BANPU

1Q21 results

Opportunity Day

21st May 2021

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1Q21 highlights and outlook

Strong cash flow generation across businesses

EBITDA improved by 52% from last quarter with higher contribution from Coal and Gas businesses

Higher commodity price levels, driven by recovering demand

Gas price increased to $3.5/MMBtu and coal price increased to $89/t for the quarter, driven by increasing demand and supply tightness

Antifragile* strategy

Weathering global disruptions through our integrated energy solutions portfolio to diversify risks and seize new opportunities

Greener, Smarter energy transition

Further investment in Greener business, through acquisition of 13.4% in Nakoso IGCC plant (543 MW), utilizing HELE** technology

Innovating the energy ecosystem of the future

Continued implementation of solar rooftop solutions, hybrid-electric fast launch vessel, e-tuk tuk fleet expansion and UMT service area expansion

Continuous efficiency improvements

Driven by firm-wide operational efficiency and Greener initiatives, including digital transformation

Note: *Nassim Nicholas Taleb's book – "Antifragile: Things that Gain from Disorder" describes ‘antifragility’ as ‘beyond resilience or robustness’. The resilient resists shocks and stays the same; the antifragile gets better, **High-Efficiency Low-Emissions.

Continuous Covid-19 relief support during Thailand's 3rd wave

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X-ray Systems

Covid-19 Detection Kits

Ventilators

Since 2020, Banpu has donated*

>THB 140 M

To help minimize and mitigate risk associated to the pandemic by providing medical equipment and supplies to hospitals and medical organizations in need.

Negative Pressure Units

Medical equipment and necessities

Note: *Banpu has a total contribution of THB250 M in 'Mitr Phol-Banpu Solidarity to Aid Thailand on Covid-19 Confrontation Endowment.'

Banpu: continued ESG leadership and credit rating recognition

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ESG RATING

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

The DJSI, managed by S&P Global, is the leading international standard for corporate sustainability

Gold

Class on SAM Sustainability Award since 2015. In 2020, Banpu's combined ESG performance scores were 3x the industry average

MSCI
ESG RATINGS
A

CCC	B	BB	BBB	A	AA	AAA

The MSCI ESG Ratings is managed by MSCI, one of the most experienced ESG performance measuring agencies

A

ratings for having a track record of managing the most significant ESG risks and opportunities relative to peers

Sustainability Award
Gold Class 2021
S&P Global

The Sustainability Yearbook 2021, published by S&P Global, showcases the sustainability performance of top companies

Gold

Class distinction, achieving an ESG score within 1% of the industry's top-performing company's score

THSI
THAILAND SUSTAINABILITY INVESTMENT 2020

The THSI, prepared by SET, shortlists Thai companies following the highest ESG standards

5th

consecutive year included in the THSI for sustainable operations in-line with responsible investment principles

CREDIT RATING

TRIS RATING
A Strategic Partner of S&P Global

As a strategic partner of S&P Global, Tris Rating has over 20-year experience as a leading credit rating agency in Thailand

A+

ratings with a ***'stable'*** outlook on the company and senior unsecured debentures

"reflecting the company's stable business growth, strategic shift towards sustainability and leading position in the energy sector"


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Banpu: continued transition to greater sustainability

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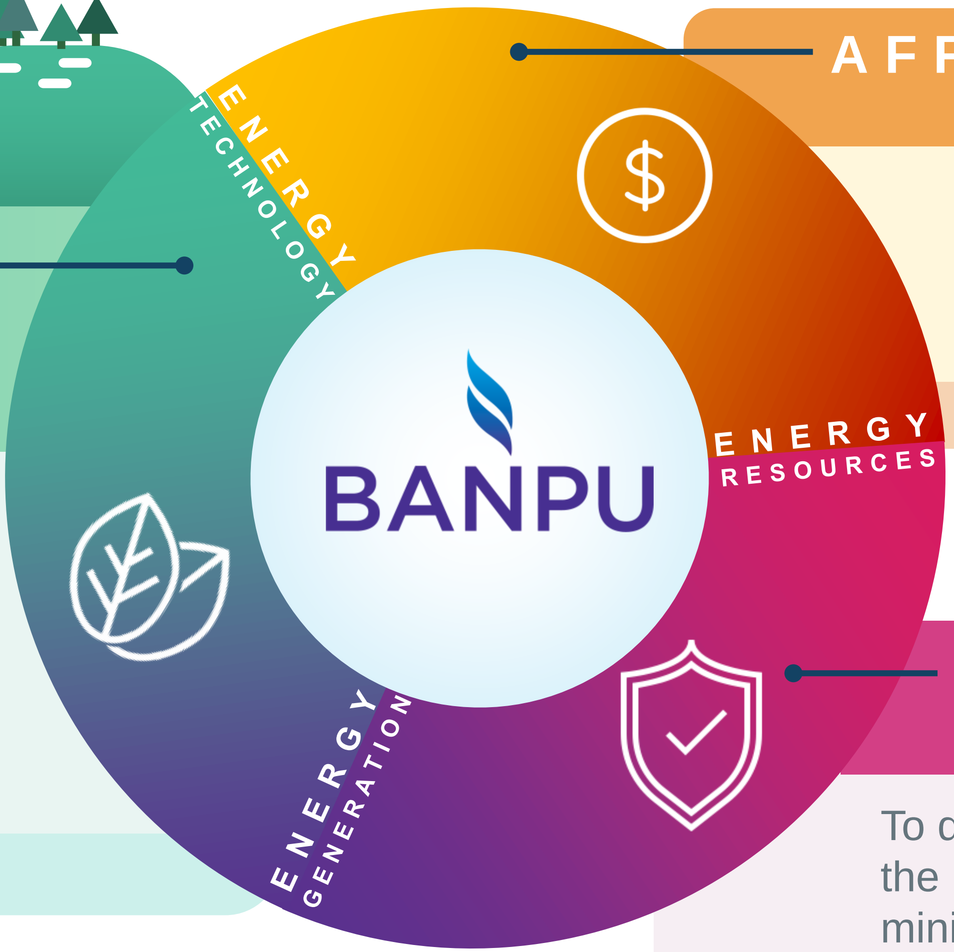
ECO-FRIENDLY

Maximum stakeholder value & minimal **environmental** impact

To supply energy with the least possible impact to the health and safety of host communities and to the natural environment - and in such a way that maximizes energy accessibility and stakeholder value



AFFORDABLE ENERGY

Providing affordable energy solutions

To sustain economic growth and tackle poverty by meeting growing energy demand with affordable energy solutions

RELIABLE OPERATIONS

Ensuring security of energy supply

To deliver integrated energy solutions for the longest possible period of time with minimum risk of supply-chain disruption

Banpu: commitment to SDGs and best practice ESG

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RESPONSIBLE CONSUMPTION & PRODUCTION

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

CLIMATE ACTION

- **7%** and **20%** GHG emissions intensity reduction from BAU for mining and power business, respectively

DECENT WORK AND ECONOMIC GROWTH

- Reduce Lost Time Injury rate for employees & contractors

AFFORDABLE CLEAN ENERGY

- More than **1.1 GW** of renewable energy capacity

LIFE ON LAND

- Net positive impact on biodiversity upon closure of the mines that are identified as high potential for biodiversity impact

CLEAN WATER AND SANITATION

- Reduce hazardous waste disposal intensity for mining and power businesses

PARTNERSHIPS FOR THE GOALS

- All community development projects linked to the SDGs

SUSTAINABLE DEVELOPMENT GOALS

In accordance with the UN Sustainable Development Goals (SDGs), Banpu has integrated 7 goals across the supply chain and committed to long-term targets

2025 TARGETS

Banpu: outpacing global energy transition

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2015 | 2020 | 2025

GLOBAL

GLOBAL ENERGY INVESTMENT**

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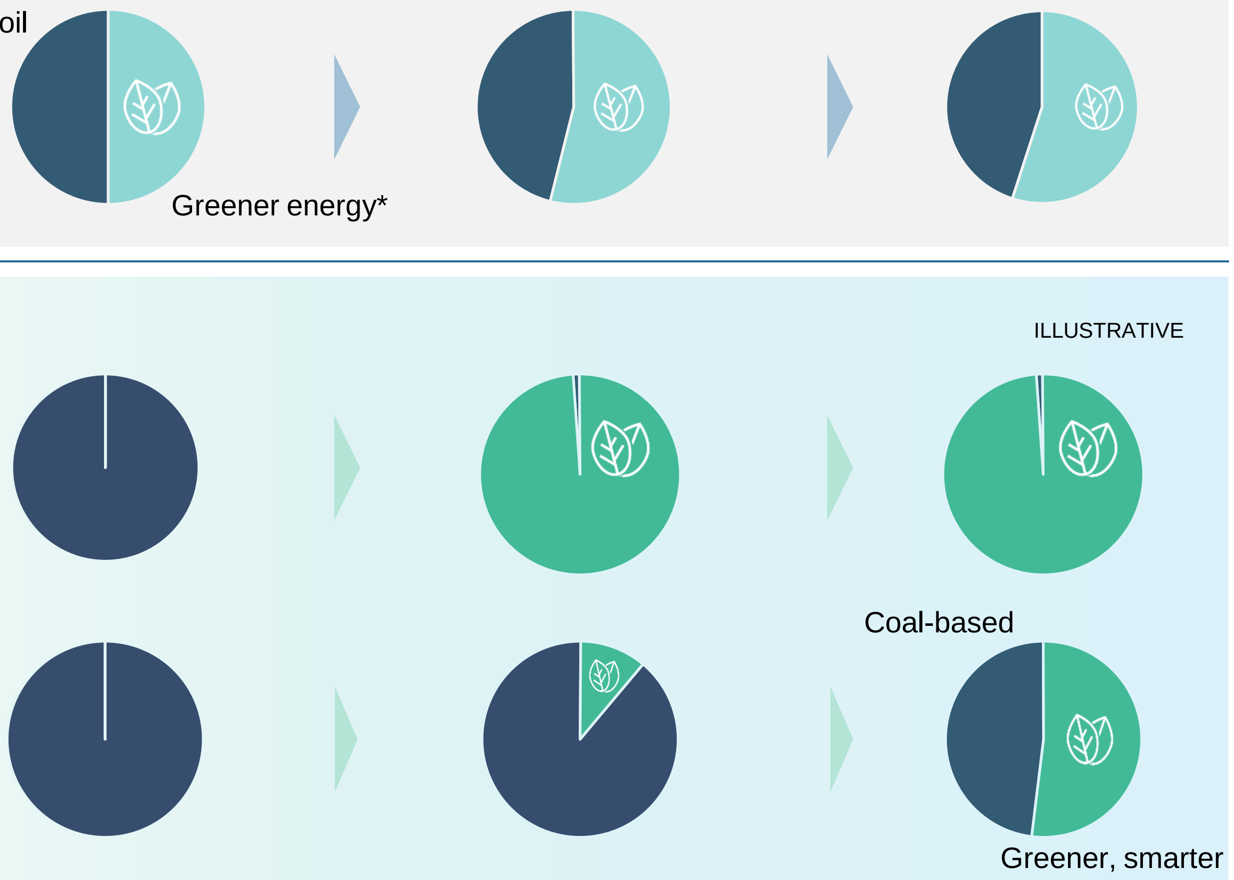
GROUP CAPEX BY BUSINESS

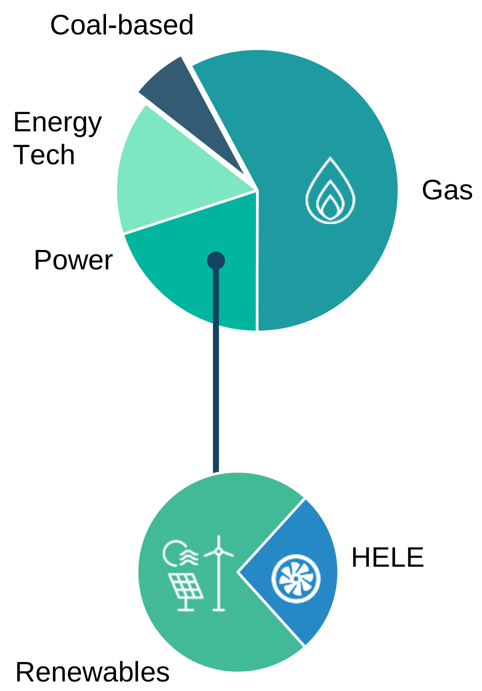
GROUP EBITDA BY BUSINESS



GREENER, SMARTER CAPEX FUELING EBITDA TRANSFORMATION

CUMULATIVE CAPEX 2016-20

Over the past 5 years, **more than 90%** of Banpu's CAPEX has been allocated to ***Greener, Smarter*** investments



Note:
*Includes renewables, gas supply, and gas-fired power
**IEA World Energy Outlook – stated policies scenario (includes gas supply and gas-fired power)

Banpu's Greener, Smarter journey so far

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2016 China Solar
2015 Japan Solar
Initial investments in renewables

2016 Marcellus shale
First steps into US gas

2016 SLG
Investment in 'HELE' power

2017 Sunseap
Initial investment in solar portfolio

2018 Vinh Chau
First investment in Vietnam wind

2018 Durapower
Investment in battery production

2019 e-Mobility ecosystem
First steps into EVs

2020 Japan energy trading
First MW traded

2020 BANPU NEXT
Launch to focus on energy technology

2020 Barnett shale
Milestone expansion of gas business

2020 Banpu e-ferry
Launch marine tour e-ferry in Thailand

CUMULATIVE INVESTMENT 2015-20

2015	2018	2020
$0.1 bn	$1.0 bn	$1.9 bn

Banpu Mining and Banpu Power – emissions reductions

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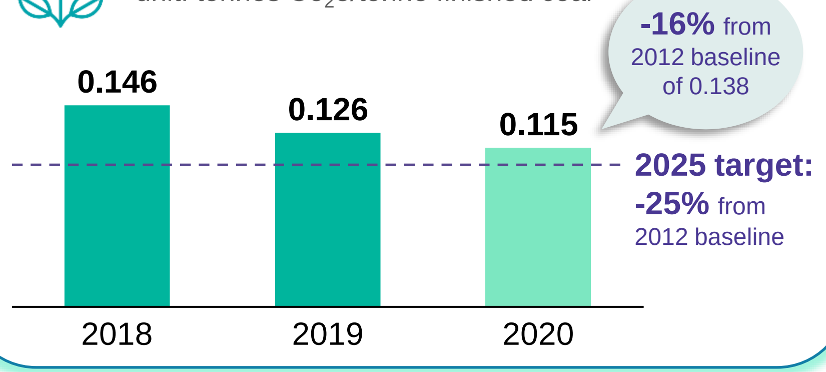
MINING GREENER, SMARTER INITIATIVES

- COAL HAUL TRACKING SYSTEM
- AUTOMATIC CONTROL SYSTEM
- WASTE GAS RECYCLING
- SOLAR PV INSTALLATION
- OVERBURDEN FLEET MANAGEMENT

GHG EMISSIONS INTENSITY

unit: tonnes Co_2e/tonne finished coal



HELE INVESTMENTS

SLG (+396 MW)

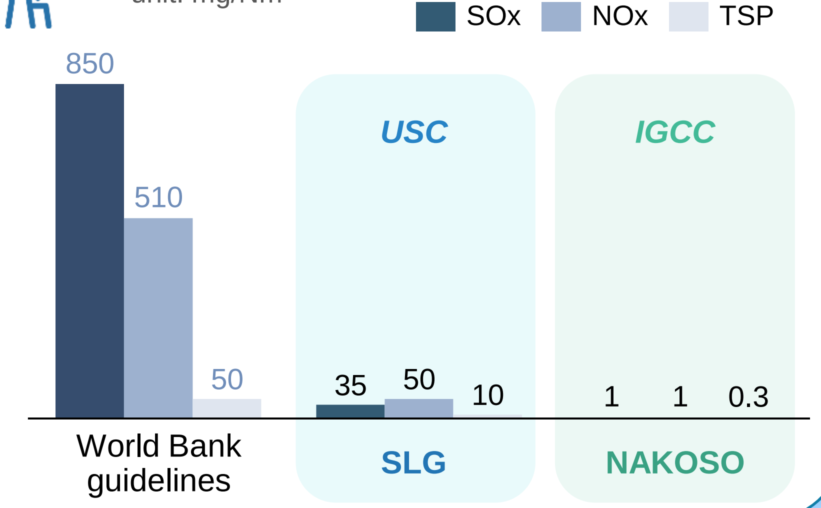
Ultra Supercritical boiler technology (USC)

NAKOSO (+73 MW)

Integrated Gasification Combined Cycle technology (IGCC)

PLANT EMISSIONS*

unit: mg/Nm³



Note: *Plant emissions shown are nitrogen oxides (NOx), sulfur oxides (SOx) and total suspended particulate matters (TSP)

