

# ANNUAL REPORT

• • • (56-1 ONE REPORT)

BANPU PUBLIC COMPANY LIMITED

2021



## BANPU

TRANSFORMATION:  
ACCELERATING  
GREENER & SMARTER  
GROWTH

Member of  
**Dow Jones  
Sustainability Indices**  
Powered by the S&P Global CSA

**Sustainability Award**  
Gold Class 2022  
**S&P Global**

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





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In case this Annual Report (Form 56-1 One Report) references information disclosed on the Company's website, the disclosed information shall be deemed to be part of Form 56-1 One Report. The Board of Directors certifies the correctness and completeness of disclosed information and annual information disclosure in Form 56-1 One Report.

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# BANPU

## TRANSFORMATION

### ACCELERATING

### GREENER & SMARTER

# GROWTH

Over nearly four decades of business operations, “resilience” has been one of Banpu Public Company Limited’s strong DNAs, enabling the Company to timely adapt to change regardless of external factors, global energy trends, and stakeholders’ expectations. The Company has driven **Banpu Transformation** actively and even more vigorously over the past 4-5 years to accelerate the achievement of its sustainable growth target as a leading **International Versatile Energy Provider** with the **Greener & Smarter strategy** and adherence to the Environmental, Social, and Governance (ESG) principles.

**Banpu emphasizes  
two main areas of**

• • • **Banpu Transformation** • • •

as follows:

# 01

## Accelerating greener energy portfolio expansion and scaling up energy technology ecosystem

In 2021, Banpu accelerated the transformation by investing in energy businesses to optimize operational efficiency with digital technology while expanding its greener energy portfolio through the acquisitions of the Nakoso IGCC Power Plant in Japan, the Beryl and Manildra Solar Power Plants in Australia, the gas-fired CCGT “Temple I” Power Plant in Texas, the U.S., and Ha Tihn Solar Power Plant in Vietnam.



# 02

## Digital Transformation

Banpu has increasingly adopted Agile Working to improve performance in all work areas and strengthen the Company’s technology, innovation, and digital readiness. The Company also created and extended the development process to advance employees’ digital capabilities through reskilling and upskilling. Leveraging digitalization will empower Banpu to thrive and successfully navigate Banpu Group’s businesses.

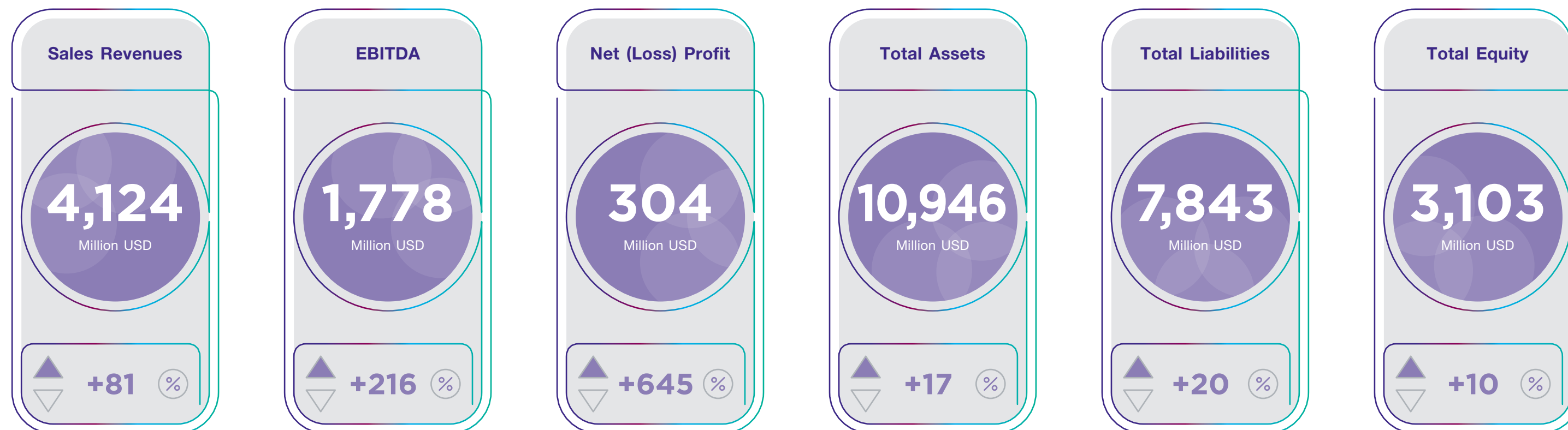


Banpu Transformation will propel the Company’s sustainable growth in line with the Greener & Smarter strategy across all business groups. It will also enable Banpu to fulfill its 2025 target to achieve more than 50% of total earnings before interest, taxes, depreciation, and amortization (EBITDA) from greener energy and energy technology businesses and to effectively deliver **Smarter Energy for Sustainability** to all stakeholders.





## FINANCIAL HIGHLIGHTS



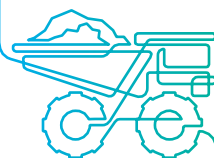




## Energy Resources

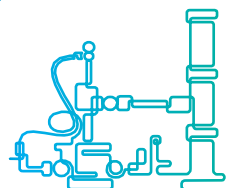
### Coal Business

Sales Volume

**36.0**  
Mt

### Gas Business

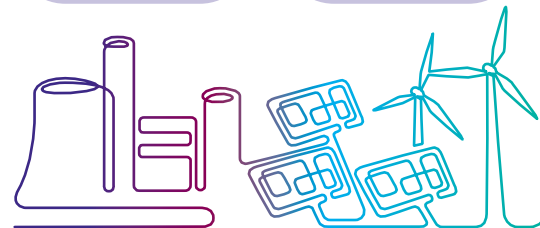
Net Production

**~700**  
MMcfd

## Energy Generation

### Power Business

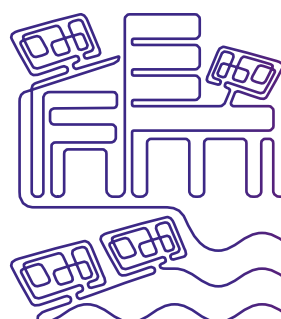
Total Committed Capacity

**4,080**  
MWCommitted Thermal  
Equity-based Capacity**3,244**  
MWCommitted Renewables  
Equity-based Capacity**836**  
MW

## Energy Technology

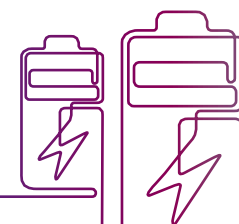
### Solar Rooftop & Floating Solutions Business

Equity-based Capacity

**37**  
MW

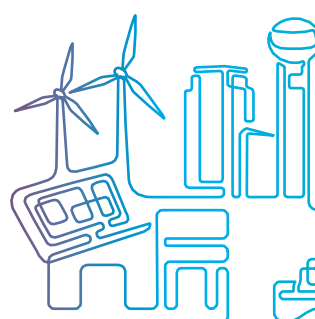
### Energy Storage Business

Total Production Capacity

**1.0**  
GWh

### Smart Community Development Business

Smart City Project under Development

**20**  
Projects

### Electric Vehicle (EV) Business

Launched e-Ferry  
BANPU<sup>EXT</sup> e-Ferry**1** unitEV Market Expansion  
Car Sharing Service**100** unitEV Tuk Tuk  
Service Provided**2,100** Passengers/ Day

Charging Station

**102** Stations

## For the Year Ended

31-Dec-21

31-Dec-20

31-Dec-19

### Financial Position

Total Assets	(Million USD)	10,946	9,377	8,069
Total Liabilities	(Million USD)	7,843	6,562	5,434
Total Shareholders' Equity	(Million USD)	3,103	2,815	2,635
Issued and Paid-up Share Capital	(Million USD)	199	147	150

### Operational Results

Sale Revenues	(Million USD)	4,124	2,283	2,759
Cost of Sales	(Million USD)	(2,393)	(1,822)	(2,051)
Gross Profit	(Million USD)	1,731	460	708
Selling and Administration Expenses	(Million USD)	(475)	(365)	(439)
Royalty Fee	(Million USD)	(294)	(183)	(241)
Other Revenues	(Million USD)	130	155	173
Other Expenses	(Million USD)	(445)	(31)	(95)
Profit from Operation	(Million USD)	647	36	107
Share of Profit from Joint Ventures	(Million USD)	227	135	206
Interest Expenses	(Million USD)	(174)	(173)	(182)
Financial Expenses	(Million USD)	(10)	(6)	(5)
Corporate Income Tax	(Million USD)	(198)	(9)	(78)
Non-controlling Interests	(Million USD)	(189)	(39)	(61)
Net (Loss) Profit	(Million USD)	304	(56)	(14)
EBITDA	(Million USD)	1,778	563	701

### Financial Ratios

Gross Profit Margin	(%)	42.0	20.2	25.7
Net (Loss) Profits to Total Revenues	(%)	6.8	(2.2)	(0.5)
Returns on Assets	(%)	3.0	(0.6)	(0.2)
Returns on Equity	(%)	10.3	(2.0)	(0.5)
Interest Coverage Ratio	(Times)	5.8	2.5	2.4
Net Debt to Equity	(Times)	1.31	1.47	1.23

### Data per Share

Earnings per Share	(USD)	0.049	(0.009)	(0.003)
Book Value per Share	(USD)	0.46	0.55	0.51
Dividend per Share	(THB)	0.45*	0.30	0.60

\* The Company announced a total dividend of THB 0.45 per share arising from its performance during the period from 1 January 2021 to 31 December 2021, of which THB 0.20 was paid on 23 September 2021. The remaining dividend of THB 0.25 per share for 2021 performance will be paid on 29 April 2022

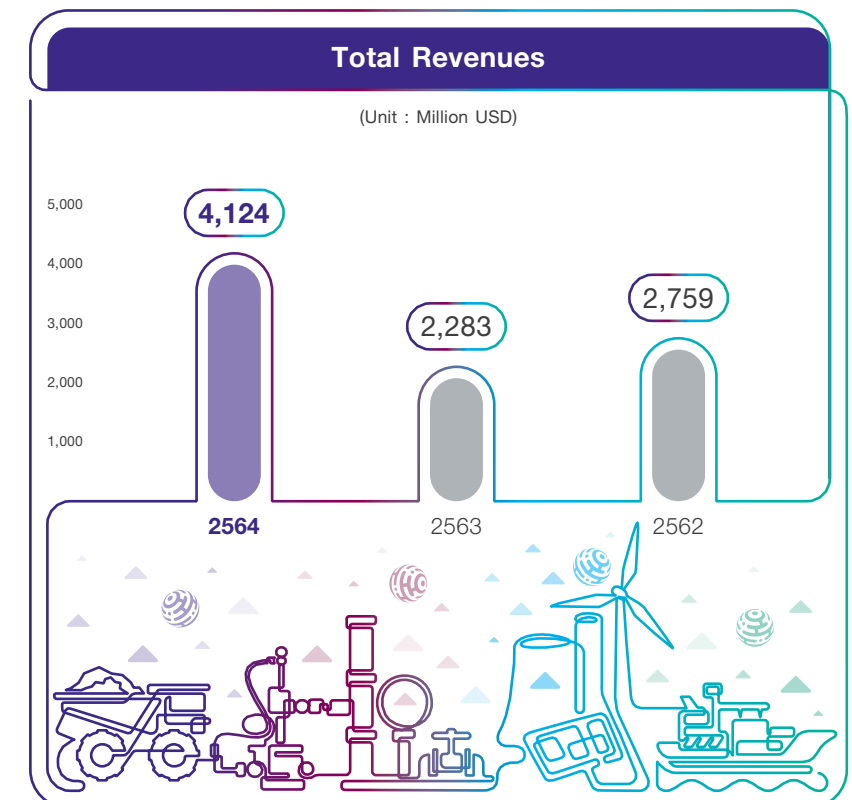
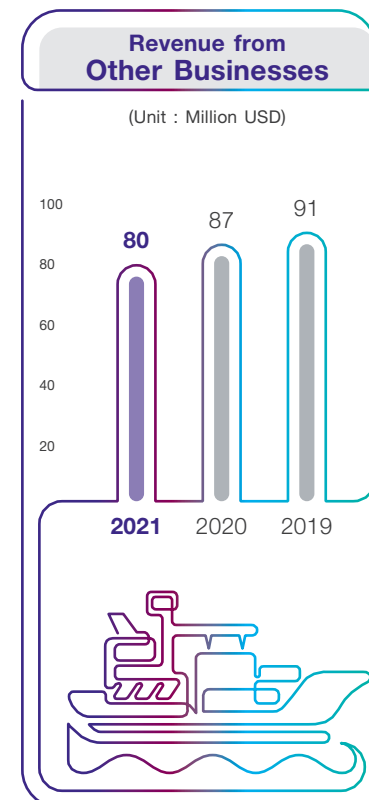
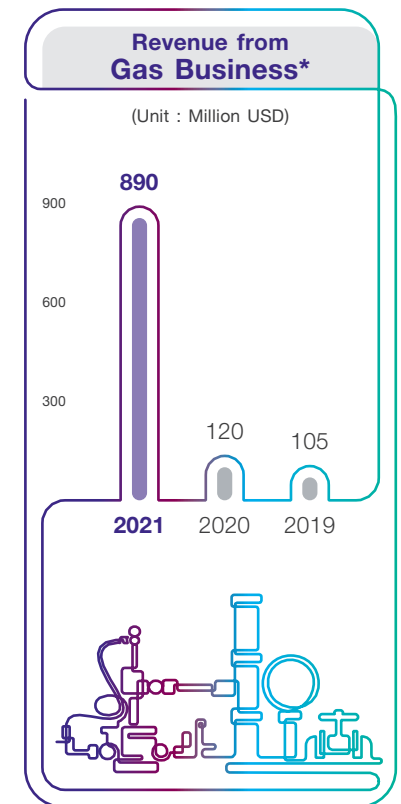
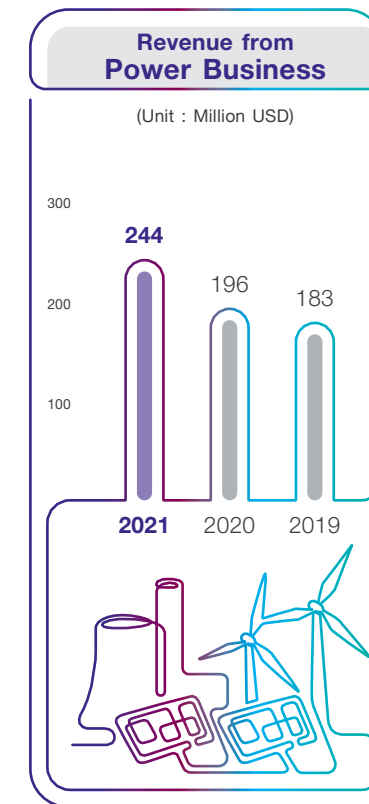
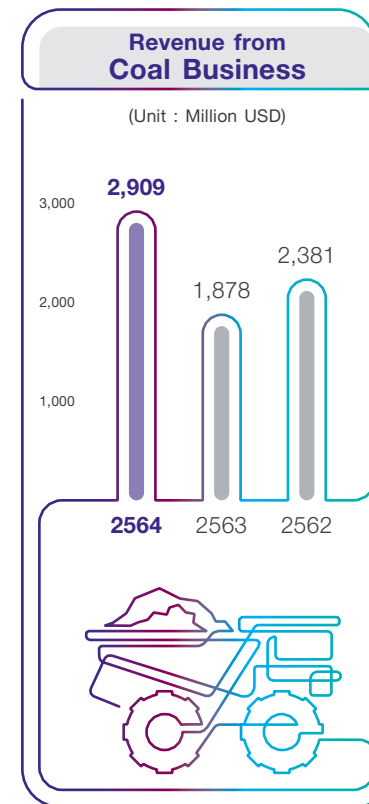
**Remark:** Financial figures are based on the consolidated financial statement



## OPERATIONAL RESULTS

For the year ended			
	2021	2020	2019
<b>Coal Sales Volume (Million Tonnes)</b>			
Sources - Indonesia (ITMG)	18.2	19.6	23.1
Other sources	1.9	1.6	2.3
Sources - Indonesia	20.1	21.2	25.4
Sources - Australia	9.8	12.5	10.5
Sources - China (Traded Coal)	2.0	1.0	0.3
Sources - Others	-	0.0	-
<b>Total Coal Sales Volume</b>	<b>32.0</b>	<b>34.7</b>	<b>36.2</b>
<b>Revenue (Million USD)</b>			
Revenue from Indonesia (ITMG)	1,939	1,084	1,550
Other Sources	151	56	121
Revenue from Indonesia	2,090	1,140	1,671
Revenue from Australia	728	698	694
Revenue from China (Traded Coal) and Other Sources	91	41	16
Revenue from Coal Business	2,909	1,878	2,381
Revenue from Power Business	244	196	183
Revenue from Gas Business*	890	120	105
Revenue from Other Businesses	80	87	91
<b>Total Revenues</b>	<b>4,124</b>	<b>2,283</b>	<b>2,759</b>
<b>Gross Profit Margin (%)</b>			
Gross Profit Margin - Indonesia (ITMG)	62	31	34
Other Sources	-5	5	8
Gross Profit Margin - Indonesia	57	30	32
Gross Profit Margin - Australia	7	6	15
Gross Profit Margin - China (Traded Coal)	1	2	0
Gross Profit Margin - Coal Business	43	21	27
Gross Profit Margin - Power Business	6	25	19
Gross Profit Margin - Gas Business	54	11	31
Gross Profit Margin - Other Businesses	-18	5	8
<b>Total Gross Profit Margin (%)</b>	<b>42</b>	<b>20</b>	<b>26</b>

\* Included revenue from the Barnett Shale invested on 1 October 2020



\* Included revenue from the Barnett Shale invested on 1 October 2020



## THE BOARD OF DIRECTORS' REVIEW

### ● ● ● Banpu Aims to Create “Smarter Energy for Sustainability”

Banpu have always prioritized sustainable business growth in tandem with creating value and trust among stakeholders and society. We strive to respond to future demand for accessible, smart, and eco-friendly energy according to our standpoint to deliver “Smarter Energy for Sustainability” to all stakeholders. ● ● ●

**Mr. Chanin Vongkusolkit**  
Chairman  
of the Board of Directors

Over the past two years, every corner of the world has been facing various forms of challenges both socially and economically. The coronavirus disease 2019 (COVID-19) pandemic has directly forced Banpu and all of us alike to quickly adjust to the New Normal. The Board of Directors has always prioritized business continuity to ensure that Banpu Group can generate business growth to deliver energy sustainability and favorable long-term returns for our shareholders and investors as well as sustainable benefits to all stakeholders, which is in accordance to Banpu's adherence to environmental, social, and governance (ESG) principles.

Banpu has smoothly overcome the waves of crisis thanks to our preparedness and flexible but strong measures for **coping with difficult situations, including the COVID-19 pandemic**. The Board of Directors has played a critical role in supervising and supporting the management since the pandemic began and has closely monitored the situations in every country where we operate. We also worked closely with the management to develop a plan to take care of our employees, taking their health and safety top priorities. To support the Work Anywhere Policy, the Company facilitates digital capacity to support employees with the most effective and smooth remote working experience possible.

In 2021, the Board of Directors and the management discussed and agreed to establish **the Environmental Social and Governance (ESG) Committee** to support the Board of Directors in overseeing the Company's ESG-related issues, for instance, occupational health and safety, impacts from climate change, human rights, community, and social responsibility as well as driving Banpu Group's ESG operations towards the goals with the highest efficiency.

The establishment of the ESG Committee well reflects how we have always prioritized sustainable business growth in tandem with creating value and trust among stakeholders and society. We strive to respond to future demand for accessible, smart, and eco-friendly energy according to our standpoint to deliver “Smarter Energy for Sustainability” to all stakeholders. The ESG Committee thus represents the Board, acting like a radar that helps navigate the ship, and collaborates with the management to steer the organization in the right direction.

In addition, the Board of Directors and the management jointly reviewed and approved **the strategic plan and business direction for 2021-2025** to ensure that

the Greener & Smarter strategy can respond to the rapidly changing business environment. We also assessed risks and prepared response plans for future situations. Governed by the strategic plan for the next five years, Banpu focuses on building a competitive edge, adding value for stakeholders, and being agile in effective response to changing economies and industries.

Regarding social responsibility, Banpu has supported the society through **“Mitr Phol - Banpu Solidarity to Aid Thailand on COVID-19 Confrontation Endowment”** since March 2020. In 2021, Banpu and Mitr Phol Group each set up an additional fund of THB 250 million, or THB 500 million in total, to support people who were affected by economic challenges both to their wellbeing and livelihoods. The fund is partially allocated for essential medical equipment and supplies for the prevention and control of COVID-19 until things return to normal. The Board of Directors has provided continuous support and monitored the progress of the mission to stand by all Thais. We endeavor to provide timely and inclusive support to society in all dimensions to promote and assist medical and public health agencies' operations to deliver aid and ease the economic hardships of the affected people while also rooting for all Thais to get through this crisis together.

On this occasion, the Board of Directors would like to express our sincere gratitude to our valued stakeholders as well as all involved parties both in Thailand and abroad for your unwavering trust and continued support. Banpu Group pledges to mobilize our businesses toward being a leading international versatile energy provider with adherence to governance principles in all business operations and full responsibility to the world, environment, and society to generate steady and sustainable returns to all stakeholders.



## CHIEF EXECUTIVE OFFICER REVIEW

### ● ● ● Banpu Transformation

Speeds up An Increase  
in Our Greener Energy Portfolio  
as well as Our Adoption of Digital Technology  
Across the Organization, with the Aim for  
“Smarter Energy for Sustainability”. ● ● ●

**Ms. Somruedee Chaimongkol**  
Chief Executive Officer

Over nearly four decades, resilience and agility have been coded into Banpu's DNA, enabling the Company to rapidly adapt to change, including global crises, disruptive mega-trends and evolving stakeholder expectations. In this vein, since 2015, Banpu has adopted a 'Greener & Smarter' strategy designed to achieve a rapid transition to a more sustainable business model: one which balances and integrates conventional sources of energy supply with lower carbon gas and cutting-edge clean energy technologies.

Over the past year we made some decisive moves to accelerate this transition and to position ourselves as **a leading international versatile energy provider** across the Pacific Rim region. In particular, we have been focused on accelerating the expansion of our lower carbon gas and renewables businesses, scaling up our energy technology ecosystem and ramping-up our digital transformation. Key advancements in 2021 included the acquisition of a gas-fired power plant in the U.S., solar power plants in Australia and Vietnam, and an integrated gasification combined cycle (IGCC) plant in Japan.

Banpu's commitment to cease all incremental coal investment, to expand its lower carbon energy businesses and to reduce greenhouse gas emissions has ensured that the Company's strategy is aligned with the COP26 Global Pledges made in Glasgow in November 2021. Importantly, Banpu has also maintained top ESG performance standards and scores, including its top-ranking position on the Dow Jones Sustainability Index. We continue to attract attention from the international investment community as one of the Pacific Rim's leading 'energy transition' stories.

### Financial Performance

Global economic recovery from the Covid-19 pandemic, continued supply tightness and favorable governmental policies all ensured commodity price strength in 2021.

In 2021, Banpu generated a consolidated group EBITDA<sup>1</sup> of USD 1,778 million, a 216% increase on the previous year's result. The group EBITDA comprised USD 1,169 million from the group's Coal business, USD 508 million from the Gas business, and USD 109 million from the Power business.

The group recorded a consolidated net profit for the year of USD 304 million after a foreign exchange translation gain of USD 74 million and a derivatives loss of USD 445 million. Banpu's financial gearing improved with the group's TRIS credit rating confirmed at 'A+ with stable outlook'.

<sup>1</sup> Earnings before interest, tax, depreciation and amortization

### Energy Resources

#### Gas Business

The Henry Hub benchmark price averaged 3.89/MMBtu in 2021, 91% higher than the average for 2020. In 2021, Banpu's gas business subsidiary, BKV, generated total EBITDA of USD 508 million, significantly higher than in 2020 due to the higher average gas prices and strong production growth. Gas production increased by 117% from 2020.

BKV's gas production capacity averaged 700 MMcfed in 2021 with strong base production maintained throughout the year, capturing pricing upside through the acceleration of the Company's 'Value Driven Initiatives'. We expanded our gas reserves during the year by 564 Bcf.





We have continued to decarbonize our operations through the implementation of Scope 1 and Scope 2 emission reduction programs utilizing best-in-class technologies and operational methods including methane leak detection and methane capture. Our gas business is well-positioned to scale up with opportunities to synergize with Banpu's energy generation business.

## Coal Sales and Market Analysis

Banpu group coal sales in 2021 totaled 36.0 Million tonnes (Mt) versus 38.8 Mt in the previous year. Total coal sales from Banpu's Indonesian mines were 20.2 Mt, with 9.8 Mt from the group's Australian mines and 6.0 Mt from China operations<sup>2</sup>. Production from Banpu's Indonesian and Australian mines decreased, while output from Chinese mines increased.

Sales to ASEAN customers were up at 8.5 Mt, and sales to customers in China increased by 19% in 2021 to 11.7 Mt. In South Asia, although sales were down in India to 0.6 Mt, coal sales to Bangladesh remained stable at 1.3 Mt. Sales to customers in Japan, Korea and Taiwan decreased to 6.6 Mt while sales to domestic customers in Australia decreased to 6.5 Mt.

The benchmark NEX<sup>3</sup> Index, representing thermal benchmark prices at Newcastle in Australia for high-grade export coal, increased 134% to an average level of USD 138 per tonne in 2021 versus USD 59 per tonne in 2020. Banpu group's weighted average coal selling price was USD 91 per tonne in 2021 compared to USD 54 per tonne in 2020.

## Indonesia Mining Business

PT Indo Tambangraya Megah Tbk (ITM) is listed on the Indonesian stock exchange and is approximately 67%-owned by Banpu. ITM recorded EBITDA of USD 887 million in 2021, up from the previous year due primarily to a 94% increase in average selling prices (USD 104.2 per tonne in 2021 versus USD 53.8 in 2020) despite a decrease in sales volume (20.1 Mt in 2021 versus 21.2 Mt in 2020).

Coal output at ITM decreased by 1% in 2021 to 18.2 Mt: 7.3 Mt from Indominco, 3.7 Mt from Trubaindo, 4.8 Mt from Bharinto, 1.4 Mt from Embalut and 0.9 Mt from Jorong. ITM average unit costs increased to USD 60 per tonne from USD 49 per tonne due to increase in fuel price, increasing royalty costs and infrastructure repair due to flooding.

## Australia Mining Business

Centennial's EBITDA in 2021 was equivalent to USD 152 million, up from the previous year due mainly to higher average selling prices (AUD 99 per tonne versus AUD 81 per tonne).

Output at Centennial's mines was down by 24% at 9.5 Mt compared to 12.4 Mt in 2020. This decrease was mainly due to complex geology at Springvale and Myuna, and extended longwall changeover at Mandalong and Airly. Clarence experienced lower production from 1.8 Mt to 1.4 Mt, and Airly slightly decreased to 1.3 Mt from 1.4 Mt. For the Northern operations, Mandalong production went down from 5.2 Mt in 2020 to 3.8 Mt and Myuna output decreased to 0.9 Mt from 1.0 Mt.

## China and Mongolia Mining Business

EBITDA from our mining operations in China was USD 129 million in 2021, a significant increase from 2020. Gaohe's average selling price increased by 82% to USD 134 per tonne and sales volume increased 6% to 8.6 Mt. Output increased to 9.3 Mt. At Hebi Zhong Thai (40%-owned by Banpu) in Henan province, output decreased from 1.2 Mt to 0.7 Mt. In Mongolia, work continued on pilot projects and feasibility studies.

## Energy Generation

Banpu Power's EBITDA in 2021 decreased to USD 109 million, from around USD 164 million in 2020, due to higher coal costs. Banpu Power has a combination of thermal power and renewable power assets in the U.S., North Asia and the Greater Mekong region. The total operating capacity of Banpu Power's power generation assets on an equity-basis reached 3.86 equity gigawatts (GWe), an increase of 36% compared to the previous year. This growth was due to the acquisition of Temple I power plant in the U.S., Nakoso power plant in Japan, two Australia solar projects (Beryl and Manildra), three Vietnam solar projects (Ha Tinh, Chu Ngoc and Nhon Hai) and completion of two Japan solar projects (Kesenuma and Shirakawa). The Company also has a pipeline capacity of almost 180 MW currently under development, due for commissioning between now and 2023. Banpu is well-positioned to reach its growth target of 6.1 GWe for its power business by 2025.

## 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 HPC, a 1,878 MW coal-fired mine-mouth power plant in Laos.

In 2021, BLCP performed at a high level of plant efficiency with its Equivalent Availability Factor (EAF) at 91%. BLCP's EBITDA was down on the year at USD 98 million.

HPC had an EAF for the year of 85%, up 3% from 2020 due to successful plant improvement in 2021. EBITDA increased slightly to USD 369 million.

## Thermal Power Business - China

In China, Banpu Power has three coal-fired combined heat-and-power (CHP) operations (Luannan, Zouping and Zhending) with total capacity of 539 MWe. These CHP operations achieved an aggregate EBITDA of USD 12 million in 2021, a 73% decrease from the previous year due to high coal costs.

The Shanxi Lu Guang power plant – a coal-fired power plant that deploys the advance clean coal ultra-supercritical technology, in which Banpu has a 30% stake, has a total capacity of 1,320 MW. The plant became fully operational in 2021 and in 3Q21 and started dispatching to the national transmission system with a long-term coal supply contract in place. The plant reported loss of USD 16 million due to impact from high coal costs.

<sup>2</sup> Indonesia on 100% consolidated basis, Australia and China on equity basis.

<sup>3</sup> The Newcastle Export Index (previously known as the Barlow Jonker Index or 'BJI')





## Thermal Power Business - Japan

In 2Q21, Banpu Power acquired a 33.5% stake in Nakoso IGCC Management Co., Ltd. (NIMCO), which owns 40% of Nakoso power plant with total capacity of 543 MW. The plant is the world's largest Integrated Gasification Combined Cycle (IGCC) plant and the first large-scale commercial air-blown IGCC in Japan. Nakoso had an EAF of 34% in 2021. The plant reported a profit contribution to Banpu of USD 7 million.

## Thermal Power Business - U.S.

Banpu Power and Banpu North America Corporation acquired Temple I gas-fired power plant with a total capacity of 768 MW in 3Q21. The power plant is one of the most efficient and flexible Combined Cycle Gas Turbines (CCGT) plants in ERCOT, the Texas's electrical grid operator. From 1 November to 31 December 2021, Temple I had an EAF for 4Q21 of 37% and a net generation of 417 GWh. Temple I's EBITDA in that period was reported at USD 2 million.

## Renewable Energy Business

Banpu's solar business includes approximately 617 MW of operating capacity: 177 MW in China, 135 MW in Japan, 167 MW in Australia and 138 MW in Vietnam. During the year, Banpu acquired two solar projects in Australia, and three solar projects in Vietnam. Banpu completed two new solar projects in Japan, the 20 MW Kesenuma project and the 10 MW Shirakawa project. Banpu also has an additional 102 MW of new solar PV project capacity under development due for commissioning between now and 2023.

In November 2021, BPIN Investment Co., Ltd., a wholly-owned subsidiary of Banpu NEXT, signed a Purchase and Sale Agreement (PSA) to divest its 47.5% shareholding in Sunseap for USD 347.5 million

to EDPR, a listed renewables company incorporated in Spain. This decision was part of Banpu's strategy to rationalize the group's asset portfolio. The Company will use the proceeds from the transaction to strengthen its capital structure and for future growth in lower carbon Greener & Smarter businesses. The divestment was completed in February 2022.

Banpu's solar business in China generated an EBITDA of USD 25 million in 2021 (+8% year-on-year), supported by strong demand and favorable weather conditions. The average capacity factor remained stable at 14%. Power sold was 223 GWh, a 1% increase from 2020.

In Japan, Banpu's solar business recorded cash distributions of USD 10 million, up 161% year-on-year, due to an increase in power sold from the COD of the Kesenuma and Shirakawa projects. The average capacity factor in 2021 was reported at 13%. Power sold was 161 GWh, an increase of 26% from 2020.

In June 2021, Banpu acquired the Beryl and Manildra solar farms in Australia with a combined total 167 MW of operating capacity. The average capacity factor was reported at 22%. Power sold was recorded at 101 GWh since the acquisition completion in 3Q21. The farms' profit contribution was USD 0.3 million.

Banpu has entered the Vietnam solar market through the acquisition of three Vietnamese solar projects, Ha Tinh with 50 MW in 4Q21, Chu Ngoc with 15 MW and Nhon Hai with 35 MW in 1Q22.

Currently, Banpu is developing an 80 MW onshore wind project in the south of Vietnam, in the Soc Trang province, called Vinh Chau. Vinh Chau phase I's development progress is at 83%, having completed substation energization, erection of 3 out of 7 turbines and the construction of all internal roads and turbine foundations.

In 2020, Banpu acquired the 38 MW El Wind Mui Dinh wind farm in Vietnam. In 2021, the average capacity factor for El Wind Mui Dinh was 26%. Power sold was at 42 GWh, and the resulting profit contribution was USD 0.7 million.

## Energy Technology

### Solar Rooftop Business

Since the divestment of the takes in Sunseap, Banpu NEXT has a committed solar rooftop portfolio of 99 MW, down from 249 MW in 2020. During the year, Banpu NEXT completed the construction of seven solar rooftop projects with a total capacity of approximately 5 MW. In 1Q22, Banpu NEXT acquired a 49% shareholding in Solar Esco Joint Stock Company, a solar rooftop platform in Vietnam with attributable operating capacity of 6 MW and attributable pipeline capacity of 56 MW.

### Energy Storage Systems Business

Durapower, a Singaporean battery manufacturing company in which Banpu NEXT has a 47.7% shareholding, is focused on lithium-ion battery systems for the electric vehicle market. Durapower's production facilities are located in Suzhou in China. Durapower maintained its production capacity of 1 GWh in 2021, and has plans to expand to 3.0 GWh by 2025.

### E-mobility Business

Banpu NEXT has a 21.5% stake in Japan's leading compact electric vehicle developer FOMM, and a 39.3% stake in the electric tuk-tuk company Urban Mobility Tech (UMT). UMT also has an on-demand tuk-tuk sharing digital application. In 2021, Banpu supported 2,100 passengers daily with a ride-hailing initiative in partnership with tuk tuk sharing service

provider MuvMi. We now have 229 electric vehicles under management. In 2021, Banpu acquired a 30% stake in Beyond Green Co., Ltd., a distributor of electric club cars in Thailand, Laos and Cambodia, and 15% in EVolt Technology Co., Ltd., an electric vehicle charging system service provider. EVolt Technology has 102 EV chargers under management.

## Smart City and Smart Infrastructure Business

In November 2021, Banpu NEXT acquired Engie Services (Thailand), renamed to Banpu NEXT EcoServe. The company provides services such as procuring, installing, operating, maintaining and enhancing energy systems for commercial and industrial clients in Thailand. Banpu is now engaged in 20 smart city projects compared to five projects in 2020, with plans to increase that number to 30 by 2025.

## Digital Transformation

Banpu's digital transformation has intensified with the Covid-19 pandemic. Through its Digital Center of Excellence (DCOE) established in 2018, which promotes smart innovation and an 'agile working' approach, Banpu has put over 80 digital products into development. Exciting innovations include the Melak Digital Centre (MDC), a system that uses big data to analyze production processes and supply chain for Banpu's Indonesian control room; Global Procurement Excellence (GPE), a procurement system to improve cost efficiency; Geophysical Logging System (GLOG), an AI system which indicates best times and strategic locations for drilling; an Underground Mining Assistant (UMA) to help connect underground operators to ground supervisors in Australia; and other cutting-edge technologies. In parallel, we have created and augmented development processes to reskill and upskill employees to ensure their digital capabilities are progressing at a fast pace.





## Corporate Social Responsibility

In 2021, Banpu expanded its Corporate Social Responsibility (CSR) program to continue responding to critical challenges triggered by the ongoing Covid-19 pandemic. Banpu also propelled its educational, environmental, youth empowerment, social enterprise, sports, charities and disaster relief projects.

In Thailand, in collaboration with Mitr Phol, Banpu established a joint foundation in March 2020 to deploy funding over USD 15 million, which we doubled to USD 30 million in October 2021, for supporting people affected by the pandemic, medical equipment and proactive health services, as well as funding for crematories and funerary activities, etc.

Under this fund, in 2021, Banpu allocated over USD 6 million to support multiple hospitals including Thammasat University Hospital and King Chulalongkorn Memorial Hospital, which built a Pattayapat Field Cohort Ward to prepare for the new wave of the COVID-19. To help mitigate resulting economic backsliding from the pandemic, Banpu supported necessities, raw materials, consumer goods, funds through “Tong Rod” project to ease hardship and help communities residing in risk areas with the amount of USD 50,000.

Our subsidiary, Banpu NEXT, joined hands with “Muvmi” and “Food for Fighters” to bring 60,000 meals, 4,000 survival kits and 5,000 home isolation kits to the COVID-19 patients under home isolation systems.

Beyond Covid-19, a key focus for Banpu remained empowering youth. On 1 April 2021, Banpu received an ‘honorable certificate’ from the Ministry of Education in recognition of our support to the country’s education. For the 15<sup>th</sup> consecutive year, Banpu granted over USD 40,000 to 16 schools in southern border provinces

to support youth education and development by funding the procurement of information technology equipment.

Banpu created a board game called “The Trust” to educate youth about corruption through a hands-on game experience presented in a workshop with over 300 teachers, implemented by Learn Education Co., Ltd. in collaboration with the Thai Corporate Governance Fund.

In October, Banpu organized its 16<sup>th</sup> ‘Power Green Camp’, an environmental science event which we held online for the first time, in which we selected 40 students across Thailand to participate in transformative learning, three practical experimental tests, and an “Eco-living Talk” activity. To demonstrate their learning, they then competed in a group project contest with monetary rewards for winners.

In 2021, we hosted our 10<sup>th</sup> annual ‘Banpu Champions for Change (BC4C)’ program, which supports Thai social entrepreneurs generate income, execute for social impacts, and run their businesses sustainably. Held online this year, the program included the event “Impact Day 2021 – Dare for Better Change” in collaboration with ChangeFusion, which included a forum for entrepreneurs, a marketplace to present products and services, and the announcement of the BC4C winners.

## Environment, Social and Governance Performance

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

Banpu was honoured to have maintained its listing on the Dow Jones Sustainability Index (DJSI) in 2021 for the 8<sup>th</sup> consecutive year. The DJSI is managed by the world’s most prestigious sustainability rating agency, RobecoSAM. During the year we were recognized in particular for outstanding improvement in three areas: Human Rights, Cybersecurity, and Biodiversity. We were recognised by the S&P Global Sustainability Award 2022 with a Gold class distinction, the only company of the assessed 29 peers in the industry to achieve the award.

Banpu maintained its ‘A’ rating in the MSCI ESG Ratings 2021 assessment for the third consecutive year and was included in the Thailand Sustainability Investment (‘THSI’) shortlist by the Stock Exchange of Thailand for the sixth consecutive year. Banpu was ranked one of the top 268 Listed Companies with Excellent Corporate Governance Scoring, according to the Corporate Governance Report of Thai Listed Companies 2021. Also, we honorably received the Sustainability Awards of Honor in Sustainability Excellence from the SET Awards 2021 for the 4<sup>th</sup> consecutive year and maintained in the list of Thailand Sustainability Investment (THSI) 2021 for the 7<sup>th</sup> consecutive year.

Banpu was labelled ‘Best Performer’ by Vigeo Eiris (V.E.), a part of Moody’s ESG Solutions, which is a global leader in ESG assessment. The recognition was for being one of the top 100 Best Emerging Market Performers, out of a universe of 843 companies from 31 different countries. In terms of credit rating, Banpu received a TRIS rating of A+ with a ‘stable’ outlook on the company and senior unsecured debentures, reflecting the Company’s stable business growth.

In 2021, Banpu established an ESG committee to enhance sustainability development practices,

reinforce its commitment to deliver “Smarter Energy for Sustainability” to all stakeholders, and support the Board of Directors’ ongoing commitment to ESG by supporting oversight responsibilities.

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 throughout 2022 and beyond.

## Strategic Review and Outlook

In 2015, we launched a new strategy designed to harness disruptive mega-trends for the long-term benefit of our shareholders and stakeholders, a strategy rooted in the objective of becoming a leader in sustainable energy in the Pacific Rim. To this end, Banpu has been actively implementing a transformation to a ‘Greener & Smarter’ business model and business structure. The transformation has involved establishing a strong position in the U.S. shale gas sector, listing Banpu Power on the Stock Exchange of Thailand, expanding our renewable energy portfolio and launching Banpu NEXT, Banpu’s flagship company for developing clean energy technology businesses.

Banpu has aligned its strategy with the United Nations Sustainable Development Goals (SDGs), as well as the recent COP26 Global Pledges. We have set our own sustainable development goals for all core businesses including reductions in greenhouse gas emissions, especially methane. By 2025, our aim is for greener businesses to contribute to over 50% of our EBITDA.

Gas is now a core Banpu business which we will continue to expand across the value chain, with





the goal of pursuing opportunities to vertically integrate our assets. In parallel, we will continue to implement programs to capture increases in gas price levels propelled by supply tightness and low storage levels.

Banpu NEXT is continuing to leverage the '3D' global energy mega-trends – digitalization, decentralization and decarbonisation – to establish an integrated clean energy technology portfolio throughout Asia-Pacific comprised of renewable energy generation, solar rooftop solutions, energy storage systems, energy

management systems, e-mobility, smart infrastructure and electricity trading. Banpu NEXT 2025 growth targets include 0.5 GW of solar rooftop capacity; 3.0 GWh per annum of energy storage systems production capacity; servicing 430,000 passengers daily with over 5,500 EVs; 2,000 EV chargers installed; 100 e-ferries sold; 30 smart infrastructure and energy management projects; and 1,000 GWh per annum of electricity trading.

The Banpu group is proud to be a diverse family with operations across ten countries. To emphasize

the importance of a people-centered organization as we accelerate our transformation, since 2018 Banpu has redefined its corporate culture around the idea of the 'Banpu Heart'. Banpu Heart comprises three core values: Passion for our vision of leading the transition to ever more sustainable energy across the Pacific Rim, realized through Innovation by harnessing new technologies, design thinking, and an Integrated Energy Solutions approach which emphasizes ecosystem-thinking and synergy-capture, and Commitment to deliver results with courage and a real sense of urgency.

With increased momentum around Banpu's Greener & Smarter transformation and top ESG performance scores on the Dow Jones Sustainability Index, Banpu is firmly positioned as the Pacific Rim's leading 'energy transition' story.

It is a genuine honor and privilege for me to serve Banpu's Board of Directors, shareholders and stakeholders. I would like to thank all of them for their invaluable support and engagement in 2021. And I look forward to working with them all for another breakthrough year in 2022.







# BUSINESS AND OPERATIONAL RESULTS



## 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. Banpu was founded by members of the Vongkusolkit and Auapinyakul families in order to subcontract a coal mining operation at Banpu Mine (BP-1 Mine) located in Li district, Lamphun province from the Department of Alternative Energy Development and Efficiency.

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

With nearly four decades of experience in business operations both locally and internationally, Banpu has become an **International Versatile Energy Provider**. We aim to deliver the best-in-class energy solutions with our extensive expertise in integrated energy solutions. Currently, we operate in 10 countries across Asia-Pacific, namely Thailand, Indonesia, China, Australia, Lao PDR, Mongolia, Singapore, Japan, the United States of America, and Vietnam. We are committed to driving the growth and robustness of the Banpu ecosystem through the **Greener & Smarter strategy** by reinforcing eco-friendly businesses and leveraging smart technologies and innovations. Steered by the strategy, Banpu is able to fully deliver “**Smarter Energy for Sustainability**” to all stakeholders through 3 core business groups of integrated energy solutions as follows:

### Energy Resources

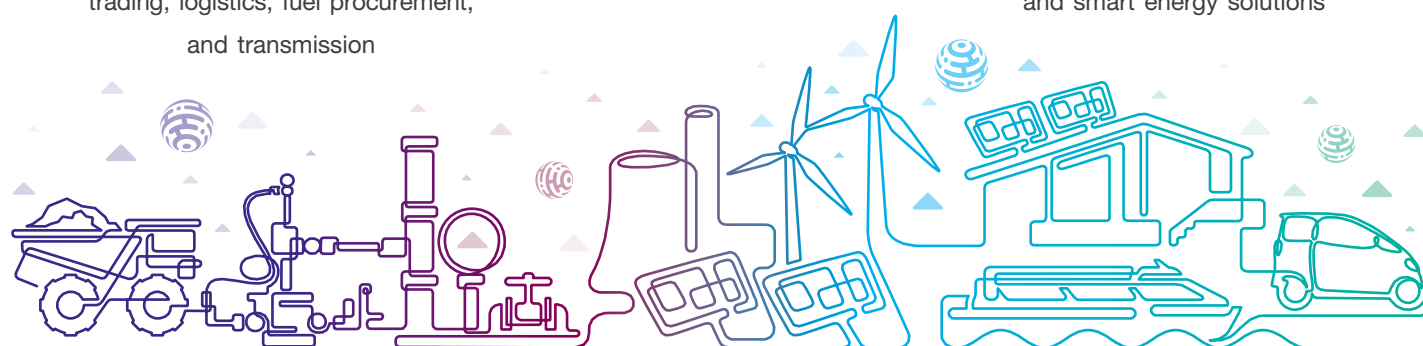
Coal and gas including related operations such as marketing, trading, logistics, fuel procurement, and transmission

### Energy Generation

Thermal and renewable power plants

### Energy Technology

Energy Storage System or ESS, energy trading, e-mobility, and smart energy solutions



Banpu strives to create energy sustainability for the world through the delivery of affordable, reliable, and eco-friendly energy. We also embrace **the ESG principles** in our business conduct adherence to the environmental, social, and governance. Moreover, we prioritize the practice of “**Banpu Heart**” **corporate culture**, which comprises 3 core values: Passionate, Innovative, and Committed. Adherence to the corporate culture has significantly empowered Banpu to cope with any changes and crises and build stakeholder confidence in line with our brand promise,

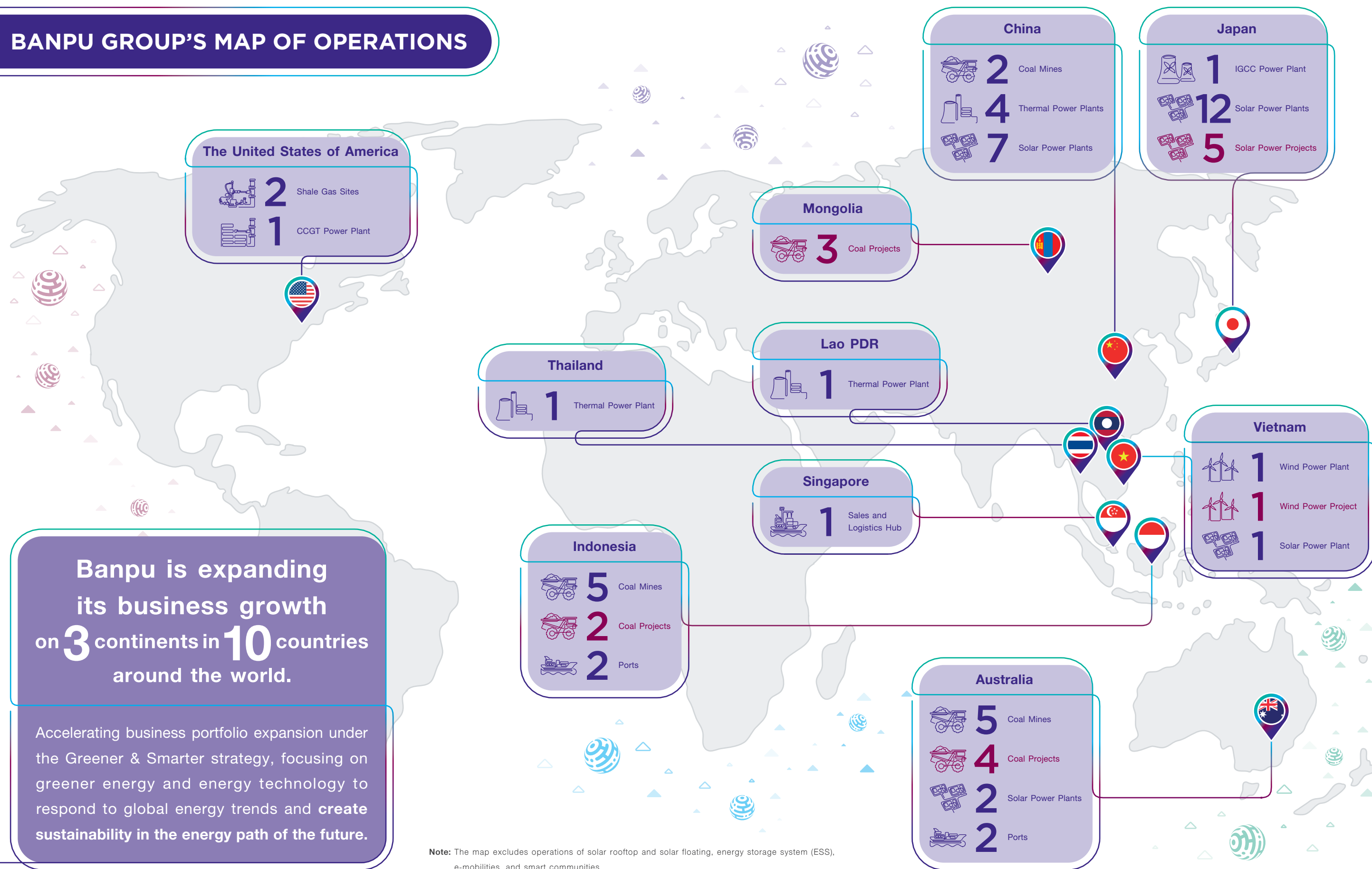
“**OUR WAY IN ENERGY**”







## BANPU GROUP'S MAP OF OPERATIONS





## 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

## SUMMARY OF MAJOR CHANGES AND DEVELOPMENT IN 2021 AND CURRENT EVENTS

22  
February  
2021

The Board of Directors Meeting approved the Company's dividend payment for the 2020 operating profits during 1 January – 31 December 2020, at a dividend rate of THB 0.30 per share. Previously, an interim dividend had been paid out to shareholders for the operating profits during 1 January – 30 June 2020, at a rate of THB 0.15 per share on 25 September 2020. The remaining dividend for the operating profits from 1 July – 31 December 2020 was proposed to be paid out to the shareholders at a rate of THB 0.15 per share. The dividend payment was appropriated from the corporate income tax-exempted profit, on which shareholders are not entitled to tax credits. The second dividend was paid on 30 April 2021.

**Banpu Power Investment Co., Ltd. (BPIC)**, a subsidiary of Banpu Power, acquired 33.50% of ordinary shares in Nakoso IGCC Management Co., Ltd. (NIMCO), which owns 40% interest in the 543 MW Nakoso Integrated Gasification Combined Cycle (IGCC) Power Plant (Nakoso) in Fukushima Prefecture, Japan. The transaction value was USD 80 million or approximately THB 2,500 million. The Nakoso IGCC Power Plant, which integrates technologies of Integrated Gasification Combined Cycle (IGCC) and Gas Fired Combined Cycle Plant, achieved commercial operation date (COD) on 16 April 2021. Being a large-scale power plant equipped with High Efficiency, Low Emissions (HELE) technologies, Nakoso IGCC supplies electricity through a national power grid under a long-term Power Purchase Agreement (PPA).

31  
March  
2021







**Banpu Energy Australia Pty Ltd. (BEN)**, a wholly-owned subsidiary of Banpu Public Company Limited and Banpu Renewable Australia Pty, Ltd. (BREA), a wholly-owned subsidiary of Banpu NEXT Co., Ltd, jointly established Banpu Energy Hold Trust, in which BEN holds 80% stake and BREA holds 20% stake. Banpu Energy Hold Trust acquired 100% of shares in two solar farms in New South Wales, namely Beryl Solar Farm (BSF) and Manildra Solar Farm (MSF), with the total transaction value was AUD 97.5 million, equivalent to THB 2,332 million. The 110.9 MW Beryl Solar Farm achieved COD in June 2019, and 55.9 MW Manildra Solar Farm achieved COD in December 2018. Both solar farms supply electricity through the National Electricity Market (NEM) under long-term Power Purchase Agreement. The solar farms are located in New South Wales, Australia, where power demand and consumption have been on the rise, and they also enjoy the state's support for renewable power generation.



6  
June  
2021

4  
August  
2021

Banpu issued four tranches of unsubordinated and unsecured debentures with a debenture holders' representative in the name-registered certificate, with a total value of THB 16,000 million. The 5-year, the 7-year, and the 10-year debentures were offered to general investors at the interest rates of 2.90%, 3.30%, and 3.80% per annum, respectively. The 3-Year Debenture with an interest rate of 1.58% per annum was offered to institutional and high net worth investors. The entire outstanding principal balance will be paid off on the maturity date.

9  
August  
2021

The Extraordinary General Meeting of Shareholders no.1/2021 approved the increase of authorized capital, offering of capital increase shares, and issuance of warrants representing the right to purchase ordinary shares, as detailed below:

1. The Meeting approved the increase of the Company's authorized capital of THB 5,074,581,513 by issuing 5,074,581,513 new ordinary shares with THB 1 par value per share and the amendment to Clause 4 of the Company's Memorandum of Association to reflect the increase in authorized capital.
2. The Meeting approved the issuance and allocation of warrants representing the right to purchase ordinary shares of the Company in the aggregate amount of not exceeding 3,383,054,342 units, which shall be offered to existing shareholders in proportion to their respective shareholdings.
3. The Meeting approved the allocation of 5,074,581,513 capital increase shares, as follows:
  - 3.1 To offer 1,691,527,171 capital increase shares to existing shareholders (Right Offering) at the ratio of 3 existing shares: 1 new share at THB 5 per share.
  - 3.2 To allocate capital increase shares of not exceeding 1,691,527,171 shares at a par value of THB 1 per share to accommodate the exercise of Warrants BANPU-W4 to existing shareholders who subscribe for and are allocated with the new shares without additional charge. The allocation was at a ratio of 1 warrant per share in the aggregate amount of not exceeding 1,691,527,171 units, with the exercise price of THB 5 per share.
  - 3.3 To allocate capital increase shares of not exceeding 1,691,527,171 shares at a par value of THB 1 per share to accommodate the exercise of Warrants BANPU-W5 to existing shareholders who subscribe for and are allocated with the new shares without additional charge. The allocation was at a ratio of 1 warrant per share in the aggregate amount of not exceeding 1,691,527,171 units, with the exercise price of THB 7.50 per share.

The Company received the proceeds of THB 8,457.64 paid by existing shareholders for 1,691,527,171 ordinary shares for the capital increase. The Company registered the capital increase with the Ministry of Commerce on 28 September 2021, resulting in an increase of the Company's authorized capital and paid-up capital by THB 1,691,527,171 to THB 6,766,108,686 at a par value of THB 1 per share.





**BKV Corporation (BKV)**, a subsidiary of Banpu, and Banpu Power US Corporation (BPPUS), a subsidiary of Banpu Power, jointly established BKV-BPP Power LLC (BKV-BPP) with equally 50% of ownership. BKV-BPP entered into a purchase and sale agreement to acquire 100% of shares in Temple Generation Intermediate Holdings II, LLC, which owns a 100% stake in the gas-fired Temple I Power Plant (Temple I CCGT) in Texas in the U.S. The transaction value was USD 430 million. Having been operational since 15 July 2014 with 768 MW capacity, the Temple I CCGT power plant deploys the environmentally-friendly technology, combining the working process of gas turbine and steam turbine (Combined Cycle Gas Turbines: CCGT technology), and uses natural gas as fuel. The power plant has a pollution control system to minimize pollutants and flexibility in the power generation operation. The electricity output will be sold to the free-market platform of the Electric Reliability Council of Texas or ERCOT.



11  
August  
2021

25  
August  
2021

The Board of Directors Meeting approved the interim dividend payment from accumulated profits and operating results during 1 January – 30 June 2021, at a rate of THB 0.20 per share. The dividend payment was appropriated from the corporate income tax-exempted profit, on which shareholders are not entitled to tax credits. The interim dividend was paid out on 23 September 2021.

25  
August  
2021

**Banpu NEXT Co., Ltd.**, an associated company in which Banpu and Banpu Power equally hold 50% shareholding, acquired 30% stake in Beyond Green Company Limited (BYG) through the purchase of newly issued ordinary shares for the total amount of THB 300 million. BYG is an authorized distributor of Club Car's commercial utility vehicles, providing a wide range of services, including EV sales, concession, and rental fleet in Thailand, Laos, and Cambodia. The solutions are adjustable to suit the purposes of different businesses.

**BPIN Investment Co., Ltd. (BPINI)**, a subsidiary of Banpu NEXT Co., Ltd., entered into a Purchase and Sale Agreement for the divestment of 47.5% shareholding in Sunseap Group Pte. Ltd. (Sunseap), a company registered in Singapore. Under the PSA, BPINI's shares will be sold to EDP Renováveis SA (EDPR), a company registered in Spain and listed on the Euronext Lisbon Stock Exchange of Portugal. The sale of BPINI's shares is part of a takeover transaction in which EDPR is acquiring majority control of Sunseap. The PSA stipulates a gross consideration payable to BPINI of up to approximately SGD 489.8 million or approximately THB 12,154 million. The transaction was completed on 22 February 2022.

2  
November  
2021

4  
November  
2021

**Banpu NEXT Co., Ltd.**, entered into a purchase and sale agreement to acquire 100% shares of Engie Services (Thailand) Co., Ltd. (ESTH) with a total transaction value of SGD 3.8 million, or approximately THB 95 million. ESTH is an Energy Management Solutions provider registered with the Thai Energy Service Companies (ESCO) Association. Its services include procurement, installation, maintenance, and efficiency enhancement of systems and equipment for energy utilization, such as air compressors and chillers in commercial buildings and industrial plants in Thailand. On 1 December 2021, Engie Services (Thailand) Co., Ltd. was renamed Banpu NEXT Ecoserve Co., Ltd.



**Banpu Renewable Singapore Pte. Ltd. (BRS)**, a subsidiary of Banpu NEXT Co., Ltd., reported that the 20 MW Kesennuma Solar Power Plant in Miyagi Prefecture, Japan, has achieved commercial operation. The solar farm, which is under the 100% TK structure, entered into a Purchase and Sale Agreement with Tohoku Electric Power Co., Inc. with a Feed-in-Tariff (FIT) of 32 JPY/kWh for up to 19 years. The power plant can generate and supply electricity to approximately 6,000 households.



26  
November  
2021

27  
December  
2021

**TRIS Rating Co., Ltd.**, affirmed the company rating and the rating of unsecured debentures of Banpu Public Company Limited at “A+” with a “stable” rating outlook. The ratings reflected the Company’s leadership position in the coal industry in the Asia-Pacific region, stable income from the power generation business, and the strategic shift toward becoming an integrated clean energy provider. Meanwhile, the ratings also reflected the volatility of coal prices and the long-term slowdown in coal demand that are partly due to concerted efforts to reduce air pollution in countries around the world. The Company’s investment portfolio has transitioned away from coal mining ventures and toward more environmentally friendly energy like natural gas and renewables. The Company aims to increase its earnings before interest, taxes, depreciation, and amortization (EBITDA) through more greener businesses (natural gas exploration and production, natural gas-fired power plants, high efficiency-low emissions power plants, renewable-based power plants, and energy technology). The target is to generate more than 50% of the Company’s total EBITDA from its greener energy businesses by 2025, up from less than 20% in 2020.

1  
December  
2021

**BRE Singapore Pte. Ltd. (BRES)**, entered into a purchase and sale agreement to acquire 100% of Ha Tinh Solar Power Joint Stock Company, which owns the 50 MW Ha Tinh Solar farm in Ha Tinh Province, Vietnam. The transaction value was USD 23.9 million or approximately THB 788 million. The Ha Tinh Solar Farm achieved COD on 13 June 2019 and is entitled to the Feed-in-Tariff (FIT) of US cents 9.35/kWh. The solar farm supplies electricity through the national power grid under a Power Purchase Agreement with Vietnam Electricity (EVN) for a period of 20 years.



**Banpu Renewable Singapore Pte. Ltd. (BRS)**, reported that Shirakawa Solar Farm, which is located in Fukushima Prefecture, Japan, achieved COD on 16 January 2022. This 10 MW solar farm project, which is under the 100% TK structure, entered into a Power Purchase Agreement with Tohoku Electric Power Co., Inc. and is eligible for a Feed-in-Tariff (FIT) of 36 JPY/kWh for 19 years. The Shirakawa Project can generate and supply electricity to approximately 2,000 households.



17  
January  
2022



**BRES** entered into a purchase and sale agreement to acquire 100% stake in Licogi 16 Gia Lai Investment Renewable Energy Joint Stock Company (LCE Gia Lai), which owns Chu Ngoc Solar Farm, and Licogi 16 Ninh Thuan Investment Renewable Energy Joint Stock Company (LCE Ninh Thuan), which owns Nhon Hai Solar Farm in Ninh Thuan. The transaction value was USD 26.69 million or approximately THB 883 million. The 15 MW Chu Ngoc Solar Farm and the 35 MW Nhon Hai Solar Farm achieved COD on 4 June 2019 and 6 July 2020, respectively. Both solar farms are eligible for a Feed-in-Tariff (FiT) of US cents 9.35/kWh and will supply electricity through Vietnam's national power grid under a Power Purchase Agreement with Vietnam Electricity (EVN) for a period of 20 years.



25  
January  
2022

23  
February  
2022

The Board of Directors Meeting approved the Company's dividend payment at a rate of THB 0.45 per share for the operating results from 1 January to 31 December 2021. Previously, an interim dividend had been paid out to shareholders at a dividend rate of 0.20 per share on 23 September 2021. The remaining dividend for the operating results was proposed to be paid to shareholders at THB 0.25 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 is scheduled to be paid on 29 April 2022.

## BANPU INFORMATION

### Name and Location of Banpu Public Company Limited

<b>Name (Thai)</b>	บริษัท บ้านปู จำกัด (มหาชน)
<b>Name (English)</b>	Banpu Public Company Limited
<b>Major Business</b>	Energy
<b>Registration Number</b>	BorMorJor. 152
<b>Authorized Capital</b>	THB 10,149,163,028*
<b>Paid-up Capital</b>	THB 6,766,108,686**
<b>No. of Shares</b>	6,766,108,686 shares
<b>Par Value</b>	THB 1
<b>Headquarters</b>	27 <sup>th</sup> Floor, Thanapoom Tower, 1550, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand
<b>Telephone</b>	+66 2 694 6600
<b>Fax</b>	+66 2 207 0696-7
<b>Website</b>	www.banpu.com
<b>Company Secretary</b>	Telephone : +66 2 694 6859 e-mail : bodsec@banpu.co.th
<b>Investor Relations</b>	Telephone : +66 2 694 6747 e-mail : investor_relations@banpu.co.th
<b>Corporate Communications</b>	Telephone : +66 2 694 6923 e-mail: cc@banpu.co.th

#### Notes:

\* The Extraordinary General Meeting of Shareholders No. 1/2021 held on 9 August 2021 approved the increase of the Company's registered capital from THB 5,074,581,513 to THB 10,149,163,028 by the issuance of 5,074,581,513 new ordinary shares at the par value of THB 1 per share. The Company registered the capital increase with the Ministry of Commerce on 20 August 2021.

\*\* The 1,691,527,171 newly issued ordinary shares were allocated to the existing shareholders of the Company (Right Offering) at the ratio of 3 existing ordinary shares to 1 newly issued ordinary share at the offering price of THB 5 per share. The Company registered and paid up the newly issued shares on 28 September 2021, resulting in the total increase of authorized and paid-up capital from THB 1,691,527,171 to THB 6,766,108,686.





## REVENUE STRUCTURE

For the previous 3 years ended 31 December 2021

### Banpu Public Company Limited

Products/Services	Conduct by	% of Shareholding	2021		2020		2019	
			Revenue (USD Million)	%	Revenue (USD Million)	%	Revenue (USD Million)	%
Sales Revenues:								
1. Imported Coal	Banpu	-	39.85	99.48	45.82	95.30	52.76	95.27
2. Other Revenues	Banpu	-	0.21	0.52	2.26	4.70	2.62	4.73
Total Sales Revenues			40.06	100.00	48.08	100.00	55.38	100.00

### Banpu Public Company Limited and its Subsidiaries

Products/Services	Conduct by	% of Shareholding	2021		2020		2019	
			Revenue (USD Million)	%	Revenue (USD Million)	%	Revenue (USD Million)	%
Sales Revenues - Domestic:								
1. Domestic Coal in Thailand	Banpu	-	39.85	0.97	45.82	2.01	52.76	1.91
	BMC	100.00	31.73	0.77	25.64	1.12	39.89	1.45
	BPI	100.00	3.16	0.08	-	-	-	-
2. Domestic Coal in Indonesia	Indominco	67.13	93.11	2.26	53.79	2.36	65.27	2.37
	Bharinto	67.13	171.29	4.15	40.29	1.77	17.13	0.62
	Trubaindo	67.13	198.05	4.80	89.51	3.92	99.73	3.61
	Jorong	67.13	22.96	0.56	19.10	0.84	26.22	0.95
3. Domestic Coal in Australia	CEY	100.00	365.59	8.87	495.13	21.69	332.37	12.05
4. Coal Trading in China	BST	100.00	-	-	17.14	0.75	13.23	0.48
	BBET	100.00	55.33	1.34	4.60	0.20	-	-
5. Power in China	BIC	78.57	190.88	4.63	169.72	7.44	154.14	5.59
	BPPRIC	100.00	28.76	0.70	26.67	1.17	-	-
Power in Japan	BPPTGK	100.00	64.24	1.56	-	-	-	-
Power in the U.S.	BKV-BPP	100.00	20.19	0.49	-	-	-	-
6. Gas	BNAC	100.00	890.73	21.60	120.45	5.28	104.48	3.79
7. Other Revenues			19.18	0.47	87.32	3.83	122.39	4.44
Total Sales Revenues - Domestic			2,195.05	53.23	1,195.18	52.36	1,027.61	37.24

Products/Services	Conduct by	% of Shareholding	2021		2020		2019	
			Revenue (USD Million)	%	Revenue (USD Million)	%	Revenue (USD Million)	%
Sales Revenues - Overseas:								
1. Coal - International Trade	Indominco	67.13	578.73	14.03	418.04	18.31	646.23	23.42
	Kitadin	67.13	9.59	0.23	9.45	0.41	15.04	0.55
	Bharinto	67.13	590.64	14.32	195.38	8.56	263.45	9.55
	Trubaindo	67.13	345.70	8.38	248.62	10.89	374.59	13.58
	Jorong	67.13	3.81	0.09	11.81	0.52	21.87	0.79
	Energi	67.13	21.65	0.53	-	-	-	-
	CEY	100.00	362.07	8.78	202.60	8.88	362.08	13.12
	BMS	100.00	16.35	0.40	1.55	0.07	48.35	1.75
Total Sales Revenues - Overseas			1,928.54	46.77	1,087.45	47.64	1,731.61	62.76
Total Sales revenues			4,123.59	100.00	2,282.63	100.00	2,759.22	100.00
Participating Profit (Loss) from Investment in Associated Companies (Equity Method)			227.14	-	135.33	-	205.85	-
Total Revenues			4,350.73	-	2,417.96	-	2,965.07	-

#### Notes:

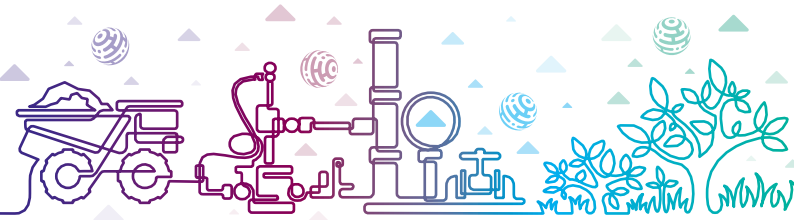
1. Other revenues consist of other services.
2. The Company did not realize sales revenue from its power business in Thailand as its shareholding is not more than 50%
3. BBET means Banpu (Beijing) Energy Trading Co., Ltd.
4. Basis of preparation of the information presented above is based on the generally accepted accounting principles which eliminate intercompany transactions.  
The amounts shown should not be reconciled with the statutory accounts of each territory.





## PRODUCTS AND SERVICES

### Energy Resources Group



### 1. Mining Business

Coal is a solid fuel, varying in color from brown to jet-black. The coal mining process starts from exploration of a potentially economic coal seam, production (excavation and transportation), coal selection, coal pulverization to attain the size and quality as required by the customers and stockpiling to be delivered to the customers.

#### Coal Mines in the Republic of Indonesia

The total coal production in 2021 was 18.2 million tonnes from the following mines.

##### 1) Indominco Mine

It is operated by PT. Indominco Mandiri, a wholly-owned subsidiary of PT. Indo Tambora Energy Resources Tbk (ITM). Located in Bontang, East Kalimantan province, this open-pit mine has 30.3 million tonnes of coal reserves. The production capacity in 2021 was 7.3 million tonnes. The Bontang Coal Terminal is utilized for loading of its coal to be exported from Indonesia.

##### 2) Trubaindo Mine

It is operated by PT. Trubaindo Coal Mining, a wholly-owned subsidiary of ITM. Located in West Kutai, East Kalimantan province, this open-pit mine has 35.5 million tonnes of coal reserves. Its production capacity in 2021 was 3.7 million tonnes.

##### 3) Bharinto Mine

It is operated by PT. Bharinto Ekatama, a wholly-owned subsidiary of ITM. The mine is located in North Barito, Central Kalimantan province and West Kutai, East Kalimantan province, adjacent to the Trubaindo mine. This open-pit mine has coal reserves of 141.2 million tonnes, and its production capacity in 2021 was 4.8 million tonnes.



##### 4) Jorong Mine

It is operated by PT. Jorong Barutama Greston, a wholly-owned subsidiary of ITM. Located in Tanah Laut, South Kalimantan province, this open-pit mine has 8.2 million tonnes of coal reserves. Its production capacity in 2021 was 0.9 million tonnes.



##### 5) Kitadin Mine

It is operated by PT. Kitadin, a wholly-owned subsidiary of ITM. Located in Bontang and Kutai Kartanegara, East Kalimantan province, this open-pit mine has 0.4 million tonnes of coal reserves. Its production capacity in 2021 was 1.4 million tonnes.

##### 6) TIS Mine Project

It is operated by PT. Tepian Indah Sukses, a wholly-owned subsidiary of ITM. Located in East Kalimantan province, this open-pit mine has 5 million tonnes of coal reserves.

##### 7) NPR Mine Project

It is operated by PT. Nusa Persada Resources, a wholly-owned subsidiary of ITM. Located in Central Kalimantan province, this open-pit mine has 77.4 million tonnes of coal reserves.

#### Coal Mines in Australia

Centennial Coal Co. Pty Ltd. (Centennial), a subsidiary of Banpu, is one of the underground coal producers in New South Wales. Centennial supplies coal fuels for coal-fired power plants in New South Wales. Its main assets consist of the possessions to operate coal mining business in Northern and Western parts of New South Wales. The total production capacity in 2021 was 9.5 million tonnes with the share of production from the following mines:

##### 1) Airly Mine

It is operated by Centennial, which owns 100% of its shares. The mine is located near Lithgow in the Western Coalfields of New South Wales. It is an underground mine using a continuous mining method. Airly has 23.7 million tonnes of coal reserves, and its production capacity in 2021 was 1.3 million tonnes.





## 2) Angus Place Mine

It is operated by Centennial, which owns 100% of its shares. Located in the Western Coalfields of New South Wales, the mine has 53.0 million tonnes of coal reserves. Since the end of February 2015, the production has been suspended under care and maintenance. Its staff and machinery were relocated to the Springvale mine to expand production and will return when Angus Place resumes its operation.

## 3) Springvale Mine

It is operated by Centennial, which owns 100% of its shares. Located in the Western Coalfields of New South Wales, the mine has 17.0 million tonnes of coal reserves. Its production capacity in 2021 was 2.1 million tonnes. The Springvale mine deploys the longwall mining technology.

Angus Place mine and Springvale mine produce and supply thermal coal for domestic and international markets. They also have conveyor belts to transport coal to the power plants that are their domestic customers. The Lidsdale Sliding Coal Loader has been expanded to support transportation of increasing volumes of coal exports.

## 4) Clarence Mine

The mine company which is a joint venture Centennial owned 85% and S.K. Energy Australia Pty Ltd. owned 15% of its shares, is operated by Centennial. Located near Lithgow, in the Western Coalfields of New South Wales, it is an underground mine using a highly efficient continuous mining method. Clarence has 30.5 million tonnes of coals reserves. Its production capacity in 2021 was 1.7 million tonnes. The mine exports its coals through Port Kembla.

## 5) Mandalong Mine

It is operated by Centennial, which owns 100% of its shares. Located near Morisset, New South Wales. Mandalong is an underground longwall mine with high production capacity as it can excavate the coal seams with a thickness of over 5 meters. It has 52.8 million tonnes of coal reserves. In 2021, its capacity was 3.8 million tonnes. Its product is distributed in domestic markets and exported through the Port of Newcastle.

## 6) Myuna Mine

It is operated by Centennial, which owns 100% of its shares. Located near Lake Macquarie, in the Newcastle Coalfields, New South Wales, Myuna is an underground mine using a continuous mining method. The mine has 33.5 million tonnes of coal reserves, and its 2021 production capacity was 0.9 million tonnes. Coal from Myuna is transported to major customers nearby using a conveyor system.



## 7) Northern Coal Services (NCS)

It is a coal washing plant located in the Newcastle Coalfield, New South Wales. Since it is located in the Port of Newcastle, NCS processes thermal coal and semi-soft coking coal excavated from various mines and prepares them for delivery to domestic

and international markets. The connection with double-track railways enables effective and fast coal uploading to the Port of Newcastle. Northern Coal Services' capacity is approximately 4 million tonnes per year, and it has specific routes for exporting and transporting coal to domestic customers.

## Future Projects

### 1) Newstan Extension Mine Project

It explores and studies the feasibility of utilization of existing mining infrastructure to expand the coal reserves and production capacity.

### 2) Mandalong Southern Extension Mine Project

It is an extension of the Mandalong mine. The project is now effectively designed to connect with Mandalong mine.

### 3) Neubeck Mine Project

It is located in the Western Coalfields of New South Wales near its domestic power plants, which are its customers. Neubeck produces quality coal to supply domestic markets and export to international markets through Port Kembla.





## Coal Mines in the People's Republic of China

The total coal production in 2021 was 10.0 million tonnes from the following mines.

### 1) Gaohe Mine

It is operated by BP Overseas Development Co., Ltd., a Banpu's subsidiary which owns 100% shares of Asia American Coal Inc. (AACI). AACI was established to develop and conduct business as well as invest in a joint venture in the coal business in China with Shanxi Lu'an Mining Industry (Group) Co. Ltd., a major coal producer in China. Each holds 45% and 55% shares, respectively, of Shanxi Gaohe Energy Co., Ltd. Gaohe mine is an underground longwall mine in Shanxi province with 108.8 million tonnes of coal reserves. In 2021, its production capacity was 9.3 million tonnes.



### 2) Hebi Mine

It is operated by Banpu Minerals Co., Ltd., a Banpu's subsidiary, which entered a joint venture with Hebi Coal and Electricity Co., Ltd. Each holds 40% and 60% of shares, respectively, in Hebi Zhong Tai Mining Co., Ltd. (HZTM). HZTM was established to produce and distribute coal from the Hebi mine in Henan province. It is an underground longwall mine with 13.8 million tonnes of coal reserves. In 2021, its production capacity was 0.7 million tonnes.



## Coal Mines in Mongolia

Bordered by Russia and China, Mongolia is endowed with large coal reserves with the potential to develop into a major coal exporter in the future. Banpu's coal reserves cover the South Gobi, the Middle Gobi, and the Western region. Currently, there are three major projects that are under development as follows:

### 1) Tsant Uul Mine Project

It is located in South Gobi province in the southern region of Mongolia bordering Inner Mongolia, an autonomous region of northern China. The project is currently under development and in the feasibility study phase to increase the value of existing coal to respond to domestic market demand. A pilot plant was operated to experiment on the Coal to Coal Tar production. The preliminary experiment could produce a total amount of 5,000 liters of tar, ensuring that tar can be separated from coal at Tsant Uul. In addition, the Company is studying the feasibility to increase the value of tar, charcoal, and gas from the production process and is preparing for further commercial operation.

In 2019, the Company studied the engineering and technological feasibility to convert coal tar into chemical products as well as the demand for the products in Mongolia and China. In 2020, the Company continued the feasibility study and included an in-depth study of optimum chemical and physical properties of tar and charcoal which can be developed into valuable chemical products to meet the market demands.

### 2) Altai Nuurs Mine Project

It is located in Gobi Altai in the west of Mongolia. The project has coal reserves of both thermal coal and coking coal. The Company was granted approval to converse exploration license in to mining license.

In 2017, the Company applied for approval of its feasibility study for mining projects and was granted approval by relevant government authorities. In 2019, the Company explored the opportunity of other minerals in the concession area. In 2020, the Company reviewed its existing licenses and patent permits under Mongolia laws.

### 3) Unst Khudag Mine Project

It is located in Central Gobi province in central Mongolia and has thermal coal reserves. The Company was granted approval to converse exploration license in to mining license for a period of up to 30 years. The patent permit can be renewed after it expires.

In 2017, the Company was granted approval from relevant government authorities to conduct a feasibility study for mining projects, including the study of the amount of freshwater reserve for the project. In 2019, the Company conducted a preliminary study on production engineering and appropriate technology and the production cost in converting coal into chemical products and power generation, including the market research for chemical products in Mongolia's and China's markets. In 2020, it carried on the study on production engineering and appropriate technology. Additionally, the Company is studying technologies that can add value to products by using coal as fuel in production processes and aiming to export products to China market.





## 2. Gas Business

Banpu is committed to seeking new eco-friendly energy sources in alignment with its Greener & Smarter strategy. The Company has been expanding its investment into a natural gas business through its subsidiary, BKV Corporation (BKV). Currently, BKV owns two natural gas operating assets in the U.S. – the Marcellus Shale in Pennsylvania, which has the greatest proved reserves in the U.S., and the Barnett Shale in Texas. The Company's total investment value in the natural gas business is USD 1.1 billion. Due to its operational efficiency and world-class professionalism, BKV has now achieved a leading position in the U.S. natural gas industry, ranked among top-20 the U.S. gas companies, with a production capacity of 700 million cubic feet equivalent per day (MMcfd).

### Marcellus Shale in Pennsylvania



In 2016, Banpu began its investment in the U.S. natural gas, focusing on low-risk and high-return investment. The first investment was in shale gas reserves in the northeast of the Marcellus Shale, Pennsylvania, which is the largest shale gas reserve with low production cost in the U.S. The Company's Natural gas reserves in Marcellus Shale are as follows;

- |                                     |                  |
|-------------------------------------|------------------|
| 1 Chaffee Corners                   | 3 NEPA Corners-3 |
| 2 NEPA Corners-1 and NEPA Corners-2 | 4 NEPA Corners-4 |
|                                     | 5 NEPA Corners-5 |

### 2) Barnett Shale in Texas

On 17 December 2019, Banpu North America Corporation (BNAC), a Banpu's subsidiary, entered into the Purchase and Sale Agreement (PSA) to acquire a stake in the Barnett Shale, Texas and become the operator in Barnett Shale, with a transaction value worth USD 770 million. Then, on 15 April 2020, BNAC amended the terms of the Purchase and Sale Agreement (PSA) to acquire a stake in the Barnett shale. The acquisition price was changed to USD 570 million and contingent payments of up to USD 260 million in an aggregate over four years from 1 January 2021 to 31 December 2024. The contingent payment is based upon future commodity prices, beginning at a USD 2.75 per MMBtu Henry Hub gas price or a USD 50 per barrel West Texas Intermediate oil price on an annual average basis. The closing of the Barnett transaction was on 1 October 2020.



The Barnett Shale, Fort Worth Basin, is equipped with an infrastructure and transportation system. It is the main production base that has satisfied substantial demand for gas of coastal states along the Gulf of Mexico, the U.S., for more than 20 years. The production area at the Barnett Shale covers approximately 320,000 acres, and BNAC will benefit from 89% of more than 4,000 wells with extensive infrastructure.

The investment in the Barnett Shale has increased Banpu's total gas production capacity in the U.S. from approximately 200 MMcfd to nearly 700 MMcfd and the proven reserves (1P) now have approximately 4.0 trillion cubic feet (Tcf).

On 1 May 2020, the Company restructured Banpu shareholding in BKV. BNAC, a subsidiary of Banpu, has changed its status from a limited liability partnership

in BKV Oil & Gas Capital Partners, L.P. to a common shareholder in BKV, which was registered in the U.S. with its authorized share capital of USD 1,500 million.

After the restructuring, Banpu holds 96.30% of BKV's shares through BNAC and has control over indirect subsidiaries, namely BKV Chaffee Corners, LLC., BKV Chelsea, LLC., BKV Operating, LLC. and BKV Barnett, LLC. in the same shareholding percentage. After the restructuring, Banpu indirectly acquired Kalnin Ventures, LLC. As part of Banpu Group in the same shareholding percentage. Kalnin was established to support investment management services through BKV.

In 2021, the Company's average production capacity was approximately 700 MMcfd. As of 31 December 2021, the Company had the gas proven reserves (1P) of 4,186,761 Million Cubic Feet.



## Energy Generation Group



### 1. Thermal Power Plants

#### Combined Heat and Power Plants (CHP)

Banpu Power Public Company Limited (BPP), a 78.66% owned subsidiary of Banpu, holds 100% of the paid-up capital in Banpu Power Investment Co., Ltd. (BPIC), which was registered in Singapore through Banpu Power International Ltd. (BPPI). BPIC invested in three combined heat and power plants in northern China with a total installed capacity of 613 MWe, comprising an installed power capacity of 323 MW and a steam production capacity of 1,318 tonnes per hour, as detailed below:

##### 1) Luannan Combined Heat and Power Plant

It is located in Luannan district, Tangshan city, Hebei province. The coal-fired power plant generates electricity and steam with a total installed capacity of 227 MWe, comprising an installed power capacity of 125 MW and a steam production capacity of 278 tonnes per hour or combinedly.

##### 2) Zhengding Combined Heat and Power Plant

It is located in Zhengding district, Shijiazhuang city, Hebei province. The coal-fired power plant generates electricity, steam, and hot and cold water with a total installed capacity of 139 MWe, comprising an installed power capacity of 73 MW and a steam production capacity of 370 tonnes per hour.

##### 3) Zouping Combined Heat and Power Plant

It is located in Zouping district, Binzhou city, Shandong province. The coal-fired power plant generates electricity and steam with a total installed capacity of 247 MWe, comprising an installed power capacity of 125 MW and a steam production capacity of 670 tonnes per hour. However, as BPIC holds 70% shares of this power plant, its equity-based capacity is 173 MWe.



#### BLCP Power Plant



BPP holds 50% shares of BLCP Power Ltd. (BLCP), an independent power producer (IPP) with a 1,434 MW thermal power capacity. BLCP consists of two production units with an installed capacity of 717 MW each. Both units are fueled by high-quality bituminous coal imported mainly from Australia. Located in Map Ta Phut Industrial Estate, Rayong province, BLCP has secured a Power Purchase Agreement (PPA) with the Electricity Generating Authority of Thailand for 25 years starting from the Commercial Operation Date (COD) of the second production unit. The construction of the BLCP began in August 2003. Its first unit and second unit achieved COD in October 2006 and February 2007, respectively. Both units have been fully operational for 15 years.

#### HPC Power Plant

BPP entered into a joint venture with a subsidiary of Ratch Group Pcl. (RATCH) (formerly named as Ratchaburi Electricity Generating Holding Pcl.) and Lao Holding State Enterprise (LHSE), a business entity of the Government of Lao PDR, to establish Hongsa Power Co., Ltd. (HPC) and Phu Fai Mining Co., Ltd. (PFMC). Headquartered in Vientiane, Lao PDR, both companies have an objective to operate the HPC power plant in Lao PDR under the terms and conditions of the joint venture as follows:



- HPC was granted a concession from the Lao PDR government to develop, construct and operate the HPC power plant. The concession is valid from November 2009 until its expiration or 25 years from the COD of the third production unit in March 2016. The shareholding percentage of each company is BPP 40%, RATCH 40% and LHSE 20%.
- PFMC was granted a concession to operate a lignite coal mine. The shareholding percentage of each company is BPP 37.5%, RATCH 37.5%, and LHSE 25%.

HPC power plant is a mine-mouth power plant fuelled by lignite coal. Its total installed production capacity is 1,878 MW from 3 power production units, whose capacity is 626 MW each. The first, second, and third production units achieved their COD on 2 June 2015, 2 November 2015, and 2 March 2016, respectively.



## Shanxi Lu Guang Power Plant



BPIC, a wholly-owned subsidiary of BPP, entered into a joint venture agreement to develop the Shanxi Lu Guang power plant, a 1,320 MW coal-fired power plant that deploys the Ultra-Supercritical (USC) technology. It is located in Changzhi city, Shanxi province, China, and is 3 kilometers away from Gaohe mine. BPIC holds 30% shares of the power plant, while Gemeng International Energy Co., Ltd. (Gemeng), and Anhui Province Wenergy Co., Ltd., each holds 35% of its shares. The first and second production units achieved their COD in June 2021 and October 2021, respectively.

