.

On 20 September 2012, the Civil Court issued a judgement that the Defendants did not breach the joint development agreement; the Plaintiffs breached the joint development agreement; the Defendants committed a wrongful act by using the Plaintiffs' information of the Hongsa Project (for the development of a 600-MW power plant) to currently develop the 1,800-MW power plant, and adjudicated that the Company and Banpu Power Public Company Limited pay to the Plaintiffs the damages of Baht 2,000 million for the value of the information, another Baht 2,000 million for the investment costs to the studies and expenditures in the Hongsa Project, totalling Baht 4,000 million plus 7.5% interest per annum from the date of plaint until full payment, and for loss of profits of Baht 860 million per year for years 2015 - 2027 and Baht 1,380 million per year for years 2028 - 2039, payable at each year end, totalling Baht 27,740 million. The grand total of damages is Baht 31,740 million. The complaints involving Banpu International Limited and the management were dismissed.

On 9 September 2014, the Civil Court announced the judgement of the Appeal Court whereby the Plaintiff's complaint was dismissed. The grounds for dismissal were that the Defendants, the Company and Banpu Power Public Company Limited (a subsidiary), had always acted in good faith before and after the Joint Development Agreement was entered into, and that the Defendants did not commit a

wrongful act against the Plaintiffs. The Appeal Court also found that it was the Plaintiffs that breached the Joint Development Agreement, and that the Defendants had no obligation to return to the Plaintiff the documents in which the information relating to the Plaintiff's Hongsa Project contains. The Plaintiff has filed with the Supreme Court a petition against the judgement of the Appeal Court, and the Defendants submitted the Plaintiff's petition for the final judgement of the Supreme Court on 17 February 2015.

In January 2018, a summon was issued by the Civil Court to hear the Supreme Court judgement on 6 March 2018. The Supreme Court judgement was read as summarised below:

1. In respect of the claim that the Defendants deceived the Plaintiffs in entering into the Preliminary Agreement and the Joint Development Agreement with an intention to acquire the project information of the Plaintiffs, the Court considered that the Plaintiffs had approached the Defendants to develop the Project and the Defendants acted in good faith in entering into the Agreements with its true intention to develop the Hongsa Project, but not to deceptively acquire the information as alleged.
2. In respect of the claim that the Defendants terminated a contract with a contractor to delay the Hongsa Project to result in the Lao Government terminating the concession agreements with the Plaintiffs, the Court considered that the Defendants terminated the contractor in good faith for the benefit of the Hongsa Project.
3. In respect of the claim that the Defendants induced the Lao Government to terminate the concession agreements with the Plaintiffs, the Court considered that the Defendants was in good faith and did not do so. The termination of the concession agreements by the Lao Government was resulting from the acts of the Plaintiffs since the Lao Government was concerned that the Hongsa Project would not be succeeded in the hands of the Plaintiffs as they were seen incapable, which would be detrimental to the benefit of Laos and its people.
4. In respect of the claim that the Defendants used the project information of the Plaintiffs, the Court considered that the Defendants (i.e. the Company, Banpu Power Public Company Limited and Banpu International Limited) utilised the project information of the Plaintiffs as base for developing a new 1,800 MW power project without the Plaintiffs' consent, and therefore ordered the Defendants to jointly pay the Plaintiffs the sum of Baht 1,500 million plus interest at the rate of 7.50% per annum calculated from 3 July 2007.

Subsequently, the Company jointly with Banpu Power Public Company Limited and Banpu International Limited paid the damages plus interest to the Plaintiffs in full on 9 March 2018. The Company bore one third of the damages, amounting to Baht 900.68 million and the Group recognised Baht 2,702.05 million in the consolidated statement of comprehensive income for the year ended 31 December 2018.

b) A civil lawsuit against a subsidiary in Mongolia

On 19 October 2015, a subsidiary received a notice from the Primary Civil Court that a group of individuals and corporate entities (Plaintiffs) submitted a claim that repeated the claim previously filed, claiming that the Plaintiffs had the right to own 60% of the shares of another subsidiary, and such previous claim was dismissed by the Decision of the Primary Civil Court, the Appeal Court and the Supreme Court on the ground that the claim of the Plaintiffs was unclear.

On 17 November 2015, however, the Primary Civil Court allowed the Plaintiffs to amend the claim and the Plaintiff amended the claim to the Primary Civil Court. On 7 January 2016, such subsidiary submitted an explanation and a counter claim against the Plaintiffs asking for compensation. The Primary Civil Court made a judgement on 22 March 2016 in favour of the Plaintiffs, ordering the subsidiary to pay US Dollar 1 million to the Plaintiffs and dismiss a counter claim of the subsidiary against the Plaintiffs. The subsidiary submitted an appeal to the Appeal Court and the Supreme Court respectively. On 20 October 2016, the Supreme Court ordered to return the case to the Primary Civil Court with the reason that the subsidiary is not the party of the agreement under the claim of the Plaintiffs.