Energy Technology: investing in Thailand's future energy ecosystem

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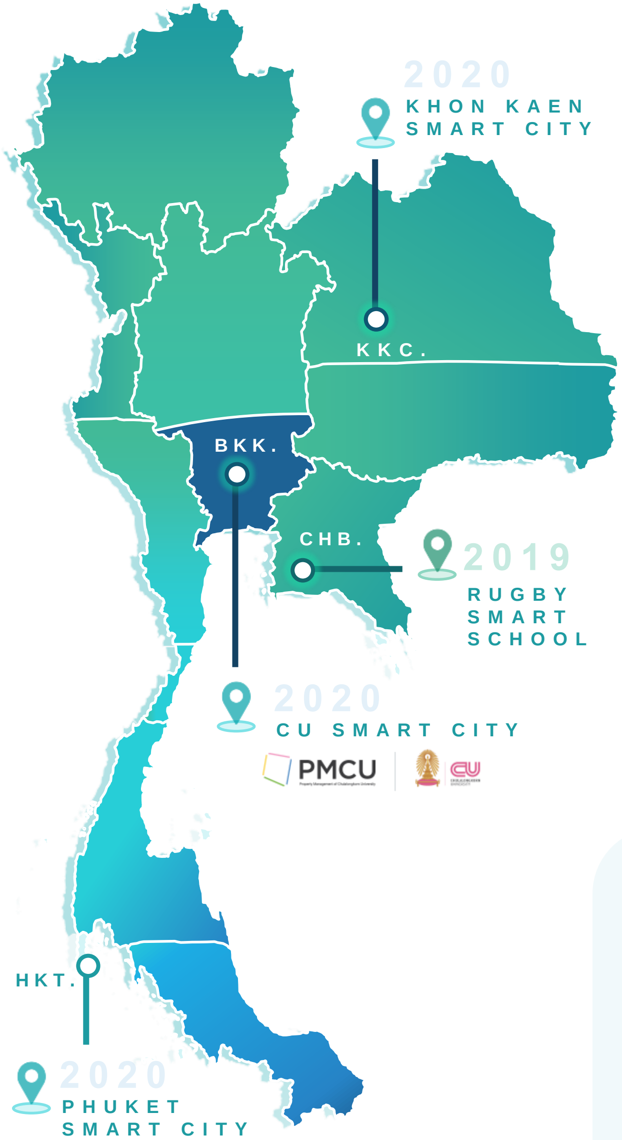

SOLAR SOLUTIONS

Combining the total capacity of solar systems installed by Banpu NEXT:

We can help reduce **>168,500 t** CO_2 per year

Equivalent to planting **>9,800** million trees

Including solar systems installed across 68 faraway schools in Thailand

SOLAR ROOFTOPS

summer lasalle
Reduction of
>470 t CO_2 to date

Rugby School
Reduction of
>740 t CO_2 per year

chin huay
Reduction of
>740 t CO_2 per year

E-MOBILITY

BANPU E-FERRY

Promoting green tourism

Can eliminate
c. 26,250
liters of petrol
consumption per year

Reduction of
>69 t CO_2
per year

MUVMI e-Tuktuks

Currently 100 under fleet

Total fleet can reduce
c. 336,000
liters of petrol
consumption per year

Equivalent to
560 t CO_2e
per year


22.608
27.017
6.956
25.001
23.795
35.891
2.062
7.958
19.307
4.852
1.803
18.63
5.004
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Banpu consolidated financial summary 1Q21

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KEY FIGURES

EBITDA **$274 M**

Strong result driven by increased contribution from Coal and Gas business

NPAT **$51 M**

Improved performance with strong EBITDA generation and gain from non-recurring items

ND/E **1.39 x**

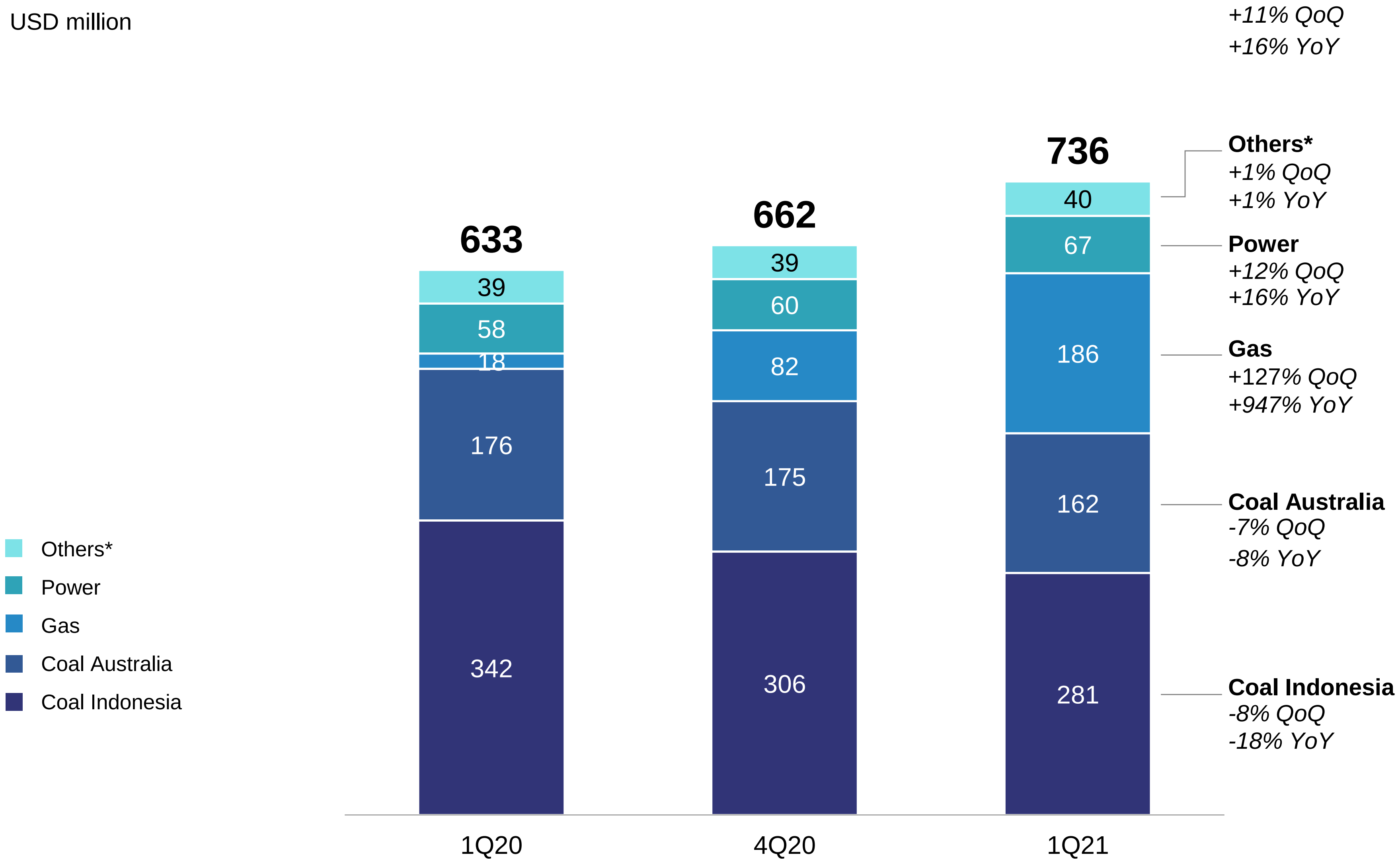
ND/E decreased from 1.47x in the previous quarter

KEY TAKEAWAYS

1. **Improved Coal business performance:** from higher ASP in Indonesia, Australia and China despite lower sales volume than the previous quarter
2. **Higher Gas business contribution:** supported by increase in average local price* and other income from trading JV
3. **Strategic positioning:** Coal and Gas businesses well-positioned to benefit from current commodity price levels and demand
4. **Gain from non-recurring items:** from foreign exchange gain providing support to the Group's earnings

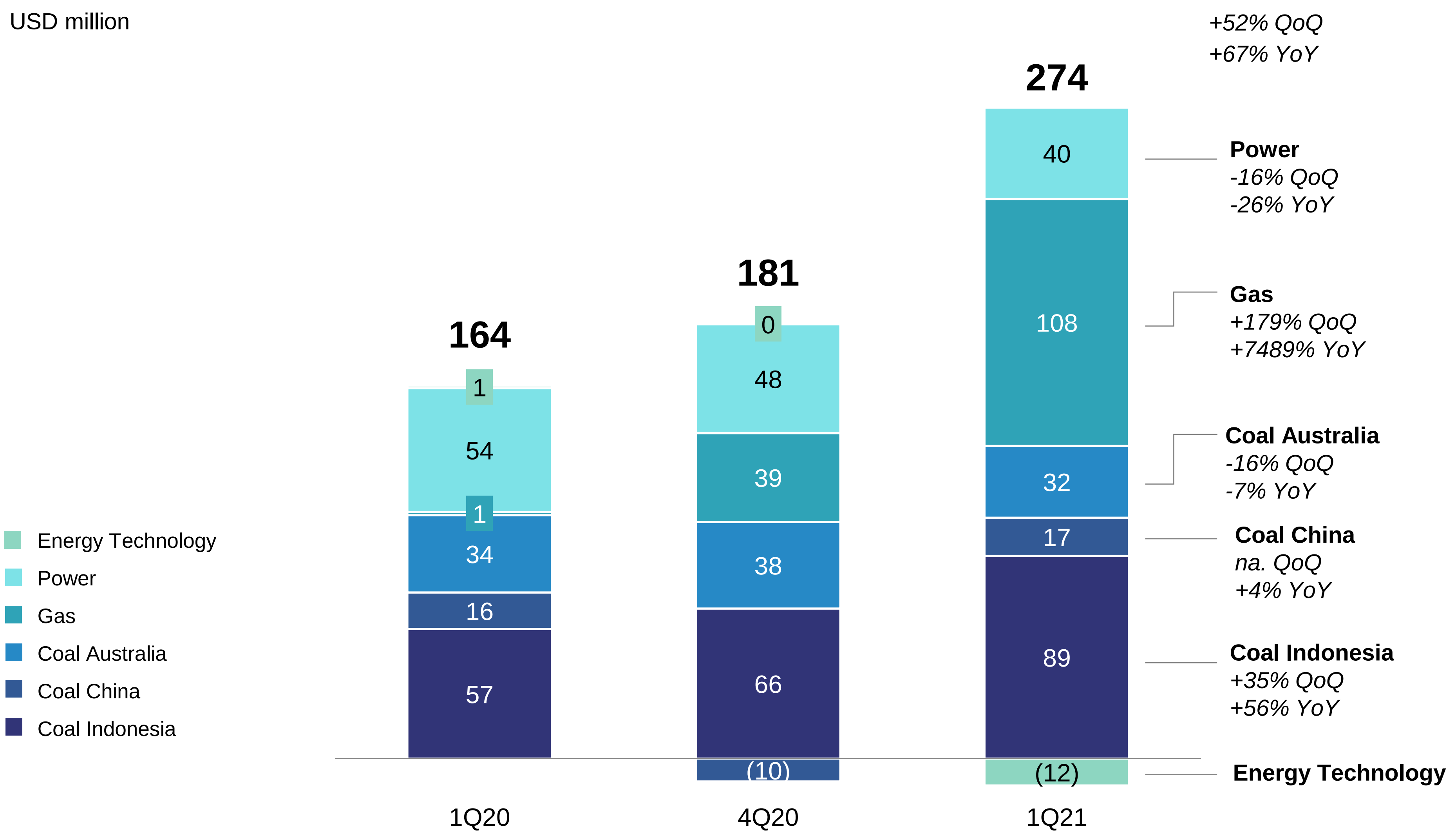
Note: *Average local price = Henry Hub - basis differential

Banpu consolidated sales revenues – 1Q21



Note: *Revenue from others includes coal trading, fuel business and other businesses

Banpu consolidated EBITDA – 1Q21



Banpu consolidated NPAT – 1Q21

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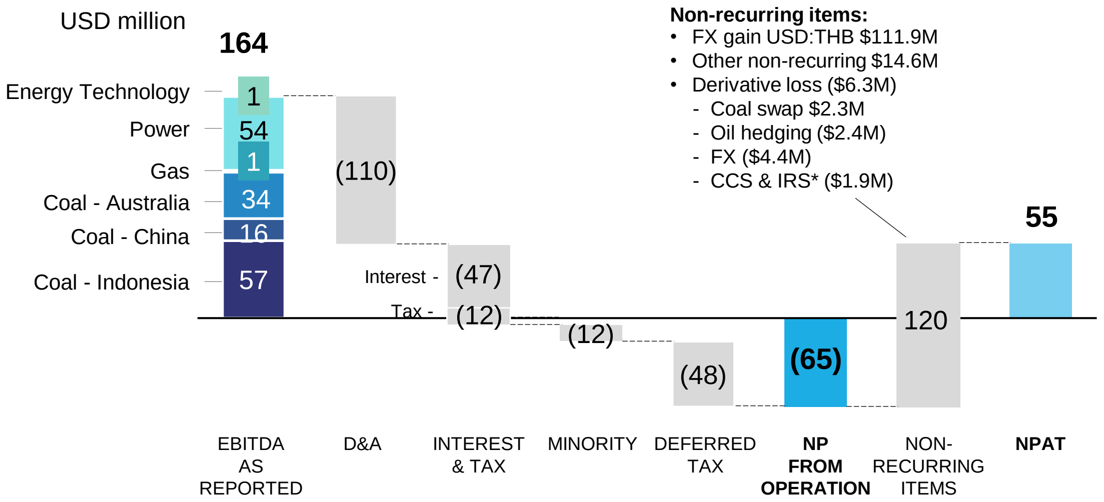
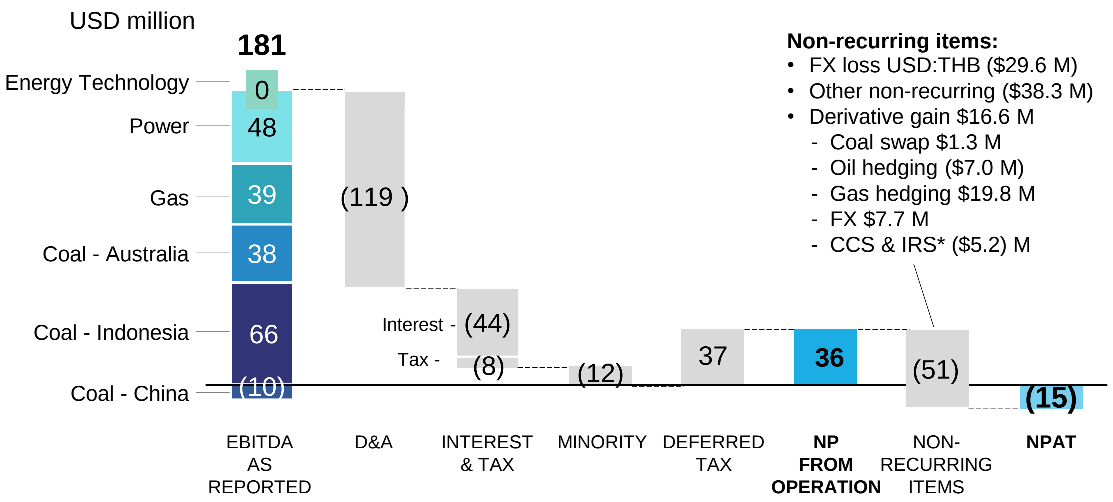
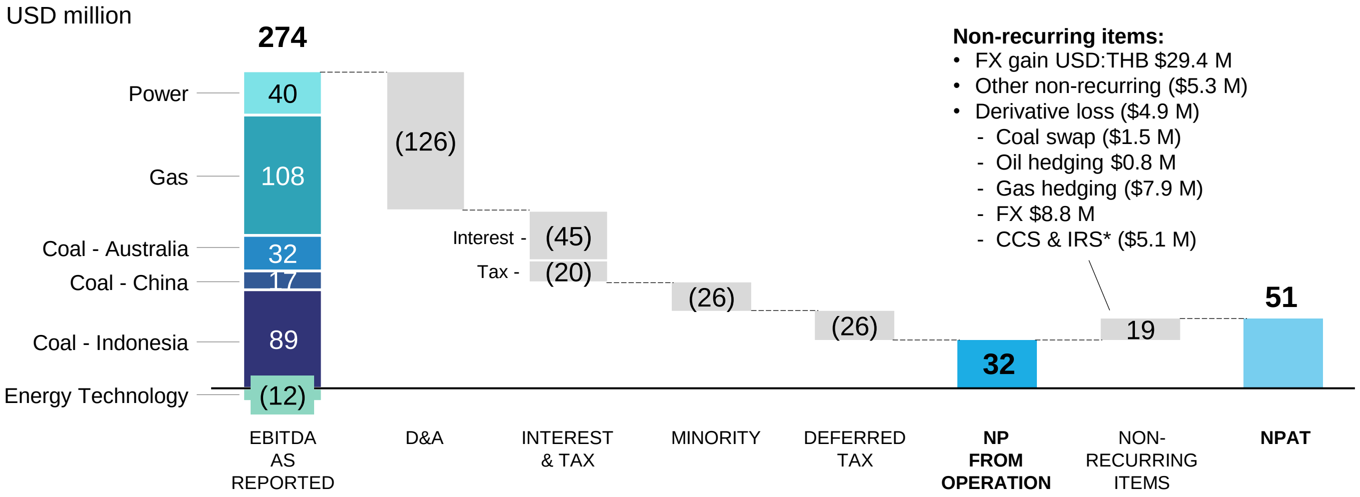
1Q20 NET PROFIT AFTER TAX