## Nakoso IGCC Power Plant

BPIC, a wholly-owned subsidiary of BPP, acquired 33.5 percent stakes in Nakoso IGCC Management Co., Ltd. (NIMCO), which holds 40% shares of the 543-MW Nakoso power plant in Fukushima Prefecture, Japan. This power plant deploys the Integrated Gasification Combined Cycle (IGCC) technology developed by Mitsubishi Corporation Power Limited (Japan), one of the power plant's five shareholders. The IGCC technology, resulting from 30 years of research and development,

integrates the coal gasification technology with the Gas-Fired Combined Cycle Plant. Nakoso power plant is a commercial-scale IGCC power plant using High Efficiency, Low Emissions (HELE) technology. It achieved COD on 16 April 2021 and has entered into a long-term Power Purchase Agreement (PPA) to supply electricity to Japan's power grid. Nakoso also has a long-term fuel supply agreement.



## Temple I Gas-fired Power Plant

BKV, a 96.3% owned subsidiary of Banpu and Banpu Power US Corporation (BPPUS) - a wholly-owned subsidiary of BPP, jointly established BKV-BPP Power LLC (BKV-BPP) in which BKV and BPPUS equally hold 50% ownership.

On 10 August 2021, BKV-BPP Power LLC acquired 100% of shares of Temple Generation Intermediate Holdings II, LLC, which owns Temple I Gas-fired power plant in Texas, one of the fast-growing economic and population hubs in the U.S. The 768-MW gas-fired power plant has been operational since 15 July 2014.

The Temple I Gas-fired power plant deploys the Combined Cycle Gas Turbines (CCGT) technology, which is High Efficiency, Low Emissions (HELE) technology. This power plant is flexible in terms of operation according to its merit order to serve the dynamic demand pattern in the market,



making it ideal for competitiveness in the Electric Reliability Council of Texas (ERCOT) market of free electricity trading.

## 2. Renewable Power Plants

### Solar Power Plants in the People's Republic of China

Banpu NEXT Co., Ltd. (Banpu NEXT), a subsidiary in which Banpu and BPP equally hold 50% ownership, holds 100% shares of BPP Renewable Investment (China) Co., Ltd. (BPPRIC). BPPRIC invested in 7 solar farms in China that are eligible for Feed-in Tariff (FiT) of a 20-year term. As of 31 December 2021, BPPRIC's total generation capacity was 177.32 MW, as detailed on next page.







Solar Power Plant	Shareholding (%)	Capacity (MW)		Location (Province)	Commercial Operation Date
		100 %	Equity-Based		
1. Huineng	100.00	21.51		Shandong	July 2016
2. Jinshan	100.00	28.95		Shandong	September 2016
3. Haoyuan	100.00	20.00		Shandong	October 2016
4. Hui'en	100.00	19.70		Shandong	January 2017
5. Deyuan	100.00	51.64		Zhejiang	February 2017
6. Xingyu	100.00	10.30		Shandong	July 2017
7. Jixin	100.00	25.22		Jiangsu	July 2019
Total Capacity		177.32			

## Solar Power Plants and Solar Power Projects in Japan



Banpu NEXT has invested in several solar power plants and projects in Japan through subsidiaries. As of 31 December 2021, the Company's total equity-based capacity was 237.08 MW, as detailed on next page.

Solar Power Plant/ Solar Power Project	Shareholding (%)	Capacity (MW)		Location (Prefecture)	Commercial Operation Date
		100 %	Equity-Based		
1. Olympia - Hitachi Omiya	40.00	2.00	0.80	Ibaraki	July 2013
2. Olympia - Hitachi Omiya 2	40.00	2.00	0.80	Ibaraki	January 2015
3. Olympia - Ozeno Sato Katechina	40.00	2.00	0.80	Gunma	January 2015
4. Olympia - Sakura 1	40.00	2.00	0.80	Tochigi	December 2015
5. Olympia - Sakura 2	40.00	2.00	0.80	Tochigi	October 2015
6. Hino	75.00	3.50	2.63	Shiga	May 2016
7. Awaji	75.00	8.00	6.00	Hyogo	May 2017
8. Mukawa	56.00	17.00	9.52	Hokkaido	August 2018
9. Nari Aizu	100.00	20.46	20.46	Fukushima	December 2018
10. Kurokawa	100.00	18.90	18.90	Miyagi	December 2019
11. Tenzan	100.00	1.96	1.96	Saga	December 2019
12. Muroran I	100.00	1.73	1.73	Hokkaido	August 2018
13. Muroran II	100.00	1.63	1.63	Hokkaido	January 2018
14. Takeo II	100.00	1.00	1.00	Saga	October 2018
15. Yamagata	100.00	20.00	20.00	Yamagata	November 2020
16. Yabuki	75.00	7.00	5.25	Fukushima	December 2020
17. Kessenuma	100.00	20.00	20.00	Miyagi	November 2021
18. Nihonmatsu	100.00	12.00	12.00	Fukushima	November 2021
19. Shirakawa	100.00	10.00	10.00	Fukushima	January 2022
20. Yamagata Iide	51.00	200.00	102.00	Yamagata	Under Construction
Total Capacity		237.08			





Solar Power Plants in Australia

Banpu acquired two operating solar farms in New South Wales, Australia, through Banpu Energy Hold Trust, jointly established by Banpu Energy Australia Pty Ltd. (BEN), a subsidiary of Banpu, and Banpu Renewable Australia Pty Ltd. (BREA), a subsidiary of Banpu NEXT.

BEN's and BREA's shareholding percentage in Banpu Energy Hold Trust is 80% and 20%, respectively. Banpu Energy Hold Trust acquired 100% shares of both Beryl solar farm (BSF) and Manildra solar farm (MSF), which are Banpu's first two utility-scale solar farms in Australia, as detailed below:

1) Beryl Power Plant

It is located in New South Wales with a generation capacity of 110.9 MW. It achieved COD in June 2019.



2) Manildra Power Plant

It is located in New South Wales with a generation capacity of 55.9 MW. It achieved COD in December 2018.



The two solar power plants are supported by growing demand and electricity consumption as well as the government policy to promote electricity generation from renewable energy. They supply electricity through the National Electricity Market (NEM) under the long-term Power Purchase Agreement (PPA). This acquisition paved the way for investment in a renewable business in Australia under the Australian wholesale electricity market with an advanced trading system.

Solar and Wind Power Plants and Projects in the Socialist Republic of Vietnam

Banpu NEXT has expanded its investment and development of solar and wind power plants and projects. Currently, it owns 6 solar and wind power plants and projects, 2 of which are during construction and feasibility study phase, and the other 4 projects have been commercially operational. These operating plants also entered into long-term power purchase agreements with Vietnam Electricity (EVN) under the Feed-in Tariff (FIT) scheme for a 20-year period to supply electricity through the national grid system. As of 31 December 2021, the total capacity was 217.60 MW, as detailed on next page.

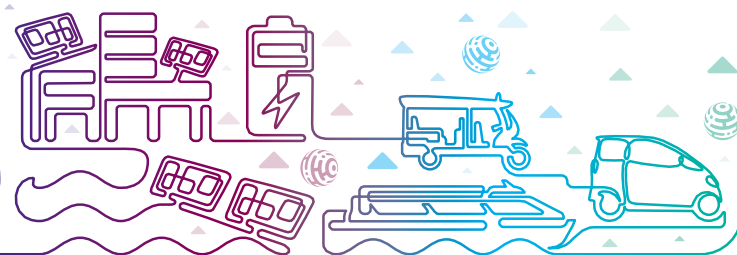


Power Plant/ Project	Shareholding (%)	Operating Capacity (MW)	Location (Province)	Commercial Operation Date
1. El Wind Mui Dinh	100.00	37.60	Ninh Thuan	June 2019
2. Vinh Chau Phase 1	100.00	30.00	Soc Trang	Under Construction
3. Vinh Chau Phase 2 and 3	100.00	50.00	Soc Trang	Under Feasibility Study
4. Ha Tinh	100.00	50.00	Ninh Thuan	June 2019
5. Chu Ngoc*	100.00	15.00	Gia Lai	June 2019
6. Nhon Hai*	100.00	35.00	Ninh Thuan	July 2020
Total capacity		217.60		

\* Remark: The Sale and Purchase Agreement (SPA) was signed in January 2022.



## Energy Technology Group

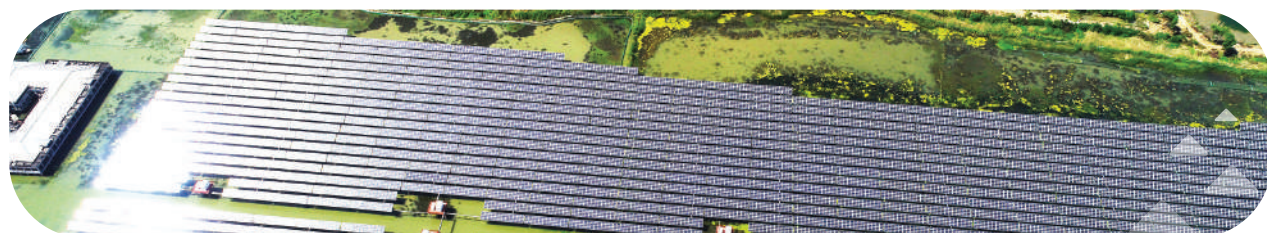


Banpu is moving forward to becoming a leading international versatile energy provider with a commitment toward sustainable energy. To achieve its goal, the Company leverages its experience of over 30 years in the energy business, both in Thailand and abroad. It also builds on its expertise in solar power business management, from solar rooftops and floating solar in China and Japan to energy trading platform and virtual power plant technologies in offering clean energy technology business suitable for the future energy of Thailand through its subsidiary, Banpu NEXT Co., Ltd.

Banpu NEXT, a leading smart energy solutions provider in Asia-Pacific, offers **“Smart Energy Solutions for Sustainability”** which include smart hardware and digital platform. Banpu NEXT satisfies customer needs with specialized and innovative energy technologies of international standards to create a sustainable and fulfilling lifestyle. Being a leading energy technology company, Banpu NEXT works with its strong business partners to provide the best integrated energy solutions and after-sales services to ensure that customers can access affordable, reliable, and environmental-friendly energy. Banpu NEXT’s smart energy solutions are as follows.

### 1. Smart Data Analytics and Energy Management Solutions

Banpu NEXT offers smart energy consumption analytics and energy management solutions for monitoring, and analyzing energy consumption data on an accurate digital platform and provide a guideline for lower energy cost and optimize energy consumption of each customer.



### 2. Smart Energy Generation Solutions

Banpu NEXT assists customers in energy consumption management and reduces electricity costs by integrating smart hardware and digital platform, as well as comprehensive after-sales services.

#### Solar-Rooftop and Floating Solar Systems Installation Services



Banpu NEXT provides professional installation services for solar rooftop and floating solar systems, from consultation, system design, installation, inspection, and maintenance services to after-sales services. Major customers are large-scale industries and businesses who want to reduce electricity bills and help save the planet by using clean energy.

Currently, Banpu NEXT has a total capacity of 37 MW from the solar rooftop and floating solar projects in



Thailand. Banpu NEXT provides installation and after-sales services to customers deploying modern technologies and innovations. Teams of engineers and customer services will monitor all sites’ systems in real-time from the control room. Banpu NEXT’s customers can also monitor their energy generation and consumption, electricity cost saving and carbon dioxide emissions reduction in real-time as well as track records via tablet or smartphone, along with other additional features.

#### Investment in Sunseap Group Pte. Ltd.

BPIN Investment Co., Ltd. (BPINI), a subsidiary of Banpu NEXT Co., Ltd. acquired 47.5% of shares in Sunseap Group Pte. Ltd., the leading clean energy solutions provider in Singapore, whose major customers are government agencies, academic institutions and companies.

On 2 November 2021, BPINI signed a Purchase and Sale Agreement (PSA) to divest a wholly-owned of 47.5% shareholding in Sunseap Group Pte. Ltd.. The divestment was completed on 22 February 2022.



### 3. Smart Energy Storage Solutions

Banpu NEXT sees the energy storage system (ESS) as the necessity of the future since it will enhance the stability of the power generation system, enable efficient power utilization, especially in energy shortages areas. Promoting the use of electric vehicles and investing in ESS is one of Banpu's contributions to the development of Thailand's energy sector.

#### Investment in Durapower Holdings Pte. Ltd.

Banpu NEXT acquired 47.68% shares of Durapower Holdings Pte. Ltd. in Singapore. This first step of expansion into the ESS business not only enhanced current business efficiency but also paved the way for growth and added values in the future.



Durapower specializes in design, manufacturing, and system integration of advanced lithium-ion battery (LiB) technology for automotive and energy storage systems. Its world-class lithium-ion battery factory is located in Suzhou, China, which can expand its capacity to 1 GWh. It deploys advanced technologies and has received over 40 world-class guarantee standards, including quality certifications

and international patents. It is also ready to serve more customers based in over 20 countries in Europe, China, Japan, India, Thailand, and ASEAN countries, in response to increasing demand for LiB battery-powered vehicles, such as electronic vehicles, buses, trucks, household ESS, and ESS for large-scale renewable power generation projects.

#### e-PromptMove: All-In-One Mobile Solar Power Generation and Storage System

Banpu NEXT is aware of the energy shortage in several areas and during the crisis. Thus, it applied its knowledge, experience, and innovation in energy, technology, and diverse energy solutions to develop an off-grid solar power generation and storage system called **"Banpu NEXT e-PromptMove"**, Thailand's first all-in-one trailer that integrates mobile solutions for clean power generation and storage system. This innovative solution is highly mobile, ready to reach out to any places in need anytime, even in disaster areas. The trailer was specially designed and manufactured to be sturdy and durable while fulfilling operational requirements. It is equipped with a monitoring screen to monitor power consumption. The energy management system software and Internet of Things (IoT) will enable efficient control, and data processing to deliver stable electricity for customer use 24 hours a day, anywhere, anytime.



#### Microgrid System



Due to energy scarcity and lack of access to electricity in some areas such as islands and remote areas, Banpu NEXT has developed the Microgrid System, an integrated service of power generation and battery or energy storage systems, commanded and controlled by Banpu NEXT's digital platform. The microgrid system can also link with various power generation sources, enabling reduction of energy costs and efficient power utilization for customers 24 hours a day.



## 4. Smart Energy Utilization Solutions

Banpu NEXT has created a business ecosystem of a comprehensive e-mobility fleet management system. Banpu NEXT has collaborated with its partners to develop a platform based on the concept of “Mobility as a Service” (MaaS) to provide one-stop service and solutions, from consultation, evaluation of mobility needs, designing the right management system for each organization to after-sales support by integrating advanced hardware and digital technologies for greater efficiency. Banpu NEXT has also developed applications and deployed real-time fleet management for better efficiency of after-sales services to truly meet customer needs, support the intelligent interconnection of traffic and transport systems, and save costs and time for users and stakeholders.

### Mobility Sharing



Banpu NEXT has invested in HAUPCAR, a provider of short-term electric vehicle rental service, and jointly offered the “**Banpu NEXT EV Car Sharing**” service – a mobility sharing service on an hourly, daily, weekly, and monthly basis. The car rental service via application is safe and convenient. Booking can be done 24 hours a day with a few simple steps on HAUP mobile application. Picking-up, unlocking to drive away, and returning the car are contactless. This service not only promotes clean energy but also offers a convenient and eco-friendly travel alternative, enabling a seamless and comfortable smart transport system at passengers’ time preference, which is an element of a smart city.

### Ride Sharing

Banpu NEXT realized the pollution problem from the transportation and daily commuting systems in urban areas. Banpu NEXT thus invested in Urban Mobility Tech Co., Ltd. (UMT), holding 39.3% of its shares. UMT is a company which provides solutions to urban public transportation, focusing on first/last mile solutions. UMT offers a Tuk Tuk Hop service around Rattanakosin Island for tourists. In addition, UMT designed and manufactured compact EVs, starting from e-Tuk Tuk integrated with the Internet of Things (IoT) in fleet management. It also developed the “**MuvMi**” application to provide an on-demand ride-sharing service,

allowing passengers to carpool and save travel expenses, which helps reduce the number of vehicle trips and optimizes energy efficiency.

MuvMi offers e-Tuk Tuk service in Bangkok areas with more than 100 e-Tuk Tuks with more than 2,000 service points covering 6 routes throughout Bangkok. The routes connect to public transportation systems, namely buses, ferries, trains, BTS and MRT trains, as well as well-known department stores. MuvMi routes cover the areas of Chulalongkorn University, Ari BTS station to Kampaengpetch MRT station, Paholyothin, Ratanakosin Island, Asoke, Nana, Kasetsart University to Senanikom, and surrounding areas.



MuvMi e-Tuk Tuks are 100% clean energy vehicles with zero emissions of dust, fumes, and pollutions. Banpu NEXT has funded the project, supplied Durapower’s lithium-ion batteries for e-Tuk Tuks, completing Banpu’s clean energy ecosystem. UMT has completed setting up 18 charging stations and will continue to set up more to improve the convenience and efficiency of travel.

### Charger Management

Banpu NEXT, Thailand’s first fully integrated alternative mobility service provider in the form of Mobility as a Service (MaaS), aspires to promote promising Thai startups operating in the travel and smart mobility sectors. Banpu NEXT has invested in Evolt Technology Co., Ltd. (Evolt), which is specialized in the integrated management platform for charging stations. Evolt’s services range from charger supply, platform & soft management to charger installation by a team of experienced engineers and technicians, ready to deliver 24-hour customer service. Currently, Evolt has 300 charging stations in gas stations, office buildings, condominiums, restaurants, shopping centers, and top community malls. This partnership will help complete and grow Banpu NEXT’s e-mobility business ecosystem to become more robust and comprehensive.

### Operation & Maintenance and Customer Services

Banpu NEXT has invested in Beyond Green Co., Ltd., the authorized distributor of all-purpose electric utility vehicle (Club Car) and provider of sales, concession, and rental fleet services in Thailand, Laos, and Cambodia. Beyond Green offers a wide range of hire vehicles in varying models to suit all needs of customers, whether it is hotels, resorts, hospitals, or factories. So far, there are more than 10 Club Car customer service centers across Thailand, and more 56 centers are expected to be opened by 2025. This investment is another key expansion to a more diverse EV business to serve customers in high growth potential markets and is considered an important mechanism strengthening businesses of both parties in research and development (R&D) and innovation of new products and services, as well as a platform to provide the best one stop after-sales service for customers.



## Marine Tour e-Ferry



Banpu NEXT has launched **Banpu NEXT e-Ferry**, Thailand's First Marine Tour e-Ferry, using energy technology innovation. The e-ferry is powered by lithium-ion batteries from Durapower Holdings Pte. Ltd., a joint investment with Banpu NEXT. In addition, Banpu NEXT installed a charging station at the Ao Po Pier in Phuket. Banpu NEXT uses an energy management system to control energy generation and distribution and ensure optimal efficiency. Data collected will be used for monitoring e-ferry operation and planning energy management and maintenance. Energy consumption data from the IoT platform is also used in developing and designing energy consumption to match customer demands and requirements.

## e-Boat



Banpu NEXT has introduced Banpu NEXT e-Boat to promote green tourism. The 100% electric boat with a capacity of 20 passengers is strong, durable, and safe. Electricity is stored in high-quality lithium iron phosphate batteries, which have long battery life, equipped with a battery management system.

All these features contribute to efficient energy use, enabling customers to save energy and maintenance costs. Apart from these, the e-Boat can be allows configurable layout design to fit intended use in such businesses as hotels and marine tourism.

## 5. Smart Circular Economy Solution

Banpu NEXT has partnered with G.E.P.P. Sa-Ard Co., Ltd. to provide waste management service via an application for commercial customers. The waste management system on a digital platform was designed to turn “Waste Littering” into systematic and efficient “Waste Management” starting from sorting wastes from waste materials to record and analyze their data before deciding on how to properly manage them. Customers can access the report of data via this waste management platform, and they can track data via an application on how the wastes and recycling materials are managed, the benefits as well as the returned revenue from waste management. This solution enables customers to effectively utilize the resources in their businesses and adds value to waste materials, actualizing the goal toward the circular economy.

Banpu NEXT has deployed a wide range of integrated smart energy solutions, including hardware, software, and digital platforms, in driving smart city development to enhance smart energy management with cost efficiency, and eco-friendly from end to end. The details are as follows.

### Khon Kaen Smart City Development

Banpu NEXT realizes the necessity of propelling Thailand towards Energy 4.0 and its role in driving renewable energy consumption. Banpu NEXT thus joined forces with Khon Kaen City Development Network to mobilize the “**Khon Kaen Smart City Development Plan**” under Khon Kaen Smart City 2029 master plan. Banpu NEXT and Khon Kaen City Development Network will conduct a feasibility study on building a clean energy integrated ecosystem, for instance, installation of solar power system and smart grid, use of energy storage system to improve energy consumption efficiency, development of smart transportation system and installation of alternative mobility systems to support the extension of light rail transit, and introduction of other modern energy technologies to Khon Kaen to create a smart environment for the residents' better quality of life and drive Khon Kaen toward becoming a smart city according to its development plan.

### Smart Safety Zone in Phuket

Phuket is among the provinces selected as a pilot smart city in accordance with the Phuket City Municipality policy, with 7 targets, namely Smart Environment, Smart Economy, Smart Mobility, Smart Energy, Smart People, Smart Living, and Smart Governance. Banpu NEXT has taken part in







supporting Smart Governance with its Smart Safety Platform for surveillance and management of government officers, as well as improving the safety and livability of the Phuket community. It also drives the development of Smart Mobility by introducing the first marine tour e-ferry service in Phuket to provide convenient and eco-friendly transportation and improve the quality of life of Phuket residents.

The Smart Safety Platform was installed in the areas of Thalang Road, Soi Romanee, and Phromthep Cape. Banpu NEXT has also worked closely with the private and public sectors to study and evaluate the area to design solutions that answer the needs of these two communities in Phuket. The Smart Safety Platform can connect with operating systems of other devices and work together efficiently across data collection, analysis and processing using AI technology. The solution will help improve the life quality and safety as well as solve problems for local



people and tourists, such as air quality monitoring, CCTV cameras for surveillance of monitored places and detection of people counting, COVID-19 screening sensors, Disaster Warning such as high levels of PM2.5, and smart parking sensor.

## MARKET AND COMPETITION

### Energy Resources

#### Mining Business

#### Market and Competition

#### Market

##### 1. Global Coal Market

Demand for imported coal rebounded in 2021 following the economic recovery from last year's recession, which was the aftermath of the COVID-19 pandemic. In 2021, the world was still facing the ongoing pandemic; however, it became less tenacious due to increased vaccination and tight disease control efforts in many countries. With improving situation, several countries have loosened disease control measures to allow for more economic activities, resulting in growing demand for commodities and energy. Nevertheless, the supply side recovered more slowly than the demand side as disrupted supply chains and underinvestment during the pandemic resulted in tight supply, leading to a surge in commodity and coal prices.

The People's Republic of China is the world's largest coal importer and is regarded as one of the most resilient countries having a strong economic recovery despite strict control measures against the COVID-19. China's demands for electricity and coal have risen sharply over the past year. Meanwhile, domestic coal production slowed down due to stringent safety measures in the mining industry after an accident in a coal mine early last year. The accident led the government to focus on a safety inspection at various mines, forcing many of them to temporarily suspend their production to improve safety measures to comply with regulations before being allowed to resume operations. In addition, China held the Chinese Communist Party's 100<sup>th</sup> anniversary congress on 1 July 2021, which prompted the government to retain mining safety restrictions until the end of the

CCP session in mid-July 2021, causing domestic coal production to lag behind rising demand.

China was hit by summer heatwaves, causing a spike in electricity demand in the third quarter while the country's hydropower generation was on a decline compared to the year before, which raised further demand for coal for power generation. However, domestic coal production had just begun to recover in the third quarter, putting China in an energy crisis that forced it to reduce power consumption, particularly in industrial sectors that consume a lot of power. The government also asked coal producers to reduce coal supply to general industries to allow for more supply to power plants to increase generation capacity. At the same time, the Chinese government eased coal import restrictions, which





had been in place since the previous year, to boost domestic coal supply. Nonetheless, as supply growth did not keep up with demand growth, the coal price at Qinhuangdao seaport soared to above CNY 2,500 per tonne in the fourth quarter before the government's intervention pulled it down to approximately CNY 800 per tonne at year-end.

Since October 2021, China's coal production has increased dramatically, but it took over three months for supply and demand to be in equilibrium. In December, the mild weather and stricter measures to combat the Omicron Covid-19 variant resulted in lower power consumption, making way for a balance between demand and supply.

On 16 July 2021, the Chinese government announced the National Emissions Trading Scheme (ETS) with an aim to reduce CO<sub>2</sub> emissions. In its initial phase,

the scheme only applies to the power industry, covering 2,225 coal and natural gas-fired power plants before being expanded to other industries. Because carbon price in the initial phase is still low, it is unlikely to affect coal-fired power plants significantly.

In 2021, Indian coal imports contracted despite the fact that its economy was recovering like other countries. Although the country was hit again by the COVID-19 pandemic at around mid-year, the impact on its economy was not as severe as in the previous year. Coal production in India had increased but still fell short of domestic demand, forcing consumers to rely on imported coal. However, in 2021, due to soaring global coal prices, Indian buyers cut coal imports and turned to domestic coal while some buyers scaled down or temporarily suspended their production.

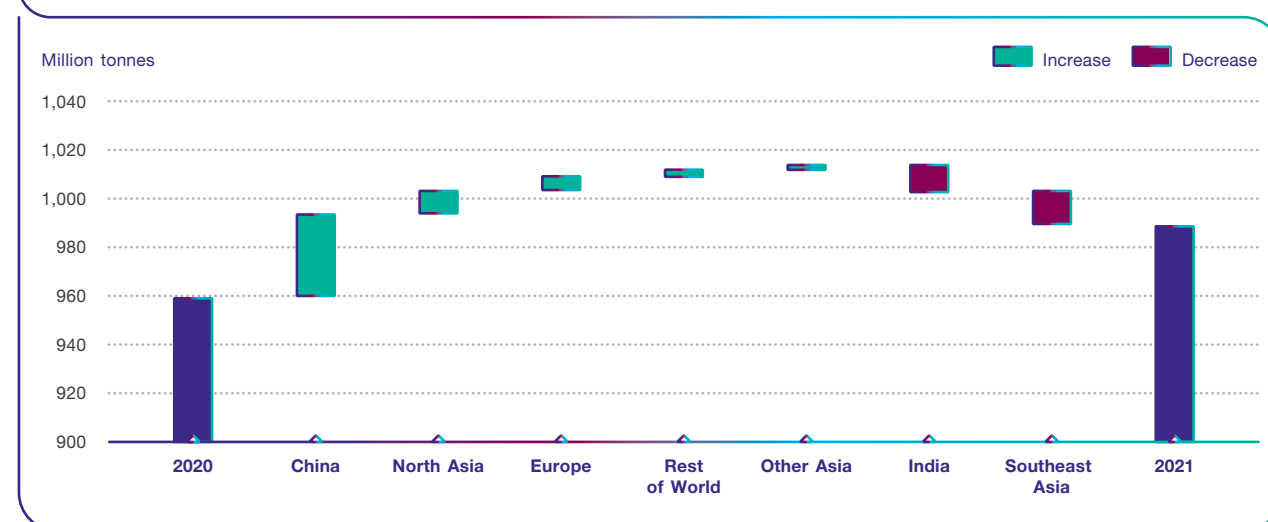
in coal consumption. South Korea was also affected by LNG prices rise; thus, the government eased restrictions and allowed coal-fired power plants to resume production in December to maintain the reliability of the electricity system.

Taiwan imported more coal in 2021 since its economy was less affected by COVID-19. High global demand for Taiwanese chips prompted the country to increase manufacturing and export, pushing up its demand for electricity. Like China, Taiwan was hit by heatwaves and a decline in hydroelectricity generation capacity while high LNG prices further contributed to increased coal demand for electricity generation. However, Taiwan and South Korea similarly imposed restrictions on coal-fired power generation to reduce air pollution. As a result, limits on coal-fired power plant operations between October and March have curbed the country's growth of coal consumption.

weather. Nevertheless, natural gas prices in Europe rose sharply due to insufficient supply while power production from renewables dropped. Europe was thus forced to switch to coal-fired power generation although several European countries had announced their plans to accelerate the coal phase-out to reduce GHG emissions. Natural gas price surge prompted some countries to resume the operation of coal-fired power plants that were going to retire.

Coal exports grew last year, driven by the rising coal demand. Meanwhile, the supply grew very slowly owing to the disrupted supply chain by COVID-19 control measures in many countries. Indonesian producers enjoyed the largest share of export growth as most of their pre-COVID-19 production remained intact. China's ban on Australian coal imports prompted most Chinese importers to buy coal from Indonesia instead.

2020/2021 Thermal Coal Import Demand Changes



Source: Marketing, Sales and Logistics Analyst, Banpu Plc

Japan imported more coal in 2021 following the economic recovery despite the return of the COVID-19 pandemic, which caused the government to declare a state of emergency between April - May to curb the outbreak. A sharp rise in liquefied natural gas (LNG) prices in 2021 forced Japan to re-operate coal-fired power plants in order to cut costs, hence increasing coal consumption in Japan.

South Korean coal imports spiked in 2021, driven by the country's economic recovery. Despite the fact that the country limited the operation of coal-fired power plants from December to March to reduce air pollution, in 2021, South Korea commenced operations of three new coal-fired power plants, each with a capacity of 1,000 MW in May, June, and October, respectively, contributing to an increase

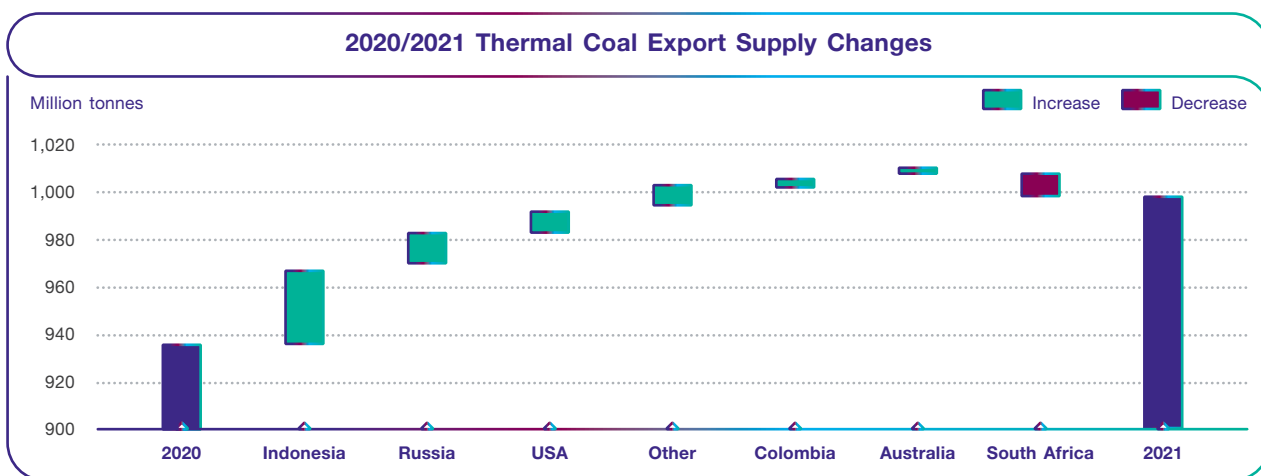
Southeast Asian countries economies recovered in 2021 as well; however, coal imports shrank as Vietnam cut imports of coal. Due to high global coal prices, Vietnamese importers, particularly those outside the power production industry, reduced coal imports dramatically. On the contrary, the Philippines' coal imports grew as the government eased its lockdown measures, causing electricity consumption to rise. Other Southeast Asian countries' coal imports remained relatively the same as the previous year as they still maintained their COVID-19 prevention measures, albeit less stringent.

Coal imports into European markets increased significantly due to economic recovery. Several countries started relaxing their COVID-19 measures after the majority of their population had received vaccines. Electricity demand was boosted by economic recovery, combined with extreme cold

In 2021, Australia's coal exports stayed approximately the same as in the previous year although their coal was banned by China. As Australian coal producers had adjusted coal qualities to match different requirements of coal consumers in Japan, South Korea, Taiwan, and India, they were able to export coal to those markets to offset the lost export sales to China.

Major coal producers in the Republic of Colombia returned mining contracts to the Colombian government after suffering temporary mine closures almost throughout 2020 due to high costs. Relinquishing the mining contracts halted their production; thus, Colombian coal production increased only slightly in 2021, falling from the pre-COVID-19 period by 20 million tonnes.



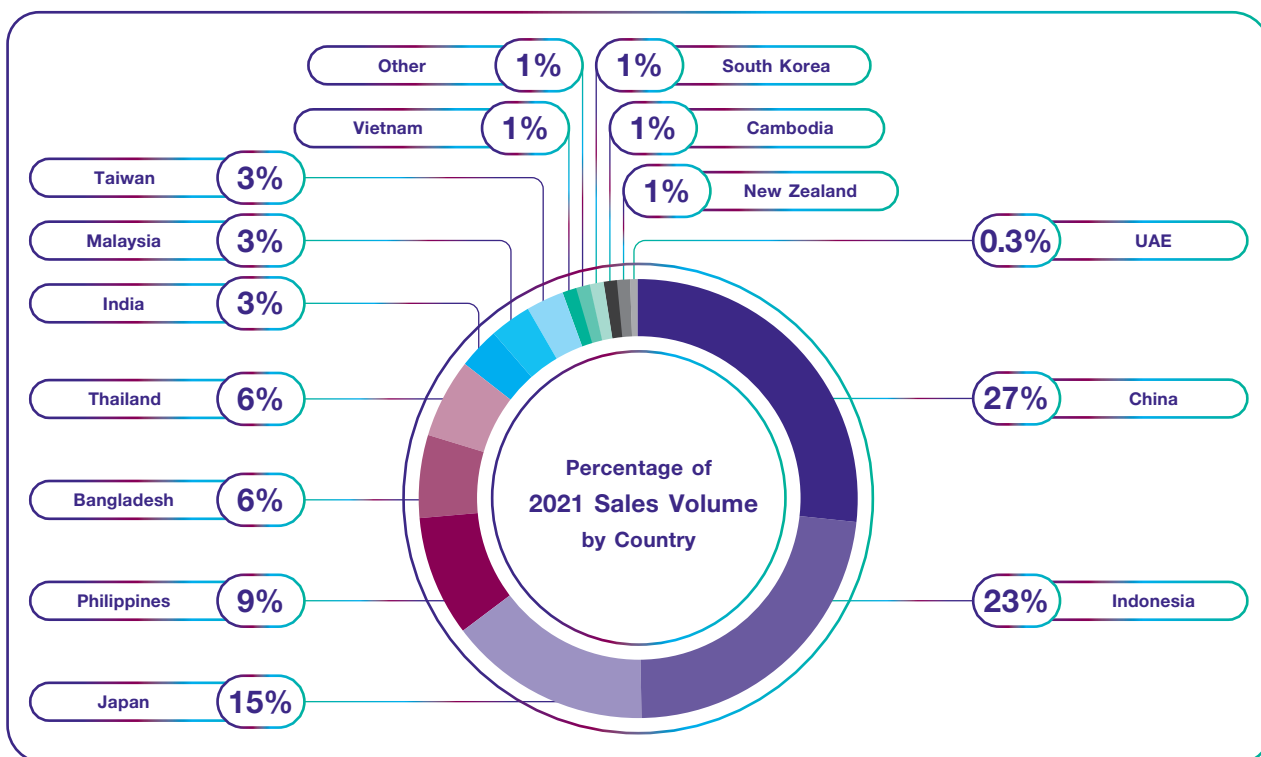


Source: Marketing, Sales and Logistics Analyst, Banpu Plc.

Producers in the Russian Federation significantly increased their coal exports in 2021 compared to the previous year despite rail transportation problems due to rail repair and maintenance, making it impossible to transport coal at full capacity. Nonetheless, Russia benefited from China's ban on Australian coal imports since it could export more coal to China. With its high-quality coal, Russia could also expand coal exports to other Asian countries.

The Republic of South Africa's rail transportation of coal faced a challenge due to frequent cable thefts which hampered its coal transportation. Consequently, South Africa's coal exports were driven down while the global coal demand was growing.

U.S. coal exports in 2021 spiked despite growing domestic demand as the soaring global coal prices encouraged U.S. coal producers to export more coal.



In 2021, Banpu's sales from its Indonesian coal mines amounted to 20.19 million tonnes, a decrease of 4.9% from the previous year owing to heavy rainfalls almost all year round. The largest share of 27% went to China, an increase of 17.9% year-on-year due to more coal imports following the surge in domestic coal prices as a result of tight supply situation in the country. With China's prolonged ban on Australian coal, Indonesia became China's major coal supplier. As a result, the Indonesian coal prices rose sharply in line with the rising coal prices in China. Therefore, the Company became more focused on coal sales to the Chinese market.

The second and third largest shares of 23% and 15% went to Indonesia and Japan. The Company's coal sales to Indonesia increased by 24.8% over the previous year, driven by soaring demand from the iron and steel industry.

The Company had significantly reduced coal exports to other countries from the previous year to focus on the Chinese market, where the prices were higher. However, in 2021, the Company expanded its customer base by exporting coal to Cambodia, which was previously an untapped market for Banpu.

## 2. Coal Market in the Republic of Indonesia

In 2021, Indonesia's coal production recovered from the previous year following a rebound in global coal demand. According to its Ministry of Energy and Mineral Resources, Indonesian coal production in 2021 totaled 614 million tonnes, increasing by 9.1% from last year, even with year-round heavy rainfalls. Given coal being an essential primary commodity, coal industry was loosen from the government's COVID-19 control measures. However, it was indirectly affected by the restrictions on the transportation of workers, resulting in delayed deliveries of mining machinery and equipment since manufacturers had to comply with the government's stringent measures, consequently leading to a disruption in raw material supply chain. Labor and equipment shortages which occurred as a result of the government's measures hit small producers harder than the larger ones.

According to Indonesia's Ministry of Energy and Mineral Resources, the country's coal exports in 2021 were at 435 million tonnes, rising 6.9% year-on-year as demand for coal imports from China increased after Chinese government had imposed bans on Australian coal imports, prompting importers to rely more on Indonesian coal. In other key export markets, such as Japan, South Korea, Taiwan, and most Southeast Asian countries, coal imports rebounded from the lowest levels in 2020. Although India and Vietnam's coal imports in 2021 shrank from last year, their import volumes from Indonesia were relatively high. So, India and Vietnam remained main markets of Indonesian coal.

Domestic coal demand in Indonesia in 2021 was still affected by the COVID-19 pandemic though its economy showed signs of recovery. The Indonesian

government enforced a nationwide lockdown from 3-20 July 2021 to control the spread of the Delta Covid-19, covering most of the country and more than 200-million population. Nonetheless, power consumption did not decrease because most manufacturing plants had kept their machines running even when they had to comply with stringent COVID-19 measures. The Ministry of Energy and Mineral Resources reported that domestic coal consumption in 2021 was at 133 million tonnes, increasing 0.7% from last year. 72% of the demand came from the power sector, 9% from the cement industry, and the rest from other sectors, such as iron and steel, fertilizers, paper, petrochemicals, and textiles. Coal consumption in the steel industry saw a significant upward trend since many new iron and steel plants gradually completed their construction and started their operations.





In 2021, Banpu's coal sales in Indonesia were at 4.7 million tonnes, contributing to 23% of the Company's total sales from its Indonesian coal mines, or a 3.5% market share of Indonesia's coal demand. Major buyers were iron and steel plants, accounting for 53% of the total sales. The rest were coal-fired power plants, cement industry, and paper industry at 41%, 4%, and 2% of the total sales, respectively.

Last year, the Indonesian government banned 34 companies from exporting coal after they failed to fulfill an agreement to supply to Indonesian power plants, putting the plants at risk of operational halt as a result of coal shortage. This was primarily due to the fact that the Indonesian government capped the price of coal sold to Indonesian coal-fired power plants at USD 70 per tonne (for coal with a gross calorific value (GAR) of 6,322 kcal/kg) in spite of sharply increasing global coal prices. Therefore, coal producers had been trying as much as possible to export coal. Furthermore, heavy rainfalls in Indonesia barred many coal producers from meeting their production targets. Consequently, the coal supplies delivered to power plants were lower than agreed quantities. The government wanted coal companies to comply with the Domestic Market Obligation (DMO), which requires coal companies to fulfill domestic coal needs before exporting. However, the increase in domestic electricity demand, in line with the economic recovery, had depleted coal inventories at local power plants to critically low levels despite increasing coal supplies. On 31 December 2021, the Indonesian government announced a temporary ban on coal exports from 1 to 31 January 2022, in bid to divert coal supply to power plants and allow them to secure a minimum of 20-day stock level. However, the power plants procured through spot markets at a high ratio, thus preventing them from securing supply. In addition, challenges in sourcing coal according to the power plants' quality requirements, and limited unloading capacity at the plants made it even more difficult for them to increase their stock level within the specified time.

To curb GHG emissions, the Indonesian government announced a carbon tax last year, which would initially be imposed on power plants starting 1 April 2022. According to the new measure, any power plant with emissions above a set limit is subject to a carbon tax of IDR 30,000 or about USD 2.1 per tonne of CO<sub>2</sub> equivalent (CO<sub>2</sub>e). As the carbon tax rate is low, coal-fired power plants should remain competitive.

In November 2021, the Indonesian government temporarily capped prices for coal supplied to the cement and fertilizer industries. The price cap was set at USD 90 per tonne (for coal with a gross calorific value of 6,322 kcal/kg), effective from November 2021 to March 2022, to control the cost of cement and fertilizer, essential commodities affecting the lives of most people.

### 3. Coal Market in Thailand

During the first ten months of 2021, the private sector's total coal consumption in Thailand was approximately 21.1 million tonnes, rising 1.3 million tonnes or 6.7% year-on-year, driven by economic recovery after contraction following the government's lockdown measures against the spread of COVID-19. The cement industry remained the largest coal consumer in the private sector, with coal consumption in the first ten months of 2021 at approximately 6.9 million tonnes, rising 8.1% year-on-year.

Independent power producers (IPP) were the second-largest group of coal consumers after the cement industry, consuming 4.6 million tonnes in the first ten months of 2021, declining 15.7% year-on-year due to maintenance outages.

Small power producers (SPP), mainly producers of industrial goods, were also affected by the surge in global coal prices. Their coal consumption in the first ten months of 2021 was about 1.2 million tonnes, decreasing 33.5% year-on-year.

On the other hand, other industries such as paper, petrochemicals, textiles, and food, as well as coal traders importing coal for stock and sales, had coal consumption and coal import for stockpiling in the first ten months of 2021 at about 8.4 million tonnes, increasing 36.9% year-on-year. Following the economic recovery, production in these industries expanded, so did their demand for coal.

## Competitions

### 1. Competition in the Coal Industry

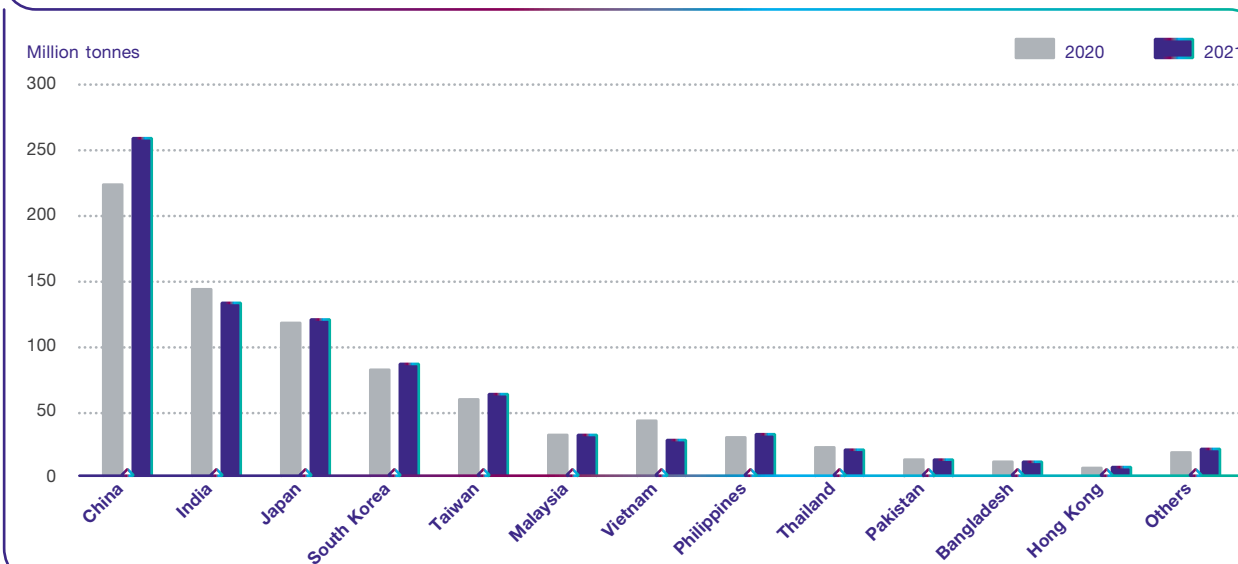
Competition in 2021 had not been intense due to tight supply in the market from the recovery of demand for coal imports, which grew faster than production. Overall global demand for thermal coal in 2021 rose by 30 million tonnes or 3.2% from 2020, with a total import volume of 990 million tonnes. The Asian countries imported coal at a total volume of 846 million tonnes, up 2.6% from the previous year, accounting for 86% of the global seaborne coal trade.

China remained the world's largest coal importer with a total import volume of approximately 259 million tonnes, rising 15.6% from the previous year as supply shortfall pressured the government to relax import control and allow more coal imports. On top of that, Chinese government's ban on Australian coal urged importers to import coal from other countries. As there were fewer sellers in the market,

the competition became less intense. However, as the government ordered coal producers to boost domestic coal production, the coal market returned to equilibrium at year-end.

India imported less coal despite economic recovery from the COVID-19 slump. Although there was a greater demand for coal, Indian coal consumers imported less coal and were prompted to rely more on domestic coal as global coal prices surged. Nevertheless, with limited availability of domestic coal supply and sellers, some coal users had to scale down or suspend their production. Indian coal imports in 2021 were approximately 138 million tonnes, or a 7.3% decrease from last year. Coal imports from Indonesia dropped due to the rising prices, prompting coal users to turn to cheaper coal from the U.S. and Australia. Although coal prices in South Africa were high, imports from the country increased as a result of the steel industry's demand for higher quality coal.

Asian Thermal Coal Import by Country



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





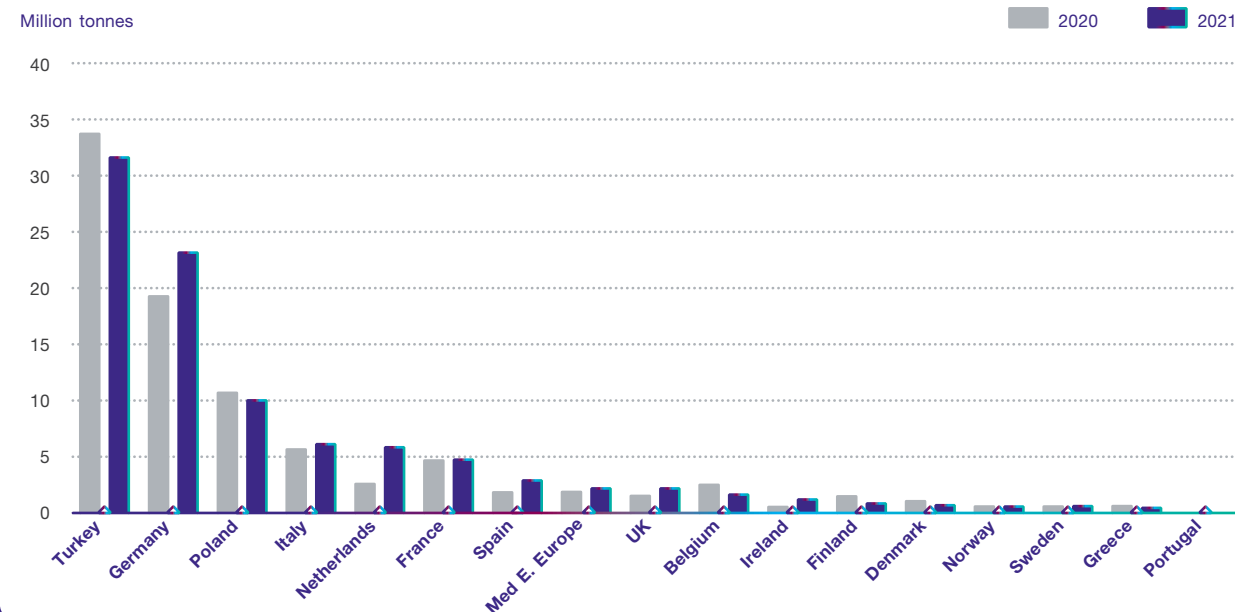
In 2021, North Asian countries, namely Japan, South Korea, and Taiwan, imported approximately 282 million tonnes of thermal coal, increasing 3.4% from the previous year. Factors contributing to more coal consumption included economic recovery and the extremely high liquefied natural gas (LNG) prices. These countries had significantly higher imports of coal from Australia as the Australian producers tried to penetrate more coal into North Asian markets with competitive prices following China's ban on Australian coal. North Asian countries also imported less Indonesian coal due to its high prices.

Southeast Asia had a decrease in coal imports from the previous year by 10.4%, with an import volume

of 123 million tonnes in approximate, though most economies in this region started recovering from the COVID-19 pandemic. The decrease mainly resulted from Vietnam's cut of coal imports due to the global coal price hike.

Europe's coal import volume in 2021 was at approximately 95 million tonnes, a 7.0% increase from the previous year, thanks to economic recovery and high liquefied natural gas' prices. This prompted power producers to reduce costs by substituting coal for natural gas as coal was a cheaper fuel option. Meanwhile, tight supply in coal exporting countries such as Russia, Colombia, and the U.S. weakened the competition in the European markets.

European Thermal Coal Import by Country



Source: Marketing, Sales and Logistics Analyst, Banpu Plc

Global thermal coal exports in 2021 were at approximately 999 million tonnes, increasing 6.4% from the previous year due to the recovery in coal demand. Nonetheless, the COVID-19 pandemic had caused disruption in several areas along the coal supply chain, for instance, labor and mining

machinery shortages, which affected coal production. The world's six major coal exporters were Indonesia, Australia, Russia, South Africa, Colombia, and the U.S. Their combined export volume accounted for more than 97% of the global seaborne coal trade.

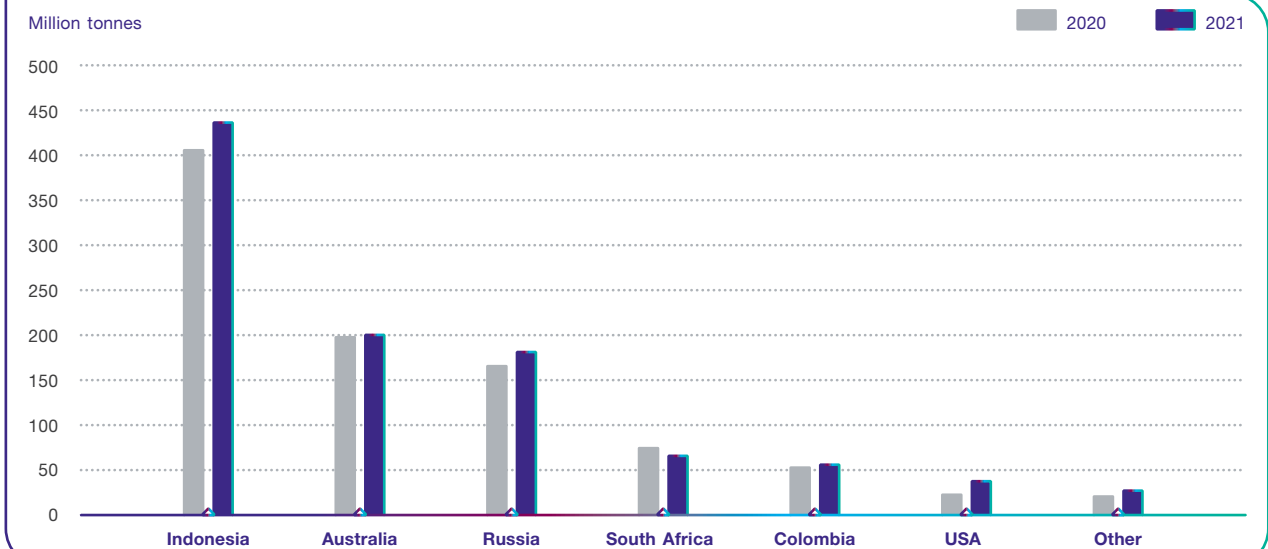
Indonesia, the world's largest coal exporter, exported approximately 435 million tonnes of coal, increasing 6.9% from the past year. Indonesian coal exports rebounded rapidly because there were many producers with high production capacity. However, Indonesia had suffered undersupply of coal since the majority of producers preferred exporting coal to foreign markets to enjoy higher selling prices compared to supplying to local power plants. Although there were many domestic coal producers in Indonesia, the competition last year was not so strong due to high coal demand.

Australia, the world's second-largest coal exporter after Indonesia, exported approximately 200 million tonnes of coal in 2021, or a 0.6% increase over the previous year. The competition around early

2021 was relatively intense because of the Chinese ban on Australian coal imports, urging Australian producers to find their ways into other markets by offering lower prices. However, Australian coal prices picked up in the latter half of the year as higher demand had lessened competition.

Russian thermal coal exports were at approximately 180 million tonnes, increasing 9.8% over the past year despite railway repair and maintenance. China's ban on Australian coal benefited Russian coal exporters as China turned to import more coal from Russia, driving China's imports of Russian coal to grow by 50% year-on-year in the first 11-month period of 2021. The surging demand from China, coupled with the obstacles in rail transportation consequently tightened the supply of Russian coal.

Global Thermal Coal Export by Country



Source: Marketing, Sales and Logistics Analyst, Banpu Plc

South Africa's total coal exports were approximately 66 million tonnes, dropping by 11.1% from last year due to constraints of rail transportation to outbound seaports, which led to a decline in coal exports.

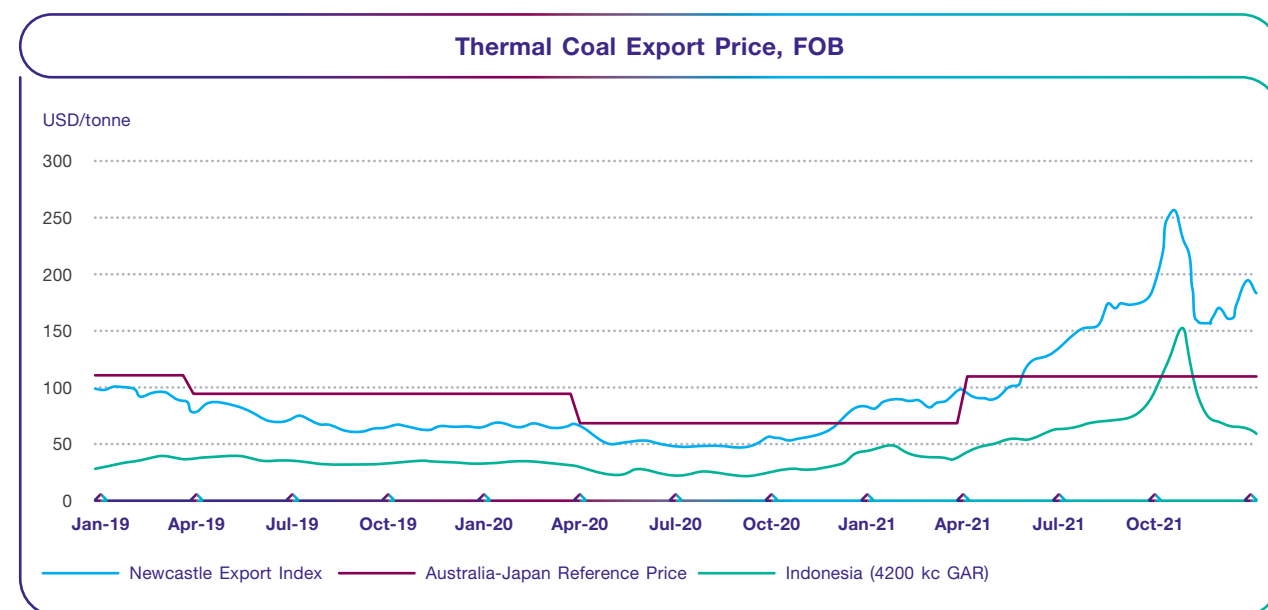
Colombian coal exports in 2021 were at approximately 56 million tonnes, rising 6.5% from the previous year. Coal producers in Colombia exported more coal to China due to higher demand from Chinese importers to substitute for Australian coal imports that had





been banned by the Chinese government. Colombian exports of coal to China spiked by 184% in the first 11 months of 2021 year-on-year; exports to Brazil also rose. However, as a major coal producer returned mining concessions to the Colombian government, domestic production dropped by 20 million tonnes. Furthermore, mergers of major mining companies resulted in fewer producers. Therefore, the competition was not intense.

In 2021, the U.S. exported 36 million tonnes of thermal coal (excluding exports to Canada), soaring 53% over the past year thanks to a steady ascent of coal prices throughout the year. However, the restrictions in rail transportation and increased domestic demand restrained coal exports from the U.S.



Source: IHS

Coal prices rebounded in early 2021 as demand was growing. Nevertheless, supply chain disruption, the COVID-19 pandemic, heavy rainfalls in Indonesia and Australia, and rail transportation problems in Russia and South Africa had caused a tight supply. In October, coal prices at Newcastle Port rose to their peak at USD 258 per tonne after Indonesia prohibited 34 coal companies from exporting their coal. Coal prices then dropped to USD 180 per tonne around year-end. Thus, the annual average price at Newcastle Port was at USD 139 per tonne, rising 136.7% from the past year.

In 2021, Japanese buyers agreed on the contract price with major coal producers from Australia later than usual because of extremely different opinions on coal pricing. They finally reached an agreement

in June 2021, thus, making the new price effective for deliveries from July 2021 to March 2022. They agreed at a contract price of USD 109.97 per tonne on FOB Newcastle term-the Australia-Japan Reference Price for coal deliveries in the 2021 Japanese fiscal year (April 2021 - March 2022), which increased 60% from last year.

China's ongoing ban on Australian coal imports has changed global coal trade routes and partly drove coal prices up, starting from a rise in Indonesian coal prices as a result of the ban. On the other hand, premium Australian coal prices fell as Australian producers were forced to look for alternate markets. It took more than half a year for Australian coal prices to return to equilibrium.

In 2022, imported coal demand is expected to increase from 2021 as the global economic recovery is continuing. However, since developed countries are focusing more on renewable energy and limiting coal consumption, the growth will slow down. Yet, coal consumption in developing countries will continue to grow because coal remains a cheap fuel option.

Coal prices are likely to decrease due to the adjustment in the supply chain. But the prices are expected to remain high because the COVID-19 pandemic has slowed down investments to expand production. Thus, there will be limited new coal reserves to replace the depleting ones. Higher mining costs due to rising commodity prices will also cap the coal output.

In the long run, the global coal demand is declining due to international efforts to reduce GHG emissions, urging countries to phase out their use of coal for power generation. Investment in new coal mines will decrease accordingly, and coal producers will face financing obstacles as financial institutions have been gradually shifting away from thermal coal. On top of that, the future development of new coal reserves which is likely to be affected by more stringent environmental policies and increasing public opposition will force coal producers to seek bigger returns on investment. However, as existing coal-fired power plants will continue their operations to the end of their lifetime, coal production is still needed to supply coal to these power plants. If coal reserves are depleting, they need to be replaced by new reserves. So, global coal prices are likely to remain strong enough to motivate investment in new reserves to substitute for the depleting ones.

## 2. Competition in Thailand

In 2021, Thailand continued to face stiff competition despite tight supply in the global coal market. Being an open market, the country was a destination where some Indonesian producers released their coal supply. Thailand is not a big market, yet there are a lot of coal traders; thus, the market competition is intense.

More than 99% of the coal used in the private sector was imported coal. In the first ten months of 2021, imported coal consumption was at 20.9 million tonnes, increasing 6.5% year-on-year due to economic recovery. Consumption of domestically produced coal was at 0.2 million tonnes, growing 22.8% year-on-year. At present, the volume of domestically produced coal by the private sector is quite small because of limited coal reserves. Domestic coal was sold to cement factories in the northern region, where the economy was recovering.

The coal import volume in the first ten months of 2021 was at 20.5 million tonnes, falling 0.3% year-on-year, as importers delayed coal importation when coal prices were soaring.

Approximately 22% of imported coal was consumed by independent power producers with long-term power purchase contracts with foreign producers. As this supply did not enter the spot market, there remained only 20 million tonnes for coal importers to compete, making the market highly competitive.

Thailand's market competition in 2022 is expected to remain intense as there will be more coal supply entering the market because it is an open market where producers from foreign countries export coal to release their stocks and there are a lot of traders in the market. While, the demand for coal in 2022 is expected to increase only slightly.





## Competitive Strategies

Last year's tight supply situation had weakened the competition. However, the COVID-19 pandemic led to several business constraints, such as travel restrictions and supply chain disruption. Banpu has thus adjusted its strategies to the changing business environment. Major competitive strategies deployed are as follows:

### ● Maintenance of Customer Relationships

During time of crisis, the Company regularly maintained customer relationship through phone calls and online meetings in order to understand customers' and suppliers' problems and difficulties. With this strategy, the Company was able to maintain mutual support with customers both in terms of consultation and actions, enhance business relationships, and prepare its business for the post-crisis period.

The Company also communicated with customers and stakeholders by email, keeping them informed of the Company's quarterly performance and assure its customers that coal deliveries were to be made as agreed despite all challenges arising from the COVID-19.

### ● Adaptation to New Working Model in Response to Crisis

The COVID-19 crisis prompted the Company to shift to hybrid working model which encompasses remote and onsite work under strict hygiene measures.

To facilitate working from home, the Company had adjusted its process to create a suitable approach by taking into account the employees' readiness such as availability of computer and internet connection to ensure that they could stay in touch with customers and related parties, regularly track the progress of work,

and deliver to customers on time. In addition, the Company allowed employees to work flexible hours to support their work-life balance and keep them from the fatigue caused by prolonged online working.

### ● Product Development

In addition to blending coal from its mines to improve its coal quality, the Company bought coal from other producers for coal blending and used the optimization model to determine optimum blending ratio to get the blends of coal that meet target markets' requirements and create the highest added value.

### ● Targeting the Right Market

Based on its continuous coal market research, the Company has an up-to-date customer database in hand. Therefore, it could sell coal of various qualities to the right markets, adding the highest value to each coal product.

### ● Brand Enhancement

Banpu has positioned itself as a premium coal supplier with reliability and stability in coal delivery. The COVID-19 crisis has strengthened its brand image as Banpu was able to continue production and deliver coal that meets agreed requirements in terms of quantity, quality, and punctuality, keeping the continued trust of its customers.

## Major Competitors

Banpu's major competitors were coal producers from Indonesia, Australia, Russia, and South Africa, for instance, 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, and Noble Energy, Inc. Most of them are major coal producers owning high-quality coal resources. Apart from that, there were numerous small coal traders and producers in the markets. As many financial institutions have ceased financing coal business in an effort to curb CO<sub>2</sub> emissions, there will be fewer coal producers in the future.

The Company's major competitors in Thailand were mostly coal import traders, namely SCG Trading Co., Ltd., Lanna Resources Plc., Asia Green Energy Plc., and Eastern Pearl Co., Ltd. The fact that the majority of coal consumed in Thailand is imported coal and there are many smaller coal users in the country prompted both small coal traders in Thailand and foreign competitors to enter the market.

## Pricing Policy

The majority of coal were sold based on index-linked pricing, and derivative instruments were used in managing price volatility. Only small quantity of coal was sold based on fixed pricing. Fixed price sales were agreed shortly before delivery, reflecting global price at the time of sales. However, coal price for power plants in Indonesia was capped by the Indonesian government at USD 70/tonne for coal with a gross calorific value (GAR) of 6,322 kcal/kg.

## Customer Profiles

Banpu's major customers remained large-scale coal-fired power plants in Asia with high stability and large coal purchase volume. Several of them are state enterprises or former state enterprises, and others

are publicly listed companies. These customers had a strict supplier selection procedure and purchased coal through a transparent bidding process through both short-term and long-term contracts, with some purchases made in the spot market. The Company also sold coal to other users in the cement, pulp and paper, as well as iron and steel industries. As most of these customers needed less coal for their operations than large-scale power plants, they purchased coal through short-term contracts and sometimes from the spot market.

## Trading and Trading Channels

The Company operated coal marketing and trading activities for either coal produced in Indonesia and Australia or coal procured from other sources. It took charge of identifying market opportunities, making sales offers, bidding and negotiating with customers, preparing contracts, as well as coordinating with customers in arranging vessels for coal transport, and providing after-sales services. Sales of coal were made directly to coal customers.

In 2021, the Company relocated its Marketing, Sales, and Logistics unit from Singapore to Thailand. Due to the COVID-19 pandemic, ways of working have been changed. Since sales visits were restricted, the Company used communication technology to stay connected with customers. However, the relocation of the marketing unit to Thailand had been delayed due to travel restrictions and COVID-19 control measures. The Company thus entrusted BMS Coal Sales Pte. Ltd., a wholly-owned subsidiary registered in Singapore, to undertake its coal marketing and trading during the transition period. After the Marketing, Sales, and Logistics unit relocation was completed at year-end, the headquarters in Thailand has been responsible for all coal marketing and trading activities.



## Natural Gas Business

### Market and Competition

## Market

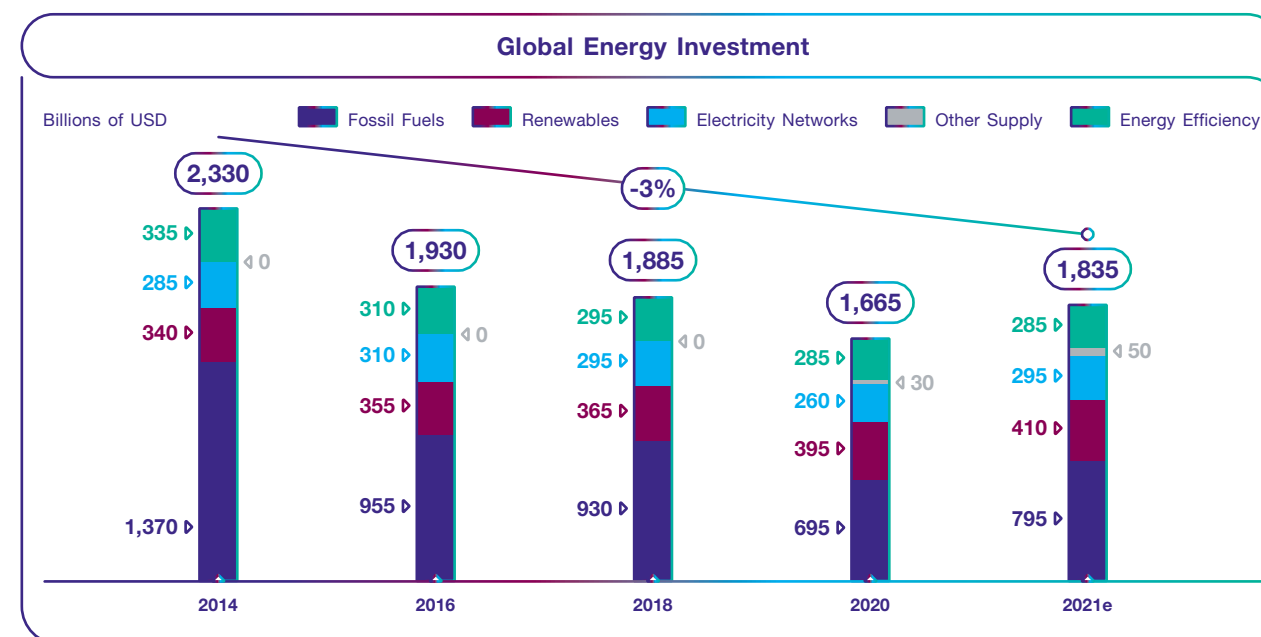
### 1. Global Natural Gas Market

The global economy, has recovered strongly after the 2020 financial crisis induced by the COVID-19 pandemic. However, the pace of economic growth varies significantly across global economy. The global economic rebound has been driven by a combination of factors including easing restrictions, increased government spending, return of consumer confidence and increased business investments. The degree to which measures have been eased and the economic policies of the various countries are likely the causes for the significant variability in real gross domestic product (GDP) growth rate. The U.S. and China in particular show robust recovery growth rates, and this is significant for the energy markets since both economies represent the largest consumers of energy.

As a result of the rebound in the global economy, energy markets have also recovered significantly from their pandemic lows with commodity prices increasing dramatically over the second half of 2021 to significant levels above the pre-pandemic levels. This rebound in energy commodity prices, has contributed to significant inflation. The main driver for energy related price increase has been overall declining capital investment combined with a resurgence in demand. Fossil fuels investment,

in particular, has been declining on an absolute basis over the past seven years, while renewables investment has been relatively flat over the same period. Continued global economic growth post-pandemic is expected to drive additional demand against a backdrop of restrained new supply investment. The graph on next page from the IEA World Energy Outlook 2021 estimates the investment in global primary energy sources from 2014-2021.

## Global Energy Investment has been in Decline, 2014-2021e

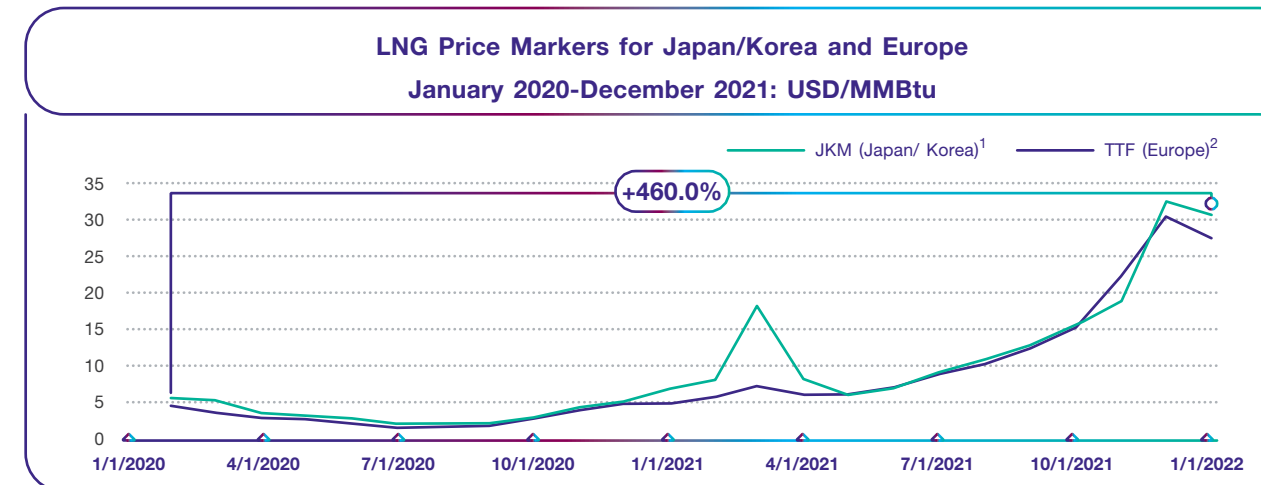


Source: IEA World Energy Outlook 2021 Figure 2.6

Natural gas, as a primary energy source, has seen significant price appreciation throughout the second half of 2021. Global liquefied natural gas (LNG) demand has recovered strongly and broadly across the major LNG consuming economies of the world. Limited investment combined with supply disruptions and weather patterns, has led to meteoric rise in LNG price over the second half of 2021. These higher LNG prices have been particularly acute in markets that

are reliant on LNG imports such as Western European markets and North Asian markets (Japan and Korea). The chart below illustrates the rapid rise in Japan-Korea Marker (JKM™) and Title Transfer Facility (TTF) prices, over the past two years, highlighting the significant tightness in the global natural gas market driven by a strong recovery and relative under investment.

## Global LNG Prices



<sup>1</sup> JKM stands for Japan Korea Marker.

<sup>2</sup> TTF stands for Title Transfer Facility and is a virtual trading point for natural gas in the Netherlands.

Source: Platts JKM Marker (mids) daily, Hereh's TTF ESGM month ahead price (mid) daily; All figures converted to USD using London 4pm Mid USD/ EUR rate.

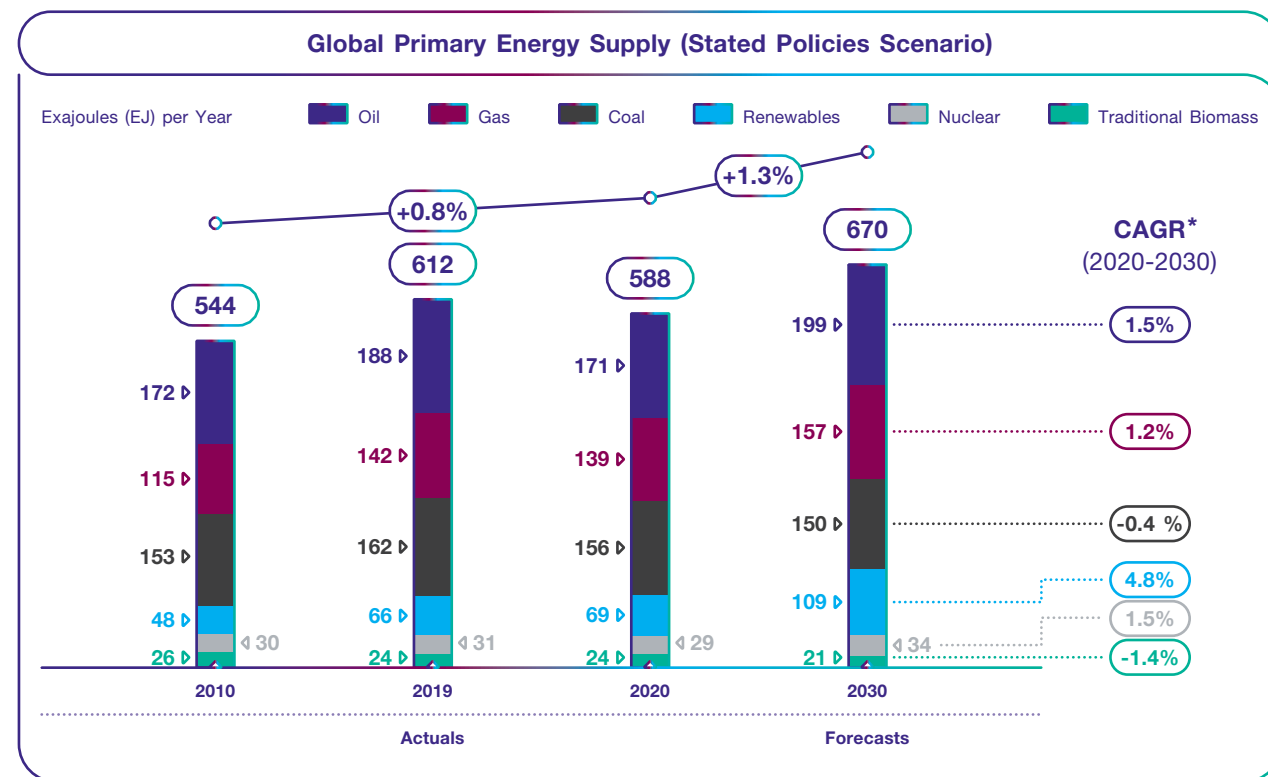




The outlook for primary energy demand is expected to be steady as the global economy continues to recover. The International Energy Agency (IEA) forecasts the overall primary energy demand will grow at a rate of >1% per year from 2020 to 2030 based on their Stated Policies Scenario. Natural gas demand is projected to grow at an annual rate, of 1.2%, driven by Asian markets with some modest growth in the U.S. However, the trajectory of

growth by primary energy sources will be driven by government policies in key economies, and major changes in policies could dramatically alter the mix or amount of energy demand. This is particularly relevant to the degree to which renewables supplant fossil fuels as a primary energy source. The chart below outlines the historical and projected growth of primary energy supply based on IEA's Stated Policies Scenario.

### Global Energy Supply Expected to Grow Steadily with Natural Gas Showing Steady Growth as well



\* Compounded Annual Growth Rate from 2020-2030

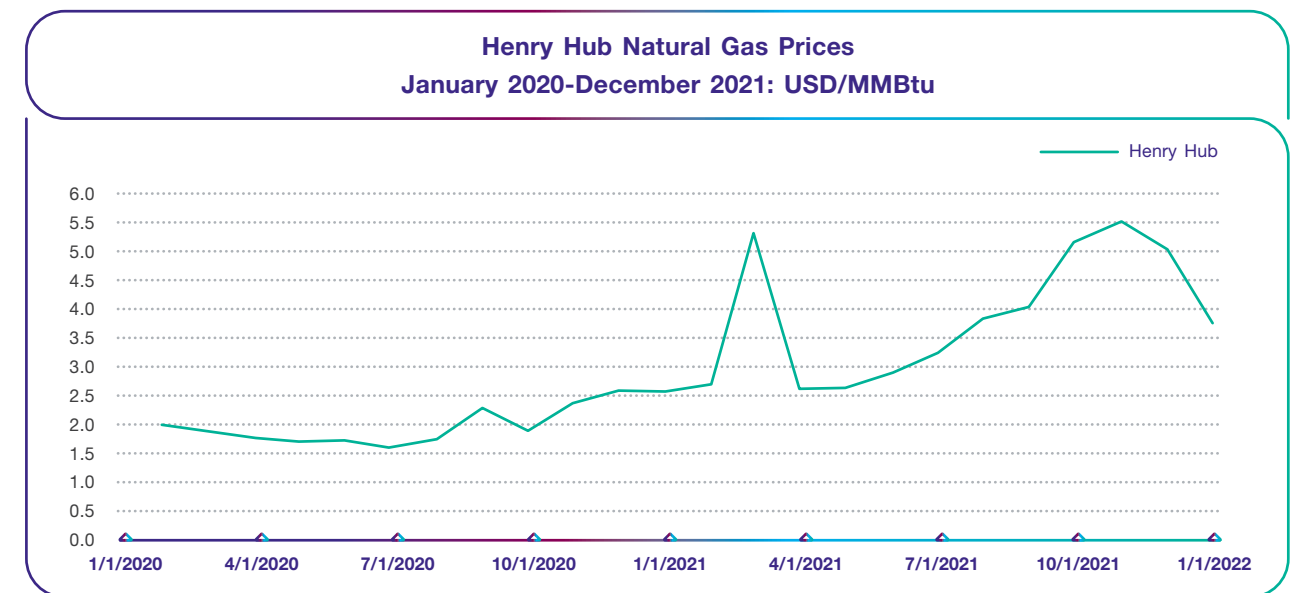
Source: IEA World Energy Outlook; 'Total Energy Supply' Stated Policies Scenario

## 2. U.S. Natural Gas Market

The U.S. natural gas markets experienced a strong recovery in the second half of 2021. Recovering economic demand (both domestic and global) combined with limited supply growth, led to a significant increase in Henry Hub benchmark price when compared with the lows of 2020 and mid-2021. However, the U.S. natural gas markets did not experience the same level of price appreciation as the global LNG markets. Takeaway capacity of the U.S. LNG is limited at approximately 10 billion

cubic feet per day (Bcfd), and LNG export capacity restraints represent a potential cap on the degree that Henry Hub can be linked to global LNG markets. As new LNG projects get commissioned in the next few years, additional demand and LNG capacity will increasingly link the U.S. market to global LNG markets. The chart below illustrates the movement in Henry Hub prices by month from 2020-2021 as reported by the Energy Information Administration (EIA).

### Historical Henry Hub Prices



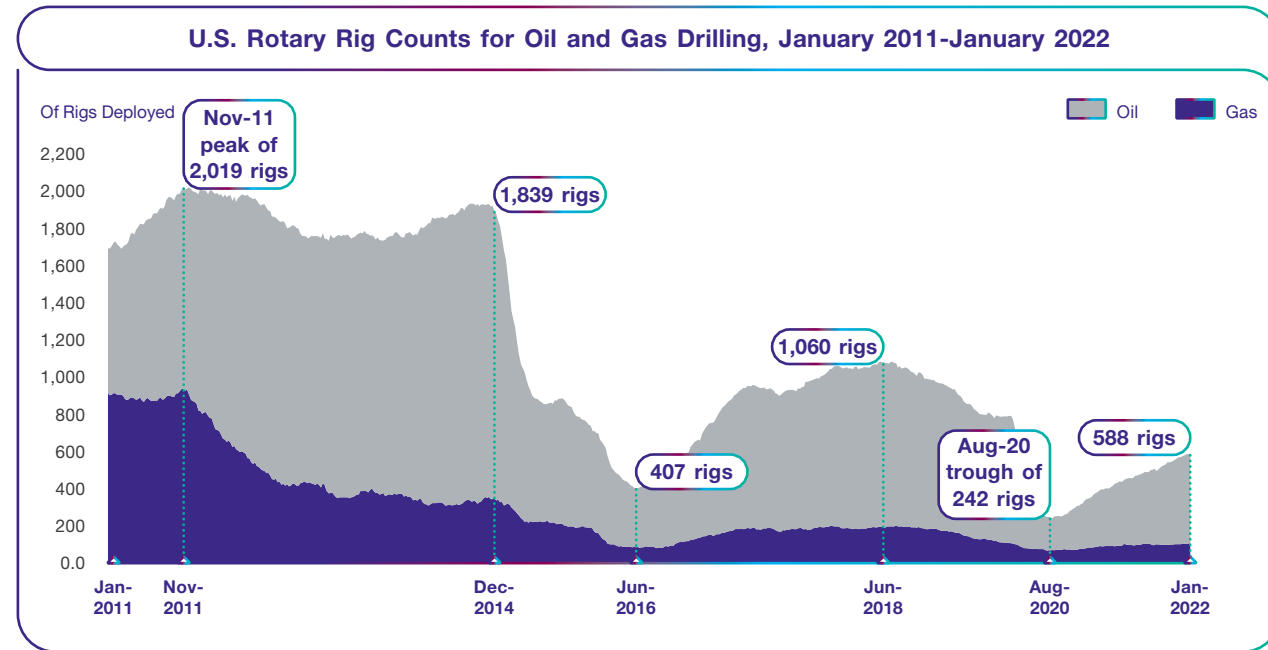
Source: EIA Natural Gas Henry Hub spot prices; <https://www.eia.gov/dnav/ng/hist/rngwhhdM.htm>

While growth in U.S. LNG demand is a significant contributor to the overall outlook for Henry Hub prices, the key driver for Henry Hub price outlook is centered around domestic U.S. producer supply response. In other words, how aggressively will U.S. exploration and production companies reinvest their capital to develop additional natural gas supply in response to price appreciation. One of the most watched leading indicators of the potential supply response is the rotary rig count, which is measured

by Baker Hughes. The more rigs that are deployed, the more we can expect new supply. To date, rig count rates have recovered significantly off their lows for both oil and gas directed rigs. However, the overall U.S. rig count at 588 rigs (as of January 2022) remains around 45% below the recent peak in June 2018 of 1,060 rotary rigs. The chart on next page illustrates the historical U.S. rig count by primary commodity drilled.



## United States Oil and Gas Rotary Rigs Counts

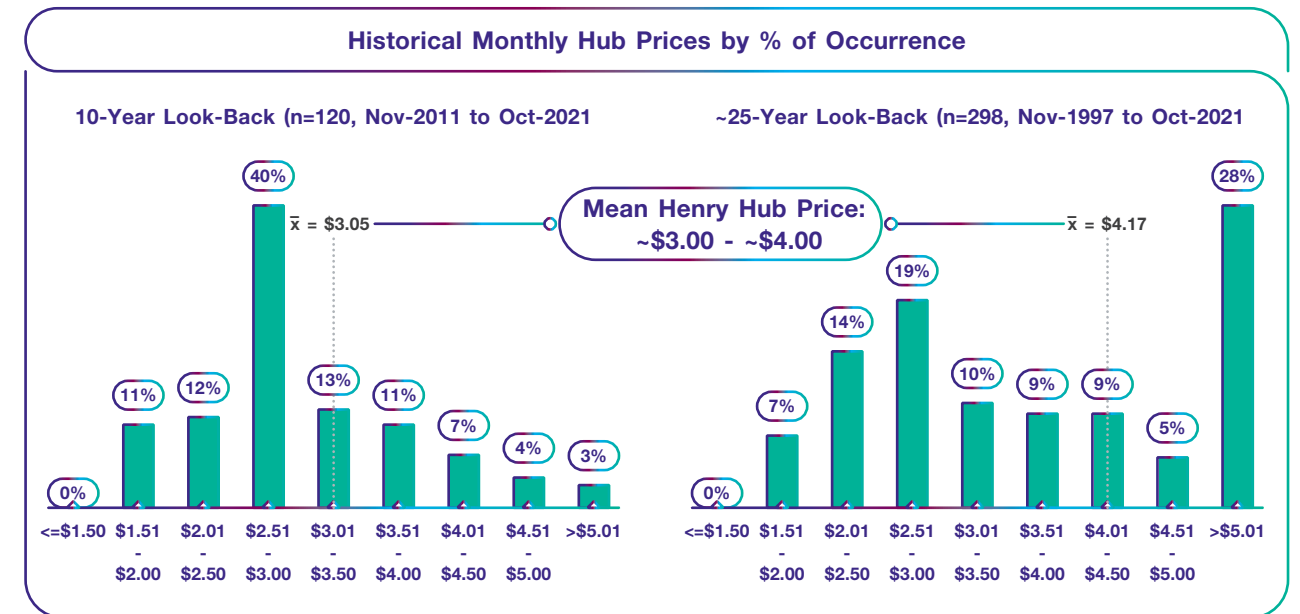


Source: Baker Hughes; <https://rigcount.bakerhughes.com/na-rig-count>

The question remains – what's the projected outlook for Henry Hub prices in the future? Henry Hub prices are the single largest factor affecting the economics of U.S. natural gas producers. A variety of approaches can be utilized to project Henry Hub prices, the most common being (i) fundamentals-based or (ii) statistical-based projections. An evaluation of historical statistical nominal Henry Hub prices can be instructive as it tells us the range and mean of historical Henry Hub prices. By applying 'mean

reversion' theory to historical U.S. natural gas prices, the analysis suggests that future natural gas prices will trend toward a long term mean price of between USD 3–USD 4 per MMBtu (note: this also assumes that inflationary effects on natural gas prices are perfectly offset by productivity gains in the use of natural gas). The analysis on next page based on historical Henry Hub data from EIA outlines the long-term mean price expectation.