On 6 March 2017, the Primary Civil Court hearing was recommenced, but finally, the Court made on 19 February 2019 an order to dismiss the case, reasoning that the case shall not be settled through civil court and its jurisdiction shall be the Arbitration Court. The Plaintiffs failed to submit an appeal within the statutory period, but on 4 March 2019, submitted an application to request for extending the deadline for appeal. On 20 March 2019, the Court considered and rejected the application of the Plaintiffs, resulting in the case being final.

c) Tax audit of Indonesian subsidiaries

Prepaid income taxes

As at 31 December 2019 and 31 December 2018, the details of significant prepaid income taxes of Indonesian subsidiaries resulting from tax investigation by Directorate General of Tax (DGT) are as follows:

Fiscal year	Company	Descriptions	US Dollar'000		Baht'000		Status as at the date of the financial statements
			2019	2018	2019	2018	
2009	ITM	Underpayment of corporate income tax and withholding tax 26 of US Dollar 13 million	13,031	16,366	392,937	531,073	Corporate income tax: ITM appealed to the tax court on 16 May 2016. Withholding tax 26: On 19 September 2018, the Supreme Court result was in favor of ITM and ITM received such tax refund in 2019.
2011	TCM	Underpayment of withholding tax 23 of Indonesian Rupiah 36.4 billion (equivalent to US Dollar 2.6 million).	-	-	-	-	TCM submitted Contra Memory to the Supreme Court in May 2017.
2012	ITM	Underpayment of corporate income tax of US Dollar 14.3 million.	-	-	-	-	The Supreme Court result was in favour of ITM in September 2019.
2012	TCM	Overpayment of corporate income tax of US Dollar 5.5 million.	2,877	2,877	86,753	93,358	TCM submitted a Judicial Review to the Supreme Court in April 2017.

Fiscal year	Company	Descriptions	US Dollar'000		Baht'000		Status as at the date of the financial statements
			2019	2018	2019	2018	
2012	TCM	Underpayment of withholding tax 23/26 and value added tax of Indonesian Rupiah 81.8 billion (equivalent to US Dollar 5.9 million).	-	-	-	-	The Supreme Court result was partially in favour of DGT in April 2018 regarding VAT and withholding tax 23/26. TCM submitted Contra Memory to the Supreme Court for withholding tax 23/26 in June 2019.
2012	KTD	Over payment of corporate income tax of US Dollar 6.2 million	6,181	6,350	186,382	206,056	KTD submitted appeal letter to tax court in October 2018.
2013	IMM	Underpayment of withholding tax 23/26 of Indonesian Rupiah 33.8 billion (equivalent to US Dollar 2.4 million).	2,432	2,667	73,335	86,544	IMM submitted a Judicial Review to the Supreme Court in March 2017.
2013	KTD, TCM	Overpayment of corporate income tax of US Dollar 3.7 million.	2,261	3,682	68,178	119,480	KTD: The Supreme Court result was unfavourable to KTD in October 2019 relating to corporate income tax of US Dollar 1.42 million. TCM: The Supreme Court result was in favour of TCM in May 2019. At reporting date, TCM has not yet received such tax refund.

Fiscal year	Company	Descriptions	US Dollar'000		Baht'000		Status as at the date of the financial statements
			2019	2018	2019	2018	
2013	TCM, JBG, KTD	Underpayment of withholding tax 23/26, domestic VAT and offshore VAT of Indonesian Rupiah 79.8 billion (equivalent to US Dollar 5.7 million).	2,804	3,686	84,552	119,610	<p><u>KTD</u></p> <p>The Supreme Court result was in favour of KTD related to offshore VAT in May – September 2019.</p> <p>The Supreme Court result was unfavourable to KTD regarding withholding tax 26 related to marketing fee in October 2019.</p> <p>The Supreme Court result was partially in favour of KTD for withholding tax 26 related to demurrage in December 2019 and January 2020.</p> <p>KTD submitted Judicial Review to the Supreme Court withholding tax 23 in October 2019.</p> <p><u>TCM</u></p> <p>The Supreme Court result was partially in favour of TCM regarding withholding tax 23 in August - September 2019.</p> <p>The Supreme Court result was partially in favour of TCM regarding withholding tax 26 related to demurrage and marketing fee in September 2019.</p> <p>The Supreme Court result was in favour and partially favour of TCM regarding offshore VAT and domestic VAT in August - September 2019.</p> <p><u>JBG</u></p> <p>DGT submitted Judicial Review to the Supreme Court in January 2020.</p> <p>JBG submitted Contra Memory to the Supreme Court related to offshore VAT in December 2019.</p>