4Q20 NET PROFIT AFTER TAX



1Q21 NET PROFIT AFTER TAX

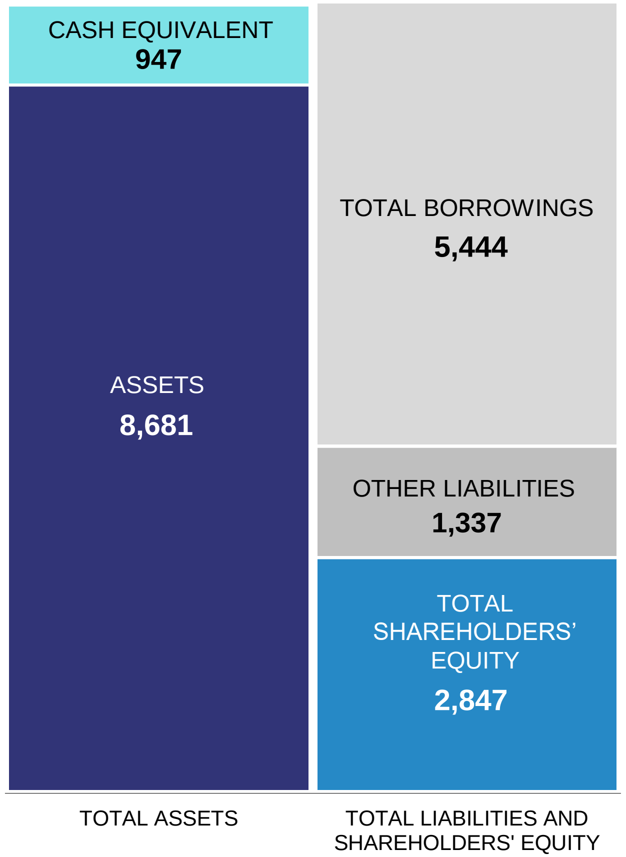


Note: *cross currency swap, interest rate swap

Banpu consolidated balance sheet – 1Q21

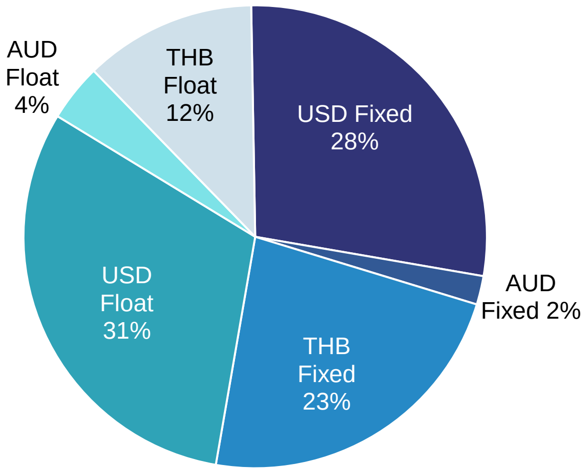
1Q21 CONSOLIDATED FINANCIAL POSITION

USD million



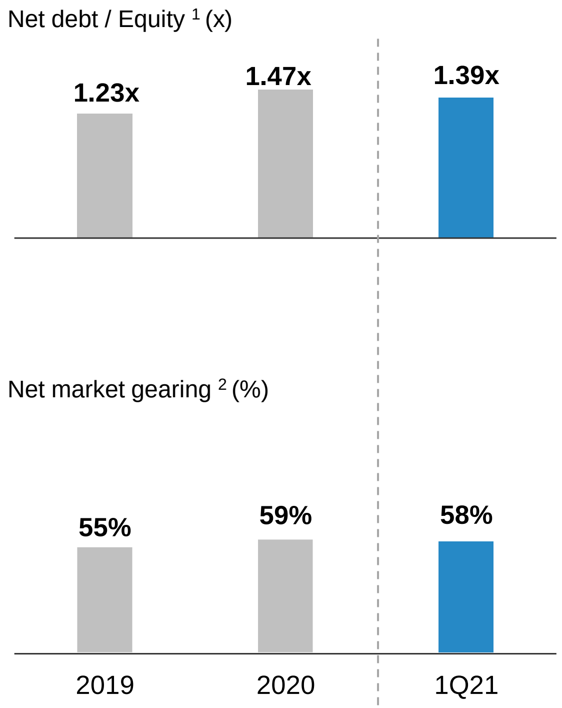
Note:
1 Net debt to book value of shareholders' equity
2 Net debt to enterprise value (enterprise value = net debt + book value of shareholders' equity)

DEBT FX STRUCTURE



Total gross debt: US$5.4 billion
As of 31 March 2021

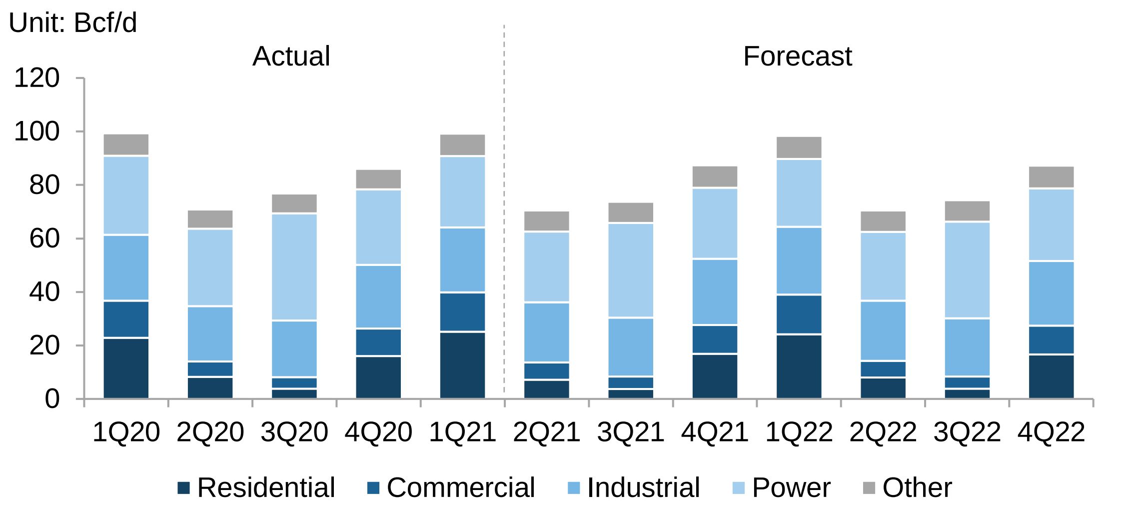
GEARING RATIOS




HD785
KOMATSU
746
BANPU

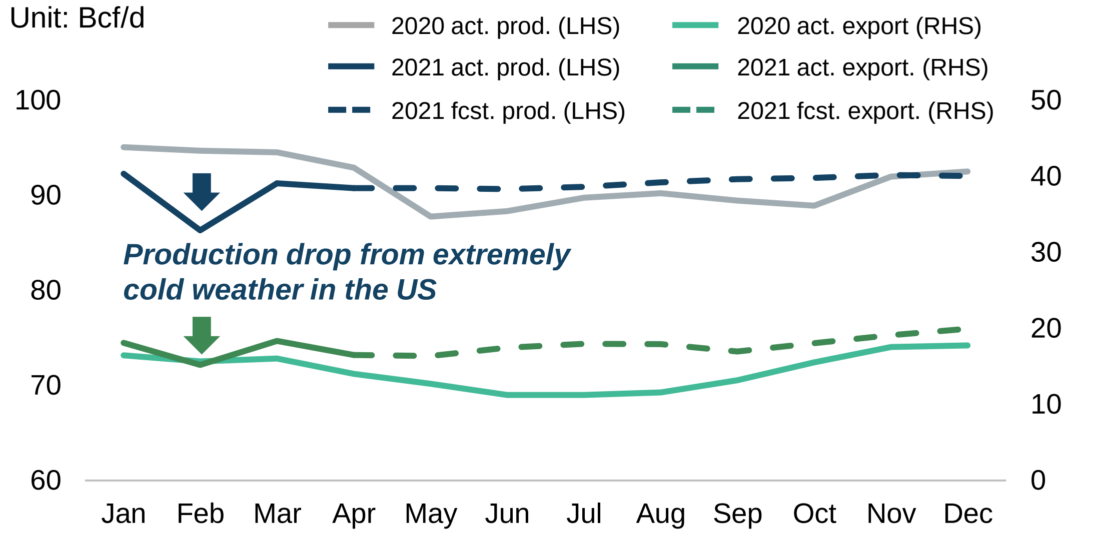
U.S. gas market update

RESILIENT DEMAND PROJECTION

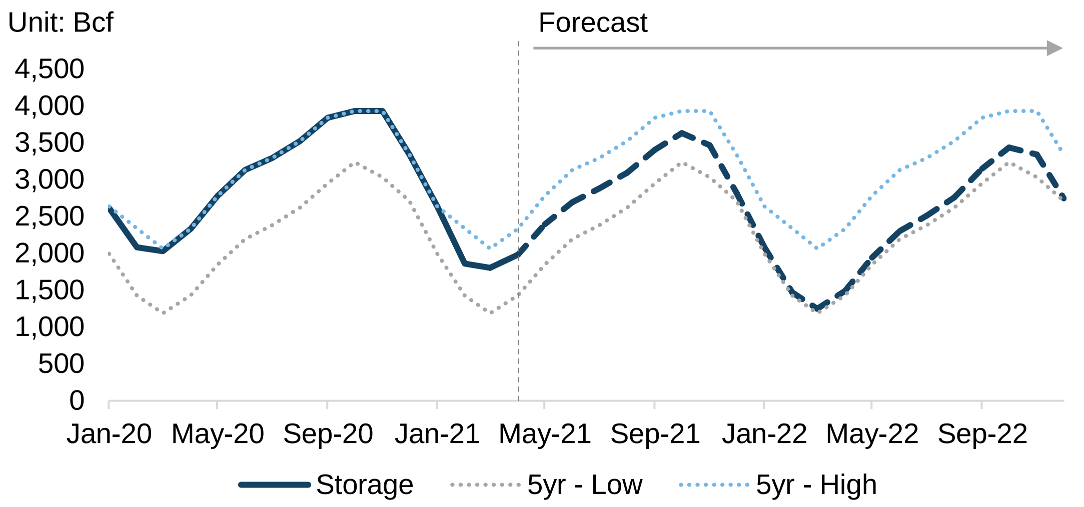


- Majority of US gas demand is domestic consumption. Price determined by local demand and supply with indirect linkage to oil via associated gas production.
- U.S. gas consumption is expected to average 82.6 Bcf/d in 2021, slightly down from 2020 as power generators switch to coal due to rising natural gas prices. With the expanding economic activity and colder temperature, residential, commercial and industrial natural gas consumption is expected to rise by 1.8 Bcf/d from 2020.
- Production fell by 6.0 Bcf/d in February to 86.3 Bcf/d because of cold weather, but it is expected to increase to the average of 90.8 Bcf/d in 2Q21, up 1% from 2Q20. Production is expected to average 91.1 Bcf/d for 2021, slightly down from 2020.
- Natural gas inventories ended April 2021 at almost 2.0 Tcf which is 3% lower than 5-year average due to higher natural gas withdrawals during the winter of 2020-21 as a result of drop in production from cold February temperature.

US NATURAL GAS PRODUCTION



U.S. STORAGE LEVEL



Source: EIA Short-Term Energy Outlook (May 2021)

U.S. gas: declining production will support gas price outlook

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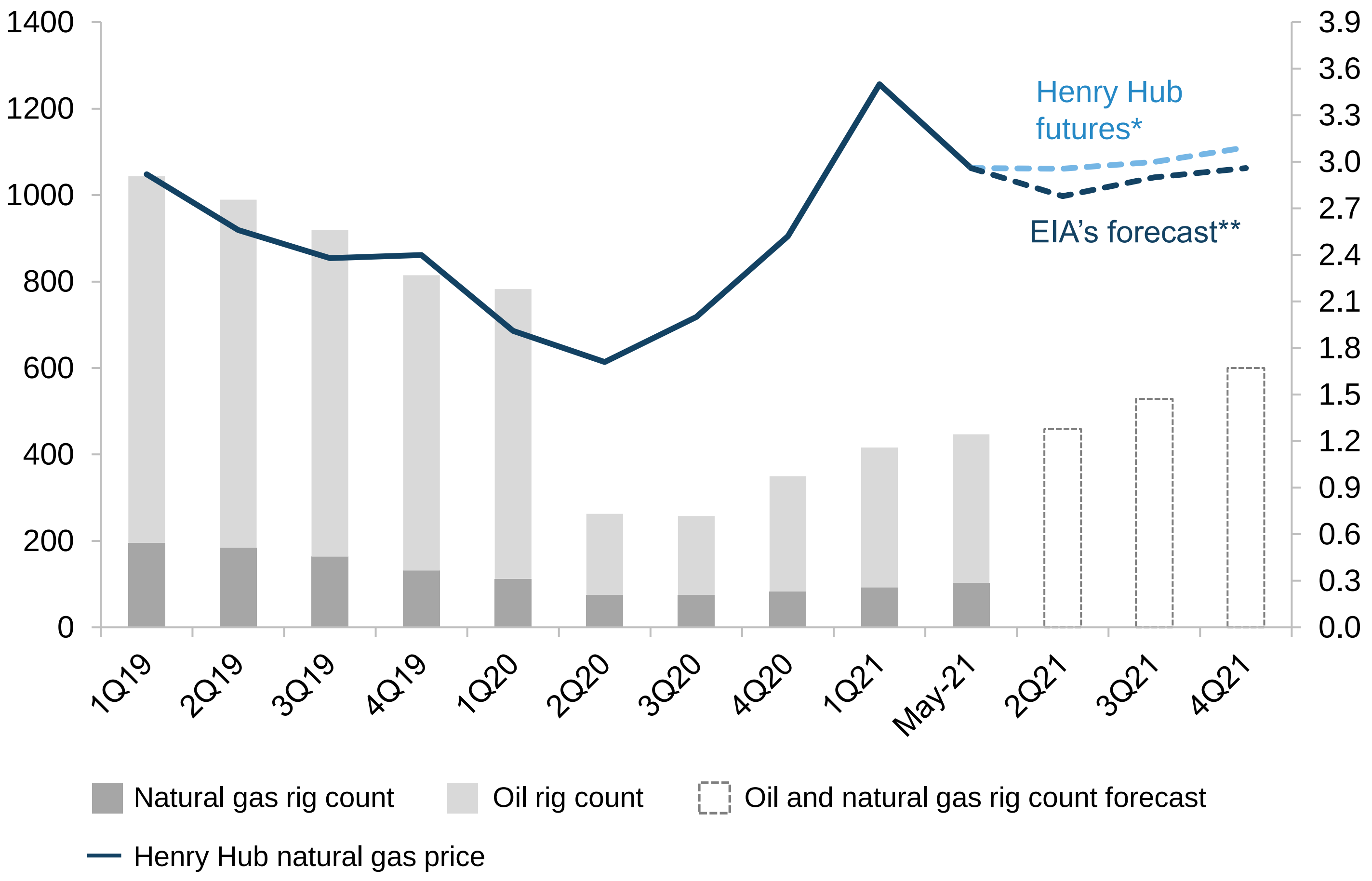
US RIG COUNT VS HENRY HUB PRICE

US OIL AND NATURAL GAS RIG COUNT
Unit: Rigs

HENRY HUB SPOT PRICE
Unit: $/MMBtu



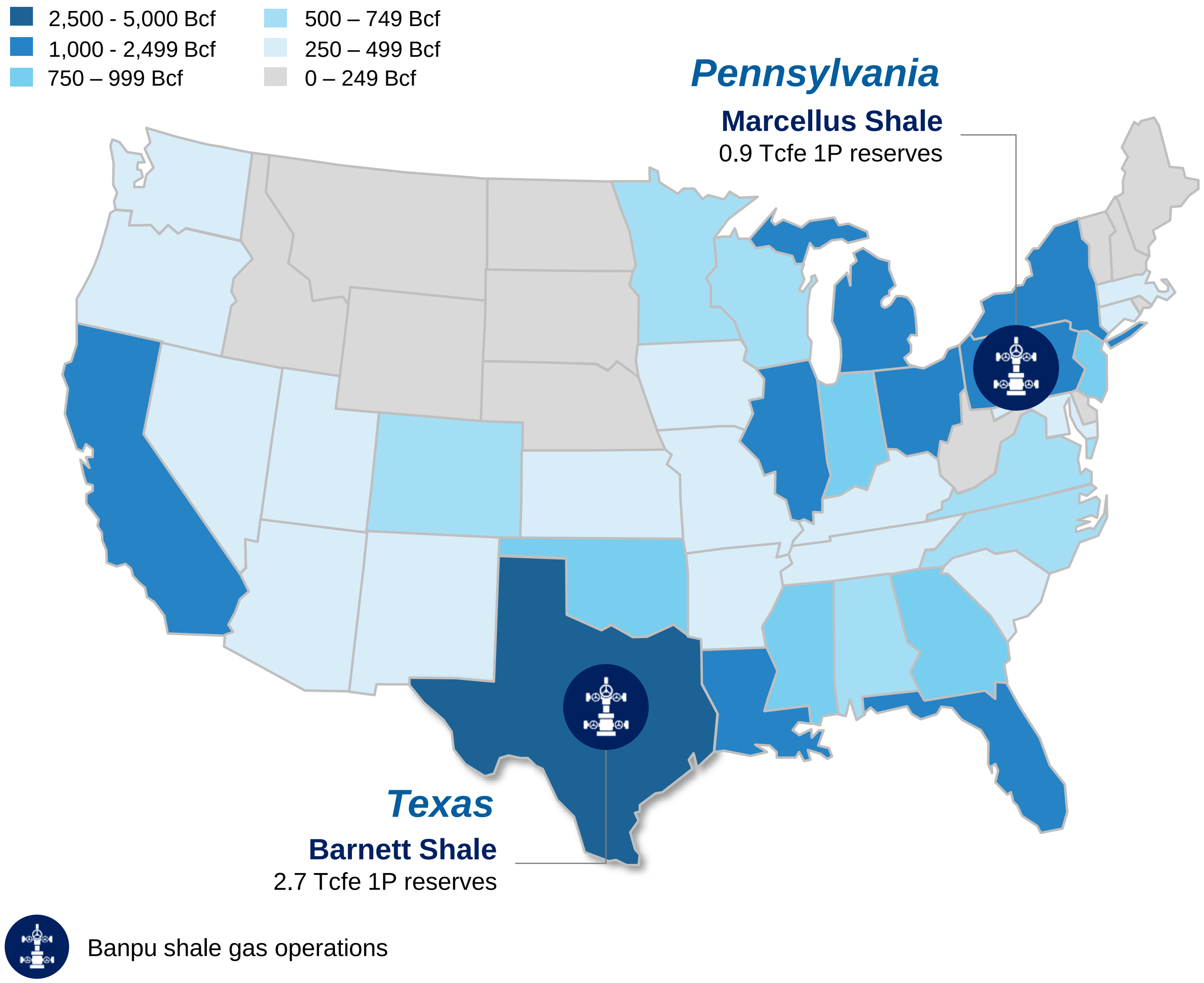
Note: *as of May 11th, 2021, **Short-Term Energy Outlook (May 2021)
Source: IHS Markit report and Baker Hughes US natural gas rotary rig count (May 2021)