## Historical Statistical Analysis would Suggest Henry Hub to Trend between \$3-\$4/MMBtu (base on Mean-Reversion Theory)



Source: IEA Henry Hub Natural Gas Spot Price Settles (Daily)

## 3. Local Areas of Operations in the U.S.

Banpu, through its holdings in BKV Corporation (BKV), operates natural gas (and natural gas liquid) assets in two distinct areas. The first area is in Northeast Pennsylvania where one of two core sub-basins of the Marcellus unconventional play exists. The second is in North Texas in the core of the Barnett unconventional play (within the Fort Worth Basin). In addition to the two upstream assets, BKV also has a 50% ownership in the Temple 1

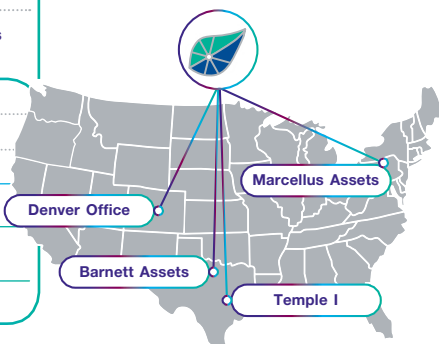
combined cycle power plant, located in Temple, Texas. The power plant acquired on 1 November 2021 has a generation capacity of 768 MW. The power plant combusts natural gas to generate electricity and the supply of the natural gas for the power plant, can be sourced from BKV's Barnett assets through an existing midstream network. The graphic on next page outlines BKV's current portfolio as of 31 December 2021.





## BKV Corporation: U.S. Portfolio

Natural Gas			
	Current Production MMcfe/d <sup>(1)</sup>	YE21 SEC Reserves <sup>(2)</sup> (Tcfe)	Producing wells
Barnett	526	3.50	4,855
Marcellus	147	0.94	393
Total	673	4.44	5,248
Power			
	Location	Heat Rate Btu/kWh	Capacity MW
Temple I <sup>(3)</sup>	Bell County, TX	7,000	768



**Note:** 1. December 2021 Net Production estimates as of January 14, 2022

2. SEC Reserves: reserve report generated using SEC standards and verified via third party engineers.

3. Ownership in temple 1 is via a JV Partnership with Banpu Power

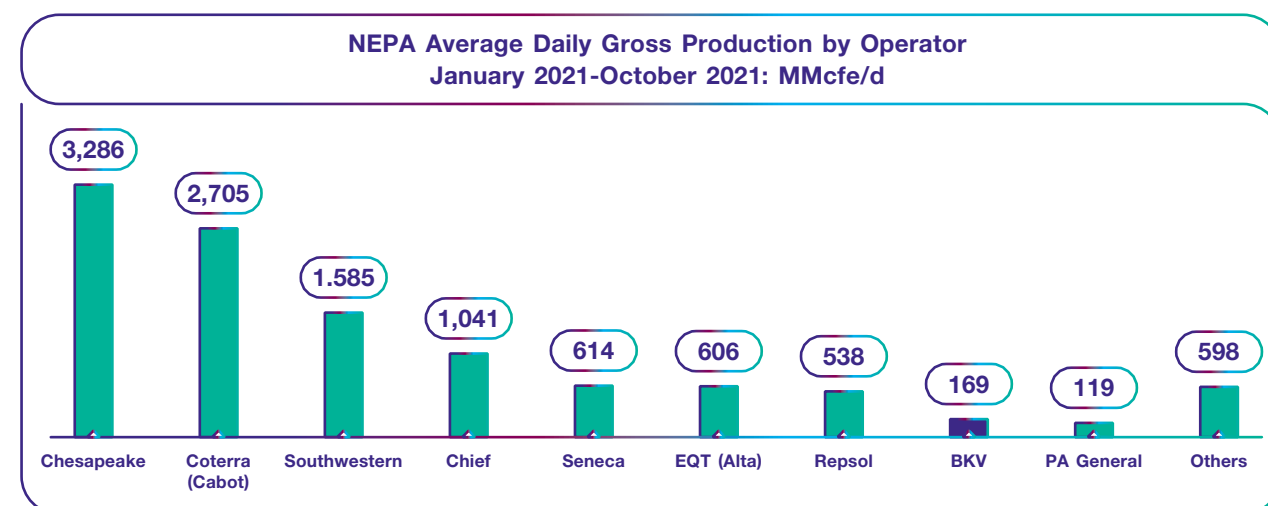
## Competition

### Northeast Pennsylvania

In fiscal year 2021, BKV produced 55.2 Bcfe net or an average of 151.2 million cubic feet per day (MMcfd) with its Northeast Pennsylvania (NEPA) asset, including both operated and non-operated wells. While no new wells were drilled in NEPA in 2021, a combination of compression projects and drilled but uncompleted (DUC) well completions were

utilized to arrest production declines and maintain production. When compared to other operators in NEPA, on a gross operated production basis, BKV's asset ranks as the eighth largest producer in the basin. The chart below illustrates the gross operated production ranking by operator in the NEPA area.

### NEPA Gross Operated Production by Operator



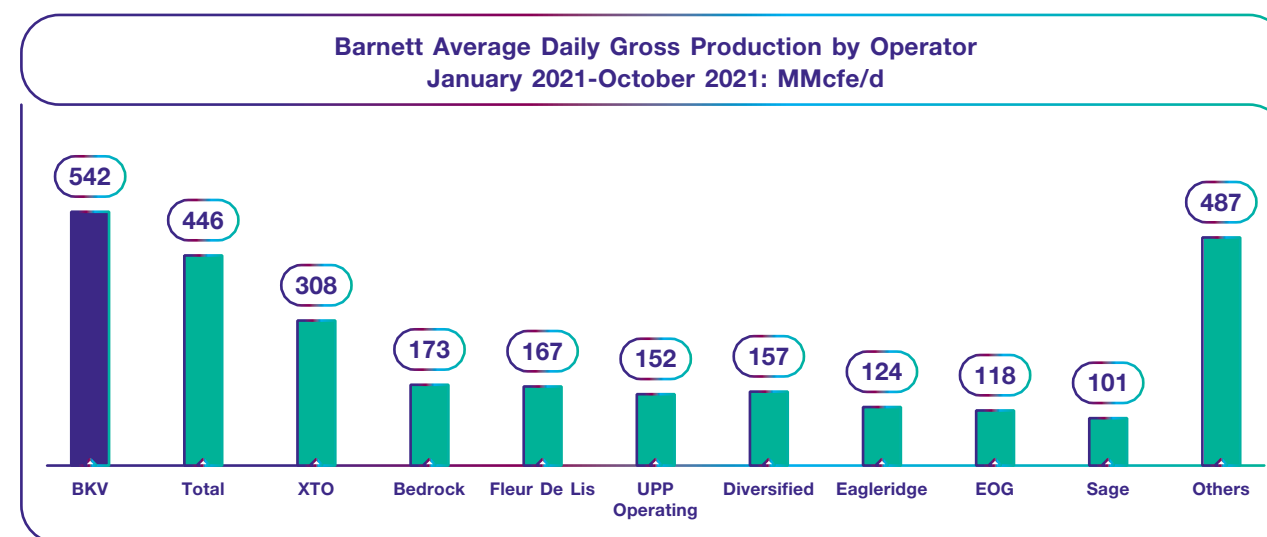
**Source:** IHS Enerdeq; Oil and NGL converted to natural gas equivalent using a 6:1 ratio; NEPA Counties: Bradford, Centre, Clarion, Clearfield, Clinton, Lycoming, Potter, Sullivan, Susquehanna, Tioga, Wyoming.

### North Texas

BKV is the largest producer of natural gas in the Barnett asset. In 2021, BKV produced a total of 190 Bcfe net or an average of 520.5 MMcfe per day of production, including both operated and non-operated wells. When comparing BKV's gross production versus other operators in the basin, BKV is the largest operator in the Barnett. No new

wells were drilled in the Barnett in 2021; however, BKV embarked on a significant program to restimulate older wells to arrest production declines and enhance overall production performance. The chart below outlines the rank order of operator by production volume in the Barnett play for 2021.

### Barnett Gross Operated Production by Operator



**Source:** IHS Enerdeq; Oil and NGL converted to natural gas equivalent using a 6:1 ratio

## Sources of Competition

Within the U.S. natural gas production market, there are three primary sources of competition.

### 1. Competitive Natural Gas Producers

BKV competes with other onshore unconventional natural gas producers to deliver its products to the marketplace. The key competitors are identified above in each basin as compared to BKV. Besides environmental, social, and governance (ESG) principles, natural gas producers typically compete on their efficiency and ability to access key markets. These measures are best quantified by financial

metrics excluding the effects of hedging. The chart on next page illustrates BKV's competitive position vis-à-vis eight peers that operate in the same or similar natural gas basins. The data illustrates that despite BKV's smaller size as compared to public peers, BKV can compete on efficiency and margin metrics with leading U.S. public peer comparable.





## U.S. Natural Gas Producer Benchmarking (YTD Q3 2021)

BKV Peer Set Benchmarking									
YTD Q3 2021 – Income from O&G Products excl. Hedging Gains / Losses									
	IFRS BKV1 <sup>(1)</sup>	Peer 1	Peer 2	Peer 3	Peer 4	Peer 5 <sup>(2)</sup>	Peer 6	Peer 7	Peer 8
Average Production (MMcfe/day)	676	3,242	2,106	3,297	2,964	630	1,333	201	4,872
Average Realized Price (excl hedges, USD \$ / Mcfe)	\$3.08	\$3.05	\$3.61	\$4.32	\$2.73	\$2.67	\$3.67	\$2.24	\$3.00
Cash Operating Costs (USD \$ / MCfe) <sup>(3)</sup>	\$1.75	\$1.27	\$2.16	\$2.59	\$2.96	\$1.46	\$1.26	\$1.47	\$1.47
Cash Margin (%) <sup>(4)</sup>	43%	58%	40%	40%	(9)%	45%	66%	34%	51%

**Note:** Internal analysis based on GAAP public company filing and BKV IFRS financials; 2 Peer 5 releases financials semi – annually; figures are based on 1H 2021 3 Cash Operating Costs = Transpotation & Gathering Direct Ops (LOE & Workover), Taxes other than income, exploration, general, and interest expense 4 Cash Margin = [ (Average Realized Price – Cash Operating Expenses) / Average Realized Price] x 100

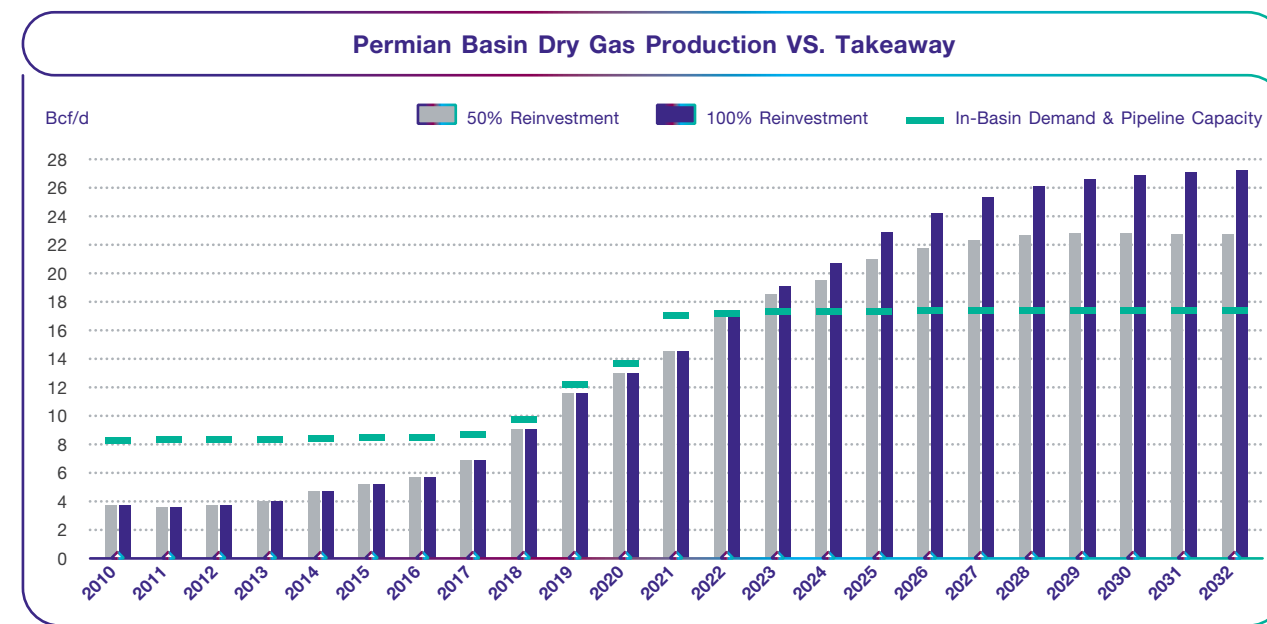
**Source:** Internal analysis based on GAAP public company filing and BKV IFRS financials ; 2 peer 5 releases financials semi – annually; figures are based on 1H 2021 3 Cash Operating Costs = Transpotation & Gathering, Direct Ops (LOE & Workover) Taxes other than income, exploration, general, and interest expense 4 Cash Margin = [Average Realized Price – Cash Operating Expenses) / Average Realized Price] x 100. G&A expenses indudenon – cash stock compensation expense.

## 2. Associated Gas Production

Secondary competition for natural gas producers is from associated gas, in which oil producers generate natural gas as a by-product of oil producing operations. Since oil is the primary economic driver for these operators, the marginal costs of their natural gas are extremely low, and they can displace existing natural gas demand. The key for associated natural gas producers is getting their natural gas to market through economic pipeline infrastructure to monetize their by-product. The biggest source of this associated natural gas is from an unconventional play in west Texas located in the Permian basin. While substantial

associated natural gas is produced from the Permian, the pipeline constraints from the Permian to demand markets in the gulf coast areas of Texas and Louisiana, imply that the overall competition from this source of associated gas will be capped based on the pace of pipeline infrastructure build outs. The chart on next page projects the total potential associated natural gas supply from the Permian basin as assuming supply is constrained by anticipated future pipeline infrastructure builds. The analysis was prepared by BTU Analytics.

## Permian Dry Gas Production Outlook and Takeaway Capacity



**Note:** Assumes that all future gas pipelines in the Permian have a capacity of 2 Bcf/d.

**Source:** BTU Analytics.

## 3. Alternative Sources of Primary Energy

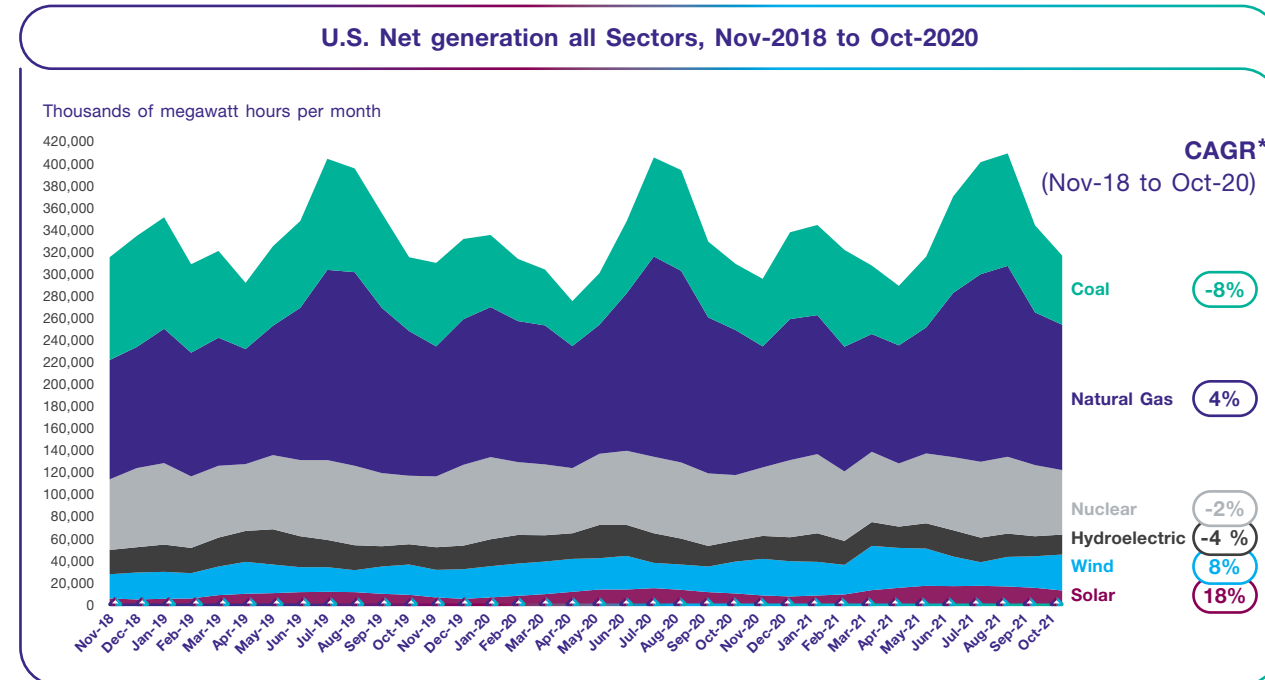
The third source of competition is from natural gas substitution sources, this is particularly focused on renewable energy penetration in the power sector and the commercial and residential sectors. The past five years have seen respectable increases in renewables net power generation across the U.S. (solar net generation grew at 18% compound annual growth rate (CAGR) and wind generation grew

at an 8% CAGR over the period respectively). However, the base of renewable power generation is small; therefore, the overall impact on demand substitution has been muted. Going forward, policies around future power generation remain uncertain in the U.S. but have significant impact on the outlook for future demand substitution and must be watched closely.





## U.S. Net Electric Generation by Primary Energy Source



\* Compounded Annual Growth Rate

Source: EIA net generation report all sectors monthly; <https://www.eia.gov/electricity/data/browser/>

## Competitive Strategies

The market for natural gas in 2021 was highly volatile. The first half of the year saw depressed prices which led to limited capex spend by producers, while the second half of the year saw strong price recovery but with limited additional capex spend by producers to drive further supply growth. This volatility is expected to continue into 2022 as the balance between demand and supply remains tenuous as well as, the uncertainty as to how aggressively producers want to reinvest capital versus return cash to their investors. BKV's competitive strategies are multifaceted and designed to deal with this volatility through driving the business in five primary areas.

### 1. Production Management and Restimulation Programs

In response to the volatile pricing environment experienced during the year, BKV worked to maintain as much production as possible with as little capital as possible. This approach was especially highlighted in the Barnett asset where the company embarked on an innovative program of exceptionally low-cost high payback restimulations of older wells to generate additional production and optimize volumes.

These programs enabled BKV to maintain a very modest production decline rate of 4.2% (operated production, December 2020 versus December 2021) while reinvesting a 32.5% of EBITDA into capex. The quality of BKV's asset base (with low decline rates) combined with the additional innovation of the operations teams to arrest declines with highly efficient use of capex (such as in the restimulation program) are a key advantage that BKV maintains over its competition to generate significant free cash flow.

### 2. Marketing Midstream Optimization

In 2021, BKV executed an amendment to its Gathering and Compression agreement with its main midstream operator in the Barnett, EnLink Midstream. This amendment as well as other midstream optimization efforts have enabled BKV to continue to deliver its natural gas with attractive margins and reliability of production.

### 3. Product Differentiation through Environmental, Social, and Governance (ESG) Efforts

In general, there is little differentiation in natural gas production, as it is thought of as a commodity. However, there is a trend emerging which enables operators to differentiate their natural gas production by ESG oriented certifications. In 2021, BKV certified its NEPA production under the gold standard with IES Trustwell (certified by Project Canary). This is the second highest rating a company can receive for its production, qualifying BKV's NEPA natural gas production as Responsibly Sourced Gas (RSG), which can potentially command a premium in the marketplace.

### 4. Technology and Automation

BKV continues to invest aggressively in technology and automation to enhance the productivity and analytics of the company overall. In 2021, BKV successfully migrated 100% of its data infrastructure to the cloud in partnership with leading industry players and was recognized by Amazon Web Services as a leading exploration and production company for its use and rapid adoption of technology. BKV believes that continued investment in technology will be key for future growth and efficiency gains.

### 5. Mergers and Acquisitions (M&A) Growth and Scale

BKV will continue to participate in M&A activity in the marketplace and has developed a core competency around identifying, analyzing, and acquiring then integrating attractive natural gas assets. When BKV benchmarked its integration costs of the Barnett asset against comparable transactions, the metrics for BKV were cited as favorable. This highly efficient ability to acquire and optimize assets that were developed by other operators offers a competitive advantage in a market that is experiencing steady consolidation through M&A over the past two years.



## Energy Generation

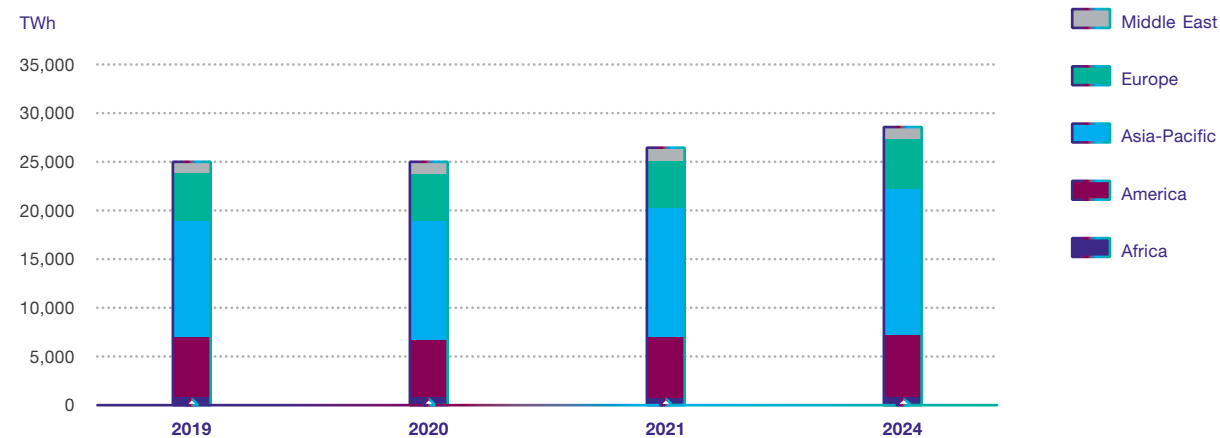
- ● ● Banpu Power Public Company Limited (BPP), a Banpu's subsidiary, is a leader in power generation and distributor in Asia-Pacific, including in Thailand, Lao PDR, China, Japan, Vietnam, Australia and the U.S.

## Power Business

### Market and Competition

#### 1. Thermal and Renewable Power Businesses

Global Electricity Demand 2019-2024

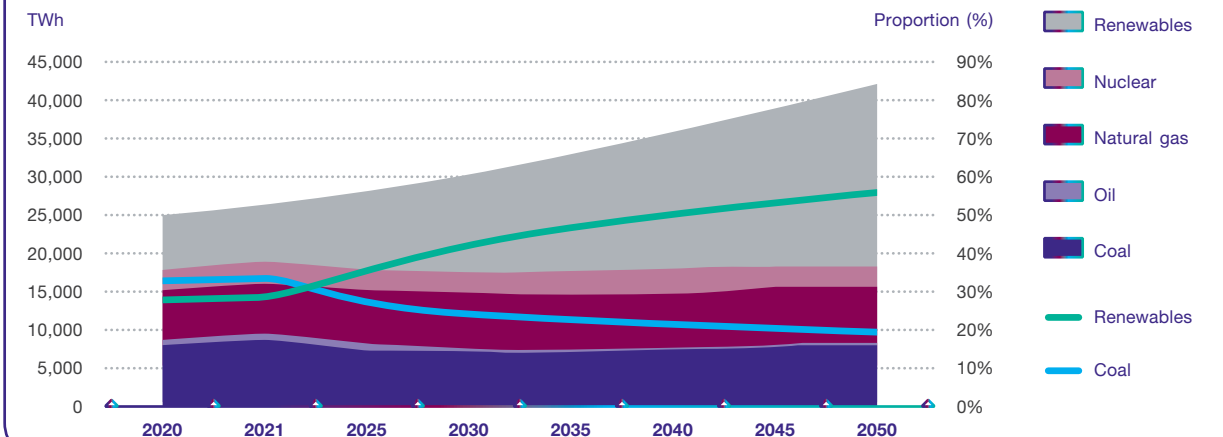


Source: Electricity Market Report by International Energy Agency (IEA)

In 2020, the global electricity demand grew by 6%, reaching a highest record in a decade, driven by the post-pandemic COVID-19 economic recovery and the colder weather. The majority of electricity

demand came from China, whose demand rose 10% over the past year. The global electricity demand from 2022-2024 was anticipated to grow around 2.7% per year on average.

Proportion of Global Power Generation Capacity by Fuel Source in 2020-2050



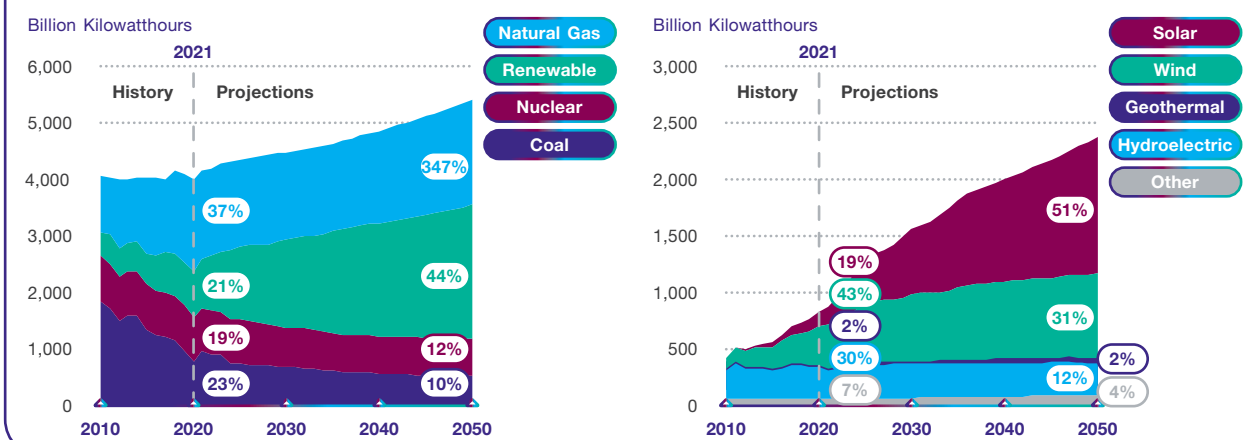
Source: Annual Energy Outlook 2021 by U.S. Energy Information Administration (EIA)

The global power generation capacity has also grown steadily. In 2021, the total capacity was 26,386 terawatts-hour (TWh), and the Compound Annual Growth Rate (CAGR) from 2021-2050 will be at 1.7% per year. The global capacity is projected to reach 41,953 TWh by 2050, driven by the growth of renewable power generation.

Considering the share of total global electricity capacity, capacity from coal is expected to fall from 33.8% in 2021 to 19.3% in 2050, while capacity from renewables will expand continuously from 28.1% in 2021 to 56.0% in 2050. The growth drivers are technology advancement, causing the reduction generation costs, concerns about environmental impacts, and government measures in many countries to support renewable energy development, as well as renewable growth target.

#### 1.1 Market and Competition in the United States of America

Estimated Proportion of Electricity Capacity by Fuel Source in 2020-2050

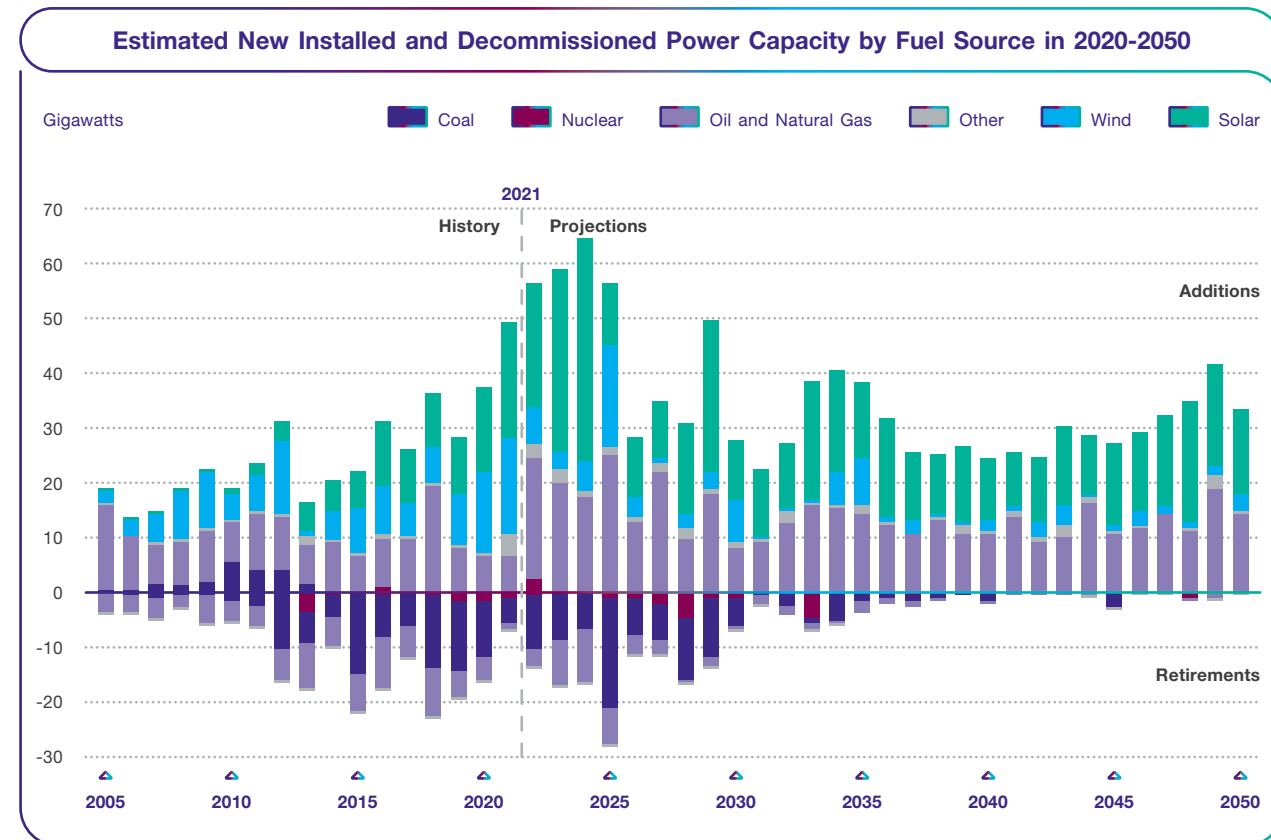


Source: Annual Energy Outlook 2022, Reference case by U.S. Energy Information Administration (EIA)



International Energy Agency (IEA) estimated that the electricity demand in the U.S. would increase steadily at an annual average growth rate of around 1% with the increasing power generation from natural gas and renewables. Nuclear power generation and coal-fired

power generation will have smaller shares. Among renewables, solar power generation will enjoy the highest growth since the solar equipment cost have steadily declined.



Source: Annual Energy Outlook 2022, Reference case by U.S. Energy Information Administration (EIA)

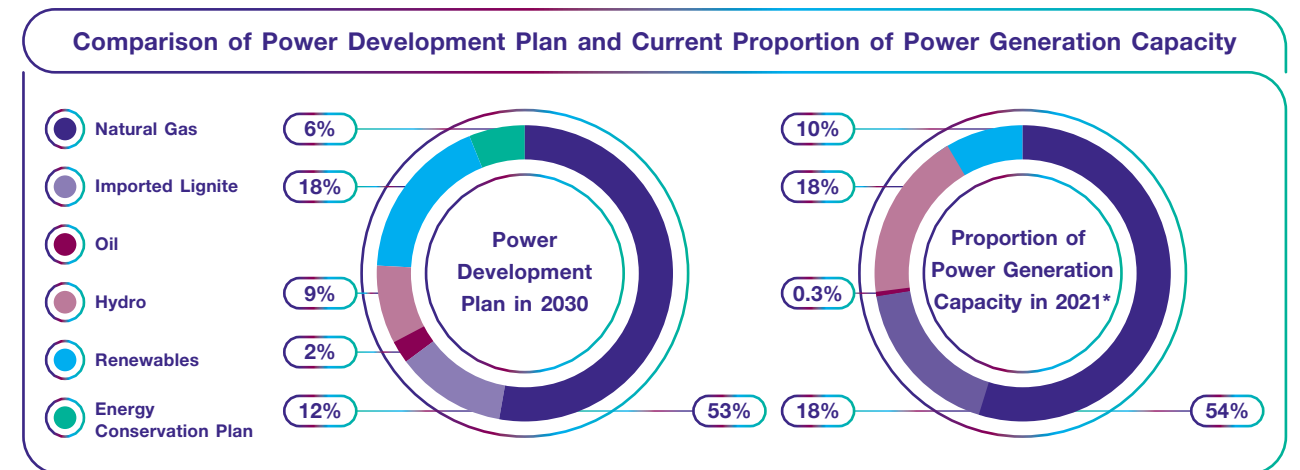
For new installed generation capacity, natural gas and renewables are expected to be major sources due to low fuel costs of natural gas and steady decline of renewables' prices. During 2022-2025, there is a plan to expand wind power plant capacity of around 150 GW as a result of tax incentives. The investment in solar power plants is rising steadily while the proportion of coal-fired and nuclear power plants is falling due to the continuous decommissioning of such power plants. Currently,

average wholesale electricity prices have fallen thanks to discoveries of new shale gas, which has led to falling gas prices in the U.S. On the other hand, the increased proportion of renewables pushed down the prices and electricity demand to lower than previous forecast, which had been expected to grow at the same rate as the Gross Domestic Product (GDP).

## 1.2 Market and Competition in Thailand

In 2021, Thailand's installed power generation capacity amounted to 50,874 MW, a 12% increase from 2020. In April, the electricity demand peaked at 30,135 MW, 1,498 MW or 5% higher than 2020's peak demand at 28,637 MW. Power generation capacity

in Thailand in 2021 consisted of natural gas 54%, imported lignite 18%, oil 0.3%, hydropower 18%, and renewables 10%. In summary, power generation from natural gas, coal, hydropower, and oil decreased while renewable power generation and electricity imports increased.



Source: Energy Policy and Planning Office (EPPO), Ministry of Energy

\* Information as at end-November 2021

## 1.3 Market and Competition in Lao PDR

Currently, there are more than 80 power plants in Lao PDR with an installed capacity of more than 10,000 MW or 53,000 million KWh. Electricity exports to Thailand, Vietnam and Cambodia are considered the country's main source of income. In 2021, Lao PDR planned to export 26,972 million KWh of electricity and reserve 7,253 million KWh for domestic consumption. It has signed power purchase agreements to supply electricity of 10,200 MW to Thailand, 5,000 MW to Vietnam, and 600 MW to Cambodia by 2025. Thailand has purchased electricity from Laos PDR through eight power plants, consisting of seven hydropower plants and one coal-fired power plant.

Most of Lao PDR's capacity is from hydropower, which accounts for 80% of total generation capacity, while coal and oil account for 19% and 1%, respectively. However, over 90% of domestic electricity consumption relies on hydropower generation. Therefore, Lao PDR will face power outages during the dry season, forcing the country to turn to electricity imports. To reduce dependence on a single source of energy, the Lao government planned to increase the fuel mix of power from solar, wind, and coal while reducing hydropower generation.

Source: Ministry of Planning and Investment, Lao PDR (Information as at November 2021)





## 1.4 Market and Competition in China

The growth rate in electricity consumption in China is as follows:

	Unit	2021	2020	2019	2018
Growth rate in generation capacity	%	7.6	6.6	6.3	6.7
Total generation capacity	Gigawatts	2,377	2,210	2,073	1,949

Source: National Energy Administration (NEA), China

In 2021, China's power generation capacity growth rate was 7.6% of total capacity, growing over the past year. More than 55% of total capacity came from coal-fired power plants while renewable energy capacity continued to grow and exceeded 635 GW in 2021. The Chinese government has announced that it would peak its carbon emissions by 2030 and achieve carbon neutrality by 2060, raising the proportion of non-fossil-fuel energy power generation to 80%.

In the second half of 2021, China was hit by an energy crisis caused by production problems of coal exporters in many countries coupled with the decline in domestic production, as well as China-Australia trade disputes. As a result, coal prices, the primary fuel for power generation, climbed up steadily. Moreover, the Chinese government continued the fixed electricity prices scheme, prompting some power plants to scale down their production to lessen the impact on operations. This led to supply shortages affecting both industrial and household sectors in many provinces across the country. The Chinese government has taken several measures to tackle the energy crisis, for example, increasing coal production quotas and opening coal mines in the Inner Mongolia Autonomous Region. It also raised the cap on electricity prices from the 10% limit to the 20% limit and lifted the cap on electricity prices in heavy industry to ease the pressure on power

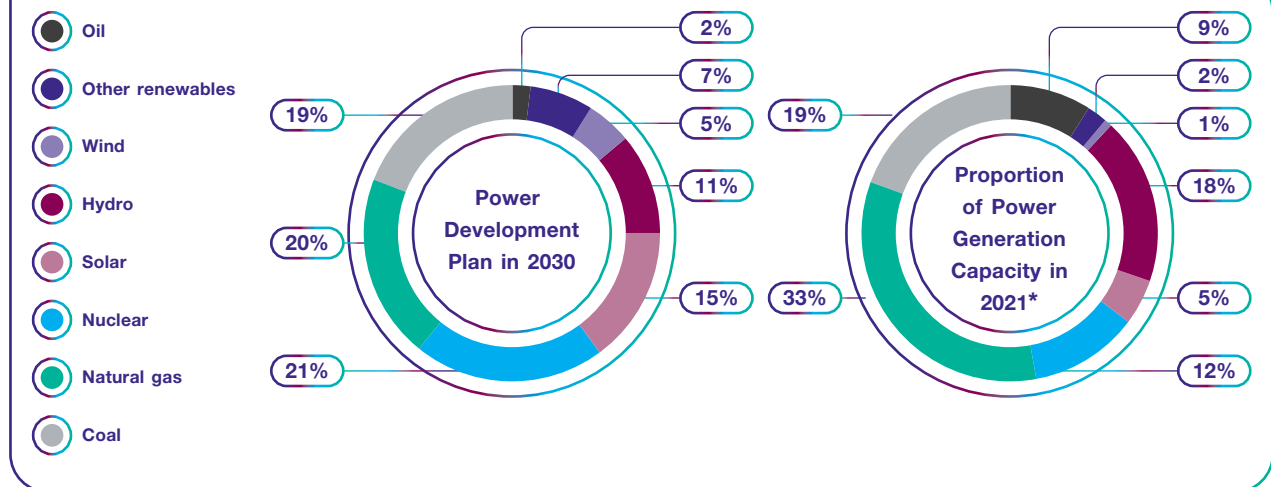
producers. In addition, the Chinese government has also reformed the electricity market by opening a wholesale market for all coal-fired power plants. The liberalized wholesale market allows commercial and industrial consumers to buy and sell electricity directly from the producers, enabling market-based energy distribution and electricity pricing.

Source: The National Development and Reform Commission of the People's Republic of China (NDRC) (Information as at October 2021)

## 1.5 Market and Competition in Japan

Japan's electricity consumption has enjoyed a stable growth with the majority of capacity from thermal power generation. Part of the capacity was from renewables, accounting for 24% of the total capacity of 63,764 MW, consisting of 3,580 MW from wind power, 10,549 MW from solar power, and 49,635 MW from hydropower. According to the Fifth Basic Energy Plan, Japan has set to achieve a target of 22-24% from renewables by 2030. The Government of Japan has replaced the renewable-based electricity pricing scheme from the Feed-in Tariff (FiT) scheme with the auction scheme. In 2021, newly developed solar power plants were eligible for the auction price rate of JPY 10.34 per kWh. In addition, there was a regulatory change prescribing that any solar power plant project development of over 40 MW operating capacity must submit an Environmental Impact Assessment (EIA) report. The new regulation has been effective from April 2020 onward.

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



Source: The Fifth Basic Energy Plan, Ministry of Economy, Trade and Industry (METI), Japan

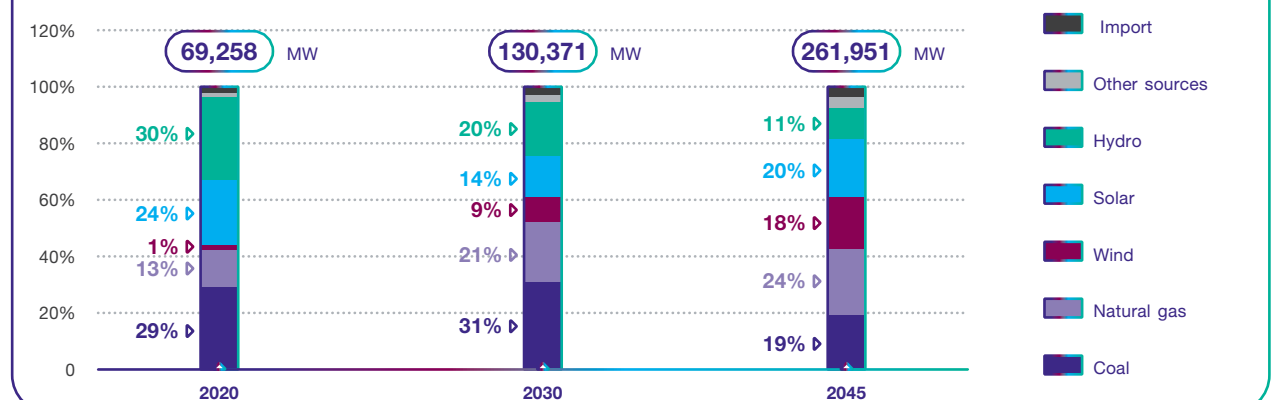
\* Information as at February 2022

## 1.6 Market and Competition in Vietnam

In 2021, Vietnam's Gross Domestic Product (GDP) grew by 2.58% as the country was affected by the COVID-19 pandemic. It is forecasted that Vietnam's GDP in 2022 will be at around 5.5%, mainly due to continued economic recovery and the successful control of the COVID-19 outbreak.

Vietnam has set renewable capacity targets for 2045 in its 8<sup>th</sup> Draft Power Development Plan, aiming to increase wind capacity to 18% and solar capacity to 20% of the total target capacity of 261,951 MW.

### Proportion of Installed Power Generation Capacity by Fuel Source under 8<sup>th</sup> PDP of Vietnam



Source: Ministry of Investment and Trade Development, Vietnam

\* Information as at October 2021



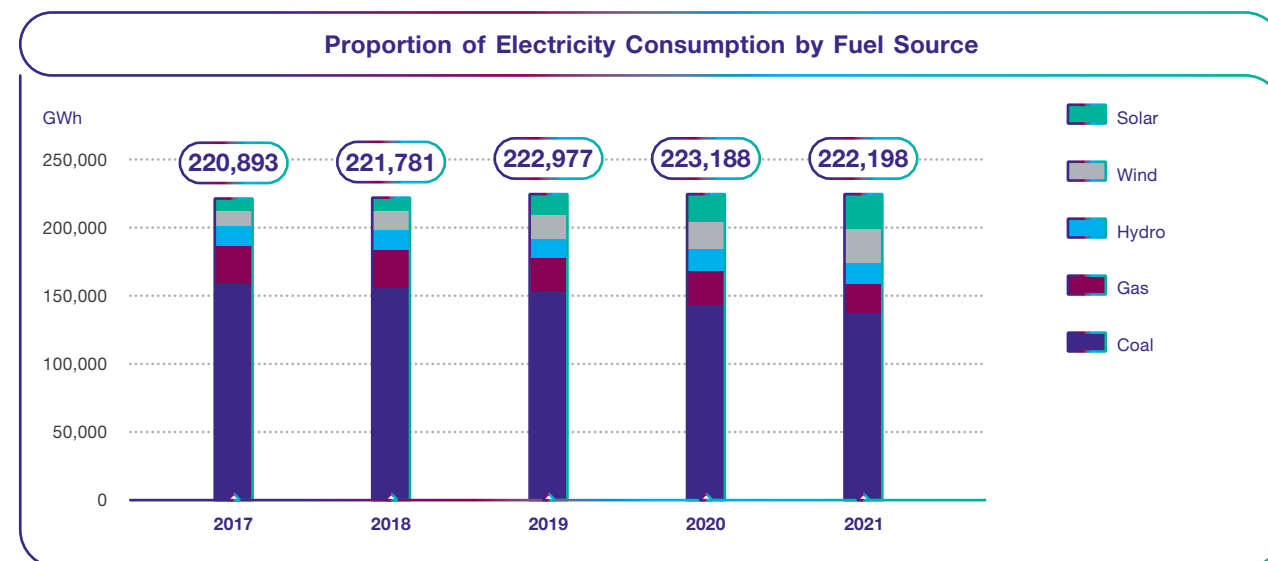


Vietnam set the Feed-in Tariff (FiT) of 9.35 US cents/kWh for the solar power projects that achieved commercial operation date (COD) by June 2019, 7.09 US cents/kWh for the solar power projects that achieved COD by December 2020, 8.5 US cents/kWh for the onshore

wind projects, and 9.8 US cents/kWh for the nearshore wind projects that achieved COD by October 2021. In the future, the Vietnamese government will change the solar and wind pricing schemes from FiT to the auction scheme.

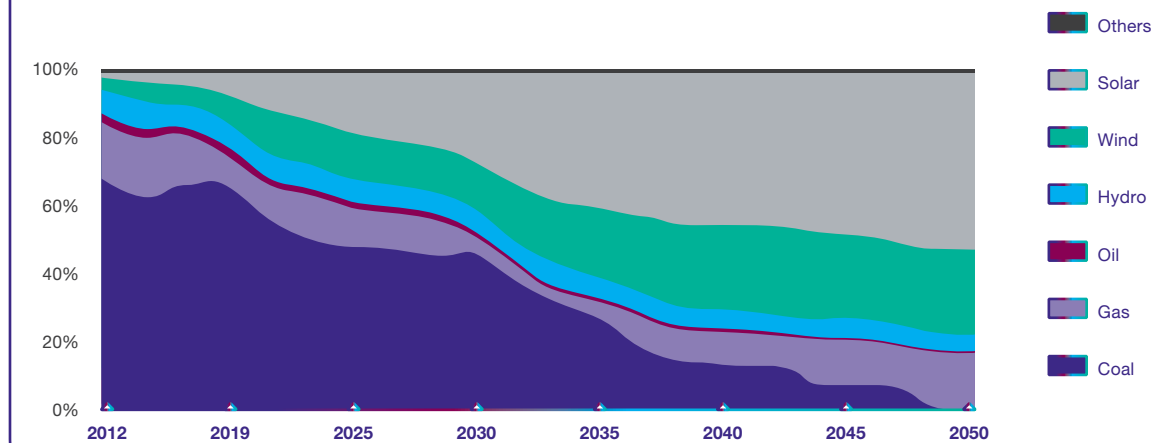
## 1.7 Market and Competition in Australia

Australia has a free electricity market where electricity demand has been relatively stable over the past five years. In 2021, Australian electricity demand was at 222,198 GWh, falling 0.4% from last year. Australia's primary energy source is coal, with a share of 66% of total energy sources. However, the share of coal has steadily declined due to the increase in renewable energy, particularly solar energy, which has become more popular in households with solar rooftop systems. The Australian government announced its commitment to net-zero emissions by 2050, forcing states to formulate and implement policies to support more electricity generation from renewable sources. It is anticipated that the share of renewable energy will reach 84% by 2050.



Source: National Electricity Market, Australia

## Estimated Proportion of Electricity Generation from Each Fuel Source



Source: BloombergNEF

## Competitive Strategies

### Competitive Strategies in Thailand

Banpu Power holds a 50% stake in BLCP Power Ltd., the operator of the BLCP power plant with a total capacity of 1,434 MW of which 717 MW is equity capacity. The BLCP power plant, which is located in the Map Ta Phut Industrial Estate, is a major power producer selling electricity directly to the Electricity Generating Authority of Thailand (EGAT). BLCP's dispatch rate in 2021 was at 99.1%, reflecting its effective operational readiness. BLCP's production output accounts for 5% of EGAT's total installed and purchased power capacity.

### Competitive Strategies

#### 1. Maintaining Operational Efficiency and Readiness of Power Plants

Banpu Power consistently improves efficiency and maintains equipment of power plants according to the maintenance schedule to secure the Availability Factor (AF) and

Contracted Available Hours (CAH) in accordance with the power purchase agreement (PPA). In 2021, BLCP reported the Equivalent Availability Factor (EAF) of 90.6%.

#### 2. Seeking Opportunities for Business Expansion

Banpu Power has been on the lookout for new domestic growth opportunities by aligning the domestic power business expansion plan with the National Energy Development Plan for 2018-2037 (PDP 2018), approved by the National Energy Policy Council (NEPC) on 24 January 2019. The plan proposes increasing the capacity of Isolated Power Supply (IPS) groups and efficient energy-saving measures. The PDP proposal will push electricity demand lower than projected while there are more policies promoting renewable power generation. Moreover, the development of new thermal and renewable power plants will face increasing competition in project bidding and in applying





for electricity retail supply licenses. Therefore, Banpu Power has prepared competent and experienced staffs from the Business and Project Development Department to monitor the government and related government agencies' policies and evaluate the company's competitiveness. In addition, the business development team also prepares the company's participation in the government project which allows private investment such as the Eastern Economic Corridor (EEC). It also responds to government support for the business sector's role in the Isolated Power Supply (IPS) projects that use renewable energy sources.

### 3. Stakeholder Relations Management

Banpu Power has supported activities and enhanced mutual understanding in the communities in all locations where it operates, resulting in a healthy relationship with the communities.

#### Major Competitors

- Banpu Power's thermal power plants that are commercially operational have no direct competitors who are 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.

### Competitive Strategies in Lao PDR

Banpu Power holds a 40% stake in Hongsa Power Company Limited, which operates the HPC power plant, the only mine-mouth power plant in Lao PDR. The HPC power plant has a total capacity of 1,878 MW, of which the company holds 751 MW equity capacity. The power plant sells the majority of electricity to the Electricity Generating Authority of Thailand under the Independent Power Producer (IPP) scheme and some of its output to Lao PDR. The HPC power plant's production output constitutes 25% of the total electricity that Lao PDR supplies to Thailand.

#### Competitive Strategies

##### 1. Maintaining Operational Efficiency and Readiness of Power Plants

All three production units of HPC power plant have been fully operational since 2016, with 100% dispatch in 2021. This demonstrates the operational stability and low operating costs, which are crucial for both countries' electricity systems.

##### 2. Managing Relationship with Local Government Agencies and Communities

Banpu Power places importance on community development by promoting community engagement and improving the quality of life of local people. These measures have been realized into community development initiatives, for example, infrastructure development (water supply, electricity, and roads), partial relocation and rebuilding houses in appropriate areas, vocational training and promotion of employment at power plants, contract for project design, and equipment procurement.

### 3. Cost Management and Efficiency

In 2021, Banpu Power supported the HPC power plant to improve its efficiency and capacity readiness in power generation and distribution. The improvements covered equipment maintenance and coal transportation to the power plant, which helped maintain the Equivalent Availability Factor (EAF) at 84.54%. Moreover, the power plant increased readiness by stocking equipment parts and improving the speed and efficiency of maintenance, contributing to smooth power generation.

#### Major Competitors

Banpu Power's coal-fired power plant that is commercially operational has no direct competitors because the company has a long-term power purchase agreement with the Electricity Generation Authority of Thailand and Électricité du Laos.

#### Competitive Strategies in China

Banpu Power's combined heat and power (CHP) 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

The Chinese government has pursued electricity trading market reform to reflect fuel costs in each province and, at the same time, has imposed measures to stabilize electricity prices

for households. Banpu Power has assessed the impact on the pricing in power and steam purchase agreements and adjusted the prices accordingly. For instance, Zouping CHP plant had agreed to sell steam to main customers at a reference price of CNY 125 per tonne, and when there is any change in the coal cost, plus or minus, for every CNY 0.01 per kilocalorie (inclusive of tax and transportation costs), 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 was able to maintain its profitability by improving production efficiency and strictly controlling the costs using the inventory management strategy, buying and stocking up coal when coal prices decline, and utilizing it during the time coal prices increase. Banpu Power also plans to expand capacity to neighboring areas to respond to an increase in steam and electricity demand driven by 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 industrial plants. Banpu Power uses highly efficient power generation processes that comply with current environmental standards with regular maintenance of all equipment and machinery. It also has a plan to upgrade environmental control equipment. Apart from that, Banpu Power monitors and assesses environmental impacts to ensure that its business operations fully comply with environmental laws, rules, and regulations.





Banpu Power has considered deployment of the state-of-the-art technology called Ultra-Supercritical (USC), 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 oxides, carbon monoxide, and other pollutants before being released into the atmosphere.

### 3. High Adaptability

Banpu Power has a specific team to closely monitor changing market conditions and align business operations to the market conditions or situations in order to embrace business opportunities and mitigate negative impacts. Banpu Power is prepared to adjust the distribution of electricity, steam, hot and chilled water in response to the factors affecting the demand. For instance, Zhengding CHP plant would produce electricity, steam, and hot water for sale during winter. In summer, when customer demand shifted, 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. Banpu Power strives to assure readiness and security in the generation and distribution of electricity and steam to respond to customers' needs at all times, especially the distribution of steam and hot water in winter. Banpu Power always maintains strong customer

relationships on the basis of mutual trust and benefits, which has earned trust and confidence from customers.

Relationship management with local government agencies and communities is also on the basis of mutual benefits through procuring 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, Banpu Power still enjoys full support from local governments, for instance, financial subsidies or approval to raise steam prices when coal prices increase.

### 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. Banpu Power 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 Luannan CHP plant is in the urban-industrial area, which gives it a strategic advantage to become the sole distributor of steam. Banpu Power is also considering expanding its customer base to new industrial areas to offer the service of the solar rooftop system. Moreover, Banpu Power is conducting a feasibility study for the development of the company's existing land to develop a biomass power plant project together with the combined heat and power plant.

## Major Competitors

- Domestic and international power producers and investors

### Competitive Strategies in Japan

Banpu Power expanded investment into Japan by starting with an investment in the solar power plant business. Currently, the company has a combined capacity of 135 MW from commercially operational projects and 102 MW from under development projects. In 2021, Banpu Power diversified its investment through joint investment in the Nakoso IGCC power plant with an installed capacity of 543 MW in Fukushima Prefecture. This gas-fired power plant deploys the IGCC technology – a high efficiency, low emissions (HELE) technology – which integrates gasification technology with the Gas-Fired Combined Cycle power plant. Besides, the power plant has entered into a long-term power purchase agreement and a long-term fuel supply agreement. Banpu Power continues to create sustainable growth and seeks investment opportunities in power plants which deploy eco-friendly technologies in markets that have growing electricity demand and supporting government policies.

### 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 costs from multiple funding 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 the energy industry, with a specific team to follow up and study the changes in detail as well as impacts on under-development projects to ensure that all projects achieve commercial operation date 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 although the Japanese government reduced the Feed-in Tariff (FiT) for solar power and turned to the auction scheme. To achieve the target return on investment, Banpu Power has adapted by focusing on cautious cost management, procuring important equipment to improve efficiency, and seeking appropriate funding sources. For the new investment, Banpu Power will prioritize projects under the Feed-in Tariff (FiT) scheme or acquire projects that have already achieved commercial operation date.

Banpu Power also constantly 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 by expanding business opportunities with retail customers as well as solar rooftop business to fulfill demands of business and industrial sectors and renewable energy consumers.





## Major Competitors

- Domestic and international power producers and investors

## Competitive Strategies in Vietnam

Banpu Power has expanded investment in power business into Vietnam since 2016 under a Memorandum of Understanding (MoU) signed with Soc Trang Provincial People's Committee to carry out a feasibility study of investment in a renewable power project and was awarded an Investment Registration Certificate (IRC) in 2018. Banpu Power then established a subsidiary in Soc Trang province and prepared an experienced team with a good understanding of Vietnam's business environment to develop the project. Vinh Chau wind power plant project, Phase 1, is currently under construction, and a feasibility study is being conducted to further expand the generation capacity.

In 2020, Banpu Power expanded its investment through the acquisition of the commercially operational El Wind Mui Dinh wind farm in Ninh Thuan province. The 37.6 MW wind farm is eligible for a Feed-in Tariff (FiT) of 8.5 US cents per kWh for a period of 20 years. Located on the South Central Coast of Vietnam, Ninh Thuan province has the highest potential and investment opportunities in renewable energy, thanks to government support.

In addition, in December 2021, a subsidiary of Banpu NEXT Co., Ltd. (Banpu NEXT) entered into a purchase and sale agreement to invest in three solar farms: the 50 MW Ha Tinh Solar Farm in Ha Tinh province, the 15 MW Chu Ngoc Solar Farm in Gia Lai province, and the 35 MW Nhon Hai Solar Farm in Ninh Thuan province. The three solar farms are eligible for a

FiT rate of 9.35 US cents per kWh. The investment is under approval process by the responsible authorities, which is expected to be completed in Q2/2022 and can generate immediate income to Banpu Power.

## Competitive Strategies

### 1. Managing Relationship with Local Government Agencies and Communities

Banpu Power builds a relationship with local government agencies on the basis of the acknowledgment of social and cultural differences. Banpu Power 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 an investment decision. Thus, the company carefully conducts a preliminary analysis and a feasibility study of every project. Banpu Power also seeks advice from experts in many fields, such as engineering consultants, environmental consultants, legal consultants, financial consultants, and accounting and taxation consultants, to ensure accurate results of the feasibility study before investing and compliance with regulations and investment conditions in Vietnam. In addition, the feasibility study helps monitor the progress of project development and execution of each construction phase as planned.

### 3. Seeking Opportunities for Business Expansion and Added Value Creation

Vietnam has enjoyed a continuous growth rate in recent years and is expected to achieve a 5.5% of gross domestic product (GDP) growth in 2022 (Source: World Bank, as at January 2022). Such a high growth rate will lead to a continuous increase in electricity demand. The Vietnamese government also has a clear energy management plan to increase renewable power generation capacity, which is a promising opportunity for Banpu Power to make an investment.

## Major Competitors

Domestic and international power producers and investors

## Competitive Strategies in Australia

Banpu Group has been driving the growth of renewable energy business through Banpu NEXT, an affiliated company in which Banpu Power holds a 50% stake. Banpu NEXT has expanded investments in the renewable energy business in Australia. In June 2021, Banpu NEXT established Banpu Energy Hold Trust to invest in two solar farms with a combined generation capacity of 166.8 MWdc, comprising 110.9 MWdc from the Beryl Solar Farm (Beryl or BSF) and 55.9 MWdc from the Manildra Solar Farm (Manildra or MSF). Both solar farms are in New South Wales, where there is a constant growth of electricity consumption and demand and the government has a clear policy to promote electricity generation from renewable sources. Power plants under long-term power purchase agreements will supply electricity to the National Electricity Market (NEM). The acquisition of these two solar farms has paved

the way for renewable energy investments in Australia and is a penetration into an advanced electricity trading and wholesale electricity market. Banpu Power has continuously sought investment opportunity, focusing on project development capabilities, building trust with business partners and promoting growth in renewable energy and related businesses. In addition, Banpu Power is studying the feasibility of developing the integrated energy solution platform and energy trading business to create value and profitability from electricity trading.

## Competitive Strategies in the United States of America

On 1 November 2021, BKV-BPP Power LLC (BKV-BPP), a 50%-owned affiliated company of Banpu Power US Corporation (BPPUS), which is 100% owned by Banpu Power, invested in the 768-MW Temple I Combined Cycle Gas-Turbine (Temple I CCGT) Power Plant, which achieved commercial operation date on 15 July 2014. Temple I CCGT is located in Texas, one of the fastest-growing economic and population centers in the U.S. The power plant can generate and supply the power needs of about 750,000 households in Central Texas. Equipped with a pollution control management system to maintain low emissions, the power plant is highly efficient and flexible in power generation in accordance with power consumption patterns. Its priority dispatch makes it ideal for the competition in the Electric Reliability Council of Texas (ERCOT) market. This investment is the Company's stepping stone to an advanced and free electricity trading market, creating added value from the synergy between Banpu Power and BKV Corporation, a subsidiary of Banpu through knowledge and resource sharing to maximize the benefits of investment.



## Competitive Strategies

### 1. Maintaining Readiness and Enhancing Efficiency of Power Plants

Temple I power plant undergoes annual maintenance in spring and fall or during March and October, to ensure the highest operational readiness during the time when electricity consumption peaks (in winter and summer). Moreover, to prevent impact from winter storms, the power plant installed windshields to protect outdoor equipment from blizzards and extreme temperatures. It also installed the heat tracing system on pumps, valves, gauges, and other equipment to prevent them from freezing and becoming inoperable. In 2021, a wet compression system was installed to increase the power plant's efficiency. The system allows a larger volume of air to be compressed before being fed into the combustion process along with natural gas, thus increasing generation capacity during summer, the time when the ERCOT market's power demand peaks.

### 2. Cost and Efficiency Management

Regarding fuel cost management, the Temple I power plant is one of a few power plants in Texas that own gas storage facilities. Therefore, BKV-BPP can purchase natural gas when the prices are low and store it at the plant as a reserve for power generation when gas prices are higher. Over the past year, natural gas prices have been volatile, mainly due to severe weather conditions and supply-demand imbalance when tight domestic supply could not keep up with increasing demand during a year. However, with BKV-BPP's team of experts in the natural gas business and effective operational management of both BKV Corporation and Banpu Power, Temple I could harness its gas storage and maintain profitability from this storage optimization.

### 3. Management of Predictable Cash Flow

Selling electricity in a free market, Banpu Power has to compete with other electricity producers by offering competitive prices. In this context, the company's earnings can be more volatile than electricity suppliers who are under long-term power purchase agreements. To manage its predictable cash flows, Banpu Power has a team responsible for risk management by using financial hedging instruments, such as Heat Rate Call Options. Under the Heat Rate Call Options Agreement, BKV-BPP will earn a fixed revenue amount as agreed in the agreement. In principle, the power plant is obligated to supply electricity to the counterparty when the counterparty exercises the right to "call" the plant at a specified heat rate agreed in the purchase agreement, and the counterparty shall bear the fuel costs incurred.

### 4. Seeking Opportunities for Business Expansion and Added Value Creation

Banpu Power monitors market conditions, growth, and investment trends. It seeks investment opportunities in various projects across the U.S., including natural gas-fired power plants, renewable power plants, or other technologies. Banpu Power also aims to create added value through further investments in related businesses, for example, by exploring opportunities to invest in new fuel sources that are aligned with the country's energy development policy and get support by financial institutions. Banpu Power is also looking for an opportunity to enter into a power purchase agreement with major electricity consumers or expand the business into the retail markets.

### Major Competitors

Domestic and international power producers and investors

## Energy Technology

● ● ● Banpu NEXT Co., Ltd., a subsidiary of Banpu, is a leading smart clean energy solution provider in the Asia-Pacific, offering smart energy solutions for sustainability that include smart hardware and digital platforms. It satisfies customers' needs with innovation and expertise in energy technology at international standards for the sustainable betterment of life. With its strong business partnerships, Banpu NEXT, as a leading energy technology company, can offer customers the best all-in-one energy solutions and after-sales services at reasonable prices allowing them to enjoy efficient, reliable, and eco-friendly energy. ● ● ●

## Market and Competition

### Market

#### 1. Turnkey Solar Solutions Business

Solar panels for power generation see a continuous upward trend, especially in 2021. Prices of raw materials for panel production, such as glass, silicon, and aluminum, have increased as Chinese manufacturers suffered from power shortages and were forced to suspend production intermittently. Thus, some models of solar panels were out of stock. The solar panel production is expected to return to normal in March 2022 at the earliest. However, solar panel prices are likely to remain high because the production will be mainly for backlog orders.

Thailand has higher growth potential than what analysts expected. In addition, Thailand is one of the largest and diverse production bases of renewable power generation, reaffirming the growth potential of its renewable energy industry sector.

Solar power generation also enjoys government support through the feed-in tariff scheme and the Alternative Energy Development Plan 2018-2037 (AEDP 2018), with an aim to increase solar power generation to 9,290 MW.

The growth driver for solar power system installation in Thailand has been solar rooftop systems for homes, residential buildings, industrial plants, or commercial buildings, most of which are located in Bangkok Metropolitan. These segments, particularly industrial plants and commercial buildings, have high potential growth as entrepreneurs want to cut costs and shift to clean energy in compliance with more stringent policies to reduce carbon emissions.





## 2. Electric Vehicle Business

Pollutions and daily commutes are major problems facing urban residents. Nowadays, pollution problem is a growing concern for both government and people sectors. Electric vehicles (EVs) have become an attractive option for Thai people, and the EV trend is likely to continue growing. The government has provided support for the EV market in Thailand through development of energy policies and plans that offer incentives for EV manufacturers and interested buyers such as corporate income tax exemption, duty exemption for imported parts and equipment, and excise tax reduction for EVs. The number of EV charging stations has gradually increased from government and private sector investments.

In addition, the use of electric cars for public transport has been increasing, such as short-term EV rental or car-sharing service which helps reduce the number of personal cars, cut energy consumption, alleviate air pollution problem, and improve urban transportation.

## 3. Smart City Solutions Business

Smart City Development Plan is another policy that the government prioritizes and considers as an urgent agenda to address in alignment with the country's development toward Thailand 4.0 under the 20-year National Strategy. The government encourages cities to leverage cutting-edge smart technologies and innovations to improve the quality of urban services, enhance city administration, reduce costs and resources use of the target cities and populations by focusing on good design and promoting participation of business and citizen sectors in urban development. Starting with the development of pilot smart cities in seven provinces in 2018, the Digital Economy Promotion Agency (DEPA) targets to develop 100

smart cities in 76 provinces and Bangkok by 2022. Measures to drive the target include promotion of citizen participation in city administration and infrastructure development through more deployment of technologies, especially in the development of energy infrastructure, a critical infrastructure for mobilizing Thailand toward becoming a smart city. Those smart energy technologies ranging from energy management systems (EMS), energy storage systems (ESS), and electric vehicles (EVs) are intended to achieve maximum energy efficiency.

### Marketing Policy for Integrated Energy Services

Banpu NEXT has established an explicit, transparent, and accountable marketing policy to support the Banpu group's Sustainable Development Policy as follows:

1. To expand the customer portfolio to cover major markets in Asia
2. To create added value to products and services as an integrated energy solutions provider, offering installation services for solar power generation systems and diverse energy solutions with state-of-the-art technology; to properly satisfy varying needs of customers in different areas while transitioning to sustainable smart cities, and to develop support systems for the best customer services to make Banpu NEXT the customer's first choice always.
3. To maintain ethical standards in marketing competition and respect customers, competitors, and stakeholders
4. To ensure transparency, credibility, integrity, and professionalism

## Competition

### Solar Power Generation and Smart Energy Solutions for Sustainability

#### Competitive Strategies

Rising demand for solar rooftop systems and governmental support have attracted more players into the market. Banpu NEXT has chosen to differentiate itself by offering full-range smart energy solutions. Using advanced and suitable technologies, the company designs its products and services based on customer pain points and requirements with an aim to improve the quality of life for customers, contribute to Thailand's transition to clean and sustainable energy, and drive smart cities in the country in the future. Banpu NEXT's major competitive strategies are as follows:

#### ● Customer-Centricity

When it comes to service and solutions development, Banpu NEXT deploys a customer-centric approach by taking into account the customer's pain points and needs in energy utilization. A team of experts will visit customers at their sites to discuss their needs. Cutting-edge technologies and innovations are integrated to support data collection, analysis, and evaluation to provide efficient and cost-effective energy solutions to customers, help solve their problems, and respond to their needs as much as possible.

#### ● Integrated Smart Energy Solutions Offerings

Banpu NEXT does not only provide solar rooftop system installation services but also other energy solutions for betterment of customers' lives. The company also helps promote and drive the use of clean energy and related technologies to support Thailand's smart cities initiative.

Solutions offered are, for example, the Microgrid System, Energy Management System (EMS), and Energy Storage System (ESS) for power generation control, transmission, and power storage to achieve maximum energy efficiency, as well as Electric Vehicle solutions. Each of Banpu NEXT's solutions starts with by Smart Data Analytics in order to truly understand customers' pain points and respond appropriately to diverse needs of customers in each area.

#### ● Product Excellence

Banpu NEXT uses TIER 1 quality products from industry leading brands with guaranteed industrial standards. The company's engineering team has an expertise in designing systems that address specific needs of each project. System installations are compliant with international standards while state-of-the-art technology such as drone thermal scan is used for inspecting solar panels to ensure safe, customer, and efficient clean energy.





## ● Service Excellence

Banpu NEXT has built and developed many systems to support after-sales service, for instance, a control room for real-time monitoring of power generation, allowing timely correction of system malfunctions by a team of experienced engineers and customer service staff. The “BANPU Application” for mobile was developed to allow real-time tracking of the power generation system, the amount of power generated, and the power-saving performance. Customers can also view historical data and will be alerted when a system failure occurs. Moreover, Banpu NEXT has a customer service department that is responsible for providing information, handling complaints, and responding to customer queries through various channels. Customers can report problems about Banpu NEXT’s smart energy solutions 24 hours everyday, allowing the company to promptly solve the issues.

## ● Strong Ecosystem

Led by the Greener & Smarter strategy, Banpu NEXT operates its business by focusing on building partnerships with suppliers in the energy technology business, clean energy-related businesses, and all sectors to enhance its business potential, strengthen energy technology, and create a robust business ecosystem. The company is ready to embrace technologies and ideas from new-generation startups with a potential to complement its all-in-one energy solutions through funding and collaboration in order to transform innovations into new businesses or to increase business growth.

## ● Brand Building and Communication Strategies

Banpu NEXT has implemented a communication strategy that aligns with Banpu group’s Greener & Smarter strategy and environmental, social, and governance (ESG) principles. The company is driving “Smart Energy Solutions for Sustainability” through full-range services and creating a new S-curve for its five core businesses, namely renewable energy, energy storage, energy trading, e-mobility, and smart energy. It strives to create business growth in line with future energy trends and smart city concept in response to modern consumers lifestyles by highlighting value for money, reliability, and eco-friendliness while propelling all businesses toward sustainability.

Banpu NEXT communicates with target customers and all groups of stakeholders through online and offline marketing channels, including press releases and articles on its business direction and services, promotional marketing activities, and corporate social responsibility activities as follows:

## ● Press Conference on Current Business Direction and Five-Year Business Plan (2021-2025):

The plan comprises driving clean energy technology business and creating the new S-curve for five core businesses, namely renewable energy, energy storage, energy trading, e-mobility, and smart energy. It also includes expanding investment and customer portfolio in all business groups in Thailand and overseas to achieve Banpu’s target to increase EBITDA from greener energy and energy technology businesses to more than 50% in 2025 in response to future energy trends.

## ● Launch of Smart Safety Platform

Banpu NEXT rolled out a Smart Safety Platform for safety surveillance and safety management by government officials to raise safety standards for managing three areas of concern: pandemics, COVID-19 in particular; crimes; and environmental hazards. Safety surveillance systems have been installed on the roads of Rommanee Alley and Rawai Sub-district (in the neighborhoods of the Municipality Office and Promthep Cape), Phuket. The smart safety platform can sync up and work efficiently with other systems, from data collection, AI analytics and processing, to feeding results into the control center. It helps increase efficiency and enables officials to devise an accurate prevention plan for potential incidents. It also features an app allowing government officials to monitor, supervise, and issue commands from anywhere, anytime. The platform gives local people and tourists more confident in safety, and promotes Phuket’s community safety and livability.



## ● Full Acquisition of Engie Services (Thailand) Co., Ltd. (ESTH)

Banpu NEXT announced the full acquisition of ESTH, a leading provider of energy management service in Thailand, to diversify its offerings in energy management system (EMS) and smart energy solutions to achieve full range ecosystem development from sourcing, installation of energy efficiency devices and technology, and maintenance of relevant systems such as compressed air and cooling systems in buildings or industrial plants in Thailand. Upon completion of the acquisition, Banpu NEXT has been able to seamlessly continue to provide services to existing customers and immediately offer the services to new prospects with efficient energy management system, digital platform, and highly experienced team of experts from ESTH. With services targeted at industrial plants and commercial buildings, this investment is expected to pave way for Banpu NEXT’s expansion to foreign markets to create exponential growth.

## ● MOU Signing with SP Group



Banpu NEXT partnered with SP Group, a leading utilities group in Singapore and the Asia-Pacific, to develop sustainable energy and smart city solutions across Thailand and Asia-Pacific. Through this partnership, the



expertise and strengths of both companies in sustainable clean energy solutions are combined to drive urban decarbonization efforts in the region. They will collaborate in exploring business opportunities of energy management system development such as the applications of district cooling systems, cross-border renewable energy certificates (RECs) platform, and smart city solutions to support the development of sustainable and smart energy cities in order to harness smart energy development for a better living and more sustainable future for everyone and to meet future demand for renewable energy solutions.

### ● Reinforcing Banpu NEXT's Brand Image as Thailand's First Provider of Integrated Alternative Mobility in the Form of Mobility as a Service (MaaS)



The company is determined to drive forward smart mobility and provide consumers and businesses convenient access to EVs by offering full-range service that covers all types of transport systems, namely EV service, charging station service, and after-sales service. The company partnered with "MuvMi," a leading Thai start-up, to expand the MuvMi electric tuk-tuk ride-sharing service by expanding to 200 units to serve important areas in Bangkok,

emphasizing the convenience of on-demand mobility service offered through the MuvMi app. MuvMi allows passengers to share ride with others traveling on the same route, facilitating the pollution-free connection with mass transit systems at a reasonable price. It is also suitable for people of all ages and meets urban travel needs in the modern era. Banpu NEXT plans to meet the steadily rising demand by preparing to expand the service areas to cover 3,000 points all over Bangkok.

### ● Announcing Partnership with Evolt Technology to Expand Integrated EV Charging Station Platform

Deploying digital technology and user-friendly applications to enhance work efficiency, this partnership targets to provide consumer access to 5,000 charging stations nationwide by 2025. It will extend the capacity and improve Banpu NEXT's business potential, as well as strengthen and enrich Banpu NEXT's e-mobility ecosystem. Accommodating all commuting modes and mobility needs, the partnership allows consumers and businesses to conveniently access EVs, respond to the trend of sharing economy through ride-sharing, mobility sharing, fleet & charger management, and after-sales services.



## Corporate Social Responsibility (CSR) Activities during the COVID-19 Pandemic

### ● EV Car Sharing for Caring Project

It was a collaboration between Banpu NEXT and "HaupCar" to provide Smart Micromobility service for medical personnel at Budsarakam Field Hospital with a fleet of 21 EV cars and e-scooters. The electric vehicles were provided for free sharing among medical staff throughout their operations at the field hospital (IMPACT, Muang Thong Thani). The project was aimed to provide convenient and safe travel for the medical staff at the field hospital and to facilitate moving of medical supplies between buildings.



### ● "MuvMi ASA KHONSONG" Transport Service Project under the Mitr Phol-Banpu Solidarity to Aid Thailand on COVID-19 Confrontation Endowment

It was executed by the collaboration between Banpu NEXT and MuvMi. The project aimed to provide MuvMi e-Tuk Tuks for transporting COVID-19 recovered patients home for free. The service ran in three hospitals under the Bangkok Metropolitan Medical Office and other three hospitals under the Phayathai-Paolo Medical Group. Besides taking recovered patients home safely, it assisted those affected by COVID-19 together with the Food For Fighters network, delivering more than 60,000 meals and 4,000 survival bags to affected communities. MuvMi ASA KHONSONG also sent 5,000 home isolation kits to patients recuperating at home. In addition, the project joined with the Let's be Heroes Foundation in transporting survival bags to many affected communities.





Apart from using public relations to promote reputation and drive business growth, Banpu NEXT has adopted a communications-based co-branding strategy to enhance credibility for Banpu NEXT and increase opportunities to attract new customers. As part of the effort, the company also helps create a positive image of its customers that care about sustainability through publishing interviews of industry leaders that are using Banpu NEXT's smart energy solutions or solar roof system as follows:

### ● The Summer Lasalle Project

It is an exemplary real estate entrepreneur who prioritizes sustainability over profits, chose to use "Smart Energy Solutions," which meet energy consumption needs, housing trends, and future living in the smart city era.

### ● 4 businesses in Sukhothai province

They realized their sustainable business concept by deploying the solar rooftop system in bid to reduce pollution, create good quality of life for people, lower long-term energy costs, and make Sukhothai a greener city.

### ● Betagen plant's successful reduction of electricity cost

The electricity cost was reduced up to THB 6 million per year. This has been made possible with Banpu NEXT's smart energy generation, or the solar roof system which provides quick results while also catering for large scale customers' long-term energy saving needs.

## Major Competitors

Banpu NEXT has no major competitor offering full-range smart energy solutions as it does since the majority of competitors in the market focuses on installation services and rooftop solar system design. The competitors in the market can be classified into three groups: retail operators offering installation services, large operators offering installation services as well as investment packages, and foreign investors. Over 50% of competitors in the market are retail operators.

The Company's competitors in the solar rooftop solutions business are large operators offering installation services with investment package since they are financially stable operators with diverse services to offer. Meanwhile, smaller operators with access to funding from foreign investors can also offer similar services. Besides, there is competition in the residential segment in which many companies want to obtain market share before others.

## Pricing Policy

Banpu NEXT offers various pricing packages according to the conditions and requirements of customers. Currently, the company offers two pricing options for rooftop solar power system installation services: installation invested by Banpu NEXT and installation costs paid by customers depending on the equipment, installation size, and service model chosen by the customers. Banpu NEXT also adjusts installation and equipment costs according to market conditions. It also keeps up with recent technological advancements to provide customers with smart technology options of the highest efficiency at the best prices.

## Customer Profiles

Banpu NEXT's customer portfolio consists of enterprises seeking alternative energy management solutions or medium and large enterprises that primarily consume electricity during the daytime, such as factories and commercial buildings, and industrial parks or communities seeking full utilization of smart energy technology. In 2021, 75% of customers signing solar power installation contracts with Banpu NEXT chose the first option in which Banpu NEXT is an investor, and customers benefit from savings on electricity bills. The other 25% of customers opted for the system installation service in which they invest in equipment and installation and enjoy the free use of solar energy generated from their rooftops. However, with growing customer needs for lower installation costs, more discount schemes, shorter contract periods, or additional services, Banpu NEXT has adjusted its proposals accordingly to better satisfy varying needs and different characteristics of customers. For other solutions, such as electric vehicle management, energy storage system, and energy management, customers have similar investment needs, namely, periodic payment plans or lease options. Due to the COVID-19 pandemic, customers suspend lump-sum investments.

## Distribution and Distribution Channels

Banpu NEXT offers solar rooftop power generation and smart energy solutions through an open bidding process announced by customers, direct negotiations with customers, and presentations to renewable energy agencies and organizations. Banpu NEXT will contact prospective customers to introduce the company and listen to customers' needs. Then the engineering team will survey the site to design the power generation system or other solutions befitting the customer's project, such as electric vehicle management, energy storage system, or energy management, and make a project proposal. Banpu NEXT expands its sales channels through events, activities, and happy customer referrals.