Fiscal year	Company	Descriptions	US Dollar'000		Baht'000		Status as at the date of the financial statements
			2019	2018	2019	2018	
2015	IMM	Overpayment of corporate income tax of US Dollar 3.1 million and underpayment of other taxes (withholding tax 23/26, domestic VAT and offshore VAT) in total amount of Indonesian Rupiah 94.3 billion or equivalent to US Dollar 6.5 million.	9,375	9,124	282,694	296,072	In August - October 2018, IMM submitted tax appeal letter to tax court regarding withholding tax 26, withholding tax 23, offshore VAT, domestic VAT and corporate income tax from
2016	IMM	Underpayment of withholding tax 26 of Indonesian Rupiah 27.7 billion (equivalent to US Dollar 2.0 million).	1,995	-	60,157	-	IMM submitted objection to DGT in March 2019.
		Total	40,956	44,752	1,234,988	1,452,193	

Additionally, as at 31 December 2019, various taxes of four Indonesian subsidiaries for fiscal years 2016 - 2018 are still in the process of audit by the DGT. The Group's management believes that the tax audit result, objection, appeal, lawsuit and reconsideration results will not have a material impact on the consolidated financial statements.

d) Significant case of Indonesian subsidiaries

Four Indonesian subsidiaries were sued in 3 material cases with 1 case claiming for compensation for land in mining concession area amounting to Indonesian Rupiah 1,095 billion or equivalent to US Dollar 76.89 million and 1 arbitration case claiming for damages from breach of contract amounting to US Dollar 5.98 million and 1 case claiming for royalty fee from the production of coal amounting to US Dollar 100 million.

- The claim for land compensation of Indonesian Rupiah 1,095 billion or equivalent to US Dollar 76.89 million was lodged against a subsidiary company as the 2nd defendant with the District Court in August 2018. On 24 January 2019, the court issued a verdict in favor of TCM, but the Plaintiff did not appeal within the time limit, resulting in the Court verdict being final and binding.
- The arbitration case of US Dollar 5.98 million was initiated by a vessel company against 2 subsidiaries for compensation of underperformance of agreed shipment tonnages and wrongful termination of Contract of Affreightment. The case was filed with the Singapore Chamber of Maritime Arbitration and a panel of tribunal was appointed. The tribunal had set up a preliminary schedule for hearings in June 2018, but it granted a time extension for submitting witness statements to end of June 2018. However, the claimant requested and was granted to amend its statement of claim, and the tribunal rescheduled the submission of the witness statements to be within 3 August 2018; and afterwards the claimant submitted other motions to the Tribunal while the subsidiaries objected, resulting in the shift of the hearings. The Tribunal scheduled the hearings in June 2019. During

the second quarter, the claimant and the subsidiaries had discussion and agreed to settle the case amicably. Then on 16 May 2019, both the claimant and the subsidiaries entered into a settlement agreement by which the subsidiaries agreed to pay US Dollar 3.25 million to end the arbitral case. The payment was duly made in May and June 2019, bringing the case to the end.

- The claim for royalty fee from the production of coal amounting to US Dollar 100 million was submitted against 2 subsidiaries as the 1st and the 2nd Defendants together with another person with the District Court in October 2019. The Plaintiffs alleged that they were the rightful shareholders of the 1st Defendant, who had promised to pay them a royalty fee of US Dollar 1 per each ton of coal produced, totalling US Dollar 100 million. As at 31 December 2019, the case has been in the process of the District Court, and the hearing was commenced in January 2020. The Group's management believes that the subsidiaries have strong evidences to defend and are in a strong position in lawsuits and that these issues will not have a material adverse impact on the consolidated financial statements.

36 Business combination and acquisition of indirect investments

Significant acquisitions for the year ended 31 December 2018

36.1 Investment in clean energy

On 14 June 2018, BPINI additionally acquired newly issued preference shares of Sunseap Group Pte. Ltd. (Sunseap) at the consideration of Singapore Dollar 33.00 million or equivalent to US Dollar 24.76 million. As a result, the Group owns 40.74% of shareholding in such joint venture. There is no change in agreement between Sunseap's shareholders.

The Group measured the fair value of the identifiable assets acquired and completed purchase price allocation. The determination of fair value does not significant impact to the consolidated financial statements for the period ended 31 December 2018. Details of investment are as follows:

	US Dollar'000	Baht'000
Portion of fair value of net assets acquired	9,284	307,927
Right in long-term power purchase agreements (Presented in investment in a joint venture)	9,287	308,024
Goodwill (Presented in investment in a joint venture)	6,189	205,267
Purchase considerations	24,760	821,218

Right in long term power purchase agreement will be amortised by straight-line method based on each agreement's remaining contract period.

According to management structure defined by the Shareholders' agreement, finance strategy and operation decision will be taken or resolved with the consent from each parties. Therefore, Sunseap is a joint venture of the Group.