COMMENT

- Oil and natural gas prices have continued to push higher in 1Q21 due to extreme weather conditions in the US affecting gas supply, demand and inventory outlook since February
- Capital spending is expected to increase in 2021 relative to 2020 but remain low in total compared to 2015-2019 average as the operators focus on cash flow generation and to the lesser extent on production growth
- With the increase in capital spending, oil and gas rigs are expected to increase slightly in 2Q21, up 21% from 2Q20 but remain at levels 55% lower than 1Q19
- Price returned to normal levels after a spike in February, Henry Hub futures signal a slight increase as supply growth is expected to lag behind demand growth and decline in inventory

Banpu Gas: 1Q21 highlights

US DRY GAS CONSUMPTION 2019 BY STATE* (Bcfe)



Average local price**

$2.61/Mcfe

+25% QoQ

Sales volume

62 Bcfe

-6% QoQ

EBITDA

$108 M

+179% QoQ

*Source: EIA

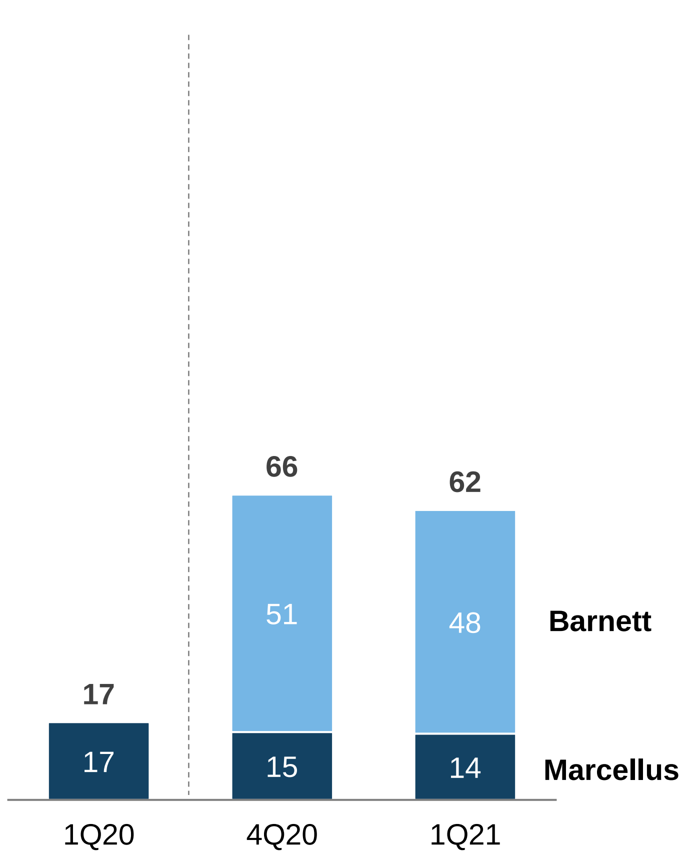
**Average local price = Henry Hub - basis differential

Banpu Gas: 1Q21 performance

1Q21 highlighted our agility to successfully deliver strong production and financial results despite unprecedented weather conditions. Record EBITDA of $108 M in 1Q21 with $49 M of other income from our trading JV.

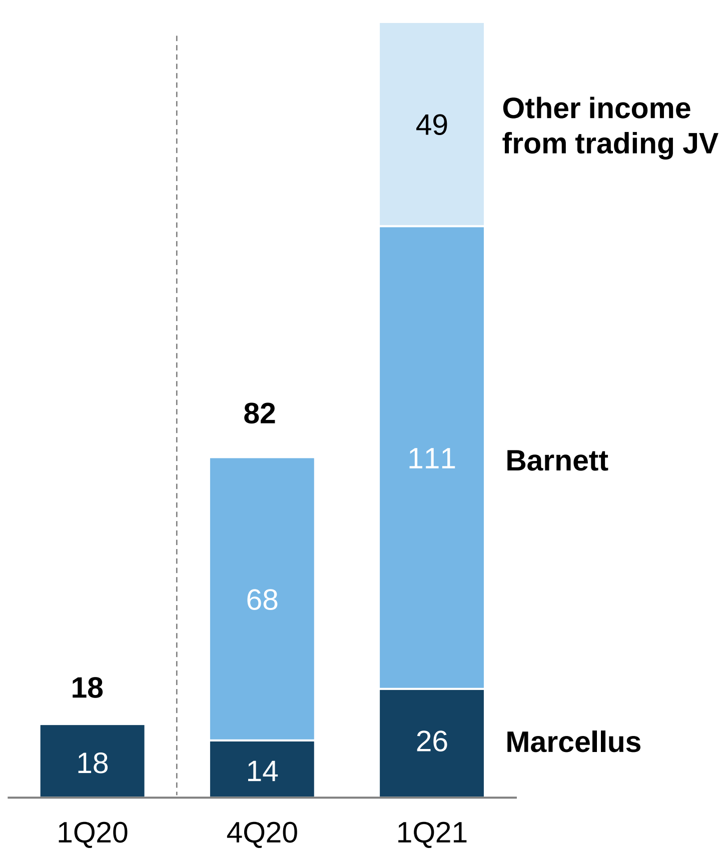
SALES VOLUMES

Unit: Bcf*



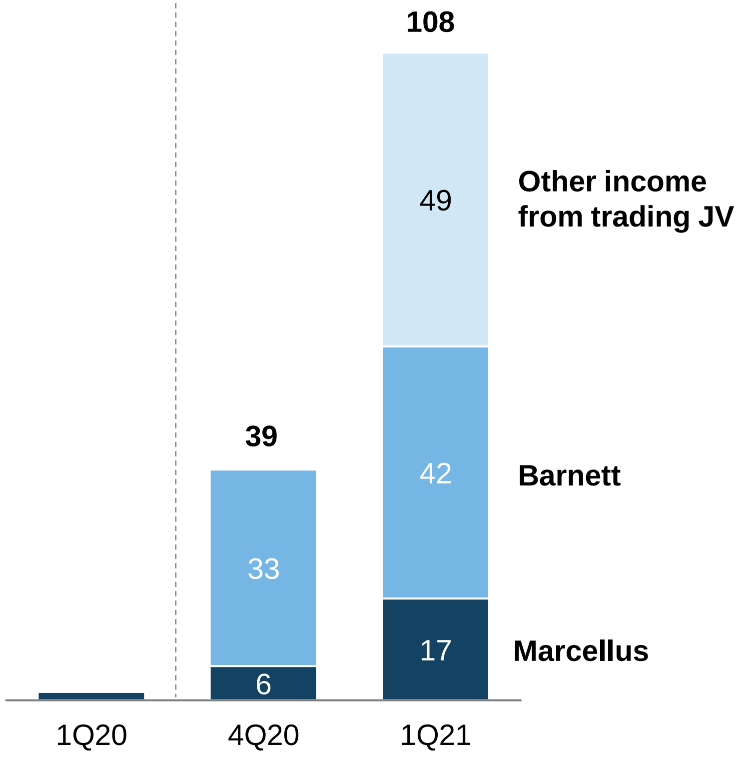
TOTAL REALIZED REVENUE

Unit: US$M



EBITDA

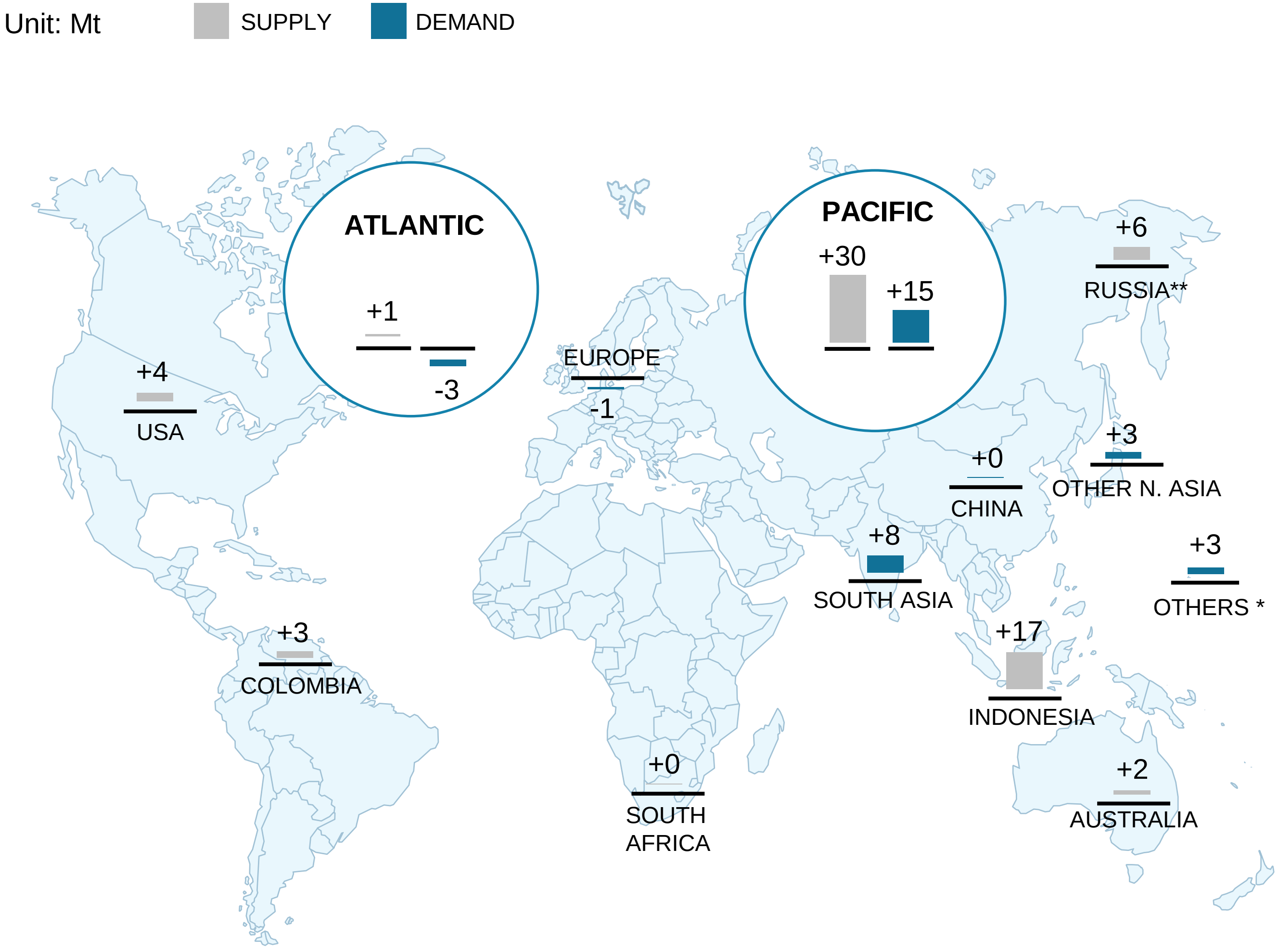
Unit: US$M



Note: *Bcf = Billion cubic feet

Global thermal coal market

COAL DEMAND AND SUPPLY CHANGE – 2021E VS 2020



* Demand in other countries driven by Vietnam, ** Russia exports to non-CIS countries only, JKT = Japan, South Korea and Taiwan

TRENDS

DEMAND

Economic recovery supports coal demand but a resurgence in coronavirus infections slower the growth. Trade tensions between China and Australia has been elevated and are likely to continue to affect coal trade flow throughout the year which helps to support seaborne coal prices.

- **China:** Healthy economy supports strong coal demand amid tight supply which pushes domestic coal prices up. Expectations of some relaxation on import control.
- **India:** Second coronavirus waves slow economic recovery, but the impact seems less severe than last year.
- **JKT:** Post-pandemic demand and commissioning of 3 GW new coal plants in South Korea will add more demand this year but restricted coal use to reduce carbon emissions will limit growth.
- **Europe:** High carbon and low gas prices amid increasing renewable capacity add downside pressure to coal demand and prices.

SUPPLY

Tight supply since the beginning of 2021 as rain impacts production in Indonesia and Australia amid strong demand. Incidents and maintenance in key exporting countries reduce export availability and help to tighten supply.

- **Indonesia:** Benefits from China's ban on Australian coal with strong China demand helps to drive Indonesian coal prices.
- **Australia:** Exports continue to be impacted by the ban on Australian coal into China but mostly hit on high ash coal. High CV supply remains tight.
- **Others:** Maintenance work and shortage of locomotives reduce availability of supplies from South Africa while high coal prices support coal exports from US and Colombia. Russian production and export remain strong with more coal ships to Asia.

Banpu ASPs vs thermal coal benchmark prices

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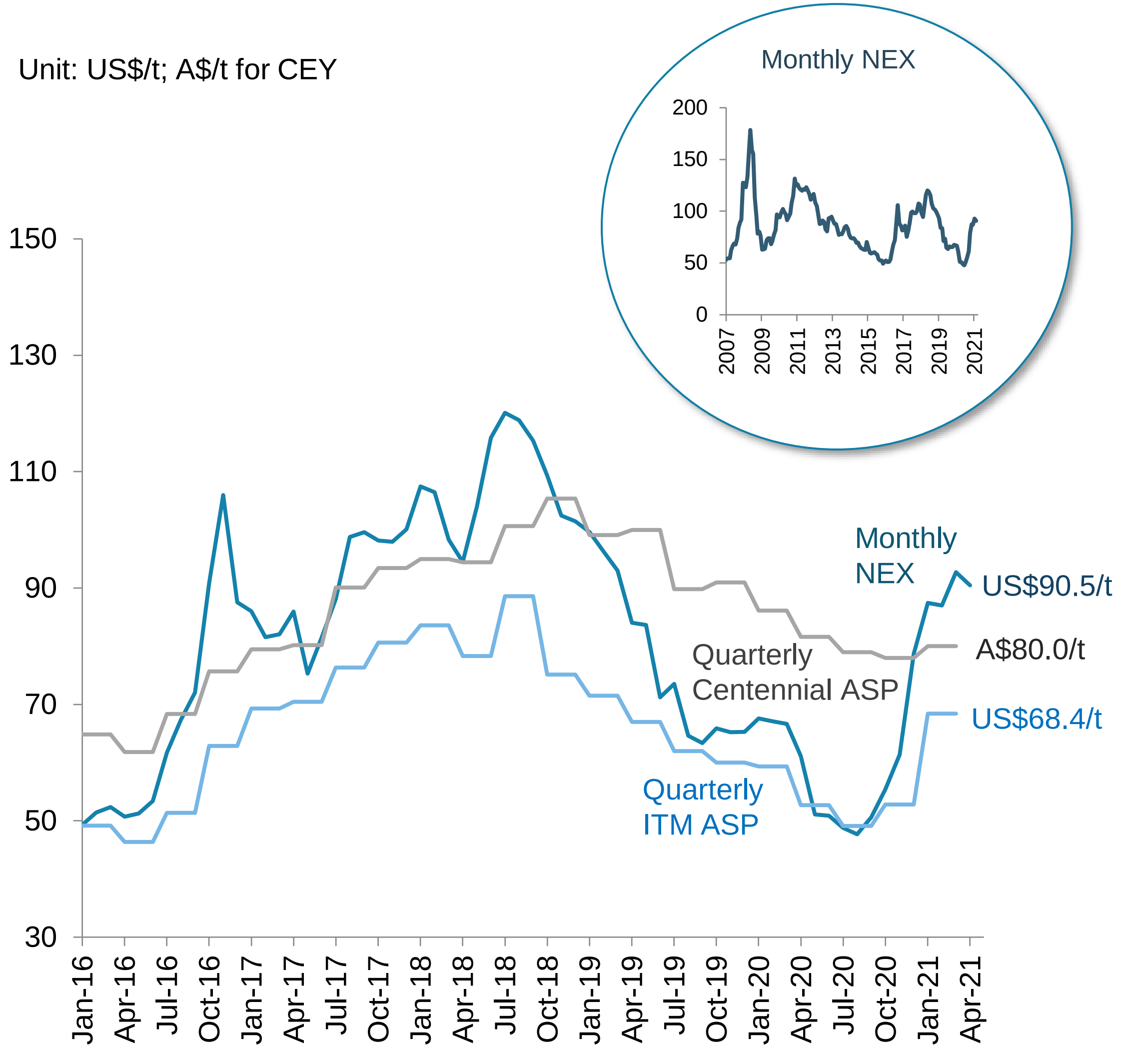
BANPU ASP VS BENCHMARK PRICES