## BUSINESS ASSETS

### Fixed Assets

Banpu's business assets in Thailand and overseas include coal mining, natural gas, generation and distribution of power and steam from conventional fuels and renewables, energy technology, and related businesses. The fixed assets illustrated in the tables below consist of the Company's and its subsidiaries' fixed assets. Net book value after deducting accumulated depreciation and impairment losses, as reported in the consolidated financial statements of the Company and its subsidiaries for the year ended 31 December 2021 and 31 December 2020, amounted to USD 3,416.13 million and USD 2,580.90 million, respectively, as detailed below:

### The Group's Property, Plant and Equipment

Items	Book Value (USD Million)		Liabilities
	31 Dec 2021	31 Dec 2020	
1. Land	52.31	55.55	No obligation
2. Land Improvement	60.52	60.68	No obligation
3. Building and infrastructures	121.99	129.59	Put up some buildings and infrastructures as collateral for the long-term loan agreements between subsidiaries and financial institutions
4. Machinery and equipment and power plants and components of power plants and gas exploration and producing assets and pipelines	3,104.99	2,278.35	Put up some machinery and equipment as collateral for the long-term loan agreements between subsidiaries and financial institutions
5. Furniture and Office Equipment	6.41	7.91	Put up some furniture and office equipment as collateral for the long-term loan agreements between subsidiaries and financial institutions
6. Equipment and Tools	5.13	5.54	Put up some equipment and tools as collateral for the long-term loan agreements between subsidiaries and financial institutions
7. Motor Vehicles	5.87	5.62	Put up some motor vehicles as collateral for the long-term loan agreements between subsidiaries and financial institutions
8. Assets under Construction	58.91	37.64	Put up some assets under construction as collateral for the long-term loan agreements between subsidiaries and financial institutions
<b>Total</b>	<b>3,416.13</b>	<b>2,580.90</b>	

## Leases and Rights

### 1. Leases and Investment Incentives of the Company and its Subsidiaries and Joint Ventures

#### 1.1 Leases held by Subsidiaries in Indonesia

Project	Lease No.	County	Province	Area (Hectare)	Expiry Date	Lessee	Notes
Jorong	06PB0318	Tanah Laut	South Kalimantan	4,883	9 December 2029	PT. Jorong Barutama Greston	Production
Indominco	01PB0435	Kutai Timur, Kutai Kartanegara	East Kalimantan	24,121	31 March 2028	PT. Indominco Mandiri	Production
Kitadin (Embalut)	KTN 2013 006 OP	Embalut, Kutai Kartanegara	East Kalimantan	2,973	25 February 2022	PT. Kitadin	Production
Trubaindo	96PB0160	Kutai Barat	East Kalimantan	22,687	27 February 2035	PT. Trubaindo Coal Mining	Production
Bharinto	99PB0081	Barito Utara & Kutai Barat	Central and East Kalimantan	17,311	29 June 2041	PT. Bharinto Ekatama	Production
TIS	64.07.14.08 (Code/Block Area)	Kutai Barat	East Kalimantan	2,065	11 April 2029	PT. Tepian Indah Sukses	Exploration
NPR	188.45 /277/2013	Barito Utara	Central Kalimantan	4,291	20 May 2033	PT. Nusa Persada Resources	Exploration
GPK	64.07.19. 16	Kutai Barat	East Kalimantan	5,060	14 September 2029	PT. Graha Panca Karsa	Production

#### 1.2 Leases held by Subsidiaries in Australia

Project	Lease No.	County	State	Area (Hectare)	Expiry Date	Lessee	Notes
Airly	ML1331	Airly, Coco, Morundurey & Bandamora	New South Wales	2,745	11 October 2035	Centennial Airly Pty Ltd.	Production
Airly	ML1814	Morundurey	New South Wales	1,258	22 July 2042	Centennial Airly Pty Ltd.	Production





Project	Lease No.	County	State	Area (Hectare)	Expiry Date	Lessee	Notes
Angus Place	ML1424	Wolgan, Cox, Cook & Marangaroo	New South Wales	7,735	18 August 2024	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Care & Maintenance
Angus Place	CCL704	Cox & Lidsdale	New South Wales	2,541	14 January 2023	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Care & Maintenance
Angus Place	ML1699	Cook	New South Wales	30.6	26 June 2035	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Care & Maintenance
Angus Place	ML1720	Cook	New South Wales	158.9	23 November 2036	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Care & Maintenance
Blue Mountain	CCL738	Lett	New South Wales	1,116	28 September 2025	Hartley Valley Coal Company Pty Ltd.	Closed
Blue Mountain	ML1457	Lett & Marangaroo	New South Wales	185.1	3 November 2020 (Renewal Submitted for approval)	Hartley Valley Coal Company Pty Ltd.	Closed
Charbon	MPL505	Clandulla	New South Wales	0.4097	11 August 2026	Charbon Coal Pty Ltd.*	Closed
Charbon	MPL526	Wells, Clandulla & Rylstone	New South Wales	7.106	14 December 2024	Charbon Coal Pty Ltd.*	Closed
Charbon	MPL499	Clandulla	New South Wales	0.7917	28 May 2026	Charbon Coal Pty Ltd.*	Closed
Charbon	ML1318	Clandulla	New South Wales	983	29 June 2026	Charbon Coal Pty Ltd.*	Closed
Charbon	ML1384	Clandulla	New South Wales	195.5	18 January 2038	Charbon Coal Pty Ltd.*	Closed
Charbon	ML1501	Clandulla	New South Wales	13	21 December 2022	Charbon Coal Pty Ltd.*	Closed
Charbon	ML1545	Clandulla	New South Wales	204.65	9 January 2025	Charbon Coal Pty Ltd.*	Closed

Project	Lease No.	County	State	Area (Hectare)	Expiry Date	Lessee	Notes
Charbon	CCL732	Clandulla	New South Wales	1,024	2 December 2025	Charbon Coal Pty Ltd.*	Closed
Charbon	MPL670	Rylstone & Clandulla	New South Wales	9.92	26 March 2024	Charbon Coal Pty Ltd.*	Closed
Charbon	ML1524	Clandulla	New South Wales	20.26	28 October 2023	Charbon Coal Pty Ltd.*	Closed
Charbon	MPL964	Clandulla	New South Wales	4.932	20 November 2023	Charbon Coal Pty Ltd.*	Closed
Charbon	MPL270	Clandulla	New South Wales	213.7	29 April 2026	Charbon Coal Pty Ltd.*	Closed
Charbon	ML1647	Clandulla	New South Wales	570.9	17 December 2031	Charbon Coal Pty Ltd.*	Closed
Charbon	ML1663	Clandulla	New South Wales	52.5	9 January 2033	Charbon Coal Pty Ltd.*	Closed
Clarence	CCL705	Clwydd, Marangaroo & Rock Hill	New South Wales	3,210	20 December 2026	Coalex Pty Ltd. and Clarence Coal Investments Pty Ltd.	Production
Clarence	ML1354	Clwydd & Cook	New South Wales	155.3	21 July 2036	Coalex Pty Ltd. and Clarence Coal Investments Pty Ltd.	Production
Clarence	ML1353	Clwydd, Cook & Rock Hill	New South Wales	1,075	21 July 2036	Coalex Pty Ltd. and Clarence Coal Investments Pty Ltd.	Production
Clarence	ML1583	Clwydd, Marangaroo, Lett	New South Wales	3,331	9 July 2027	Coalex Pty Ltd.	Production
Clarence	ML1721	Clwydd	New South Wales	5.11	7 December 2036	Coalex Pty Ltd. and Clarence Coal Investments Pty Ltd.	Production
Ivanhoe	ML1627	Cullen Bullen	New South Wales	79.78	2 February 2030	Ivanhoe Coal Pty Ltd.	Closed
Ivanhoe	CCL712	Cullen Bullen, Cox & Falnash	New South Wales	1,628	12 November 2006 (Renewal Pending)	Ivanhoe Coal Pty Ltd.	Closed
Ivanhoe	ML1301	Cox	New South Wales	5.131	28 September 2034	Ivanhoe Coal Pty Ltd.	Closed





Project	Lease No.	County	State	Area (Hectare)	Expiry Date	Lessee	Notes
Ivanhoe	MPL348	Cox	New South Wales	9.45	24 May 2025	Ivanhoe Coal Pty Ltd.	Closed
Mandalong	ML1443	Morisset, Dora & Mandalong	New South Wales	3,648	1 March 2020 (Renewal Pending)	Centennial Mandalong Pty Ltd.	Production
Mandalong	ML1543	Mandalong	New South Wales	172.5	25 November 2024	Centennial Mandalong Pty Ltd.	Production
Mandalong	MPL191	Coorumbung	New South Wales	0.5615	25 February 2023	Centennial Mandalong Pty Ltd.	Production
Mandalong	CCL762	Dora, Awaba, Mandalong, Morisset & Wallarah	New South Wales	2,940	13 October 2022 (Renewal Submitted for Approval)	Centennial Mandalong Pty Ltd.	Production
Mandalong	ML1553	Morisset	New South Wales	64.32	7 September 2025	Centennial Mandalong Pty Ltd.	Production
Mandalong	ML1722	Mandalong, Morisset, Wyong & Munmorah	New South Wales	3,206	17 December 2036	Centennial Mandalong Pty Ltd.	Production
Mandalong	ML1744	Mandalong, Wyong, Olney	New South Wales	409	6 October 2037	Centennial Mandalong Pty Ltd.	Production
Mandalong	ML1793	Coorumbung	New South Wales	6.4	16 July 2040	Centennial Mandalong Pty Ltd.	Production
Mannering	CCL721	Morisset & Wallarah	New South Wales	3,526	29 July 2026	Centennial Mannering Pty Ltd.	Subleased to Chain Valley
Mannering	CCL719	Wallarah	New South Wales	1,817	22 December 2020 (Renewal Submitted for Approval)	Centennial Mannering Pty Ltd.	Subleased to Chain Valley
Munmorah	CCL720	Wallarah & Munmorah	New South Wales	3,720	16 February 2023	Centennial Munmorah Pty Ltd.	Closed

Project	Lease No.	County	State	Area (Hectare)	Expiry Date	Lessee	Notes
Munmorah	CCL722	Morisset, Wallarah, Munmorah & Tuggerah	New South Wales	1,009.8	5 July 2019 (Partial Renewal Submitted)	Centennial Munmorah Pty Ltd.	Closed - Subleased to Chain Valley
Myuna	MPL334	Awaba	New South Wales	33.3	19 October 2036	Centennial Myuna Pty Ltd.	Production
Myuna	ML1370	Wallarah	New South Wales	524	7 March 2033	Centennial Myuna Pty Ltd.	Production - Subleased to Chain Valley
Myuna	ML1632	Awaba, Coorumbung, Wallarah & Morisset	New South Wales	6,125	13 October 2022 (Renewal Submitted for Approval)	Centennial Myuna Pty Ltd.	Production - Subleased to Chain Valley
Neubecks Project	CCL756	Cox	New South Wales	101	6 December 2024	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Under Development
Newstan	CCL746	Awaba & Coorumbung	New South Wales	3,308	31 December 2028	Centennial Newstan Pty Ltd.	Care & Maintenance
Newstan	CCL764	Teralba & Awaba	New South Wales	108.8	18 May 2021 (Renewal Submitted for Approval)	Centennial Newstan Pty Ltd.	Care & Maintenance
Newstan	CCL763	Awaba	New South Wales	190.9	9 June 2022 (Renewal Submitted for Approval)	Centennial Newstan Pty Ltd.	Care & Maintenance
Newstan	PLL497	Awaba	New South Wales	20.23	24 August 2038	Centennial Newstan Pty Ltd.	Care & Maintenance
Newstan	ML1587	Awaba	New South Wales	3	23 October 2027	Centennial Newstan Pty Ltd.	Care & Maintenance
Newstan	ML1586	Awaba & Coorumbung	New South Wales	449.1	13 October 2022	Centennial Newstan Pty Ltd.	Care & Maintenance
Newstan	ML1452	Awaba & Coorumbung	New South Wales	1,587	6 July 2020 (Renewal Submitted for Approval)	Centennial Newstan Pty Ltd.	Care & Maintenance





Project	Lease No.	County	State	Area (Hectare)	Expiry Date	Lessee	Notes
Newstan	CCL727	Teralba & Awaba	New South Wales	2,194.08	12 August 2027	Centennial Newstan Pty Ltd.	Care & Maintenance
Newstan	MPL328	Awaba	New South Wales	0.397	5 August 2036	Centennial Newstan Pty Ltd.	Care & Maintenance
Newstan	ML1380	Awaba	New South Wales	78	18 September 2037	Centennial Newstan Pty Ltd.	Care & Maintenance
Newstan	MPL304	Teralba	New South Wales	0.07	25 March 2035	Centennial Newstan Pty Ltd.	Care & Maintenance
Newstan	MPL305	Awaba	New South Wales	0.4044	25 March 2035	Centennial Newstan Pty Ltd.	Care & Maintenance
Newstan	ML1480	Awaba	New South Wales	14.49	20 July 2023	Centennial Newstan Pty Ltd.	Care & Maintenance
Newstan	MPL327	Awaba	New South Wales	1.041	5 August 2036	Centennial Newstan Pty Ltd.	Care & Maintenance
Springvale	ML1303	Lidsdale & Marangaroo	New South Wales	713	15 December 2034	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Production
Springvale	ML1588	Cook & Clwydd	New South Wales	976	19 October 2027	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Production
Springvale	CL377	Lidsdale & Marangaroo	New South Wales	1,105	9 March 2025	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Production
Springvale	MPL314	Lidsdale	New South Wales	95.98	3 August 2035	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Production
Springvale	ML1323	Lidsdale & Marangaroo	New South Wales	30.1	3 August 2035	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Production

Project	Lease No.	County	State	Area (Hectare)	Expiry Date	Lessee	Notes
Springvale	ML1537	Marangaroo	New South Wales	4.125	16 June 2024	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Production
Springvale	ML1326	Clwydd, Cook, Cox & Marangaroo	New South Wales	2,157	18 August 2024	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Production
Springvale	ML1352	Cox & Lidsdale	New South Wales	7.6	23 June 2036	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Production
Springvale	ML1448	Lidsdale	New South Wales	95.16	31 May 2020 (Renewal Submitted for Approval)	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Production
Springvale	ML1670	Cook	New South Wales	0.3	17 February 2033	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Production
Springvale	ML1727	Clwydd, Cook & Marangaroo	New South Wales	1,256	4 February 2037	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Production
Western Main	CL361	Lidsdale	New South Wales	14.26	16 July 2032	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Closed
Western Main	PLL133	Lidsdale	New South Wales	16.51	10 August 2024	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Closed





Project	Lease No.	County	State	Area (Hectare)	Expiry Date	Lessee	Notes
Western Main	ML204	Lidsdale & Cook	New South Wales	10.12	27 May 2033	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Closed
Western Main	CL394	Lidsdale	New South Wales	17	27 May 2034	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Closed
Western Main	ML564	Lidsdale	New South Wales	19.75	2 May 2023	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Closed
Western Main	CCL733	Cox & Lidsdale	New South Wales	678.86	3 July 2027	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Closed
Western Main	ML1319	Cox	New South Wales	1.476	5 July 2035	Centennial Springvale Pty Ltd. and Boulder Mining Pty Ltd.	Closed

Note:

\* The lease is held by the joint venture entity.

### 1.3 Leases held by Subsidiaries in the People's Republic of China

Projects	Concession Number	County	Province	Area (sq. km)	Expiry Date	Lessee	Notes
Gaohe	C1000002 01010111 0077581	Changzhi County, Changzhi City	Shanxi	65.4	14 October 2040	Shanxi Gaohe Energy Co., Ltd.	Production
Hebi	10000005 20080	Heshan District, Hebi City	Henan	23.4825	14 July 2035	Hebi Zhong Tai Mining Co., Ltd.	Production

## 2. Land Use Rights of Power Business in the People's Republic of China

Location	Right Holder	Area (sq. m)	Start Date	Expiry Date	Purpose	Book Value of Land Use Right (THB Thousand)
Zhending County Shijiazhuang City, Hebei Province	Shijiazhuang Chengfeng Cogen Co., Ltd.	7,132 67,354 17,665 23,135	27 December 2006 16 February 1998 28 December 2016 18 April 2001	2 September 2053 30 November 2047 26 March 2062 17 April 2031	To be the location of Zhengding Combined Heat and Power Plant	99,793
Luannan County Tangshan City, Hebei Province	Tangshan Banpu Heat and Power Co., Ltd.	225,172 2,100 90,370 40,960	18 April 2020 22 September 2018 1 January 2017 1 January 2017	18 April 2070 21 September 2068 31 December 2066 Under Consideration by Government Agencies	To be the location of Luannan Combined Heat and Power Plant	449,941
Zouping County Binzhou Prefecture, Shandong Province	Zouping Peak CHP Co., Ltd.	105,831 18,190 24,315	30 August 2001 29 December 2007 29 December 2008	3 July 2051 29 December 2056 3 December 2058	To be the location of Zouping Combined Heat and Power Plant	48,196





## COAL AND NATURAL GAS RESERVES

### 1. Details of coal reserves and coal sales volume as of 31 December 2021 are as follows:

(Unit: Million Tonnes)

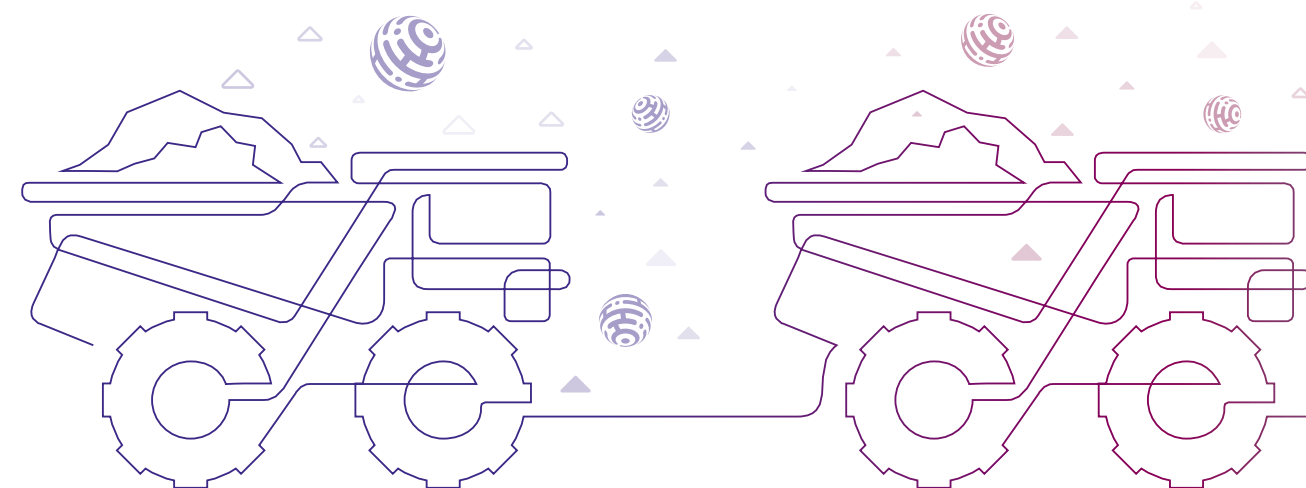
Coal Mine	Coal Reserves As of 31 Dec 2020	Sales Volume Jan - Dec 2021	Coal Reserves As of 31 Dec 2021
<b>1. Indonesia</b>	<b>311.17</b>	<b>18.21</b>	<b>292.96</b>
1.1 Jorong	9.03	0.88	8.15
1.2 Indominco	37.76	7.44	30.32
1.3 Kitadin	1.78	1.34	0.44
1.4 Trubaindo	39.18	3.69	35.49
1.5 Bharinto	146.02	4.86	141.16
1.6 NPR Project	77.40	0.00	77.40
<b>2. Australia</b>	<b>269.95</b>	<b>9.26</b>	<b>260.69</b>
2.1 Airly	25.06	1.40	23.66
2.2 Angus Place	53.00	0.00	53.00
2.2 Clarence	31.76	1.31	30.45
2.3 Mandalong	56.62	3.78	52.84
2.4 Myuna	34.42	0.89	33.53
2.5 Springvale	18.89	1.88	17.01
2.6 Nuebecks Project	7.50	0.00	7.50
2.7 Newstand Project	42.70	0.00	42.70
<b>3. China</b>	<b>131.86</b>	<b>9.27</b>	<b>122.59</b>
3.1 Gaohe	117.43	8.59	108.84
3.2 Hebi	14.43	0.68	13.75
<b>Total</b>	<b>712.98</b>	<b>36.74</b>	<b>676.24</b>

### 2. Details of natural gas reserves as of 31 December 2021 are as follows:

(Unit: Million Cubic Feet)

<b>Natural gas reserves as of 31 December 2020</b>	<b>3,556,566</b>
1) Adjustment on reserve estimation	876,418
2) Sales 2021	(246,223)
<b>Natural gas reserves as of 31 December 2021</b>	<b>4,186,761</b>

**Note:** Proved gas reserves in the Marcellus Shale and the Barnett Shale according to Reserve Report of Ryder Scott

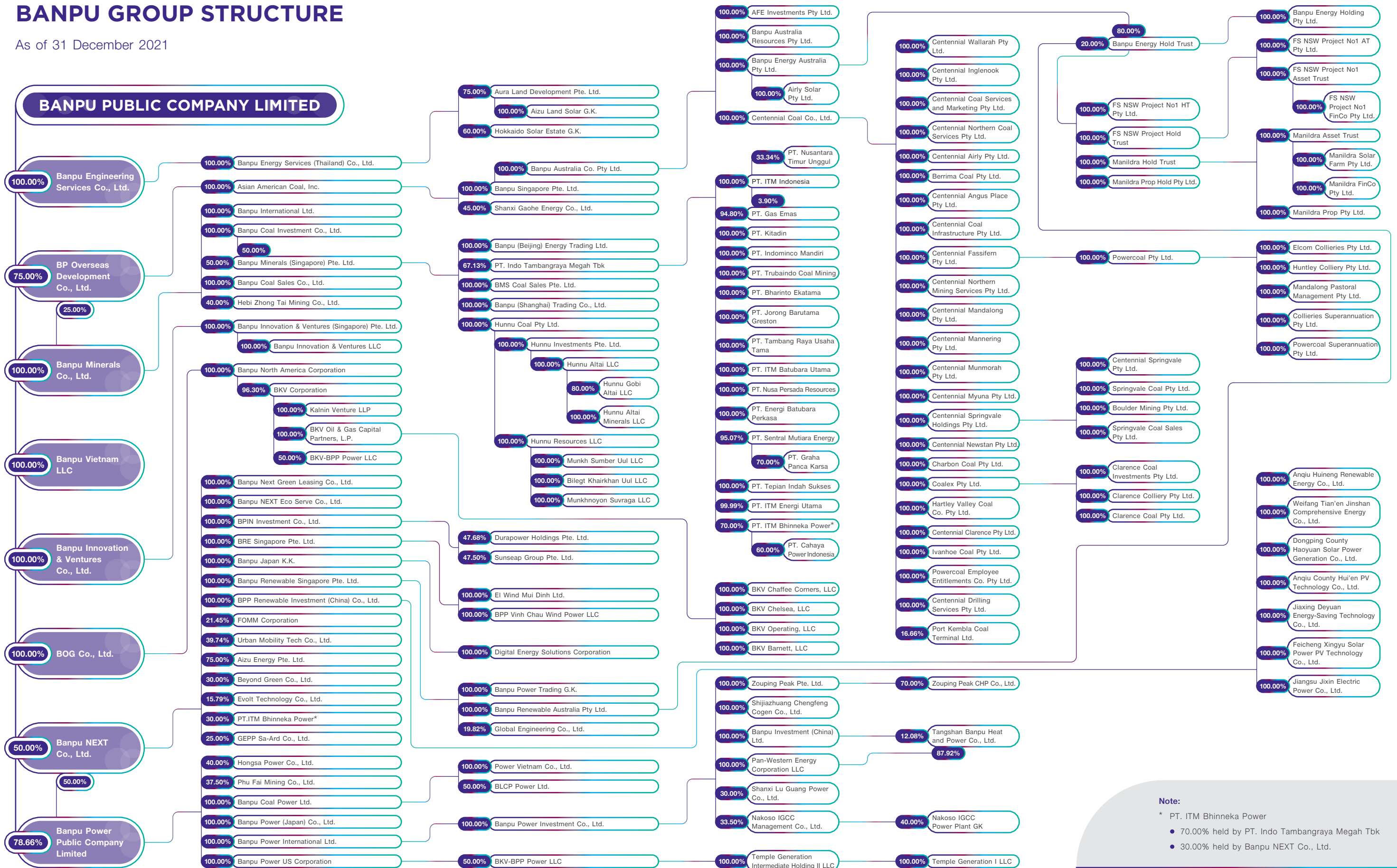






# BANPU GROUP STRUCTURE

As of 31 December 2021



**Note:**

\* PT. ITM Bhinneka Power

- 70.00% held by PT. Indo Tambangraya Megah Tbk
- 30.00% held by Banpu NEXT Co., Ltd.





# DETAIL OF THE COMPANY, ITS SUBSIDIARIES AND ASSOCIATED COMPANIES AND JOINT VENTURES

As of 31 December 2021

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	10,149,163,028 Baht	6,766,108,686 Baht	6,766,108,686	1	-	1550, Thanapoom Tower, 27 <sup>th</sup> floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	+66 2694 6600
Subsidiary Companies								
Thailand								
2. Banpu Minerals Co., Ltd.	Coal Mining and Trading	3,200,000,000 Baht	3,200,000,000 Baht	3,200,000	1,000	100.00% (held by Banpu Public Company Limited)	1550, Thanapoom Tower, 27 <sup>th</sup> floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	+66 2694 6600
3. Banpu Coal Sales Co., Ltd.	Coal Trading	80,000,000 Baht	80,000,000 Baht	800,000	100	100.00% (held by Banpu Minerals Co., Ltd.)	1550, Thanapoom Tower, 27 <sup>th</sup> floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	+66 2694 6600
4. Banpu International Limited	Investment Studying	1,040,000,000 Baht	1,040,000,000 Baht	104,000,000	10	100.00% (held by Banpu Minerals Co., Ltd.)	1550, Thanapoom Tower, 27 <sup>th</sup> floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	+66 2694 6600
5. BOG Co., Ltd.	Investment in energy business	33,506,000,000 Baht	30,924,700,000 Baht	335,060,000	100	100.00% (held by Banpu Public Company Limited)	1550, Thanapoom Tower, 27 <sup>th</sup> floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	+66 2694 6600
6. Banpu Engineering Services Co., Ltd.	Investment in alternative energy	247,000,000 Baht	247,000,000 Baht	24,700,000	10	100.00% (held by Banpu Public Company Limited)	1550, Thanapoom Tower, 27 <sup>th</sup> floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	+66 2694 6600
7. Banpu Energy Services (Thailand) Co., Ltd.	Investment in alternative energy	236,124,430 Baht	236,124,430 Baht	23,612,443	10	100.00% (held by Banpu Engineering Services Co., Ltd.)	1550, Thanapoom Tower, 27 <sup>th</sup> floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	+66 2694 6600
8. Banpu Innovation & Ventures Co., Ltd.	Research and development in disruptive technology	131,300,000 Baht	131,300,000 Baht	1,313,000	100	100.00% (held by Banpu Public Company Limited)	1550, Thanapoom Tower, 27 <sup>th</sup> floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	+66 2694 6600
9. Banpu Power Public Company Limited	Energy Generation Business	31,012,020,000 Baht	30,477,317,000 Baht	3,047,731,700	10	78.66% (held by Banpu Public Company Limited)	1550, Thanapoom Tower, 26 <sup>th</sup> floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	+66 2007 6000
10. Banpu Coal Power Limited	Investment in energy and power business	5,921,587,160 Baht	5,921,587,160 Baht	592,158,716	10	100.00% (held by Banpu Power Public Company Limited)	1550, Thanapoom Tower, 26 <sup>th</sup> floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	+66 2007 6000
11. Power Vietnam Co., Ltd.	Investment in energy and power business	400,000,000 Baht	400,000,000 Baht	40,000,000	10	100.00% (held by Banpu Coal Power Limited)	1550, Thanapoom Tower, 26 <sup>th</sup> floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	+66 2007 6000
12. Banpu Power (Japan) Co., Ltd.	Investment in renewable energy business	5,000,000 Baht	5,000,000 Baht	500,000	10	100.00% (held by Banpu Power Public Company Limited)	1550, Thanapoom Tower, 26 <sup>th</sup> floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	+66 2007 6000

Name	Type of Business	Authorized Capital	Paid-up Capital	No. of Paid-up Capital (Shares)	Par Value per Share	% of Holding	Head Office	Telephone
13. Banpu NEXT Co., Ltd.	Smart Clean Energy Solution Business	11,559,000,000 Baht	11,559,000,000 Baht	1,155,900,000	10	50.00% (held by Banpu Public Company Limited) 50.00% (held by Banpu Power Public Company Limited)	1550, Thanapoom Tower, 24 <sup>th</sup> floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	+66 2095 6569
14. Banpu Next Green Leasing Co., Ltd.	Investment in energy business and leasing	50,000,000 Baht	50,000,000 Baht	5,000,000	10	100.00% (held by Banpu NEXT Co., Ltd.)	1550, Thanapoom Tower, 24 <sup>th</sup> floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	+66 2095 6569
15. Banpu NEXT EcoServe Co., Ltd.	Providing energy management services	96,000,000 Baht	96,000,000 Baht	960,000	100	100.00% (held by Banpu NEXT Co., Ltd.)	1550, Thanapoom Tower, 24 <sup>th</sup> floor, New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400, Thailand	+66 2095 6569
Republic of Indonesia								
16. PT. Indo Tambangraya Megah Tbk	Major trading of solid, liquid and gas fuel and other related products	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 <sup>rd</sup> floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	+6221 29328100
17. PT. Kitadin	Coal Mining	1,000,000,000,000 IDR	377,890,000,000 IDR	188,945	2,000,000	100.00% (held by PT. Indo Tambangraya Megah Tbk)	Pondok Indah Office Tower 3, 3 <sup>rd</sup> floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	+6221 29328100
18. PT. Indominco Mandiri	Coal Mining	20,000,000,000 IDR	12,500,000,000 IDR	12,500	1,000,000	100.00% (held by PT. Indo Tambangraya Megah Tbk)	Pondok Indah Office Tower 3, 3 <sup>rd</sup> floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	+6221 29328100
19. PT. Jorong Barutama Greston	Coal Mining	318,855,000,000 IDR	318,855,000,000 IDR	21,257	15,000,000	100.00% (held by PT. Indo Tambangraya Megah Tbk)	Pondok Indah Office Tower 3, 3 <sup>rd</sup> floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	+6221 29328100
20. PT. Trubaindo Coal Mining	Coal Mining	100,000,000,000 IDR	63,500,000,000 IDR	63,500	1,000,000	100.00% (held by PT. Indo Tambangraya Megah Tbk)	Pondok Indah Office Tower 3, 3 <sup>rd</sup> floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	+6221 29328100
21. PT. Bharinto Ekatama	Coal Mining	68,000,000,000 IDR	17,000,000,000 IDR	17,000	1,000,000	100.00% (held by PT. Indo Tambangraya Megah Tbk)	Pondok Indah Office Tower 3, 3 <sup>rd</sup> floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	+6221 29328100
22. PT. ITM Indonesia	Major trading of solid, liquid and gas fuel and other related products	40,000,000,000 IDR	11,000,000,000 IDR	11,000	1,000,000	100.00% (held by PT. Indo Tambangraya Megah Tbk)	Pondok Indah Office Tower 3, 3 <sup>rd</sup> floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	+6221 29328100
23. PT. Tambang Raya Usaha Tama	Mining and other excavations support activities	500,000,000,000 IDR	424,610,000,000 IDR	42,461	10,000,000	100.00% (held by PT. Indo Tambangraya Megah Tbk)	Pondok Indah Office Tower 3, 3 <sup>rd</sup> floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	+6221 29328100
24. PT. ITM Batubara Utama	Coal Mining	40,000,000,000 IDR	11,000,000,000 IDR	11,000	1,000,000	100.00% (held by PT. Indo Tambangraya Megah Tbk)	Pondok Indah Office Tower 3, 3 <sup>rd</sup> 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
25. 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 <sup>rd</sup> floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	+6221 29328100
26. PT. ITM Bhinneka Power	Electric Power Generator	130,000,000,000 IDR	32,500,000,000 IDR	45,823	1,000,000	70.00% (held by PT. Indo Tambangraya Megah Tbk) 30.00% (held by Banpu NEXT Co., Ltd.)	Pondok Indah Office Tower 3, 3 <sup>rd</sup> floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	+6221 29328100
27. PT. Gas Emas	Major trading of solid, liquid and gas fuel and other related products	600,600,000,000 IDR	441,232,500,000 IDR	32,700,000	9,725 (Series A Shares) 13,700 (Series B Shares)	94.80% (held by PT Indo Tambangraya Megah Tbk) 3.90% (held by PT ITM Indonesia)	Pondok Indah Office Tower 3, 3 <sup>rd</sup> floor, 3 Jl. Sultan Iskandar Muda Kav. V-TA Pondok Pinang, Kebayoran Lama, Jakarta 12310, Indonesia	+6221 29328100
28. PT. Tepian Indah Sukses	Coal Mining	3,000,000,000 IDR	1,000,000,000 IDR	1,000	1,000,000	100.00% (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 <sup>rd</sup> floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	+62541 749437
29. PT. Nusa Persada Resources	Coal Mining	500,000,000,000 IDR	312,337,000,000 IDR	3,123,370	100,000	100.00% (held by PT. Indo Tambangraya Megah Tbk)	Jalan Pendreh, Komplek Perumahan Nur Asri Perdana, RT. 33-A, Kel., Kec., Kab. Barito Utara, Prop. Kalimantan Tengah. Corresponding Office: Pondok Indah Office Tower 3, 3 <sup>rd</sup> floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	+62811 884374
30. PT. Energi Batubara Perkasa	Major trading of solid, liquid and gas fuel and other related products	60,000,000,000 IDR	33,410,000,000 IDR	33,410	1,000,000	100.00% (held by PT. Indo Tambangraya Megah Tbk)	Pondok Indah Office Tower 3, 3 <sup>rd</sup> floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	+6221 29328100
31. PT. Sentral Mutiara Energy	Major trading of solid, liquid and gas fuel and other related products	150,000,000,000 IDR	131,897,000,000 IDR	1,318,970	100,000	95.07% (held by PT. Indo Tambangraya Megah Tbk) 4.93% (held by PT. ITM Batubara Utama)	Gd. Menara Pertiwi Lt.28 Unit C-D Jl.Mega Kuningan Barat III Kav.10.1 No.3 Kel.Kuningan Timur, Kec. Setiabudi Jakarta Selata -12950	+6221 25983737
32. PT. Graha Panca Karsa	Coal Mining and major trading of metal goods for construction material	500,000,000 IDR	270,000,000 IDR	270	1,000,000	70.00% (held by PT Sentral Mutiara Energy)	Pondok Indah Office Tower 3, 3 <sup>rd</sup> floor, Jl. Sultan Iskandar Muda Kav. V-TA Pondok Pinang, Kebayoran Lama, Jakarta 12310, Indonesia	+6221 29328100
33. PT Cahaya Power Indonesia	Renewable Energy	114,720,000,000 IDR	28,680,000,000 IDR	2,000,000	14,340	60.00% (held by PT ITM Bhinneka Power)	Pondok Indah Office Tower 3, suite 302 Jl. Sultan Iskandar Muda Kav. V-TA Pondok Pinang, Kebayoran Lama, 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
Australia								
34. Banpu Australia Co. Pty Ltd.	Investment in Coal Mining in Australia	2,920,721,000 AUD	2,920,721,000 AUD	2,920,721,000	1	100.00% (held by Banpu Singapore Pte., Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
35. Centennial Coal Co. Pty Ltd.	Coal Mining and Marketing	2,899,783,562 AUD	2,599,783,562 AUD	845,126,381	4.8	100.00% (held by Banpu Australia Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
36. Centennial Northern Coal Services Pty Ltd.	Employer Company for Newstan Washery	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
37. Berrima Coal Pty Ltd.	Dormant	2 AUD	2 AUD	2	1	100.00% (held by Centennial Coal Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
38. Centennial Airlly Pty Ltd.	Coal Mining	2 AUD	2 AUD	2	1	100.00% (held by Centennial Coal Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
39. Centennial Angus Place Pty Ltd.	Coal Mining	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
40. Centennial Coal Infrastructure Pty Ltd.	Coal exporting logistics and infrastructure	2 AUD	2 AUD	2	1	100.00% (held by Centennial Coal Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
41. Centennial Coal Sales and Marketing Pty Ltd.	Coal Marketing	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
42. Centennial Northern Mining Services Pty Ltd.	Dormant	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
43. Centennial Inglenook Pty Ltd.	Coal Mining	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
44. Centennial Mandalong Pty Ltd.	Coal Mining	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
45. Centennial Mannering Pty Ltd.	Coal Mining	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
46. Centennial Munmorah Pty Ltd.	Coal Mining (Now Dormant)	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
47. Centennial Myuna Pty Ltd.	Coal Mining	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
48. Centennial Newstan Pty Ltd.	Coal Mining	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
49. Charbon Coal Pty Ltd.	Coal Mining	2 AUD	2 AUD	2	1	100.00% (held by Centennial Coal Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
50. 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. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
51. Centennial Fassifern Pty Ltd.	Coal Mining	2 AUD	2 AUD	2	1	100.00% (held by Centennial Coal Co. Pty Ltd.)	Level 20, 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
52. Powercoal Pty Ltd.	Dormant Holding Company	4,590,001 AUD	4,590,001 AUD	4,590,001	1	100.00% (held by Centennial Fossilfern Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
53. Powercoal Superannuation Pty Ltd.	Superannuation Company (Dormant)	2 AUD	2 AUD	2	1	100.00% (held by Powercoal Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
54. 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. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
55. 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 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
56. 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 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
57. Clarence Coal Pty Ltd.	Coal Mining - Clarence JV	2 AUD	2 AUD	2	1	100.00% (held by Coalex Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
58. Collieries Superannuation Pty Ltd.	Superannuation Company (Dormant)	2 AUD	2 AUD	2	1	100.00% (held by Powercoal Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
59. Elcom Collieries Pty Ltd.	Dormant	1,500,000 AUD	1,500,000 AUD	750,000	2	100.00% (held by Powercoal Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
60. Huntley Colliery Pty Ltd.	Dormant	354,000 AUD	354,000 AUD	177,000	2	100.00% (held by Powercoal Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
61. 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 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
62. Powercoal Employee Entitlements Company Pty Ltd.	Employee Trust Company Ex Powercoal	2 AUD	2 AUD	2	1	50.00% (Held by Centennial Coal Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
63. 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. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
64. Ivanhoe Coal Pty Ltd.	Coal Mining	2 AUD	2 AUD	2	1	100.00% (held by Centennial Coal Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
65. 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. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
66. Centennial Springvale Holdings Pty Ltd.	Coal Mining	1 AUD	1 AUD	1	1	100.00% (held by Centennial Coal Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
67. 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 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
68. 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 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
69. 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 20, 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
70. AFE Investments Pty Ltd.	Mining Investment	2 AUD	2 AUD	2	1	100.00% (held by Banpu Australia Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
71. 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 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
72. Springvale Coal Sales Pty Limited	Coal Marketing	2 AUD	2 AUD	2	1	50.00% (held by Centennial Springvale Holdings Pty Ltd.) 50.00% (held by Boulder Mining Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
73. Airly Solar Pty Limited	Renewable Energy	2 AUD	2 AUD	2	1	100.00% (held by Banpu Australia Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
74. Centennial Wallarah Pty Limited	Mining Investment	2 AUD	2 AUD	2	1	100.00% (held by Centennial Coal Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
75. Hunnu Coal Pty Ltd.	Coal Mining and Trading	296,070,779 AUD	296,070,779 AUD	408,985,717	No par value*	100.00% (held by Banpu Minerals (Singapore) Pte. Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9166 2700
76. Banpu Energy Australia Pty Ltd.	Renewable Energy	40,504,002 AUD	40,504,002 AUD	40,504,002	1	100.00% (held by Banpu Australia Co. Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
77. Banpu Renewable Australia Pty Ltd.	Renewable Energy	7,900,002 AUD	7,900,002 AUD	7,900,002	1	100.00% (held by Banpu Renewable Singapore Pte., Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
78. Banpu Energy Holding Pty Ltd.	Renewable Energy	10 AUD	10 AUD	10	1	80.00% (held by Banpu Energy Australia Pty Ltd.) 20.00% (held by Banpu Renewable Australia Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
79. FS NSW Project No 1 HT Pty Ltd.	Renewable Energy	100 AUD	100 AUD	100	1	100.00% (held by Banpu Energy Holding Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
80. FS NSW Project No 1 AT Pty Ltd.	Renewable Energy	1 AUD	1 AUD	1	1	100.00% (held by FS NSW Project No 1 HT Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
81. FS NSW Project No 1 Finco Pty Ltd.	Renewable Energy	1 AUD	1 AUD	1	1	100.00% (held by FS NSW Project No 1 AT Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
82. Manildra Prop Hold Pty Ltd.	Renewable Energy	1 AUD	1 AUD	1	1	100.00% (held by Banpu Energy Holding Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
83. Manildra Prop Pty Ltd.	Renewable Energy	1 AUD	1 AUD	1	1	100.00% (held by Manildra Prop Hold Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
84. Manildra Finco Pty Ltd.	Renewable Energy	1 AUD	1 AUD	1	1	100.00% (held by Manildra Prop Pty Ltd.)	Level 20, 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
85. Manildra Solar Farm Pty Limited	Renewable Energy	100 AUD	100 AUD	100	1	100.00% (held by Manildra Prop Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
86. Banpu Energy Hold Trust	Renewable Energy	N/A	N/A	82,320,008 20,580,002	N/A	80.00% (held by Banpu Energy Australia Pty Ltd.) 20.00% (held by Banpu Renewable Australia Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
87. FS NSW Project No 1 Hold Trust	Renewable Energy	N/A	N/A	6,932,058,900	N/A	100.00% (held by Banpu Energy Hold Trust as trustee of the FS NSW Project No 1 HT Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
88. FS NSW Project No 1 Asset Trust	Renewable Energy	N/A	N/A	8,206,490,677	N/A	100.00% (held by FS NSW Project No 1 Hold Trust as trustee for FS NSW Project No 1 AT Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
89. Manildra Hold Trust	Renewable Energy	N/A	N/A	6,926,658,900	N/A	100.00% (held by Banpu Energy Hold Trust as trustee of the Manildra Prop Hold Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
90. Manildra Asset Trust	Renewable Energy	N/A	N/A	3,701,105	N/A	100.00% (held by Manildra Hold Trust as trustee for Manildra Prop Pty Ltd.)	Level 20, 1 Market Street, Sydney NSW 2000, Australia	+61 2 9266 2700
Republic of China								
91. 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
92. 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 <sup>th</sup> floor, Tower 21, No. 10 Jiuxianqiao Road, Chaoyang District, Beijing, P.R.China	+8610 57580388
93. 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
94. 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
95. 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 NEXT Co., Ltd.)	Unit 509, 5 <sup>th</sup> floor, Tower B21, UBP, No.10 Jiuxianqiao Road, Chaoyang District, Beijing 100015	+8610 57580388
96. 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 <sup>st</sup> floor, Unit 1, Dafugou Village, Wushan Town, Anqiu County, Weifang City, Shandong Province, P.R.China	+8610 57580310

Name	Type of Business	Authorized Capital	Paid-up Capital	No. of Paid-up Capital (Shares)	Par Value per Share	% of Holding	Head Office	Telephone
97. 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 <sup>nd</sup> floor, Unit 1, Dafugou Villiage, Wushan Town, Anqiu County, Weifang City, Shandong Province, P.R.China	+8610 57580310
98. 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
99. 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
100. Jiaxing Deyuan Energy-Saving Technology Co., Ltd.	Solar power generation	150,740,000 CNY	150,737,586 CNY	N/A	N/A	100.00% (held by BPP Renewable Investment (China) Co., Ltd.)	No. 999 Xianghu Road, Yaozhuang Town, Jiashan County, Jiaxing City, Zhejiang Province, P.R.China	+8610 57580310
101. 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
102. Jiangsu Jixin Electric Power Co., Ltd.	Solar power generation	64,000,000 CNY	64,000,000 CNY	N/A	N/A	100.00% (held by BPP Renewable Investment (China) Co., Ltd.)	Zhengwei Villiage, Qianfeng Town, Jinhu County, Huai'an City, Jiangsu Province, P.R.China	+8610 57580310
103. Banpu (Beijing) Energy Trading Ltd.	Coal Trading	80,000,000 CNY	40,000,000 CNY	N/A	N/A	100.00% (held by Banpu Minerals (Singapore) Pte. Ltd.)	Unit 508A, 5 <sup>th</sup> floor, Tower 21, No.10 Jiuxianqiao Road, Chaoyang District, Beijing, P.R.China	+8610 57580388
Mongolia								
104. Hunnu Altai LLC	Foreign trade, investment in Coal Mining	94,597,212,404.47 MNT	94,597,212,404.47 MNT	683,061	138,490	100.00% (held by Hunnu Investments Pte. Ltd.)	Suite 1502, Fides Tower, Gegeenten Complex, 15 <sup>th</sup> khoroo, Khan-Uul district, Ulaanbaatar-17011, Mongolia	+976 75551221, +976 75551551
105. 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 <sup>th</sup> khoroo, Khan-Uul district, Ulaanbaatar-17011, Mongolia	+976 75551221, +976 75551551
106. 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 <sup>th</sup> khoroo, Khan-Uul district, Ulaanbaatar-17011, Mongolia	+976 75551221, +976 75551551
107. Hunnu Resources LLC	Foreign trade, investment in Coal Mining	380,841,975,086.57 MNT	380,841,975,086.57 MNT	237,348,308	1,604.57	100.00% (held by Hunnu Coal Pty Ltd.)	Suite 1502, Fides Tower, Gegeenten Complex, 15 <sup>th</sup> khoroo, Khan-Uul district, Ulaanbaatar-17011, Mongolia	+976 75551221, +976 75551551
108. Munkh Sumber Uul LLC	Foreign Trade	4,099,599,712.83 MNT	4,099,599,712.83 MNT	409,959	10,000	100.00% (held by Hunnu Resources LLC)	Suite 1502, Fides Tower, Gegeenten Complex, 15 <sup>th</sup> khoroo, Khan-Uul district, Ulaanbaatar-17011, Mongolia	+976 75551221, +976 75551551
109. Bilegt Khaikhan Uul LLC	Foreign trade, minerals mining	31,941,519,864.99 MNT	31,941,519,864.99 MNT	3,194,151	10,000	100.00% (held by Hunnu Resources LLC)	Suite 1502, Fides Tower, Gegeenten Complex, 15 <sup>th</sup> 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
110. Munkhnoyon Suvraga LLC	Foreign trade, minerals mining, tourism, construction materials sale	196,897,807,350 MNT	196,897,807,350 MNT	196,897,807	1,000	100.00% (held by Hunnu Resources LLC)	Suite 1502, Fides Tower, Gegeenten Complex, 15 <sup>th</sup> khoroo, Khan-Uul district, Ulaanbaatar-17011, Mongolia	+976 75551221, +976 75551551
Republic of Singapore								
111. Banpu Minerals (Singapore) Pte. Ltd.	Investment in Coal Mining	N/A	17,670,002 SGD 11,000,000 USD	17,670,002	No par value*	50.00% (held by Banpu Minerals Co., Ltd.) 50.00% (held by Banpu Coal Investment Co., Ltd.)	One Marina Boulevard, #28-00 Singapore 018989	+65 6890 7188
112. 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
113. Banpu Singapore Pte. Ltd.	Investment in Coal Business	N/A	1,500,000 SGD 2,636,094,931.94 USD	1,500,000	No par value*	100.00% (held by Asian American Coal, Inc.)	One Marina Boulevard, #28-00 Singapore 018989	+65 6890 7188
114. Hunnu Investments Pte. Ltd.	Investment in Coal Business	N/A	100 SGD 35,260,188.82 USD	100	No par value*	100.00% (held by Hunnu Coal Pty Ltd.)	One Marina Boulevard, #28-00 Singapore 018989	+65 6890 7188
115. Banpu Power Investment Co., Ltd.	Investment in Power Business	N/A	111,962,391 USD	104,917,663	No par value*	100.00% (held by Banpu Power International Limited)	8 Marina Boulevard, #05-02 Marina Bay Financial Centre, Singapore 018981	+65 6338 1888
116. Zouping Peak Pte. Ltd.	Investment in Power Business	N/A	2 SGD 140,495,758 CNY	2	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
117. Banpu Renewable Singapore Pte. Ltd.	Investment in renewable energy business	N/A	15,810,029,719.8 JPY 71,295,176.69 USD	15,810,029,719.8	No par value*	100.00% (held by Banpu NEXT Co., Ltd.)	8 Marina Boulevard, #05-02 Marina Bay Financial Centre, Singapore 018981	+65 6338 1888
118. BRE Singapore Pte. Ltd.	Investment in renewable energy business	N/A	39,820,001 USD	39,820,001	No par value*	100.00% (held by Banpu NEXT Co., Ltd.)	8 Marina Boulevard, #05-02 Marina Bay Financial Centre, Singapore 018981	+65 6338 1888
119. 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	+65 6338 1888
Republic of Mauritius								
120. Banpu Coal Investment Company Limited	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 <sup>th</sup> floor, Ebene Skies, Rue de L'Institut, Ebene, Republic of Mauritius	+230 404 8000
121. BP Overseas Development Company Limited	Investment in Coal Mining	515,533,002 USD	515,533,002 USD	515,533,002	1	100.00% (held by Banpu Public Co., Ltd.)	4 <sup>th</sup> floor, Ebene Skies, Rue de L'Institut, Ebene, Republic of Mauritius	+230 404 8000
122. BPIN Investment Company Limited	Investment in Renewable Energy	212,497,600 USD	212,497,600 USD	212,497,600	1	100.00% (held by Banpu NEXT Co., Ltd.)	4 <sup>th</sup> floor, Ebene Skies, Rue de L'Institut, Ebene, Republic of Mauritius	+230 404 8000
123. Banpu Power International Limited	Investment in Power Business	117,835,000 USD	117,835,000 USD	117,835,000	1	100.00% (held by Banpu Power Public Company Limited)	4 <sup>th</sup> floor, Ebene Skies, Rue de L'Institut, Ebene, Republic of Mauritius	+230 404 8000

Name	Type of Business	Authorized Capital	Paid-up Capital	No. of Paid-up Capital (Shares)	Par Value per Share	% of Holding	Head Office	Telephone
British Virgin Islands								
124. Asian American Coal, Inc.	Investment in Coal Mining	410,000,000 USD	265,917,026 USD	265,917,026	1	100.00% (held by BP Overseas Development Company Limited)	Geneva Place, 2 <sup>nd</sup> floor, #333 Waterfront Drive, Road Town, Tortola, British Virgin Islands	+284 494 4388
Cayman Islands								
125. 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								
126. 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 <sup>rd</sup> floor, 3-2-5, Kasumigaseki, Chiyoda-ku, Tokyo, Japan 100-6033	+81 3 6205 4665
127. 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 <sup>rd</sup> floor, 3-2-5, Kasumigaseki, Chiyoda-ku, Tokyo, Japan 100-6033	+81 3 6205 4665
128. Banpu Japan K.K.	Investment in renewable energy business	N/A	83,500,000 JPY	13,700	No par value*	100.00% (held by Banpu NEXT Co., Ltd.)	Kasumigaseki Building, 33 <sup>rd</sup> floor, 3-2-5, Kasumigaseki, Chiyoda-ku, Tokyo, Japan 100-6033	+81 3 6205 4665
United States of America								
129. Banpu North America Corporation	Investment in oil and gas business	938,000,100 USD	938,000,100 USD	938,000,100	1	100.00% (held by BOG Co., Ltd.)	2711 Centerville Road, Suite 400, Wilmington, Delaware, USA 19808	+1 302 654 7584
130. BKV Corporation	Investment in oil and gas business	3,000,000,000 USD	1,170,840,000 USD	117,084,000	0.01	96.30% (held by Banpu North America Corporation)	1200 17 <sup>th</sup> Street, Suite 2100, Denver, Colorado, USA 80202	+1 720 375 9680
131. Kalnin Venture LLP	Investment in oil and gas business	N/A	18,576,245 USD	N/A	No par value per share*	100.00% (held by BKV Corporation)	1200 17 <sup>th</sup> Street, Suite 2100, Denver, Colorado, USA 80202	+1 720 375 9680
132. BKV Oil & Gas Capital Partners, L.P.	Investment in oil and gas business	N/A	228,906,976 USD	N/A	No par value per share*	100.00% (held by BKV Corporation)	1200 17 <sup>th</sup> Street, Suite 2100, Denver, Colorado, USA 80202	+1 720 375 9680
133. BKV Chaffee Corners, LLC	Investment in oil and gas business	N/A	109,529,841 USD	N/A	No par value per share*	100.00% (held by BKV Oil & Gas Capital Partners, L.P.)	1200 17 <sup>th</sup> Street, Suite 2100, Denver, Colorado, USA 80202	+1 720 375 9680
134. BKV Chelsea, LLC	Investment in oil and gas business	N/A	205,285,594 USD	N/A	No par value per share*	100.00% (held by BKV Oil & Gas Capital Partners, L.P.)	1200 17 <sup>th</sup> Street, Suite 2100, Denver, Colorado, USA 80202	+1 720 375 9680
135. BKV Operating, LLC	Investment in oil and gas business	N/A	195,541,343 USD	N/A	No par value per share*	100.00% (held by BKV Oil & Gas Capital Partners, L.P.)	1200 17 <sup>th</sup> Street, Suite 2100, Denver, Colorado, USA 80202	+1 720 375 9680
136. BKV Barnett, LLC	Investment in oil and gas business	N/A	406,000,000 USD	N/A	No par value per share*	100.00% (held by BKV Oil & Gas Capital Partners, L.P.)	1200 17 <sup>th</sup> Street, Suite 2100, Denver, Colorado, USA 80202	+1 720 375 9680





Name	Type of Business	Authorized Capital	Paid-up Capital	No. of Paid-up Capital (Shares)	Par Value per Share	% of Holding	Head Office	Telephone
137. 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, USA 19801	+1 302 427 7650
138. Banpu Power US Corporation	Investment in energy generation and related business	100 USD	100 USD	N/A	No par value	100.00% (held by Banpu Power Plc.)	251 Little Falls Drive, in the City of Wilmington, County of New Castle, Delaware, USA 19808	+1 720 375 9680
139. BKV-BPP Power LLC	Investment in energy generation and related business	N/A	173,963,925 USD	N/A	No par value	50.00% (held by Banpu Power US Corporation) 50.00% (held by BKV Corporation)	251 Little Falls Drive Street, Wilmington, Delaware, 19808	+1 720 375 9680
140. Temple Generation Intermediate Holding II LLC	Energy generation and related business	N/A	N/A	N/A	No par value	100.00% (held by BKV-BPP Power LLC)	Registered Agents Address: 251 Little Falls Drive, Wilmington, Delaware, USA 19808	+1 720 375 9680
141. Temple Generation I LLC	Energy generation and related business	N/A	N/A	N/A	No par value	100.00% (held by Temple Generation Intermediate Holding II LLC)	Business Office: 350 North St. Paul St., Dallas, Texas, USA 75201 Registered Agents Address: 1999 Bryan Street, Suite 900, Dallas, Texas, USA 75201-3136	+1 720 375 9680
Socialist Republic of Vietnam								
142. BPP Vinh Chau Wind Power Limited Liability Company	Wind power production, power transmission and distribution	427,395,900,000 VND	427,395,900,000 VND	N/A	No par value	100.00% (held by BRE Singapore Pte. Ltd.)	Wind power plant no.3, Street: 48, Vinh Phuoc ward, Vinh Chau town, Soc Trang province, Vietnam	+849 0988 5015
143. Banpu Vietnam Limited Liability Company	Management consulting services (Except for financial, accounting and legal consultancy)	23,000,000,000 VND	23,000,000,000 VND	N/A	No par value	100.00% (held by BRE Singapore Pte. Ltd.)	8 <sup>th</sup> floor, Friendship Tower, 31 Le Duan Street, Ben Nghe Ward, District 1, Ho Chi Minh City, Vietnam	+849 0748 4047
144. El Wind Mui Dinh Ltd.	Power production, Installation of electrical systems	235,128,370,557 VND	235,128,370,557 VND	N/A	No par value	100.00% (held by BRE Singapore Pte. Ltd.)	Tu Thien Village, Phuoc Dinh Ward, Thuan Nam District, Ninh Thuan Province, Vietnam	+849 25 9651 1234
Associated Companies								
Australia								
145. Port Kembla Coal Terminal Limited	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								
146. 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 NEXT Co., Ltd.)	7-7 Shinkawasaki, Saiwai-ku, Kawasaki-shi, Kanagawa, Japan 212-0032	+81 4 4200 4020
147. Global Engineering Co., Ltd.	Electricity sales and resource aggregator of virtual power plant	N/A	308,200,000 JPY	3,635,000	No par value	19.82% (held by Banpu Renewable Singapore Pte. Ltd.)	Nishiko Living Kashii 2 <sup>nd</sup> floor, 1-1-1, Kashii, Higashi-ku, Fukuoka city, Fukuoka pref. Japan 813-0011	+81 92 692 7547

Name	Type of Business	Authorized Capital	Paid-up Capital	No. of Paid-up Capital (Shares)	Par Value per Share	% of Holding	Head Office	Telephone
Republic of Singapore								
148. Durapower Holdings Pte. Ltd.	Investment holding company (with subsidiaries undertaking 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 Company Limited)	66 Kallang Pudding Road, #05-02 Hor Kew Business Centre, Singapore 349324	+65 6846 0171
Thailand								
149. Urban Mobility Tech Co., Ltd.	Electric Vehicle Business	1,793,750 Baht	1,793,750 Baht	179,375	10	39.74% Preference Shares (held by Banpu NEXT Co., Ltd.)	256 Soi Soonvijai, Rama IX Soi 17 Road, Bangkok, Huaykwang, Bangkok 10310, Thailand	+668 6887 4796
150. Beyond Green Co., Ltd.	Integrated Electric Vehicle	714,285,700 Baht	714,285,700 Baht	7,142,857	100	30.00% (held by Banpu NEXT Co., Ltd.)	115/1, 115/6, Motorway Road, Thap Chang Sub-Area, Saphan Sung Area, Bangkok, 10250 Thailand	+66 2136 0490
Joint Ventures								
Republic of Indonesia								
151. 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 <sup>th</sup> floor, Jalan AIP II K.S. Tubun Raya No. 77, Palmerah, West Jakarta Corresponding Office: Pondok Indah Office Tower 3, 3 <sup>rd</sup> floor, Jl. Sultan Iskandar Muda, Pondok Indah Kav. V-TA, Jakarta 12310, Indonesia	+6221 29328100
Republic of China								
152. 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
153. 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, Hebjji, Hebei City, Henan Province, P.R.China	+8639 2291 7401-2
154. 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								
155. 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
156. Digital Energy Solutions Corporation	Electricity sales and management	N/A	50,000,000 JPY	5,000	No par value*	100.00% (held by Banpu Japan K.K.)	Kasumigaseki Building, 33 <sup>rd</sup> floor, 3-2-5, Kasumigaseki, Chiyoda-ku, Tokyo, Japan 100-6033	+81 3 6205 4665
157. Nakoso IGCC Management Co., Ltd.	Electricity power generation, supply services of electricity power and steam	N/A	1,000,000 JPY	N/A	No par value*	33.50% (held by Banpu Power Investment Co., Ltd.)	2-6-1 Marunouchi, Chiyoda-ku, Tokyo, Japan 100-8086	+81 3 3210 2121





# SHAREHOLDERS

## Top 10 Major Shareholders, as of 31 December 2021

Name	Type of Business	Authorized Capital	Paid-up Capital	No. of Paid-up Capital (Shares)	Par Value per Share	% of Holding	Head Office	Telephone
158. Nakoso IGCC Power Plant GK	Power Generation	N/A	100,000,000 JPY	N/A	No par value*	40.00% (held by Nakoso IGCC Management Co., Ltd.)	102-3 Kawada, Iwamamachi, Iwaki, Fukushima, Japan	+81 246 51 2211
Lao People's Democratic Republic								
159. Hongsa Power Company Limited	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 <sup>th</sup> floor, Room No.D5 Bourichan Road, Phonsinouane Village, Sisattanak District, Vientiane Capital, Lao PDR	+856 2122 483
160. Phu Fai Mining Company Limited	Mining Concession	50,000 USD	50,000 USD	5,000	10	37.50% (held by Banpu Power Public Company Limited)	NNN Building 4 <sup>th</sup> floor, Room No.D5 Bourichan Road, Phonsinouane Village, Sisattanak District, Vientiane Capital, Lao PDR	+856 2122 483
Republic of Singapore								
161. 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
162. Aizu Energy Pte. Ltd.	Investment in renewable energy business	N/A	1,601,577,060 JPY	1,601,577,060	No par value*	75.00% (held by Banpu NEXT Co., Ltd.)	8 Marina Boulevard, #05-02 Marina Bay Financial Centre, Singapore 018981	+65 6338 1888
163. Sunseap Group Pte. Ltd.	Investment in renewable energy business	N/A	13,496,111.63 SGD 351,330,319.05 SGD	1,289,714 2,531,247	No par value*	48.63% (held by BPIN Investment Co., Ltd.)	2 Boon Leat Terrace, #04-03/04 Harbourside Building 2, Singapore 119844	+65 6816 1000
Thailand								
164. BLCP Power Limited	Power generation and sales	12,010,000,000 Baht	12,010,000,000 Baht	120,100,000	100	50.00% (held by Banpu Coal Power Ltd.)	9 I-8 Road, Map Ta Phut Industrial Estate, Muang District, Rayong 21150 Thailand	+66 38 925 100
165. G.E.P.P. SA-ARD Co., Ltd.	Integrated waste management platform	2,666,700 Baht	2,666,700 Baht	26,667	100	25.00% (held by Banpu NEXT Co., Ltd.)	559/186 Nonsi Road, Chong Nonsi Subdistrict, Yannawa District, Bangkok 10120 Thailand	+668 4360 2928
166. Evolt Technology Co., Ltd.	Electric Vehicle Infrastructure	5,937,500 Baht	5,937,500 Baht	59,375	100	15.79% (held by Banpu NEXT Co., Ltd.)	Block 28, Building C, floor 2 C201-202 Alley, Wang Mai, Pathum Wan District, Bangkok 10330 Thailand	+668 0593 1072

\* Under Corporate Law

Major Shareholders	No. of Shares	%
1. Vongkusolkrit Family	552,061,099	8.16
Mitr Phol Sugar Corporation., Ltd.	354,135,014	5.23
TME Capital Co., Ltd.	69,031,025	1.02
MP Particle Board Co., Ltd.	40,725,437	0.60
City Holding Co., Ltd.	38,879,891	0.57
Mid-Siam Capital Co., Ltd.	19,957,528	0.29
Pacific Sugar Corporation Co., Ltd.	18,258,720	0.27
Mitr Phol Bio-Power (Phu Wiang) Co., Ltd.	16,472,626	0.24
2. Thai NVDR Co., Ltd.	487,135,834	7.20
3. South East Asia UK (Type C) Nominees Limited	124,867,981	1.85
4. Bualuang Long-Term Equity Fund	123,748,200	1.83
5. Social Security Office	114,134,566	1.69
6. State Street Europe Limited	104,705,014	1.55
7. Credit Suisse AG, Singapore Branch	82,976,613	1.23
8. Bualuang Long-Term Equity Fund 75/25	47,807,500	0.71
9. Ms. Anchasa Yeesonkaew	45,328,266	0.67
10. BNP Paribas New York Branch	43,688,933	0.65
Total	2,283,914,247	33.76

### Notes:

- **Mitr Phol Sugar Corp., Ltd.** has the following shareholder:  
Mid-Siam Sugar Corp., Ltd. holds 99.99% of its paid-up capital.
  - **TME Capital Co., Ltd.** has the following shareholders:  
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 Kanjanakumnerd Family holds 3.82% of its paid-up capital.  
4. The Putpongsiriporn Family holds 0.94% of its paid-up capital.
  - **MP Particle Board Co., Ltd.** has the following shareholder:  
United Farmer and Industry Co., Ltd. holds 99.99% of its paid-up capital.
- **City Holding Co., Ltd.** has the following shareholders:  
1. The Vongkusolkrit Family holds 90.50% of its paid-up capital.  
2. The Kanjanakumnerd Family holds 6.00% of its paid-up capital.  
3. The Putpongsiriporn Family holds 2.00% of its paid-up capital.  
4. The Jenlapwattanukul Family holds 1.50% of its paid-up capital.
  - **Mid-Siam Capital Co., Ltd.** has the following shareholder:  
Mid-Siam Sugar Corp., Ltd. holds 99.99% of its paid-up capital.
  - **Pacific Sugar Corporation Ltd.** has the following shareholder:  
Mitr Phol Sugar Corp., Ltd. holds 99.99% of its paid-up capital.
  - **Mitr Phol Bio-Power (Phu Wiang) Co., Ltd.** has the following shareholder:  
United Farmer and Industry Co., Ltd. holds 51.04% of its paid-up capital.





## SECURITY

### Authorized Capital

Company Name	บริษัท บ้านปู จำกัด (มหาชน)
Company Name (English)	Banpu Public Company Limited
Market Symbol	<b>BANPU</b>
Major Business	Energy
Registration Number	Bor Mor Jor 152
Authorized Capital	THB 10,149,163,028* Consisting of 10,149,163,028 ordinary shares with the par value of THB 1 per share
Paid-up Capital	THB 6,766,108,686** Consisting of 6,766,108,686 ordinary shares with the par value of THB 1 per share
Number of Shares	6,766,108,686 shares
Par Value	THB 1 (One Baht)

#### Notes:

\* The Extraordinary General Meeting of Shareholders No. 1/2021 on 9 August 2021 passed a resolution approving the Company's registered capital increase from THB 5,074,581,513 to THB 10,149,163,028 by the issuance of additional 5,074,581,513 ordinary shares at the par value of THB 1 per share. The Company registered the capital increase with the Ministry of Commerce on 20 August 2021.

\*\* The 1,691,527,171 ordinary shares for the capital increase were offered to existing shareholders (Right Offering) at the ratio of 3 existing shares to 1 newly issued share at the offering price of THB 5 per share. The Company registered and paid-up the 1,691,527,171 issued shares on 28 September 2021, resulting in the total increase of authorized and paid-up capital from THB 1,691,527,171 to THB 6,766,108,686.

As of 31 December 2021, Thai NVDR Company Limited (Thai NVDR), a subsidiary of the Stock Exchange of Thailand, issued NVDR shares to the Company's shareholders for the underlying securities total amount of 487,135,834 shares, or 7.20% of the issued and paid-up shares at that date. NVDR holders will obtain all financial benefits in the same manners as the Company's ordinary shares holders, except that NVDR holders will have no voting rights at shareholder meetings since they are not the Company's direct shareholders. Practically, Thai NVDR will attend a shareholder meeting and vote at its discretion but not by the instruction of NVDR shareholders. The number of the Company's shares held by the investors who have invested via Thai NVDR is subject to change, which is beyond the Company's control. However, investors

may check the number of NVDR shares from the Stock Exchange of Thailand's website **by scan QR Code or pressing Click here.**



### Foreign Ownership Restrictions

Foreign shareholders may own the Company's shares in the total amount of not exceeding 40% of the Company's issued and paid-up shares. As of 31 December 2021, the Company's shares owned by foreign shareholders was approximately 16.62% of the Company's paid-up capital.

## DEBENTURE

Debenture Details	Banpu Debentures No. 1/2011 Tranche 3	Banpu Debentures No. 1/2011 Tranche 4	Banpu Debentures No. 1/2012 Tranche 2	Banpu Debentures No. 1/2013	Banpu Debentures No. 2/2013 Tranche 2
Issuer	Banpu Plc.	Banpu Plc.	Banpu Plc.	Banpu Plc.	Banpu Plc.
Total Value of Debentures	THB 3,500 Million	THB 2,000 Million	THB 3,000 Million	USD 150 Million	THB 2,100 Million
Type of Debenture	Name-registered, unsubordinated and unsecured debentures with debenture holders' representative	Name-registered, unsubordinated and unsecured debentures with debenture holders' representative	Name-registered, unsubordinated and unsecured debentures with debenture holders' representative	Name-registered, unsubordinated and unsecured debentures with debenture holders' representative	Name-registered, unsubordinated and unsecured debentures with debenture holders' representative
Amount of Debentures	3,500,000 Units	2,000,000 Units	3,000,000 Units	15,000 Units	2,100,000 Units
Par Value	THB 1,000	THB 1,000	THB 1,000	USD 10,000	THB 1,000
Outstanding Debenture Value as of 31 December 2021	THB 3,500 Million	THB 2,000 Million	THB 3,000 Million	USD 150 Million	THB 2,100 Million
Coupon Rate	5.08%	5.19%	5.04%	4.09%	5.05%
Tenor	12 Years	15 Years	10 Years	10 Years	12 Years
Issue Date	1 April 2011	1 April 2011	24 May 2012	4 April 2013	10 July 2013
Maturity Date	1 April 2023	1 April 2026	24 May 2022	4 April 2023	10 July 2025
Call Option for Debenture Holders and Issuer	-None-	-None-	-None-	-None-	-None-
Principal Payment before the Maturity Date	The debenture issuer will pay the principal on the maturity date.	The debenture issuer will pay the principal on the maturity date.	The debenture issuer will pay the principal on the maturity date.	The debenture issuer will pay the principal on the maturity date.	The debenture issuer will pay the principal on the maturity date.
Maturity Value	THB 1,000	THB 1,000	THB 1,000	USD 10,000	THB 1,000
Collateral	-None-	-None-	-None-	-None-	-None-
Debenture Rating	A+ TRIS Rating Co., Ltd.	A+ TRIS Rating Co., Ltd.	A+ TRIS Rating Co., Ltd.	A+ TRIS Rating Co., Ltd.	A+ TRIS Rating Co., Ltd.





Debtenture Details	Banpu Debtentures No. 1/2014 Tranche 2	Banpu Debtentures No. 1/2015 Tranche 1	Banpu Debtentures No. 1/2015 Tranche 2	Banpu Debtentures No. 1/2015 Tranche 3	Banpu Debtentures No. 1/2017
Issuer	Banpu Plc.	Banpu Plc.	Banpu Plc.	Banpu Plc.	Banpu Plc.
Total Value of Debtentures	THB 5,000 Million	THB 1,000 Million	THB 1,750 Million	THB 1,250 Million	THB 10,000 Million
Type of Debtenture	Name-registered, unsubordinated and unsecured debtentures with a debtenture holders' representative	Name-registered, unsubordinated and unsecured debtentures	Name-registered, unsubordinated and unsecured debtentures	Name-registered, unsubordinated and unsecured debtentures	Name-registered, unsubordinated and unsecured debtentures with a debtenture holders' representative
Amount of Debtentures	5,000,000 Units	1,000,000 Units	1,750,000 Units	1,250,000 Units	10,000,000 Units
Par Value	THB 1,000	THB 1,000	THB 1,000	THB 1,000	THB 1,000
Outstanding Debtenture Value as of 31 December 2021	THB 5,000 Million	THB 1,000 Million	THB 1,750 Million	THB 1,250 Million	THB 10,000 Million
Coupon Rate	4.80%	3.85%	4.00%	4.10%	4.17%
Tenor	10 Years	7 Years	10 Years	12 Years	10 Years
Issue Date	4 July 2014	12 November 2015	12 November 2015	12 November 2015	21 April 2017
Maturity Date	4 July 2024	12 November 2022	12 November 2025	12 November 2027	21 April 2027
Call Option for Debtenture Holders and Issuer	-None-	-None-	-None-	-None-	-None-
Principal Payment before the Maturity Date	The debtenture issuer will pay the principal on the maturity date.	The debtenture issuer will pay the principal on the maturity date.	The debtenture issuer will pay the principal on the maturity date.	The debtenture issuer will pay the principal on the maturity date.	The debtenture issuer will pay the principal on the maturity date.
Maturity Value	THB 1,000	THB 1,000	THB 1,000	THB 1,000	THB 1,000
Collateral	-None-	-None-	-None-	-None-	-None-
Debtenture Rating	A+ TRIS Rating Co., Ltd.	-None-	-None-	-None-	A+ TRIS Rating Co., Ltd.

Debtenture Details	Banpu Debtentures No. 1/2018	Banpu Debtentures No. 1/2019	Banpu Debtentures No. 1/2021 Tranche 1	Banpu Debtentures No. 1/2021 Tranche 2	Banpu Debtentures No. 2/2021 Tranche 1
Issuer	Banpu Plc.	Banpu Plc.	Banpu Plc.	Banpu Plc.	Banpu Plc.
Total Value of Debtentures	USD 50 Million	THB 10,000 Million	THB 2,000 Million	THB 4,000 Million	THB 3,945 Million
Type of Debtenture	Name-registered, unsubordinated and unsecured debtentures with a debtenture holders' representative	Name-registered, unsubordinated and unsecured debtentures with a debtenture holders' representative	Name-registered, unsubordinated and unsecured debtentures with a debtenture holders' representative	Name-registered, unsubordinated and unsecured debtentures with a debtenture holders' representative	Name-registered, unsubordinated and unsecured debtentures with a debtenture holders' representative
Amount of Debtentures	5,000 Units	10,000,000 Units	2,000,000 Units	3,670,000 Units	3,945,000 Units
Par Value	USD 10,000	THB 1,000	THB 1,000	THB 1,000	THB 1,000
Outstanding Debtenture Value as of 31 December 2021	USD 50 Million	THB 10,000 Million	THB 2,000 Million	THB 3,670 Million	THB 3,945 Million
Coupon Rate	5.25%	4.00%	3.33%	3.78%	2.90%
Tenor	10 Years	10 Years	7 Years	10 Years	5 Years
Issue Date	8 August 2018	22 May 2019	24 February 2021	24 February 2021	4 August 2021
Maturity Date	8 August 2028	22 May 2029	24 February 2028	24 February 2031	4 August 2026
Call Option for Debtenture Holders and Issuer	-None-	-None-	-None-	-None-	-None-
Principal Payment before the Maturity Date	The debtenture issuer will pay the principal on the maturity date.	The debtenture issuer will pay the principal on the maturity date.	The debtenture issuer will pay the principal on the maturity date.	The debtenture issuer will pay the principal on the maturity date.	The debtenture issuer will pay the principal on the maturity date.
Maturity Value	USD 10,000	THB 1,000	THB 1,000	THB 1,000	THB 1,000
Collateral	-None-	-None-	-None-	-None-	-None-
Debtenture Rating	A+ TRIS Rating Co., Ltd.	A+ TRIS Rating Co., Ltd.	A+ TRIS Rating Co., Ltd.	A+ TRIS Rating Co., Ltd.	A+ TRIS Rating Co., Ltd.



Debenture Details	Banpu Debenture No. 2/2021 Tranche 2	Banpu Debenture No. 2/2021 Tranche 3	Banpu Debenture No. 2/2021 Tranche 4
Issuer	Banpu Plc.	Banpu Plc.	Banpu Plc.
Total Value of Debentures	THB 4,010 Million	THB 6,045 Million	THB 2,000 Million
Type of Debenture	Name-registered, unsubordinated and unsecured debentures with a debenture holders' representative	Name-registered, unsubordinated and unsecured debentures with a debenture holders' representative	Name-registered, unsubordinated and unsecured debentures with a debenture holders' representative
Amount of Debentures	4,010,000 Units	6,045,000 Units	2,000,000 Units
Par Value	THB 1,000	THB 1,000	THB 1,000
Outstanding Debenture Value as of 31 December 2021	THB 4,010 Million	THB 6,045 Million	THB 2,000 Million
Coupon Rate	3.30%	3.80%	1.58%
Tenor	7 Years	10 Years	3 Years
Issue Date	4 August 2021	4 August 2021	4 August 2021
Maturity Date	4 August 2028	4 August 2031	4 August 2024
Call Option for Debenture Holders and Issuer	-None-	-None-	-None-
Principal Payment before the Maturity Date	The debenture issuer will pay the principal on the maturity date.	The debenture issuer will pay the principal on the maturity date.	The debenture issuer will pay the principal on the maturity date.
Maturity Value	THB 1,000	THB 1,000	THB 1,000
Collateral	-None-	-None-	-None-
Debenture Rating	A+ TRIS Rating Co., Ltd.	A+ TRIS Rating Co., Ltd.	A+ TRIS Rating Co., Ltd.

## 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. ● ● ●

The Company's affiliates have a policy to pay the dividend from net profits after the deduction of all reserves required by governing laws. The Board of Directors shall consider the dividend payout rate based on operating income, financial conditions, and capital requirements. After that, it will be proposed to shareholders for approval. In the past 5 years, Banpu Public Company Limited has the dividend payments as follows:

Year	Dividend Rate for First Six Months (Baht/Share)	Dividend Rate for Second Six Months (Baht/Share)	Dividend Rate for Full Year (Baht/Share)	Net Profit (Baht/Share)	Dividend Payout per Net Profit (%)
2017	0.35	0.30	0.65	1.55	42%
2018	0.35	0.35	0.70	1.30	54%
2019	0.25	0.35	0.60	(0.08)	n.a.
2020	0.15	0.15	0.30	(0.30)	n.a.
2021	0.20	0.25	0.45*	1.59	28%

\* The Company announced a total dividend of THB 0.45 per share arising from its performance during the period from 1 January 2021 to 31 December 2021, of which THB 0.20 per share was paid on 23 September 2021. The remaining dividend payment of THB 0.25 per share for 2021 performance will be paid on 29 April 2022





## Risk Management and Risk Factors



### Policy, Framework, and Corporate Risk Management Plan

- ● ● Amidst the volatile and uncertain business environment, Banpu and Banpu Group have prioritized systematic and efficient risk management to reduce the likelihood of risks, mitigate their potential impacts, and expand business opportunities to add value to the Company and the group. ● ● ●

The Company's risk management is under the supervision of the Board of Directors through the Audit Committee and the Risk Management Committee, which were assigned to monitor risks and follow up on the results of risk mitigation plans in all business units. In 2021, the Company set up the Environmental, Social, and Governance (ESG) Committee to develop an operational framework in alignment with the ESG strategy and monitor short- and long-term risks worldwide. The Enterprise Risk Management Department quarterly reports risk management performance review to the Risk Management Committee, the Audit Committee, the ESG Committee, and the Board of Directors to ensure that key and emerging risks are within risk appetite, thus, reducing risk likelihood and potential impacts.

The Enterprise Risk Management Department is responsible for the company-wide implementation of risk management policy and framework by employing various tools such as identification of risk appetite and key risk indicators (KRIs), which are regularly reviewed and improved to align with the Company's strategy. It has also promoted the inclusion of risk issues in critical meetings and put risk management in the Company's training curriculum, communication materials and activities, as well as encouraged employees to participate in risk-related activities for a deep understanding and cultivation of risk culture.

### Business Risk Factors

#### 1. Strategic Risk

##### 1.1 Risks in Strategic Planning and Implementation

The COVID-19 pandemic has negatively impacted the economies of countries around the world. Other risk factors are international trade wars, the imbalance between energy demand and supply, legal and regulatory changes, rapid technological development and changes, and higher expectations from investors and stakeholders. The Company has reviewed and changed its business direction and strategy in response to the changing environment. It has also stressed the importance of sustainability by defining strategies based on ESG principles to deliver Smarter Energy for Sustainability. Business plan has been developed for increased flexibility and agility, allowing the Company to withstand challenges and increase competitiveness. Meanwhile, Banpu has skillfully applied innovation and technology in its business as well as maintained its financial liquidity through revenue generation and risk minimization with a focus on projects that could generate immediate cash flow. The Company has also reduced expenses and improved cash flow stability to effectively deal with uncertainty.

The Company organizes monthly meetings to analyze situations and trends and compares data gathered from reliable institutions and sources to assist decision making and deliberation of future business approaches.

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

To accommodate future growth in accordance with the Greener & Smarter strategy, the Company has improved its HR management approach, reviewed the organizational structure, and analyzed the workforce and HR development plans. The Company has formulated the Training and Development Policy and allocated 5% of salary budgets in each operating country for HR development. It also developed the Banpu Learning and Development Framework for competency-based development at all levels so that the employees can close their competency gaps and respond to business expansion needs. Each employee has an individual development plan based on required competencies, including functional competencies and leadership competencies varying according to position. In addition, the Company has organized trainings to build a growth mindset and digital skills to help employees excel in a fast-paced environment along with the cultivation of Banpu Heart corporate culture with employees.





For top executives and other critical positions, the Company set up the Succession Planning Committee to oversee succession planning and high potential management. The committee works with consulting firms to transform insights on competency and personality of succession candidates and develop them to ensure leadership continuity and accommodate future business expansion. The Company has considered and selected successors for every key position, filling all critical roles in the succession plan as planned.

### 1.3 Corporate Reputation Risk

Banpu prioritizes the management of brand and reputation risk as it could rapidly and immensely pose adverse impact beyond monetary terms in both the short and long run. The Company is committed to conducting business according to the Greener & Smarter strategy. It has also adhered to the Environmental, Social, and Governance (ESG) principles to drive business growth and generate sustainable benefits and returns to all stakeholders amidst the COVID-19 challenges. Banpu adopted Management Framework – Stakeholder Analysis based on the AA1000 Stakeholder Engagement Standard (AA1000SES) for materiality assessment in compliance with the three principles of inclusivity, materiality, and responsiveness.

The Company has set corporate communications and brand management works in line with its direction and the ESG commitment by developing communication strategies to achieve quick and accurate communications while ensuring good understanding among all stakeholders. These involve, for instance, a quarterly analyst meeting for investors and analysts; a direct communication channel for local and international investors via the Investor Relations Department; and communications by the

Corporate Communications Department to its target audience as well as general public through media channels. Moreover, the Company maintains regular communications of its corporate social responsibility (CSR) activities, promotes good relationship with local communities, and regularly conducts satisfaction surveys with community members, stakeholders, customers, and employees to assess their attitude and opinion towards the Company. A whistleblower channel has also been established to gather information for the improvement of the Company's operations.

As a result, in 2021, Banpu was selected as a member of the Dow Jones Sustainability Indices (DJSI) – Emerging markets in coal and consumable fuels industry for the 8<sup>th</sup> consecutive year with outstanding performance in three areas, namely, Human Rights, Cybersecurity, and Biodiversity. The increased score in Human Rights resulted from its implementation of human rights due diligence self-assessment. Moreover, Banpu's Australian subsidiary has announced the Modern Slavery Statement containing the company's plan and outcomes related to the issue. Banpu also received the Sustainability Awards of Honor in Sustainability Excellence for the 3<sup>rd</sup> consecutive year, reaffirming its position as a leading international versatile energy provider with a determination to excel in innovation, technology, and sustainability. The Company has also been listed on the Thailand Sustainability Investment (THSI) index 2021 for the 7<sup>th</sup> consecutive year for conducting business based on responsible investment, focusing on sustainable growth and long-term returns for shareholders according to ESG principles.

### 1.4 Risk of Investing in New Businesses

In managing this risk, 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 in relevant areas, carefully considers and provides opinions on various aspects of the new investments such as coherence with the Company's growth strategy, the required return on investment and the project's risk assessment. The Committee also regularly monitors investment performance and changes in factors affecting the target rate of return to ensure responsiveness to problems while closely monitoring and analyzing its investment portfolio.

In addition, Banpu emphasizes synergy between the Company and its new entities. To realize this, resource planning, staff capacity development, and organizational restructuring are carried out accordingly to facilitate change management, paving the way for smooth investment, sustainable growth, and return on investment according to the strategic plan.

In 2021, the Company accelerated Banpu Transformation under the Greener & Smarter strategy even further by expanding its greener energy portfolio. The Company continued to invest in operating power plants in the Asia-Pacific region, such as the Nakoso IGCC power plant in Japan, the Beryl and Manildra solar farms in Australia, the "Temple I" combined cycle gas turbines (CCGT) power plant in Texas, the U.S., and the Ha Tinh solar farm in Vietnam. These reflect Banpu's commitment to expediting the development of renewable energy, energy storage systems, and High Efficiency, Low Emissions (HELE) power assets, to achieve more than 50% EBITDA from greener energy and energy technology businesses

by 2025. This also corresponds to Banpu's strategic plan to join the global community's goal of tackling climate change.

## 2. Financial Risk

### 2.1 Risk from Coal, Oil and Natural Gas Price Volatility

With regard to ongoing volatility in coal, oil, and natural gas prices and its potential effects on the Company's performance, Banpu has appointed the Commodity Risk Management Committee (CRMC) to manage the risk. The CRMC analyzes coal, oil, and natural gas price trends and mitigates the potential impact using financial derivative instruments – coal swap, oil swap, and gas collar option. The Company also closely monitors and assesses the coal market situation to seek the most opportune time to settle customer sales contracts while taking into account the appropriate proportion of coal sold on an index-linked basis to that sold on a fixed price basis.

### 2.2 Exchange Rate Risk

The Company follows its risk mitigation plan to reduce the impact of exchange rate fluctuations at both the corporate and group levels in all countries of operations. The Financial Management Committee convenes to deliberate and choose the right financial instruments for each particular situation while ensuring the balance of incoming and outgoing cash flows in foreign currencies as well as adjusting its foreign currency forward contracts based on estimated revenues, expenses, and debenture repayments.





As of 31 December 2021, 50% of the Company's denominated debt was in Thai Baht; 35% in US Dollar; 14% in Australian Dollar, and 1% in Chinese Yuan Renminbi. This included capital raised in US Dollar or amount converted into other foreign currencies to accommodate overseas investments.

### 2.3 Taxation Risk

Banpu pays taxes within the period specified by law to mitigate taxation risks. The Company has created tax guidelines and prepared complete documents for settling tax payments. The investment structure is regularly reviewed. All executives in each operating country are also assigned to closely monitor changes in rules and policies of their respective country, both at the central and local government levels. The Company also hires local legal consulting firms to advise on legal compliance practices.

In the event of taxation disputes with a government agency, the Company would provide such agency with accurate tax information in relation to its business. If necessary, the Company would also hire expert tax consultants to provide advice and handle the disputes.

### 2.4 Funding Risk

Expansion of the Company's investments according to its Greener & Smarter strategy involves a number of financial obligations to be met. Therefore, Banpu closely monitors and manages related risks, as well as devises prudent investment plans and seeks to ensure reasonable costs of capital. The Company creates a financial forecast as a financial management tool, calculating and analyzing various financial ratios that will occur in the future to maintain key financial ratios at appropriate levels and ensure alignment with ESG principles. The Company also monitors factors affecting the financing process to obtain project funding at reasonable costs.

## 3. Operating Risk

### 3.1 Production Risk

The Company prioritizes the risk mitigation due to uncertainty in production, which is a crucial factor affecting its business operations in the short and long term. The Company has implemented the following risk mitigation measures to maintain stability, uphold high production standards, and ensure reliability.

- Establishing an operational excellence framework that facilitates production continuity, promotes machine and operator safety, and supports preventative maintenance.
- Deploying digital systems to increase efficiency, for example, developing automation technology for coal mine management and operations to reduce errors in manual systems, lower production costs, as well as improve productivity and production quality. The Company developed the Contractor Management System (CMS) to reduce the risk of hiring incompetent subcontractors, which could affect an operational plan. Besides, the Company incorporated automation technology, data analytics, and lean operation in managing a large number of gas wells to improve production efficiency and reduce natural gas production costs.
- Closely monitoring the operations of power plants, particularly on root cause analysis to ensure operational efficiency and stability and effectively maintaining critical spare part inventory for power plants.
- Regularly organizing training to enhance staff knowledge and skills and promoting knowledge sharing among departments or Banpu Group companies.

- Regularly conducting emergency drills and procuring necessary insurances, e.g., property damage insurance and business interruption insurance.

### 3.2 Occupational Health, Safety, and Environment Risks

The Company manages occupational health, safety, and environmental (OHSE) risks by annually reviewing the OHSE policy, strategies, and goals. The OHSE performance results are reported to the Sustainability Committee and the ESG Committee. The OHSE performance is one of the key performance indicators of the CEO and senior management of all business units. The Company has implemented the OHSE strategies through the safety culture, which covers the enhancement of the OHSE system according to the ISO 45001 standard; legal requirements and relevant practices for business units in each operating country; and cultivation of safety knowledge and awareness. In addition, the Company has established risk mitigation measures according to the hierarchy of hazard controls and developed a plan for risk communication, surveillance, and monitoring. Supervisors are responsible for risk assessment and communication of risks to all operators prior to work.

The Company has developed a business continuity management system based on international standards such as ISO 22301. It requires that every key business unit have a business continuity plan and conduct an emergency drill annually. The business continuity management system has been monitored and reviewed through an internal monitoring system,

by a third-party, and by the management on an annual basis. During COVID-19 outbreak, the Company has activated the Business Continuity Plan (BCP) and set up the Incident Management Team (IMT) in each country to handle and respond to the COVID-19 crisis. Since the beginning of the outbreak, the Company has implemented a BCP strategic plan to support employees while working from home. As a result, critical activities were uninterrupted and completed as planned, enabling the Company to deliver quality products and services to both internal and external customers.

In terms of the environment, the Company has adhered to environmental standards and focused on effective resource utilization to conserve natural resources and minimize direct and indirect environmental impacts by taking into account the climate change measures, waste management, land utilization, biodiversity, and water resources utilization. In 2021, the Company took the following environmental risk mitigation measures.





Issue	Key Risk Mitigation Measures
Climate Change	<ul style="list-style-type: none"><li>● Establishing policies and goals for greenhouse gas management to improve energy efficiency, including the selection of technologies that reduce greenhouse gas emissions</li><li>● Setting up the Climate Change Committee and including climate change management as one of the key performance indicators for the CEO and senior management in all relevant business units</li><li>● Setting up a Task Force on Climate-related Financial Disclosure (TCFD) with an aim to disclose climate-related information based on the TCFD framework by 2023</li></ul>
Production Waste Management	<ul style="list-style-type: none"><li>● Announcing the Waste Management Policy as practice guidelines for all business units</li><li>● Focusing on waste minimization by conserving, reducing, reusing, recycling, recovering waste, using waste as fuel to reduce the amount of waste going to incineration or landfills</li><li>● Establishing waste management standards in line with international practices and the requirements of each operating country</li></ul>
Land Utilization and Biodiversity	<ul style="list-style-type: none"><li>● Announcing the Biodiversity Policy</li><li>● Developing a mining plan carefully to minimize the impacts on geographic conditions, biodiversity, and ecosystems by including a mine closure plan from the beginning of the project</li><li>● Conducting biodiversity risk assessment annually and use the results as an input for rehabilitation planning to minimize the biodiversity impacts</li></ul>
Water Resources Utilization	<ul style="list-style-type: none"><li>● Announcing the Water Policy to define the scope and objectives of the Company's water management, including collection and reporting of water utilization data</li><li>● Measuring water quality before discharge into the environment both by the Company and external entities</li><li>● Assessing water shortage risk in the operating locations based on the data of World Resources Institute's Aqueduct Water Risk Atlas to develop plans and policies to prevent the impacts on the environment and communities in the operational areas and establish community collaboration in managing such risk</li><li>● Organizing a project to reduce water utilization in the production process, reuse water, and separate surface water to prevent contamination with wastewater</li></ul>

### 3.3 Social and Community Risk

The Company has carried out community development activities in every location where it operates, stressing the collaboration with its stakeholders, namely communities, government agencies, and other related parties. It has also formulated the Community Development Policy, set management standards, and established strategies and targets for the community

development activities based on the local government's regulations and relevant international standards such as the UN's Sustainable Development Goals (SDGs). Working with its stakeholders, the Company has carried out community development activities in six key areas: economy, education, hygiene and primary health care, environmental conservation, social and cultural promotion, and infrastructure development. Moreover, the Company has adopted

the social return on investment (SROI) framework in measuring the social impacts of its community development projects to maximize the efficiency of its work towards the Sustainability Policy's goals.

