BANPU

3Q20 results

Investor and analyst update

13th November 2020

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3Q20 highlights and outlook

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Strong cash flow generation across businesses

EBITDA improved from the last quarter with higher contribution from Coal and Gas businesses

Barnett acquisition completion by 1 Oct

Completion accelerated to secure early profit realization and take advantage of gas price recovery in Q4

Gas price rising on increasing demand

Gas price rebounds (>$3.00/MMbtu since Oct) as demand increases with winter approaching

Continued progress on achieving cost reduction target

Maintaining smooth operations while continuing on planned cost reduction of 20% across all operations

Greener Smarter energy development

Expansion of renewables, solar rooftop and floating solar portfolio with addition of 86 MW committed capacity

Innovating the energy ecosystem of the future

Launch of E-Prompt Move and EV Car Sharing and acquisition of Waste Management company

Banpu: sustainability leader

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ENVIRONMENT

SOCIAL

GOVERNANCE

MEMBER OF
Dow Jones
Sustainability Indices
In Collaboration with RobecoSAM

The DJSI is managed by RobecoSAM, the world's longest running and most prestigious sustainability rating agency. Thousands of publicly traded companies participate each year.

Banpu has been a Gold Class Industry Leader on the DJSI since 2014.
In 2019, 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. Its research is used by over 1,400 investors worldwide.

In 2019, Banpu was upgraded to 'A' rating in MSCI ESG Ratings assessment for having a track record of managing the most significant ESG risks and opportunities relative to peers.

Resilient business model: 'integrated energy solutions'

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ENERGY RESOURCES

Shale Gas

0.8 Bcfd*

Net production

Mining

40 Mt**

Coal sales

ENERGY GENERATION

Renewable Power

676 MW

Committed capacity

Thermal Power

2.4 GW

Committed capacity

ENERGY TECHNOLOGY

Solar: Rooftop & Floating

224 MW

Committed capacity

Clean Energy Tech

0.5 GWh
Li-ion batteries

E-mobility services
E-mobility solutions

5 smart city
projects

280 GWh**
electricity trading

Note: *Includes Barnett production capacity **2020 target

01	02	03	04	05	06
Highlights 3Q20	**Focus: US Gas**	Financial Summary	Energy Resources	Energy Generation	Energy Technology

Changing political and Covid-19 landscape

Biden: outlook on fossil fuels

Biden's Climate Plan could **potentially ban 'new fracking'** on **Federal lands**, creating potential for a significant **natural gas supply shortfall**

c.14% **of US natural gas production**
is accounted by fracking on federal lands and water

Estimated natural gas supply shortfall of >5% by 2030
With declining wells, supply from existing operations on Federal lands will decrease significantly

Banpu gas business is well-positioned
Minimal exposure to fracking on Federal lands (c. 1.6%), positioned to fill in supply gap and capture value from higher price outlook

Viruses and vaccines

Pfizer and **BioNTech** announced their Covid-19, mRNA based vaccine candidate, **BNT162** on November 9th, 2020.

More than 90% effective
in Covid-19 prevention based on Phase 3 preliminary analysis with sample size of c.44,500 participants

50 million doses
enough to cover ***25 million** people* by end of 2020; **1.3 bn doses** target in 2021

Positive market sentiment
Dow Jones soared more than 830 points (+3%) in one day, right after the announcement of Pfizer and BioNTech's vaccine candidate

Banpu Gas: accelerated Barnett transaction

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4Q19
DEAL ANNOUNCEMENT
with acquisition completion expected in 2020