COMMENTS

- Coal price surge momentum continued into 1Q21 mainly as a result of the Northern Hemisphere cold snap, however, the surge started losing steam as milder temperatures kicked-in alongside domestic production in China recovering and good inventory levels at power plants.
- Newcastle coal price surged again when the NCIG, one of the two major Newcastle port operators, suspended ship loading for two weeks due to urgent repairs that was immediately followed by heavy rains, interrupting coal shipments, however prices retreated after situation cleared into April.
- JPU Reference Price likely not be concluded this 2021 year.
- Unresolved China – Australia conflict led to the import ban by China, pushed up Indonesia Coal price, certain coal qualities trade at premium over Newcastle price on heat equivalent basis.
- Newcastle future price with slight backwardation at around US$90
- ASP in Q1 recovered, shadowing the price recovery trend and is expected to surge, following the NEX index trend.
- Key price metrics:
  - ITM ASP 1Q21 : US$68.4/t* (+30% QoQ)
  - CEY ASP 1Q21 : A$80.0/t* (+3% QoQ)

    ASP Domestic A$76.5/t (-3% QoQ), ASP Export A88.5/t (+16% QoQ)
  - NEX (May 14th, 2021)**: US$101.0/t

Note: * Includes post shipment price adjustments as well as traded coal
** The Newcastle Export Index (previously known as the Barlow Jonker Index – BJI)

Banpu Mining: group coal sales and pricing status 2021e

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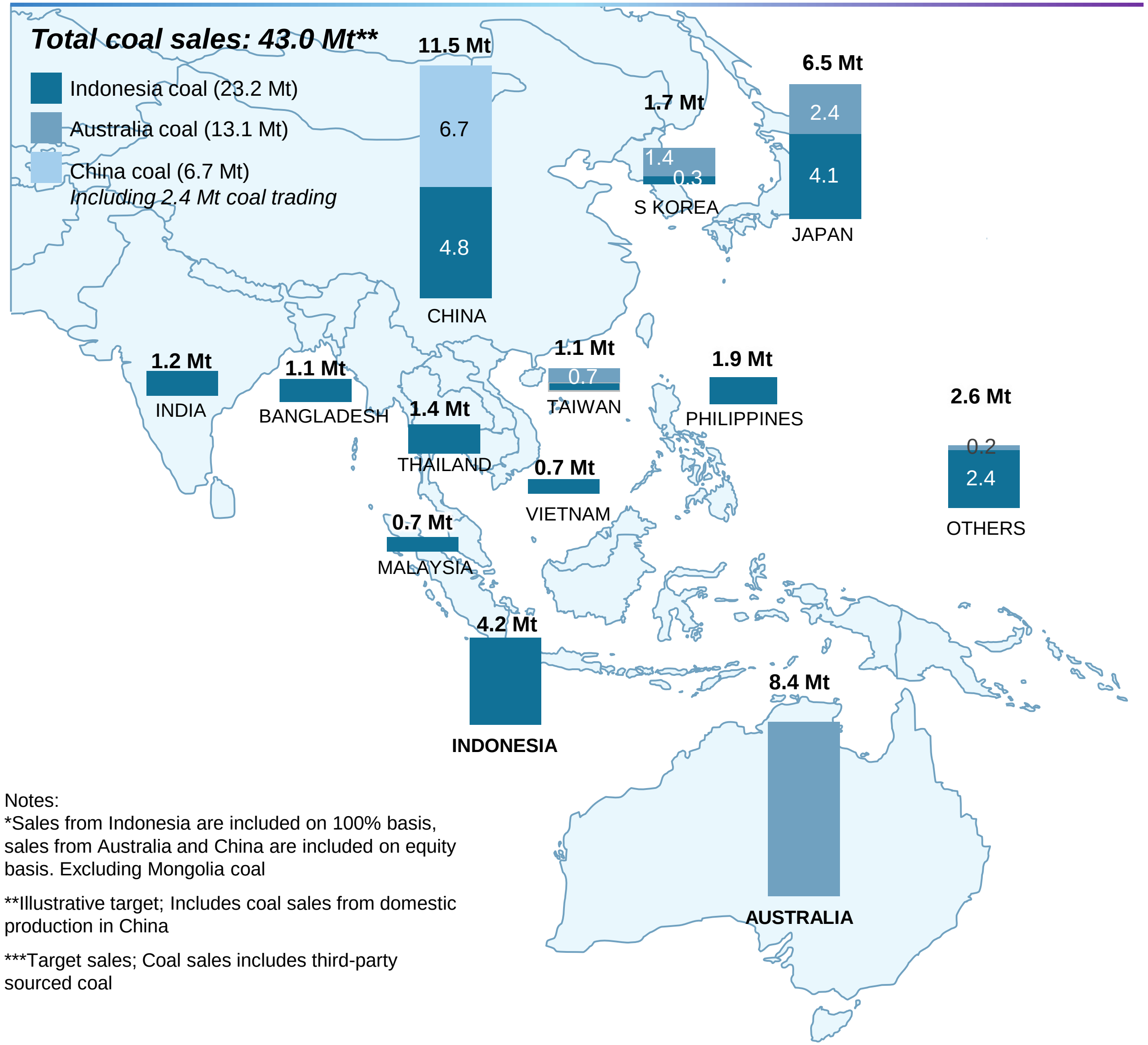
COAL SALES* SOURCE – DESTINATION ANALYSIS



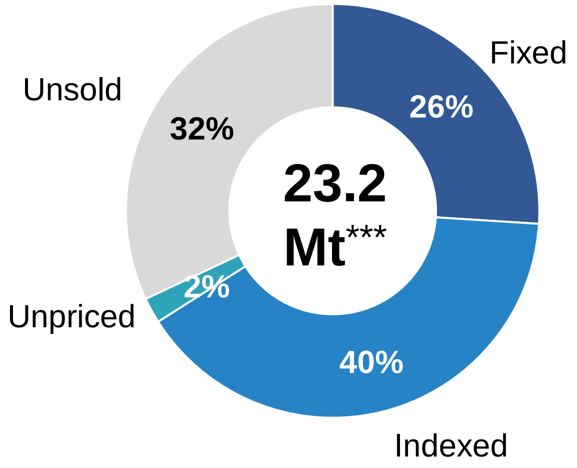
Notes:
*Sales from Indonesia are included on 100% basis, sales from Australia and China are included on equity basis. Excluding Mongolia coal

**Illustrative target; Includes coal sales from domestic production in China

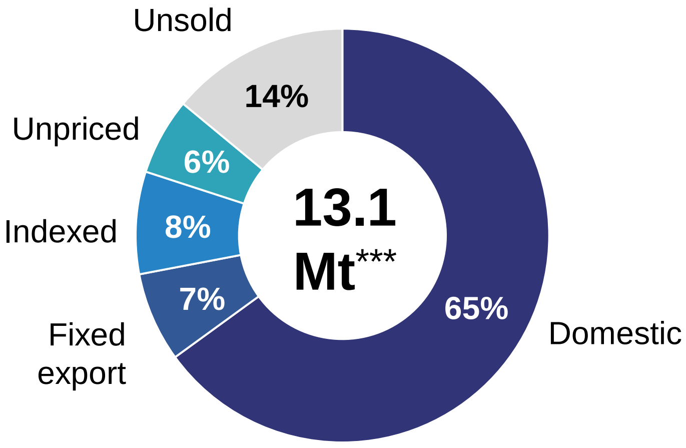
***Target sales; Coal sales includes third-party sourced coal

COAL SALES PRICING STATUS

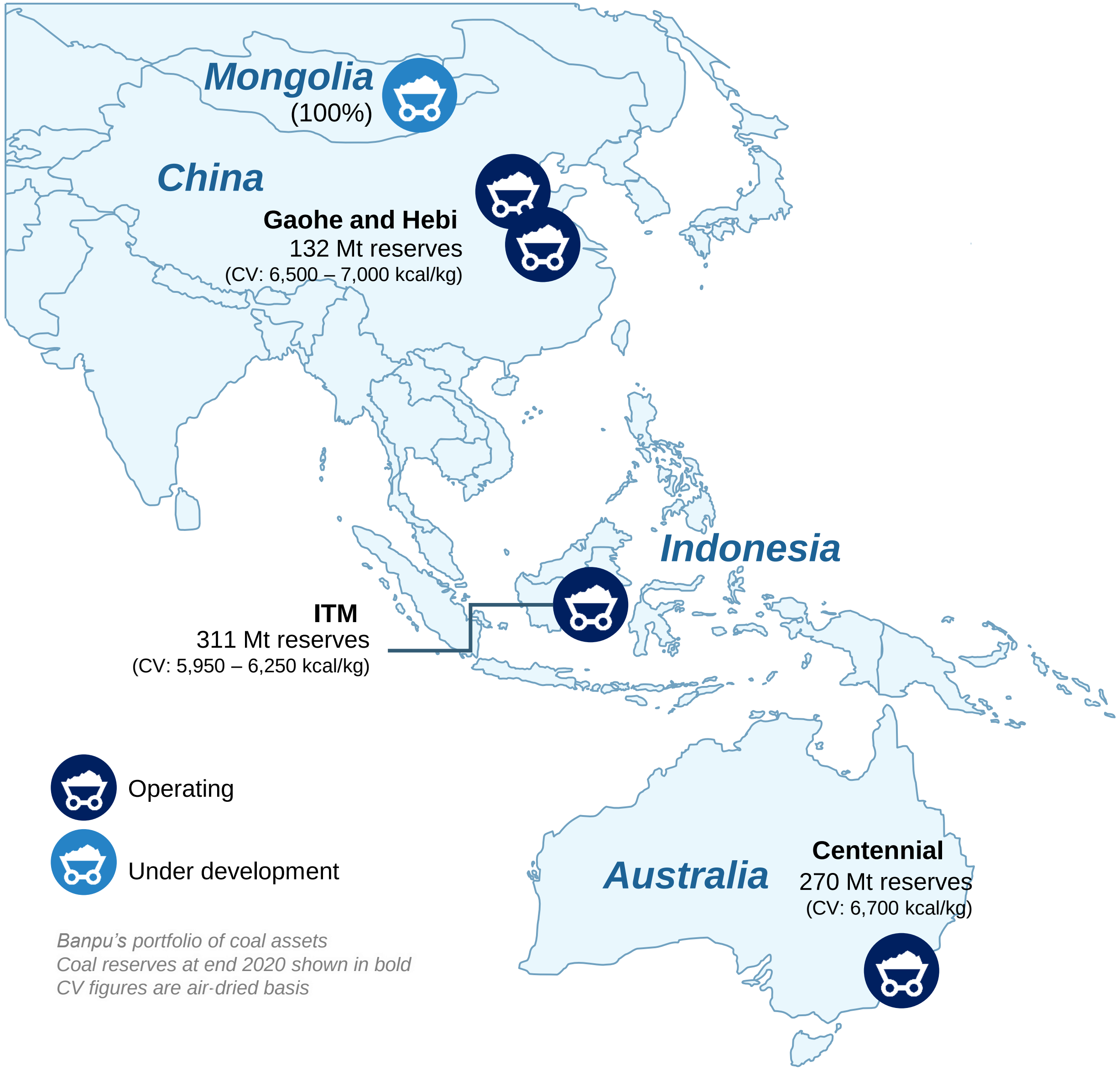
INDONESIA



AUSTRALIA



Banpu Mining: 1Q21 highlights



Banpu's portfolio of coal assets
Coal reserves at end 2020 shown in bold
CV figures are air-dried basis

Production volume*

8.9 Mt

-11% QoQ

Sales volume*

8.2 Mt

-21% QoQ

EBITDA

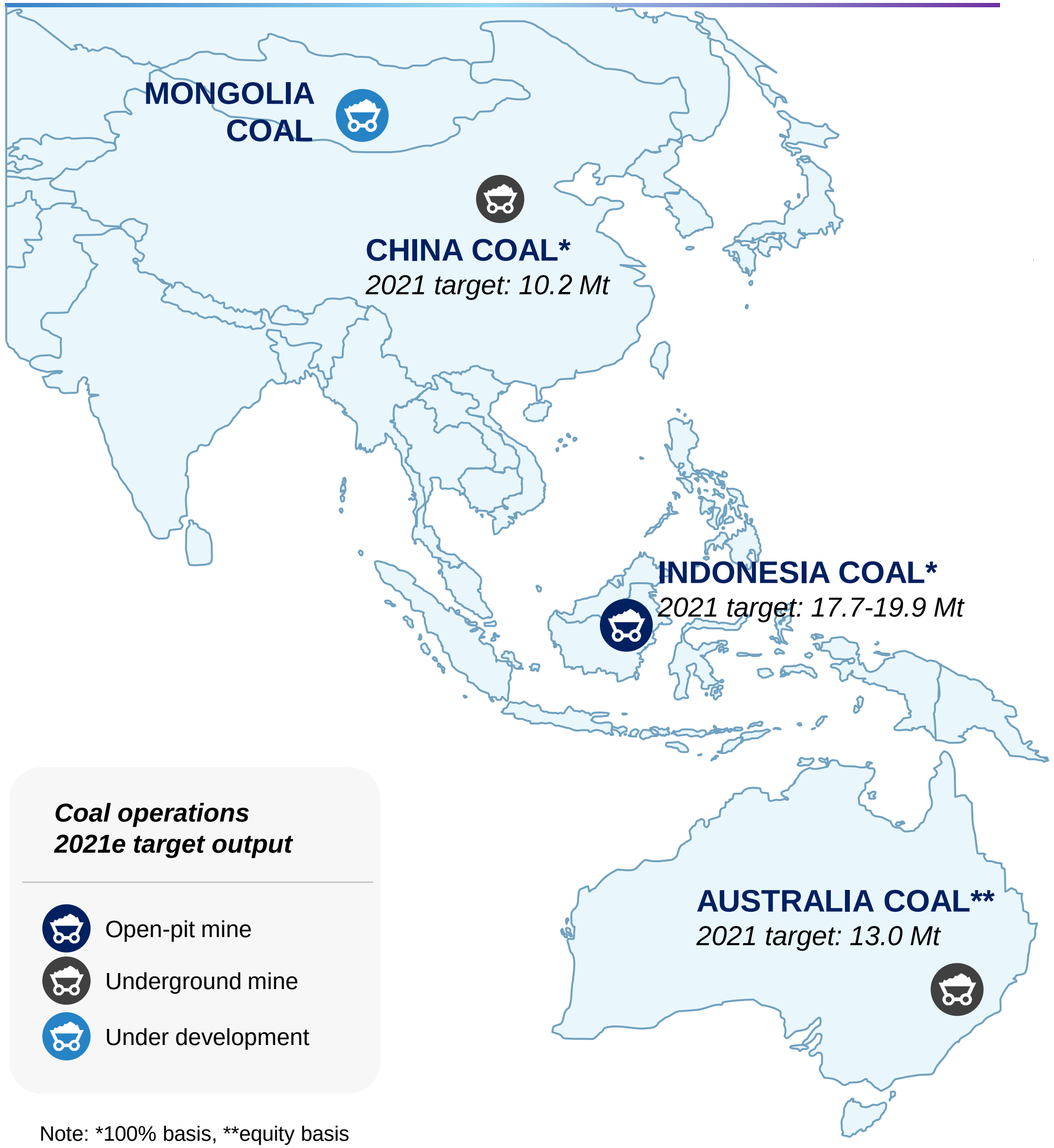
$138 M

+46% QoQ

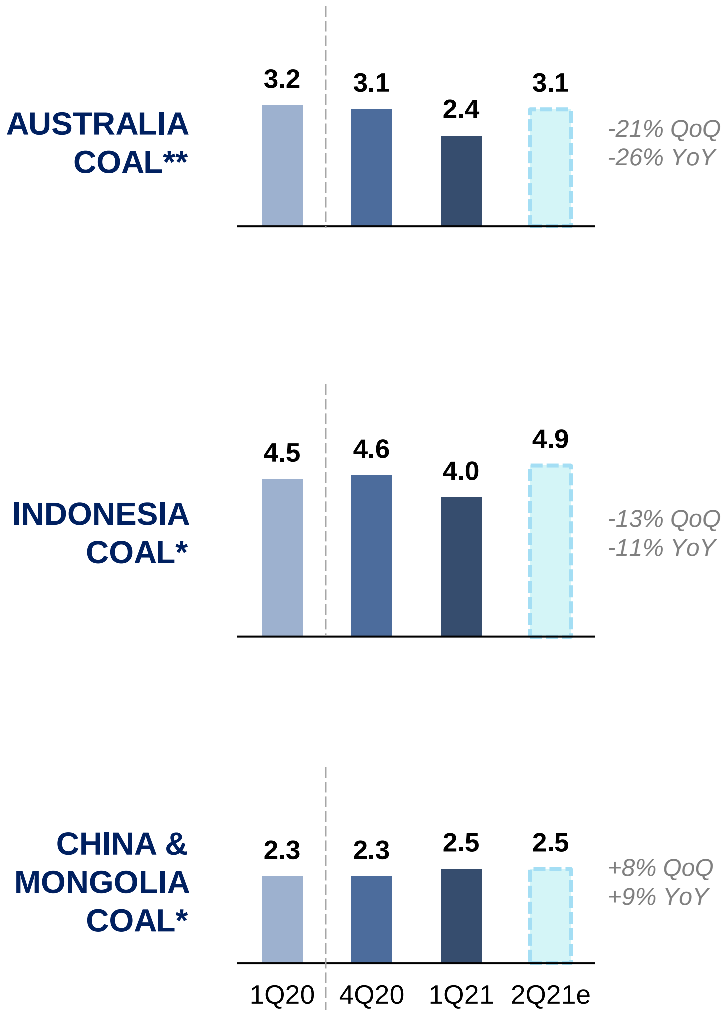
Note: *Based on 100% basis

Banpu Mining: operational summary

2021E COAL OUTPUT



ROM PRODUCTION AND KEY UPDATES



- Production was down compared to last quarter, with Springvale and Myuna impacted by complex geology, while Mandalong and Airly remained consistent.
- 2Q21 - anticipated improved conditions and reduced time in longwall changeover mode.