The Company has implemented the community complaint management system in all business units to ensure systematic management of potential risks. The system includes indigenous peoples management and resettlement management where relocation of communities is necessary. In addition, the Company requires that all operating locations conduct the community perception survey as a standard practice to gather information on community perception and acceptance as well as community concerns and suggestions, which will be used as an input for further improvement. A community satisfaction survey was also conducted on quality of life improvement projects, and the survey results were used as a basis to improve the community's benefits and satisfaction. Moreover, the Company has put in place a quality assurance review by employees who are not involved in community development activities to ensure the highest transparency and efficiency.

### 3.4 Natural Disaster Risk

In many countries, climate change has caused various natural disasters, such as forest fires, heavy snowfalls, droughts, storms, and extreme rainfalls, which can affect business operations. To cope with the risk, the Company included climate change as one of the risks in its business continuity plan and purchased property insurance and business interruption insurance to cushion the blow of potential incidents. Consideration of natural disaster risk is required as part of new project due diligence. The Company has devised strategies for low-carbon society by setting a specific GHG emission reduction target and incorporating carbon price into the feasibility study for investment project in an effort to achieve the emission reduction target. Additionally, the Company has prepared for disclosure of climate-related risk management based on the Task Force on Climate-Related Financial Disclosure (TCFD) framework.

## 4. Regulatory Change and Compliance Risk

Compliance risk may arise from various factors, for instance, legal complexities, frequent legal changes, misinterpretations of practices, and foreign language in which a law is written. These 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 entrusted the Compliance Department with duties to supervise legal compliance of all units in Banpu Group to ensure strict compliance with applicable laws. Furthermore, the Company manages the risk of policy and regulatory changes in each country by setting up a legal division and/or designating legal consultants to handle legal matters. The Company has also developed the Laws In-Hand application to track and report regulatory changes as well as to alert and communicate with internal departments about newly-issued or amended laws to make them aware of potential effects and know what they are supposed to do.

Moreover, to address corruption risk, the Company has joined the Thai private sector's Collective Action Against Corruption (CAC), conducted risk assessment, and established corruption risk management guidelines. In 2021, the Company set up the Personal Data Protection Act (PDPA) Working Group to design a system and procedures to comply with the Personal Data Protection Act (2019) in order to ensure the efficiency of personal data collection, use, and disclosure. The Company also communicated and educated its employees on that matter.

## 5. Emerging Risk

Emerging risks are risks that have never been in existence or those that the Company has not yet encountered but may cause adverse effects due to unexpected changes in the future 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 has assessed potential risks and found key emerging risks as follows.

### 5.1 Risks from the Advancement of Energy Technologies Affecting Energy Industry

Global trends in lifestyles, economic development, and technological advancement, as well as increased awareness of the importance of renewable energy and the environment, have driven the promotion of alternative energy by government sector and technological development in the energy industry in private sector, such as the development of improved energy storage systems and electric vehicles. Renewable energy business also sees decreasing costs thanks to modern technological progress. This presents both a challenge and an opportunity for the Company in driving its businesses in response to the rapidly changing business ecosystem. Therefore, the Company has accelerated Banpu Transformation according to the Greener & Smarter strategy to timely respond to changing business environment and establish an energy ecosystem that supports the Company's mission to deliver Smarter Energy for Sustainability as follows:

- Restructuring energy portfolio by shifting from conventional energy to cleaner and smarter energy. For instance, the Company established Banpu Energy Australia, focusing on three areas, namely decarbonization projects, energy solutions development, and portfolio optimization. Recently, it has invested in Beryl and Manildra solar farms and conducted a feasibility study in tech minerals to support its battery and EV-related businesses.
- Implementing Digital Transformation to increase competitiveness by establishing the Digital Center of Excellence to drive digital transformation and agile working for improved operations. For example, in Australia, the Company deploys

the Energy Management Platform for real-time energy monitoring in the Pump Hydro Energy Storage project, which is funded by the Australian Renewable Energy Agency (ARENA) and the New South Wales Government as part of Pumped Hydro Energy Storage project feasibility study.

- Continuously developing employees' skills and knowledge on energy and digital technologies; cultivating a work ethic based on Banpu Heart, which fosters experimenting, learning, resilience and continuous improvement. The Company has also recruited specialized digital staff for the Digital Capability Center (DCC) in different countries to improve employee cooperation in creating workplace innovations.

### 5.2 Risks from Climate Change

The Company is well aware of climate change risk, which is a top concern for stakeholders. At the 26<sup>th</sup> United Nations Climate Change Conference (COP26) in 2021, member countries agreed on a common goal to limit an increase of global average temperature, resulting in stricter rules and regulations on greenhouse gas (GHG) emissions in each country. This may affect the Company's operations and growth. However, in 2010 the Company established a policy and long-term targets for greenhouse gas management and has since adopted clean energy technologies. To accommodate changing business environment, it has closely monitored rules and regulations related to GHG emissions, including the COP26, energy policies, and GHG reduction requirements in every country where it has invested.

The Company's climate strategy and practices focus on four areas: mitigation of GHG emissions, adaptation to climate change, being a part of a low-carbon society, and participation in the climate change community. The Company set out approaches, timelines, and responsible units to achieve the highest efficiency in strategic plan implementation. Measures taken to reduce GHG emissions are as follows:

- Setting up the Climate Change Committee to drive and monitor climate-related risk management.
- Incorporating carbon price into project development costs so that the information can be used by management in making investment decisions while seeking investment opportunities in renewable and alternative energy sources to minimize GHG emissions and meet the demands of a low-carbon society in order to achieve its GHG emission targets under the Greener & Smarter Strategy.
- Assessing climate change risks and reporting the results to the ESG Committee, and including climate change as a risk in the business continuity plan.
- Setting up a Task Force on Climate-related Financial Disclosure (TCFD) to prepare for the climate change disclosures by 2023.

### 5.3 Cyber Threat

The COVID-19 pandemic has led to an increase use of digital technology and Internet of Things when working from home, having online meetings, or storing data on cloud, which pose cyber threats to the Company. The threats can lead to a serious data breach or disruption of production, affecting business continuity and the Company's credibility, wimage, and reputation. To manage the risks, the Company implemented the following risk mitigation measures.

- Announcing the Information and Cybersecurity Policy as practice guidelines for employees and educating employees on cyber threats as well as practices and prevention against cyber threats.
- Rehearsing cyber-incident response and information technology disaster recovery plans annually to enable timely response and mitigate potential impact or damage to the Company's operations.

- Conducting phishing tests to raise phishing awareness in employees when using information systems.
- Achieving ISO 27001 certification, which is an international standard for information security management system (ISMS).

### 5.4 Risks from the Impact of COVID-19 Pandemic on Business Operations and Performance

The COVID-19 pandemic facing countries worldwide can have an impact on the Company's domestic and international operations and possibly lead to business or production disruption. The Company has taken measures to reduce the likelihood of impact by implementing the Business Continuity Management System (BCMS) organization-wide and preparing for unexpected events. The Incident Management Team (IMT) in each country annually exercises the country-level business continuity plan every year to prevent unexpected disruption to business and ensure on-time delivery of products and services as well as long-term benefits for all stakeholders. Furthermore, the Digital Center of Excellence (DCOE) has driven Banpu's digital transformation and the implementation and "Agile Working" to improve flexibility and efficiency in all business units.

Additionally, the Company launched a "Work Anywhere" policy, allowing employees to work remotely from any location. The Company also deployed a modern electronic document management system to enable faster communication, connection, and exchange of essential information both internally and externally. Employees are thus all equipped and able to perform their jobs smoothly and efficiently. The Company has also provided employees with essential resources to ensure smooth operations, such as vaccines and information technology for virtual meetings.





## DRIVING BUSINESS FOR SUSTAINABILITY

### Sustainability Goals and Policy

Believing in its business credo, “An industry will be strong only when it is developed in tandem with social and environmental responsibility,” the Company adheres to corporate governance and aims to strike a sustainable balance between economy, society, and environment. The Company adopted international practices in developing its sustainability strategy to enhance business competitiveness and create value for all stakeholders.

More information about “Sustainability Goals and Policy”, please scan QR code or press click here.



To create sustainable values for stakeholders, the Company set up the Environmental, Social, and Governance Committee (ESG Committee), of which all members are independent directors. The Committee supports the Board of Directors on the supervision of ESG issues and convenes on a monthly basis. The Company also set up the Sustainability Committee, which comprises senior management and heads of business units in all countries where it operates. The Chairperson of the Committee is the CEO, who is also a Board member.

Roles and Responsibilities		Performance Indicators
Board of Directors	<ul style="list-style-type: none"><li>Oversee compliance with relevant laws and regulations</li><li>Establish the KPIs for CEO and evaluate the CEO's performance</li><li>Review and monitor management of significant ESG risks</li><li>Review and monitor stakeholder engagement and materiality assessment</li></ul>	<ul style="list-style-type: none"><li>Meeting attendance</li><li>Performance score of the Board of Directors</li></ul>
	<ul style="list-style-type: none"><li>Oversee the Company's ESG policy, management, and performance</li></ul>	
ESG Committee	<ul style="list-style-type: none"><li>Oversee the Company's ESG policy, management, and performance</li></ul>	<ul style="list-style-type: none"><li>Meeting attendance</li><li>Performance score of the ESG Committee</li><li>Comprehensiveness of material ESG issues considered</li></ul>

Roles and Responsibilities		Performance Indicators
ESG Committee	<ul style="list-style-type: none"><li>Review and monitor stakeholder engagement and materiality assessment to ensure that all stakeholder expectations are identified and included in the materiality assessment and are managed properly</li><li>Review and monitor the management of significant ESG risks to ensure effective ESG management</li><li>Oversee the Company's ESG disclosures</li></ul>	<ul style="list-style-type: none"><li>The number of material ESG issues included in the Company's ESG goals</li><li>The number of ESG goals set as KPIs for senior executives</li><li>ESG performance of the Company</li></ul>
Chief Executive Officer (CEO)	<ul style="list-style-type: none"><li>Ensure the implementation of the Sustainability Policy and integration of ESG strategy into business operations</li><li>Establish KPIs for senior executives and evaluate their performance</li></ul>	
Sustainability Committee	<ul style="list-style-type: none"><li>Review ESG issues which are of global concern</li><li>Review stakeholder analysis and material issues</li><li>Monitor and evaluate ESG or sustainability performance for the past year</li><li>Formulate and review policy or management standards, and set goals to enhance competitiveness and ensure that the Company grows in tandem with social and environmental responsibility</li></ul>	
Senior Executives and Heads of Business Units	<ul style="list-style-type: none"><li>Review related policies and strategies</li><li>Monitor the ESG performance of the business units</li><li>Ensure the achievement of ESG goals</li></ul>	<ul style="list-style-type: none"><li>Meeting attendance</li><li>ESG performance of the Company</li><li>ESG performance of each business unit</li></ul>





Led by its vision to become “The Asian energy company at the heart of innovation, technology, and sustainability,” Banpu strives to create sustainable value and stakeholder confidence with its responsibility for society and the world. The Company adopted sustainability principles as well as the environmental, social, and governance (ESG) practices at national and international levels in developing its Sustainability Policy by:

- Integrating the UN Sustainable Development Goals (SDGs) and the UN Global Compact principles in determining focal areas for sustainable development

- Taking the UN Guiding Principles on Business & Human Rights and Universal Declaration on Human Rights as inputs for developing the Human Resource Management Policy and the Human Rights Policy
- Using the Environmental, Social, and Governance performance results assessed by external rating agencies, such as MSCI ESG Ratings Assessment and S&P Global Corporate Sustainability Assessment, as part of the Company’s performance review

### Banpu and Sustainable Development Goals



#### Previous Achievements

#### Targets



- Water baseline data is available at all business units.
- Zero significant tailing spills
- Zero hazardous waste disposal by landfill

- 2022** ● Hazardous waste disposal less than 6 tonnes for thermal power business
- Intensity of non-hazardous waste disposal less than 0.130 kg/MWh of for thermal power business

- 2023** ● Intensity of hazardous waste disposal less than 0.010 kg/tonne and non-hazardous waste disposal less than 0.140 kg/tonne



- 0.66 GW renewable energy
- 0.25 GW energy of solar rooftop
- 700 MMcfed shale gas production

- 2025** ● More than 50% of portfolio are clean energy
- More than 1.1 GW renewable energy production capacity



- Zero occupational fatalities
- More than 50% of spending on local suppliers

- 2021** ● More than 70% of business units assessed for human rights risks
- 2025** ● Lost time injury frequency rate (LTIFR) of employees less than 1.99 and contractors less than 0.14
- High-consequence injuries rate (employee) less than 0.06
- Zero high-consequence injuries rate (contractor)

### Banpu and Sustainable Development Goals



#### Previous Achievements

#### Targets



- SO<sub>2</sub> emissions intensity less than 30 g/tonne for mining business
- SO<sub>2</sub>, NO<sub>x</sub>, TSP emissions intensity less than 76.6, 118.4, and 23.0 g/MWh for thermal power business

- 2025** ● 5% energy intensity reduction from 2019 for mining business



- Integrate internal carbon pricing in investment decision

- 2025** ● 7% GHG emissions intensity reduction from Business as Usual (BAU) for mining business
- 20% GHG emissions intensity reduction from Business as Usual (BAU) for thermal and renewable power businesses



- All business units assessed for potential impact on biodiversity
- More than 90% of revegetation against plan for mining business

- 2025** ● Net positive impact on biodiversity upon closure of the mine identified as high potential for biodiversity impact

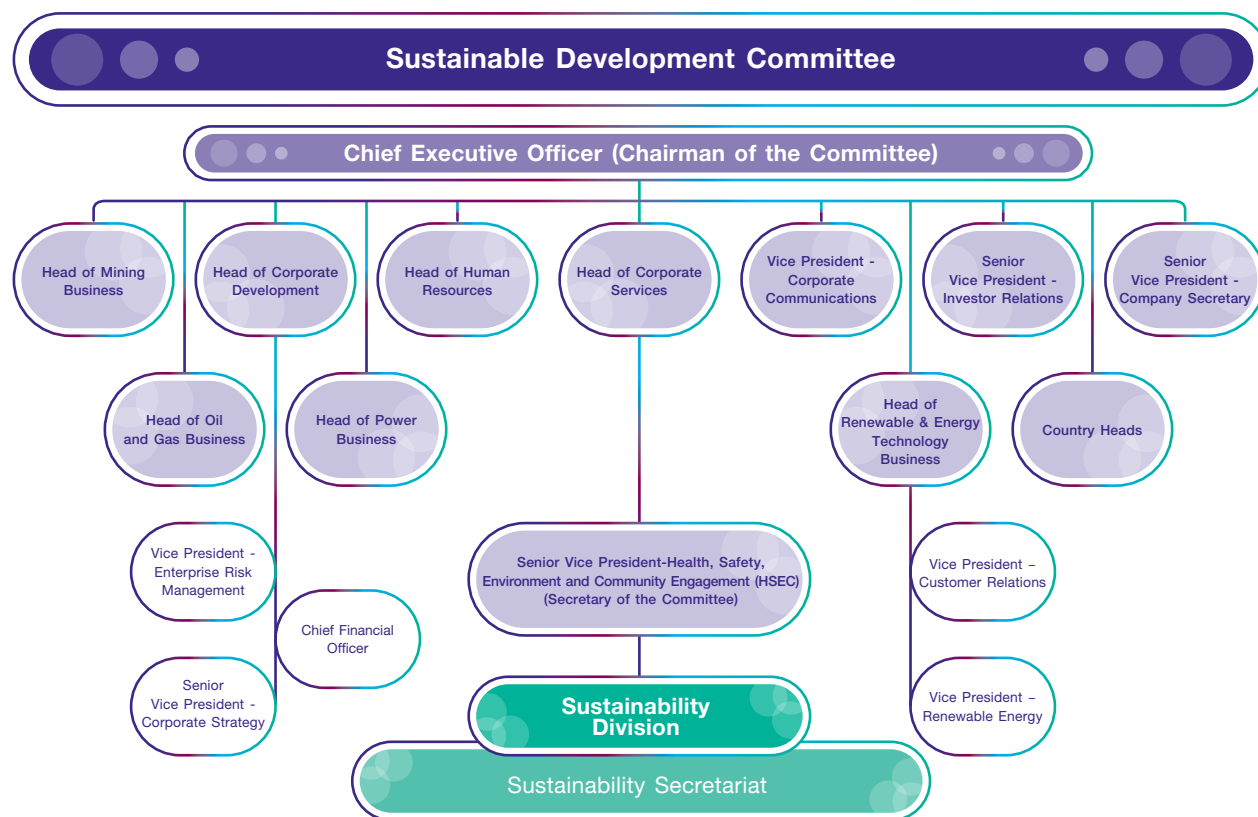


- All community development projects are linked to the SDGs

In driving sustainability, the Company integrated significant ESG issues as part of annual KPIs for the CEO and senior executives of every business unit. The Board of Directors is in charge of establishing the CEO’s KPIs, covering both financial and ESG aspects, of which ESG KPIs are accountable for 30% of the total KPIs. ESG KPIs include, for example, employee engagement level, the number of significant complaints on corporate governance issues, the number of cybersecurity incidents,

the amount of GHG emissions reduced, and the number of occupational fatalities. Senior executives’ KPIs are developed to align with the CEO’s KPIs. The performance of the CEO is evaluated by the Board of Directors while that of senior executives is evaluated by the CEO. Meanwhile, the sustainability performance indicators are also used as part of business unit heads’ performance evaluation.





\* Remark: Information as of 31 December 2021

To ensure smooth sustainability management, the Sustainability Committee convenes biannually to review and evaluate the ESG performance of each business unit against the goals as well as to review the stakeholder analysis and materiality assessment. The results will then be reanalyzed along with the Board's advice on policies or approaches to formulate additional policies, management standards, or practices in order to enhance sustainability and maximize stakeholder value in the following year.

The Company has disclosed its sustainability strategies and performance, covering significant ESG issues, to stakeholders through a sustainability report since 2011. The previous sustainability reports are

available both in hard copy and an online versions, of which the latter can be accessed via the Company's website. The Company prepares its sustainability report based on the GRI Sustainability Reporting Standards and has the report and sustainability performance information verified by a third party agency to ensure that the reporting is in accordance with the GRI Standards and the performance information meets all the mandated requirements.

With a long-term commitment to ESG in its business operations, Banpu has been recognized by leading sustainability rating organizations both nationally and globally as follows:

#### Global Recognition

#### Member of Dow Jones Sustainability Indices

Powered by the S&P Global CSA

The Company has been maintained as a member of the Dow Jones Sustainability Indices (DJSI) for the 8<sup>th</sup> consecutive year.

#### Sustainability Award Gold Class 2021 S&P Global

The Company has received SAM Gold Class Sustainability Award in the Coal & Consumable Fuels sector for the 7<sup>th</sup> consecutive year.



The Company has received an ESG A rating (on a AAA-CCC scale) in the MSCI ESG Ratings.



The Company has been ranked among the top 100 best emerging market performers for its outstanding ESG performance by Vigeo Eiris (V.E) Moody's ESG Solutions.



The Company has won its first Silver Award in Asia's Best SDG Reporting from the 6<sup>th</sup> Asia Sustainability Reporting Awards (ASRA) 2020, which is an international recognition for corporate sustainability reporting.



The Company has won its first Silver Award in the Sustainability Reporting category from the Global Corporate Sustainability Award (GCSA) 2021 for transparent disclosure of ESG information.



## National Recognition



The Company has been included in the Thailand Sustainability Investment (THSI) list by the Stock Exchange of Thailand for the 7<sup>th</sup> consecutive year.



The Company has received Sustainability Awards of Honor from SET Awards in the category of Sustainability Excellence for the 4<sup>th</sup> consecutive year.



The Company has been ranked among the top listed companies with Excellent CG Scoring according to the Corporate Governance Report of Thai Listed Companies 2021 by The Thai Institute of Directors Association (IOD), supported by the Stock Exchange of Thailand (SET).

# MANAGEMENT OF STAKEHOLDER IMPACTS IN BUSINESS VALUE CHAIN

## Business Value Chain

Banpu operates businesses in 10 countries around the world, harnessing the ecosystem in which 3 core business groups are integrated, namely energy resources, energy generation, and energy technology.

- **Energy resources group** consists of open-pit and underground coal mines based in Indonesia, Australia, and China to respond to customers in the industrial sectors and the power plants in Asia and Europe, and shale gas business based in the U.S. The produced gas will be collected and transmitted through pipelines for distribution to power plants and households in the U.S.
- **Energy generation group** consists of thermal and renewable power generation businesses deploying high efficiency, low emissions (HELE) technologies to strengthen energy security of

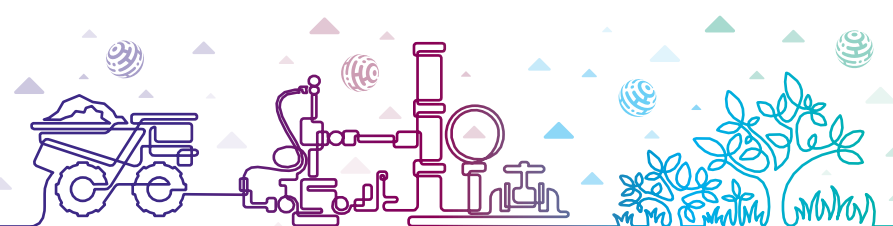
industrial sectors and households. The production bases are in China, Thailand, Japan, the U.S., and Lao PDR. The Company also operates renewable power generation from solar and wind energy to meet the demand for clean energy. Currently, the production bases are in China, Japan, Australia, and Vietnam

- **Energy technology group** comprises rooftop and floating solar power generation businesses which are based in Thailand. The energy storage system business based in China in response to industrial sector's energy demand, and smart city development connecting clean energy utilization and energy optimization, E-mobility services for transportation systems according to the Mobility-as-a-Service (MaaS) concept, and energy trading business through a digital platform to effectively respond to future electricity consumption.

## Banpu is Well-Positioned as “an International Versatile Energy Provider”

### Energy Resources Group

- Mining
- Gas



### Energy Generation Group

- High Efficiency, Low Emissions (HELE)
- Renewable

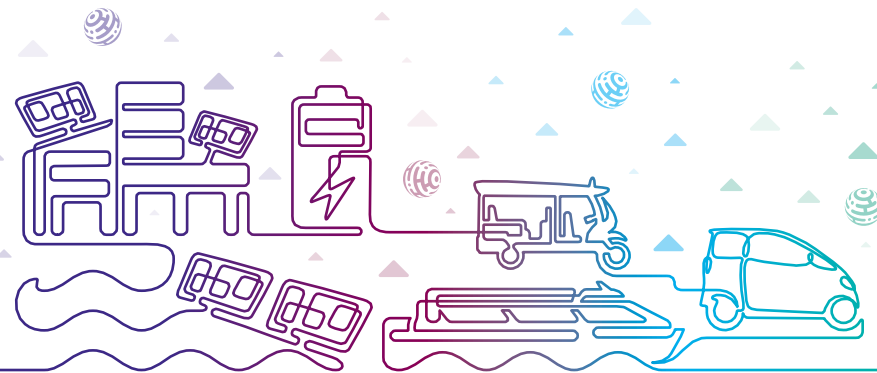






### Energy Technology Group

- Solar Rooftop
- Floating Solar
- Energy Storage
- E-Mobility
- Smart Cities
- Energy Trading



### Stakeholder Analysis in Business Value Chain

The Company implemented Stakeholder Analysis in accordance with AA1000 Stakeholder Engagement Standard (AA1000SES) with three key principles of stakeholder inclusivity, materiality, and responsiveness. Each business unit is responsible for stakeholder

analysis in relevant areas to its operation. The results will be gathered and reanalyzed at the organizational level under the supervision of the Sustainability Committee.

Stakeholders	Engagement Channels	Stakeholders' Issues of Interest
<b>Employee</b>	<ul style="list-style-type: none"><li>● Communication between the Company and employees through several channels</li><li>● Involving employees through establishment of various committees</li><li>● Whistleblower channel</li><li>● Survey on the alignment of employee behaviors with corporate culture</li><li>● Employee engagement survey</li><li>● Town hall meeting</li></ul>	<ul style="list-style-type: none"><li>● The Company's business direction</li><li>● Business ethics and responsibility to employees</li><li>● Happiness in the workplace</li><li>● Fair compensation, welfare, and benefits</li><li>● Opportunity for career growth and security</li><li>● Capability development</li><li>● Safety in the workplace</li></ul>
<b>Community</b>	<ul style="list-style-type: none"><li>● Community Consultative Committee (CCC)</li><li>● Community satisfaction survey</li><li>● Whistleblower channel</li><li>● Communication through community development officers</li><li>● Publishing information on the website</li></ul>	<ul style="list-style-type: none"><li>● Social and environmental impacts from the Company's activities</li><li>● Safety in life and residence</li><li>● Respect for community rights</li><li>● Improvement of quality of life and income generation for the community</li></ul>

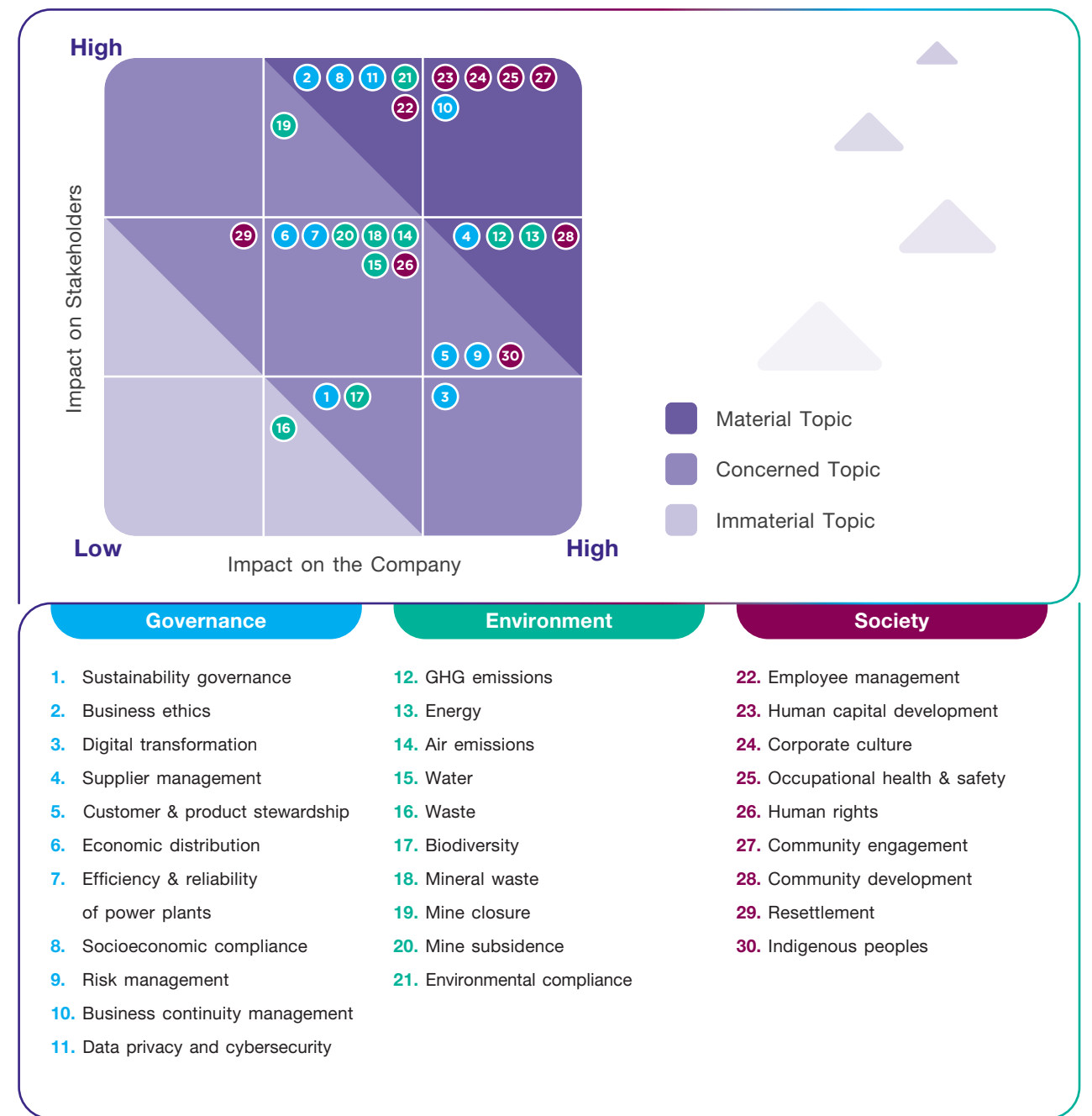
Stakeholders	Engagement Channels	Stakeholders' Issues of Interest
<b>Customer</b>	<ul style="list-style-type: none"><li>● Customer satisfaction survey</li><li>● Whistleblower channel</li><li>● Visit on various occasions</li><li>● Response to requests for data disclosure</li><li>● Report on the annual maintenance plan and emergency drill</li><li>● Request for consent for customer data use</li><li>● Data security procedure</li></ul>	<ul style="list-style-type: none"><li>● Quality and price of products</li><li>● On-time product delivery</li><li>● Social and environmental impact from the use of products</li><li>● Availability of products and services</li><li>● Personal data breaches</li><li>● Collection and use of customer data</li></ul>
<b>Government</b>	<ul style="list-style-type: none"><li>● Visit on various occasions</li><li>● Participation and promotion of activities organized by the government sector</li><li>● Response to requests for data disclosure</li><li>● Publication of annual report and sustainability report</li><li>● Publishing information on the website</li></ul>	<ul style="list-style-type: none"><li>● Value creation for economy and society</li><li>● Business ethics</li><li>● Data transparency and disclosure</li><li>● Legal and regulatory compliance</li><li>● Natural resource optimization</li><li>● Supply chain management</li><li>● Potential social and environmental impact from the Company's activities</li><li>● Driving SDGs into practices</li></ul>
<b>Supplier</b>	<ul style="list-style-type: none"><li>● Regular meeting with suppliers</li><li>● Data protection process</li></ul>	<ul style="list-style-type: none"><li>● Transparent procurement process and fair compensation</li><li>● Future opportunity to work with the Company</li><li>● Personal data breaches</li></ul>
<b>Contractor</b>	<ul style="list-style-type: none"><li>● Regular meeting with contractors</li><li>● Annual contractors meeting</li></ul>	<ul style="list-style-type: none"><li>● Transparent procurement process and fair compensation</li><li>● Safety in the workplace</li><li>● Energy reduction in the production process</li><li>● Future opportunity to work with the Company</li></ul>
<b>Financial Institution</b>	<ul style="list-style-type: none"><li>● Analyst meeting</li><li>● Publication of annual report and sustainability report</li></ul>	<ul style="list-style-type: none"><li>● Business transparency</li><li>● Operating results and business growth</li></ul>
<b>Business Partner</b>	<ul style="list-style-type: none"><li>● Board meeting at subsidiaries and associated companies</li><li>● Publication of annual report and sustainability report</li><li>● Report on the annual maintenance plan and emergency drill</li></ul>	<ul style="list-style-type: none"><li>● Business transparency</li><li>● International reputation</li><li>● Operating results and business growth</li><li>● Business continuity</li></ul>



Stakeholders	Engagement Channels	Stakeholders' Issues of Interest
Shareholder	<ul style="list-style-type: none"> <li>Annual general meeting of shareholders</li> <li>Publication of annual report and sustainability report</li> <li>Whistleblower channel</li> <li>Publishing information on the website</li> </ul>	<ul style="list-style-type: none"> <li>Qualifications of the Board of Directors and the management</li> <li>Business transparency</li> <li>Risk and opportunity and management</li> <li>Research &amp; development to enhance competitiveness</li> <li>Operating results and business growth</li> </ul>
Investor	<ul style="list-style-type: none"> <li>Investor roadshow</li> <li>Presentation on Opportunity Day organized by the Stock Exchange of Thailand</li> <li>Publication of annual report and sustainability report</li> <li>Publishing information on the website</li> </ul>	<ul style="list-style-type: none"> <li>Qualifications of the Board of Directors and the management</li> <li>Business transparency</li> <li>Value creation for the economy, society, and environment</li> <li>Risk and opportunity and management</li> <li>Operating results and business growth</li> </ul>
Media and NGO's	<ul style="list-style-type: none"> <li>Response to requests for data disclosure</li> <li>Fact sheet summary</li> <li>Publishing information on the website</li> <li>Media activities and events</li> </ul>	<ul style="list-style-type: none"> <li>Economic and social value creation</li> <li>Business ethics</li> <li>Transparency and information disclosure</li> <li>Legal and regulatory compliance</li> <li>Potential social and environmental impact from the Company's activities</li> </ul>

The assessment and prioritization of material topics are carried out according to the management standard developed consistent with the Global Reporting Initiative (GRI) Standards and AA1000 AccountAbility Principles Standard (AA1000APS), while taking into

consideration the governance, environmental and social aspects or interests for impacts on the Company and stakeholders. The material topics are annually reviewed and approved by the Sustainability Committee.







## SUSTAINABILITY MANAGEMENT - ENVIRONMENTAL ASPECT

### Environmental Policy and Practices

Banpu is committed to business sustainability and has integrated the Environment, Social, and Governance (ESG) principles into its business operations. The environment (E) is one of the Company's top priorities as it is fully aware of potential environmental impacts caused by its business. Hence, the Company strives to manage the environment with an aim to maximize benefits for all involved parties, for instance, strict legal compliance, continuous commitment to mitigation of environmental impacts, regular assessment and monitoring of environmental risks, and management of current risks as well as the risks that may arise, environmental conservation and natural resources optimization, improvement of environmental performance, and environmental reporting to stakeholders. **By scan QR Code or pressing Click here.**



the Company has established Environmental Policy and other related policies, Greener & Smarter strategy, as well as short and long-term sustainable development goals to drive progress toward the UN Sustainable Development Goals (SDGs). The environmental issues that the Company focuses on covering Goal 6 Clean water and sanitation, Goal 12 Responsible consumption and production, Goal 13 Climate action, and Goal 15 Life on land. This is to ensure that the Company can generate sustainable added value for stakeholders and to accentuate the ESG concerns. In 2021, The Company conducted an assessment of climate change and water risks of all business units. It also has a plan to continuously expand the assessment to cover other environmental issues.

Climate change risk is one of the risks the Company has reviewed and prioritized; therefore, climate change management is set as one of the KPIs of the Chief Executive Officer and senior management in all involved business units. The Company set up Climate Change Committee to implement climate change management, emphasizing four measures, namely, reduction of GHG emissions, adaptation, being part of a low carbon society, and joining the climate change organizations.

In 2021, the Company announced the target to reduce greenhouse gas (GHG) emissions in normal operations of each business unit and integrated the energy management plan into its GHG management plan to achieve the highest energy efficiency. In addition, the Company declared its support for the Task Force on Climate-related Financial Disclosure (TCFD). In 2020, it had set up the TCFD working team to assess climate-related risks and impacts on the Company's financial statements, mitigation measures for such impacts, and long-term GHG emissions reduction targets. The Company plans to disclose its first "Report on Climate Change" in 2023.

In addition, the Company places importance on emissions of other air pollutants such as particulate matter, sulfur dioxide (SO<sub>2</sub>), and nitrogen oxides (NO<sub>x</sub>). Realizing that its business can impact the environment and the health of local people in the surrounding communities. For power business, the Company controls pollutants at their sources using engineering control, such as circulating fluidized beds, and improving the air quality control system at its power plants, deploying state-of-the-art and efficient technologies, such as technology for trapping sulfur dioxide and

nitrogen oxides at smokestacks and electrostatic precipitators for dust trapping. Continuous emission monitoring systems were installed at smokestacks and in surrounding communities to ensure that the ambient air quality always meets legal standards. In its mining business, the Company prevents and reduces emissions by regularly maintaining power generators to prevent incomplete combustion. It also emphasizes pollution control at the source by various methods such as using conveyors instead of trucks to transport coal, spraying roads and coal stockpile areas with water, regular maintenance of motor vehicles, and limiting the speed of vehicles in mining areas. Apart from that, the Company regularly checks the ambient air quality in the mining areas and surrounding communities.

Water is one of the natural resources that the Company places importance on due to limited volume and the fact that it is the major raw material for Banpu's business. The Company has developed a water management plan covering diverting water from water sources, water utilization in production, and discharging water into the environment. In order to achieve its long-term target to reduce product water footprint, the Company is expanding the scope of management to include river basins, starting from analyzing water balance at each business unit and water use throughout the product life cycle in the power business. The Company also has measures for water quality assessment before being discharged into natural water bodies by the Company itself and external agencies to ensure that the discharged water meets legal requirements. In addition, the Company has continuously assessed the locations of its business unit whether they are in areas of water stress, according to the World Resources Institute's Aqueduct Water Risk Atlas. The assessment in 2021 revealed that 33% of its business units are located in water-stressed areas.

Meanwhile, the Company focuses on waste reduction by means of prevention and reduction, reuse, recycling, and recovery as fuel, aiming to reduce waste

disposed into landfills or by incineration. The Company has set waste management standards to comply with international practices and laws and regulations of each country where the Company operates. It also prepared a waste management flow diagram as a reference for gathering waste information and monitoring waste management. For certain wastes in particular businesses, such as overburden and sediments from mining, the Company set control measures through the preliminary risk assessment carried out prior to the beginning of operations. In addition, the Company prepared mining waste management standards to cover the stage prior to mining operations until mine closure.

Realizing the impact on the ecosystem and biodiversity caused by open-pit mining, the Company established a management system consisting of four approaches, namely avoiding, reducing, restoring, and offsetting, which is in line with the concept of the International Union for Conservation of Nature (IUCN). The Company also conducted a preliminary biodiversity risk assessment in all business units before introducing any production activities by considering involvement in protected areas or high biodiversity areas and surveying species in the areas to preserve the native species as well as the species on the IUCN Red List. In case a business unit experiences high biodiversity risk, the Company will evaluate the biodiversity value using standards compliant to the Convention on Biological Diversity and develop a biodiversity management plan to achieve its target, which states that from 2025 every mine with high biodiversity risk must achieve a net positive impact after mine closure.

Additionally, the Company integrated mine subsidence into underground mine planning in the areas prone to mine subsidence from mining. The Company submitted the mining plan, including mine subsidence management, to involved government agencies for approval before starting mining operations and regularly monitors mine subsidence and its impacts.





## Environmental Performance

In 2021, the Company formulated operational strategies to achieve environmental targets in each area. It disclosed environmental performance data, whose accuracy and reliability were verified by third-party auditors from Lloyd's Register International (Thailand) Co., Ltd. The Company adopted a verification and reporting approach based on the GRI Standards at the core, with additional indicators: G4 Mining and Metals Sector Disclosures and G4 Electric Utilities Sector Disclosures. They consist of the Company's and subsidiaries' GHG emissions (Scope 1-3) energy consumption utilization data, air emission, water, and waste. The Company disclosed all the above environmental performance data in the Sustainability Report in 2021.

### Climate Change

Banpu implemented climate change management corporate-wide and included it as one of the key performance indicators for the CEO and senior executives of all related business units. It also established the Climate Change Committee to implement GHG management strategies. In 2021, the Company prepared to disclose information according to the recommendations of the Task Force on Climate-related Financial Disclosure (TCFD). The Company also set up the TCFD Working Group to assess climate-related risk and its financial impacts as well as the mitigation measure, and long-term GHG emissions reduction targets. In addition, the newly established ESG Committee, consisting of three independent directors, will be accountable to the Board of Directors for the oversight of ESG aspects and driving ESG performance to achieve its goals with the highest efficiency. The Company has set a target to reduce GHG emissions intensity by 7% from business as usual for mining and by 20% for normal thermal and renewable power by 2025.

Based on the operations in 2021, GHG emissions intensity of mining business decreased by 0.1%, which was below the target due to the delayed implementation of the GHG reduction projects. The power business achieved a 3% reduction in

GHG emissions, which was below the target. However, the Company planned to expand investment in renewable power generation business to achieve the target. GHG emissions intensity of mining business was at 0.129 tonne CO<sub>2</sub>/tonne coal and 0.555 tonne CO<sub>2</sub>/MWh in the power business.

### Energy Consumption

The Company has integrated the energy management plan with the GHG management plan to optimize energy consumption. In 2021, it maintained the proportion of alternative energy consumption (B30 biodiesel) at Indonesian mines and installed equipment to increase the energy efficiency of its combined heat and power plants in China. The project will help save energy up to 3,000 MWh/year. In addition, effective energy management and the completed energy efficiency project have improved the energy consumption rate to 0.439 tonne CO<sub>2e</sub>/tonne coal for mining business and 1.194 tonnes CO<sub>2e</sub>/MWh for power business, which was above the targets.

### Air Emission

The Company reported data of air emission from two sources—point sources and non-point sources. As for point sources, the Company has constantly implemented measures to control pollutants at the source, such as regular maintenance of generators in the mining business and improving the air quality control system by incorporating modern and efficient technology in the power business. At power plants, online air quality monitoring systems have been installed on the top of stacks and at surrounding communities to ensure that air quality meets the air quality standards at all times. The Company also set the air pollution control targets for the power business better than the standards. In 2021, the emissions intensity of SO<sub>2</sub>, NO<sub>x</sub>, particulate matter, and mercury were 25.44, 44.49, 3.08, and 0.0015 g/MWh, respectively; all were achieved targets. The air quality measured by third-party agencies also met the standards. For non-point sources in the mining business, the SO<sub>2</sub> emissions intensity was also achieved the target at 25.73 g/tonne of coal.

## Water Management

The Company has developed a database for water consumption and water balance. Meanwhile, water footprint has been studied for power business. The data will be used for internal water management. In addition, the Company worked with external agencies involved with water management in the same basin. For example, Centennial, a subsidiary of Banpu in Australia, worked with EnergyAustralia to develop a water treatment project to recycle water discharged from Springvale and Angus Place mines for the Mount Piper power plant's cooling system. The project aims to control the amount of water discharging to Coxs River. At the same time, it can reduce the amount of water pumped from natural sources to the Mount Piper power plant. The co-benefit of this project is to share water to community and increase the biodiversity of aquatic animals and plant species in the basin. In addition, the Company has continuously assessed the locations of its business units, whether they are in areas of water stress, according to the World Resources Institute's Aqueduct Water Risk Atlas, to assist the planning of water management in their production process. The Company also encourages stakeholders in reducing the potential impacts of water scarcity for example, by encouraging key suppliers to assess water-related risks and formulate annual prevention and mitigation measures. In 2021, the Company's water use intensity was 0.184 m<sup>3</sup>/tonne coal in the mining business and 0.877 m<sup>3</sup>/MWh in the power business, which was slightly above the target.

### Waste

The Company strictly complies with the waste management laws of each country where it operates and adheres to the 4Rs waste management strategy: reduce, reuse, recycle, and recovery, to lessen the environmental impact of waste disposal. In 2021, the Company strengthened waste management in the production process through the waste management policy and manual to minimize waste in the production process. The Company has developed data collection standard to be aligned with GRI 306 (2020) which

covers waste generation to disposal. The Company has achieved the target of zero hazardous waste to landfills, and 100% of the ash and synthetic gypsum were reused and recycled in the power business. Although there are some hazardous to landfills for mining business. This has been done in compliance with the law by licensed companies. Landfills are located in government-designated areas and properly managed. However, the Company plans to reduce the amount of hazardous waste going to landfills and reuse it according to the 4Rs principle.

### Environmental Incidents

In 2021, there was a report of a significant environmental incident: a crack was found above the underground mining area of the Mandalong mine in Australia. Investigation of the incident revealed that it was caused by land subsidence in the underground mining area. The Company prepared a report along with a restoration plan for the site to the relevant authorities and neighboring community networks, and the plan was approved as proposed. Furthermore, the Company surveyed and evaluated subsidence levels in other mining areas and then formulated a plan to avoid such occurrences in the future.

In addition, the Company also places importance on land management. It has set targets and monitored operations on related issues, including post-mining management, biodiversity, and mine subsidence.

**More information about “Sustainability Goals and Policy”, please scan QR code or press click here.**





# SUSTAINABILITY MANAGEMENT

## - SOCIETY ASPECT

### Social Policy and Practices

#### Community Policy and Practices

The Company adheres to the business credo that “an industry will be strong only when it is developed in tandem with society and environmental responsibility”. Accordingly, the Company promotes community development activities in the areas that it operates by stressing “engagement” among relevant stakeholders, including communities, the government authorities, and involved organizations. This implementation is in line with the Company’s Community Development Policy, whose primary aim is to improve the quality of life and well-being of local communities, empower the communities to become self-reliant in the long run and gain community acceptance.

For complete information on “Community Development Policy”, please visit the Company’s website.

By scan QR Code or pressing Click here.



To align all community development activities in the same direction, the Company established the Community Development Policy and standard practices. It also devised strategies and set targets for the community development activities based on the local government’s regulations and international standards, such as the UN’s Sustainable Development Goals (SDGs). Under the collaboration of communities, the government sector, and the Company, the community development activities are carried out in six major areas: economy, education, sanitation and primary health care, environmental conservation, social and cultural promotion, and infrastructure development. 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.

#### Community Development Implementation

The Company has formulated the Community Engagement Standard Practice Manual, which includes the guidelines on the development of local communities’ quality of life and the mitigation of social and community impacts. The manual provides community development officers with clear operational guidelines of the same standards for all areas of operations. In addition, the guidelines are regularly updated to properly respond to changing situations.

#### Promotion of Community Engagement

The Company places importance on community engagement at every stage of development, emphasizing the engagement of community members for community activity design, implementation, monitoring, and review including evaluation, i.e. drawing up the community development plan that 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), which consists of representatives from the local government, local communities, and the Company. The committee collaboratively works on project planning, monitoring progress, and solving problems for the greatest benefit to society.

#### Building Community Engagement

The Company has cooperated with contractors on community development work as many of them have been carrying out community development operations. 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 widely benefits local communities while reducing redundancies of its social development management.

#### Community Complaint Management

The Company has devised the Community Complaint Management System to enable systematic management of community complaints. This approach covers the indigenous peoples management and local community restoration in the event of inevitable project-related displacement.

#### Community Perception and Satisfaction Surveys

The Company has held the community perception survey as a common practice in all areas of operations to measure the community’s levels of awareness and acceptability, community concerns, and suggestions from communities. The survey results will be used in improving the operations for the benefit and overall satisfaction of the community. In Indonesia, a community satisfaction survey on community development programs is performed annually for Banpu subsidiaries; the results enable the company to understand satisfaction levels and how to efficiently enhance community development initiatives.

#### Quality Assurance Review

The Company has its employees who are not involved with community development work perform the quality assurance review to achieve the highest transparency and efficiency. The review enables the Company to identify areas of improvement so that it can improve the efficiency of the community development implementation.

#### Community Performance

In 2021, the Company convened 29 community advisory committee meetings with all villages in its operational areas in Indonesia and 17 mining group-level subcommittee meetings in Australia. It was found from those meetings that most communities wanted to improve their quality of life in the areas of health and economy. In 2021, the Company did not receive significant complaints from communities in the operational areas. In addition, all business units have integrated the Company’s community complaint management guidelines in daily practice and reported their performance regularly.

Apart from that, the Company conducted community satisfaction surveys covering 15 community development programs of all Indonesian mines. The average satisfaction rating was 76% or at the “Satisfactory” level. The Company also conducted community perception surveys in Indonesia and Australia to measure community acceptance. In Indonesia, two community perception surveys were conducted at the communities surrounding two mines, with the average score at the “satisfactory” level. The Company is also planning to conduct more community perception surveys at other mines next year. In Australia, the surveys were conducted at mining group-level subcommittee meetings; the average score was also at the “satisfactory” level. The surveys will also be conducted in China, where there are ongoing community development projects.

Moreover, the Company has employed the social return on investment (SROI) framework to measure the social impacts of community development activities to improve the performance of each business unit’s community development projects. In 2021, the SROI evaluation on Electricity for Community Health Center Project and Community Waste Bank Project were conducted in Indonesia. The SROI ratios of the two projects were 1:1.17 and 1:0.95, respectively.

For more information on the Company’s community performance, please see the 2021 Sustainability Report or visit the Company’s website. By scan QR Code or pressing Click here.





## Human Rights Policy and Practices

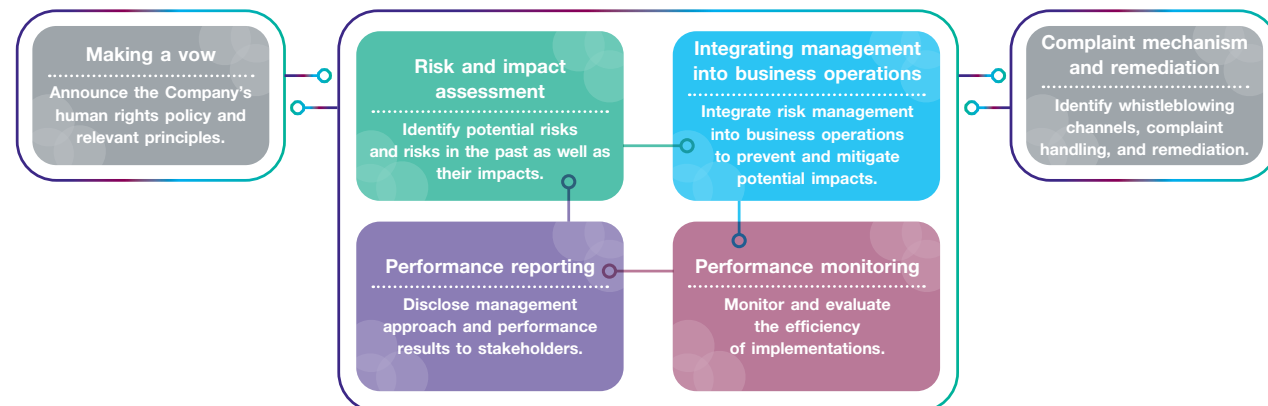
Banpu strives for conducting business with adherence to international practices such as the Universal Declaration on Human Rights, the UN Guiding Principle on Business & Human Rights, and ILO Declaration on Fundamental Principles and Rights at Work of United Nations Global Compact (UNGC), including applicable labor laws of all countries where it operates. The Company observes the principles of liberty, equality, and human dignity without discrimination on gender, ethnicity, religion, or skin color to avoid and prevent human rights violations on employees, suppliers, customers, contractors, communities, and vulnerable

groups such as children, women, disabled persons, indigenous people, immigrant workers, and elderly persons. The Company has also developed the “Human Rights Due Diligence Handbook” to be used as a management approach for human rights issues, covering key risks throughout Banpu’s value chain.

For complete information on “Human Rights Due Diligence Handbook”, please visit the Company’s website. **By scan QR Code or pressing Click here.**



### Human Rights Due Diligence Process



The complaint mechanisms vary depending on issues or related stakeholders. For instance, there are specific whistleblowing channels and compliance investigation procedures for specific governance issues, whistleblowing channels and management measures for community complaints.

## Human Rights Performance

Banpu’s most recent human rights due diligence assessment was carried out in 2020, and there were no salient human rights issues found. However, the Company has closely monitored human rights issues based on the following management approaches.

Human Rights Issue	Management Approach
<b>Employees' health and safety (Legal protection)</b>	<ul style="list-style-type: none"> <li>Organize yearly safety training for employees</li> <li>Emergency Drill and fire extinguishing and evacuation plan</li> <li>Prepare COVID-19 preventive measures</li> <li>Communicate with employees on the issue via various channels such as e-newsletters</li> <li>Organize monthly Safety Committee meetings</li> </ul>
<b>Personal data protection (Legal protection)</b>	<ul style="list-style-type: none"> <li>Organize training sessions to keep employees informed of the issue and risk mitigation measures</li> <li>Regularly communicate with employees on the issue via e-newsletters</li> </ul>
<b>Labor treatment (Labor rights and equality, and rights to form a union engage in collective bargaining)</b>	<ul style="list-style-type: none"> <li>Establish the Company’s Welfare Committee to represent employees in negotiations or to provide opinions on welfare</li> <li>Respect employee rights and do not prevent employees from forming a labor union or similar body as stipulated in Employee Relations Policy</li> </ul>
<b>Security</b>	<ul style="list-style-type: none"> <li>Adhere to the Voluntary Principles on Security and Human Rights: Security personnel at all locations shall not use force or carry weapons at operational sites.</li> <li>Organizing regular training on human rights</li> </ul>

In 2021, the Company reviewed the human rights due diligence process to ensure coverage of all human rights issues in every business throughout the supply chain. It also communicated with employees to create understanding about human rights in Indonesia, China, and Australia to prepare for the human rights risk assessment in 2022.

## Occupation Health and Safety Policy and Practices

Banpu is committed to taking good care of employees and all related people who work for the Company by creating safe and healthy working environment. The Company announced Occupation Health and Safety Policy and the 3-Zero targets as follows:

- Zero Incident
- Zero Repeat of incidents
- Zero Compromise to non-compliance with occupational health and safety standards or legal requirements





For complete information on “Occupational Health and Safety Policy”, please visit the Company’s website.

By scan QR Code or pressing [Click here](#).



Moreover, Occupational health and safety performance is one of the key performance indicators of the Chief Executive Officer and senior management of all business groups and subsidiary companies. The Company established the Occupational Health and Safety Department to ensure that its safety operations comply with Banpu Group’s regulations and standards as well as applicable local laws. In addition, the ISO 45001 standard has been introduced as guidelines for the occupational health and safety management system. The safety culture framework has been adopted focusing on the safety system, safety knowledge, and safety behaviors in Banpu Group and its subsidiaries.

To achieve the Three-Zeros and continual improvements, the Company has evaluated the effectiveness of occupational health and safety management at all operational countries offices on monthly, quarterly, and annual bases. There are safety culture evaluation and the ESG Committee meeting of independent directors. The Sustainability Committee, chaired by the Chief Executive Officer, convenes meetings to review and monitor occupational health and safety policy implementation, targets, strategies, incident records, and legal compliance.

## ● Hazard Identification, Risk Assessment, and Incident Reporting and Investigation

Banpu has implemented hazard identification and risk assessment processes that cover both routine and non-routine tasks using various hazard identification tools, such as Job Safety Environment Analysis (JSEA), Green Card/Yellow Card, Safety Health Environment Accountability Program (SHEAP), and Hazard Identification, Risk Assessment and Determining Control (HIRADC) has been implemented at the mining business in Indonesia, while SLAMs (Stop, Look, Assess and Manage) is used in Australia. Thermal power plants in China deploy Safety Walk Down Program and Safety Double Control. At the Bangkok office, the UNSAFE Killer application is used to report and record unsafe working environments. The Company has determined risk mitigation measures according to the Hierarchy of Controls, communication plans, and risk surveillance and monitoring.

## ● Occupational Health Services

The Company monitors working environments through regular measurements according to the risk factors of each operational area, such as air quality, noise levels, the concentration of hazardous chemicals, and light intensity, to make sure that they are fully compliant with the law. External assessment agencies carry out the measurements to ensure that all employees and contractors have a proper working environment without health-threatening hazards.

At any work locations with possible impacts on the health and safety of employees and contractors, the Company will conduct health and risk assessments and schedule health checks based on relevant risk factors for employees and contractors who are exposed to those risks. Employees’ health information is kept confidential. The Company also complies with Personal Data Protection Act (PDPA) and has the policy to protect employees’ personal information to prevent disclosure without their consent.

At the Bangkok Office, the Company arranges convenient and quick access to telemedicine services for employees. A Banpu’s subsidiary in Indonesia has established a medical service center with doctors and specialists to provide treatments and advice on occupational health problems to workers at all hours. They also offer services to contractors and individuals entering the mine areas and prepare mobile medical units to provide assistance in the event of an emergency during working hours, including transporting emergency

patients via the International SOS service. As for the contractors, the Company has selected the contractors that meet its standards. The Company ensures that occupational health services are good and meet the specified standards.

## ● Employee Engagement, Consultation, and Communication

The Company engages employees at all levels in safety operations from the development phase, providing suggestions in all areas, including the safety system, safety knowledge and capability, and safety behaviors. Employees in all countries can voice their concerns and suggestions through different channels, such as the Safety Perception Survey through Safety Committee, on quarterly forums on safety issues. The HSEC Family Conference and the ESG Summit are international knowledge-sharing platforms where all information is constantly reviewed and formulated into short- and long-term improvement

## Occupational Health and Safety Performance

	2021	Target 2021	Target 2025
<b>Number of occupational fatalities - Employees</b>	0	0	0
<b>Number of occupational fatalities - Contractors</b>	1	0	0
<b>Lost time injury frequency rate - Employees</b>	1.85	≤2.77	≤1.99
<b>Lost time injury frequency rate - Contractors</b>	0.11	≤0.19	≤0.14
<b>Total recordable injury frequency rate - Employees</b>	15.54	≤15.26	≤10.93
<b>Total recordable injury frequency rate - Contractors</b>	0.46	≤0.74	≤0.53





In 2021, one of the Company's contractors had a fatal accident. After an investigation, the accident happened because an operator turned on a conveyor belt while the other was working on it. To prevent repeat incidents, the Company established additional prevention and mitigation measures as follows:

- Checking whether there is a log-out/tag-out system to shut off machinery and equipment from their power sources
- Procuring enough log-out/tag-out equipment and making sure that operators can use them properly
- Assessing emergencies to determine the optimal time to halt conveyor systems and improve emergency procedures
- Installing an alarm system whose audible warning signal to be sounded immediately before starting up the conveyor manually
- Reviewing safety analysis thoroughly to identify hazards in each step of the operation and set measures to prevent hazards and control potential risks

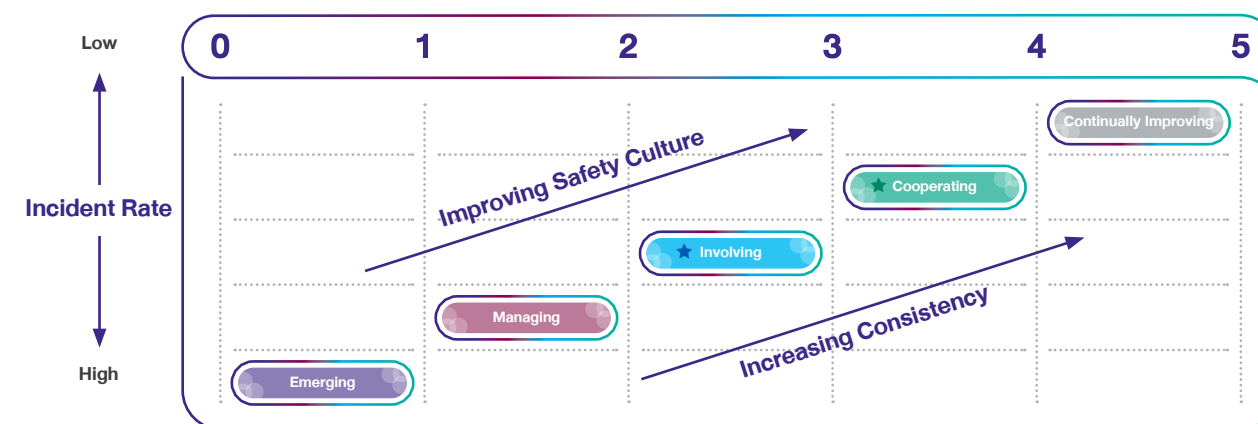
The lost time injury frequency rate (LTIFR) for employees was 1.85 and for contractors was 0.11, declining slightly from the previous year. The total recordable injury frequency rate (TRIFR) for contractors was within the target at 0.46. However, the TRIFR for employees was 15.54, slightly above the target. In this regard, the Company analyzed types of injuries that occurred and found that the majority were muscle and ligament injuries, injuries from impact, and open wounds. There was also an analysis of the causes of injuries. The majority of them are tripping, slipping, falling, overexertion, and being pinched or pulled by objects or things.

Based on the Company's safety risk assessment, there are two high-risk activities, for which the Company prepared appropriate preventive measures to mitigate the risks as follows:

High-Risk Activities	Prevention Measures
Operating heavy machinery	<ul style="list-style-type: none"><li>• Reviewing risk assessments of all high-risk activities to ensure appropriate risk control</li><li>• Installing a hazard-warning system to reduce the risk that might occur to operators</li><li>• Organizing safety training, focusing on dangerous areas, and communicating about operations to operators</li><li>• Promoting and ensuring operators' strict compliance with safety regulations and standards</li></ul>
Operating machinery at such points of operation as rotating, pulling, or clamping	<ul style="list-style-type: none"><li>• Reviewing operational safety standards</li><li>• Emphasizing following the Safety Toolbox before work</li><li>• Assessing operational safety standards by supervisors</li><li>• Fostering safety behaviors and safety culture</li></ul>

In order to strengthen safety culture in all business units, the Company has conducted a safety culture assessment since 2018, and areas of improvement for safety operations were identified based on the results. In 2021, the Company measured the safety culture of employees and contractors in China at its thermal power plant, two solar farms, and an Indonesian mine. The results showed that the safety culture was at the

"Cooperating Level" or 3.74 out of 5, at the thermal power plant, and at the "Involving Level," or 2.95 and 2.93 at the two solar farms. For Indonesian Mine, the result was at "Involving Level" or 2.33 out of 5. The Company has also developed a plan to improve the safety culture at these plants and mine. The safety culture assessment has been conducted in 66% of total business units.





## CORPORATE SOCIAL RESPONSIBILITY (CSR)

### CSR After Process and Environmental Programs and Activities in 2021

#### Thailand

For nearly four decades, Banpu has carried out corporate social responsibility programs that address social and environmental issues, covering the development of education, youth capacity, community, and the environment. In 2021, Banpu continued its CSR programs and activities, which focus on promoting learning for driving change and sustainable economic, social and environmental development, as it firmly believes that **“Learning is the Power of Change and Development.”**

#### Educational Development

##### Banpu Education for Sustainability

In 2021, Banpu initiated and continued the **“Banpu Education for Sustainability”** project for the 18<sup>th</sup> year with an aim to develop education – the country’s foundation of sustainable development. The Company has supported integrated learning in three dimensions, namely the development of schools to become sustainable community learning centers, teacher capacity development, and promotion of learning for students in six schools in Lamphun, Lampang, and Phayao – the provinces where Banpu used to have operations. Banpu has also supported English communication skills improvement for teachers and students at Banpu-sponsored schools through the provision of native speakers for ten consecutive years. Despite ongoing challenges from the COVID-19 pandemic, in 2021, the sponsored schools managed to adjust their ways of working to the New Normal through hybrid learning and teaching, providing students with online and onsite sessions.

Over the past 18 years, Banpu has provided supports under the “Banpu Education for Sustainability” program worth up to THB 46.7 million. The program has improved sponsored schools and involved stakeholders in many ways. Targeted students have greater academic potential as well as morals and life skills and will become valuable assets to their communities in the future. Teachers are more knowledgeable and skillful in



in delivering more exciting and effective classrooms. In addition, improvement of students’ skills and academic achievement has elevated educational standards and transformed schools into community learning centers, and earned the schools recognitions as exemplary, model, or pilot schools in various aspects.

#### Sponsorship for Schools in Southern Border Provinces

In 2021, Banpu provided financial support of THB 1.2 million to schools in the specially targeted development zone to pursue quality education as they lack remote learning readiness. To cope with the impact of the COVID-19 pandemic on face-to-face learning, Banpu allocated a budget for 16 schools to procure IT equipment, teaching equipment, building improvement, vocational promotion and training, and health promotion in schools. Over the past 15 years, Banpu has sponsored 161 schools in five southern provinces: Narathiwat, Pattani, Yala, Songkhla, and Satun, worth THB 22.84 million in total.



#### Partnership School Project

The Partnership School Project is an initiative that fosters educational collaboration between the Ministry of Education and companies, foundations, and academic institutions, to improve school administration, enabling schools to raise academic achievement and prepare students for the future. Under this project, Banpu has supported three schools, 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. Although the ongoing COVID-19 pandemic in 2021 still affected schools’ normal teaching and learning activities, Banpu and the supported schools collaborated to figure out a solution to enable continuous teaching and learning activities. In addition, teachers were trained to help them develop IT skills for more effective online teaching. The project progress can be summarized as follows:





### 1. Elevating Academic Quality and Innovation

The introduction of active learning to kindergarten and primary levels clearly improved academic achievement. The national test scores of the three schools were raised from last year: Grade 1's RT scores increased by 13.70, Grade 3's NT scores increased by 7.78, and Grade 6's ONET scores increased by 1.95. The Company also supports the **"One Classroom, One Innovation"** project to enable continuous innovative teaching-learning activities.



### 2. Improving Technology and Information Technology

The Company provided sufficient number of computers for students and an IT system for school database management. During the COVID-19 pandemic, teachers from the three sponsored schools received training on how to use digital platforms and applications for online and onsite teaching.

### 3. Enhancing English Language Skills

The Company sponsored the hiring of English teachers and English teaching at the three schools starting from the kindergarten level. It also supported increased learning hours of English language for primary level and promoted organizing English skills development activities in the schools.

### 4. Developing Vocational and Life Skills

The project provided vocational trainings to students and inspired them to choose their career paths in the future. The Company supported nine vocational training activities in three sponsored schools, such as barbering, making desserts, garlands and artificial flowers, livestock farming, vegetable farming, hydroponic farming, flower arrangement, and folk music.

### 5. Creating a Learning Community

The Company fostered a knowledge-sharing culture among teachers inside and outside schools and encouraged sharing of experiences and teaching techniques with teachers from neighboring schools. In the past year, seven teachers from two schools joined a study tour of kindergarten education, and 43 teachers from three schools participated in training on digital platforms and applications for education. Another IT capacity-building activity was participated by 29 teachers from six schools. In addition, the sponsored schools arranged a training on making artificial flowers to the community to help them increase productivity and earn extra income.



## Environmental Development

### Power Green Camp: An Environmental Science Camp for Youths

Since 2006, Banpu has continued collaborating with the Faculty of Environment and Resource Studies, Mahidol University, to host the **"Power Green Camp"** under the concept **"Envi-Science: Learning through Actions"** to raise young people's awareness on sustainable environmental conservation and create knowledge and right understanding of the environmental and natural resources. The young participants are also encouraged to systematically apply scientific knowledge to solving environmental problems.



Affected by the COVID-19 pandemic, the Power Green Camp 16 in 2021 was held online for the first time under the theme **"ECO Living & Learning – Transforming into a Green Lifestyle in Response to the New Normal Era"**. It was also the first time the camp allowed high school students of any major to apply to join the camp by submitting a video clip of up to 5 minutes to introduce themselves, explain about their interests or experiences in environmental activities, and present ideas and understanding on the issues relevant to the theme of the Power Green Camp 16. The selected 40 students from 40 high schools in 31 provinces had an opportunity to experience unlimited learning on weekends during 16 October - 21 November 2021.

Students joining the camp participated in intensive learning both theoretically and practically with experts on how to be more eco-friendly in everyday life through diverse topics applicable to current situations where people are spending more time indoors. The participants also joined transformative learning activities to develop soft skills required for scientists, including creativity,

critical thinking, problem-solving, effective communication, and teamwork. The camp also sent out three standardized experiment kits to all participants to experiment at home free of charge. With these kits, students were able to get hands-on experience, such as how to assemble a grease trap and a household food waste bin as well as how to survey soil properties.

Apart from that, young participants were inspired to adjust their lifestyles to be more in harmony with the environment. They joined the **"Eco-living Talk"**, to hear Ms. Rannaphan Yungyuenpoonchai, or Pat, Klear's lead singer, whose hobby is organic gardening, share how she lives a happy and eco-friendly lifestyle, and Mr. Somphot Ruamsin, a Smart City expert from Banpu's subsidiary Banpu NEXT Co., Ltd., shared how to blend in technology with eco-friendly lifestyles.

At the final phase of the camp, the participating teams synthesized what they learned through all activities into envi-science projects and presented them to the mentors and the public via an online platform.

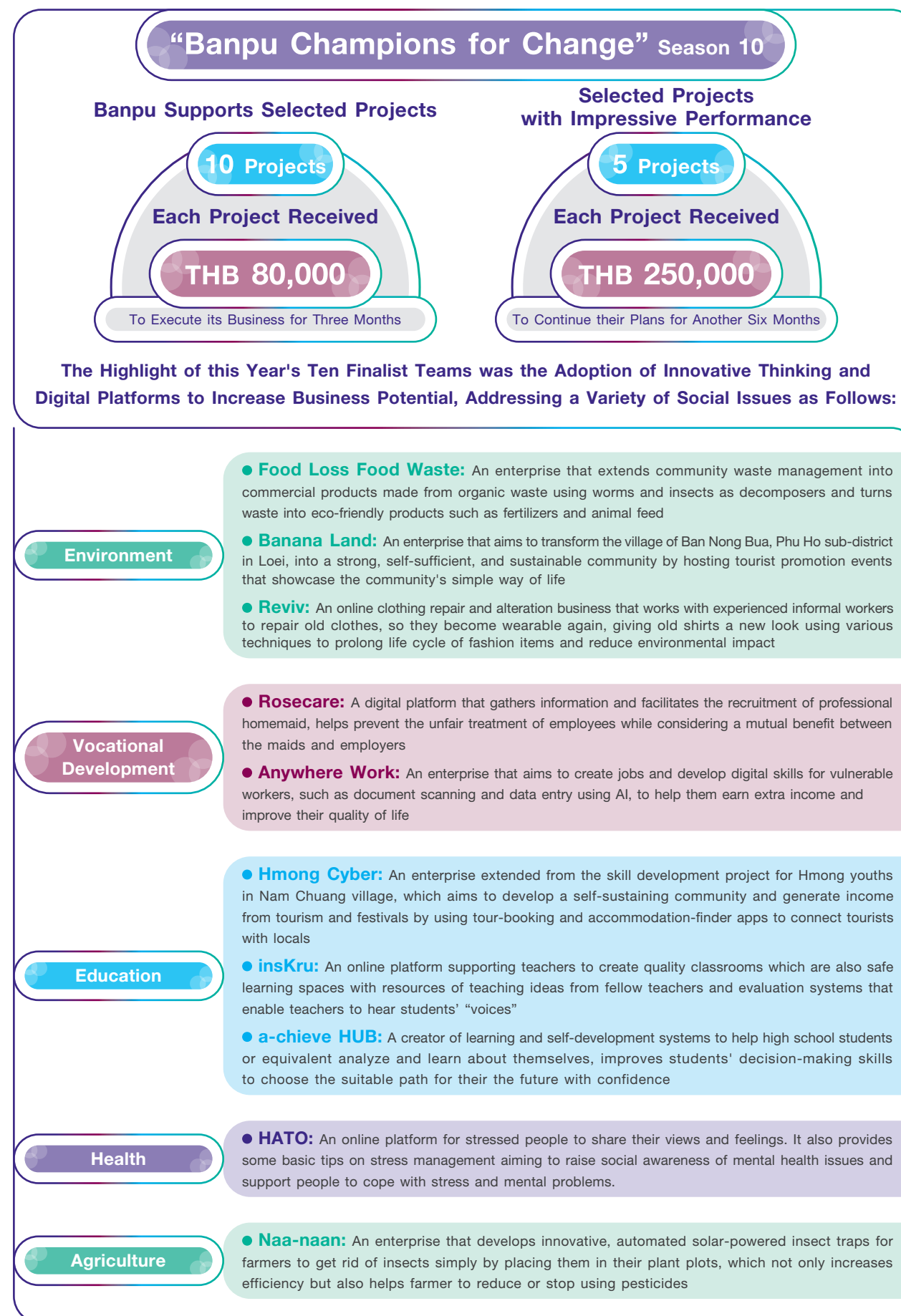




## Youth Capacity Development

### Banpu Champions for Change

The “**Banpu Champions for Change**” program is a collaboration between Banpu and ChangeFusion, a non-profit institute under the Thai Rural Reconstruction Movement Foundation under the Royal Patronage. The project has been up and running since 2011 with a mandate to support young social entrepreneurs who are full of creativity and potential to make positive social changes. Through this program, young entrepreneurs are supported to grow their business ideas both in terms of revenue and positive social, community, and environmental impacts. The program aims to promote learning and understanding about social enterprises, inculcate morals and business ethics, build a suitable ecosystem in support of social enterprises for the betterment of society, and lay a strong foundation for Thailand’s economy and sustainability.

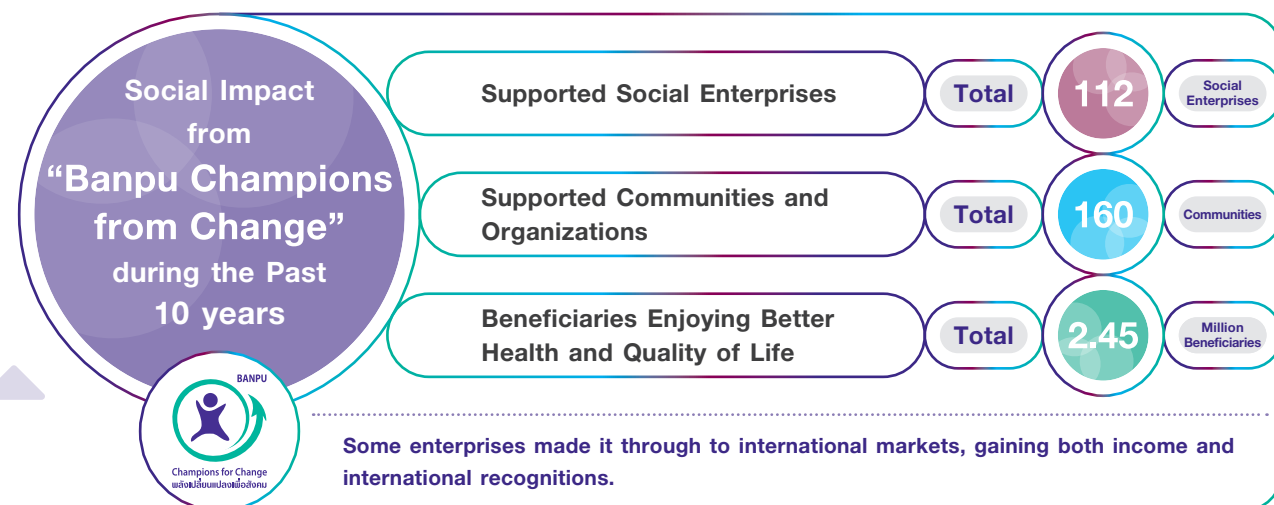




This year, the project organized the first “SE Online Meet-up” special activity, where the project alumni in previous years shared their business experiences and provided business advice. The meet-up allowed young entrepreneurs to see opportunities and potential connections with a vast network of social entrepreneurs who are ready to lend help. Besides, the SE School, an online learning platform under the project, functions as an information portal for young people and the general public who want to learn more about social enterprise processes. It is part of the project’s commitment to building a knowledge base and ecosystem to facilitate the growth of social enterprises.



Moreover, the project organized the “Impact Day” under the theme “Dare for Better Change” as a venue for participating social entrepreneurs and their networks to publicize their enterprises and sell products and services to the public. Those interested and the public could learn about social enterprise from the inside-out through panel talks and presentations of five distinguished social enterprises of BC4C#10. The event also featured SE Marketplace, an online marketplace allowing consumers to directly meet entrepreneurs, thus, creating ripple effects that will lead to social and environmental changes.



## Thammasat-Banpu Innovative Learning

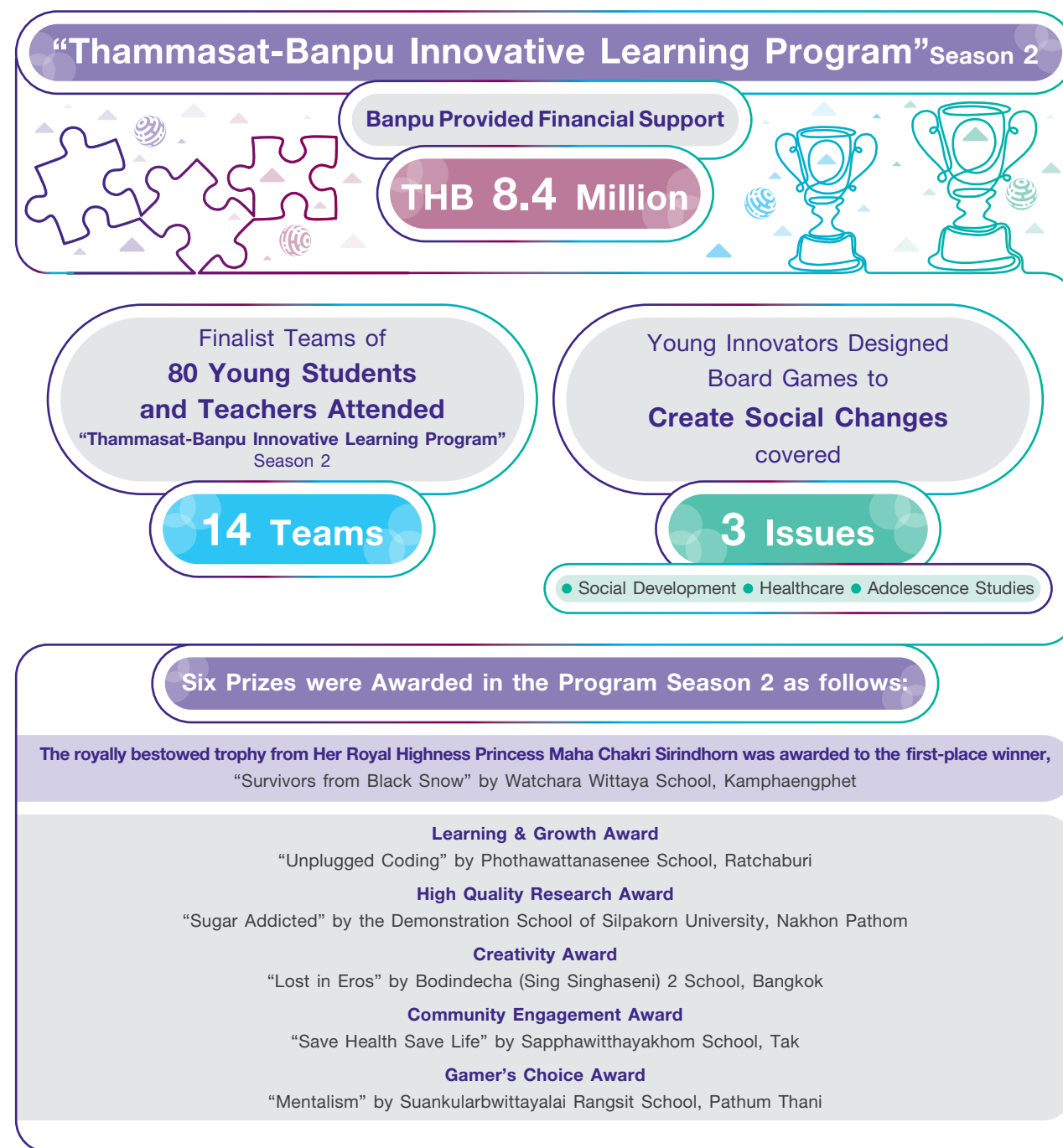
Since 2016, Banpu has collaborated with the Faculty of Learning Sciences and Education, Thammasat University, in co-organizing the “Thammasat-Banpu Innovative Learning Program”. The project aims to equip high school and vocational students and teachers with essential skills for new-generation innovators such as critical and analytical thinking, creative thinking and communication, responsibility, and leadership via the “Learning Games” design process.

After the “Thammasat-Banpu Innovative Learning Program” had completed its first season in 2019, Banpu provided financial support worth THB 8.4 million in total for the incubation of young innovators joining the second season (2019 - 2021) of this program. Fourteen teams were selected from all over the country to develop design thinking skills and become young innovators through the board game designing process to address social issues and create positive social changes. The last phase of “Thammasat-Banpu Innovative Learning Program” Season 2 was in 2021. All teams presented their board games for target groups to playtest according to the games’s objectives, evaluate the games and communicate via board games. Experts from various fields gave them scores and selected the team that could address social issues and offer on point solutions. Scoring criteria were learning and capacity-building mechanisms for game players, and the process to introduce the game to communities.

The award presentation ceremony for the “Thammasat-Banpu Innovative Learning Program” Season 2 was held in 2021 to present the royally bestowed trophy from Her Royal Highness Princess Maha Chakri Sirindhorn to the winner and other awards to the winning teams in each category. The winner of the royally bestowed trophy was “The Last Hope” team from Watchara Wittaya School, Kamphaengphet, whose “Survivors from Black Snow” addressed the issue of sugarcane bagasse ash disposal to raise farmers and communities’s awareness of environmental conservation and health of people in Kamphaengphet.





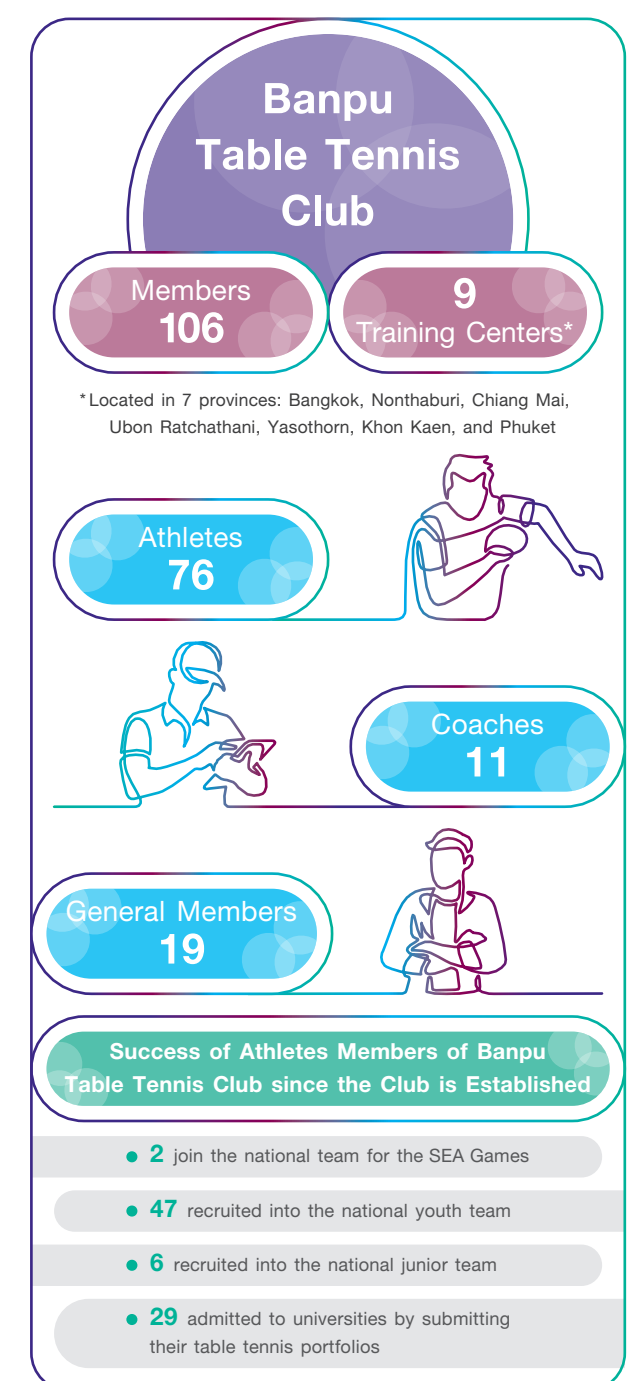
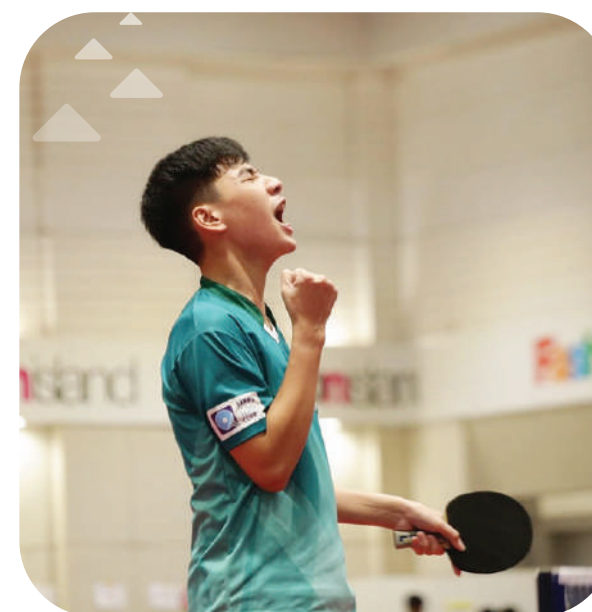


## Banpu Table Tennis Club

Established in early 2008, Banpu Table Tennis Club (BTTC) started from Banpu’s subsidiary in China, which supported a national table tennis training center in Zhengding County. From there, Banpu has capitalized on the existing network to help transfer China’s table tennis skills and techniques to Thai youth players. For the past 13 years, BTTC has been committed to developing Thai table tennis players by providing daily training support, sponsoring participation in national and international tournaments, and organizing various activities to cultivate morality, ethics, discipline, esprit de corps, and volunteer spirit the club’s members.



In 2021, because of the ongoing COVID-19 pandemic situation, the BTTC was unable to pursue many activities. For instance, it could neither send athletes to compete in some national tournaments and oversea tournaments as the tournaments were canceled nor organize table tennis camps for youth athletes in remote provinces. However, besides supporting daily practices and individual development plans, the BTTC organized the **2021 BTTC Communication Day “Get Together”** activity as an online gathering for member-athletes. Furthermore, the BTTC continuously communicates with members and the general public through the “Facebook fan page: Banpu Table Tennis Club” to encourage participation in the club’s activities.





## Support for a Young Tennis Athlete

Since 2015, Banpu has supported Mr. Songrit Chanbubpha, a high potential but disadvantaged tennis player, to pursue his dream of being the world's top-ranked player by sponsoring sports equipment, physical fitness training courses, and 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 2021, Mr. Chanbubpha was the 37th ranked tennis player by the Lawn Tennis Association of Thailand under his Majesty's Patronage.