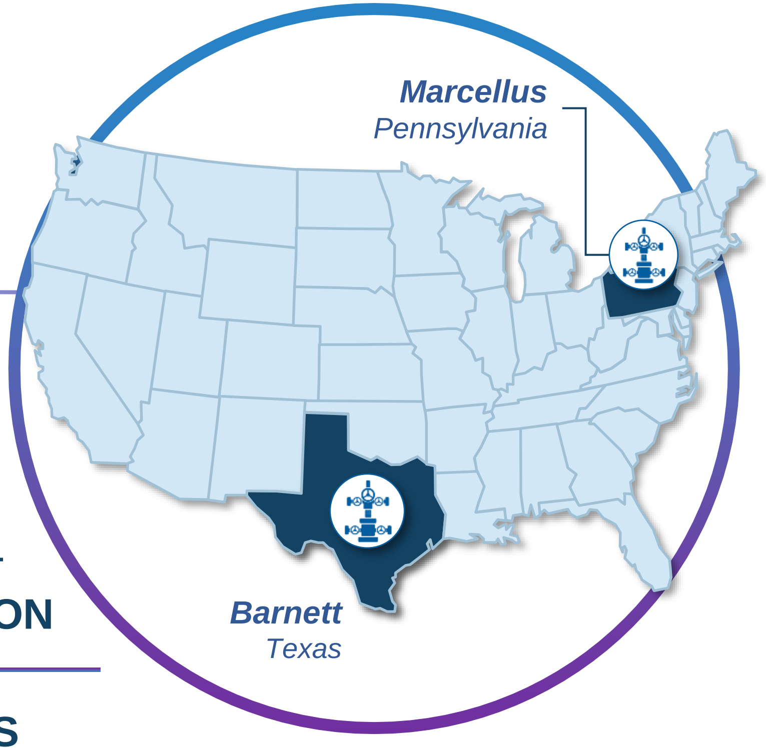
$ 770 M
INITIAL TRANSACTION PRICE

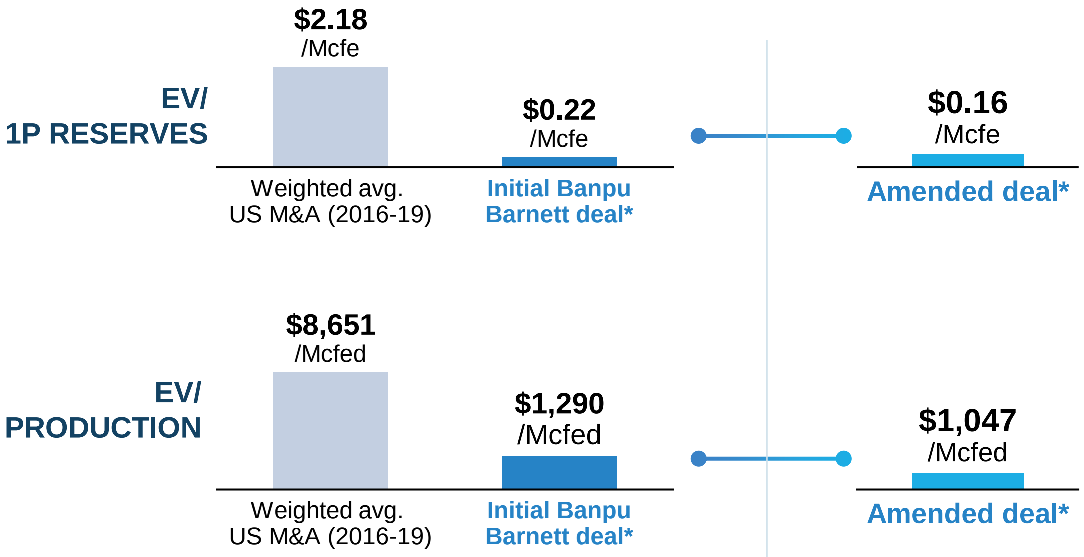
1Q20
AMENDMENT
*with closing transaction date scheduled for **31st Dec 2020***

$ 570 M
ACQUISITION PRICE
PLUS CONTINGENCY PAYMENT**

3Q20
ACCELERATED TRANSACTION
*Closing date rescheduled to **1st Oct 2020***

4Q20
TRANSACTION COMPLETION





EARLY PROFIT REALIZATION

SYNERGIES WITH MARCELLUS SHALE

WELL-POSITIONED TO TAKE ADVANTAGE OF GAS PRICE RECOVERY

Note: *The acquisition metrics are based on effective time of the acquisition (Sept'19), **Subject to contingency payments dependent on WTI and Henry Hub prices from 2021-2025
Source: IHS Markit