- Despite heavy rainfall condition, production achieved as targeted with slightly lower production from Trubaindo but offset by Bharinto performance.

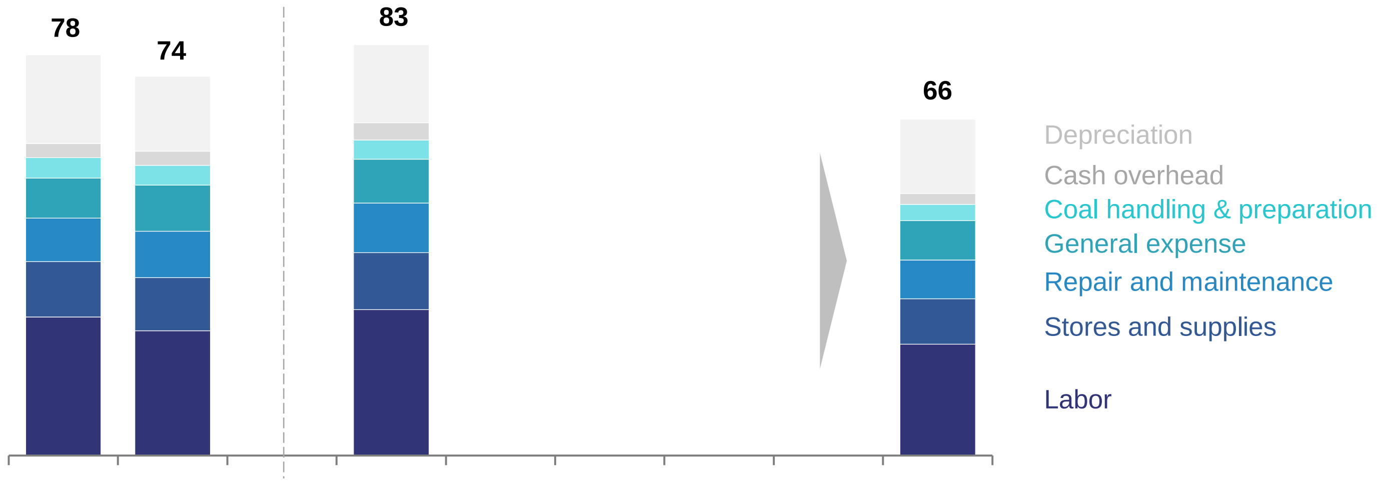
- Gaohe: Higher production and sales in Q1 due to high demand in heat-period and continued economic recovery.
- Hebi: Lower production in Q1 due to challenging geological conditions

Note: *100% basis, **equity basis

Banpu Mining: average production cost breakdown

AUSTRALIAN COAL – AVERAGE PRODUCTION COST[1]

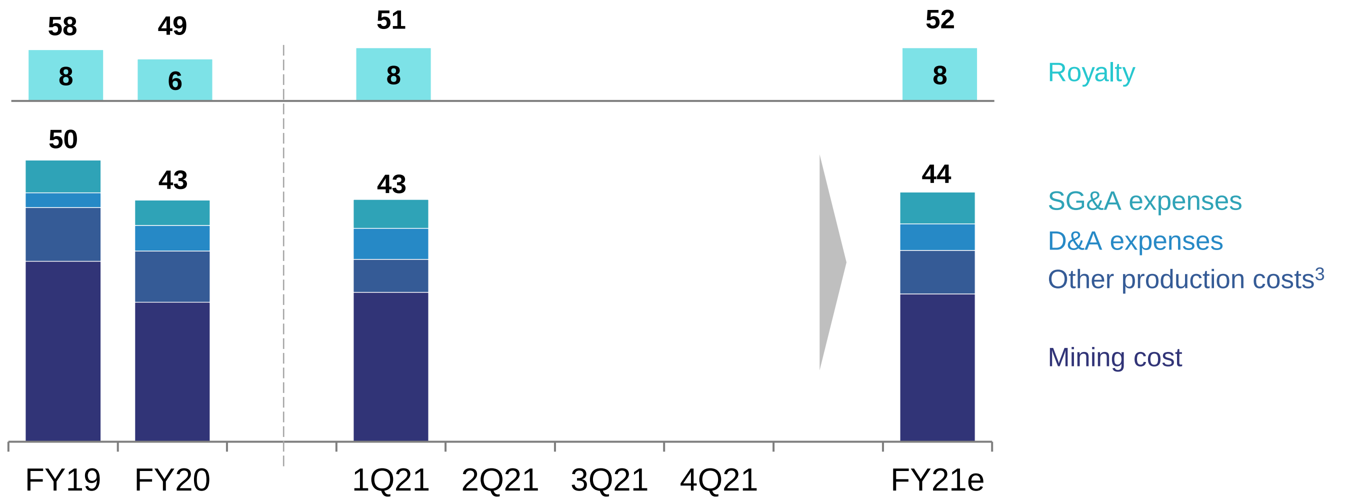
Unit: A$/t



- Costs impacted by mining conditions, equipment issues and lower sales tonnes.
- Continued cost reduction in contractor labor and overheads targeted to further drive costs down.

INDONESIAN COAL – AVERAGE TOTAL COST[2]

Unit: US$/t



- Average total cost (excl. royalty) maintained at $43/t in 1Q21. Total cost increase in-line with higher royalty as a result of rising coal price.
- Higher fuel price may contribute to slightly higher FY21 average total cost.

Note: 1 These figures do not include selling, distribution and royalty costs; based on 'sold' production, 2 Coal business only, 3 including repair and maintenance, salaries and allowances, inventory adjustment, others etc.

Banpu Energy Generation: 3,382 MW committed capacity

BANPU

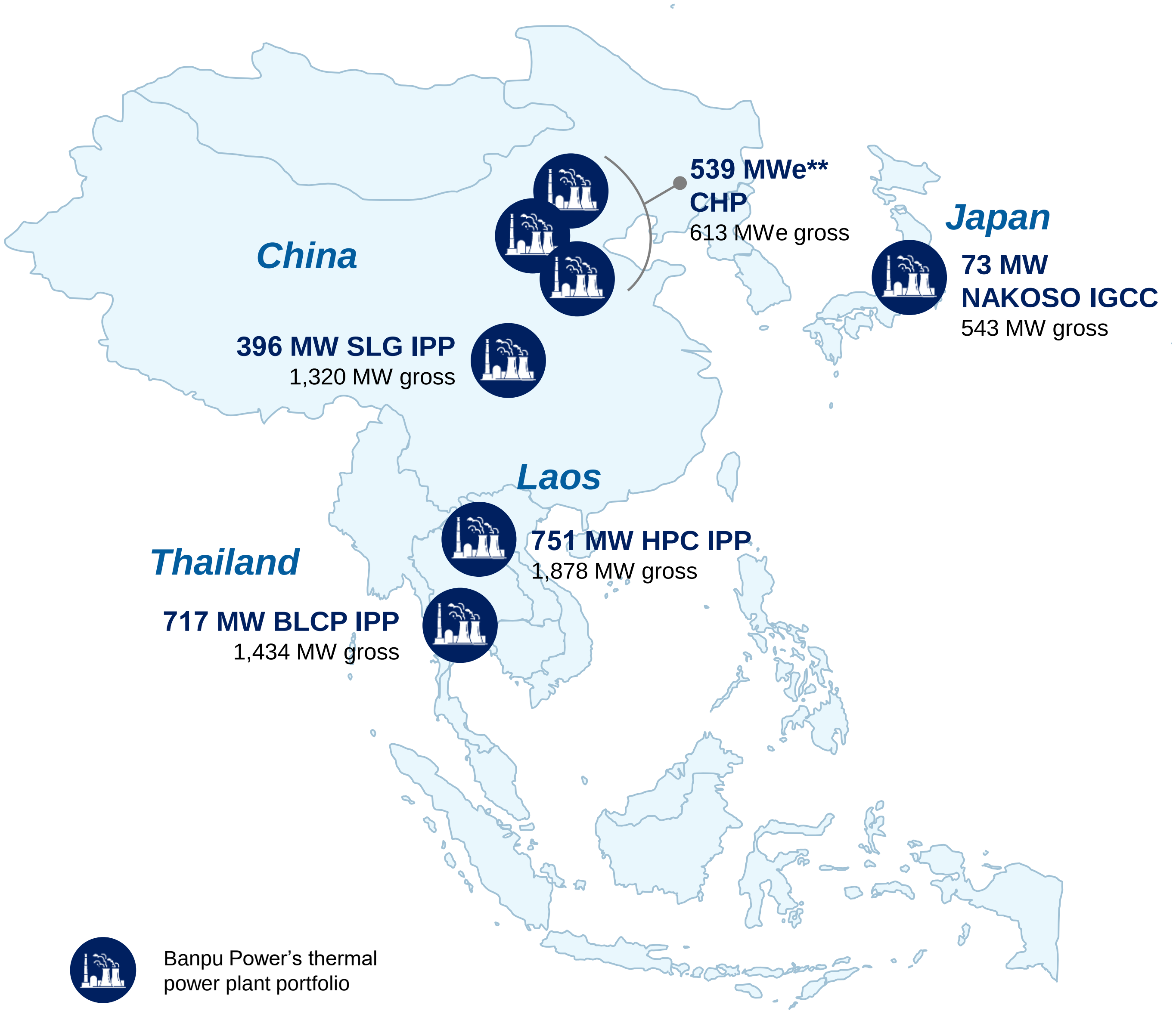
11 countries
operations across Asia

2,476 MW
committed thermal equity capacity*

906 MW
committed renewables equity capacity**

*Based on Banpu Power's equity capacity, **Banpu Renewable Power businesses are owned by Banpu NEXT (50% Banpu PLC, 50% Banpu Power)

Banpu Thermal Power: 1Q21 highlights



EBITDA

$40 M

-16% QoQ

Achieved EAF

85%	**84%**
at BLCP	at HPC

Growth update

+73 MW

from recent investment in Nakoso IGCC in Japan

*Based on Banpu Power's equity capacity, ** MW equivalent

Banpu Thermal Power: 1Q21 updates

BLCP

Continued high reliability, although unplanned maintenance was conducted to repair tube leak incident

- Continued high reliability with EAF* reported at 85%
- Total revenue reported at THB 3.2 bn, EBITDA at THB 0.8 bn
- Share of profit at THB 47 M.

HPC

Completed yearly maintenance of unit 2 for 28 days as planned, to improve efficiency and plant reliability

- Reported EAF of 83% despite planned maintenance of unit 2
- Total revenue reported at THB 4.9 bn, EBITDA at THB 2.7 bn
- Reported share of profit at THB 0.8 bn

China CHP

Continued to serve high demand for power and steam driven by economic recovery but impacted by high coal cost

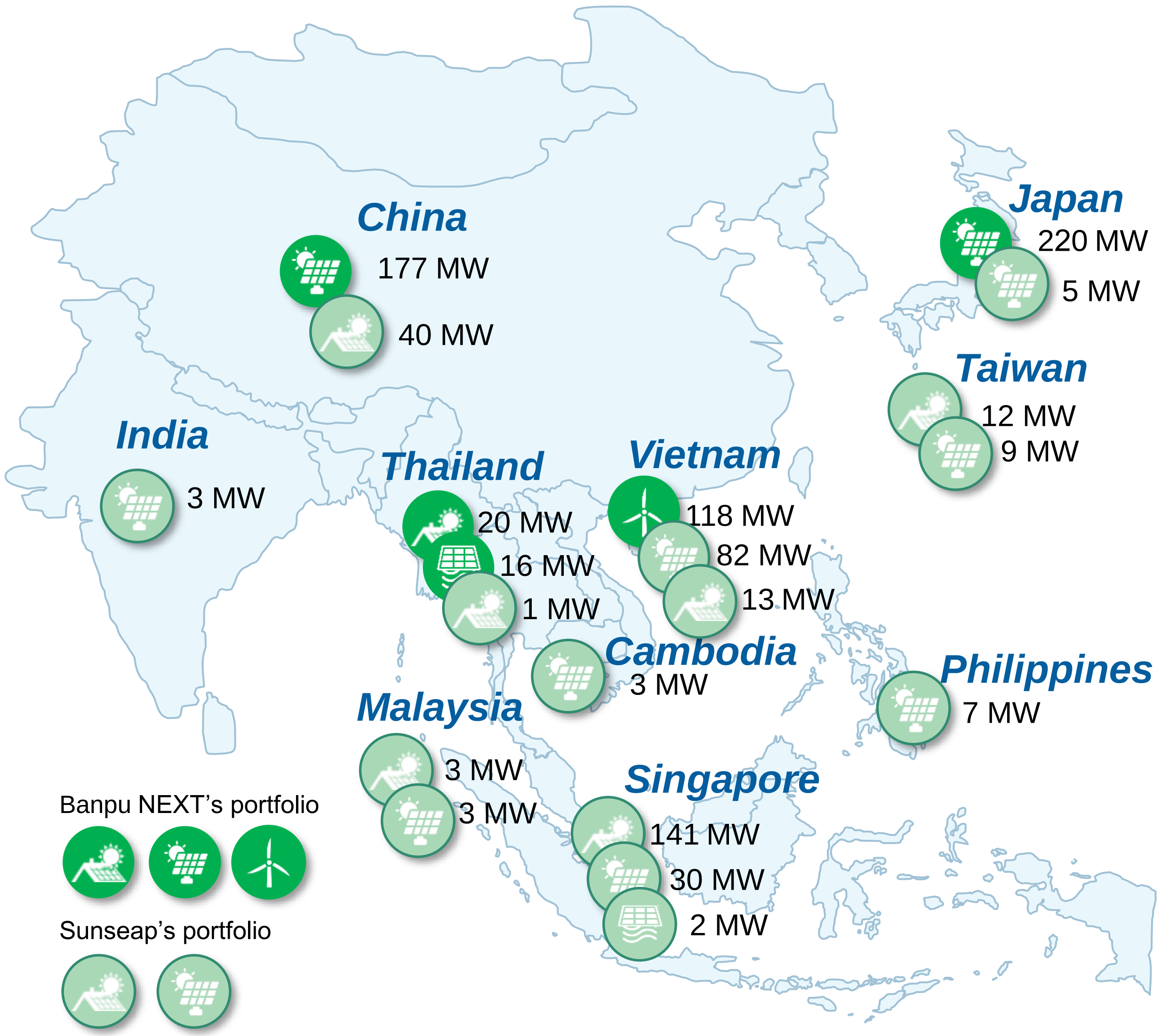
- Reported revenue of RMB 387 M.