## Disaster Reliefs

### Banpu Heartwarming Kitchen

As the COVID-19 pandemic has threatened Thai people's livelihood and food security, Banpu launched the **"Banpu Heartwarming Kitchen"** project to distribute more than 3,000 ready-meal boxes to those in need. In the meal boxes are food cooked by Banpu volunteers, some dishes bought from retail food shops, drinking water in biodegradable containers, fruits, desserts, and ingredients for cooking. They were distributed to nine communities and six agencies in Bangkok



and adjacent areas every Saturday for ten weeks to relieve the financial hardship of people who are short of income, become unemployed, or recuperating at home. The project also aims to support retail food shops whose business has been hit hard by the pandemic.



## Mitr Phol - Banpu Solidarity to Aid Thailand on COVID-19 Confrontation Endowment

The repercussions of the COVID-19 pandemic have widely impacted several sectors nationwide, namely, entrepreneurs, society, communities, and the general public. Banpu and Mitr Phol Group set up **"Mitr Phol-Banpu Solidarity to Aid Thailand on COVID-19 Confrontation Endowment"** in March 2020. Both are private organizations that embrace corporate governance principles and social responsibility in business operations.



In 2021, the Companies stood by Thais to brace through the COVID-19 pandemic crisis by adding THB 500 million to the Endowment, raising the total to THB 1 billion. The Endowment was allocated into seven areas of support to help relieve COVID-19 impacts facing the Thai society: 1. Support for affected people suffering from economic and livelihood impacts 2. Medical equipment support for hospitals and public health agencies 3. Support for proactive public health services 4. Support for epidemic control and cremation services for COVID-19 victims 5. Support for medical personnel and related parties; 6. Support for mental health care; and 7. Support for other related purposes. The Endowment's support for the COVID-19 pandemic control mission, including the relief for Thai people suffering from the impacts, has significantly helped Thai people overcome the crisis and their lives return to normal.

Banpu's assistance and support through the Endowment in 2021 are as follows:

### Medical and Public Health Support

- Support for Thammasat University Hospital worth THB 30 million to build Banpu Respiratory Care Unit 2, following the first one in May 2020.



- Support for Ratchaphiphat Hospital to build the COVID-19 screening room and provision of necessary medical equipment and 6,000 PPE kits worth THB 8.3 million.
- Support for Buddhasothorn Hospital, Chachoengsao, to build a negative pressure room and bedside cardiac monitor worth THB 2 million.
- Support of medical tools and equipment worth more than THB 32 million for 17 hospitals, including Phramongkutklao Hospital, Taksin Hospital, Samutprakan Hospital, Samut Sakhon Hospital,



Chachoengsao Provincial Public Health Office, the Center Correctional Hospital under Corrections Department, Srithanya Hospital, Banphaeo General Hospital, Phanomsarakham Hospital, Pattani Hospital, Yala Hospital, Hat Yai Hospital and five hospitals in the border areas of Tak.



- Support for the telemedicine pilot project at Banphaeo General Hospital, Samut Sakhon.
- Provision of life-support and life-sustaining equipment to Ratchapipat Hospital, Saraburi Hospital, and Queen Sirikit National Institute of Child Health.



- Support of COVID Care Boxes, containing medical supplies and necessary supplies for patients who are under home isolation, plus Rapid Antigen Test through “We Care Network” worth THB 5 million.

- Provision of PPE kits and other medical equipment worth THB 2 million to Samut Sakhon Provincial Disaster Prevention and Mitigation Office.

### Support to Prevent the Spread of COVID-19

- Support of THB 40 Million to King Chulalongkorn Memorial Hospital, the Thai Red Cross Society, to build Pattayapat Field Cohort Ward to prepare for the new wave of COVID-19.
- Provision of PPE kits and other medical equipment to Samut Sakhon Provincial Disaster Prevention and Mitigation Office and seven agencies in high-risk areas of Bangkok, namely Lak Si District, Huai Khwang District, Bang Kapi District, Bang Phlat District, and Bang Khae District, including Erawan Medical Center and Institute for Urban Disease Control and Prevention, Department of Disease Control.
- Delivery of 300,000 high-quality cloth masks to the Rural Doctor Foundation, the Ministry of Public Health, Nonthaburi, for distribution to Sub-District Health Promoting Hospitals and Community Health Centers across Thailand; delivery of 100,000 cloth masks to the Association of the Physically Handicapped of Thailand and Thailand Association of the Blind for distribution to similar target groups in various areas across the country.
- Collaborating with Urban Mobility Tech Co., Ltd. (UMT) to support 20 MuvMi Electric Tuk Tuks under the “MuvMi ASA KHONGSONG Project under the Mitr Phol-Banpu Endowment” to transport COVID-19 recovered patients home for free. The service has run at Klang Hospital, Taksin Hospital, Charoenkrung Pracharak Hospital, Phyathai 1 and 2 Hospitals, and Paolo Phaholyothin Hospital.



### Supporting the People's Livelihood

- Collaborating with Sisters Foundation in Pattaya, Chonburi, to give out 250 relief supply bags to the LGBTQ+ groups who are directly affected by the COVID-19 impact.
- Provision of MuvMi Electric Tuk Tuks to deliver more than 40,000 boxes of ready-meal, 4,000 bags of relief supply, and 5,000 boxes of drugs and necessary supplies to those affected by the COVID-19 pandemic for two months.
- Granting THB 1.5 million to the “Tong Rod” project run by Up for Thai group. The donation was turned into necessary items and raw ingredients for the central and community kitchens who cooked and gave out food to red-zone communities.

### Supporting Cremation Services for the COVID-19 Deaths

- Donating THB 7 million for restoring cremation furnaces and supporting cremation services at 20 Buddhist monasteries in dark red zones.

Banpu's  
Total Support Through  
the “Mitr Phol-Banpu  
Solidarity to Aid Thailand  
on COVID-19 Confrontation  
Endowment”  
was Worth Up to

**THB 309,660,167**

As of 31 December 2021





## Republic of Indonesia

At the corporate level, PT. Indo Tambangraya Megah Tbk (ITM), a subsidiary of Banpu in the Republic of Indonesia, prioritizes the company's Corporate Social Responsibility (CSR) and community development activities. Based on Banpu's policy and implementation guideline, ITM CSR activities were conducted by aiming at the promotion of education for sustainable development. Its CSR emphasizes the raise of education standard for Indonesian students and teachers, and the quality of life of communities located around ITM's five mine sites on Kalimantan Island: Indominco Mandiri (IMM), Trubaindo Coal Mining (TCM), Bharinto Ekatama (BEK), Kitadin (KTD) and Jorong Barutama Greston (JBG).

## Educational Development

Education is an important component in improving quality of community's lives. ITM carries out various educational programs mainly to support vulnerable students to get access with better education in order to improve their quality of life in the future. The company's educational development support includes:

### Community Learning Center (CLC) – Non-formal Education

The CLC development is carried out in response to the low literacy rate and high dropout rates that may lead to certain social risks. Through its subsidiaries (IMM), ITM is fostering 3 PKBMs (Pusat Kegiatan Belajar Masyarakat or Community Learning Center) including PKBM Malahing, PKBM Damai Mandiri and PKBM Salaka. The literacy rate has increased since 2011 through 93 life-skills training courses conducted during the years with 1,753 beneficiaries to date.



### Scholarship

ITM also provides continuous support to the education sector through scholarships granted to the local students from elementary schools up to universities in the communities surrounding ITM operations. In 2021, 80 students were granted with scholarships to support their educational needs.

## Community Development

### Employment Promotion

To improve knowledge and skill of youth generation in orphanages, one of the ITM subsidiaries, PT Kitadin - Embalut (EMB), has provided the training programs in order to build youth capacity involved in welding and two wheeler mechanic skills development. EMB has held 10-day training in collaboration with certified service provider with a total of 24 participants. After the trainings, 12 participants received job opportunities at the factory, government sector and mine. 1 participant succeeded in opening his own factory by receiving EMB's assistance in supporting factory and welding equipment. In addition, the project have generated an monthly income to participants around IDR 3.2 million and also improved their economic status and skills competitiveness.



### Economic Development

In 2021, ITM continued its support for the economic development for communities through its subsidiaries by providing training programs to improve farmers's competencies to foster local businesses. The programs include Sasirangan Women Group at Jorong and Seaweed farming development.

- PT. Jorong Barutama Greston (JBG), ITM subsidiary, supported Sasirangan Small Business Group to foster the business related to traditional South Kalimantan fabric called Sasirangan.



Since 2018, JBG has empowered unemployed and underprivileged women in Karangrejo and Jorong villages to produce and design various Sasirangan handcraft products e.g. Sasirangan batik, clothes, masks, bags, etc. The latest product is called 3 Dimensional Motif Products or "Sasirangan 3D" and "Ringkel Sasisirangan" developed by Sasirangan Small Business Group. To preserve the environment, the natural materials were used to dye the fabric instead of applying the chemicals. Currently, more than 5,000 craft products were created and have reached an income of IDR 330 million. During COVID-19 pandemic, the craftsmen also produced 2,347 facemasks and contributed to the society to help protect the spread of the virus.

- Indominco Mandiri, ITM subsidiary, initiated a Seaweed Farming Development program. The Satria Farmer's Group in Bontang Lestari succeeded in producing 15 tons of seaweed at its first harvest in 2021. The group, which is a partner of PT Indominco Mandiri (IMM), has successfully carried out a great harvest after going through a 45-day nursery process. The fisherman in the program have reached average monthly income of IDR 3 million.





## Enhancement of Public Health

ITM has been promoting health and sanitation development for the communities. ITM's public health aspect programs focus on maternal, child and elderly health as part of the company's strategy to support the quality of life of the locals.



- Providing the access to electricity for Benangin Health Center in the East Teweh Sub-district, Central Kalimantan Province. BEK handed over a rooftop solar panel with a capacity of 6,000 wph to support 24-hour health service of community health center (Puskesmas) in 2,855 communities.
- Supporting free healthcare services including physical examinations of Community Health Center (Posyandu) for babies and toddlers, and offering new mother checkup program.
- Donating medical kit to community health center, and food to people in difficulties during the spread of COVID-19.
- Providing access to clean water access for 920 households in Kandolo Village, Santan Tengah Village and Santan Ilir Village. IMM also supported the community to establish the village-own enterprises so they can be self sustainable.

## Environmental Conservation

To support and maintain environmental preservation, in 2021, ITM conducted the following programs:

- Planting trees to conserve nature together with communities and government on commemoration of the Environment Day.
- Sharing the company's knowledge and experience in environment management through exhibitions and seminars in universities.
- Becoming a partner in the conservation of the Kutai National Park.
- Restoring coral reefs and planting mangroves along the Bontang Lestari coastline as an effort to control abrasion and conserve marine life.



- Supporting waste management in Bangun Rejo Village, with the Waste Bank program. This program encouraged community members to gather and sort household wastes and sell it to the program to generate extra income from recycled products. To-date, 1,423 households have participated, and an accumulated 50 tons of waste had been processed under the program.



## Public Infrastructure Development

ITM enhanced the infrastructure at the local level to boost the economic condition and improve public health and education through multi-utility community buildings construction, school renovation, roads repairs, agricen irrigation, as well as repairing and constructing mosques and churches and village bridges.

In 2022, ITM conducted the following programs:

- 4,200 metre of water pipe installation at Suka Rahmat, Suka Damai, and Kandolo Village in the East Kutai District, East Kalimantan Province, for clean water supply to the communities
- Maintenance of irrigation and drainage systems of 3 locations: Bontang Lestari Village at Bontang City, including Santan Tengah Village and Santan Ilir Village at Kutai Kartanegara District, East Kalimantan Province
- Installation of rooftop solar panel with a capacity of 5000 wph for Benangin Health Center in the East Teweh Sub-district, Central Kalimantan Province



- Renovation of 6 religious places at Benangin Village at Barito Utara District, Central Kalimantan Province
- 23 kilometres of road maintenance at Muara Teweh Town at Barito Utara District, Central Kalimantan Province
- Renovation of 7 elementary schools in the West Kutai District, East Kalimantan Province

## Philanthropic Contributions

In response to the second wave of COVID-19 pandemic in Indonesia, ITM dedicated an endowment as follows:

- In East Kalimantan, ITM supported an oxygen generation system with capacity of 45m3/hour to the West Kutai Hospital and surrounding areas.
- Medical equipment, such as ventilator, high-flow nasal cannula (HFNC), oxygen concentrator, and bedside monitor, was donated to 17 hospitals in 9 districts of Kalimantan.
- Clean and Healthy Living Habits (Perilaku Hidup Bersih dan Sehat: PHBS) facilities including washing facilities were installed in various areas. Also, an awareness on public health was raised through counseling and campaigns.
- Through the Contractor's CSR Forum, ITM ensured that contractors actively participate in the response to COVID-19 pandemic.

In 2021, a total of over IDR 16 billion was dedicated to the society in the fight against the COVID-19 pandemic.





## People's Republic of China

In 2021, Banpu Investment (China) Ltd. (BIC), Banpu's subsidiary in China, continued promoting and supporting the education and sports development programs and community development activities in the provinces where the company operates. In addition, BIC promoted new CSR programs in financial and material support to local governments, communities and foundations.

### Education and Sports Support

#### Hebei-Banpu Fitness Club

Shijiazhuang Chengfeng Cogen Co., Ltd. has been supporting the Hebei-Banpu Fitness Club (formerly known as Banpu Table Tennis Club) since 2003. This year, the power plant provided a fund of RMB 150,000 to the Club to sponsor the training and competition of its athletes.

#### Luannan-Banpu Special Education School

BIC has been supporting the Luannan-Banpu Special Education School for 14 consecutive years through its subsidiary CHP plant - Tangshan Banpu Heat & Power Co., Ltd. This year, the power plant sponsored six laptops and 105 sets of school uniforms worth around RMB 50,000 to the school to further improve their teaching facilities.

#### Disaster Relief

- In July 2021, the severe rainstorm and flood hit Henan Province, causing devastating property damage and loss of life. BIC provided relief for the flood victims through Henan Charity Foundation by donating RMB 44,538.88 in total, raised fund by BIC employees.
- Shanxi Province were hit by continuous heavy rainfall and flood in October 2021, bringing out damages to human lives and properties. BIC and its employees donated RMB 36,888 in total to support the recovery and reconstruction efforts in the affected areas.

#### Scholarship for Students in Need in Luannan County

Starting from 2021, Tangshan Banpu Heat & Power Co., Ltd., a subsidiary of BIC, cooperated with Luannan County Government to offer yearly scholarships worth a total amount of RMB 50,000 to students with financial difficulties in Luannan County.



## Community Development

### Elderly Support

Since 2017, Haoyuan Solar Farm has been supporting the elderly in communities surrounding the solar farm. The company aims to promote the sustainable development of local community and improve their quality of lives. There were 74 elderly people supported in 2021.



### Economic Development

- Tangshan Banpu Heat & Power Co., Ltd. donated RMB 30,000 through local government to Xiaoxuegezhuang Village for revitalizing rural areas in Luannan County and helping develop economic growth for their better living.
- Haoyuan and Xingyu solar farms supported the economic development of local communities through professional training and employment such as cleaning solar panel, weeding and household service, worth RMB 1,286,600 in total.

## Philanthropic Contributions

### Zhengding Charity Foundation

Shijiazhuang Chengfeng Cogen Co., Ltd., a subsidiary of BIC, donated RMB 200,000 to support the establishment of Zhengding Charity Foundation through Zhengding County Government aiming to help the impoverished people in Zhengding County.

### Employee Support

Shanxi Gaohe Energy Co., Ltd. (SGEC), a joint venture partner of Banpu provided financial support in a total of RMB 300,000 to help employee's families facing financial difficulties and serious health conditions including the education expense of employee's children.

### Banpu Hope Cabin Project for Underprivileged Children

To improve the quality of life and education of underprivileged children, Jinshan and Hui'en solar farm joined "Hope Cabin" project initiated by Anqiu municipality to establish 2 Hope Cabins for underprivileged children worth RMB 48,000 in total.





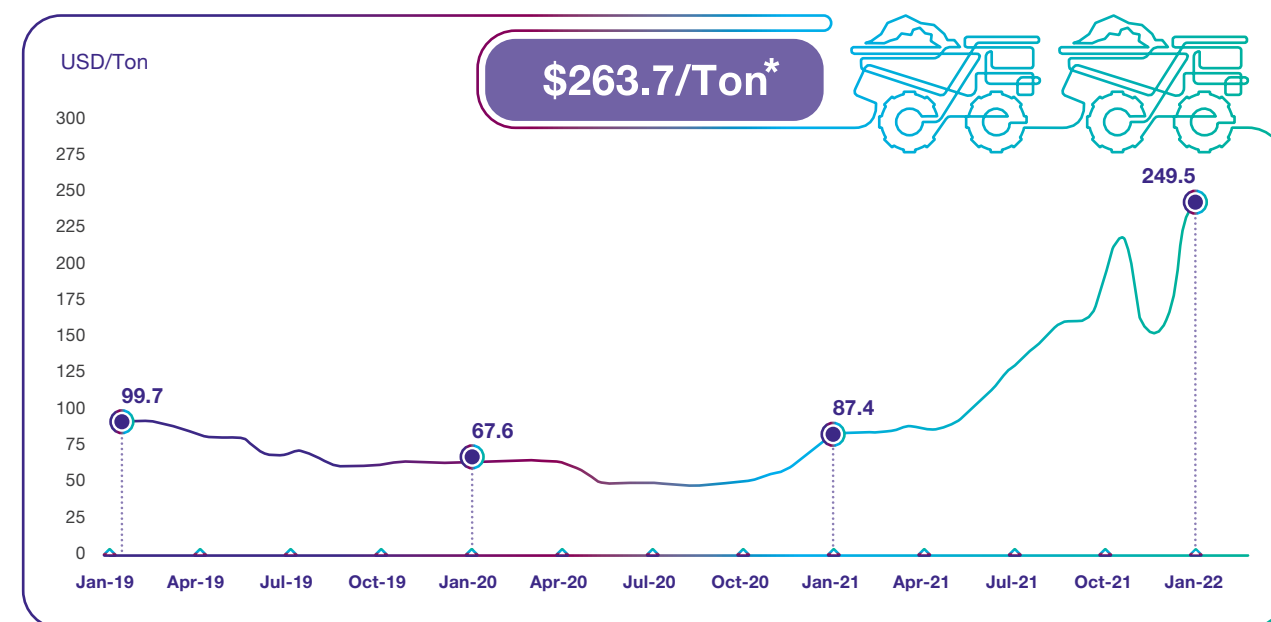


# MANAGEMENT'S DISCUSSION AND ANALYSIS FOR THE YEAR ENDED 2021

## 1. Energy Commodities Price Index

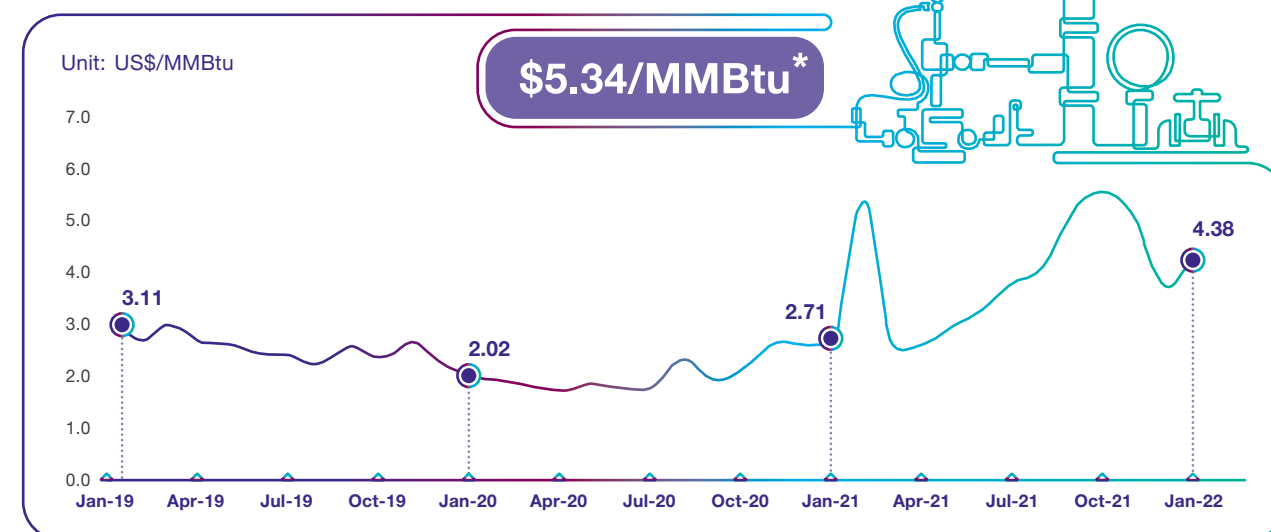
The market thermal coal and natural gas price since January 2019 as per below graphs that illustrate the coal and gas price indexes in the past periods.

### Coal Price Index: The Newcastle Export Index (NEX) for January 2019 – February 2022



\* As of 11 February 2022

### Average Henry Hub Natural Gas Price for January 2019 – February 2022



\* As of 4 February 2022

## 2. Management Discussion and Analysis

Banpu reported a turnaround performance of 2021 with net profit of USD 304 million which included the exchange rate translation gain of USD 74 million from the THB depreciation against USD. The 3 core businesses reported strong operational cash flow with EBITDA of USD 1,778 million significantly improved by 216% from previous year. EBITDA from coal of USD 1,169 million (+243YoY), EBITDA from gas was USD 508 million (+848%YoY) EBITDA from Power business of USD 109 million (-34%YoY) and EBITDA from Energy Technology of USD (-8) million. The performance improvement was mainly driven by the surge in Global energy prices during 2021 driven by the demand for natural gas and coal that has rebounded as the global economy recovered, led to an increase in demand for both electricity generation and industrial use. While supply of both coal and gas from major producing countries has faced with several constrains from adverse weather events and some was affected by policies, which has impacted to seaborne international trade. The commodity price therefore remains in high level.

**The Energy Resources business** reported strong operational result mainly from the improvement in average selling price. Indonesia coal business reported annual sales volume of 20.1 million tons, the average selling price (ASP) was 104.16 USD/ton, increased nearly double from ASP of 53.79 USD/ton in previous year. The cost of sale was at 44.91 USD/ton, Gross Profit Margin (GPM) was reported at 57%

Australia coal business reported annual sales volume of 9.82 million tons, 21% decreased from previous year as it experienced complex geology of Mandalong and Springvale mine, reflected in the cost of sale at 91.90 AUD/ton, However, the reported ASP was improved to 98.90 AUD/ton, increased by 22% from previous year. China coal reported outstanding performance with share of profit of USD 129.46 million, 5 times higher compared to previous year because of coal supply crisis in the country which brought up the Chinese domestic coal price remain high throughout the year.

Gas business reported an average annual local price of 3.61 USD/Mcf, increased by 94% compared to 1.86 USD/Mcf from previous year, driven by strong demand from the reopening of economic activities while Gas producers are not able to increase its productions fast enough because of the slowdown in developing new gas wells. It delivered the total production volume of 246.22 billion Cubic Feet (Bcf), the increase was from the full year result from Barnett shale.

**The Energy Generation business** continues to deliver solid performance with consistent cash flow. HPC power plant reported an equity income of USD 113 million, increased by 9% from previous year due to the successful of improvement plan of unit 1 and unit 3 resulted in an Equivalent Availability Factor (EAF) of 85%, improved by 5% compared to previous year. BLCP reported profit sharing of USD 6.8 million with an impact from decreasing in availability payment under long-term PPA and deferred tax expenses. CHPs plants in China reported net loss of USD 23 million, mainly due to the impact from high Chinese domestic coal cost at an average of RMB 942/ton compared to RMB 572/ton in the previous year, however several measures have been continually implemented to lessen such impact including the implementation of centralized coal procurement, the adjustment of power





plant operational mode to protect the bottom line and the negotiation to increase the steam price to reflect the increase in coal cost. While Shanxi Lu Guang (SLG) power plant in China, both 2 units start dispatching electricity to the national transmission system and will continue to gradually improve its efficiency. SLG also experiences high domestic Chinese coal cost, so it reported loss sharing of USD 16 million. However, with the continue acceleration of portfolio transformation for growth, during the year there were 2 major investments in High Efficiency, Low Emission “HELE” power plants reported additional contribution to the group, consists of Nakoso power plant in Japan reported profit sharing of USD 6.40 million and Temple I Gas-fired in US reported its contribution for 2 months of USD 1.82 million.

For Renewable business including solar power plants in China and Japan reported consistent performance. Solar business in China reported revenue of USD 28.76 million, 8% increased from previous year. Solar business in Japan reported significant increase in TK dividend distribution of JPY 1,129 million. Moreover, the 2 solar farms consist of Kessennuma and Shirakawa with total generation capacity of 30 MW already achieved Commercial Operation Date (COD) as plan on 26 November 2021 and 16 January 2022 respectively. The 2 Solar farm in Australia reported revenue of USD 3.89 million while Vin Chau, wind project in Vietnam progress on its construction reaching 83% and expected to complete and start commissioning by 1Q2022.

**For Energy Technology business,** through Banpu NEXT, continues the development of products and services covering wide range of energy-related solutions including the 95% construction completion of 16 MW floating solar at Tribeca Enterprise, the launched of E-boat under E-mobility business with focus on using high quality & high safety standard battery and also the expansion into Energy Management Solutions that covering wide ranges of services as an ‘all-in-one’ system for the smart use of clean energy. Also, the successful divestment of holding in Sunseap Group as part of the group strategy for portfolio rationalization. The proceeds from the transaction will be used to fund Banpu transition to invest in the clean energy business with a strong financial structure.

### 3. Group Performance Analysis

The analysis and explanation of Banpu Group performance for year ended 31 December 2021 and 2020 as follows:

#### Consolidated Statement of Income for the year ended 31 December 2021 and 2020

Consolidated Financial Performance (Unit: Million USD)	2021	2020	Change	
			Amount	%
Sales and service income	4,124	2,283	1,841	81%
Cost of sales and services	(2,393)	(1,822)	(571)	31%
<b>Gross profit</b>	<b>1,731</b>	<b>461</b>	<b>1,270</b>	<b>275%</b>
Selling expenses	(171)	(141)	(30)	21%
Administrative expenses	(304)	(224)	(80)	36%
Investment restructuring expenses	-	(31)	31	100%
Royalty fee	(294)	(183)	(111)	61%
Share of profit from joint ventures and associates	227	135	92	68%
Other income (expenses)	(314)	154	(468)	304%
Finance cost	(184)	(179)	(5)	3%
<b>Profit (Loss) before income taxes</b>	<b>691</b>	<b>(8)</b>	<b>699</b>	<b>8,738%</b>
Income taxes	(198)	(9)	(189)	2,100%
<b>Profit (Loss) for the year</b>	<b>493</b>	<b>(17)</b>	<b>510</b>	<b>3,000%</b>
Owners of the parent	304	(56)	360	643%
Non-controlling interests	189	39	150	385%
Earnings (Loss) per share (Unit: USD)	0.049	(0.009)	0.058	483%
Diluted earnings (losses) per share (Unit: USD)	0.046	(0.009)	0.055	611%

Banpu group performance for 2021 reported net profit at USD 304 million. This was mainly due to an increase in coal and natural gas price that support overall group performance, also the recognition of gain on foreign exchange rate from a depreciation of THB currency against USD currency.

A rebound in the world's economies has been stronger than expected so far as the vaccination ratio are underway, more demand on energy while supplies are still constrained. These trends have supported commodity prices. However, the group has also continuously focused on cost management and production efficiency to cope with the uncertainty of the global economic and volatility of energy commodities price in the future.





## Sales and Cost of Sales

(Unit: Million USD)	Revenue			Cost of Sales		
	2021	2020	Inc. (Dec.)	2021	2020	Inc. (Dec.)
Coal Business	2,909	1,878	55%	1,658	1,486	12%
Natural Gas Business	891	121	636%	411	107	286%
Power & Steam Business	244	197	24%	229	147	56%
Others	80	88	-9%	94	83	13%
<b>Total</b>	<b>4,124</b>	<b>2,283</b>	<b>81%</b>	<b>2,393</b>	<b>1,822</b>	<b>31%</b>

## Sales

Sales reported at USD 4,124 million (equivalent to THB 133,190 million), increased by USD 1,841 million compared to 2020. An increase of sales USD 1,031 million derived from coal businesses, USD 771 million from natural gas business, and USD 47 from power and steam business and others. Details were described as follows:

1. Sales from coal business of USD 2,909 million or 71% of total revenue separated by source of coal as below:
  - Indonesia coal mines of USD 2,090 million
  - Australia coal mines of USD 728 million
  - Coal trading business of USD 91 million
2. Sales from natural gas business in USA of USD 891 million or 22% of total revenue.
3. Sales from power and steam of USD 244 million or 6% of total revenue derived from Combined Heat and Power (CHP) plants and solar power plants in China, solar power plant in Australia and gas-fired power plant in USA.
4. Others of USD 80 million. This was mainly from energy trading business in Japan.

## 1. Coal Business

Coal Business		2021	2020	Inc. (Dec.)
Sales Volume	Million Tonnes	31.91	34.67	-8%
Average Selling Price	\$/Tonne	91.17	54.19	68%
Average Cost of Sales	\$/Tonne	51.97	43.33	20%

Coal sales of USD 2,909 million, increased by USD 1,031 million or 55% was a result of an increase in average selling price by USD 36.98 per tonne or 68% and a decrease in sales volume by 2.76 million tonnes, whereas an increase in cost of sales by 20% compared to 2020 as following:

Indonesia Mines		2021	2020	Inc. (Dec.)
Sales Volume	Million Tonnes	20.07	21.19	-5%
Average Selling Price	\$/Tonne	104.16	53.79	94%
Average Cost of Sales	\$/Tonne	44.91	37.76	19%

### Coal Business in Indonesia

- Sales volume  
Coal sales volume was 20.07 million tonnes, decreased by 1.12 million tonnes or 5% compared to 2020.
- Average selling price  
Average selling price per tonne was USD 104.16, increased by USD 50.37 or 94% compared to 2020, in accordance with an increase of global coal market price.
- Average cost of sales  
Average cost of sales per tonne was USD 44.91, increased by USD 7.15 or 19% compared to 2020, mainly due to higher global fuel market price. However, the group focus on cost management to cope with a volatility in global coal market price, while still maintain coal quality, including quality development to meet customer demand and retain in the long run. Moreover, the group emphasized on more efficiency in fuel used for production that led to a decrease in fuel consumption rate for production. This included a favor outcome from cost reduction program that implemented across the group.



**Australia Mines****2021****2020****Inc. (Dec.)**

Sales Volume	Million Tonnes	9.82	12.50	-21%
Average Selling Price	A\$/Tonne	98.90	81.14	22%
Average Cost of Sales	A\$/Tonne	91.90	76.53	20%

**Coal Business  
in Australia**

- Sales volume  
Coal sales volume was 9.82 million tonnes, decreased by 2.68 million tonnes or 21% compared to 2020. This was an impact from encountering the difficulty in geology mining condition in Mandalong, Springvale, and Clarence mines.
- Average selling price  
Average selling price per tonne was A\$98.90, increased by A\$17.76 or 22% compared to 2020 as the following:

<b>Australia Mines</b>	<b>Sales Volume</b> (Unit: Million Tonnes)			<b>Avg. Price/Tonne</b> (A\$/Tonne)		
	<b>2021</b>	<b>2020</b>	<b>Inc. (Dec.)</b>	<b>2021</b>	<b>2020</b>	<b>Inc. (Dec.)</b>
Domestic	6.45	9.10	-29%	75.22	78.66	-4%
Export	2.81	2.73	3%	139.34	86.32	61%
<b>Total</b>	<b>9.26</b>	<b>11.83</b>	<b>-22%</b>	<b>98.90</b>	<b>81.14</b>	<b>22%</b>

- Average selling price of domestic and export sales  
Average domestic selling price per tonne was A\$75.22, decreased by A\$3.44. This caused by a decrease in sales volume from lesser sales portion under high price contracts compared to 2020, whereas coal market price was higher with the average export selling price per ton A\$139.34, increased by A\$53.02 per tonne compared to 2020.
- Average cost of sales  
Average cost of sales per tonne was A\$91.90, increased by A\$15.37. This was due to a decrease of coal production volume from Mandalong, Springvale and Clarence mines that encountered geological challenges resulted to a higher average cost of sales.

**2. Natural Gas Business****Natural Gas Business****2021****2020****Inc. (Dec.)**

Sales Volume	Bcf **	246.22	113.25	117%
Average Local Price	\$/Mcf	3.61	1.86	94%
Average Selling Price	\$/Mcf	3.38	1.03	228%
Average Cost of Gathering, Processing & Transportation	\$/Mcf	0.88	0.83	6%
Average Cost *	\$/Mcf	0.92	0.89	3%

\* Average Cost excluded Cost of Gathering, Processing &amp; Transportation

\*\* Bcf = Billion Cubic Feet.

**Natural Gas  
Business in USA**

Sales from natural gas business in 2021 reported at USD 891 million, increased by USD 771 million compared to 2020. This was mainly from sales recognition from Barnett shale that group acquired this asset since 4Q20. Details were as follows:

- Sales volume  
Natural gas sale volume was 246.22 billion cubic feet, increased by 117% versus 2020. This was because the group started consolidating sales from Barnett shale since 4Q20. In 2021, sales volume from Barnett shale was 190 Bcf.
- Average local price  
Refer to higher Henry Hub index price compared to prior year, the average local selling price per Mcf. in this year was USD 3.61, increased by USD 1.75 per Mcf or 94% compared to 2020. Henry Hub natural gas price was consistently high, together with the basis differential that was substantially reduced in both Marcellus shale and Barnett shale during 2021. This was a result of an increase in demand of natural gas after states reopening, the continuing growth of Natural Gas Liquids (NGLs) export sales which results in higher NGLs price, also the slower of supply compared to demand because gas production companies delayed investing in new wells.
- Average cost of gathering, processing & transportation  
Average cost of gathering, processing & transportation per Mcf was USD 0.88, increased by USD 0.05 or 6% compared to 2020, was mainly from the cost from Barnett shale that was higher compared to Marcellus shale. This was due to Barnett shale typically produced both natural gas and Natural Gas Liquids (NGLs), led to an incremental cost related to natural gas and NGLs extraction process. However, the group also continuously focused on manage this cost to cope with the volatility of market price.





- Average cost of sale  
Average cost of sales (excluding gathering, processing & transportation cost) per Mcf was USD 0.92, increased by USD 0.03 or 3% compared to 2020 was from an increase in production volume in shales to maximize utilization.

### 3. Power Business

Sales from power and steam of USD 244 million or 6% of total revenue was from sales from CHP plant USD 191 million, solar power plant in China of USD 29 million, solar power plant in Australia of USD 4 million and gas-fired power plant in USA of USD 20 million from asset acquisition in November 2021. Details were described as follows:

Power Business		Combined Heat & Power Plants (CHP)			Solar Power Plants		
		2021	2020	Inc. (Dec.)	2021	2020	Inc. (Dec.)
Power Sold Volume	GWh	1,179.07	1,563.20	-25%	222.89	219.54	2%
Steam Volume	Million Tonnes	6.33	6.24	2%	-	-	-
Average Power Tariff	RMB/kWh	0.37	0.36	2%	0.83	0.83	0%
Average Steam Price	RMB/Tonne	124.29	96.02	29%	-	-	-

#### Combined Heat and Power (CHP) Plants in China

Sales from power, steam, and others from 3 CHP plants in China of USD 191 million, increased by USD 21 million compared to 2020, was mainly from decreasing in sales volume of electricity and steam as detail below:

- Sales volume  
Sales volume of 1,179.07 GWh, decreased by 384.13 GWh compared to 2020. This was a result of optimizing operational mode to manage performance during high coal cost period.  
  
Steam sales of 6.33 million tonnes, increased by 0.10 million tonnes, mainly from Luannan CHP plant from new steam industrial customers.
- Average selling price  
Average power tariff was RMB 0.37 per kWh, quite stable compared to 2020.  
  
Average steam price per tonne was RMB 124.29, increased by 29% from 2020. This was because a part of steam price was adjusted aligned with an increase in coal price and some was adjusted as new purchase and sales agreement.
- Cost of Sale  
Cost of sale was USD 190 million, increased by USD 55 million. This was primarily from the higher coal cost, main fuel for power plants. The average coal cost per tonne in 2021 was RMB 942 (2020: RMB 572), increased by RMB 370 per tonne or 65% compared to 2020.

#### Solar Power Plants in China

Sales from solar power plants in China reported at USD 29 million. An increase of USD 2 million compared to 2020 was mainly from the effects of foreign exchange rate translation due to an appreciation of RMB currency against USD currency compared to 2020. This affected to higher revenue in USD currency when converting from revenue in RMB currency. Details of sales volume, average power tariff and cos of sales were as follows:

- Sales volume  
Sales volume of 222.89 GWh., increased by 3.35 GWh from higher production volume compared to 2020 due to favored weather conditions.
- Average power tariff  
Average power tariff was RMB 0.83, same as 2020.
- Cost of sales  
Cost of sales for 2021 was remain unchanged.

#### Administrative Expense

Administrative expenses reported USD 304 million, increased by USD 80 million or 36% was mainly from a result of a reversal of cost of asset acquisition in Barnett shale that was initially recorded as an expense, to be capitalized as assets during 2020 total of USD 9 million. An increase of USD 42 million in administration from Barnett shales, long-term employee benefits expense, professional & consulting fee related to business expansion in USA, including admin expense from gas-fired power plant in USA started since November 2021 of USD 2 million. Additionally, an increase in administrative expense was from business acquisition costs and administrative expense related to solar power business expansion in Australia of USD 12 million, expense for supportive and donations during Covid-19 pandemic of USD 15 million. However, the group also focused on cost reduction program to cope with a slowdown of global economic, that led to a decrease in consulting & professional fees and other admins, including domestic and overseas traveling expense.

#### Royalty Fees

Royalty fees reported at USD 294 million, increased by USD 111 million or 61%. The royalty fees comprised of royalty fees from Indonesia mines USD 248 million, increased by USD 111 million due to an increase in coal price and royalty fees from Australia mines that was USD 46 million that similar to 2020.





Profit Sharing (Unit: Million USD)	2021	2020	Inc. (Dec.)
BLCP	7	17	-60%
Hongsa & Phufai Mining	113	103	9%
Shanxi Luguang	(16)	2	-777%
Coal Business in China	129	23	462%
Holding Company of Solar Power in Japan and Others	(6)	(11)	-45%
<b>Total</b>	<b>227</b>	<b>135</b>	<b>68%</b>

### Share of Profit from Joint Ventures and Associates

Profit sharing from joint ventures and associates reported at USD 227 million, increased by USD 92 million or 68% compared to 2020 due to details described as below:

- 1) Recognition of profit sharing from Hongsa power plant and PhuFai mining in Laos of USD 113 million, increased by USD 10 million from 2020. This was mainly from gain on foreign exchange rate translation of USD 18 million, whereas a decrease in operating performance of USD 8 million as unit 1 and 3 underwent yearly plant maintenance.
- 2) Recognition of profit sharing from BLCP of USD 7 million, or profit decreased by USD 10 million. This was mainly due to a depreciation of THB currency against USD currency which includes a recognition of deferred tax expense of USD 9 million, and a decrease in operating performance of USD 1 million according to revenue structures under long term power purchase agreements.
- 3) Recognition of loss sharing from SLG power plant of USD 16 million, increased in loss by USD 18 million. The plant still in early stage of commercial operation to improve its reliability for dispatch to the national grid in China, the operating performance also impacted by the high domestic coal cost.
- 4) Recognition of shares of profit from coal business in China of USD 129 million, increased by USD 106 million. This was from higher sales price aligned with coal market price.

### Other Expense

Other expense of USD 314 million comprised of:

- 1) Net gain on foreign exchange rate of USD 74 million was mainly from unrealized gain on foreign exchange rate translation of THB loan at the end of the year. This was due to a depreciation of THB currency against USD currency compared to the prior year, then resulted to a decrease of loan in THB currency. Average exchange rate of USD/THB for 2021 was THB 31.9771 (2020: THB 31.2937) and the closing rate of USD/THB was 33.4199 (2020: 30.0371).
- 2) Net loss from financial derivatives of USD 445 million comprised of:
  - Realized loss from financial derivatives of USD 462 million derived from coal swap contracts of USD 204 million, natural gas swap contracts of USD 245 million, interest rate swap contracts of USD 15 million, foreign exchange rate forward contracts of USD 9 million. Whereas, realized gain on cross currency and interest rate swap contracts of USD 5 million, and fuel swap contracts and others of USD 8 million.
  - Unrealized gain on fair value of financial derivatives at the end of the year of USD 17 million was mainly from foreign exchange rate forward contracts of USD 5 million, natural gas swap contract of USD 6 millions and others of USD 6 million.
- 3) Management fee income and others of USD 57 million was from:
  - Interest income of USD 9 million.
  - Dividend income of USD 9 million, was mainly from profit sharing from solar power business in Japan under TK (TOKUMEI KUMIAI) agreement.
  - Government subsidy and steam connection fee income of USD 7 million from residential steam production.
  - Sales of ashes, slag and scraps from mines, power plants and others such as insurance claims, warehouse management services, tax refund and others of USD 32 million.





**Corporate Income Tax** Corporate income tax of USD 198 million, increased by USD 189 million mainly from:

- 1) An increase in corporate income tax of USD 162 million, aligned with higher operating profits compared to prior year.
- 2) An increase in withholding tax from dividend receipts during the year of USD 10 million.
- 3) An increase in defer tax expense of USD 26 million. This was due to a decrease of deferred tax assets mainly from different in foreign exchange rate conversion in accounting basis versus tax basis.

#### 4. Statements of Consolidated Financial Position

Statements of Consolidated Financial Position as of 31 December 2021 in comparison with the Statements of Consolidated Financial Position as of 31 December 2020.

Financial Position (Unit: Million USD)			Inc. (Dec.)	
	31-Dec-21	31-Dec-20	Amount	%
Assets	10,946	9,377	1,569	17%
Liabilities	7,843	6,562	1,281	20%
Equity	3,103	2,815	288	10%

4.1 Total assets of USD 10,946 million, increased by USD 1,569 million compared to total assets as of 31 December 2020 with main details described as below:

Financial Position (Unit: Million USD)	Assets		Inc. (Dec.)	
	31-Dec-21	31-Dec-20	Amount	%
Cash and Cash equivalent	1,184	730	454	62%
Financial assets measured at fair value through profit or loss	16	11	5	100%
Trade accounts receivable and note receivables, net	473	249	224	90%
Current portion of dividend receivables from related parties	24	26	(2)	100%
Non-current assets held-for-sale	172	-	172	100%
Other current assets	687	559	128	23%
<b>Total Current Assets</b>	<b>2,556</b>	<b>1,575</b>	<b>981</b>	<b>62%</b>

Financial Position (Unit: Million USD)	Assets		Inc. (Dec.)	
	31-Dec-21	31-Dec-20	Amount	%
Dividend receivables from related parties	7	10	(3)	-30%
Investments in associates and joint ventures	1,645	1,690	(45)	-3%
Financial assets measured at fair value through other comprehensive income	164	153	11	7%
Financial assets measured at fair value through profit & loss	8	-	8	100%
Property, plant and equipment, net	3,416	2,581	835	32%
Deferred exploration/stripping costs, net	889	1,016	(127)	-13%
Mining property rights, net	1,276	1,359	(83)	-6%
Goodwill	432	447	(15)	-3%
Right of use assets	66	72	(6)	8%
Other non-current assets	487	474	13	3%
<b>Total Non-Current Assets</b>	<b>8,390</b>	<b>7,802</b>	<b>588</b>	<b>8%</b>
<b>Total Assets</b>	<b>10,946</b>	<b>9,377</b>	<b>1,569</b>	<b>17%</b>

- Cash and cash equivalents of USD 1,184 million, increased by USD 454 million. (As explanation in no.5 Consolidated Statement of Cash Flows).
- Financial assets measured at fair value through profit or loss of USD 16 million, increased by USD 5 million was from redemptions of USD 54 million during the year and additions of USD 59 million.
- Current portion and non-current portion of dividend receivable from related parties of USD 24 million and USD 7 million, respectively, were dividend receivable from joint ventures who operates power business in Thailand and joint ventures who operates CHP plant business in China, which total decreased by USD 5 million. This was a net result of:
  1. A decrease from received dividend of USD 72 million.
  2. An increase from additional declared dividend of USD 70 million.
  3. A decrease from unrealized loss on foreign exchange rate translation at the end of the year of USD 3 million.





- Non-current assets held for sales of USD 172 million was reclassification from investment in joint ventures and associates since the held-for-sale criteria has been met and expect to sales within 12 months from the end of accounting period.
- Investment in joint ventures and associates of USD 1,645 million, decreased by USD 45 million or 3% was from:
  1. An increase from addition of investment in associates of USD 97 million, was from an investment in Integrated Gasification Combined Cycle (IGCC) power plant business in Japan, and investment in electronic vehicle (EV) business and EV charging station business in Thailand.
  2. A decrease from reclassification to non-current assets available for sales of USD 172 million.
  3. An increase from recognition of profit sharing from joint ventures and associates by USD 227 million.
  4. A decrease from dividend recognition during the year of USD 70 million.
  5. A decrease from the effects of foreign exchange rate translation at end of the year and others by USD 127 million.
- Financial assets measured at fair value through other comprehensive income (FVOCI) USD 164 million, increased by USD 11 million. This was due to:
  1. An additional investment in car sharing services via application business and solar power business in Japan of USD 45 million.
  2. A decrease from the impact of fair value adjustment of USD 16 million.
  3. A decrease from the effects of foreign exchange rate translation at the end of the year and others of USD 18 million.
- Property plant and equipment of USD 3,416 million, increased by USD 835 million derived from:
  1. An increase from additions of machine and equipment of coal business, natural gas business and power business total of USD 466 million.
  2. An increase from acquisition of wind power plant business in Vietnam and solar power business in Australia total of USD 649 million.
  3. An increase from reclassification of USD 46 million.
  4. A decrease from write-off and disposal of USD 17 million.
  5. A decrease from depreciation charges for the year of USD 275 million.
  6. A decrease from the effects of foreign exchange rate translation at end of the year and others of USD 34 million.

- Right of use assets of USD 66 million decreased by USD 6 million, or 8%. The decrease was from additions of USD 27 million, solar power business acquisition in Australia of USD 4 million offset with write-off of USD 4 million and depreciation of USD 33 million.
- Other non-current assets of USD 487 million, increased by USD 13 million. This was a result of solar power plant acquisition in Australia of USD 10 million, an increase in purchase vat receivable of USD 66 million, an increase in right to operate power plant from acquisition of wind power plant business in Vietnam of USD 8 million, an increase in restricted deposit at bank of USD 12 million and others of USD 18 million. Whereas, there was a reclassification of accrued subsidy income for solar power plant in China to be subsidy income receivable that the credit term become due within one year of USD 57 million, also an increase in deferred income tax assets from business in Indonesia of USD 34 million.

4.2 Total liabilities of USD 7,843 million, increased by USD 1,281 million compared to total liabilities as of 31 December 2020 with movement details as described below:

Financial Position (Unit: Million USD)	Liabilities		Inc. (Dec.)	
	31-Dec-21	31-Dec-20	Amount	%
Short-term loans from financial institutions	1,174	828	346	42%
Trade accounts payable	99	67	32	48%
Current portion of long-term borrowings, net	517	675	(158)	-23%
Current portion of debenture, net	120	133	(13)	-10%
Accrued overburden and coal transportation costs	77	60	17	28%
Financial derivative liabilities due in one year	128	21	107	510%
Other current liabilities	793	427	366	86%
<b>Total current liabilities</b>	<b>2,908</b>	<b>2,211</b>	<b>697</b>	<b>32%</b>



Financial Position (Unit: Million USD)	Liabilities		Inc. (Dec.)	
	31-Dec-21	31-Dec-20	Amount	%
Long-term loans from other company	2,270	2,230	40	2%
Debentures, net	1,911	1,517	394	26%
Financial derivative liabilities, net	53	26	27	104%
Provision for decommissioning and reserve for environment reclamation	340	301	39	13%
Other liabilities	361	277	84	31%
<b>Total non-current liabilities</b>	<b>4,935</b>	<b>4,351</b>	<b>584</b>	<b>13%</b>
<b>Total liabilities</b>	<b>7,843</b>	<b>6,562</b>	<b>1,281</b>	<b>20%</b>

- Short-term loans from financial institutions of USD 1,174 million, increased by USD 346 million or 42%. This was from addition of USD 1,767 million, repayment of USD 1,369 million, and a decrease from the effects of foreign exchange rate translation at the end of the year of USD 52 million.
- Current portions of long-term loans of USD 517 million, decreased by USD 158 million was from an increase from reclassification from non-current portion of USD 502 million, solar power business acquisition in Australia of USD 49 million, offset with repayment of USD 692 million, deferred finance charge of USD 2 million, and the effects of foreign exchange rate translation at the end of year of USD 15 million.
- Current portions of debenture of USD 120 million, decreased by USD 13 million from reclassification from non-current portion of USD 128 million, redemption of USD 130 million and a decrease from the effects of foreign exchange rate translation at the end of the year of USD 11 million.
- Accrued overburden and coal transportation expenses of USD 77 million, increased by USD 17 million or 28% was mainly from mining operations of subsidiaries in Indonesia.

- Long-term loans of USD 2,270 million, decreased by USD 40 million or 2% was a net result of:
  1. An increase from additional loan during the year of USD 862 million.
  2. An increase in solar power business in Australia of USD 82 million.
  3. A decrease from reclassification to current portion of USD 502 million.
  4. A decrease from early repayment of USD 371 million
  5. A decrease from deferred finance charge of USD 2 million
  6. A decrease from the effects of foreign exchange translation at the end of the year of USD 29 million. Mainly was from the impact to THB currency loan due to a depreciation of THB currency against USD currency. Average exchange rate of THB/USD as of 31 December 2021 was USD 33.4199 (31 December 2020: USD 30.0371). Moreover, a decrease was from a depreciation of AUD currency against USD currency as of 31 December 2021. Average exchange rate of AUD/USD was USD 0.7260 (31 December 2020: USD 0.7630).
- Debenture of USD 1,911 million, increased by USD 394 million or 26%. There were new additions of USD 680 million, reclassification to current portion of USD 128 million, and a decrease from the effects of foreign exchange rate translation at the end of the year of USD 158 million from a depreciation of THB currency against USD currency, impacted to THB currency debenture.
- Current portion and non-current portion of derivative liabilities reported at USD 128 million and USD 53 million, respectively, total of USD 181 million. This was changes in fair value of financial derivatives at the end of the year, that consisted of cross currency swap contracts of USD 20 million, interest rate swap contracts of USD 17 million, natural gas swap contracts of USD 115 million, and coal swap contracts of USD 25 million, and electricity swap contracts USD 4 million.





4.3 Shareholders' equity of USD 3,103 million, an increase of USD 288 million was mainly due to:

Financial Position (Unit: Million USD)	Equity		Inc. (Dec.)	
	31-Dec-21	31-Dec-20	Amount	%
Equity attributable to owners of the parent	2,372	2,076	296	14%
Non-controlling interests	731	739	(8)	-1%
<b>Total Equity</b>	<b>3,103</b>	<b>2,815</b>	<b>288</b>	<b>10%</b>

- An increase of USD 304 million from net profits for 2021.
- An increase of USD 255 million from issued and paid-up share capital.
- An increase of USD 19 million from reserve for share-based compensation to employees.
- An increase of USD 2 million from fair value reserves for financial assets measured at fair value to other comprehensive income and cash flows hedge reserves.
- A decrease of USD 121 million from redemption of subsidiary's share from non-controlling interest.
- A decrease of USD 204 million from the effects of foreign exchange rate translation of subsidiaries' financial statements and others.
- An increase of USD 151 million from non-controlling interest.
- A decrease of USD 118 million from dividend paid.

4.4 Net debt-to-equity ratio as of 31 December 2021 reported at 1.31 times (31 December 2020: 1.47 times).

## 5. Statement of Consolidated Cash Flows

Statement of consolidated cash flows for the year ended 31 December 2021 presented an increase of net cash flow by USD 454 million (included the effect from unrealized loss on exchange rate translation at the end of the year of USD 22 million). The details of consolidated cash flows activities were as follows:

Statement of Consolidated Cash Flows (Unit: Million USD)	Amount
Net cash flows from operating activities	809
Net cash flows used in investing activities	(1,058)
Net cash flows from financing activities	724
<b>Net increase in cash and cash equivalents</b>	<b>475</b>
Exchange loss on cash and cash equivalents	(21)
Cash and cash equivalents at the beginning of the period	730
<b>Cash and cash equivalents at end of the year</b>	<b>1,184</b>

5.1 Net cash inflow from operating activities of USD 809 million; with major operating items as follows:

- Collections from coal sales of USD 3,841 million.
- Payments to contractors and suppliers of USD 2,366 million.
- Interest payments of USD 179 million.
- Payments of corporate income tax of USD 84 million.
- Receives from income tax refunds of USD 38 million.
- Royalty fee payments of USD 327 million.
- Other payments of USD 114 million.

5.2 Net cash outflow from investing activities of USD 1,058 million; with major items as follows:

- Payments for machines, equipment, project in progress and asset acquisition of USD 281 million.
- Payments for addition of investment in power plant business in Japan, investment in wind power plant business in Vietnam and investment in electronic vehicle (EV) business, investment in EV charging station business, investment in solar power plant in Australia and investment in gas-fired power plant in USA total of USD 576 million.
- Payments for deferred exploration and development expenditure of USD 165 million.
- Payments for financial assets measured at fair value through profit and loss of USD 11 million.
- Payments for financial assets measured at fair value through other comprehensive income of USD 5 million.
- Payment for restricted cash of USD 107 million.
- Receipts from dividend from joint ventures and other investment of USD 63 million.
- Interest income and others of USD 24 million.

5.3 Net cash inflow from financing activities of USD 724 million; comprised of

- Receipts from short term and long-term loans from financial institutions and debentures of USD 3,308 million.
- Repayments of short term and long-term loans from financial institutions, debentures, and lease liabilities of USD 2,596 million.
- Payments for treasury shares of a subsidiary of USD 3 million.
- Payment for redemption of subsidiary's shares from non-controlling interest of USD 122 million.
- Payment for dividend of USD 118 million.
- Receipts from issued share capital of USD 255 million.





## 6. Coal Reserves

The quantity of sales and remaining of coal reserves for the year ended 31 December 2021:

Source (Unit: Million Tons)	Quantity of Coal Sales and Reserves		
	Reserves as of 31-Dec-20	Sales FY2021	Reserves as of 31-Dec-21
<b>1. Indonesia</b>			
1.1 Jorong	9.03	0.88	8.15
1.2 Indominco	37.76	7.44	30.32
1.3 Kitadin	1.78	1.34	0.44
1.4 Trubaindo	39.18	3.69	35.49
1.5 Bharinto	146.02	4.86	141.16
1.6 NPR Project	77.40	0.00	77.40
<b>2. Australia</b>	269.95	9.26	260.69
<b>3. China</b>			
3.1 Gaohe	117.43	8.59	108.84
3.2 Hebi Zhongtai	14.43	0.68	13.75
<b>Total</b>	<b>712.98</b>	<b>36.74</b>	<b>676.24</b>

## 7. Natural Gas Reserves

The quantity of sales and remaining of natural gas reserves for the year ended 31 December 2021:

Quantity of Natural Gas Sales and Reserves	Natural Gas (Unit: Million Cubic Feet)
Reserves as at 31 December 2020	3,556,566
1) Adjustment on reserve estimation	876,418
2) Sales 2021	(246,223)
<b>Reserves as at 31 December 2021</b>	<b>4,186,761</b>

(Natural Gas Reserves from Marcellus and Barnett shales refer to Reserve Report 's Ryder Scott)

## FINANCIAL RATIO

### Banpu Public Company Limited and subsidiaries

For the Year Ended 31 December				
		2021	2020	2019
<b>Liquidity Ratio</b>				
Current Ratio	(Times)	0.88	0.71	0.87
Quick Ratio	(Times)	0.57	0.44	0.51
Cash Flow Liquidity Ratio	(Times)	0.40	0.24	0.28
Account Receivable Turnover	(Times)	11.37	9.20	8.61
Average Collection Period	(Days)	31.66	39.13	41.82
Inventory Turnover	(Times)	21.93	16.12	14.96
Average Inventory Period	(Days)	16.42	22.33	24.07
Account Payable Turnover	(Times)	28.83	28.68	23.38
Account Payable Days	(Days)	12.49	12.55	15.39
Cash Cycle	(Days)	35.59	48.91	50.49
<b>Profitability Ratio</b>				
Gross Profit Margin	(%)	41.98	20.17	25.66
Operating Profit Margin	(%)	27.53	(0.35)	4.52
Cash to Profit Margin	(%)	0.91	(57.20)	3.61
Net Profit Margin	(%)	6.78	(2.17)	(0.46)
Returns on Equity	(%)	10.27	(2.05)	(0.50)
<b>Efficiency Ratio</b>				
Returns on Assets	(%)	2.99	(0.64)	(0.18)
Returns on Fixed Assets	(%)	26.71	16.64	17.05
Fixed Asset Turnover	(Times)	0.44	0.29	0.38
<b>Financial Ratio</b>				
Debt to Equity	(Times)	2.53	2.33	2.06
Net Debt to Equity	(Times)	1.31	1.47	1.23
Interest Coverage Ratio	(Times)	5.78	2.51	2.41
Dividend Payout	(%)	28	N/A	N/A





## OTHER REFERENCES

### 1. Ordinary Share Registrar

#### Thailand Securities Depository Company Limited

1<sup>st</sup> Floor, The Securities Exchange of Thailand  
93 Ratchadapisek Road, Din Daeng, Bangkok 10400  
Tel. +66 2009 9000  
Contact Center +66 2009 9999

### 2. Debenture Registrar

#### Bangkok Bank Public Company Limited

333 Silom Road, Bangrak, Bangkok 10500  
Tel. +66 2230 1893

### 3. Bond Representative

#### Siam Commercial Bank Public Company Limited

9 Ratchadapisek Road, Jatujak, Bangkok 10900  
Tel. +66 2544 1111

#### Kasikornbank Public Company Limited

##### Head Office:

1 Soi Rat Burana 27/1, Rat Burana Road,  
Rat Burana, Bangkok 10140

##### Contact :

400/22 Phaholyothin Road, Phaya Thai, Bangkok 10400  
Tel. +66 2470 3687, +66 2470 1946

#### Bangkok Bank Public Company Limited

333 Silom Road, Bangrak, Bangkok 10500  
Tel. +66 2230 1893

### 4. Auditor

Ms. Rodjanart Banyatananusard  
Authorised Auditor No. 8435

#### PricewaterhouseCoopers ABAS Company Limited

15<sup>th</sup> Floor, Bangkok City Tower  
179/74-80 South Sathorn Road, Bangkok 10120  
Tel. +66 2844 1000

### 5. Financial Advisor

--None--

### 6. Advisor or Manager under Management Agreement

The Company did not hire any advisors or managers under any permanent management agreement. Advisors, including financial advisors, were hired on a case-by-case basis as necessary to support its operations from time to time. The Company's management is mainly supervised by the Board of Directors.

### 7. Financial Institutions

The Company is regularly in contact with around 30 local and international commercial banks and financial institutions.

## SIGNIFICANT LITIGATION

### Tax Audit of Indonesian Subsidiaries

#### Prepaid Income Taxes

As of 31 December 2021 and 2020, the subsidiaries in Indonesia have outstanding prepaid taxes related to results of tax investigations which consisted of various corporate income taxes, withholding taxes, value added taxes and related taxes as following. Recoverability of these prepaid taxes are subject to decisions by the respective tax authorities i.e. Directorate General of Tax (DGT), Tax Court or Supreme Court depending on the stage of tax dispute resolution of each tax case.

Fiscal Year	Company	Descriptions	USD Thousand		THB Thousand		Status as at the Date of the Financial Statements
			2021	2020	2021	2020	
2012	TCM	Overpayment of corporate income tax of USD 5.5 million.	-	2,883	-	86,597	The Supreme Court result was in favour of TCM in October 2020 for deduction cost  TCM submitted Contra Memory to the Supreme Court in November 2020 for marketing fee.
2012	KTD	Overpayment of corporate income tax of USD 6.2 million.	-	6,181	-	185,659	The Supreme Court result was in favour of KTD in March 2021.
2012	JBG	Overpayment of corporate income tax of USD 1.9 million.	169	-	5,648	-	JBG submitted Judicial Review to the Supreme Court in October 2020 and received Contra Memory from DGT in November 2020.
2013	IMM	Underpayment of withholding tax 23/26 of Indonesian Rupiah 33.8 billion (equivalent to USD 2.4 million).	2,369	-	79,172	-	IMM submitted Judicial Review to the Supreme Court in March 2017 and received Contra Memory from DGT for tax period of March, October and November in December 2021.





Fiscal Year	Company	Descriptions	USD Thousand		THB Thousand		Status as at the Date of the Financial Statements
			2021	2020	2021	2020	
2013	TCM, JBG, KTD	Underpayment of withholding tax 23/26, domestic VAT and offshore VAT of Indonesian Rupiah 79.8 billion (equivalent to USD 4.8 million).	141	913	4,712	27,424	<p>KTD</p> <p>The Supreme Court result was fully partially in favour of KTD for withholding tax 26 related to demurrage in December 2019 - March 2021.</p> <p>The Supreme Court result was partially in unfavourable to of KTD regarding withholding tax 23 in related to deduction cost in September 2020 - August 2021 and awaiting Judicial Review result from supreme court for December 2013.</p> <p>TCM</p> <p>The Supreme Court result was fully in favour of TCM regarding withholding tax 26 related to marketing fee in June - November 2019.</p> <p>JBG</p> <p>The Supreme Court result was fully in favour of JBG related to domestic VAT in December 2020 - April 2021.</p> <p>The Supreme Court result was fully in favour of JBG related to offshore VAT in August 2020 - February 2021.</p>
2015	IMM	Overpayment of corporate income tax of USD 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 (equivalent to USD 6.7 million).	5,812	9,284	194,236	278,864	<p>Submitted Judicial Review to the Supreme Court related to corporate income tax in August 2021 and received Contra Memory from DGT in October 2021.</p> <p>Submitted Judicial Review to the Supreme Court related to offshore VAT in August 2021 and received Contra Memory from DGT in September - October 2021.</p> <p>DGT submitted Judicial Review to Supreme Court regarding domestic VAT in April 2021 and IMM submitted Contra Memory to the Supreme Court in May 2021.</p>

Fiscal Year	Company	Descriptions	USD Thousand		THB Thousand		Status as at the Date of the Financial Statements
			2021	2020	2021	2020	
2015 (Continue)	IMM						<p>Submitted Judicial Review to the Supreme Court regarding withholding tax 23 in August 2021 and received Contra Memory from DGT in September 2021.</p> <p>Submitted Judicial Review to the Supreme Court related to withholding tax 26 in August 2021 and received Contra Memory from DGT in September 2021.</p>
2016	IMM	Underpayment of withholding tax 26 of Indonesian Rupiah 27.7 billion (equivalent to USD 1.9 million).	-	1,966	-	59,053	The tax court result was in favour of IMM in October 2021.
2018	IMM	Overpayment of corporate income tax of USD 4.0 million.	3,988	3,975	133,279	119,397	Submitted tax appeal letter to tax court in September 2021.
2019 - 2020	IMM	Underpayment of land and building tax of Indonesian Rupiah 99.5 billion (equivalent to USD 7.1 million).	6,977	7,058	233,171	212,002	Submitted tax appeal letter to tax court in February 2022.
2019	IMM, BEK	Overpayment of corporate income tax of USD 4.1 million.	4,145	-	138,525	-	Submitted objection to DGT in July 2021.
Total			23,601	32,260	788,743	968,996	

Additionally, as of 31 December 2021, various taxes of seven Indonesian subsidiaries for fiscal years 2017 - 2019 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.

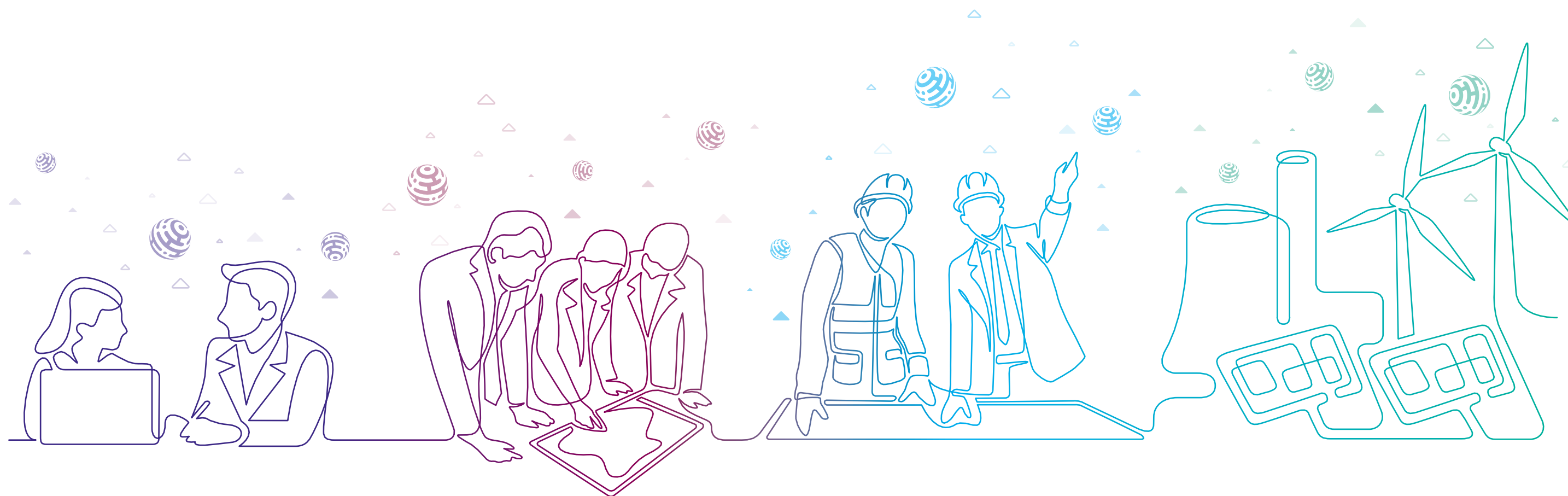




Business and Operational Results

Corporate Governance

Certification of Information and Data Accuracy



# CORPORATE GOVERNANCE



## CORPORATE GOVERNANCE POLICY

The Board of Directors of Banpu Public Company Limited has announced **“the Corporate Governance Policy and Code of Conduct”** on directors, executives, and employees at all levels since 2002. The Board annually reviews the policy to ensure compliance with business context, laws, regulations, rules, and guidelines of related agencies. The Corporate Governance and Nomination Committee is delegated by the Board to conduct a preliminary review of the policy and submit the results to the Board. In 2021, the Company amended the Corporate Governance Policy and Code of Conduct by adding two topics: 1) Holding directorship position in other company of Chief Executive Officer and 2) Setting blackout period of securities trading and securities holding report of the board of directors and executives.

In addition, the Board of Directors has organized communication sessions to create understanding and awareness of the Corporate Governance Policy and Code of Conduct while promoting the implementation and continuously monitoring the performance.



For complete information on the Corporate Governance Policy and Code of Conduct, please visit the Company's website. **By scan QR Code or pressing Click here.**

In 2021, the Company Governance Division organized an internal communication called “CG Be My Guest” to foster corporate culture and promote a positive attitude toward corporate governance.

This reaffirms Banpu's commitment to good corporate governance, ethic and transparency, and equitable treatment of stakeholders. The Company's certificate of the Thai Private Sector Collective Action Against Corruption (CAC) was also renewed for the second consecutive term, each with a period of three years.

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 2021 Corporate Culture and Employee Engagement Survey, using the “Committed” value as an indicator. The overall results classified by job levels and locations were at a satisfactory level.

### Communications of the Corporate Governance Policy

Committed to maintain compliance to Corporate Governance Policy and Code of Conduct as well as best practices on corporate governance, in 2021, the Company arranged a plan to promote corporate culture and good governance attitude aiming to educate, raise awareness and encourage compliance Corporate Governance Policy and Code of Conduct among employees at all levels through activities as follows:

#### 1. Orientation on Corporate Governance

The Company organized a session on the principles of good corporate governance and the Code of Conduct for all Banpu's new employees as part of its employee orientation.

#### 2. “CG Be My Guest”

##### Internal Communication Program

The Company organized “CG Be My Guest”; an internal communication program, to promote corporate governance practices through its “Friday Morning News” video podcasts and emails, encouraging executives and employees to share how CG practices were applied at work. Moreover, the Company focused on two-way communications by citing case studies from news and engaging employees with quizzes to provide them with knowledge and understanding of corporate governance principles and to prevent non-compliance to the Corporate Governance Policy and Code of Conduct.

#### 3. “CG of the Month”

##### Column in Banpu Synergy E-Magazine

Articles on corporate governance trends and directions in Thailand were published in the internal magazine – Banpu Synergy E-Magazine and distributed to Banpu's subsidiaries in all countries where the Company operates.

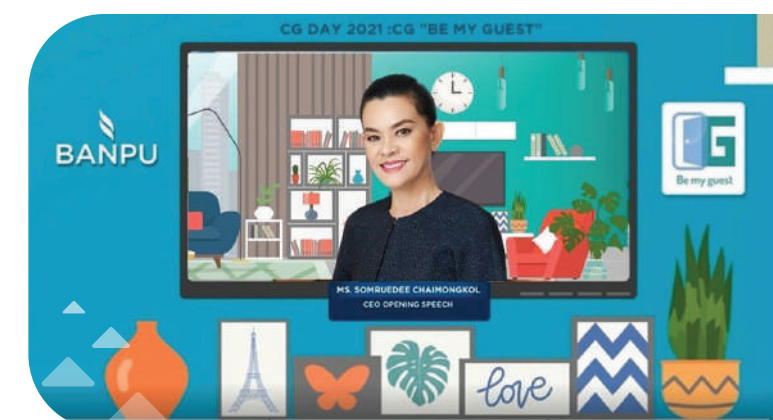
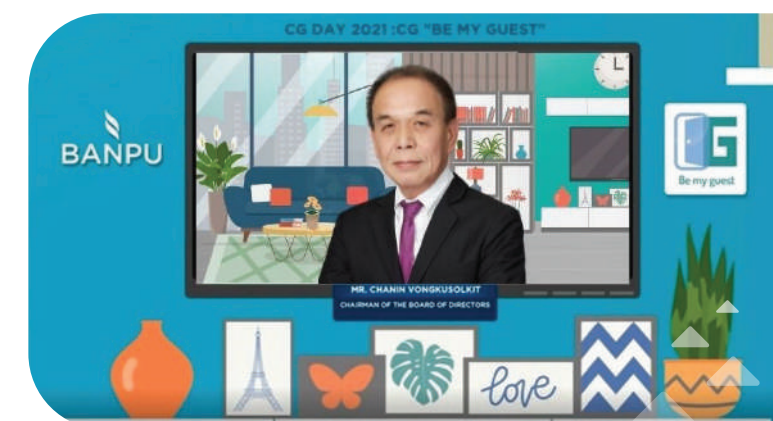
#### 4. CG Day 2021

“CG Day” is an annual event, and in 2021 it was organized to promote and raise awareness on the importance of ethical business conduct and commitment to integrity among employees at all levels. At the “CG Day 2021” event, the Corporate Governance Division hosted a sharing session where Mr. Chanin Vongkusolkrit, the Chairman of Banpu's Board of Directors, shared his perspective on CG and how to drive the Company through the COVID-19

pandemic. This year, employees were invited to participate in the infographic design contest to promote understanding of Corporate Governance Principles, Anti-Corruption Policy and Whistleblower Policy.

#### 5. Communication of CG Policy and Relevant Practices

In 2021, the Company reviewed and updated its policies and practices in response to changes in business environment, social conditions, regulations, norms, standards, and risk management. It amended policies such as Corporate Governance Policy regarding the holding of directorship position in other companies by the CEO and the Code of Conduct regarding the rule on blackout period and reporting of changes in shareholding of the directors and the executives. It also amended Anti-corruption Policy and communicated it to all directors, executives, employees, and stakeholders to be put into practice.





## 6. Anti-Corruption

In 2021, the Company's certificate of the Thai Private Sector Collective Action Against Corruption (CAC) was renewed for another term. The Company's anti-corruption effort involved improvement of its Anti-corruption Policy to be aligned with the amended CAC's practice. In addition, the Company conducted the 2021 annual assessment of corruption risk and preventive measures, covering all businesses in every country where it has invested, including its subsidiaries and joint ventures. The results were reported to the Risk Management Committee. Moreover, the Company continually communicated and informed its employees of relevant policies and practices to combat corruption,

for example, the Corporate Governance Policy and the Code of Conduct, and the Anti-corruption practice on Accepting and Offering of Gifts, Hospitality, or Other Similar Forms of Reward. Employees can access the policies through internal communication channels. In the past year, letters were sent out to directors, executives, and employees to request adherence to the No Gift Policy.

For complete information on "Anti-Corruption Policy," please visit the Company's website. **By scan QR Code or pressing Click here.**



## Awards and Recognition for Corporate Governance

Banpu's commitment to corporate governance and creation of equitable value for all stakeholders has earned the Company the following awards and recognition in 2021 from both national and international institutions.



### Sustainability Award Gold Class 2021 S&P Global



The Company received the "Gold Class" award from the RobecoSAM Sustainability Award 2021 in the Coal & Consumable Fuels sector for the seventh consecutive year.

The Company's certificate of the Thai Private Sector Collective Action Against Corruption (CAC) was renewed for the second consecutive term, with each term lasting for three years.



The Company was listed among the top 100 Best Emerging Market Performers in environmental, social, and governance (ESG), according to the rating conducted by V.E, part of Moody's ESG Solutions, a global leader in ESG assessments, data, research, benchmarks, and analytics.

The Company won Sustainability Award of Honor in Sustainability Excellence category from the SET Awards for four consecutive years. It was also listed on the Thailand Sustainability Investment (THSI) for the seventh consecutive year.

The Company was listed among 268 Thai Listed Companies with Excellent CG Scoring in the 2021 Corporate Governance Report (CGR) as a result of the annual survey on Thai listed companies in 2021 conducted by the Thai Institute of Directors (IOD) under the support of the Stock Exchange of Thailand (SET).

The Company won its first Global Corporate Sustainability Award (GCSA) – Silver Class in 2021 for outstanding sustainability reporting, which is a recognition for its transparent disclosure of environmental, social, and governance (ESG) information.



## The Policy and Practices Related to the Board of Directors, Shareholders, and Stakeholders

The Board of Directors formulated the Corporate Governance Policy as guiding principles for directors, executives, and employees based on the SEC's Corporate Governance Code 2017, comprising eight key principles as follows:

### Principle 1

#### Establish Clear Leadership Role and Responsibilities of the Board

Since 2009, the Board of Directors has explicitly defined the Board's duties and responsibilities in "The Practices for the Board of Directors of Banpu Public Company Limited B.E. 2552." The Practices have been periodically amended, with the most recent amendments in 2017, to align the Board's duties and responsibilities with changing business environment, rules and regulations, and corporate governance guidelines.

For complete information on "The Practices of Banpu Public Company Limited," please visit the Company's website. **By scan QR Code or pressing Click here.**



Banpu's Board of Directors is fully aware of its roles and responsibilities in leading the company forward. The Board is responsible for establishing strategies and policies for business undertaking with accountability, prudence, and integrity to ensure the Company's best interest and social responsibility through adherence to the environment, social, and governance (ESG) principles. The Board of Directors' scope of duties and responsibilities is as follows:

1. The Board of Directors plays a significant role in establishing the vision and mission of the organization, which involves becoming a more sustainable business. The Board monitors and supervises the Company's operations and reviews business performance yearly to make sure the goals are achieved. It also approves the financial key performance indicators (KPIs) and action plans as well as regularly oversees and monitors the management's performance against plans. Besides, the Board requires the Company's vision and mission to be reviewed at least every five years to ensure that the Company's business operations are on track towards sustainable development as planned.
2. The Board of Directors and the executives have jointly formulated a long-term business plan and strategic plan every five years over more than 20 years to ensure alignment with the Company's vision and mission. The Board of Directors appointed the Chief Executive Officer to be in charge of business management as well as strategy development and implementation. The CEO's authority and responsibilities were clearly stipulated. The CEO's authority is cascaded down through executives of lower levels in business units both in Thailand and abroad according to the Company's delegation of authority.
3. The Board of Directors established the Corporate Governance Policy and the Code of Conduct which are coherent with the Company's vision and mission, business credo, values, principles, and recommended practices. This provides clear guidelines and makes it convenient for directors, executives, and employees to follow. Employees are clearly advised on what they

should do and what they should refrain from doing. They are also advised of standard practices they are expected to follow for how to treat fellow employees, shareholders, customers, partners, creditors, competitors, and the society at large. Being aligned with the Corporate Governance Policy, these practices are believed to bring about more concrete actions in relation to good governance.

The Company stipulated that all directors, executives, and employees shall acknowledge, understand, and comply with Corporate Governance Policy and practices as defined in the Code of Conduct. The Company keeps employees both domestic and overseas informed of this through publications and activities organized all year round to promote understanding and awareness of the importance of compliance to the Code of Conduct. The executives of each business unit are responsible for creating understanding among their subordinates and promoting compliance to the Code of Conduct while employees at all levels are expected to act as a role model.

Apart from the practices prescribed in the Code of Conduct, the executives and employees has jointly established "Banpu Heart", the Company's corporate culture, to strengthen corporate shared values among employees at all levels both in Thailand and abroad.

### Principle 2

#### Define Objectives that Promote Sustainable Value Creation

Based on the Board of Directors' guidance and suggestions, the executives formulates and presents to the Board the business direction, a long-term strategic plan, an annual action plan, a budget plan, and an annual workforce plan. The Board then has an open discussion with the executives to reach a mutual agreement before approval.

In 2021, the Board of Directors and the executives have reviewed and approved the strategic plan and business direction for 2021-2025 to respond to the rapidly changing business environment. The Company also conducted a risk assessment to prepare the Company for future situations.

The Company devised business strategies and the strategic plan for the next five years based on its sustainable development plan with an emphasis on competitiveness enhancement, value creation for stakeholders as well as adaptability to economic and industrial changes. These elements were the basis on which the Company's strategic framework was created. Moreover, in response to its Greener & Smarter strategy, the Company aimed to achieve an over 50% in earnings before interest, tax, depreciation and amortization (EBITDA) from the greener businesses by 2025 (including natural gas exploration and production, gas-fired power plants, HELE power plants, renewable power plants, and energy technology business.) The performance monitoring has been set as a regular agenda of the Board's monthly meeting. The Board delegated the review of the annual plan and strategic plan implementation to the executives while providing advice or feedback on improvement where necessary.

### Principle 3

#### Strengthen Board Effectiveness

#### Determining and reviewing the Board structure

The Board of Directors determined and reviewed the Board structure in relation to the number of directors, the proportion of independent directors, diverse qualifications, and specialization of each director to ensure suitability for the Company's business. Sub-committees were also set up to support the Board's duties.



## Appointment of Board Members

### Independent directors

who account for 38% of the Company's Board of Directors, are as follow:

1. Mr. Teerana Bhongmakapat
2. Mr. Suthad Setboonsarng
3. Mr. Pichai Dusdeekulchai
4. Mr. Teerapat Sanguankotchakorn
5. Mr. Piriya Khempon

Independent directors are an important mechanism for good corporate governance. For the Company and shareholders' best interests, there should be a sufficient number of independent directors to balance the decision-making of the Board and to share opinions independently without influence from any individual or party. An independent director serves a maximum of three terms or nine years as stipulated in "The Practices for the Board of Directors of Banpu Public Company Limited B.E. 2552, Amendment No.5 B.E. 2560, Clause 6 Term of Office and Retirement.

In terms of independent director definition, Banpu has imposed more stringent requirements than those stipulated by SEC and the SET particularly on the director's shareholding. Qualifications of the Company's "Independent Director" are as follows:

1. Holding not more than 0.5 percent (legally not exceeding 1 percent) of the total number of shares with voting rights of Banpu, its parent company, subsidiary companies, associated 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 a controlling person of Banpu, its parent company, subsidiary companies, associated 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 who has relationship by means of descent or legal registration under the status of father, mother, spouse, brothers and sisters, and children, including the spouse of daughters and sons of 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 a controlling person of any person having a business relationship with Banpu, its parent company, subsidiary companies, associated 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 above THB 20 million, 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, associated companies, major shareholders or controlling persons, and not being a significant shareholder, a controlling person, or a partner of an audit firm which employs auditors of Banpu, its parent company, subsidiary companies, associated 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, associated companies, major shareholders or controlling persons, and not being a significant shareholder, a controlling person or a 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 percent 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 entrusted by the Board of Directors to participate in collective decision making on the business operations of Banpu, its parent company, subsidiary companies, associate companies, same-level subsidiary companies, major shareholders or controlling persons.

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 apply 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 of Securities and Exchange Act B.E. 2535 and as amended in Securities and Exchange Act (No.4) B.E. 2551, 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 item for the appointment of independent directors:





- A. The business relationship or professional service providing which causes such person to be unqualified;
- B. The reason and the necessity to insist the appointment of such person as the independent director;
- C. The opinion of Banpu's Board of Directors of the applicant to propose such person to be the independent director.

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

Nomination of Directors and Senior Executives

The Corporate Governance and Nomination Committee is responsible for the nomination of candidates to replace directors whose terms will expire or are terminated on 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 in accordance with the Company's business strategy and in compliance with the SET's rules and regulations. After the recruitment process, the Corporate Governance and Nomination Committee will nominate the candidate to be approved by the Board of Directors and proposes the candidate 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 have 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 determines and discloses the Board Diversity, then announces 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. The number of nominated candidates shall be twice of the number of 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 annually monitors a succession plan covering the CEO, COO, and senior executives positions to ensure that the Company will have competent executives with proper expertise and experience to fill critical positions in the future.

Performance Evaluation of the Board and Directors

The Company requires a performance evaluation of the Board of Directors, sub-committees, and individual directors with details on criteria, procedures, and evaluation results disclosed in the annual report and the report of the Corporate Governance and Nomination Committee. The Company also requires the Board to conduct an annual board self-assessment to review its performance, problems, and obstacles in the past year to identify ways to enhance its efficiency based on good governance principles. The Secretary of the Corporate Governance and

Nomination Committee is in charge of distributing the performance evaluation forms for the evaluation of the full Board and evaluation of individual directors. Upon completion, the forms will be returned to the Secretary of Corporate Governance and Nomination Committee. The analysis of the annual performance will then be summarized and reported to the Board of Directors as per the evaluation objective. The overall evaluation results are as follows:

Performance Evaluation of the Board and Directors

The evaluation form for the Board of Directors consisted 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 four sub-committees, namely the Audit Committee, the Compensation Committee, and the Corporate Governance and

Nomination Committee, and the Environment, Social, and Governance consisted 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 Individual Directors

The evaluation form consisted 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 Score	Evaluation Results
Whole Board	4.85	Excellent
Individual Directors	4.67	Excellent
Sub-committees		
The Audit Committee	4.90	Excellent
The Corporate Governance and Nomination Committee	4.99	Excellent
The Compensation Committee	4.70	Excellent
The Environment, Social, and Governance (ESG) Committee	4.60	Excellent



## Development of the Board of Directors and the Executives

According to the SEC's Corporate Governance Code for Listed Companies (CG Code) 2017, "The Board of Directors should ensure that the Board and each individual director understand their roles and responsibilities as well as the nature of the business. The Board should also support all directors in updating and refreshing their skills and knowledge necessary to carry out their roles as members of the Board and Board committees."

At Banpu, the Board of Directors organizes an orientation session for all new directors to ensure that they are aware of what they are expected of. Through orientation, the directors learn about their roles and responsibilities, the Corporate Governance Policy and practices, the nature of Banpu business and operations, and risk management. In addition, the Company arranges site visits to different operational units for new directors to prepare them for their role as Banpu directors.