36.2 Investment in energy storage system business

On 7 March 2018, BPIN Investment Company Limited (BPINI), a subsidiary of the Group, acquired issued shares of Durapower Holdings Pte. Ltd., a limited company in the Republic of Singapore, at the consideration of Singapore Dollar 45.10 million or equivalent to US Dollar 34.17 million. As a result, the Group has 44.84% of shareholding. The investment is considered as an associate. The Group fully paid for such investment.

The Group completely measured the fair value of the identifiable assets acquired and completed purchase price allocation. The determination of fair value does not have significant impact to the consolidated financial statements for the year ended 31 December 2018. Details of investment are as follows:

	US Dollar'000	Baht'000
Portion of estimated fair value of net assets acquired	11,905	373,190
Right in patents (Presented in investment in an associate)	12,436	389,814
Goodwill (Presented in investment in an associate)	9,833	308,235
Purchase considerations	34,174	1,071,239

Patents will be amortised by straight-line method based on patents' remaining period.

Significant acquisitions for the year ended 31 December 2019

36.3 Investment in Electric Vehicle (EV) business

On 25 January 2019, the Group invested in new issued shares of FOMM Corporation, which is a limited company in Japan, and engages Electric Vehicle (EV) business, at the consideration of US Dollar 20 million. The Group owns 21.45% of shareholding in such company. The investment is considered as an associate. The Group fully paid for such investment.

Details of the consideration paid and the Group's portion of estimated net assets purchased and recognised at the acquisition date are as follows:

	US Dollar'000	Baht'000
Portion of carrying value of net assets acquired	7,532	244,422
Right in patents (Presented in investment in an associate)	12,468	404,574
Purchase considerations	20,000	648,996

Patents will be amortised by straight-line method based on useful life considering estimation including product life cycle.

36.4 Acquisition of the remaining interests in Springvale Joint Venture

During the year 2019, the Group, through its wholly owned subsidiary, entered into an agreement to acquire the remaining 50% interest in Springvale Coal Joint Venture (SPJV) and associated mining assets of Springvale and Angus Place Collieries from another co-venturer for a total consideration of Australian Dollar 1 or equivalent to US Dollar 0.68. In addition, the co-venturer agreed to pay the Group a total of Australian Dollar 11.55 million or equivalent to US Dollar 7.81 million to assume certain liabilities on behalf of the co-venturer as part of the acquisition. Therefore, the Group obtained control over SPJV since then. This acquisition is a business combination achieved in stages.

Summary of the fair values and the bargain purchase are detailed in the below:

	US Dollar'000	Baht'000
Portion of fair value of net assets acquired	124,894	3,775,089
consideration received	7,809	236,046
Bargain purchase	132,703	4,011,135
Fair value of interest held before the date on which the Group obtained control	124,894	3,775,089
Net book value of interest held before the date on which the Group obtained control	(207,146)	(6,261,291)
Remeasure of previously held interest (loss on a business combination achieved in stages)	(82,252)	(2,559,817)
Net gain from acquisition of the remaining interest	50,451	1,524,933

The Group remeasured its previously held interest in the Joint Venture at the acquisition date to fair value. A resulting loss on a business combination achieved in stages of US Dollar 82.25 million was recognised. On the acquisition date the Group recognised a bargain purchase of US Dollar 132.70 million. As a result, net gains on acquisition of US Dollar 50.45 million was recognised in Management fee and other income in the statement of comprehensive income for the year ended 31 December 2019.

The fair value of identifiable assets and liabilities assumed and purchase consideration recognised as a result of the acquisition are as follows:

	US Dollar'000	Baht'000
Cash	431	13,024
Trade and other receivables	3,602	108,869
Inventories	6,068	183,401
Other assets	41,103	1,242,395
Property, plant and equipment	59,152	1,787,954
Deferred development expenditures	50,224	1,518,104
Trade and other payables	(17,140)	(518,074)
Other liabilities	(18,546)	(560,584)
Net asset acquired	124,894	3,775,089
Purchase consideration		
Net cash acquired	431	13,024
Net cash received	7,809	236,046
Net consideration received	8,240	249,070

37 Events after the reporting period

- 37.1 On 2 January 2020, the Company established a new subsidiary in Vietnam named Banpu Vietnam Limited Liability Company. Its registered share capital is VND 23 million which is a wholly owned by the Company. The objective of such subsidiary is to provide services to support coal and power business in Vietnam.
- 37.2 On 14 February 2020, BPIN Investment Company Limited, a subsidiary of the Group, exercised warrants into ordinary shares and preference shares of Sunseap Group Pte. Ltd., a joint venture, a limited company in the Republic of Singapore, totalling SGD 105 million from a third party. As a result, the Group has 48.63% of shareholding in Sunseap.



INTEGRATED ENERGY
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