SLG

- Under trial operation, with expected commercial dispatch by latter half of 2021

Note: : *Equivalent Availability Factor (EAF) is a percentage of a given operating period in which a generating unit is available without any planned- and unplanned shutdown or deratings

Banpu Renewable Power: diversified Asia-Pacific portfolio*



906 MW
committed renewables capacity across Asia

539 MW
committed solar power capacity

249 MW
committed solar rooftop and floating solar capacity

118 MW
committed wind capacity

*Banpu Renewable Power businesses are owned by Banpu NEXT (50% Banpu PLC, 50% Banpu Power)

Banpu Renewable Power: 1Q21 updates

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China Solar

Higher power sold supported by favorable weather conditions which resulted in higher capacity factor

- Average capacity factor 1Q21 reported at 14.1%
- Power sold was 54 GWh, +18% QoQ
- Reported revenue of RMB 45 M with profit contribution of RMB 17 M

Japan Solar

Higher power sold from COD of Yamagata and Yabuki projects despite lower average capacity factor due to unfavorable weather conditions

- Average capacity factor 1Q21 reported at 9.2%
- Power sold was 29 GWh, +22% QoQ
- Reported TK distribution of JPY 593 M

Vietnam Wind

Construction progress of Vinh Chau reaching at 57% while El Wind Mui Dinh ownership transfer is in process

- Phase 1 of Vinh Chau project in Soc Trang province achieved construction progress of 57%
- Complete wind turbine foundation and reached 50% of transmission line progress

Note: Banpu Power has 50% shareholding in Banpu NEXT


EV
BANPU

Banpu Energy Technology: growth targets 2025

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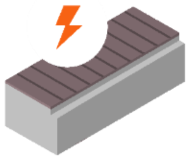
	 SOLAR: ROOFTOP & FLOATING	 ENERGY STORAGE SYSTEMS	 E-MOBILITY	 SMART CITIES	 ENERGY TRADING
	Including **48.6%** in Sunseap	**47.7%** in Durapower	**30.7%** in UMT; **21.5%** in FOMM	**100%** ownership	**100%** ownership
1Q21	**249** **MW** committed capacity	**1.0** **GWh** (0.5 GWh on equity basis) Li-ion battery production capacity	**3,729** passengers/day ride hailing via Muvmi; **215** electric vehicles under fleet management; **1** E-ferry sold	**5** **projects** Includes energy management, smart infrastructure, etc.	**220** **GWh** Electricity sales
2025 target	**500** **MW**	**3.0** **GWh** (1.4 GWh on equity basis)	**10,000** passengers/day; **5,500+** electric vehicles; **100** E-ferries sold	**9** **projects**	**1,000** **GWh**

Banpu Energy Technology: 1Q21 updates

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SOLAR: ROOFTOP & FLOATING

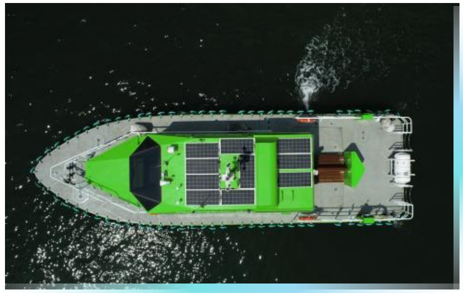
ENERGY STORAGE SYSTEMS

E-MOBILITY

SMART CITIES

ENERGY TRADING

HYBRID-ELECTRIC BOAT



FIRST HYBRID FAST LAUNCH VESSEL
Durapower partnered with Danfoss Editron, Sea Forrest Power Solutions, Penguin International and Bureau Veritas to launch Singapore's first hybrid-electric fast launch vessel

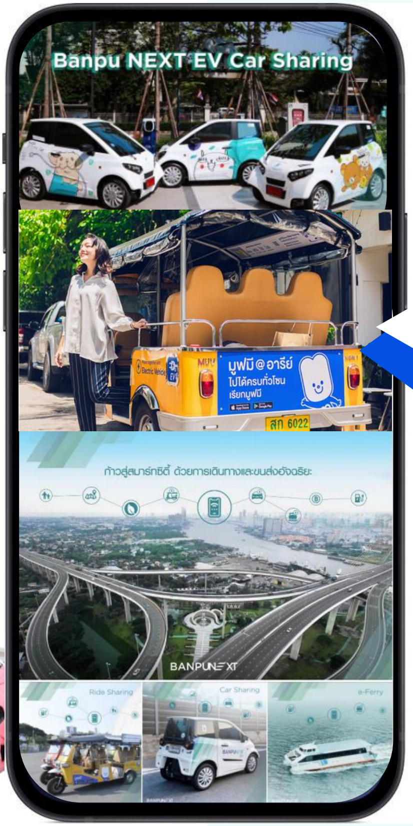
FLEET EXPANSION


ACHIEVED FLEET EXPANSION
Increased e-tuk tuk fleet to 100 units after achieving new high of 111k users in March (up 40% from December)

EXPANSION TARGET BY 2021
UMT targets to expand its service area coverage to 2,000 points in Bangkok by the end of 2021

Banpu Energy Technology: eco-friendly transportation in Bangkok

BANPU NEXT × T.A.C.C.



LET'S RIDE AROUND
BANGKOK
with muvmi

Chula-Samyan | Asoke-Nana | Ari-Pradipat

Ratanakosin | Kaset-Sena | Phaholyothin

>110k users
In March 2021
(+40% vs Dec. 2020)

1,000 pick up spots
Across 6 routes in Bangkok city !
(with plans to expand
to 2,000 by year end)

100 e-tuktuks
Available for service

Banpu Energy Technology: 1Q21 updates (cont'd)

BANPU

SOLAR: ROOFTOP & FLOATING

ENERGY STORAGE SYSTEMS

E-MOBILITY

SMART CITIES

ENERGY TRADING

ROOFTOP SOLUTIONS

NEW ROOFTOP PROJECTS COMMISSIONED

Four new solar rooftop projects commissioned in 1Q21, including Rugby School's main sport hall building (579 kW), UOB (28 kW), Syntec Construction (88 kW) and Betagen Sampran (1,166 kW).

COMPLETION OF ROOFTOP SOLUTIONS

Banpu NEXT completed phase 1 and 2 of solar rooftop installation for the Summer Lassalle project with a capacity of 359 kWp and 190 kWp, pioneering the sustainable office concept

ELECTRICITY SALES

SECURED NEW SUPPLY CONTRACT

To deliver 10 GWh of electricity to Inter-University Research Organization in Tokyo for a period of 1 year from February 2021 – January 2022

APPENDIX

Banpu: 'integrated energy solutions' 2021

BANPU

ENERGY RESOURCES

Shale Gas

~700 MMcfed

Net production

Mining

43.0 Mt

Coal sales

ENERGY GENERATION

Renewable Power

657 MW

Committed capacity

Thermal Power

2,476 MW

Committed capacity

ENERGY TECHNOLOGY

Solar: Rooftop & Floating

249 MW

Committed capacity

Clean Energy Tech

1.0 GWh (100% basis)

Li-ion batteries

E-mobility services

E-mobility solutions

5 smart city projects

220 GWh

electricity trading

Natural gas: reserve and production term

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Reserve

DEFINITION

- Natural Gas Reserve Definitions in the US are defined by the SEC and are the same as used for oil:
    - Proved Developed Producing (PDP)
    - Proved Developed Not Producing (PDNP)
    - Proved Undeveloped (adjacent to a producing well) (PUD)
    - Probable (in the same area as production but not adjacent) (PROB)
    - Possible (contingent on additional drilling) (POSS)
- Reserves have to be economically viable.

Production

PRODUCTION UNIT

- In the US, production is measured in 1000 cubic feet (MCF)
    - 1000 MCF = 1 MMCF
    - 1,000,000 MCF = 1 BCF
    - 1000 BCF = 1 TCF
    - 1 MCF = 28.3 Meters^3
    - 1 MCF = 1.0 Million BTU (MMBTU) or Decatherms (dry gas)
    - 1 BCF = 1.0 Trillion BTU
    - 1 Meter^3 = 35.3 MCF
    - 1 Billion Meters^3 = 35.3 BCF

2021 indicative guidance

ILLUSTRATIVE AND INDICATIVE ONLY

UNIT GUIDANCE (US$/MCF)		COMMENTS
REVENUE		
Reserves (Tcf)	*3 – 4*	
Production volume (Mmcfd)	*600 – 700*	
Average differential to Henry Hub	$0.20 - $0.40	Difference selling points and Henry Hub (NYMEX basis)
GCP&T costs	$1.17 - $1.24	Gathering, compression, fractionation and transportation costs
Pipeline revenue	$0.02 - $0.05	Applicable to Chaffee Corners volume only
COSTS		
Lease operating expense	$0.40 - $0.47	Main component of operating costs
G&A	$0.24 - $0.29	Recurring general and administration costs
Taxes	21%	Currently benefit from tax shield due to accelerated DD&A
DD&A	$0.38 - $0.45	Depreciation, depletion and amortization
Drilling and completion costs	$0.22 - $0.28	Costs incurred to drill and to make the well ready for production

NET BACK

China: supply tightness will continue into summer

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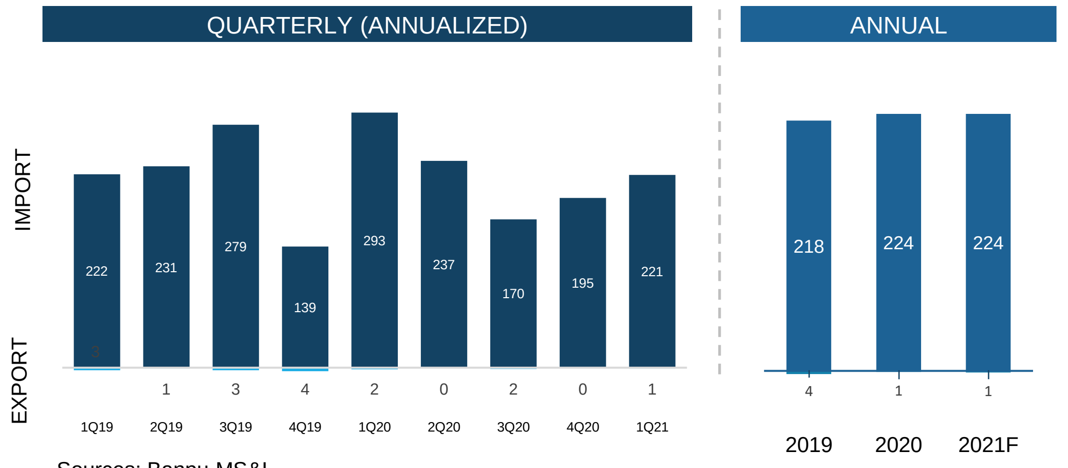
CHINA THERMAL COAL IMPORTS/EXPORTS*

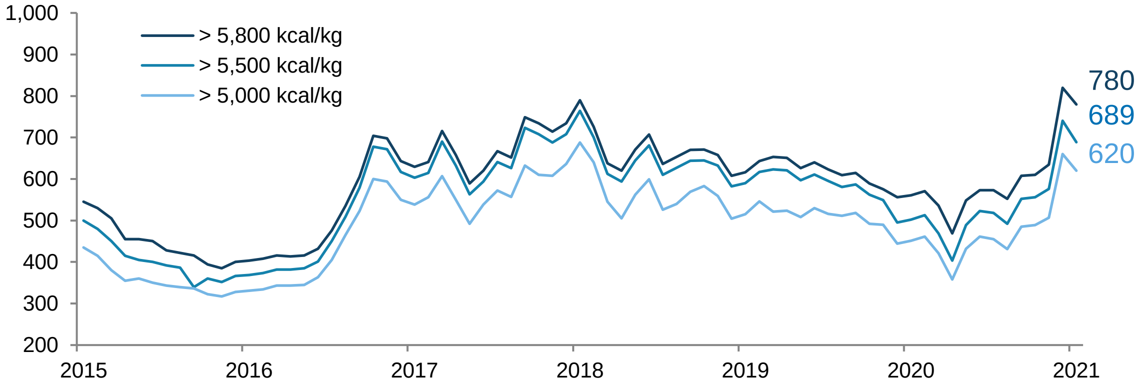
Unit: Mt



Sources: Banpu MS&L

CHINA DOMESTIC COAL PRICES

Unit: RMB/t



Note: *Includes lignite but excludes anthracite imports/exports
Source: www.sxcoal.com/cn 9 April 2021

1Q21

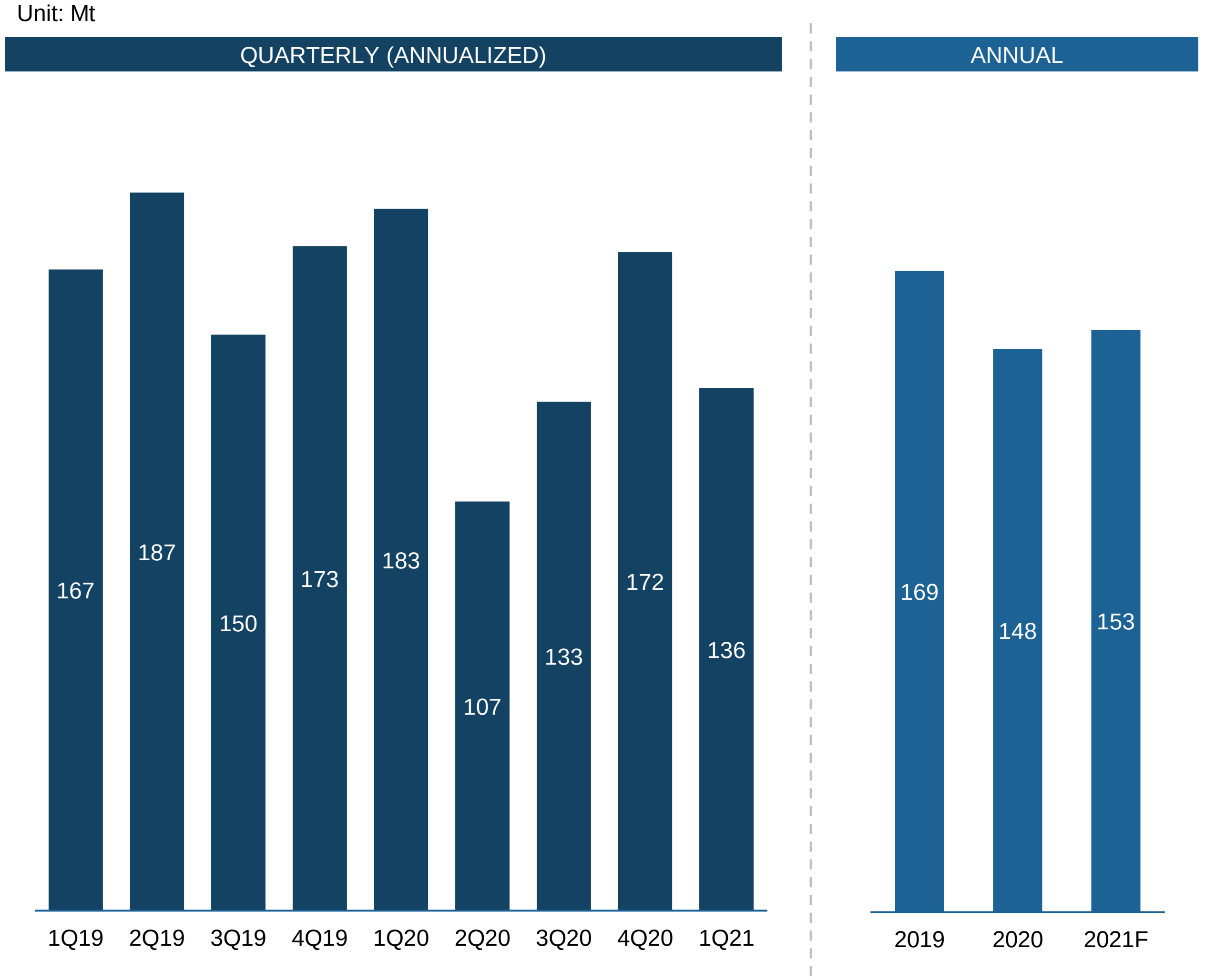
- Strong economy and cold weather lead to robust thermal coal demand in Q1.
- Domestic coal production improve but still lag behind demand with ongoing safety inspections limited production growth
- Domestic coal prices rose sharply due to strong demand amid tight supply. Weak hydro, soaring ocean freight and reducing output by Inner Mongolia all contributed to an upward sentiment for coal price.
- Utilities delayed spot coal purchase due to high prices resulted in low stock at power plants.
- High Chinese domestic coal price and ban on Australian coal supported non-Australian coal prices especially Indonesian coal.
- High ocean freight curtailed buying interest.
- China-Australia trade tension has been elevated after Australia's recent scrapping of Victoria's Belt and Road agreement with China. The ban on Australian coal will likely affect trade flow through 2022.

OUTLOOK

- Strong economic outlook and hot weather will keep coal demand firm.
- Low stock at power plants may force power utilities to come to the market during high price to build stocks ahead of summer.
- We expect domestic coal supply will remain tight despite the National Development and Reform Commission (NDRC) urged major state-owned mines to push for production increases as ongoing mine safety inspections will limit supply from small miners.
- NDRC may relax import quota to ensure sufficient supply during summer. Recently, NDRC encouraged Gencos to import more. There will be an upside risk for our import estimates.
- China's ban on Australian coal has changed coal trade routes and has lifted coal prices and will continue to benefit non-Australian coal.

India: strong demand in Q1 but the pandemic weigh on outlook

INDIA THERMAL COAL IMPORTS*



Note: *Includes lignite grade imports
Source: Commodity Insights, Banpu MS&L

1Q21

- Growth in coal-fired generation and other industrial activity led to firm thermal coal demand in Q1.
- Total power generation in Q1-2021 was up by 9% YoY and up by 7% QoQ. Coal-fired generation in Q1-2021 was up by 13% YoY and up 13% QoQ due to strong industrial activity and low renewable and hydro generation.
- Coal India Limited (CIL) produced 203 Mt of coal in Q1, but dispatched only 164 Mt. While production was down 5%, dispatch was flat year-on-year. CIL added 40 Mt of coal inventory in Q1, reaching about 100 Mt by the end of March.
- Thermal coal imports in Q1-2021 was 34 Mt, down 21% QoQ and down by 26% YoY. A drop drove by high international coal prices and freight which forced consumers to use coal from stocks or purchased domestic coal and slow purchase of imported coal.
- Imported coal demand for power plants which requires imported coal for blending has been weak as government's drive to use domestic coal.
- Strong import demand from sponge iron and cement producers.
- Indian buyers purchased more Australian coal due to high Indonesian and South African coal prices.