The Board of Directors has a policy to expand all directors' horizons on topics such as corporate governance, industrial outlook, businesses, new technology, and innovations to improve the Board's performance. Directors are encouraged to attend seminars and useful courses held by the Thai Institute of Directors Association (IOD) and other reputable institutions to enhance their performance. Apart from that, seminars led by the management team are held for directors to transfer related technical knowledge and experience about the Company's business. Knowledge sharing sessions regarding new energy and technology are also organized for executives so that they can share such experience and knowledge to the Board of Directors on a regular basis. In 2021, the Board of Directors attended seminars and training programs as follows:

### Summary of the Board of Directors' Personal Development in 2021

Name	Training Course/ Seminar	Institution/ Speaker	Date of Training/ Seminar
<b>Mr. Chanin Vongkusolkrit</b> Chairman	• New Energy Outlook 2020	BloombergNEF (BNEF)	6 January 2021
	• ERM Forum "Energy Transition Towards Net-Zero"	KPMG	25 October 2021
	• Innovation Ecosystem	Ricoh Singapore, Allsense Technology and the Chulalongkorn School of Integrated Innovation	1 November 2021
<b>Mr. Teerana Bhongmakapat</b> Independent Director, Chairman of the Audit Committee and Member of the Compensation Committee	• New Energy Outlook 2020	BloombergNEF (BNEF)	6 January 2021
	• Corporate Transformation – The Traps	Mr. Somkid Jiranantararat, Executive Advisor to the CEO of Krungthai Bank	22 March 2021
	• PDPA Virtual Sharing	Tilleke & Gibbins International	10 May 2021
	• Ethical Leadership Program (ELP) #22/2021	Thai Institute of Directors (IOD)	19 July 2021
	• ERM Forum "Energy Transition Towards Net-Zero"	KPMG	25 October 2021



Name	Training Course/ Seminar	Institution/ Speaker	Date of Training/ Seminar
<b>Mr. Teerana Bhongmakapat</b> (Continue)	• Innovation Ecosystem	Ricoh Singapore, Allsense Technology and the Chulalongkorn School of Integrated Innovation	1 November 2021
	• Cybersecurity Update and Awareness	Banpu Public Company Limited	17 November 2021
<b>Mr. Rawi Corsiri</b> Director, Chairman of the Corporate Governance and Nomination Committee	• Corporate Transformation – The Traps	Mr. Somkid Jiranantararat, Executive Advisor to the CEO of Krungthai Bank	22 March 2021
	• PDPA Virtual Sharing	Tilleke & Gibbins International	10 May 2021
	• ERM Forum "Energy Transition Towards Net-Zero"	KPMG	25 October 2021
<b>Mr. Suthad Setboonsarng</b> Independent Director, Member of the Audit Committee and Member of the Compensation Committee	• New Energy Outlook 2020	BloombergNEF (BNEF)	6 January 2021
	• Corporate Transformation – The Traps	Mr. Somkid Jiranantararat, Executive Advisor to the CEO of Krungthai Bank	22 March 2021
	• PDPA Virtual Sharing	Tilleke & Gibbins International	10 May 2021
	• ERM Forum "Energy Transition Towards Net-Zero"	KPMG	25 October 2021
	• Cybersecurity Update and Awareness	Banpu Public Company Limited	17 November 2021
<b>Mr. Buntoeng Vongkusolkrit</b> Director and Chairman of the Compensation Committee	• New Energy Outlook 2020	BloombergNEF (BNEF)	6 January 2021



Name	Training Course/ Seminar	Institution/ Speaker	Date of Training/ Seminar
<b>Mr. Metee Auapinyakul</b> Director	• Corporate Transformation – The Traps	Mr. Somkid Jiranantararat, Executive Advisor to the CEO of Krungthai Bank	22 March 2021
	• PDPA Virtual Sharing	Tilleke & Gibbins International	10 May 2021
	• ERM Forum “Energy Transition Towards Net–Zero”	KPMG	25 October 2021
	• Innovation Ecosystem	Ricoh Singapore, Allsense Technology and the Chulalongkorn School of Integrated Innovation	1 November 2021
<b>Mr. Ongart Auapinyakul</b> Director	• Corporate Transformation – The Traps	Mr. Somkid Jiranantararat, Executive Advisor to the CEO of Krungthai Bank	22 March 2021
	• ERM Forum “Energy Transition Towards Net–Zero”	KPMG	25 October 2021
	• Innovation Ecosystem	Ricoh Singapore, Allsense Technology and the Chulalongkorn School of Integrated Innovation	1 November 2021
<b>Mr. Verajet Vongkusolkit</b> Director and Member of the Corporate Governance and Nomination Committee	• Thailand Energy Academy (TEA) #16/2021	Thailand Energy Academy	January - June 2021
	• New Energy Outlook 2020	BloombergNEF (BNEF)	6 January 2021
	• Corporate Transformation – The Traps	Mr. Somkid Jiranantararat, Executive Advisor to the CEO of Krungthai Bank	22 March 2021
	• ERM Forum “Energy Transition Towards Net–Zero”	KPMG	25 October 2021
<b>Ms. Somruedee Chaimongkol</b> Director and Chief Executive Officer	• New Energy Outlook 2020	BloombergNEF (BNEF)	6 January 2021
	• Corporate Transformation – The Traps	Mr. Somkid Jiranantararat, Executive Advisor to the CEO of Krungthai Bank	22 March 2021
	• PDPA Virtual Sharing	Tilleke & Gibbins International	10 May 2021
	• ERM Forum “Energy Transition Towards Net–Zero”	KPMG	25 October 2021

Name	Training Course/ Seminar	Institution/ Speaker	Date of Training/ Seminar
<b>Ms. Somruedee Chaimongkol</b> (Continue)	• Innovation Ecosystem	Ricoh Singapore, Allsense Technology and the Chulalongkorn School of Integrated Innovation	1 November 2021
	• Cybersecurity Update and Awareness	Banpu Public Company Limited	17 November 2021
<b>Mr. Anon Sirisaengtaksin</b> Director and Member of the Corporate Governance and Nomination Committee	• New Energy Outlook 2020	BloombergNEF (BNEF)	6 January 2021
	• Corporate Transformation – The Traps	Mr. Somkid Jiranantararat, Executive Advisor to the CEO of Krungthai Bank	22 March 2021
	• The Cooler Earth Sustainability Summit 2021	CIMB Group	23, 24, 27 September 2021
	• Cyber Resilience	Bank of Thailand	12 October 2021
	• Sustainability Board Training 2021	CIMB Group	21 October 2021
	• ERM Forum “Energy Transition Towards Net–Zero”	KPMG	25 October 2021
	• Innovation Ecosystem	Ricoh Singapore, Allsense Technology and the Chulalongkorn School of Integrated Innovation	1 November 2021
<b>Mr. Pichai Dusdeekulchai</b> Independent Director, Member of the Audit Committee, and Member of the Environment, Social and Governance (ESG) Committee	• New Energy Outlook 2020	BloombergNEF (BNEF)	6 January 2021
	• PDPA Virtual Sharing	Tilleke & Gibbins International	10 May 2021
	• ERM Forum “Energy Transition Towards Net–Zero”	KPMG	25 October 2021
	• Innovation Ecosystem	Ricoh Singapore, Allsense Technology and the Chulalongkorn School of Integrated Innovation	1 November 2021
<b>Mr. Teerapat Sanguankotchakorn</b> Independent Director, Member of the Compensation Committee, and Member of the Environment, Social and Governance (ESG) Committee	• New Energy Outlook 2020	BloombergNEF (BNEF)	6 January 2021
	• Director Briefing 2/2021: AGM – Dividend payment and issuance of debentures: What needs to be considered?	Thai Institute of Directors (IOD)	5 February 2021
	• Corporate Transformation – The Traps	Mr. Somkid Jiranantararat, Executive Advisor to the CEO of Krungthai Bank	22 March 2021





Name	Training Course/ Seminar	Institution/ Speaker	Date of Training/ Seminar
<b>Mr. Teerapat Sanguankotchakorn</b> (Continue)	• PDPA Virtual Sharing	Tilleke & Gibbins International	10 May 2021
	• National Director Conference 2021 (NDC 2021) : Leadership Behind Closed Door	Thai Institute of Directors (IOD)	17 August - 12 October 2021
	• ERM Forum “Energy Transition Towards Net–Zero”	KPMG	25 October 2021
	• Innovation Ecosystem	Ricoh Singapore, Allsense Technology and the Chulalongkorn School of Integrated Innovation	1 November 2021
<b>Mr. Piriya Khempon</b> Independent Director, Chairman of the Environment, Social and Governance (ESG) Committee, and Member of the Corporate Governance and Nomination Committee	• New Energy Outlook 2020	BloombergNEF (BNEF)	6 January 2021
	• Deep Dive into Climate Related Disclosures	The Securities and Exchange Commission	19 March 2021
	• PDPA Virtual Sharing	Tilleke & Gibbins International	10 May 2021
	• ERM Forum “Energy Transition Towards Net–Zero”	KPMG	25 October 2021

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 competent executives to fill critical positions in the future. The CEO is invited to report the succession plan to the Corporate Governance and Nomination Committee and the Board at least once a year. The Charter of the Corporate Governance and Nomination Committee

also prescribed that the Committee has a duty make sure that a development plan for senior executives (for vice president level and higher) is in place to prepare high potential candidates for critical roles (for vice president level and higher) if a senior executive retire, resign, or is unable to perform the duties.

For complete information on “The Corporate Governance and Nomination Committee Charter,” please visit the Company’s website. **By scan QR Code or pressing Click here.**



Principle 5

Nurture Innovation and Responsible Business

The Company focuses on maintaining sustainability throughout the supply chain and thus prioritizes adherence to good governance principles in business operations coupled with effective management of risks and opportunities. International standards are integrated in the formulation of sustainable development strategy covering economic, social, and environmental aspects to enhance the Company’s competitiveness and create value for all stakeholders through a two-tier management system as follows:

- Strategic Integration of Sustainability**  
The Board of Directors reviews sustainability risk issues and advise the CEO on appropriate mitigation measures.
- Operational Integration of Sustainability**  
The Sustainability Committee oversees, monitors, and evaluates the sustainability performance as well as determines and reviews policies to enhance sustainable development.

The Company annually sets sustainability indicators as well as short-term and long-term performance goals for both the management and employees while integrating sustainability into the corporate culture. In addition, it has cultivated the corporate culture in all countries where it operates. The Company also regularly discloses management processes and business performance to stakeholders through the appropriate channels.

Moreover, the Company announced an Innovation Policy to promote its vision of being an innovation-driven company focusing on using innovations to drive the Group’s businesses. The Innovation Policy has been implemented 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.
- Put innovative culture into practice by creating a motivating work environment that inspires creativity and innovation.
- Develop training programs or projects that specifically designed to improve creative thinking skills by including innovation topics as part of the programs.
- Create infrastructure that promotes innovation, keep abreast of future trends, as well as develop products, services, processes, or tools that could quickly and effectively respond to future demands.

Roles of Stakeholders

Banpu is committed to fostering fairness for all stakeholders. The Company set forth guidelines on stakeholder treatment in the Corporate Governance Policy and the Code of Conduct to be followed by directors, executives, and employees to ensure equitable treatment and interests of stakeholders. 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 at large. Directors, executives, and employees shall



acknowledge, understand, and strictly comply with the guidelines in order to ensure that all stakeholders are treated fairly and their rights are protected.

In addition, Banpu has established a whistleblower channel, allowing all groups of stakeholders to file grievances regarding a breach of corporate governance code or ethical conduct via the Company's website on "Whistleblowing" page under the Corporate Governance section. Grievances will be sent directly to the Chairman of the Corporate Governance and Nomination Committee GNCchairman@banpu.co.th, and/or to the Secretary of the Corporate Governance and Nomination Committee, at GNCSecretariat@banpu.co.th. The Company monitors those grievance cases and reports the progress to the Corporate Governance and Nomination Committee on a quarterly basis and the Board of Directors on an annual basis. Banpu's Whistleblower Policy was established and made effective since 2015 to protect whistleblowers and to foster a culture of transparency. Guidelines on case investigation are as follows:

1. In case there is sufficient evidence to support the allegation of misconduct, a full investigation into the case will be carried out. 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 outcomes through appropriate communication channels.
3. Senior management will decide on the actions to be taken against the wrongdoer, 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 violation of law, rules, and regulations, and the Code of Conduct will not be affected.

For complete information on "Whistleblower Policy and Protection of Whistleblowers," please visit the Company's website. **By scan QR Code or pressing Click here.**



Details of whistleblower channels are on the Company's website. **By scan QR Code or pressing Click here.**



Apart from that, the Company announced a "No Gift" policy to avoid employees from receiving gifts and other benefits from stakeholders. The policy was publicly communicated to all stakeholders through the Company's website. It also requires registration of gifts in the database system in case there is an acceptance of gift. The Board members, executives, employees, and subsidiaries shall be aware of and comply with the policy which has been established in accordance with the Anti-Corruption Policy. The Company has stipulated in the Code of Conduct its measures on giving and receiving of bribes, gifts, and business entertainment, of which the details are 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.

### Employees

Recognizing that human capital is pivotal to success, Banpu has put in its Code of Conduct, a policy and practices toward employees, to ensure that employees of all nationalities and languages are treated fairly in terms of access to career opportunities, remunerations, appointments, transfers, capacity-building and a safe workplace for their lives and properties. Banpu has implemented adequate and appropriate Health, Safety, and Environmental (HSE) measures to prevent loss from an accident as well as occupational illness or injury.

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

1. Principle of Equitability
2. Performance-Based Principle
3. Competency-Based Principle

To accommodate changes in business and the global economy, the Company determines that it is accountable for equipping the employees with

adaptability, flexibility, mobility, positive creativity, and professionalism beyond the chain of command. In other words, Banpu focuses on developing "professional employees" while ensuring fair and equitable treatment of them regardless of their nationality, ethnicity, religion, language, and gender. Moreover, with the "Banpu Heart" culture, the Company aims to create a cohesive workplace where all its people unite as one to work together under a shared vision and toward the same goals.

Banpu is committed to aligning human resources management with the Company's vision to timely respond to business changes and to drive the Company to become an International Versatile Energy Provider. Hence, capacity building and agility enhancement are among the Company's key priorities as they facilitate smooth collaboration, promote reskilling and upskilling and give employees equal opportunities to thrive across functions and countries. In 2021, Banpu developed a "Banpu People Value Proposition" as a principle to improve human resources management efficiency.

The Company has the Remuneration Policy to provide bonuses and promotions according to the Company's performance both in short and long terms. It is committed to providing employees with fair compensation in the forms of salary, welfare, and other benefits, e.g., health insurance, provident fund, and Flexi Benefits.

The Company has a fair human resources management of which recruitment and hiring of professional personnel is conducted based on past professional experience regardless of gender, age, ethnicity, nationality, and religion. This can be witnessed from diversity in Banpu's workforce both at the head office in Thailand and overseas in terms of ethnicity, religion, language, culture, age, knowledge, and perspective.





Moreover, to achieve effective human resources management, the Company periodically review related policies, regulations, and issue guidance and measures to support its employees in response to emergency. Necessary changes are made in compliance with relevant laws such as labor law as well as social and environmental conditions that may affect the way of working. The Company has carried out HR activities as follows:

- The Company launched the Work Anywhere Policy, allowing employees to design their work schedule and the working style that suits the nature of their work. They can work from office, work from home, or from anywhere as long as the goals are met.
- The Company formulated an internship program to ensure that intern students got the most out of their internship while being paid for their work. The intern students were also given a chance to attend training programs such as presentation, English, and financial planning to prepare them for their future career.
- The Company employed fresh graduates according to the Thai government's graduate job creation scheme which aimed at reducing rate of unemployment among fresh graduates in 2021.
- The Company hired disabled masseurs to support the government's policy on employment of persons with disabilities. Other efforts to support persons with disabilities included direct donation to the Fund for Empowerment of Persons with Disabilities or hiring of persons with disabilities through government agencies to work in communities.
- Regarding employee treatment, the Company does not prevent employees from forming a labor union according to the Labor Relations Act. Although the labor union has not been organized, employees can file complaints with

the Welfare Committee, who will review the complaints and subsequently report the cases to the management.

- Employees can consult or file complaints directly with their supervisor and HR Manager, or opt for online channel if they would like to keep their identity anonymous when filing certain complaints, such as workplace concern, conflict within their team or with the team leader, untransparent conduct, and sexual harassment. The Company has put in place procedures for investigating complaints and imposing disciplinary penalties against misconduct as stipulated in the Company's work rules.
- In response to a crisis, for instance, flooding, fire, and pandemic, the Company has prepared a set of emergency aid guidelines to support its employees in the forms of allowances, temporary shelters, survival kits, and vaccines where applicable.

The Company puts top priority on providing employees with inclusive and regular learning opportunities to enable them to realize their full potential. It has also set up a Job Evaluation Committee, an Organization Development Committee, a Succession Plan Committee and has given full support to the Compensation Committee and the Corporate Governance and Nomination Committee in maintaining transparency and driving the workforce toward steady and sustainable growth.

Apart from that, the Company focuses on hiring qualified local people to fill operational positions at all sites, except only when there are no suitable candidates; it will consider hiring ones from other areas.

For more information on "Employees," please visit the Company's website. **By scan QR Code or pressing Click here.**



## Customers

Banpu endeavors to effectively respond to customers' needs. Policy and guidelines on customer treatment are stipulated in the Code of Conduct. The Company is strictly committed to delivering quality products and services according to customers' expectations at a fair price; timely providing customers with accurate and adequate information; and strictly complying with the terms and conditions agreed with 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 the customers' best interests. The customer data is kept strictly confidential and shall never be misused.

For more information on "Customer & Product Stewardship," please visit the Company's website.

**By scan QR Code or pressing Click here.**



## Suppliers/Creditors

The Company has a policy to treat its trading partners and/or creditors equitably and fairly by taking into consideration its best interest whilst acting on the basis of mutual benefit. The Company also makes sure that conflicts of interest are avoided, and contractual obligations are fulfilled. The following are Banpu's supplier/creditor treatment guidelines:

1. The Company shall not demand, receive or pay any improper benefits to its trading partners and/or creditors.
2. Should it become known that bribes have been demanded, or payment of any improper benefit has occurred, then full information shall be

disclosed to the trading partners and/or creditors involved, and the Company shall collaborate with the parties concerned to resolve the problem in a fair and timely basis.

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

For more information on "Supplier Management and Ethics," please visit the Company's website.

**By scan QR Code or pressing Click here.**



## 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 the 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 2021, the Company had no disputes with competitors.

## Community and Society

Banpu has the policy to conduct businesses that benefit the economy and 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 strict compliance with the relevant laws and regulations. Banpu strives to improve the quality of society, either through the Company's activities or collaboration with the government sector, communities, or non-governmental organizations.





In addition, the Sustainability Policy has been implemented and benchmark against the global standards such as reporting of greenhouse gas (GHG) emissions (ISO 14001). For effective safety, health and environmental (SHE) management, the Company has also developed SHE guidelines which include the management of risks resulting from the Company's operations, which may affect employees, business partners, the environment, and the communities where the Company operates.

Over three decades of its operations, the Company has continuously carried out various Corporate Social Responsibility (CSR) activities. It regularly supports social development activities and allocates part of its earnings to organize CSR projects at the local and corporate levels, including CSR projects in those countries where Banpu operates.

Banpu' CSR initiatives are driven by the belief, "Learning is the Power of Change and Development". Learning is the 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.

For more information on "Community and Society," please visit the Company's website. **By scan QR Code or pressing Click here.**



Contact Channels

Stakeholders may submit their opinions about the company through the following channels:

Headquarters	27 <sup>th</sup> Floor, Thanapoom Tower, 1550 New Petchburi Road, Makkasan, Ratchathewi, Bangkok 10400
Telephone	+66 2694 6600
Website	www.banpu.com
Company Secretary	Telephone : +66 2694 6859 Email : bodsec@banpu.co.th
Investor Relations	Telephone : +66 2694 6747 Email : investor_relations@banpu.co.th Line : @banpu-ir
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 aspects. The Board is entrusted with the duty to consider the appropriateness of the Company's risk management system, risk likelihood, and level of impacts. Measures for prevention and management of risks are established and persons to be accountable for addressing risks has been appointed. Besides, the Board has determined measures for reporting, monitoring, and evaluating risk management. The Risk Management Committee was set up at the management level to regularly present a risk management plan and performance to the Audit Committee and occasionally 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 put in place an internal control system that covers all aspects of Banpu's business, ranging from finance, operations, and compliance with relevant laws, rules, and regulations. The Board has also established sufficient and effective checks and balances mechanism to protect shareholders' interests and Banpu's assets. Moreover, the Board has determined the authorization levels and responsibilities of the executives and employees with the checks and balances mechanism included. Operational procedures are made available in writing. The Global Internal Audit Department works independently and reports directly to the Audit Committee, who audits the operating results of all functions including core business functions and support functions to ensure regulatory compliance.

Corporate Governance of Subsidiaries and Affiliates

The Company has managed its subsidiaries and devised business procedures to ensure operational effectiveness and proficiency, as follows:

Banpu and Its Subsidiaries' Investment Policy

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 which involves funding, development, and expansion as well as the subsidiary's key policies. The Board of Directors also has the authority to approve the establishment or dissolution of a subsidiary as necessary to ensure that Banpu's portfolio can be most efficiently managed.
2. The Board of Directors shall consider and approve investments based on the criteria set by the SEC, such as connected transactions and decisions that involve receipts or sales of assets.
3. The Board of Directors shall have a governance mechanism to oversee subsidiaries and safeguard the Company's investments. The Board is responsible for the consideration of suitable 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 goals or benchmarks. These management reviews provide a basis for policy formulation and





business model improvement to ensure continued growth and development of the Company's subsidiaries

Internal Control Policy and Central Management Policy

To ensure that internal audit is conducted independently, the Board of Directors and the Management determine that the Global Internal Audit Department directly reports to the Audit Committee. The Department 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 shareholding. The Board of Directors is responsible 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), 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 operations. Any investment project valued over THB 1.5 billion or spending that exceeds the approved budget by over 15% is subject to the Board of Directors' approval.

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 fairly and 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 Stock Exchange of Thailand'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 through their position for personal gain or to engage in any related business activities that compete with the Company, or using insider information to sell or buy the Company's shares. If an executive or an employee is to be 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 which shall be effective until the information is disclosed to the Stock Exchange of Thailand and the Securities and Exchange Commission.

The Company announced the Market Sensitive Information Policy and practices on the management of confidential information that 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.

control system for contract parties and service providers.
2. Cultivate a culture of information safety through constant communication to raise awareness of relevant persons of their duty to protect the Company's confidential information.

4. Exercise extreme caution in receiving and sending information from and to third parties. Persons involved should be aware of their duties related to handling and controlling confidential information.
3. Limit the number of persons who have access to confidential information based on a need-to-know basis. Set up an information access

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 outlook, while strictly complying with the laws, rules, and regulations relating to information disclosure of both the SEC and the SET. Banpu also share the information with shareholders and investors through other communication 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 media.

In 2021, the Company organized the following activities to disclose information to international investors, institutional investors, retail investors, securities analysts, and the press:

Information Disclosure and Presentation	Time
1. International Road Show (via virtual meeting)	10
2. Local Road Show (via virtual meeting)	17
3. Quarterly and Annual Analyst Meetings	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	3





Information Disclosure and Presentation	Time
6. Information session for investors via conference call	10
7. Information provided to investors LINE Official account, and phone call	5-7 (per day)
8. Press conference on the Company's operating results	2
9. Press release on the Company's performance and business strategies	17
10. Activities for the press and news release on Corporate Social Responsibility (CSR) Projects	38

The Company's information and news are also made available and equally accessible to all stakeholders on the Company's website: [www.banpu.com](http://www.banpu.com).

Interested parties may contact or make inquiries to the Company's Investor Relations

Telephone: +66 2694 6747

email: [investor\\_relations@banpu.co.th](mailto:investor_relations@banpu.co.th)

Line: @banpu-ir

Report of the Board of Directors

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. The Company always makes sure that an appropriate accounting policy is chosen and being carefully pursued on a regular basis. The Audit Committee and auditors jointly review the accounting policy related to preparation of financial statements to ensure that it remains practical. The Board of Directors emphasizes that the team in charge 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 Banpu's Annual Report.

The Board of Directors considered that the financial statements of the Company and its subsidiaries as of 31 December 2021 are accurate, complete, adequate, and reliable.

**Policy on the Uses of Internal Information**

Banpu places great importance on information disclosure and transparency and has established a policy and practice on information disclosure and transparency of financial statements under Banpu's Corporate Governance Policy. The Company also makes it a priority to disclose to shareholders, investors, securities analysts, and the general public the financial and non-financial information about the Company's businesses and operating results in an accurate, complete, adequate, reliable, and timely manner.

The Board of Directors is committed to strict compliance with laws and regulations relating to information disclosure and transparency. Sales or purchases of shares by any director or executive are duly reported to the SEC. Changes in shareholding

of the directors or executives are also subject to be reported to the Board of Directors' meeting on a monthly basis.

The Company has included preventive guidelines against leakage of internal information in the Code of Conduct under the section "Conflict of Interests and Keeping Confidential Corporate Information."

The Company considers that it is the responsibility of its directors, executives, and employees to strictly comply with the Policy on Uses of Internal Information, especially the internal information that has not been disclosed to the public or any data or information that may affect the Company's businesses or its share price. The directors shall follow guidelines stated in the Practices for the Board of Directors B.E. 2552 and the Code of Conduct as follows:

- Directors shall not use the information they receive through their directorship or employment for personal gain or for conducting business or other activities in competition with the Company.
- Directors shall refrain from using inside information in their possession for trading of the Company's shares or giving inside information to any third party for the purpose of their dealing in the shares of the Company.
- 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.
- The Company's directors and executives that match the definition given by the Securities and Exchange Commission (SEC), including any individuals obtaining insider information that significantly affect Company's share price, shall refrain from purchasing and selling the Company's shares during the blackout periods and shall follow the following practice:

- The Company's directors and executives (including their spouses and minor children not yet becoming sui juris), including individuals obtaining insider information that significantly affect Company's share price, shall refrain from trading the Company's shares one month before and until 24 hours after the financial statements or other information affecting the Company's share price are made public.
- Directors and executives that match the definition given by the SEC are required to report changes in holding of Banpu's securities to comply with the SEC's regulations.
- Apart from that, the Company stipulated in the Corporate Governance Policy that directors, executives, and employees must not exploit their relationship with the Company for personal gain, conduct business that competes with the Company, or carry out 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 transactions under the SET's notification, all rules, procedures, and the disclosure of connected information of listed companies must be strictly complied with. Besides, the Practices for the Board of Directors includes a set of guidelines for directors on handling of information not yet disclosed to the public and requires directors and executive officers to report their holding of the Company's shares in the Board of Directors' meetings on a monthly basis.





Regarding the development of an internal control system, the Company has deployed IT systems to safeguard the use of Company information such as the external access prevention system and the role-based access control system. In the case where an executive or employee participates in a special task involving information which is under negotiation and has yet to be publicly disclosed, or may be subject to internal control given its possible impact on the Company's share price, such executive or 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. According to the rule which applies to employees at all levels, any employee who fails to comply or violates the 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 2021, 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 holding 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 not yet becoming sui juris as well as connected persons, to the Board of Directors for acknowledgment.

## Principle 8

### Ensure Engagement and Communication with Shareholders

#### Shareholders' 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 in a format conducive to decision making. Shareholders are also entitled to attend a meeting, cast their votes at shareholders' meetings to deliberate 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 them with adequate, clear, and comprehensive information in a timely fashion. The Board encourages the shareholders to attend the meeting and cast their votes, or to appoint an individual or an independent director as their proxy in casting votes on their behalf in case they could not attend. Moreover, shareholders are allowed to equally express opinions, seek explanations, or pose questions.

The 2021 Annual General Meeting of Shareholders (AGM) was convened on 2 April 2021, at 13.30 hours at the Meeting Hall of Banpu's Head Office, 1550 New Petchburi Road, Makkasan, Ratchathewi, Bangkok, with full attendance of all 13 directors. In 2021, the Company assigned 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/](http://www.banpu.com/AGM_EGM/) 30 days prior to

the meeting date. The minutes of the 2021 AGM were 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 notified minority shareholders through SET 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 2020. The procedures and methods for considering proposals were clearly stated on the Company's website: [www.banpu.com/AGM\\_EGM/](http://www.banpu.com/AGM_EGM/). In the 2021 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 decision-making and to ensure that shareholders receive comprehensive and adequate information for decision-making in a timely fashion. 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 was attended by 13 directors, including the Chairman of the Audit Committee, the Chairman of the Corporate Governance and Nomination Committee, and the Chairman of the Compensation Committee. The management, the auditors, and independent observers from a law firm also attended the meeting.

The Chairman of the shareholders' meeting allowed every shareholder to review the Company's operations and submit questions on each agenda item. The Chairman also encouraged shareholders to voice their opinions and make inquiries about the Company's operations. In addition, the Board of

Directors had the minutes of the meeting prepared and released 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 2021 Annual General Meeting of Shareholders (AGM) was convened and live-streamed on 2 April 2021 at 13.00 hours at the Meeting Hall of Banpu's Head Office at 1550 Thanapoom Tower, New Petchburi Road, Makkasan, Ratchathewi, Bangkok. The 2021 AGM was attended by all 13 directors, 30 shareholders, and 753 proxies, bringing the total to 783 persons representing 2,068,147,982 shares, which accounted for 43.6678% of all voting shares.

#### Compliance with Other Corporate Governance Principles

Banpu acts in good faith to fully comply with the SEC's Corporate Governance Code of Listed Companies 2017, with some exceptions, of which the details and reasons are provided 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. The roles and duties of the chairman, which are clearly defined by the Board of Director, emphasize 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:**

The present 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 has clearly defined 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-committees 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 has clearly defined the roles and duties of the Sub-committees in the Charter, covering all aspects.

**4. The Board should appoint an external consultant to provide advice on approach and criteria for performance evaluation of the board at least once in every three years, and evaluation results should be disclosed in the annual report.**

**The Company's practice:**

Banpu conducts an annual performance evaluation of the full Board, sub-committees, and each individual director. The Corporate Governance and Nomination Committee has considered the issue and decided not to appoint an external consultant to facilitate the development of evaluation approach or to advise on the Board's performance evaluation criteria.

**5. The Board should set a clear office term for board members in the Corporate Governance Policy.**

**The Company's practice:**

Banpu prescribed that independent directors shall serve the term of office for nine years or no more than three consecutive terms. (The Practices for the Board of Directors of Banpu Public Company Limited, Article 6.2 Section 6. Term of Office and Retirement\*) Furthermore, Banpu set the directors' retirement age at 72 in the Corporate Governance Policy (Article 4.7 Directors' Retirement),

\* Effective from 19 December 2014.

**6. The Board should consider the qualifications of a person to be appointed as an "Independent Director," to ensure that the appointed director is truly independent and suitable for the Company's nature. An independent director should meet the qualifications required by the SEC and the SET at the minimum. Apart from that, the maximum office term for an independent director should not be longer than nine consecutive years from the date of the person's first directorship appointment. In the event of reappointment beyond the maximum tenure, the sound reasons for that decision should be provided by the Board.**

**The Company's practice:**

The Board has set more stringent requirements on qualifications of an independent director than the minimum requirements of the SEC and the SET, specifically in terms of the Company's shares held by an independent director. Besides, the Company prescribed that an independent director shall serve the term of office for a maximum continued period of nine years or no more than three consecutive terms. (Banpu Public Company Limited's Code of Conduct Article 6.2 Section 6. Term of Office and Retirement\*)

\* Effective from 19 December 2014

**7. The Board of Directors has considered and adopted the SEC's Corporate Governance Code for Listed Companies 2017 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 in 2021.**

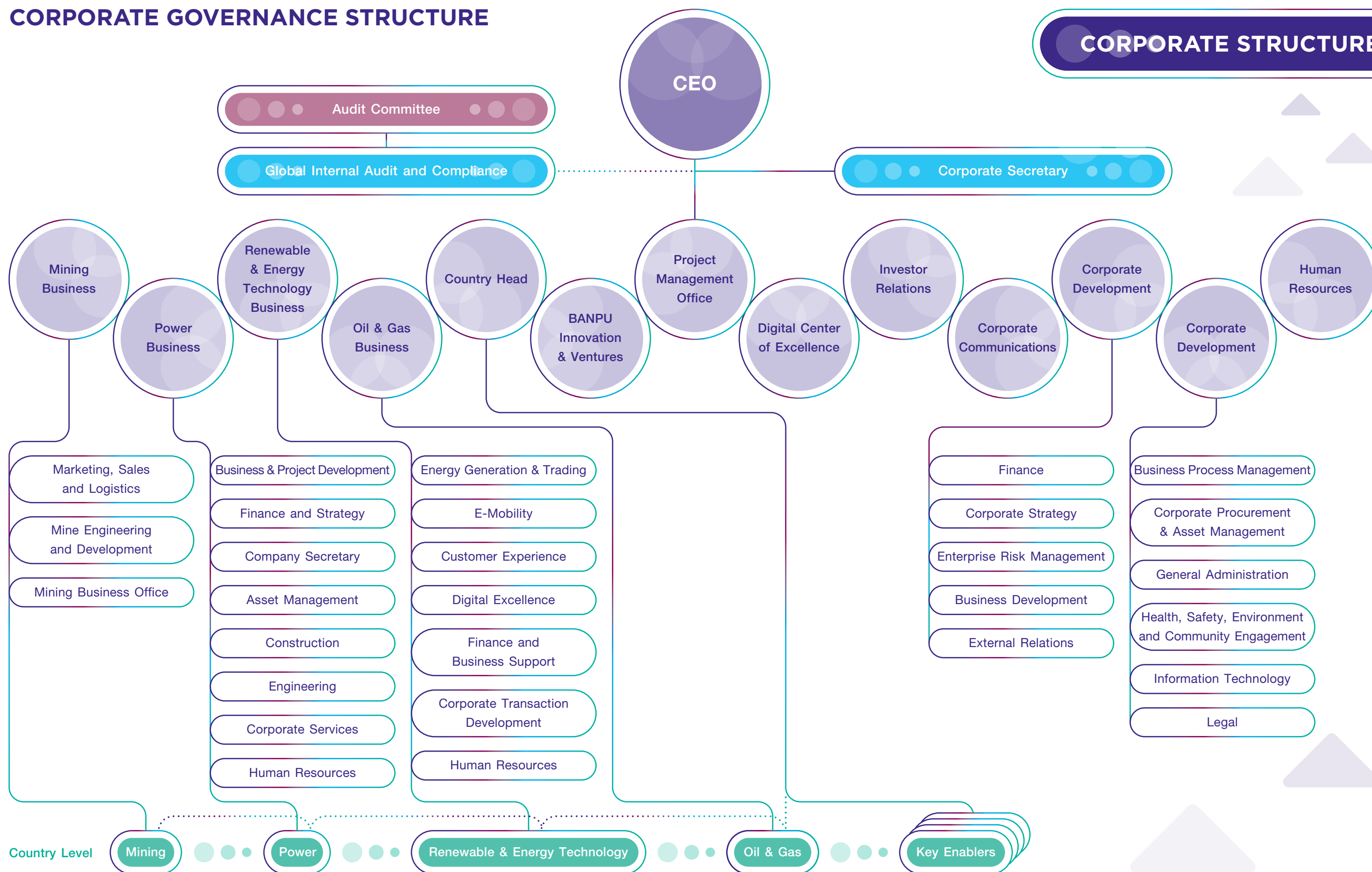
● ● ● Banpu strives to innovate power technology towards sustainability by conducting transparent and fair business to meet stakeholders' interests with strict adherence to good corporate governance and environmental and social responsibility to continuously and sustainably provide energy ● ● ●





# CORPORATE GOVERNANCE STRUCTURE

## CORPORATE STRUCTURE



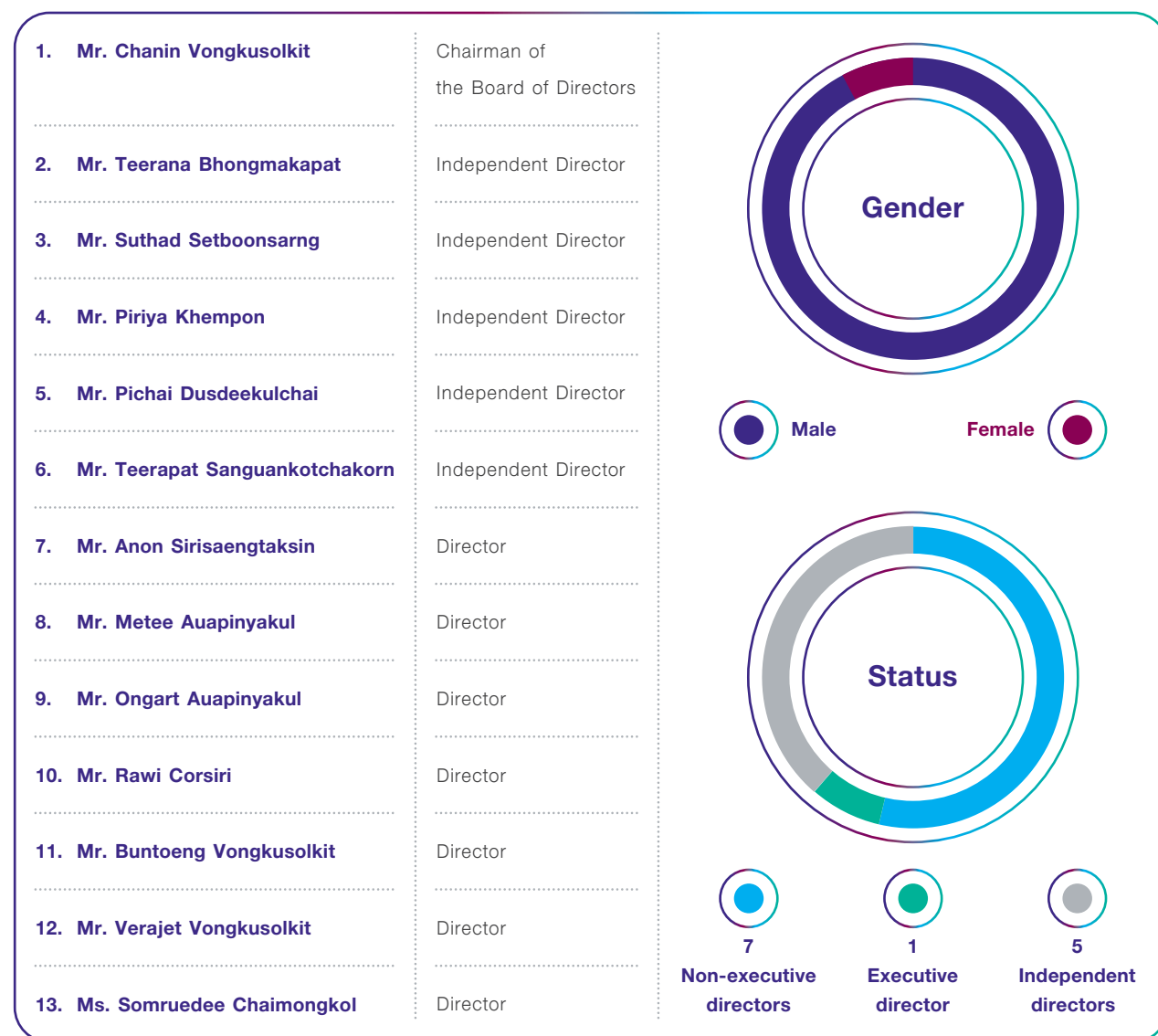




## Structure of the Board of Directors

The Board of Directors comprises directors who are widely recognized for their knowledge and competence. The Board takes a pivotal role in determining the Company's objectives and goals and works with executives in devising strategies and policies for short- and long-term operations. The Board also establishes financial policies, oversees risk management, governs the overall management, and annually reviews significant policies and plans. The duties of the Board also include overseeing, monitoring, and evaluating the performance of the Company and senior executives officers according to the plans.

### The Board of Directors consists of:



For additional information on "Details of Directors", please visit the Company's website.

By scan QR Code or pressing Click here.

## Board Composition

Banpu's structure of the Board of Directors as of 31 December 2021 consists of the Board of Directors and executive officers. The Board of Directors is composed of independent directors, non-executive directors, and executive directors. Among the 13 board members, 5 are independent directors, who account for 38% of the Board.

### Independent Directors, who Account for 38% of the Board

Are as follows:

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

All the five independent directors' qualifications meet the requirements stipulated in Banpu's Board of Directors' Practice, which are stricter than those of the Capital Market Supervisory Board.

To comply with good governance principles, the Company places importance on building the Board diversity using the Board skill matrix to cover skills, experiences, knowledge, and specialization that benefit the Company. The nomination and selection of directors do not discriminate on the grounds of gender, race, nationality, or religion to increase the opportunity to nominate the right candidates for the Company's strategy and business operations.

## Authorized Signatory Directors on Behalf of the Company

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

## Duties and Responsibilities of the Chairman of the Board of Directors

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

## Duties and Responsibilities of the Board of Directors

The Board of Directors is accountable to shareholders for the Company's business operations and its oversight of the Company's management to achieve its goals and maximize shareholders' interests. The Board also has a duty to ensure ethical conduct and benefits to all stakeholders.

The Board of Directors has to comply with the laws, the Company's objectives and regulations, and the shareholders' meeting's resolutions. It must





perform duties with integrity and must safeguard the 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 Act (No.5), B.E. 2559.

The Board formulated the “The Practices for the Board of Directors of Banpu Public Company Limited, B.E. 2552” as guidelines 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 in 2011, 2012, 2014, and 2017 to reflect changing responsibilities, business climates, and to enhance good corporate governance of the Board of Directors.

For complete information on “The Practices for the Board of Directors of Banpu Public Company Limited”, please visit the Company’s website. **By scan QR Code or pressing Click here.**



## Regulations Governing Directors Holding Positions in Other Companies

To ensure that directors will be able to dedicate adequate time to perform duties for the Company, Banpu requires directors to serve not more than five boards of listed firms, which is considered one of the qualifications of the directors (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). The Board also stipulated in Corporate Governance Policy on the regulations governing directors holding positions in other companies: “Holding directorship position in other company, other than group companies, CEO must get an approval from the Board of Directors”.

## Sub-committees

The Board of Directors set up four sub-committees, namely, the Audit Committee, the Corporate Governance and Nomination Committee, the Compensation Committee, and the Environment, Social and Governance (ESG) Committee. Charters of sub-committees were formulated to be used as guiding principles for each committee.

The Board suggests that the chairperson of each sub-committee should be an independent director. The chairpersons of the Audit Committee and the Environment, Social, and Governance (ESG) Committee are independent directors.

The term of office of these committees is three years, from May 2019 to the date of the Annual Shareholder’s Meeting in 2022.

## The Audit Committee

Consists of three independent directors.

1. <b>Mr. Teerana Bhongmakapat</b>	Chairman of the Committee
2. <b>Mr. Suthad Setboonsarng</b>	Member
3. <b>Mr. Pichai Dusdeekulchai</b>	Member

The Audit Committee has a duty to review the Company’s financial statements, its adequacy of internal control and risk management systems, derivative transactions and commodity hedging agreements, and compliance with applicable laws and regulations. The Audit Committee selects and determines the compensation for the Company’s auditors, reviews connected transactions or the transactions that may lead to conflicts of interests to ensure accuracy, completeness and transparency, and key risk management measures. The Committee also reviews and oversees compliance with Anti-corruption Policy and the Internal Control Department’s performance, budgets, and workforce.

The Audit Committee is chaired by Mr. Teerana Bhongmakapat. All committee members are knowledgeable and competent and have sufficient experience in accounting and finance for auditing the accuracy and creditability of the Company’s financial statements.

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 29 years of experience in managing and conducting professional internal audits in accordance with international standards. She is a Certified Public Accountant (CPA) with an excellent understanding of the Company’s operations.

For complete information on “The Audit Committee Charter”, please visit the Company’s website. **By scan QR Code or pressing Click here.**



## The Corporate Governance and Nomination Committee

Consists of four directors, namely one independent director and three non-executive directors.

1. <b>Mr. Rawi Corsiri</b>	Chairman of the Committee
2. <b>Mr. Piriya Khempon</b>	Member
3. <b>Mr. Anon Sirisaengtaksin</b>	Member
4. <b>Mr. Verajet Vongkusolkit</b>	Member

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.

Apart from that, the Corporate Governance and Nomination Committee provides suggestions for the Board of Directors about the method 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.

For complete information on “Corporate Governance and Nomination Committee Charter”, please visit the Company’s website. **By scan QR Code or pressing Click here.**



## The Compensation Committee

Consists of four members, namely three independent directors and one non-executive director.

1. <b>Mr. Buntoeng Vongkusolkit</b>	Chairman of the Committee
2. <b>Mr. Teerana Bhongmakapat</b>	Member
3. <b>Mr. Suthad Setboonsarng</b>	Member
4. <b>Mr. Teerapat Sanguankotchakorn</b>	Member



The Compensation Committee's duty is to provide suggestions regarding compensation management to the Board of Directors for approval or for submission to the shareholders' meeting, as the case may be, as follows: 1) To recommend guidelines on how to compensate, methods of compensation payments and other benefits to the Board of Directors, other committees appointed thereby and any other persons attending Board of Directors meeting and/or Subcommittee meeting. 2) To consider and recommend compensation amounts and other benefits by taking duties and responsibilities of the Chief Executive Officer into consideration and by reviewing evaluation criteria to determine the right annual remuneration. 3) To review a compensation structure, compensation rules and regulations as stated in Clause 1 and 2 to suit the person's duties and responsibilities, Banpu's operating results, and marketing conditions. And 4) To review overall budgets for a salary increase, annual bonus payments, and provisions of other staff's fringe benefits.

For complete information on "Compensation Committee Charter", please visit the Company's website. **By scan QR Code or pressing Click here.**



## The Environment, Social, and Governance (ESG) Committee

Consists of three independent directors.

1. <b>Mr. Piriya Khempon</b>	Chairman of the Committee
2. <b>Mr. Pichai Dusdeekulchai</b>	Member
3. <b>Mr. Teerapat Sanguankotchakorn</b>	Member

The Environment, Social and Governance (ESG) Committee is accountable to the Board of Directors for the oversight of ESG operations through 1) oversight of policies, management as well as targets and performance relating to ESG aspects, 2) review and monitoring of stakeholder engagement process and materiality assessment to ensure that all stakeholder expectations are identified and included in materiality assessment and are managed properly 3) review and monitoring the performance of ESG risk management and 4) oversight of the Company's ESG disclosure.

For complete information on "The Charter of the Environment, Social and Governance (ESG) Committee", please visit the Company's website.

**By scan QR Code or pressing Click here.**



## The Board of Directors' Meeting

The Board of Directors convenes at least once a month on the final week of every month except for February and December, in which the Board convenes on the second week. 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.

## Voting Procedure in the Board of Directors' Meeting

The Company prescribed the voting procedure in the Board of Directors' meeting 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, Re: Board of Directors, section 8.5, effective from 19 December 2014 onward).

## Non-executive Directors' Meetings

Non-executive directors' meeting without the presence of management was held on 13 November 2021, 10.00-12.00 hours, at the Bangkok Office, Banpu Public Company Limited. 11 non-executive directors convened a meeting on the following agenda items.

1. Senior Management Succession Plan
2. CEO Performance in 2021

## The Board of Directors' Meetings in 2021

The Company discloses the information and details of the Board of Directors' Meetings in 2021 on "The Board of Directors' Meeting" on page 267.

## Remuneration of the Board of Directors

The Board of Directors delegated the Compensation Committee to review the remuneration structure and system and the appropriate remuneration for the Company's directors and senior management. It is prescribed as a policy that remuneration must be appropriate to roles, duties, and responsibilities and competitive in the job market and business. Executive remuneration is determined based on individual performance to be an incentive for effective performance.

Remuneration of the Board of Directors consists of monthly salary and allowance for each meeting attended. Annual bonuses will be linked to the dividend paid out to shareholders, and the payment of the Board of Directors' remuneration must be approved by the shareholders' meeting.

In 2021, the shareholders' meeting determined remuneration for each committee in relation to remuneration for committees in other business groups. The remuneration for 2021 was increased by 33.33% from 2020, active from May 2021 onward, as shown in the table.



Details	Chairman	Vice-Chairman	Director/ Member
<b>1. Remuneration of the Board of Directors</b>			
1.1 Monthly Compensation (THB/month)	78,000	69,000	60,000
1.2 Meeting allowance for the Board of Directors paid for each meeting attendance (THB/meeting)	39,000	34,500	30,000
<b>2. Meeting allowance for the Audit Committee paid for each meeting attendance (THB/meeting)</b>	46,800	-	36,000
<b>3. Meeting allowance for the Corporate Governance and Nomination Committee, the Compensation Committee, and the Environment, Social and Governance (ESG) Committee paid for each meeting attendance (THB/meeting)</b>	39,000	-	30,000

## Remuneration in Cash for the Year Ended 31 December 2021

Total cash remuneration of the Board of Directors in the forms of monthly compensation, meeting allowance, and annual remuneration amounted to THB 31,139,895.12, the details of which are as follows.

Name / Position	Monthly Compensation and Meeting Allowance	Meeting Allowance (THB)				Annual Remuneration (THB)	Total Remuneration (THB)
	Director	Audit Committee	Corporate Governance and Nomination Committee	Compensation Committee	Environmental, Social and Governance (ESG) Committee		
<b>1. Mr. Chanin Vongkusolkrit</b> Chairman of the Board of Directors	1,355,250.00	-	-	-	-	1,466,165.41	2,821,415.41
<b>2. Mr. Teerana Bhongmakapat</b> Independent Director/ Chairman of the Audit Committee/ Member of the Compensation Committee	1,042,500.00	386,100.00	-	135,000.00	-	1,127,819.55	2,691,419.55
<b>3. Mr. Piriya Khempon</b> Independent Director/ Chairman of the Environment, Social and Governance (ESG) Committee/ Member of the Corporate Governance and Nomination Committee	1,042,500.00	-	255,000.00	-	117,000.00	845,864.66	2,260,364.66
<b>4. Mr. Rawi Corsiri</b> Director/Chairman of the Corporate Governance and Nomination Committee	1,042,500.00	-	331,500.00	-	-	1,127,819.55	2,501,819.55

Name / Position	Monthly Compensation and Meeting Allowance	Meeting Allowance (THB)				Annual Remuneration (THB)	Total Remuneration (THB)
	Director	Audit Committee	Corporate Governance and Nomination Committee	Compensation Committee	Environmental, Social and Governance (ESG) Committee		
<b>5. Mr. Buntoeng Vongkusolkrit</b> Director/ Chairman of the Compensation Committee	1,012,500.00	-	-	175,500.00	-	1,127,819.55	2,315,819.55
<b>6. Mr. Suthad Setboonsarng</b> Independent Director/ Member of the Audit Committee/ Member of the Compensation Committee	1,042,500.00	297,000.00	-	135,000.00	-	1,127,819.55	2,602,319.55
<b>7. Mr. Pichai Dusdeekulchai</b> Independent Director/ Member of the Audit Committee/ Member of the Environment, Social and Governance (ESG) Committee	1,042,500.00	297,000.00	-	-	90,000.00	1,127,819.55	2,557,319.55
<b>8. Mr. Teerapat Sanguankotchakorn</b> Independent Director/ Member of the Compensation Committee/ Member of the Environment, Social and Governance (ESG) Committee	1,042,500.00	-	-	135,000.00	90,000.00	1,127,819.55	2,395,319.55
<b>9. Mr. Anon Sirisaengtaksin</b> Director/ Member of the Corporate Governance and Nomination Committee	1,042,500.00	-	255,000.00	-	-	1,127,819.55	2,425,319.55
<b>10. Mr. Metee Auapinyakul</b> Director	1,042,500.00	-	-	-	-	1,127,819.55	2,170,319.55
<b>11. Mr. Ongart Auapinyakul</b> Director	1,042,500.00	-	-	-	-	1,127,819.55	2,170,319.55
<b>12. Mr. Verajet Vongkusolkrit</b> Director/ Member of the Corporate Governance and Nomination Committee	1,042,500.00	-	255,000.00	-	-	1,127,819.55	2,425,319.55
<b>13. Ms. Somruedee Chaimongkol</b> Director	675,000.00	-	-	-	-	1,127,819.55	1,802,819.55
<b>Total</b>							<b>31,139,895.12</b>

**Note:** In addition to the above remuneration, each director received other benefits, including an annual medical check-up fee of THB 50,000, and fees for attending seminars held by the Thai Institute of Directors Association (IOD) and other related institutions as regulated by the Company.



## Shareholding of the Board of Directors and Executives as of 31 December 2021

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 Executives as of 31 December 2021 is shown below.

Name	Ordinary Share		
	31 Dec 2021	31 Dec 2020	+/(−)
<b>1. Mr. Chanin Vongkusolkit</b>	<b>18,182,901</b>	<b>17,887,176</b>	<b>295,725</b>
Spouse/Minor Child	8,651,440	6,488,580	2,162,860
<b>2. Mr. Teerapat Sanguankotchakorn</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	-	-	-
<b>3. Mr. Teerana Bhongmakapat</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	-	-	-
<b>4. Mr. Rawi Corsiri</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	1,600,000	1,200,000	400,000
<b>5. Mr. Suthad Setboonsarng</b>	<b>280,250</b>	<b>210,188</b>	<b>70,062</b>
Spouse/Minor Child	-	-	-
<b>6. Mr. Pichai Dusdeekulchai</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	-	-	-
<b>7. Mr. Piriya Khempon</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	-	-	-
<b>8. Mr. Buntoeng Vongkusolkit</b>	<b>5,505,637</b>	<b>4,329,228</b>	<b>1,176,409</b>
Spouse/Minor Child	-	-	-
<b>9. Mr. Metee Auapinyakul</b>	<b>5,353,880</b>	<b>4,301,200</b>	<b>1,052,680</b>
Spouse/Minor Child	859,931	645,200	214,731
<b>10. Mr. Ongart Auapinyakul</b>	<b>1,224,146</b>	<b>5,595,200</b>	<b>(4,371,054)</b>
Spouse/Minor Child	3,200,000	2,700,000	500,000
<b>11. Mr. Verajet Vongkusolkit</b>	<b>10,751,720</b>	<b>8,008,209</b>	<b>2,743,511</b>
Spouse/Minor Child	320,837	238,970	81,867
<b>12. Mr. Anon Sirisaengtaksin</b>	<b>26,666</b>	<b>20,000</b>	<b>6,666</b>
Spouse/Minor Child	18,024	13,518	4,506
<b>13. Ms. Somruedee Chaimongkol</b>	<b>7,862,288</b>	<b>5,885,910</b>	<b>1,976,378</b>
Spouse/Minor Child	-	-	-

Name	Ordinary Share		
	31 Dec 2021	31 Dec 2020	+/(−)
<b>14. Mr. Somsak Sithinamsuwan</b>	<b>87,618</b>	<b>65,525</b>	<b>22,093</b>
Spouse/Minor Child	-	-	-
<b>15. Mr. Jirameth Achcha</b>	<b>90</b>	<b>90</b>	<b>-</b>
Spouse/Minor Child	30,967	23,097	7,870
<b>16. Mr. Sutee Sukruan</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	-	-	-
<b>17. Mr. Kirana Limpaphayom</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	-	-	-
<b>18. Ms. Arisara Sakulkarawek</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	-	-	-
<b>19. Mr. Thiti Mekavichai</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	80,278	30,000	50,278
<b>20. Mr. Varoj Limjaroon</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	-	-	-

## Senior Executives

### Banpu's Senior Executives Officers (As of 31 December 2021)

Consists of

<b>1. Ms. Somruedee Chaimongkol</b>	Chief Executive Officer
<b>2. Mr. Somsak Sithinamsuwan</b>	Head of Mining Business
<b>3. Mr. Kirana Limpaphayom</b>	Head of Power Business
<b>4. Mr. Thiti Mekavichai</b>	Head of Oil and Gas Business
<b>5. Mr. Sutee Sukruan</b>	Head of Corporate Development
<b>6. Ms. Arisara Sakulkarawek</b>	Chief Financial Officer



7. Mr. Varoj Limjaroorn	Head of Human Resources (Effective until 30 June 2021)
8. Mr. Wittapon Jawjit	Head of Human Resources (Effective from 1 July 2021)**
9. Mr. Jirameth Achcha	Head of Corporate Services

The above list of senior executives has qualifications as per the Definition of “Executives” in the Notification of Capital Market Supervisory Board TorChor 23/2551. They are entrusted with authority and duties to manage the Company’s operations according to the policy, strategy, and goals set by the Board of Directors, who approved the scope of authority and defined clear segregation of duties to ensure transparent and flexible operations.

**Note:**

\* The first four executives are senior executives descending from Chief Executive Officer in rank order.

\*\* Mr. Wittapon Jawjit was registered as company’s management with the Securities and Exchange Commission on 24 February 2022

## Duties and Authority of the Chief Executive Officer

The Board of Directors sets operational goals for the Chief Executive Officer and evaluates her performance every year. The CEO then evaluates the performance of executives and senior executives in descending rank order based on the goals and evaluation criteria linked with Banpu’s strategic plan and annual operating plan and uses this information to set appropriate compensation packages and incentives.

## Executive Remuneration Policy and Payment

The Company’s remuneration consists of monthly salaries, bonuses, and other forms of compensation, such as contribution to provident fund (excluding remuneration for some executives who are directors). Executive remuneration is rewarded in the forms of salaries and bonuses linked to the Company’s performance based on key performance indicators and individual achievement. In 2021, remuneration rewarded to executives amounted to THB 146,507,112.00.

Unit: THB	Number of Executives	Amount of Money
Salaries and Bonuses	8	142,302,150.00
Contribution to Provident Fund	8	4,204,962.00
<b>Total</b>		<b>146,507,112.00</b>

**Notes:**

- 2021: There were eight executives, namely 1) Ms. Somruedee Chaimongkol, 2) Mr. Somsak Sithinamsuwan, 3) Mr. Kirana Limpaphayom, 4) Mr. Sutee Sukruan, 5) Ms. Arisara Sakulkarawek, 6) Mr. Varoj Limjaroorn, 7) Mr. Jirameth Achcha, and 8) Mr. Thiti Mekavichai.

## Employees

**Banpu believes that “Employees” are valuable assets driving the Company’s business operations toward strong and sustainable growth.**

Therefore, the Company endeavors to put its employees at the heart of every process in human resource management. It also focuses on the management of a diverse workforce in terms of race, religion, language, culture, age, knowledge, perspective, and work experience in 10 countries where it operates. The Company leverages these strengths to add value, enhance its competitiveness, and create a happy, agile, and flexible workplace for all job positions in response to changing lifestyles.

Employees are promoted to create innovations in all dimensions to drive new businesses on a strong foundation to achieve long-term sustainability

## Total Number of Banpu’s and Its Subsidiaries’ Employees by Country As of 31 December 2021

**473**  
Thailand

**15**  
Vietnam

**2,384**  
Indonesia

**9**  
Singapore

**18**  
Japan

**943**  
China

**86**  
Mongolia

**1,556**  
Australia

**223**  
The United States of America



(Unit : People)



## Remuneration of Employees

In 2021, remuneration in cash paid to employees of Banpu and its subsidiaries in Thailand, China, Indonesia, Australia, Mongolia, Laos PDR, Singapore, Japan, Vietnam, and the United States, consists of monthly salary, bonuses, and other forms of compensation, such as contribution to provident fund, amounted to THB 11,343,281,699.35.

## Significant Labor Disputes Over the Past Three Years

– None –

## Human Resource Management

### “One Banpu, One Goal”: Uniting thousands of Banpu’s employees into “One” Banpu Heart

“**Banpu Heart**” is a corporate culture that unites over 6,000 Banpu employees of diverse backgrounds in 10 countries as “**One**” to mobilize Banpu transformation in alignment with its vision and business strategies. Banpu’s executives and employees all adhere to “**Banpu Heart**” to lead all operations in the same direction toward becoming the Asian energy company at the heart of innovation, technology, and sustainability. The corporate culture consists of three shared values as follows:

# BanpuHeart

**Passionate**  
Striving for the Future

**Innovative**  
New Ideas, New Solutions

**Committed**  
Success Is the Only Option

Pursue for Success

Transcend the Trend

Adhere to Integrity and Ethics

Can Do More

Ideate and Get Real

Synergize and Network

Be Agile and Change

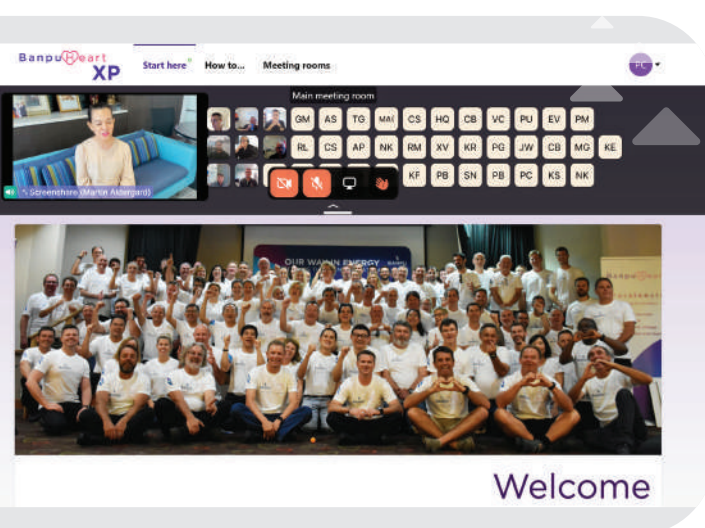
Learn Fast, Do First

Engage to Sustainability Development

Express Care and Share



The Company has incorporated “Banpu Heart” in all processes involved by its employees to strengthen and sustain the corporate culture. The processes include recruitment of new employees, orientation, performance evaluation, employee development, and job promotion.



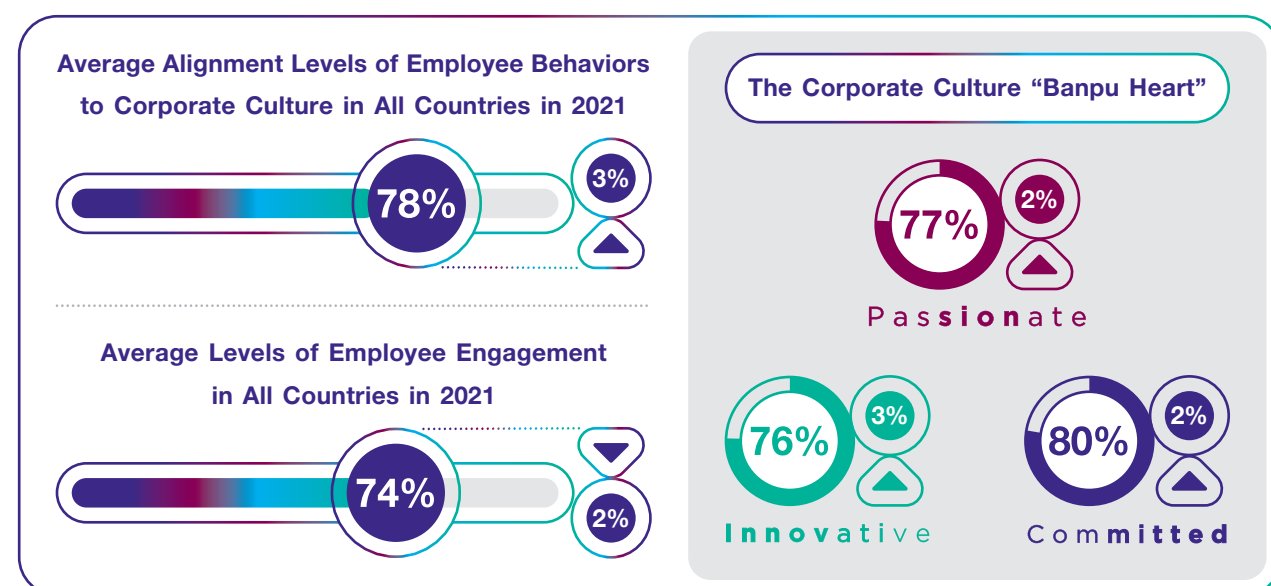




In 2021, the Company adjusted the activities to fit current working situations by focusing more on online activities, for instance, online new employee orientation, cultivating the corporate culture using gamification, and engaging employees in showcase presentation practice through a design thinking process. The Company also promoted understanding and applying of **“10 Key Banpu Heart’s Behaviors”** to enable agile working and align employees’ behaviors with Banpu’s business objectives through sharing of opinions and perspectives in order to ensure that the employees are sharing the same corporate culture.



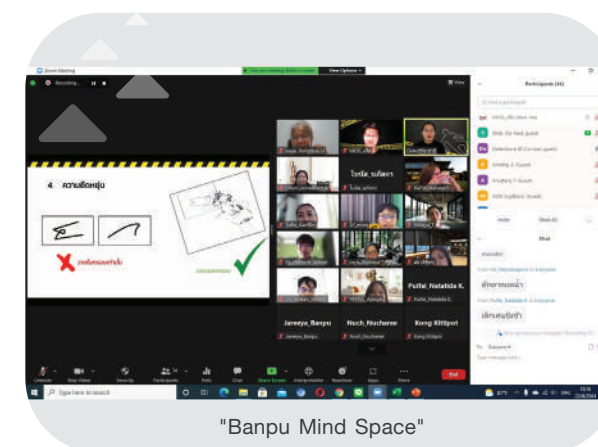
Apart from that, the Company annually surveys employee opinions on the corporate culture and employee engagement. In 2021, the Company conducted a survey on employee opinions on **Banpu Heart** to measure the levels of employee engagement and alignment of employee behaviors to the corporate culture reflecting **Banpu Heart** as employees are one of Banpu’s key stakeholders. The 2021 survey results are as follows:



## Banpu believes that “People” and “Open-Minded Society” lie at the heart of innovation.

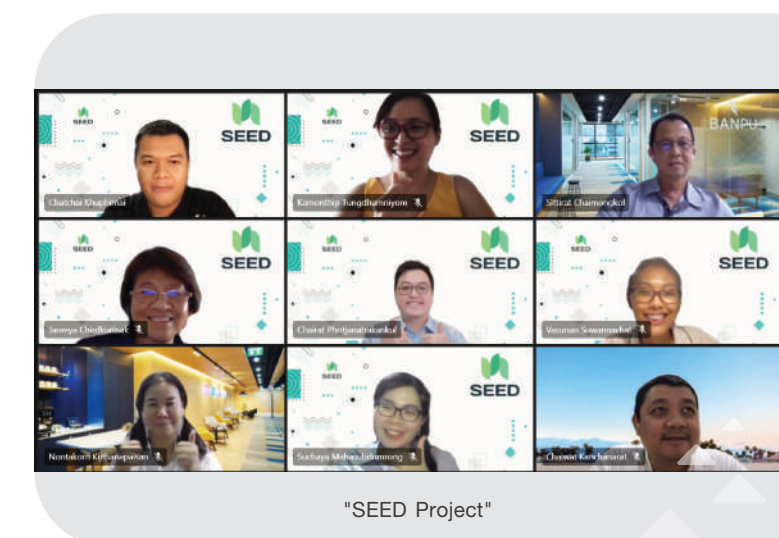


The Company places great importance on strengthening innovation culture. In 2021, the Company moved more activities online to accommodate changes and continued the seamless incubation of innovative behavior, aiming to promote being open to different perspectives and being fearless in trying new things to stimulate an innovative atmosphere in every corner at Banpu. For example, **Banpu Mind Space** Activity provides space for Banpu employees to share their innovative ideas, learn about the innovation development process, and receive feedback from other employees for project improvement.



Over the past decade, Banpu has promoted innovative thinking skills among employees and the actualization of innovative ideas to keep abreast of changes. Trusting in the power of creative and innovative thinking, Banpu focuses on cultivating and developing **“Innovation”** through agile working. Employees are encouraged to become more agile through job rotation, cross-functional working, cross-country working, and short-term and long-term overseas assignments.

In addition, the Company has continuously promoted various forms of inspiring sessions and knowledge-sharing activities and created an innovative work environment to encourage innovations from employees in every country. Employees can share their innovative ideas for smart working styles through the **“Wow Ideas”** project. Apart from that, the Company encourages employees to ideate and get real, and be bold to experiment and try new things through the **SEED Project**, an initiative co-hosted by Banpu and Digital Center of Excellence (DCOE). This project provides support for employees through the innovation development process from ideation to becoming a product owner. Products will be assessed along the state-gate process; minimum viable products must be tested for the validity in the market, with coaches available to provide guidance through the process. This project not only promotes innovation culture but also helps grow ideas into organizational innovations in the long run.





## ● ● ● “No matter what position you are in, what really matters is...where do you see yourself in the future ?” ● ● ●

To strengthen “One Banpu, One Goal”, Banpu endeavors to align human resource management with the corporate vision, and timely respond to changing business environments to mobilize the Company toward becoming a leading international versatile energy provider. Therefore, the Company promotes employee capacity building and the agile way of working to enable smooth operations and the development of new skills for cross-functional and cross-country working in all countries. In 2021, the Company implemented the human resource management strategy according to the employee value proposition principle as follows.

### 1. Continuous Employee Capacity Development in all Countries

#### People Capability Development Policy

In 2021, the Company not only organized basic training and development programs, but also designed training programs in the form of blended learning for executives and employees of all levels with support from leading consulting firms and management training institutes in Thailand and abroad. To align employee capacity building with the Flexible Workplace Policy, the Company organized upskilling and reskilling programs for employees in the form of self-paced online learning activities.

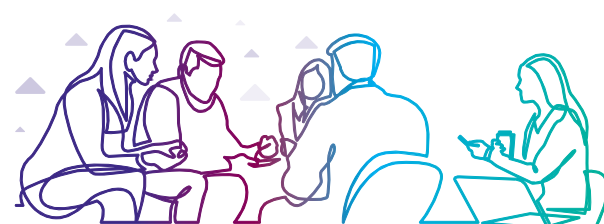
In addition, the Company strives to provide integrated employee development in all host countries to enhance competitiveness and facilitate rapid business growth in the future through a variety of programs. For instance, the Global Talent Pool program is implemented to improve the efficiency of talent development. The Company also devised a workforce strategy for systematic design of learning activities for

the Banpu Group’s companies through the Learning Solution Design (L&D) process and personalized intensive training program for critical positions. Moreover, the Company emphasizes measuring learning and development in terms of behavioral change in the workplace and return on investment (ROI) rather than measurement of satisfaction or survey of feedback for performance improvement in general.

In 2021, the executives and employees in Thailand have average training hours of 20 hours/person, and the training programs provided are as follows:

#### Selective Learning Program

Offers in-house and external training courses as well as short courses. Banpu has an explicit policy to earmark a budget for training at a minimum of 5% of the total yearly salary budget. Major selective learning programs carried out in 2021 were as follows:



- **Leadership skills**, for example, 7 Habits for Highly Effective People; enhancing business skills such as Energy Titan, negotiation skills, and coaching skills to unleash employee potentials. Employees are provided various learning activities suitable for current learning environment, both face-to-face classrooms and online courses with renowned institutions opportunities to efficiently equip them with essential skills.



- **Functional skills**, such as strategic thinking and planning, project management, business models workshop, and Banpu Group’s sustainability principles

#### Banpu Global Leadership Program

provides training for Banpu’s executives from all countries. The program aims to promote diversity and inclusion in the workplace and cross-functional networking to instigate international cooperation and collaboration, featuring such courses as self-development to enhance leadership skills, development of team leadership skills, and development of business leadership skills.



#### Succession Planning and High Potential Management

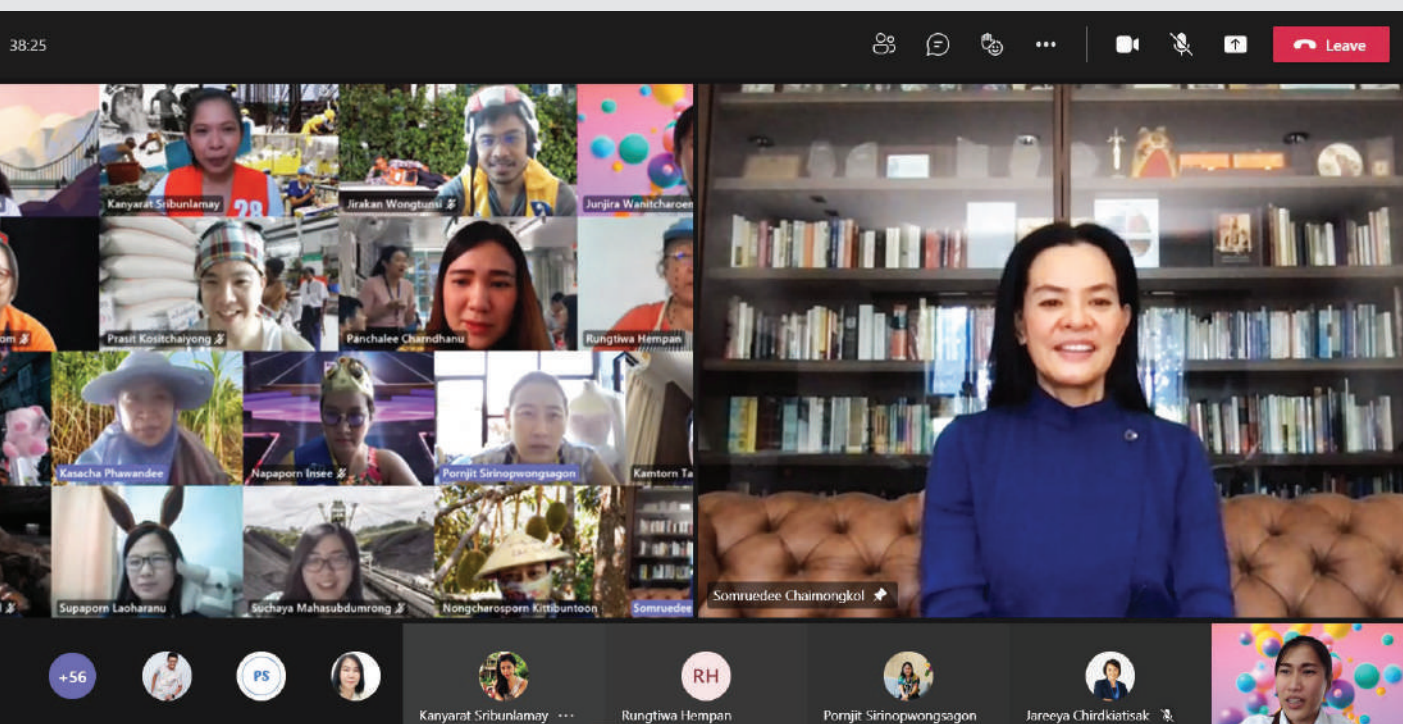
Banpu realizes the importance of the continuity of workforce planning and management to strongly accommodate a growing business. In 2021, Banpu’s Succession Planning Committee selected potential successors for senior executives positions and periodically reviewed and monitored the succession plan and potential development through assessment of competency, personality, and individual development programs (IDPs). The Company also monitored the progress according to the IDPs and recruitment of new employees and executives to fill the critical positions in each country to align succession planning with the Company’s business strategy.



The Company has identified the key and critical positions, created the key success profile of the key and critical positions, and continuously reviewed selection criteria to strengthen long-term succession management and improve agility in each business.

To prepare middle-level and higher-level executives for the management of employees and operations and their future leadership roles, the Company has a systematic candidate selection process. Candidates are assessed for their leadership capability and

leadership characteristics to help them realize their strengths and opportunities for improvement. The personalized learning program will also prepare them for their future roles. In addition, the Company empowers high potential candidates with business knowledge, analytical thinking and management skills through cross-functional and cross-country working as well as job rotation and monitors their progress against the personalized learning programs on a quarterly basis.



"Banpu Family Connect"

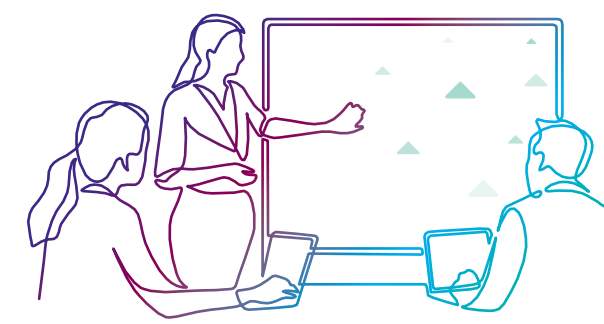
## 2. Supporting Agile Working with HR Management Technology to Unite Employees in all Countries under "One Banpu, One Goal"

### Global Human Resource Information System Project

One of the projects to promote agile working at Banpu is the development of a single source of employee information in all countries to enable easy access and efficient analytics for speedy human resource management and international operations. In 2021, the Company developed online working systems by connecting employees via Line and WeChat applications to enable agile working and keep employees well-informed of the situations. Moreover, the Company implemented the performance management framework based on objectives and key results (OKRs) at one of its subsidiaries to facilitate the new form of business which is highly flexible and agile. The COVID-19 vaccination data system is also deployed to provide real-time employee COVID-19 vaccination data in order to ensure efficient management of employee healthcare and timely response to changes.

### Effective Organization Structure

The Company realizes that the organizational structures with a flatter hierarchy promote the agile working style and facilitate quick business operations to achieve the greatest efficiency. In 2021, Banpu and its subsidiaries continued using a **Product-Based Organization Structure**, which had been reviewed and transformed from the previous structure. The current organizational structure, consisting of Energy Resources, Energy Generation, and Energy Technology, helps strengthen management and create synergies of businesses under Banpu Group across countries. It also supports long-term business growth and expands competitive advantage through decentralization, which allows the management of each business group in each country to quickly respond to their competitive environments with greater flexibility.





## Other important information

### The person assigned to Supervise Accounting

Ms. Arisara Sakulkarawek, Chief Financial Officer, was assigned to directly supervise the accounting of the Company. Details of the person directly supervising accounting are included under the section “Details of the Board of Directors and Management” in this report.

### 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 (No.5), B.E. 2559, an amendment of the Securities and Exchange Act B.E. 2535. The Company Secretary is responsible for organizing the Board of Directors' meetings and shareholders' meeting, ensuring compliance with the meetings' resolutions, and advising the Board on rules and regulations to which it must comply.

Additionally, the Company Secretary prepares and keeps the register of directors, Board meeting invitation letters, Board meeting minutes and Banpu's annual reports, invitation letters to attend the shareholders' meeting and records of its minutes, the report on conflict of interest by directors or executive officers and performs other duties as prescribed by the Office of the Securities and Exchange Commission, the Capital Market Supervisory Board, and the Stock Exchange of Thailand.

## Head of the Internal Audit Department

Ms. Wiyada Wiboonsirichai, Head of Global Internal Audit and Compliance, was appointed to supervise the Company's internal audit.

For further information on “Details of senior management, the person directly supervising accounting, Company Secretary and Head of Internal Control”, please visit the Company's website.

By scan QR Code or pressing Click here.



## Investor Relations

Investor Relations Department discloses information through the Company's website to ensure inclusive and equitable access to information for all stakeholders.

By scan QR Code or pressing Click here.



Interested parties may contact or make inquiries to the Company's Investor Relations by

Phone	+66 2 694 6747
Email	investor_relations@banpu.co.th
Line	@banpu-ir



## Audit Fees

The Audit Committee considered the selection of auditors based on Banpu's evaluation criteria, namely auditor independence as well as audit quality and standards, in accordance with the Stock Exchange of Thailand's requirements. The Audit Committee then proposed the appointment of auditors to the Board of Directors for approval.

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. Boonruang. Lertwisetwit	CPA , License No. 6552

The above individuals from PricewaterhouseCoopers ABAS Ltd. (PwC), which has a network of firms in many countries, were nominated as auditors of Banpu Public Company Limited in 2021 with the total audit fees of THB 2,780,000. The Board of Directors also acknowledged the audit fees of 109,005,109 for annual and quarterly consolidated financial statements of Banpu and its subsidiaries.

## Non-Audit Fees

In 2021, the Company had other fees of THB 196,637 which are expenses incurred during the service provided by PricewaterhouseCoopers ABAS Ltd. (PwC).



## 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 2021

Name	Ordinary Share		
	31 Dec 2021	31 Dec 2020	+ / (-)
<b>1. Mr. Chanin Vongkusolkrit</b>	<b>18,182,901</b>	<b>17,887,176</b>	<b>295,725</b>
Spouse/Minor Child	8,651,440	6,488,580	2,162,860
<b>2. Mr. Teerapat Sanguankotchakorn</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	-	-	-
<b>3. Mr. Teerana Bhongmakapat</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	-	-	-
<b>4. Mr. Rawi Corsiri</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	1,600,000	1,200,000	400,000
<b>5. Mr. Suthad Setboonsarng</b>	<b>280,250</b>	<b>210,188</b>	<b>70,062</b>
Spouse/Minor Child	-	-	-
<b>6. Mr. Pichai Dusdeekulchai</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	-	-	-
<b>7. Mr. Piriya Khempon</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	-	-	-
<b>8. Mr. Buntoeng Vongkusolkrit</b>	<b>5,505,637</b>	<b>4,329,228</b>	<b>1,176,409</b>
Spouse/Minor Child	-	-	-
<b>9. Mr. Metee Auapinyakul</b>	<b>5,353,880</b>	<b>4,301,200</b>	<b>1,052,680</b>
Spouse/Minor Child	859,931	645,200	214,731
<b>10. Mr. Ongart Auapinyakul</b>	<b>1,224,146</b>	<b>5,595,200</b>	<b>(4,371,054)</b>
Spouse/Minor Child	3,200,000	2,700,000	500,000



Name	Ordinary Share		
	31 Dec 2021	31 Dec 2020	+ / (-)
<b>11. Mr. Verajet Vongkusolkrit</b>	<b>10,751,720</b>	<b>8,008,209</b>	<b>2,743,511</b>
Spouse/Minor Child	320,837	238,970	81,867
<b>12. Mr. Anon Sirisaengtaksin</b>	<b>26,666</b>	<b>20,000</b>	<b>6,666</b>
Spouse/Minor Child	18,024	13,518	4,506
<b>13. Ms. Somruedee Chaimongkol</b>	<b>7,862,288</b>	<b>5,885,910</b>	<b>1,976,378</b>
Spouse/Minor Child	-	-	-
<b>14. Mr. Somsak Sithinamsuwan</b>	<b>87,618</b>	<b>65,525</b>	<b>22,093</b>
Spouse/Minor Child	-	-	-
<b>15. Mr. Jirameth Achcha</b>	<b>90</b>	<b>90</b>	<b>-</b>
Spouse/Minor Child	30,967	23,097	7,870
<b>16. Mr. Sutee Sukruan</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	-	-	-
<b>17. Mr. Kirana Limpaphayom</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	-	-	-
<b>18. Ms. Arisara Sakoongaravek</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	-	-	-
<b>19. Mr. Thiti Mekavichai</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	80,278	30,000	50,278
<b>20. Mr. Varoj Limjaroon</b>	<b>-</b>	<b>-</b>	<b>-</b>
Spouse/Minor Child	-	-	-



## CORPORATE GOVERNANCE PERFORMANCE



### Summary of the Performance of the Board of Directors in 2021

In 2021, the Board of Directors has a leading role in formulating policies and strategies to elevate competitiveness, cultivating the corporate culture and values, including enhancing the efficiency of governance and the adequacy of the internal control. The Board also supervised the Company's risk management and provided useful opinions on business development. The Board reviewed and adopted good governance principles prescribed in the Corporate Governance Code (CG Code) for Listed Companies 2017 of the Securities and Exchange Commission (SEC) as the Company's CG practices as follows:

1. The Board reviewed and amended the Corporate Governance Policy and Code of Conduct handbook by adding two topics:
  - Holding directorship position in other company of Chief Executive Officer.
  - Setting blackout period of securities trading and securities holding report of the board of directors and executives.
2. The Board established Personal Data Protection Policy as explicit guidelines, mechanisms, and measures for overseeing and managing personal data. The policy is enforced on individuals identifiable by personal data and/or any individuals disclosing their personal data to the Company, including the Board, executives and employees at all levels, partners as well as individuals participating in the activities involving personal data.

3. The Board reviewed the charter of the Audit Committee and the Corporate Governance and Nomination Committee to define the scope of duties in compliance with the SEC's CG Code for Listed Companies 2017 and ever-changing business conditions to enhance committee effectiveness.
4. The Board set up the Environment, Social, and Governance (ESG) Committee to be accountable for the Board in overseeing the issues relating to the environment, social, and governance.

Apart from that, the Company has established appropriate measures for the matters to which it does not yet apply to the business context in compliance with the good governance principles from the SEC's CG Code for Listed Companies 2017.

### Nomination, Development, and Performance Evaluation of the Board and Directors

The nomination, development, and performance evaluation of the Board of Directors are of great importance as the Board of Directors has a critical role in establishing the Company's strategy and business direction to drive sustainable growth. The Company has disclosed information as well as the criteria and procedures for the nomination of Board members under the section "Nomination of Directors and Senior Executives" on page 238 "Performance Evaluation of the Board and Directors" on page 238, and "Development of the Board Directors and the Executives" on page 240.

### The Board of Directors' Meeting

The Board of Directors convenes at least once a month on the final week of every month except for February and December, in which the Board convenes on the second week. Any additional meetings may be held if necessary. At the meeting, there are clear meeting agenda items. A complete set of supporting documents is submitted 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 such item must have 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 is the one who summarizes 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.

In this regard, the 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.





The Board of Directors' meetings in 2021 (1 January 2021 – 31 December 2021)

2021 Meeting Attendance																		
Name	Title	Terms of Office	The Board of Directors		Non-Executive Directors		The Audit Committee		The Corporate Governance and Nomination Committee		The Compensation Committee		The Environment, Social, and Governance (ESG) Committee		2021 Annual General Meeting of Shareholders (AGM)		Extraordinary General Meeting of Shareholders no.1/2021	
			Total 13 meetings		Total 1 meetings		Total 9 meetings		Total 9 meetings		Total 5 meetings		Total 3 meetings		Total 1 meetings		Total 1 meetings	
1. Mr. Chanin Vongkusolkit	Chairman/ Non-Executive Director (NED)	April 2019 - AGM 2022	13/13		1/1		-		-		-		-		1/1		1/1	
2. Mr. Teerana Bhongmakapat	Independent Director (ID)	April 2019 - AGM 2022	13/13		1/1		9/9		-		5/5		-		1/1		1/1	
3. Mr. Suthad Setboonsarng	Independent Director (ID)	April 2020 - AGM 2023	13/13		1/1		9/9		-		5/5		-		1/1		1/1	
4. Mr. Pichai Dusdeekulchai	Independent Director (ID)	June 2020 - AGM 2023	13/13		1/1		9/9		-		-		3/3		1/1		1/1	
5. Mr. Teerapat Sanguankotchakorn	Independent Director (ID)	April 2019 - AGM 2022	13/13		1/1		-		-		5/5		3/3		1/1		1/1	
6. Mr. Piriya Khempon	Independent Director (ID)	April 2019 - AGM 2022	13/13		1/1		-		9/9		-		3/3		1/1		1/1	
7. Mr. Metee Auapinyakul	Non-Executive Director (NED)	June 2020 - AGM 2023	13/13		1/1		-		-		-		-		1/1		1/1	
8. Mr. Ongart Auapinyakul	Non-Executive Director (NED)	April 2021 - AGM 2024	13/13		1/1		-		-		-		-		1/1		1/1	
9. Mr. Rawi Corsiri	Non-Executive Director (NED)	April 2019 - AGM 2022	13/13		1/1		-		9/9		-		-		1/1		1/1	
10. Mr. Verajet Vongkusolkit	Non-Executive Director (NED)	April 2021 - AGM 2024	13/13		1/1		-		9/9		-		-		1/1		1/1	
11. Mr. Buntoeng Vongkusolkit	Non-Executive Director (NED)	April 2021 - AGM 2024	12/13		0/1		-		-		5/5		-		1/1		1/1	
12. Mr. Anon Sirisaengtaksin	Non-Executive Director (NED)	June 2020 - AGM 2023	13/13		1/1		-		9/9		-		-		1/1		1/1	
13. Mrs. Somruedee Chaimongkol	Executive Director (ED)	April 2021 - AGM 2024	13/13		-		-		-		-		-		1/1		1/1	

Notes:

1. The 2021 Annual General Shareholders Meeting of Banpu Public Company Limited was convened on 2 April 2021.
2. The Extraordinary General Meeting of Shareholders no.1/2021 was convened on 9 August 2021.

Remuneration of the Board of Directors

The Board of Directors delegated the Compensation Committee to review the remuneration structure, system, and the appropriate remuneration for the Company's directors and senior management. It is prescribed as a policy that remuneration must be appropriate to roles, duties, and responsibilities and competitive in the job market and business. Executive remuneration is determined based on individual performance to be an incentive for effective performance.

Remuneration of the Board of Directors consists of monthly salary and allowance for each meeting attended. Annual bonuses will be linked to the dividend paid out to shareholders, and the payment of the Board of Directors' remuneration must be approved by the shareholders' meeting. The information is disclosed under the section "Remuneration of the Board of Directors" on page 267.

Corporate Governance of Subsidiaries and Affiliates

The Company has managed its subsidiaries and affiliates and devised business procedures to ensure operational effectiveness and proficiency, as follows:

Investment Policies by Banpu and Its Subsidiaries

1. The management shall study and assess preliminary findings by 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' significant policies. The Board of Directors also has the authority to approve the establishment of subsidiaries, as well as their dissolution as necessary to ensure the efficiency of Banpu's operations.

2. The Board of Directors considers and approves investment transactions that meet the criteria set by the SEC, such as connected transactions and acquisition or disposition 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 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 the laws and regulations of the SEC as well as the SET's notifications.
4. The subsidiaries shall submit reports on their performance and operations, particularly of their major businesses. They shall also conduct sensitivity analysis, evaluate it against set goals or benchmarks, and provide opinions or recommendations on business management of each subsidiary. These management reviews provide a basis for policy formulation and business management 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 assign the Global Internal Audit Unit to work independently by submitting an internal audit report directly to the Audit Committee. The department is also required to report on the progress of the internal audit to the Board of Directors on a quarterly basis.

Management within each subsidiary is determined based on the Company's investment equity. The Board of Directors has the responsibility for appointing an executive to serve as a director in each subsidiary to ensure that the business direction is in alignment with the Company's policies and strategies. Director selection is decided based on knowledge, relevant capabilities to the subsidiary, work location (in case of a foreign subsidiary), health and readiness of the director. Director positions in the Company'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 the Company's budget regulations. Budget preparation and review must be completed within the deadline, and the corresponding information must be submitted according to the Company'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.

## Corporate Governance and Compliance Monitoring

### Reporting of Interests of Directors and Executives

To comply with Clause 89/1/4 of the Securities and Exchange Act (No. 4) B.E. 2551 and the Notification of Capital Market Supervisory Board TorChor 2/2552, 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 every time.

### Anti-Corruption

In 2021, the Company's certificate of the Thai Private Sector Collective Action Against Corruption (CAC) was renewed for the second term. Anti-corruption implementation over the past year includes amendment of Anti-Corruption Policy to comply with the amended CAC's practice. In addition, the Company conducted the 2021 assessment of corruption risk and prevention measures, covering all businesses in every country where it has invested, both at its subsidiaries and joint ventures. The results were reported to the Risk Management Committee. The Company has continuously communicated and informed employees of the policies and practices to combat corruption,

for example, Corporate Governance Policy and the Code of Conduct, and the Anti-Corruption practice on accepting and offering of gifts, hospitality, or other similar forms of reward. Employees at all levels can access the policies through internal communication channels. In the past year, letters were sent out to the Board of Directors, executives, and employees to request adherence to the No Gift Policy.

### Use of Internal Information

In 2021, there were no reports of breach against or non-compliance with regulations of the SET and the SEC regarding insider trading and sales or purchases of securities.

In addition, the Board of Directors and executives had disclosed their ownership of the Company's securities on the date they were appointed. They also reported any changes in securities, including those of their spouses and minor children who are not sui juris as well as related persons, to the Board of Directors for acknowledgment as disclosed under the section "Policy on the Uses of Internal Information" on page 254.

### Receiving Complaints regarding Corporate Governance

The Company has provided communication channels and procedures for receiving complaints that cover all related stakeholders. The system to receive complaints has been established through the Company's website under the Corporate Governance section regarding the Whistleblowing. Complaints can be sent directly to the Chairman of the Corporate Governance and Nomination Committee at GNCchairman@banpu.co.th and/or the Secretary of the Corporate Governance and Nomination Committee at GNCsecretariat@banpu.co.th, who will quarterly report the complaints and grievances to the Corporate Governance and Nomination Committee and annually submit a summarized report to the Board of Directors. Details are disclosed under the section "Roles of Stakeholders" on page 245. In 2021, there were two complaints from stakeholders that were already addressed and resolved.

# REPORT OF THE CORPORATE GOVERNANCE AND NOMINATION COMMITTEE

The Corporate Governance and Nomination Committee consists of Mr. Rawi Corsiri, the Chairman of the Committee with Mr. Piriya Khempon, Mr. Anon Sirisaengtaksin, and Mr. Verajet Vongkusolkrit as directors. The Committee independently performs duties entrusted by the Board of Directors in compliance with principles and the charter of the Corporate Governance and Nomination Committee as well as good governance principles prescribed in the Corporate Governance Code for Listed Companies (CG Code) 2017 of the Securities and Exchange Commission (SEC).

In 2021, the Corporate Governance and Nomination Committee convened nine meetings with full attendance. The Corporate Governance and Nomination Committee summarized its performance in 2021 as follows:

## The Corporate Governance Mission

### 1. Amendment of the Corporate Governance Policy and the Code of Conduct

In 2021, the Board of Directors of Banpu Public Company Limited resolved to approve the amendment of the Corporate Governance Policy and the Code of Conduct to comply with the SEC's CG Code 2017 in order to achieve business goals and maintain ethical standards for the benefits of stakeholders, shareholders, the Company, and the society. In this amendment, two topics were added as follows:

- Holding directorship position in other company of Chief Executive Officer.
- Setting blackout period of securities trading and securities holding report of the board of directors and executives.

In this regard, the Corporate Governance and Nomination Committee monitored the implementation

of Banpu's Corporate Governance Policy and the Code of Conduct based on the survey results on employee attitude toward the corporate culture in 2021, using "Committed", which is one of the "Banpu Heart" corporate values, as an indicator. The survey results, which are classified by positions and work location, were satisfactory.

### 2. Promotion of Corporate Culture and Corporate Governance Attitude

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 2021, which yielded satisfactory results.

### 3. Receiving Complaints regarding Corporate Governance

Banpu has established a communication channel for receiving complaints regarding corporate governance, covering all groups of stakeholders, via the Company's





website under the Corporate Governance section regarding the Whistleblowing. Complaints can be sent directly to the Chairman of the Corporate Governance and Nomination Committee at GNCchairman@banpu.co.th and/or the Secretary of the Corporate Governance and Nomination Committee at GNCsecretariat@banpu.co.th, who will report the complaints and grievances to the Corporate Governance and Nomination Committee on a quarterly basis, and a summarized report will be submitted to the Board of Directors on an annual basis. In 2021, there were two complaints from stakeholders, and both were addressed and resolved.

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

The Corporate Governance and Nomination Committee reported the annual evaluation results to the Board of Directors' meeting. The Board of Directors' overall performance was satisfactory, with a score of 4.85 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 four sub-committees, namely, the Audit Committee, the Compensation Committee, the Corporate Governance and Nomination Committee, and the Environment, Social and Governance (ESG) Committee, received an "excellent" score range with an average score of 4.80 out of 5. Each sub-committee submitted its annual self-evaluation report to the Board of Directors as part of its 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 4.67 out of 5. The Board of 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 Planning for Senior Executive Officers

### Nomination of Directors Retired by Rotation in 2021

The Corporate Governance and Nomination Committee reviewed the qualifications and suitability of the directors who have served their 3-year term and proposed to the Board of Directors to re-nominate their names to the 2021 Annual General Meeting of Shareholders for consideration and approval. In the 2021 AGM, four directors re-elected by the shareholders were as follows:

1. Mr. Buntoeng Vongkusolkrit
2. Mr. Ongart Auapinyakul
3. Mr. Verajet Vongkusolkrit
4. Mrs. Somruedee Chaimongkol

After the Corporate Governance and Nomination Committee had reviewed the qualifications and suitability of the four directors, they agreed that the directors have appropriate qualifications and impressive performance. The Committee then

proposed their names to be nominated to the 2021 Annual General Meeting of Shareholders for consideration and approval of re-election according to the nomination process, which has been completed.

### Nomination of Director to Replace Retired Director

The Corporate Governance and Nomination Committee has considered the composition and structure of the Board of Directors, and updated the Board's Skills Matrix to be consistent with the Company's current strategy and business direction. The Committee also selected candidates to replace Mr. Rawi Corsiri, the director reaching retirement age on the date of the 2022 Annual General Meeting of Shareholders according to nomination process and timeline. The candidate will be proposed for the Board's approval; the Board will then nominate the candidate to the 2022 Annual General Meeting of Shareholders for approval.

### Succession Plan for Senior Executive Officers

In 2021, the Corporate Governance and Nomination Committee received eight progress reports on the succession plan and reported the succession plan to the Board of Directors.

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 of four members: three are independent directors, and one is a non-executive director, who were appointed by the Board of Directors according to knowledge, competence, skills, and experience in Thailand and abroad.

The Compensation Committee consists of Mr. Buntoeng Vongkusolkrit, the Chairman of the Compensation Committee, and other three members, Dr. Teerana Bhongmakapat, Dr. Suthad Setboonsarng, and Dr. 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 of Chief Executive Officer, including annual remuneration, and consider the overall budget for an annual salary increase, bonuses as well as other benefits for employees.
- To review and recommend the amendment of the scope of work, duties, and responsibilities of the Compensation Committee in response to changing circumstances and determine criteria for consideration of remuneration execution appropriately.
- To submit a report on the Compensation Committee's performance to the Board of Directors at least once a year.

In 2021, the Compensation Committee convened five meetings, comprising all regular agendas, in which the Committee considered the agenda proposed by the Secretary of the Committee. The Committee also provided recommendations to the Board of Directors for consideration and approval.

During the spread of Coronavirus 2019 (COVID-19), the means for the Committee's meetings had been adjusted as appropriate, either through physical meetings or e-meetings. The meetings in 2021 can be summarized as follows:

### 1. Remuneration and Other Benefits

In 2021, 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 their duties, responsibilities, and performances 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 deliberations 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 duties at their full capacity to create benefits and added value for the Company and shareholders over the following years.

Given the economic recovery, positive estimated operating results in 2021, and a significant increase in coal and gas prices in the global market, the Compensation Committee proposed the remuneration increase for the Board of Directors and sub-committees, namely the Audit Committee, the Compensation Committee, and the Corporate Governance and Nomination Committee. The retainer fee and attendance fees are paid at the same rate as in 2019, or a 33% increase from last year, effective from the date after the 2021 Annual General Meeting of Shareholders. The increased remuneration also applies to the remuneration of the Environment, Social, and Governance (ESG) Committee, a new sub-committee established in 2021.

### 2. Business Directions of the Company

In 2021, the Compensation Committee participated in determining the Company's business operations to actualize practical results. The Committee considered and provided suggestions on the Chief Executive Officer's key performance indicators in 2021, which appropriately reflected the Company's short- and long-term business directions and could be put into practice for the benefits of internal and external stakeholders. Apart from that, the Committee considered the Chief Executive Officer's performance in the first half and second half of 2021 and provided recommendations on the matter to the Board of Directors.

### 3. Collaboration with Employees and the Management

In performing its duties, the Compensation Committee regularly invited executives to attend the meetings on related agendas to provide information and detailed explanations to support its deliberations. The practice not only contributed to accurate, precise, and timely decisions but also built good rapport between the Compensation Committee and the Company's management, enabling smooth and aligned operations of both parties.

The Compensation Committee also performed a self-evaluation of its performance over the past year regarding its qualifications, duties and responsibilities, meetings, and reporting. The evaluation results were reported to the Board of Directors together with evaluation results of other sub-committees.

In conclusion, the Compensation Committee, in 2021, fully 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.

**Mr. Buntoeng Vongkusolkrit**  
Chairman of the Compensation Committee  
Banpu Public Company Limited



# 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 having diverse expertise and experience in accounting, finance and banking, business management, and economics, namely Mr. Teerana Bhongmakapat, as Chairman of the Audit Committee, Mr. Suthad Setboonsarng, and Mr. Pichai Dusdeekulchai, as committee members. Ms. Wiyada Wiboonsirichai, Head of Global Internal Audit and Compliance, is the Secretary of the Audit Committee.

The Audit Committee performs its duties with independence within the scope and responsibilities delegated by the Board as stipulated in the Audit Committee Charter, which has been reviewed to comply with the regulations of the Securities and Exchange Commission (SEC) and the Stock Exchange of Thailand (SET), best practice guidelines, and good corporate governance. The Audit Committee strictly complies with local and international laws and regulations relevant to business operations, the Anti-Corruption Policy, and the Personal Data Protection Act (PDPA). In addition, the Committee has an effective and efficient internal control system and sufficient appropriate internal auditing to support the Company to achieve its goals and sustainable business operations.

In 2021, the Audit Committee convened nine meetings with full attendance of all members. The meetings were participated by executives, the Global Internal Audit Department, and external auditors in related agenda. The Audit Committee also held a closed meeting session with the external auditors without the presence of management. The results of Audit Committee meetings are quarterly reported to the

Board of Directors. The Audit Committee's main activities can be summarized as follows:

### 1. Review of Financial Statements

The Audit Committee reviewed Banpu's quarterly financial information and the 2021 financial statements on key matters, including related-party transactions, the transactions with a possible conflict of interest, and the appropriateness of accounting policies together with related management and external auditors. Disclosure of key audit matters in the auditor's report was also reviewed based on such criteria as the reliability of accounting estimates, assumptions which require judgment by the management as well as the impact of changes in financial reporting standards. Financial statements have to be accurate, reliable, and beneficial to the users of the financial statements. The Audit the Committee has an unqualified opinion that the Company's financial statements were prepared in accordance with applicable laws and Thai Financial Reporting Standards (TFRS), which are aligned with International Financial Reporting Standards (IFRS); thus, they are accurate and reliable with adequate and timely information disclosure for the benefit of investors and users of the financial statements.

### 2. Review of Internal Control and Internal Audit

The Audit Committee together with the Global Internal Audit Department, reviewed the internal audit concerning operation, resource utilization, asset protection, prevention or reduction of errors, damages, corruption, the creditability of financial statements, and legal compliance. The Audit Committee also

drove the improvement of connected processes of risk management, internal control, and legal compliance focusing on raising awareness among employees according to the processes to ensure prudent and judicious internal control. The Audit Committee supported the management in overseeing IT governance to achieve continuous improvement and ensure cybersecurity to boost confidence in the Company's potential. According to the internal control review results using the Internal Control Sufficiency Evaluation Form developed by Thailand's Securities and Exchange Commission (SEC), no significant issues or shortcomings were detected. The Audit Committee is confident that Banpu has sufficient and appropriate internal control for effective business management and operations.

The Audit Committee supervised internal audits by reviewing and approving the strategic plan of the Global Internal Audit Department, annual audit plan, reviewing audit results, and monitoring corrective actions on material issues. The Audit Committee also promoted staff development to enhance knowledge and capabilities in order to improve efficiency and standard of internal audit with an aim to raise internal control standards in terms of public confidence and consultation. In addition, the Committee supported using data analytics and digital technology to boost the efficiency and effectiveness of internal audits. During the COVID-19 pandemic, the internal audit adopted remote auditing and deployed data analytics before conducting an audit to improve the audit efficiency. Part of the results was also used as input for consulting services to create added value for the business, such as how to reduce costs and improve productivity for the Company and related units.

### 3. Review of Legal Compliance

The Audit Committee reviewed Banpu group's compliance with laws and regulations relevant to its businesses. The Corporate Compliance Department is

responsible for promoting and monitoring compliance performance to ensure full compliance with applicable laws and regulations and reporting the results to the Audit Committee. The Company improved the group's compliance documents with practices enforced in all countries based on the Three Lines Model for risk management to provide guidance and raise awareness of compliance process among business units. The Company also extended activity-based compliance to cover the high-level and end-to-end compliance processes.

In 2021, the Company improved the corporate risk management system and the supervision of legal compliance by deploying computer's software programs and digital tools to enhance the capability of risk monitoring activities to enable various reporting according to the diverse needs of operators and the management. The work system and applications were developed by Banpu's internal units, for instance, the Corporate Compliance Department, Compliance Units from each country, Digital Center of Excellence (DCOE), and IT units to ensure an appropriate and prompt response to the situation and support the management's decision-making.

- **Regulatory Change Management** through the Laws in Hand (LIH) system supports the management of changes in laws, rules, and regulations of the government sector and relevant government agencies. It is used to communicate legal and regulatory updates and trends in the countries where the Company has invested, which enables effective and timely responses.
- **Permit & License Monitoring Dashboard** supports risk management and monitoring of the management of permits and licenses to ensure legal compliance as well as to track and report compliance performance according to the needs of operating employees and the management in a timely and appropriate manner.



- **Compliance Self-Assessment Application** is used to ensure effective assessment of compliance of each unit's activities with applicable laws, rules, and regulations of the government sector and relevant government agencies.
- **Compliance Risk Management (C-RiM Application)** enables the procedure of reporting and monitoring risk assessment according to the needs of employees and the management that is timely, appropriate to the situation, and meet the needs of the government sector and relevant government agencies.

Apart from that, Banpu has prepared for compliance with the Personal Data Protection Act (PDPA) in Thailand and applicable laws in other countries. The Company established policies and practices, set up a working committee, appointed data protection officers, and created a data inventory in every business unit. It also communicated about the PDPA, use and collection of personal data, data loss prevention system, and coordination with government authorities to ensure that all executives and employees understand, realize the importance, and strictly comply with the act.

#### 4. Good Corporate Governance

The Audit Committee reviewed ethical business conduct, effectiveness, and efficiency of good corporate governance of the Board of directors, the management, and employees. Besides, the Board of directors and the management are expected to act as role models. After reviewing related party transactions or the transactions that may cause conflicts of interest between Banpu, its subsidiaries, and connected persons, the Audit Committee agreed that those transactions were carried out under general commercial conditions. They were reasonable and beneficial to the Company's operations and complied with the SEC's and SET's rules and regulations. The Company is also committed to ethical and transparent business operations under good corporate governance principles and the Code

of Conduct. It has promoted strict compliance with the Anti-corruption Policy and the Corporate Fraud Management Policy. The Company has established whistleblower channels for receiving complaints or reports of corruption and entrusted the Investigation Committee to investigate corruption or suspicious acts of corruption through a procedure that is fair to all parties.

#### 5. Oversight of Risk Management System

The Audit Committee quarterly reviewed the efficiency and effectiveness of the risk management based on the report of the Enterprise Risk Management Department. The Committee assessed and monitored material risks that might threaten the Company's business operations and preventive measures for risk management to company's risk appetite as well as new businesses into which the Company has expanded investment. Risk factors might stem from changing situations and business environment, including risks in such areas as strategy, operations, finance, legal compliance, information technology, corruption, reputation, and risk of non-compliance with the Personal Data Protection Act (PDPA). The Enterprise Risk Management Department has monitored key risk management, preventive measures, situations that might impact the business, with emphasis on systematic risk management in response to rapidly-changing situations and trends.

The Company has prioritized material issues related to Environmental, Social, and Governance (ESG) principles and strategic planning as well as preparation for global change. It has established an ESG framework and conducted an ESG risk assessment for both short and long terms. The Company focuses on such environmental risks as greenhouse gas emissions, water management, and air pollution management. Regarding social risks, the Company stresses employee management and capacity building, occupational health and safety management, community relations, and community development.

In terms of governance, the Company emphasizes sustainable corporate governance, ethical business conduct, supplier and contractor management, business continuity management, personal data management, as well as cybersecurity. In 2021, the Company established the Environmental, Social, and Governance (ESG) Committee to oversee material ESG issues, advise on related strategies, review and monitor ESG performance, and perform other duties together with the management to drive the ESG strategy and operations toward achieving sustainable business goals.

#### 6. Appointment of External Auditors and Determination of the Audit Fee for 2022

The Audit Committee considered the selection of external auditors based on Banpu's evaluation criteria, including experience, knowledge, experience, independence, timeliness, and reasonableness of audit fees, as well as required qualifications according to the Stock Exchange of Thailand (SET) regulations. The Audit Committee proposed the appointment of auditors to the Board of Directors for shareholders' approval. The following individuals 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. Boonrueng Lerdwiseswit,  
CPA License No. 6552.

One of the individuals on this list shall conduct an audit and express an opinion on Banpu's financial statements on behalf of PricewaterhouseCoopers ABAS Ltd. (PwC). In case any of these CPA auditors cannot perform the duties, PricewaterhouseCoopers ABAS Ltd. (PwC) shall appoint any of its CPAs as a substitute. The total audit fee for Banpu was proposed at THB 2,780,000.

In summary, in 2021, the Audit Committee fully performed its delegated duties and responsibilities with prudence and independence for the equitable benefit of stakeholders. The Committee maintained its opinion that Banpu is committed to good corporate governance policy and has an appropriate risk management system in compliance with relevant laws and regulations. In addition, Banpu has efficient internal control and internal audit systems that safeguard and create sustainable added value and business growth. The Company's financial statements are accurate and reliable with adequate information disclosure, in accordance with the Generally Accepted Accounting Principles.

21 February 2022  
On behalf of the Audit Committee

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



# REPORT OF THE ENVIRONMENT, SOCIAL, AND GOVERNANCE COMMITTEE

The Environment, Social, and Governance Committee of Banpu Public Company Limited consists of qualified directors in terms of knowledge, competence, skills, and experience in Thailand and abroad, namely Mr. Piriya Khempon, Chairman of the Committee, Mr. Pichai Dusdeekulchai, and Dr. Teerapat Sanguankotchakorn. The Committee independently performs duties to the best of its ability as entrusted by the Board of Directors in compliance with principles and the Charter of the Environment, Social, and Governance Committee.

In 2021, the Environment, Social, and Governance Committee convened three meetings with full attendance. Due to the widespread Covid-19 outbreak, the Committee meetings were held online, with the management attending on related agenda items. The Committee summarized its performance as follows:

## 1. Consideration and Review of Policies, Targets, Implementation, and Performance Related to Environmental, Social, and Governance (ESG)

The Committee considered and reviewed targets, implementation, and performance related to environmental, social, and governance, for instance, GHG emissions reduction targets, water utilization, and air quality. In addition, the Committee made recommendations for the alignment between corporate targets and international standards, such as the United Nations Sustainable Development Goals (UNSDGs) and Dow Jones Sustainability Indices.

## 2. Review and Monitoring of Environmental, Social, and Governance Risk Management

The Committee's quarterly meetings include the important agenda item on reporting environmental, social, and governance risk situations by the Risk Management Department. The Committee monitors risk management and relevant mitigation actions to ensure that the Company can timely respond to situations with the least impact on its operations. In the past year, the Committee considered material environmental, social, and governance risks, such as impacts of the COVID-19 pandemic, cyberthreats, and regulatory and policy changes in countries where Banpu operates arising from changing environmental situations, such as climate change and air pollution.

## 3. Review and Monitoring of Stakeholder Engagement and Materiality Assessment Processes

Each year, the Sustainability Committee considers the stakeholder engagement and materiality assessment processes. After that, the Environment, Social, and Governance Committee will review the processes and their results to ensure that Banpu has effective sustainability operations which appropriately respond to each stakeholder group. Over the past year, the ESG issues that are stakeholders' top concerns are occupational health and safety, human resources development, corporate culture, community engagement, and greenhouse gas emissions.

## 4. Consideration and Review of ESG Information Disclosure to the Public

In 2021, Mr. Piriya Khempon, the Chairman of the Committee, gave a press interview on the establishment of the Environment, Social, and Governance Committee of Banpu Public Company Limited, reflecting the Company's determination to have independent directors accountable for ESG governance and work with the management to steer the business in the right direction. This will enable the Company to substantially achieve the Sustainable Development Goals for the best benefits of the Company and all stakeholders in both short and long terms.

10 February 2022

On behalf of the Environment, Social, and Governance Committee

**Mr. Piriya Khempon**  
Chairman of the Environment,  
Social, and Governance Committee  
Banpu Public Company Limited





## INTERNAL CONTROL

Banpu has an effective internal control system which is in accordance with the Committee of Sponsoring Organizations of the Treadway Commission (COSO) framework, enabling the Company to effectively and efficiently achieve its strategic and operational goals. COSO framework helps ensure reliability of the Company's financial statements and other important reports, legal compliance, and social responsibility. The Company promotes awareness among its executives and employees of the importance of good corporate governance, risk management, and appropriate internal controls at the corporate, department, and activity levels. It also promotes anti-corruption measures while putting in place strict procedures to drive Company toward the achievement of its objectives, mission, and strategies as well as sustainable growth in line with the Environmental, Social, Governance (ESG) principles. With all of these practices and transparent business conduct, the Company is able to safeguard stakeholders' interests.

In 2021, amidst the ongoing coronavirus COVID-19 pandemic globally, the Company had adjusted its investment direction and management approach toward the Greener & Smarter strategy with an emphasis on eco-friendly businesses and expansion of investments into different regions. The Company and its subsidiaries have a sufficient and appropriate internal control system and an auditing system that deploys advanced technology to enable timely and efficient monitoring and support of the management and operation. The Company's Global Internal Audit Department is responsible for auditing, providing consultation, and monitoring the management through remote and agile auditing by deploying data analytics and digital technologies to identify anomalies or red flags. The Department and units involved revisited insights from the analysis to find ways to improve cost-effectiveness and resource utilization efficiency as well as to enhance readiness for business expansion and investment.

At the Board of Directors' meeting held on 26 January 2022, the Board evaluated the sufficiency of the Company's internal control system based on the Security Exchange Commission (SEC)'s evaluation form, which was prepared by the management and reviewed by the Audit Committee. The overall evaluation results suggested that the Company had an adequate, appropriate, and efficient internal control system as well as risk management measures that are of international standards enforced at both corporate and activity levels. This helped affirm that the Company is set to achieve its predefined goals. The five key components of the internal control system can be summarized as follows:

### 1. Corporate Internal Control

Banpu promotes its transparency and culture of integrity and ethical conduct while aligning its business operations with the Company's vision, mission, and the Greener & Smarter Strategy. The Company also fosters an efficient and effective control environment to drive business operations and risk management toward sustainability by taking the following key actions.

The Company restructured its organization by shifting from a "geography-based approach" to a "product-based approach" while maintaining a holistic approach in management and focusing on building business growth through diversification. In 2021, the Company adjusted the structure of its departmental management to accommodate business growth and align with its business direction by establishing a clear chain of command with segregation of duties and responsibilities and application of key performance indicators (KPIs) for performance assessment. The Company has also established a Delegation of Authority in which the authority for transactions is cascaded from senior management to lower levels according to the organization's structure. Types of business transactions and approval limits are defined in writing to facilitate checks and balances while ensuring that management and operations are effective, agile, appropriate, and fit conditions for growing business quickly. Policies and procedures have been formulated to cover all businesses and new projects and are subject to regular review and update to ensure efficient operations and relevance with changing working environment both internally and externally.

With a commitment to integrity and transparency, Banpu adheres to the principles of good corporate governance and code of conduct. The Company has the Corporate Fraud Management Policy and whistleblower channels. The Investigation Committee is responsible for the investigation of corruption or suspected cases. In 2021, the Company amended its Anti-corruption Policy to align with the declaration of intent of the Thai Private Sector Collective Action Against Corruption (CAC) which aimed at putting the principles into practice. Announcement on updates to the policy was made to ensure employees' understanding and compliance with the policy. Apart from that, the Company focuses on promoting employees' understanding and realization of the corporate culture, "Banpu Heart," while moving toward a secure and sustainable future on the basis of the ESG principles. This should strengthen the Company's position as a leading international versatile energy provider driven by the Greener & Smarter strategy where eco-friendly businesses are priority.

### 2. Risk Assessment

The Company puts a high priority on risk management amid changes caused by both internal and external factors. It is always prepared for situations that may affect its business activities at the department, business unit, and corporate levels. Risk management is regarded as a critical component of every business process with which all employees shall comply.

The Company sets risk management policy and approaches as well as oversees and monitors the overall management of critical risks. The management and employees in all units also take part in the assessment of risk factors and determining measures to minimize risk to an acceptable level. The risks in all areas are actively assessed including strategic, operational, financial, regulatory compliance, information technology, cyber threat, corruption, corporate reputation, and Personal Data Protection Act (PDPA) compliance risks. Risk mitigation measures are incorporated in the Company's

short-term plan and strategic plan. 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.

The Company always makes ESG related issues a priority. It has prepared a strategic plan to respond to changing global situations by aligning with the ESG framework and having the short- and long-term ESG risks assessed. The Company's top environmental concerns are GHG emissions, water management, and air pollution management. In the social aspect, it focuses on employee management and development, occupational health and safety management, community relations, and community development. In terms of corporate governance, the Company is committed to sustainable corporate governance, ethical business conduct, supplier and contractor management, personal data protection, and cybersecurity.

In 2021, the Company established the Environmental, Social, and Governance (ESG) Committee to oversee all ESG operations, advise on related strategies, review and monitor performance and perform other duties with the management to drive successful ESG implementation as planned.

### 3. Operational Control

The Company prioritizes a sound and effective system of internal control in its business operations. It has put in 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. Formulating policies, regulations, operating manuals, and operating procedures in written documents, which are regularly reviewed and updated
2. Identifying and adjusting corporate structure by defining clear segregation of duties and delegation of authority with effective checks and balances





- Establishing a clear policy on related party transactions by taking into account the Company's best interests on a similar basis to the transactions at arm's length
- Safeguarding the Company's assets to prevent misuse of the assets for personal purpose
- Establishing appropriate and effective IT control systems
- Managing, monitoring, and governing operations to ensure compliance with the Company's action plans, policies, regulations, procedures, as well as compliance with laws and external requirements assessed by Key Performance Indicators (KPIs) that are linked to the Company's goals.

In 2021, the Company improved its significant procedures to align with the Greener & Smarter strategy and reaffirm its position as a leading international versatile energy provider. The Company focuses more on eco-friendly businesses and deployment of state-of-the-art technologies to improve operational efficiency both in terms of speed and accuracy.

#### 4. Information Technology and Communication System

The Company has developed an effective and secure information technology (IT) system compliant with relevant laws to achieve its goal to become an integrated energy solutions provider. The Composable Architecture has been deployed for general IT system control to accelerate business transformation in accordance with the ESG principles and to cope with increasing cyber threats. The Company has extended the cybersecurity protection to cover both information technology (IT) and operational technology (OT). In 2021, the Company received ISO 27001 certification, the International Information Security Standard, which helped enhance stakeholders' confidence. The Company adopted agile and co-creation working concept to achieve long-term goals. The Composable Architecture framework is

applied across the process of acquisition, development, and quality control. The COVID-19 pandemic also urged the Company to strengthen its preventive measures by allowing employees fully to work from anywhere. To support the employees, the Company had improved the IT infrastructure for greater agility, e.g., a new online meeting platform that supported remote working and extended cloud computing system to enhance operational efficiency.

The Company has developed an internal data reporting system using Business Intelligence Software that provides management and employees the access to key data, allowing them to deliver better performance. It covers various aspects of operations from the procurement cycle, inventory monitoring, production performance, and asset management. The Company communicates key information through its website and uses Microsoft Teams 365 platform to connect all business locations globally. The Company also uses an electronic document management system to facilitate data transfer both inside and outside the organization, enabling fast and advanced connection. To guarantee information security, the Company manages access control based on employees' roles and responsibilities as well as their purpose of use. Effective internal communications channels are available such as email, online platforms, public announcement systems, posters, and communications through a wide range of activities and meetings. In 2021, communications and activities continued to take place, albeit online, to ensure effective coordination and operations. The Investor Relations Department and the Corporate Communications Department are responsible for information disclosure and communications to all stakeholders in a sufficient, appropriate, accessible, 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 supervisors and department heads. Executive meetings are held regularly to monitor the performance to ensure

that goals are met as planned. The Global Internal Audit and Compliance Unit supports the oversight and monitoring of internal control 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, advises on the improvement of work processes, and monitors the performance to ensure that appropriate corrective actions, including risk mitigation, are taken in a timely manner. The COVID-19 pandemic in 2021 forced the Global Internal Audit Department to adapt its approach by adopting remote auditing, a new and effective auditing technique that involves utilization of data analytics and various digital technologies. This is a step into "Smart Audit & Continuous Monitoring," which helps maintain audit quality and efficiency amid rapidly changing business environment. In addition, the department developed an individual development plan for each internal auditor and improved the auditing quality through agile auditing and data analytics to achieve higher efficiency and boost confidence in auditing, which helps safeguard and add sustainable value to the Company.

##### ● Corporate Compliance Department

is responsible for promoting, safeguarding, and tracking the performance of the Company's compliance with applicable laws, external regulations, and corporate culture with an emphasis on awareness of compliance with laws related to environmental and community aspects. The Department reports compliance performance based on the ISO 19600 Compliance Management Systems - Guidelines, which highlight the compliance management system within an organization. The Company has improved the Group's compliance documents, which are enforced in all countries based on the Three

Lines Model for risk management. It also provided advice on compliance process to business units, and improved compliance processes at both high level and end-to-end level. In 2021, the Company deployed advanced technology to improve the Compliance Risk Management (C-RiM) system. Functionalities of the Laws in Hand (LIH) application – a mobile application for supervising, monitoring, and managing compliance risks via a dashboard was also enhanced to allow timely reporting and monitoring of compliance risks. The application contains comprehensive information about policies, applicable laws, and business news in the countries where the Company operates. The application helps ensure that the Company conducts its business in compliance with applicable laws while being socially and environmentally responsible. In addition, it allows for faster and more advanced risk management. Apart from that, the Company implemented the Compliance Obligations List (COL) system company-wide to raise employees' awareness on the importance of compliance with relevant laws and regulations, to ensure effective supervision of legal compliance, as well as to ensure alignment with ESG principles in the countries into which the Company has expanded its investment.

Additionally, Banpu has prepared for compliance with the Personal Data Protection Act (PDPA) in Thailand and applicable laws in other countries, such as the Personal Information Protection Law (PIPL) in China. The Board of Directors and the management have established policies and practices, set up a working committee, appointed data protection officers, and created a data inventory for every business unit. The Company also communicated about the PDPA, use and collection of personal data, data protection system, and how to coordinate with government authorities to ensure that all executives and employees understand, realize the importance, and strictly comply with the act.





## CONNECTED PERSONS AND TRANSACTIONS

As of 31 December 2021

Company / Type of Business	Description of Relationship	Major Shareholders	Members of the Board of Directors
<b>1. Mitr Phol Sugar Corp., Ltd.</b> (Production and Distribution of Sugar and Molasses)	1. One of the shareholders of Banpu Plc., holding 5.23% of its paid-up capital 2. The major shareholder is Mid-Siam Sugar Co., Ltd. 3. There are three joint directors: 1) Mr. Chanin Vongkusolkrit 2) Mr. Buntoeng Vongkusolkrit 3) Mr. Verajet Vongkusolkrit	1. Mid-Siam Sugar Co., Ltd. 99.99%	1. Mr. Chanin Vongkusolkrit 2. Mr. Buntoeng Vongkusolkrit 3. Mr. Pichet Durongkaveroj 4. Mr. Klanarong Sriroth 5. Mr. Krisda Monthienvichienchai 6. Mr. Verajet Vongkusolkrit 7. Mr. Chusak Vongkusolkrit 8. Mrs. Amporn Kanjanakamnerd 9. Mr. Attaphol Vongkusolkrit 10. Mr. Pongsakorn Wongwuttikraikul 11. Mr. Gavin Vongkusolkrit
<b>2. TME Capital Co., Ltd.</b> (Investment Company)	1. One of the shareholders of Banpu Plc., holding 1.02% 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. Gavin Vongkusolkrit 8. Mrs. Arada Vongkusolkrit 9. Mr. Amnuay Kanjanakamnerd
<b>3. City Holdings Co., Ltd.</b> (Holding Company)	1. One of the shareholders of Banpu Plc., holding 0.57% 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 Jenlapwattanakul 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. Gavin Vongkusolkrit 7. Mr. Amnuay Kanjanakamnerd 8. Mr. Annop Vongkusolkrit 9. Ms. Supawee Vongkusolkrit
<b>4. MP Particle Board Co., Ltd.</b> (Investment Company)	1. One of the shareholders of Banpu Plc., holding 0.60% of its paid-up capital 2. The major shareholder is United Farmer and Industry Co., Ltd. 3. There is one joint director: 1) Mr. Buntoeng Vongkusolkrit	1. United Farmer and Industry Co., Ltd. 99.99%	1. Mr. Buntoeng Vongkusolkrit 2. Mr. Krisda Monthienvichienchai 3. Mrs. Amporn Kanjanakamnerd 4. Ms. Kannikar Vongkusolkrit 5. Mr. Pariwat Kanchanathana 6. Mr. Gridi Vongkusolkrit

Company / Type of Business	Description of Relationship	Major Shareholders	Members of the Board of Directors
<b>5. Mid-Siam Capital Co., Ltd.</b> (Sugar Cane Planting and Stock Investment)	1. One of the shareholders of Banpu Plc., holding 0.29% of its paid-up capital 2. The major shareholder is Mid-Siam Sugar Co., Ltd. 3. There are two joint directors: 1) Mr. Buntoeng Vongkusolkrit 2) Mr. Verajet Vongkusolkrit	1. Mid-Siam Sugar Co., Ltd. 99.99%	1. Mr. Isara Vongkusolkrit 2. Mr. Buntoeng Vongkusolkrit 3. Mr. Verajet Vongkusolkrit 4. Mrs. Amporn Kanjanakamnerd 5. Mr. Attaphol Vongkusolkrit
<b>6. Pacific Sugar Corp., Ltd.</b> (Import and Export of Sugar)	1. One of the shareholders of Banpu Plc., holding 0.27% of its paid-up capital 2. The major shareholder is Mitr Phol Sugar Corp., Ltd. 3. There is one joint director: 1) Mr. Verajet Vongkusolkrit	1. Mitr Phol Sugar Corp., Ltd. 99.99%	1. Mr. Verajet Vongkusolkrit 2. Mr. Parin Amatyakul 3. Mr. Jirasak Vongkusolkrit
<b>7. Mitr Phol Bio-Power (Phuviang) Co., Ltd.</b> (Production and Distribution of Sugar and Molasses)	1. One of the shareholders of Banpu Plc., holding 0.24% of its paid-up capital 2. The major shareholder is United Farmer and Industry Co., Ltd. 3. There are two joint directors: 1) Mr. Buntoeng Vongkusolkrit 2) Mr. Verajet Vongkusolkrit	1. United Farmer and Industry Co., Ltd. 51.04%	1. Mr. Buntoeng Vongkusolkrit 2. Mr. Krisda Monthienvichienchai 3. Mr. Verajet Vongkusolkrit 4. Mr. Prawit Prakritsri 5. Mr. Jirasak Vongkusolkrit 6. Ms. Theeranat Vongkusolkrit 7. Mr. Nattapong Vongkusolkrit 8. Mr. Sirasak Tathong 9. Mr. Arnat Panya 10. Mr. Watchara Hemruchatanun 11. Mr. Gridi Vongkusolkrit





## RELATED-PARTY TRANSACTIONS AND RELATIONSHIPS

### Banpu Public Company Limited

Company	Related-party Transaction
1. Banpu Minerals Co., Ltd.	<p>Transactions with Banpu Minerals Co., Ltd. are as follows:</p> <ul style="list-style-type: none"> <li>Loan to Banpu Minerals Co., Ltd. in the form of a promissory note with an interest rate calculated based on the market rate plus an additional agreed rate as at 31 December 2021 of USD 156,434,183.03</li> <li>Dividend income in 2021 of USD 40,000,000.00</li> <li>Interest income in 2021 of USD 4,055,600.39</li> <li>Accrued interest receivable as at 31 December 2021 of USD 3,694,922.76</li> </ul>
2. BP Overseas Development Co., Ltd.	<p>Transactions with BP Overseas Development Co., Ltd. are as follows:</p> <ul style="list-style-type: none"> <li>Loan to BP Overseas Development Company Limited in the form of a promissory note with an interest rate calculated based on the market rate plus an additional agreed rate as at 31 December 2021 of USD 2,303,286,389.63</li> <li>Interest income in 2021 of USD 96,218,348.56</li> <li>Accrued interest receivable as at 31 December 2021 of USD 497,633,697.60</li> </ul>
3. Banpu Power Public Company Limited	<p>Transactions with Banpu Power Public Company Limited are as follows:</p> <ul style="list-style-type: none"> <li>Management fees in 2021 of USD 5,073,799.46</li> <li>Dividend income in 2021 of USD 49,311,407.03</li> </ul>
4. Banpu NEXT Co., Ltd.	<p>Transactions with Banpu NEXT Co., Ltd. are as follows:</p> <ul style="list-style-type: none"> <li>Loan to Banpu NEXT Co., Ltd. in the form of a promissory note with an interest rate calculated based on the market rate plus an additional agreed rate as at 31 December 2021 of USD 302,647,305.06</li> <li>Interest income in 2021 of USD 9,415,881.74</li> <li>Accrued interest receivable as at 31 December 2021 of 9,593,611.65</li> </ul>
5. Banpu Singapore Pte. Ltd.	<p>Transactions with Banpu Singapore Pte. Ltd. are as follows:</p> <ul style="list-style-type: none"> <li>Management fees in 2021 of USD 10,000.00</li> <li>Other receivables as at 31 December 2021 of USD 10,000.00</li> </ul>

Company	Related-party Transaction
6. BMS Coal Sales Pte. Ltd.	<p>Transactions with BMS Coal Sales Pte. Ltd. are as follows:</p> <ul style="list-style-type: none"> <li>Management fees in 2021 of USD 2,612,662.68</li> <li>Other receivables as at 31 December 2021 of USD 784,000.00</li> </ul>
7. PT. Indominco Mandiri	<p>Transactions with PT. Indominco Mandiri are as follows:</p> <ul style="list-style-type: none"> <li>Management fees in 2021 of USD 9,067,190.04</li> <li>Purchases of goods of USD 20,545,124.05</li> <li>Other receivables as at 31 December 2021 of USD 847,928.58</li> <li>Trade accounts payable of USD 2,381,337.60</li> </ul>
8. PT. Jorong Barutama Greston	<p>Transactions with PT. Jorong Barutama Greston are as follows:</p> <ul style="list-style-type: none"> <li>Management fees in 2021 of USD 420,627.80</li> <li>Purchases of goods of USD 6,155,050.00</li> <li>Advances of USD 357.37</li> </ul>
9. PT. Kitadin	<p>A transaction with PT. Kitadin is as follows:</p> <ul style="list-style-type: none"> <li>Management fees in 2021 of USD 146,864.86</li> </ul>
10. PT. Trubaindo Coal Mining	<p>Transactions with PT. Trubaindo Coal Mining are as follows:</p> <ul style="list-style-type: none"> <li>Management fees in 2021 of USD 5,179,211.08</li> <li>Other receivables as at 31 December 2021 of USD 1,951,616.59</li> <li>Advances of USD 1,300.88</li> </ul>
11. PT. Bharinto Ekatama	<p>Transactions with PT. Bharinto Ekatama are as follows:</p> <ul style="list-style-type: none"> <li>Management fees in 2021 of USD 9,068,169.81</li> <li>Other receivables as at 31 December 2021 of USD 2,103,649.04</li> <li>Advances of USD 1,131.69</li> </ul>
12. PT. Indo Tambangraya Megah Tbk	<p>A transaction with PT. Indo Tambangraya Megah Tbk is as follows:</p> <ul style="list-style-type: none"> <li>Advances receivable as at 31 December 2021 of USD 6,707.35</li> </ul>
13. PT. Tambang Raya Usaha Tama	<p>A transaction with PT. Tambang Raya Usaha Tama is as follows:</p> <ul style="list-style-type: none"> <li>Advances as at 31 December 2021 of USD 1,887.49</li> </ul>
14. PT. Nusa Persada Resources	<p>A transaction with PT. Nusa Persada Resources is as follows:</p> <ul style="list-style-type: none"> <li>Advances as at 31 December 2021 of USD 4,748.32</li> </ul>
15. Banpu Investment (China) Ltd.	<p>A transaction with Banpu Investment (China) Ltd. is as follows:</p> <ul style="list-style-type: none"> <li>Advances as at 31 December 2021 of USD 739,625.15</li> </ul>



Company	Related-party Transaction
<b>16. Banpu Australia Co. Pty Ltd.</b>	<p>Transactions with Banpu Australia Co. Pty Ltd. are as follows:</p> <ul style="list-style-type: none"> <li>• Loan to Banpu Australia Co. Pty Ltd. in the form of a promissory note with an interest rate calculated based on the market rate plus an additional agreed rate as at 31 December 2021 of USD 14,519,911.79</li> <li>• Interest income in 2021 of USD 44,032.74</li> <li>• Accrued interest receivable as at 31 December 2021 of USD 43,721.07</li> </ul>
<b>17. Centennial Coal Co., Ltd.</b>	<p>Transactions with Centennial Coal Co., Ltd. are as follows:</p> <ul style="list-style-type: none"> <li>• Loan to Centennial Coal Co., Ltd. in the form of a promissory note with an interest rate calculated based on the market rate plus an additional agreed rate as at 31 December 2021 of USD 116,909,513.18</li> <li>• Interest income in 2021 of USD 4,491,454.10</li> <li>• Management fees in 2021 of USD 5,784,664.06</li> <li>• Other receivables as at 31 December 2021 of USD 2,163,654.79</li> <li>• Accrued interest receivable of USD 3,138,990.49</li> <li>• Advances as at 31 December 2021 of USD 725,995.57</li> </ul>
<b>18. Banpu International Ltd.</b>	<p>Transactions with Banpu International Ltd. are as follows:</p> <ul style="list-style-type: none"> <li>• Cost of services in 2021 of USD 4,347,789.62</li> <li>• Advances as at 31 December 2021 of USD 13,135.42</li> <li>• Trade accounts payable of USD 364,273.92</li> </ul>

Company	Related-party Transaction
<b>19. BOG Co., Ltd.</b>	<p>Transactions with BOG Co., Ltd. are as follows:</p> <ul style="list-style-type: none"> <li>• Loan to BOG Co., Ltd. in the form of a promissory note with an interest rate calculated based on the market rate plus an additional agreed rate as at 31 December 2021 of USD 216,000,000.00</li> <li>• Interest income in 2021 of USD 2,029,375.00</li> <li>• Accrued interest receivable as at 31 December 2021 of USD 1,897,500.00</li> </ul>
<b>20. Banpu Renewable Singapore Pte. Ltd.</b>	<p>Transactions with Banpu Renewable Singapore Pte. Ltd. are as follows:</p> <ul style="list-style-type: none"> <li>• Interest income in 2021 of USD 85,523.95</li> <li>• Accrued interest receivable as at 31 December 2021 of USD 85,523.95</li> </ul>
<b>21. Banpu North America Corporation</b>	<p>A transaction with Banpu North America Corporation is as follows:</p> <ul style="list-style-type: none"> <li>• Advances as at 31 December 2021 of USD 1,336.41</li> </ul>
<b>22. Advance Medical Center Co., Ltd.</b>	<p>A transaction with Advance Medical Center Co., Ltd. is as follows:</p> <ul style="list-style-type: none"> <li>• Dividend income in 2021 of USD 159,799.57</li> </ul>







# CERTIFICATION OF INFORMATION AND DATA ACCURACY



## ATTACHMENT 1: DETAILS OF THE BOARD OF DIRECTORS AND MANAGEMENT

1

**Mr. Chanin Vongkusolkrit**  
Age: 69



**Chairman of the Board of Directors**

Appointed Date : 28 April 2016

**Director**

Appointed Date : 16 May 1983

**Senior Executive Officer**

Appointed Date : 10 April 2015

\* An uncle of person number 5 and 12

### 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 : 0.27
- 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 Companies

- 1983 – Present : Director, Mittr Phol Sugar Corp., Ltd.

### Other Organizations

- 2021 – Present : Chairman, Thai Listed Companies Association
- 2019 – 2021 : Director, Thai Listed Companies Association
- 2021 – Present : Advisor, Thammasat Economics Association
- 2012 – 2021 : Chairman, Thammasat Economics Association
- 2015 – Present : Director, Private Sector Collective Action Coalition Against Corruption Council (CAC)
- 2008 – Present : President, The Foundation for Better Life
- 2012 – 2021 : Director, Faculty of Economics, Thammasat University
- 2016 – 2018 : Commissioner, The Securities and Exchange Commission, Thailand
- 2015 – 2018 : Task Force Chairperson, Task Force for Sustainability in Listed Companies, The Securities and Exchange Commission, Thailand

2

**Mr. Teerana Bhongmakapat**  
Age: 65



**Independent Director**

Appointed Date : 5 April 2012

**Chairman of the Audit Committee**

Appointed Date : 30 April 2014

**Member of the Compensation Committee**

Appointed Date : 30 April 2014

### Education/ Training

- Ph.D. (Econ), University of Wisconsin at Madison, U.S.A.
- M.Econ., Thammasat University
- B.Econ. (Quantitative Economics), Chulalongkorn University
- Capital Market Academy Leader Program #14/2012, Capital Market Academy (CMA)
- Director Certification Program (DCP) #161/2012, Thai Institute of Directors Association (IOD)
- Financial Institutions Governance Program (FGP) #7/2013, Thai Institute of Directors Association (IOD)
- Director Certification Program Update (DCPU) #2/2014, Thai Institute of Directors Association (IOD)
- IT Governance Program (ITG) #2/2016, Thai Institute of Directors Association (IOD)
- Audit Committee Forum 2016, Federation of Accounting Professions Under the Royal Patronage of His Majesty the King, and Thai Institute of Directors Association (IOD)
- Audit Committee Effectiveness Seminar 2012, Federation of Accounting Professions Under the Royal Patronage of His Majesty the King
- Audit Committee Forum 2017, Thai Institute of Directors Association (IOD)
- Cyber Incident Management for Executive Committees of Listed Companies, The Securities and Exchange Commission
- Boards that Make a Difference (BMD) #8/2018, Thai Institute of Directors Association (IOD)
- Risk Management for Corporate Leaders (RCL) #15/2019, Thai Institute of Directors Association (IOD)
- IT Security Awareness for Top Management, ACIS Professional Center Co., Ltd.
- Ethical Leadership Program (ELP) #22/2021, Thai Institute of Directors Association (IOD)

### % Share Held

- Own share : –

### 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 Companies

- 2013 – Present : Director/ Chairman of Corporate Governance Committee, Tisco Financial Group Plc.

#### Other Organizations

- 2021 – Present : Professor Emeritus, Chulalongkorn University
- 2011 – 2016 : Professor of Economics (C11), Chulalongkorn University
- 2006 – 2011 : Professor of Economics, Chulalongkorn University
- 2018 – Present : Chairman of Evaluation Board, Thai Health Promotion Foundation
- 2016 – 2019 : Chairman of the Research Support Committee, National Anti-Corruption Commission (NACC)
- 2010 – 2015 : Eminent Member, Anti-Money Laundering Office (AMLO)

3

**Mr. Piriya Khempon**  
Age: 63



**Independent Director**

Appointed Date : 8 April 2020

**Chairman of the Environment, Social and Governance Committee**

Appointed Date : 1 May 2021

**Member of the Corporate Governance and Nomination Committee**

Appointed Date : 1 May 2020

### Education/ Training

- Master of Science (International Relations), London School of Economics, University of London, United Kingdom
- Bachelor of Arts (Political Science), Chiangmai University
- Director Certification Program (DCP) #298/2020, Thai Institute of Directors Association (IOD)
- Top Executive Program in Energy (TEA) #7, Thailand Energy Academy

### % Share Held

- Own share : –
- Spouse : –

### Work Experience in the Last Five Years

#### Banpu Group

- 2021 – Present : Chairman of the Environment, Social and Governance Committee, Banpu Plc.
- 2020 – Present : Independent Director/ Member of the Corporate Governance and Nomination Committee, Banpu Plc.

#### Other Listed Companies

- 2019 – Present : Director, Saha Pathana Inter-Holding Plc.

#### Other Organizations

- Present : Advisor, The Federation of Thai Industries
- Present : Special Advisor on Foreign Affairs, Office of Eastern Economic Corridor (EEC)
- 2020 – 2021 : Executive Director and Member of the Risk Oversight Committee, Export-Import Bank of Thailand (EXIM)
- 2017 – 2019 : Ambassador Extraordinary and Plenipotentiary of Thailand to the People's Republic of China, Royal Thai Embassy in Beijing, China
- 2015 – 2017 : Deputy Permanent Secretary for Foreign Affairs, Office of the Permanent Secretary, Ministry of Foreign Affairs



4

**Mr. Rawi Corsiri**  
Age: 72



**Director**

Appointed Date : 5 April 2012

**Chairman of  
the Corporate Governance  
and Nomination Committee**

Appointed Date : 28 April 2016

**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.
- 2001 – Present : Director, BLCP Power Ltd.
- 2009 – 2020 : Director, Hongsa Power Co., Ltd.
- 2009 – 2020 : Director, Phu Fai Mining Co., Ltd.
- 2010 – 2017 : Director, Centennial Coal Co., Ltd.

5

**Mr. Buntoeng Vongkusolkit**  
Age: 65



**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 12

**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 : 0.08
- 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**

- 2020 – Present : Chairman/ Chairman of Executive Director, Mitr Phol Group
- 1982 – Present : Director, Mitr Phol Group
- 2018 – 2020 : Vice Chairman/ Chairman of Executive Director, Mitr Phol Group
- 2015 – 2020 : Chief Operating Officer – Cane Management Business, Mitr Phol Group
- 2011 – 2018 : Senior Executive Vice President, Sugarcane Development & Management Group, Mitr Phol Group

**Other Organizations**

- 2019 – Present : Honorary Member, King Mongkut's Institute of Technology Ladkrabang Council

6

**Mr. Suthad Setboonsarng**  
Age: 70



**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

**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)
- Cyber Resilience Leadership 2017, Bank of Thailand
- Boards that Make a Difference(BMD) #8/2018, Thai Institute of Directors Association (IOD)

**% Share Held**

- Own share : –
- Spouse : –

**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 Companies**

- 2019 – Present : Director/ Audit Committee, Somboon Advance Technology Plc.

**Other Organizations**

- 2021 – Present : Chairman, Board of Trustees, International Rice Research Institute (IRRI), Los Banos, Philippines
- 2020 – Present : Special Subcommittee for Public Sector Audit and Evaluation #2 (Grassroot Economy), Public Sector Development Commission
- 2013 – Present : Chairman, NawaChiOne Foundation
- 2015 – 2020 : Director/ Chairman of the Audit Committee/ Risk Oversight Committee, Bank of Thailand

7

**Mr. Pichai Dusdeekulchai**  
Age: 60



**Independent Director**

Appointed Date : 4 April 2019

**Member of  
the Audit Committee**

Appointed Date : 25 April 2019

**Member of  
the Environment, Social  
and Governance Committee**

Appointed Date : 1 May 2021

**Education/ Training**

- Master of Business Administration (MBA), Ashland University, Ohio, U.S.A.
- Bachelor of Arts Program in Mathematics and Statistic, Thammasat University
- TLCA Leadership Development Program (LDP) #1, Thai Listed Companies Association
- Director Certification Program (DCP) #278/2019, Thai Institute of Directors Association (IOD)
- Advance Audit Committee Program (ACCP) #38/2020, Thai Institute of Directors Association (IOD)

**% Share Held**

- Own share : –
- Spouse : –

**Work Experience in the Last Five Years**

**Banpu Group**

- 2021 – Present : Member of the Environment, Social and Governance Committee, Banpu Plc.
- 2019 – Present : Independent Director/ Member of the Audit Committee, Banpu Plc.

**Other Listed Companies**

- 2020 – Present : Independent Director/ Member of the Audit Committee/ Member of the Corporate Governance, Land and Houses Bank Plc.
- 2020 – Present : Independent Director/ Chairman of the Nomination and Remuneration Committee/ Member of the Audit Committee/ Member of the Risk Oversight Committee, LH Financial Group Plc.

**Other Organizations**

- 2018 – 2018 : General Manager & Deputy Country Head of Thailand, Sumitomo Mitsui Banking Corporation
- 2002 – 2018 : Head of Business Promotion, Sumitomo Mitsui Banking Corporation



8

**Mr. Teerapat Sanguankotchakorn**

Age: 56



**Independent Director**

Appointed Date : 3 April 2019

**Member of  
the Compensation Committee**

Appointed Date : 25 April 2019

**Member of  
the Environment, Social  
and Governance Committee**

Appointed Date : 1 May 2021

#### 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)
- National Director Conference 2021 (NDC 2021) "Leadership Behind Closed Door", Thai Institute of Directors Association (IOD)

#### % Share Held

- Own share : –
- Spouse : –

#### Work Experience in the Last Five Years

##### Banpu Group

- 2021 – Present : Member of the Environment, Social and Governance Committee, Banpu Plc.
- 2019 – Present : Independent Director/ Member of the Compensation Committee, Banpu Plc.

##### Other Organizations

- 2020 – Present : Executive Director, Technology Promotion Association (Thailand-Japan)
- 2018 – Present : Chairman of the Audit Committee, Thai Public Broadcasting Service (Thai PBS)
- 2018 – Present : Board of Governors, Thai Public Broadcasting Service (Thai PBS)
- 2014 – 2018 : Audit Committee, Thai Public Broadcasting Service (Thai PBS)
- 2012 – 2016 : 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

9

**Mr. Anon Sirisaengtaksin**

Age: 69



**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

#### 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.
- Capital Market Academy Program #1, Capital Market Academy
- Director Accreditation Program (DAP) #52/2006, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP) #73/2006, Thai Institute of Directors Association (IOD)
- Sustainability Board Training 2021, CIMB Group

#### % Share Held

- Own share : –
- Spouse : –

#### 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.
- 2021 – Present : Director, Banpu Innovation and Ventures Co., Ltd.

##### Other Listed Companies

- 2020 – Present : Independent Director/ Chairman of Nomination, Remuneration and Corporate Governance Committee/ Member of Board Risk and Compliance Committee, CIMB Thai Bank Plc.
- 2020 – Present : Independent Director/ Member of Audit Committee/ Member of Nomination and Remuneration Committee, Saha-Union Plc.
- 2020 – 2021 : Overseas Business Consultant, PTT Global Chemical Plc.

##### Other Companies

- 2019 – Present : Chairman, Thai Eastern Group Holdings Co., Ltd.
- 2019 – Present : Reform Council, Silpakorn University
- 2014 – 2020 : Chairman, PTTGC Innovation America Corp.
- 2014 – 2020 : Chairman, PTTGC International (USA) Inc.
- 2014 – 2020 : Chairman, Natureworks LLC
- 2012 – 2020 : Chairman, PTTGC International Private Ltd.
- 2012 – 2020 : Chairman, PTTGC International (Netherlands) B.V.
- 2012 – 2020 : Chairman, Emery Oleochemical (M) Sdn. Bhd.
- 2012 – 2020 : Chairman, Emery Specialty Chemical Sdn. Bhd.
- 2012 – 2020 : Chairman, Venecorex Holding

10

**Mr. Metee Auapinyakul**

Age: 68



**Director**

Appointed Date : 16 May 1983

**Advisor**

Appointed Date : 1 January 2014

\* An older brother of person number 11

#### Education/ Training

- Doctor of Business, Engineering and Technology (Honoris Couse), 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 Companies

- 2004 – Present : Chairman of Advisors, GENCO Plc.

11

**Mr. Ongart Auapinyakul**

Age: 65



**Director**

Appointed Date : 29 July 1983

**Advisor**

Appointed Date : 1 January 2017

**Executive Officer**

Appointed Date : 8 January 2001

\* A younger brother of person number 10

#### Education/ Training

- B.S. (Mechanical Engineering), University of Missouri, Columbia, U.S.A.
- Senior Executive Program #3, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- National Defence College of Thailand (Class 4414)
- Director Certification Program (DCP) #23/2002, Thai Institute of Directors Association (IOD)
- Capital Market Academy Leader Program #8, Capital Market Academy (CMA)
- Bangkok Metropolitan Administration Executive Program (Mahanakorn Class 1), Urban Green Development Institute Bangkok
- Top Executive Program in Energy (TEA) #1, Thailand Energy Academy
- Top Executive Program #17, Judicial Training Institute
- Executive Management with Business Development and Investment #1, Institute of Business and Industrial Development
- Top Executive Program in Commerce and Trade (TEPCOT) #4, University of the Thai Chamber of Commerce (UTCC)
- Business Revolution and Innovation Network (BRAIN) #1, The Federation of Thai Industries
- Tourism Management Program for Executives (TME) #1, TAT Academy
- Academy of Business Creativity (ABC) #8/2018, Sripatum University
- Top Executive Program for Creative and Amazing Thai Services (ToPCATS) #2, University of the Thai Chamber of Commerce (UTCC)

#### % Share Held

- Own share : 0.02
- Spouse : 0.05

#### 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.



12

**Mr. Verajet Vongkusolkit**

Age: 57



**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 5

**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 and MIT Sloan School of Management
- Leadership Communication Certification Program 2018, Thailand Management Association (TMA)
- Senior Executive Program 2019 (SEP) #33, Sasin Graduate Institute of Business Administration of Chulalongkorn University and The Kellogg School of Management and the Wharton School
- Boards that Make a Difference (BMD) #10/2020, Thai Institute of Directors Association (IOD)
- Thailand Energy Academy (TEA) #16/2021, Thailand Energy Academy

**% Share Held**

- Own share : 0.16
- Spouse : –

**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.

13

**Mrs. Somruedee Chaimongkol**

Age: 60



**Chief Executive Officer**

Appointed Date : 10 April 2015

**Director**

Appointed Date : 4 April 2015

**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 : 0.12
- 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, Banpu NEXT Co., Ltd.
- Present : Director, Banpu NEXT Green Leasing Co., Ltd.
- Present : Director, Banpu Minerals Co., Ltd.
- Present : Director, Banpu International Ltd.
- Present : Director, Banpu Coal Sales Co., Ltd.
- Present : Director, Power Vietnam Co., Ltd.
- Present : Director, Banpu Coal Power Co., Ltd.
- Present : Director, Banpu Innovation & Ventures Co., Ltd.
- Present : Director, BOG Co., Ltd.
- Present : Director, Hunnu Investments Pte. Ltd.
- Present : Director, Banpu Singapore Pte. Ltd.
- Present : Director, BMS Coal Sales Pte. Ltd.
- Present : Director, Banpu Minerals (Singapore) Pte. Ltd.
- Present : Director, Sunseap Group Pte. Ltd.
- Present : Director, Durapower Holdings Pte. Ltd.
- Present : Director, Centennial Coal Co., Ltd.
- Present : Director, Hunnu Coal Pty Ltd.
- Present : Director, AFE Investments Pty Ltd.
- Present : Director, Banpu Australia Resources Pty Ltd.
- Present : Director, Banpu Australia Co., Pty Ltd.
- Present : Director, Banpu Energy Holding Pty Ltd.
- Present : Director, Banpu Energy Australia Pty Ltd.
- Present : Director, Banpu Renewable Australia Pty Ltd.
- Present : Director, Banpu Coal Investment Co., Ltd.
- Present : Director, BPIN Investment Co., Ltd.
- Present : Director, BP Overseas Development Co., Ltd.
- Present : Director, Asian American Coal Inc.
- Present : Director, Banpu Japan K.K.
- Present : Director, BKV Corporation
- Present : Director, Banpu North America Corporation
- Present : Director, Banpu Power US Corporation

14

**Mr. Somsak Sithinamsuwan**

Age: 61



**Head of Mining Business**

Appointed Date : 1 January 2020

**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 : –
- Spouse : –

**Work Experience in the Last Five Years**

**Banpu Group**

- 2020 – Present : Head of Mining Business, Banpu Plc.
- 2019 – 2019 : Chief Operating Officer – Coal Business, Banpu Plc.
- 2018 – 2018 : Assistant Chief Operating Officer – Coal Business, Banpu Plc.
- 2020 – Present : Director, Hunnu Gobi Altai LLC
- 2020 – Present : Director, Banpu Vietnam LLC
- 2019 – Present : Director, Banpu Energy Services (Thailand) Co., Ltd.
- 2019 – Present : Director, Banpu Engineering Services Co., Ltd.
- 2019 – Present : Director, Banpu International Ltd.
- 2019 – Present : Director, Banpu Mineral Co., Ltd.
- 2019 – Present : Director, Banpu Coal Sales Co., Ltd.
- 2019 – Present : Director, Hunnu Coal Pty Ltd.
- 2019 – Present : Director, BP Overseas Development Company
- 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.
- 2018 – Present : Commissioner, PT. Indo Tambangraya Megah Tbk
- 2018 – Present : Director, Banpu Coal Power Ltd.
- 2019 – 2020 : Director, Chiang Muan Mining Co., Ltd.
- 2015 – 2017 : Managing Director, Hongsa Power Co., Ltd.

15

**Mr. Kirana Limpaphayom**

Age: 47



**Head of Power Business**

Appointed Date : 10 April 2020

**Chief Executive Officer –  
Banpu Power Public  
Company Limited**

Appointed Date : 10 April 2020

**Education/ Training**

- Ph.D. Sociology, Centre for Comparative Labour Studies, University of Warwick, United Kingdom
- M.Sc. Industrial Relations, Labour Market Economic, London School of Economics and Political Science (LSE), University of London, United Kingdom
- Bachelor of Economics, Chulalongkorn University
- Master of Business Administration in Executive Finance, Sasin Graduate Institute of Business Administration of Chulalongkorn University and The Kellogg School of Management and the Wharton School
- Graduate of the Australian Institute of Company Directors (GAICD)
- Director Certificate Program, Indonesian Institute of Corporate Directors (IICD)
- Director Certification Program (DCP) #294/2020, Thai Institute of Directors Association (IOD)

**% Share Held**

- Own share : –
- Spouse : –

**Work Experience in the Last Five Years**

**Banpu Group**

- 2020 – Present : Head of Power Business, Banpu Plc.
- 2020 – Present : Chief Executive Officer, Banpu Power Plc.
- Present : Director, Banpu Energy Holding Pty Ltd.
- Present : Director, Banpu Power International Ltd.
- Present : Director, Pan-Western Energy Corporation LLC
- Present : Director, BKV-BPP Power LLC
- Present : Director, Banpu Power US Corporation
- Present : Director, Banpu Power (Japan) Co., Ltd.
- Present : Director, Zouping Peak Pte. Ltd.
- Present : Director, Banpu Innovation & Ventures Co., Ltd.
- Present : Executive Manager, Banpu Power Trading G.K.
- 2020 – Present : Director, BLCP Power Ltd.
- 2020 – Present : Director, Banpu NEXT Co., Ltd.
- 2020 – Present : Director, Banpu NEXT Green Leasing Co., Ltd.
- 2020 – Present : Director, Hongsa Power Co., Ltd.
- 2020 – Present : Director, Power Vietnam Co., Ltd.
- 2020 – Present : Director, Phu Fai Mining Co., Ltd.
- 2020 – Present : Director, Banpu Coal Power Co., Ltd.
- 2020 – Present : Director, Banpu Energy Australia Pty Ltd.
- 2020 – Present : Commissioner, PT. Indo Tambangraya Megah Tbk
- 2014 – Present : Alternate Director, Centennial Coal Co., Pty Ltd.
- 2013 – Present : Director, Banpu Australia Co., Pty Ltd.
- 2013 – Present : Director, AFE Investments Pty Ltd.
- 2013 – Present : Director, Banpu Australia Resources Pty Ltd.
- 2016 – 2020 : President Director, PT. Indo Tambangraya Megah Tbk
- 2015 – 2016 : Senior Vice President – Office of the President Director, PT. Indo Tambangraya Megah Tbk



16

**Mr. Thiti Mekavichai**

Age: 59



**Head of Oil and Gas Business**

Appointed Date : 1 November 2018

#### Education/ Training

- Diploma in Hydrographic Surveying, Plymouth Polytechnic, England
- Bachelor of Science in Geography, Srinakharinvirot University
- Executive Program in Energy Literacy for a Sustainable Future #9, Thailand Energy Academy
- Diploma Course in Democratic Politics and Governance for Executives #19, King Prajadhipok's Institute
- Executive Program in "Thammasat for Society" #5, Thammasat Leadership Program
- PTT Leadership Development Program III, PTT Leadership and Learning Institute
- Executive Leadership Development Program (EP-LEAD), International Institute for Management Development (IMD)
- Media Response for Spokesperson, Hill+Knowlton Strategies
- Safety Leadership Workshop, Safety Management Consultants (UK) Limited

#### % Share Held

- Own share : –
- Spouse : –

#### Work Experience in the Last Five Years

##### Banpu Group

- 2018 – Present : Head of Oil and Gas Business, Banpu Plc.

##### Other Listed Companies

- 2011 – 2018 : Executive Vice President of Human Resources and Business Services Group, PTT Exploration and Production Plc.

17

**Mr. Sutee Sukruan**

Age: 57



**Head of Corporate Development**

Appointed Date : 1 January 2021

#### 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)
- Leadership Program – Accelerating Transformation Series, Banpu Plc. and Pacrim Group

#### % Share Held

- Own share : –
- Spouse : –

#### Work Experience in the Last Five Years

##### Banpu Group

- 2021 – Present : Head of Corporate Development, Banpu Plc.
- 2020 – 2020 : Senior Vice President – Corporate Development, Banpu Plc.

- 2018 – 2020 : Chief Operating Officer – Power Business, Banpu Plc.
- 2009 – 2017 : Senior Vice President – Corporate Finance, Banpu Plc.
- 2018 – 2020 : Chief Executive Officer, Banpu Power Plc.
- 2020 – Present : Director, Banpu Renewable Australia Pty Ltd.
- 2020 – Present : Director, Banpu NEXT Co., Ltd.
- 2019 – Present : Director, Power Vietnam Co., Ltd.
- 2019 – Present : Director, Banpu Japan K.K.
- 2018 – Present : Director, Banpu Coal Power Ltd.
- 2018 – Present : Director, BRE Singapore Pte. Ltd.
- 2018 – Present : Director, BPP Vinh Chau Wind Power LLC

18

**Ms. Arisara Sakulkarawek**

Age: 51



**Chief Financial Officer**

Appointed Date : 1 March 2019

#### 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
- Enterprise Governance of I&T, Federation of Accounting Professions Under The Royal Patronage of His Majesty the King
- Transfer Pricing, Federation of Accounting Professions Under The Royal Patronage of His Majesty the King
- Basic Forensic Analytics, Federation of Accounting Professions Under The Royal Patronage of His Majesty the King

#### % Share Held

- Own share : –

#### Work Experience in the Last Five Years

##### Banpu Group

- 2019 – Present : Chief Financial Officer, Banpu Plc.
- 2018 – 2018 : Senior Vice President – Corporate Finance, Banpu Plc.
- 2016 – 2017 : Senior Vice President – Controller, Banpu Plc.
- 2011 – 2015 : Vice President – Accounting, Banpu Plc.
- 2020 – Present : Director, Banpu Vietnam LLC
- 2020 – Present : Director, Banpu International Ltd.
- 2020 – Present : Director, Banpu Minerals Co., Ltd.
- 2020 – Present : Director, Banpu Coal Sales Co., Ltd.
- 2019 – Present : Executive Manager, 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 Investment Pte. Ltd.
- 2018 – Present : Director, Banpu Renewable Energy Co., Ltd.
- 2018 – Present : Director, Banpu Engineering Services Co., Ltd.
- 2018 – Present : Director, Banpu Energy Services (Thailand) Co., Ltd.
- 2018 – Present : Director, BOG Co., Ltd.
- 2018 – Present : Business Executor, Hokkaido Solar Estate G.K.
- 2018 – Present : Vice President, Banpu North America Corporation

19

**Mr. Varoj Limjaroon\***

Age: 61



**Head of Human Resources**

Appointed Date : 1 January 2018

\* Remark: Mr. Varoj Limjaroon was appointed as Group Senior Vice President – Office of CEO, effective on 1 July 2021

#### 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

- July 2021 – Present : Group Senior Vice President – Office of CEO, Banpu Plc.
- 2018 – June 2021 : Head of Human Resources, Banpu Plc.
- 2009 – 2017 : Senior Vice President – Human Resources, Banpu Plc.



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**Mr. Wittapon Jawjit**  
Age: 51



**Head of Human Resources**  
Appointed Date : 1 July 2021

**Education/ Training**

- Master of Science, Telecommunication Engineering (Satellite and Data Communication), Chulalongkorn University
- Bachelor of Science, Electrical Engineering (Telecommunication Engineering), Chulalongkorn University
- Diploma in Strategic Management and Business Reengineering, Special Program by Sloan School of Management, MIT, Boston, MA, U.S.A.

**% Share Held**

- Own share : –
- Spouse : –

**Work Experience in the Last Five Years**

**Banpu Group**

- July 2021 – Present : Head of Human Resources, Banpu Plc.

**Other Listed Companies**

- 2017 – 2019 : First Executive Vice President, Head of Human Resources, Bank of Ayudhya Plc. (BAY)
- 2014 – 2017 : First Executive Vice President, Head of Human Resources, Kiatnakin Phatra Financial Group

**Other Companies**

- 2005 – 2014 : Chief Executive Officer and Country Head, Mercer (Thailand) Ltd.

**Other Organizations**

- March 2021 – Present : Committee Member, Thailand National Innovation Committee, Ministry of Higher Education, Science, Research and Innovation
- 2021 – Present : Committee Member, Human Resources Management Subcommittee, National Science and Technology Development Agency (NSTDA)
- 2019 – Present : Advisor to Chief Executive Officer, Mae Fah Luang Foundation

21

**Mr. Jirameth Achcha**  
Age: 52



**Head of Corporate Services**  
Appointed Date : 1 January 2021

**Education/ Training**

- Master of Economics (Business Economics), Kasetsart University
- Bachelor of Economics (Fiscal Economics), Ramkhamhaeng University

**% Share Held**

- Own share : –
- Spouse : –

**Work Experience in the Last Five Years**

**Banpu Group**

- 2021 – Present : Head of Corporate Services, Banpu Plc.
- 2018 – 2020 : Senior Vice President – Corporate Services, Banpu Plc.
- 2016 – 2017 : Vice President – Corporate Compliance, Banpu Plc.
- 2015 – 2016 : Vice President – Business Process Management, Banpu Plc.

22

**Mr. Virach Vudhihanaseth**  
Age: 47



**Company Secretary**  
Appointed Date : 1 January 2018

**Senior Vice President – Corporate Strategy**  
Appointed Date : 10 April 2020

**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)
- WIAL Certified Action Learning Coach Program, Banpu Plc. and World Institute for Action Learning (Thailand) Ltd.
- Leadership Program – Accelerating Transformation Series, Banpu Plc. and Pacrim Group
- Climate Risk Management and Climate Scenario Analysis, Ernst & Young Corporate Services Limited
- Economic Briefing organized, Kiatnakin Phatra Bank
- Energy Transition Towards Net-Zero, KPMG

**% Share Held**

- Own share : –
- Spouse : –

**Work Experience in the Last Five Years**

**Banpu Group**

- 2020 – Present : Senior Vice President – Corporate Strategy, Banpu Plc.
- 2020 – Present : Head of Corporate Secretary, Banpu Plc.
- 2020 – Present : Head of Investor Relations, Banpu Plc.
- 2018 – 2019 : Vice President – Corporate Secretary and Investor Relations, Banpu Plc.
- 2015 – 2017 : Vice President – Investor Relations, Banpu Plc.

23

**Ms. Wiyada Wiboonsirichai**  
Age: 52



**Secretary of the Audit Committee**  
Appointed Date : 16 January 2018

**Head of Global Internal Audit and Compliance**  
Appointed Date : 1 January 2019

**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), The Institute of Internal Auditors (IIA)
- TLCA Executive Development Program #13, Thai Listed Companies Association

**% Share Held**

- Own share : –

**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.



# ATTACHMENT 2: DETAILS OF THE MANAGEMENT AND CONTROLLING PARTIES OF BANPU AND ITS SUBSIDIARIES

Name	Subsidiaries																
	Banpu	AFE	AACI	ALD	ALSGK	BPA	BRA	BPCI	BEH	BAR	BKV-BPP	BPCP	BCS	BEN	BEST	BES	BIVUS
1. Mr. Chanin Vongkusolkrit	X	/	/			/	/	/	/	/		/		/			/
2. Mr. Teerana Bhongmakapat	//																
3. Mr. Rawi Corsiri	/																
4. Mr. Suthad Setboonsarng	//																
5. Mr. Buntoeng Vongkusolkrit	///																
6. Mr. Metee Auapinyakul	/																
7. Mr. Ongart Auapinyakul	/																
8. Mr. Verajet Vongkusolkrit	/																
9. Mrs. Somruedee Chaimongkol	/, M	/	/			/	/	/	/	/		/	/	/			/
10. Mr. Anon Sirisaengtaksin	/										/						
11. Mr. Pichai Dusdeekulchai	///																
12. Mr. Teerapat Sanguankotchakorn	///																
13. Mr. Piriya Khempon	///																
14. Mr. Somsak Sithinamsuwan	O		/								/	/		/	/		/
15. Mr. Kirana Limpaphayom	O	/				/		/	/	/	/	/		/			
16. Mr. Thiti Mekavichai	O									/							
17. Mr. Sutee Sukruan	O										/						/
18. Ms. Arisara Sakulkarawek	O		/	/			/				/		/	/	/	/	/
19. Mr. Varoj Limjaroon	O																
20. Mr. Jirameth Achcha	O																

Name	Subsidiaries													
	Banpu	BMC	BMS	BNEXT	BNGL	BNAC	BPPJP	BPPI	BPIC	BPP	BPPTGK	BPS	BPVT	BIVSG
1. Mr. Chanin Vongkusolkrit	X			/			/		/	/				/
2. Mr. Teerana Bhongmakapat	//													/
3. Mr. Rawi Corsiri	/									/				/
4. Mr. Suthad Setboonsarng	//													/
5. Mr. Buntoeng Vongkusolkrit	///													/
6. Mr. Metee Auapinyakul	/									/				/
7. Mr. Ongart Auapinyakul	/													/
8. Mr. Verajet Vongkusolkrit	/			/										/
9. Mrs. Somruedee Chaimongkol	/, M	/	/	/	/	/				/		/		/
10. Mr. Anon Sirisaengtaksin	/													/
11. Mr. Pichai Dusdeekulchai	//													/
12. Mr. Teerapat Sanguankotchakorn	///													/
13. Mr. Piriya Khempon	///													/
14. Mr. Somsak Sithinamsuwan	O	/	/									/	/	/
15. Mr. Kirana Limpaphayom	O			/	/		/	/		/	/			/
16. Mr. Thiti Mekavichai	O				/									/
17. Mr. Sutee Sukruan	O			/										/
18. Ms. Arisara Sakulkarawek	O	/	/			/						/	/	/
19. Mr. Varoj Limjaroon	O													/
20. Mr. Jirameth Achcha	O													/



Name	Subsidiaries														
	Banpu	BPOD	BPINI	BPPVC	BPPUS	BRES	CEY	HSEGK	HUNNU	HGA	HUNI	PWE	PV	ITM	ZPP
1. Mr. Chanin Vongkusolkit	X	/	/		/		/		/			/			
2. Mr. Teerana Bhongmakapat	//														
3. Mr. Rawi Corsiri	/														
4. Mr. Suthad Setboonsarng	//														
5. Mr. Buntoeng Vongkusolkit	///														
6. Mr. Metee Auapinyakul	/														
7. Mr. Ongart Auapinyakul	/														
8. Mr. Verajet Vongkusolkit	/														
9. Mrs. Somruedee Chaimongkol	/, M	/	/		/		/		/		/		/	/	
10. Mr. Anon Sirisaengtaksin	/														
11. Mr. Pichai Dusdeekulchai	//														
12. Mr. Teerapat Sanguankotchakorn	///														
13. Mr. Piriya Khempon	///														
14. Mr. Somsak Sithinamsuwan	O	/							/	/	/			/	
15. Mr. Kirana Limpaphayom	O				/		/					/	/	/	/
16. Mr. Thiti Mekavichai	O														
17. Mr. Sutee Sukruan	O			/		/							/		
18. Ms. Arisara Sakulkarawek	O	/						/			/				
19. Mr. Varoj Limjaroon	O														
20. Mr. Jirameth Achcha	O														

Name	Associated Companies					
	Banpu	BLCP	HPC	Phu Fai	Durapower	Sunseap
1. Mr. Chanin Vongkusolkit	X	/	/	/		
2. Mr. Teerana Bhongmakapat	//					
3. Mr. Rawi Corsiri	/	/				
4. Mr. Suthad Setboonsarng	//					
5. Mr. Buntoeng Vongkusolkit	///					
6. Mr. Metee Auapinyakul	/					
7. Mr. Ongart Auapinyakul	/					
8. Mr. Verajet Vongkusolkit	/					
9. Mrs. Somruedee Chaimongkol	/, M	/			/	/
10. Mr. Anon Sirisaengtaksin	/					
11. Mr. Pichai Dusdeekulchai	//					
12. Mr. Teerapat Sanguankotchakorn	///					
13. Mr. Piriya Khempon	///					
14. Mr. Somsak Sithinamsuwan	O					
15. Mr. Kirana Limpaphayom	O	/	/	/		
16. Mr. Thiti Mekavichai	O					
17. Mr. Sutee Sukruan	O					
18. Ms. Arisara Sakulkarawek	O					
19. Mr. Varoj Limjaroon	O					
20. Mr. Jirameth Achcha	O					

Notes:

**Symbols of the Board  
Members and Executives**

- X Chairman of the Board of Directors
- V Vice-Chairman of the Board of Directors
- / Director
- // Independent Director / Member of the Audit Committee
- /// Independent Director
- M Chief Executive Officer
- N Executive Officer
- O Executive







Abbreviation of the Company, Its Subsidiaries and Associated Companies

Banpu

Banpu Plc.

Subsidiaries

AACI

Asian American Coal, Inc.

AFE

AFE Investments Pty Ltd.

ALD

Aura Land Development Pte. Ltd.

ALSGK

Aizu Land Solar G.K.

BAR

Banpu Australia Resources Pty Ltd.

BCS

Banpu Coal Sales Co., Ltd.

BEH

Banpu Energy Holding Pty Ltd.

BEN

Banpu Energy Australia Pty Ltd.

BES

Banpu Engineering Services Co., Ltd.

BEST

Banpu Energy Services (Thailand) Co., Ltd.

BIVSG

Banpu Innovation & Ventures (Singapore) Pte. Ltd.

BIVTH

Banpu Innovation & Ventures Co., Ltd.

BIVUS

Banpu Innovation & Ventures LLC

BKV

BKV Corporation

BKV-BPP

BKV-BPP Power LLC

BMC

Banpu Minerals Co., Ltd.

BMS

Banpu Minerals (Singapore) Pte. Ltd.

BMSCS

BMS Coal Sales Pte. Ltd.

BNAC

Banpu North America Corporation

BNEXT

Banpu NEXT Co., Ltd.

BNGL

Banpu NEXT Green Leasing Co., Ltd.

BOG

BOG Co., Ltd.

BPA

Banpu Australia Co., Pty Ltd.

BPCI

Banpu Coal Investment Co., Ltd.

BPCP

Banpu Coal Power Ltd.

BPI

Banpu International Ltd.

BPIC

Banpu Power Investment Co., Ltd.

BPINI

BPIN Investment Co., Ltd.

BPJP

Banpu Japan K.K.

BPOD

BP Overseas Development Co., Ltd.

BPP

Banpu Power Plc.

BPPI

Banpu Power International Ltd.

BPPJP

Banpu Power (Japan) Co., Ltd.

BPPTGK

Banpu Power Trading G.K.

BPPUS

Banpu Power US Corporation

BPPVC

BPP Vinh Chau Wind Power LLC

BPS

Banpu Singapore Pte. Ltd.

BPVT

Banpu Vietnam LLC

BRA

Banpu Renewable Australia Pty Ltd.

BRES

BRE Singapore Pte. Ltd.

CEY

Centennial Coal Co., Ltd.

HGA

Hunnu Gobi Altai LLC

HSEGK

Hokkaido Solar Estate G.K.

HUNI

Hunnu Investment Pte. Ltd.





#### HUNNU

Hunnu Coal Pty Ltd.

#### ITM

PT. Indo Tambangraya Megah Tbk

#### PV

Power Vietnam Co., Ltd.

#### PWE

Pan-Western Energy Corporation LLC

#### ZPP

Zouping Peak Pte. Ltd.

#### Associated Companies

##### BLCP

BLCP Power Ltd.

##### HPC

Hongsa Power Co., Ltd.

##### Phu Fai

Phu Fai Mining Co., Ltd.

##### Durapower

Durapower Holdings Pte. Ltd.

##### Sunseap

Sunseap Group Pte. Ltd.



## Banpu

### • • • An International Versatile • • • Energy Provider

Offering the Best-In-Class Energy Solutions  
with our Extensive Expertise in Integrated Energy  
in 10 Countries across Asia-Pacific







## **Banpu Public Company Limited**



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Makkasan, Ratchathewi, Bangkok 10400



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