Outlook

- Second wave of the pandemic which resulted in restrictions at state level is weighing on the demand outlook.
- The construction sector will be affected in the near term due to migrant workers returning to their hometown which reduce steel and cement demand.
- CIL will continue offering massive volumes in the spot market in 2021 due to high stocks, impacting imports particularly for the power sector.

Coal quarterly output summary

AUSTRALIA OPERATIONS: COAL OUTPUT (MT) – ROM OUTPUT ON EQUITY BASIS					
Mines	**CV (kcal/kg)***	**3Q20**	**4Q20**	**1Q21**	**2Q21e**
Western operations		**1.1**	**1.7**	**1.1**	**1.7**
Springvale	6,700	0.3	1.0	0.5	1.0
Clarence	6,700	0.5	0.4	0.3	0.4
Airly	6,700	0.4	0.4	0.3	0.3
Northern operations		**1.7**	**1.3**	**1.3**	**1.4**
Mandalong	6,700	1.5	1.1	1.1	1.0
Myuna	6,700	0.2	0.2	0.2	0.4
Total Australia coal		**2.8**	**3.1**	**2.4**	**3.1**

INDONESIA OPERATIONS: COAL OUTPUT (MT) – ROM OUTPUT ON 100% BASIS									
Mines	**CV (kcal/kg)***	**3Q20**		**4Q20**		**1Q21**		**2Q21e**	
		Output (Mt)	Strip ratios (bcm/t)	Output (Mt)	Strip ratios (bcm/t)	Output (Mt)	Strip ratios (bcm/t)	Output (Mt)	Strip ratios (bcm/t)
Indominco	5,950 – 6,250	2.0	11.9	2.3	10.3	1.8	12.5	1.8	9.9
Trubaindo	6,550 – 6,700	1.4	8.9	0.9	8.3	0.7	14.0	0.9	11.3
Bharinto		0.8	7.5	1.1	6.7	1.0	6.7	1.4	6.8
Kitadin-Embalut	5,800	0.4	10.6	0.1	10.6	0.3	18.6	0.5	15.2
Jorong	5,300	0.3	7.8	0.2	7.4	0.2	11.6	0.3	9.8
Total Indonesia coal		**4.9**	**10.0**	**4.6**	**8.9**	**4.0**	**11.5**	**4.9**	**9.8**

CHINA OPERATIONS: COAL OUTPUT (MT) – ROM OUTPUT ON 100% BASIS					
Mines	**CV (kcal/kg)***	**3Q20**	**4Q20**	**1Q21**	**2Q21e**
Gaohe		2.3	2.0	2.3	2.3
Hebi		0.4	0.3	0.2	0.2
Total China coal		**2.7**	**2.3**	**2.5**	**2.5**

Note: *CV figures are air-dried basis

Key external and corporate events

BANPU

EXTERNAL EVENTS

INDIRECT

4Q20

- moderna — *Moderna announced its Covid-19 vaccine is 94.5% effective*
- BANK OF THAILAND — *BoT maintained policy rates at 0.50%*

1Q21

- BANK OF THAILAND — *BoT maintained policy rates at 0.50%*
- *Blockage of Suez Canal by Ever Given*

DIRECT

4Q20

- *Henry Hub price rose to $3.14/MMBtu*
- *Newcastle coal price index increased to $84.5/t*

1Q21

- *Henry Hub price rose above $20/MMBtu due to colder-than-normal weather affecting most of Lower 48 states*
- *Newcastle coal price index increased to $91.1/t*

4Q20 | 1Q21

CORPORATE EVENTS

4Q20

- *Announced completion of Barnett acquisition*
- *3Q20 results presentation*
- *Announced Oaktree's $100 M investment in preferred shares of BKV Corporation*

1Q21

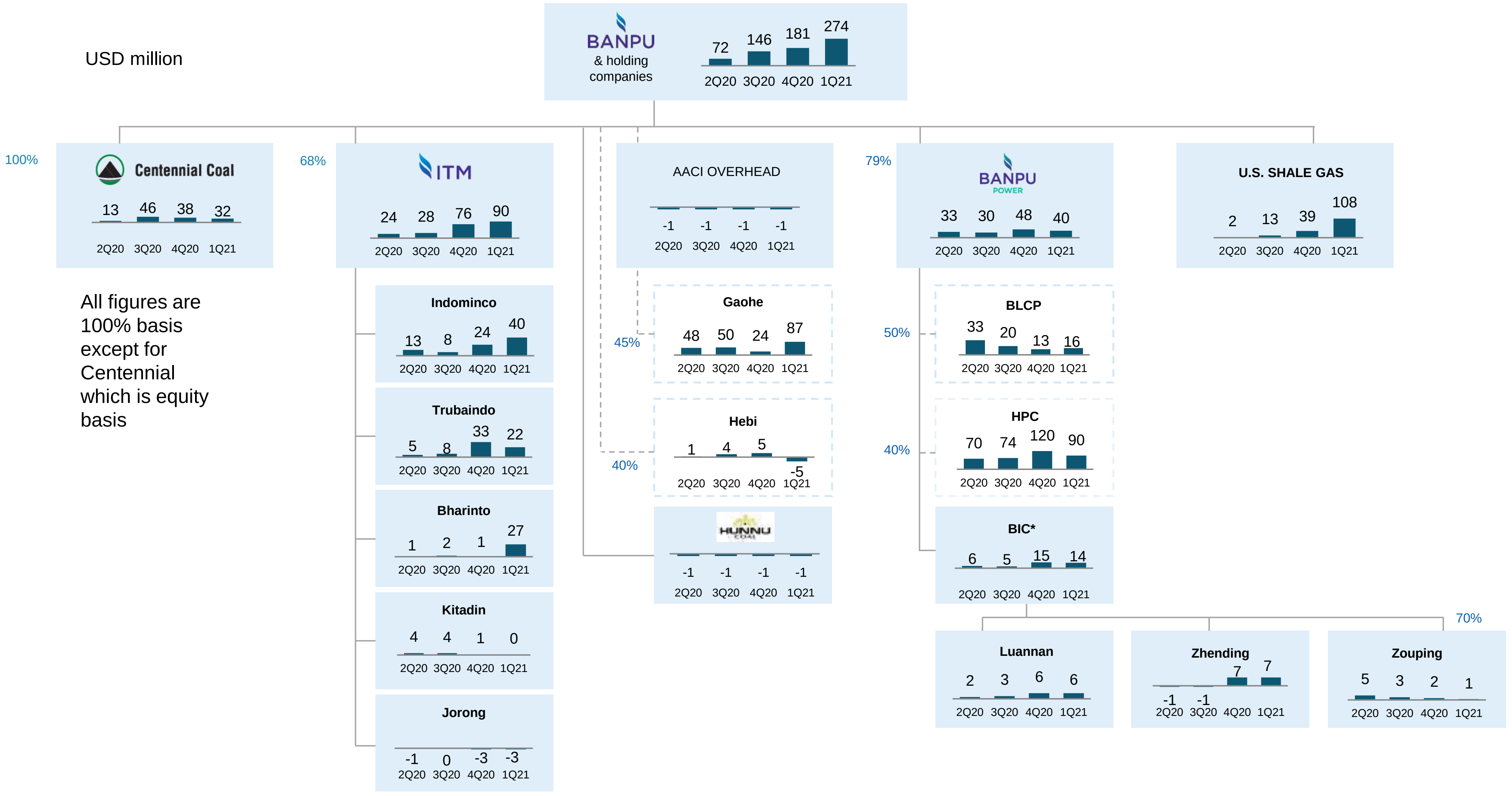
- *4Q20 and FY20 results presentation*
- *Announced investment in Nakoso IGCC through Banpu Power*

FX impact analysis guidance on P&L

CURRENCY EXPOSURE	NPAT IMPACT 1Q21 (US$M)	APPROXIMATE FX EXPOSURE (US$M) NET LIABILITY / NET ASSET	NPAT 5% SENSITIVITY 2Q21 (US$M) *Assuming 5% depreciation of local currencies against USD*	
Banpu: THB bond and Others	31.8	-950	THB 40	*BOT revised down growth forecast 1%-2% in 2021*
ITMG: IDR asset and liabilities	-2.6	50	IDR -2	*BI revised down growth forecast 4.1-5.1% in 2021*
CEY: USD asset	0.2	-50	AUD -3	*RBA forecast revised up growth 4.75% in 2021*
Net	29.4		NET 35	

Banpu group EBITDA breakdown

USD million



All figures are 100% basis except for Centennial which is equity basis

Note: all ownership 100% unless otherwise shown
*BIC = Banpu Investment China

Banpu group net debt breakdown

Note: all ownership 100% unless otherwise shown
*BIC = Banpu Investment China

Banpu consolidated: operating profit

USD million	1Q21	4Q20	1Q20	QoQ%	YoY%
Total sales revenues*	**736**	**662**	**633**	+11%	+16%
Sales revenue – Coal	461	497	524	-7%	-12%
Sales revenue – Gas	186	82	18	+127%	+947%
Sales revenue – Power	67	60	58	+12%	+16%
Cost of sales	(508)	(503)	(491)		
Gross Profit*	**227**	**159**	**142**	+43%	+60%
Gross profit – Coal	121	115	125	+5%	-3%
Gross profit – Gas	105	29	(3)	+263%	n.a.
Gross profit – Power	16	15	18	+4%	-14%
GPM	***31%***	***24%***	***22%***		
GPM – Coal	*26%*	*23%*	*24%*		
GPM – Gas	*56%*	*35%*	*-16%*		
GPM – Power	*23%*	*25%*	*32%*		

Note: * including other businesses

Banpu consolidated: operating profit

USD million	1Q21	4Q20	1Q20	QoQ%	YoY%
Gross Profit	**227**	**159**	**142**	+43%	+60%
GPM	***31%***	***24%***	***22%***		
SG&A	(81)	(79)	(83)		
Royalty	(44)	(50)	(52)		
Income from associates	43	25	48		
Other income and Dividend	11	16	8		
Mining property	(8)	(9)	(9)		
EBIT	**148**	**62**	**53**	+137%	+177%
EBIT – Coal	44	8	20	+482%	+126%
EBIT – Gas	82	12	(15)	+608%	n.a.
EBIT – Power	36	44	49	-18%	-26%
EBIT – Energy Technology	(14)	(2)	0	n.a.	n.a.
EBITDA	**274**	**181**	**164**	+52%	+67%
EBITDA – Coal	138	94	107	+46%	+28%
EBITDA – Gas	108	39	1	+179%	+7489%
EBITDA – Power	40	48	54	-16%	-27%
EBITDA – Energy Technology	(12)	0	1	n.a.	n.a.

Banpu consolidated: net profit

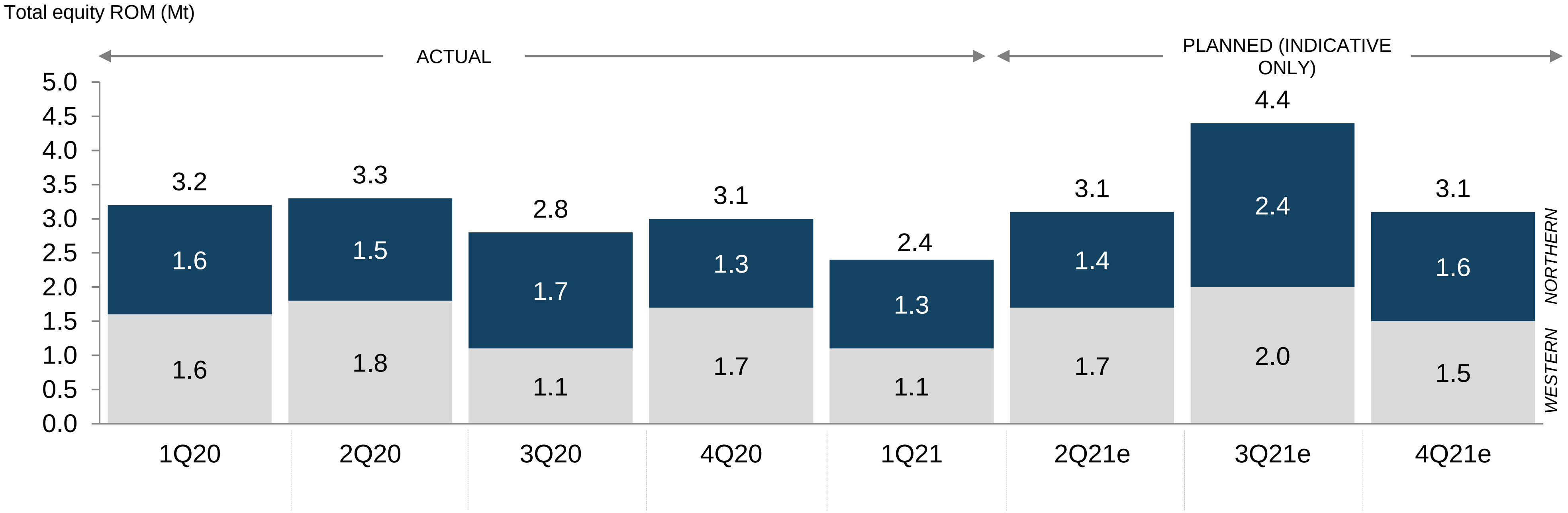
USD million	1Q21	4Q20	1Q20	QoQ%	YoY%
EBIT	**148**	**62**	**54**	+137%	+176%
Interest expenses	(43)	(42)	(45)		
Financial expenses	(2)	(2)	(2)		
Income tax (core business)	(20)	(5)	(20)		
Minorities	(26)	(12)	(12)		
Net profit before extra items	**58**	**1**	**(25)**	+4470%	n.a.
Non-recurring items*	(5)	(38)	15		
Gain (Loss) on Derivatives Transactions	(5)	17	(6)		
Income tax (non - core business)	(0)	(3)	(0)		
Deferred tax income (expenses)	(26)	37	(40)		
Net profit before FX	**21**	**14**	**(57)**	+48%	n.a.
FX translation	29	(30)	112		
Net Profit	**51**	**(15)**	**55**	n.a.	-7%
EPS (US$/share)	0.01	(0.003)	0.011		

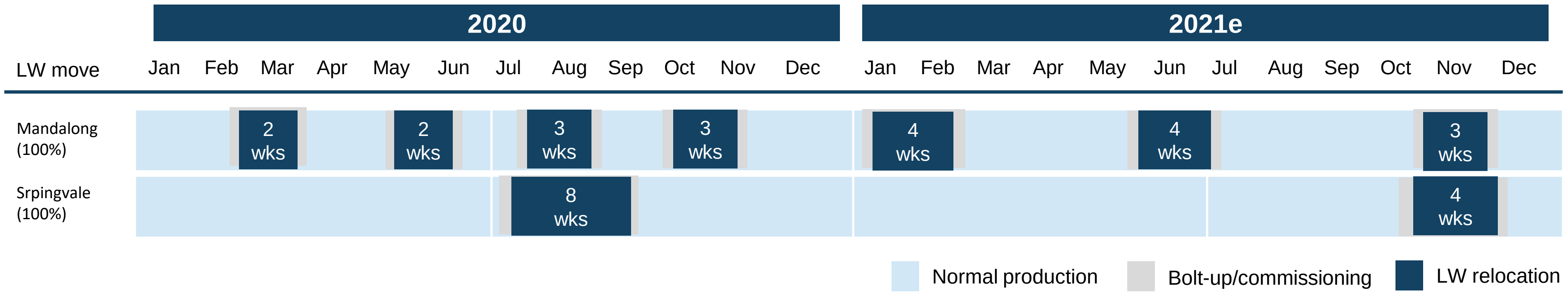
Note: * income from non-core assets and other non-operating expenses

Centennial: income statement

USD million	**1Q21**	**4Q20**	**1Q20**	QoQ%	YoY%
Sales volume (Mt)	**2.6**	**3.1**	**3.1**	-15%	-15%
Sales revenue	162.3	174.9	175.8	-7%	-8%
Cost of Sales	(164.7)	(165.2)	(160.9)		
Gross Profit	**(2.4)**	**9.8**	**15.0**	n.a.	n.a.
GPM	-1%	6%	9%		
SG&A	(20.3)	(20.5)	(21.5)		
Royalty	(10.6)	(11.8)	(11.6)		
Other income	1.4	16.8	1.5		
Other expenses	-	-	-		
EBIT	**(31.9)**	**(5.8)**	**(16.6)**	n.a.	n.a.
Interest expenses	(5.6)	(5.8)	(5.7)		
Financial expenses	(0.7)	-	(0.5)		
Gain (loss) on exchange rate	0.2	3.0	1.5		
Gain (loss) on derivative	(2.4)	2.3	(2.8)		
Corporate income tax	-	-	-		
Deferred tax income	12.1	2.4	7.2		
Net Profit	**(28.3)**	**(3.8)**	**(16.9)**	n.a.	n.a.

Australia coal: quarterly equity rom output





Note: 1 Production generally responds to the timing of longwall changeovers (i.e. lower production results during a longwall changeover period)

2 As of 1 December 2019, Centennial's economic interest in each of Angus Place and Springvale became 100%.

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