Barnett has shown resilience to lower gas prices

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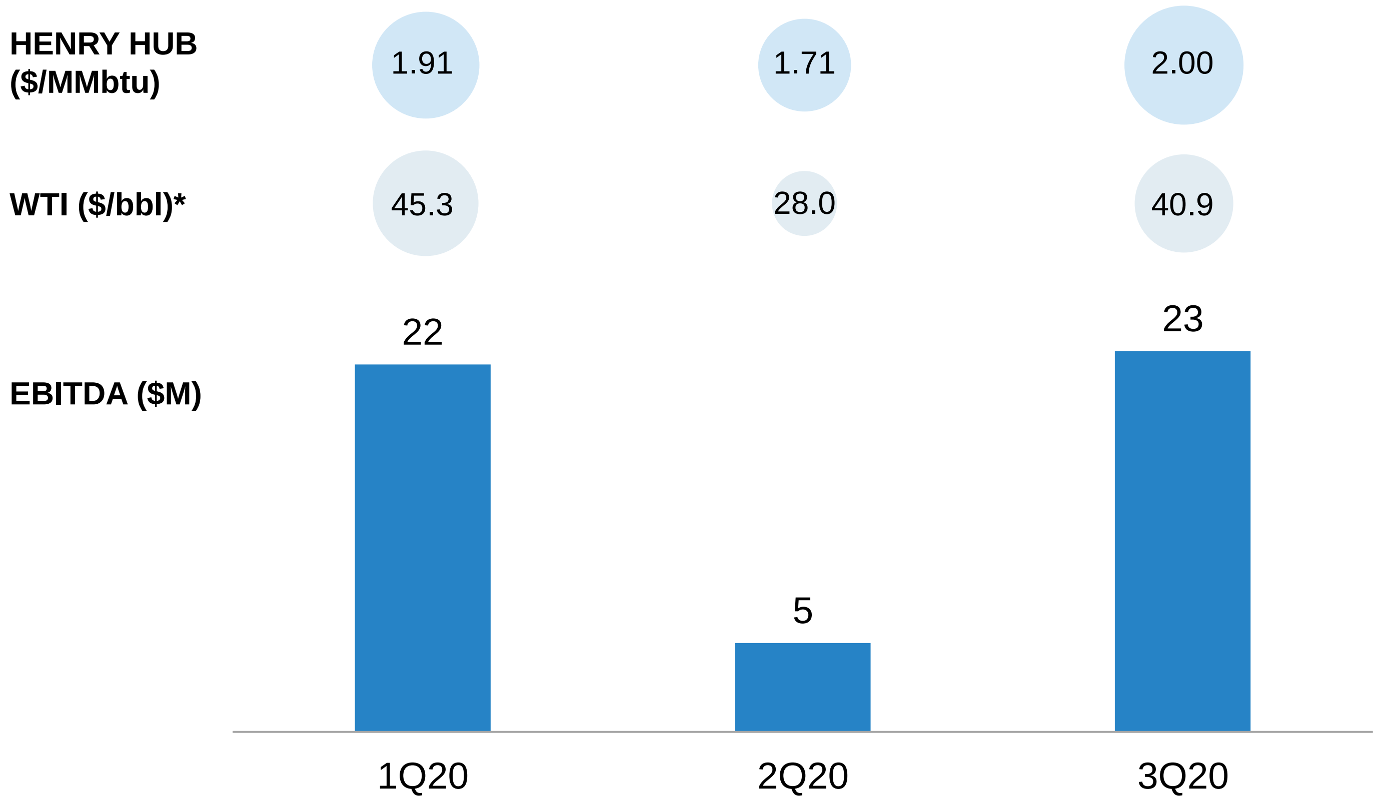
BARNETT'S EBITDA DURING LOW GAS AND OIL PRICES

ILLUSTRATIVE



Barnett EBITDA from 1Q20 to 3Q20 are calculated from preliminary settlement during interim period under the PSA term & condition and not consolidated in Banpu's financial results.

	1Q20	2Q20	3Q20
SALES (Bcf)	54.3	51.6	50.8

- During the Covid-19 pandemic, Barnett still generated positive cash flow under distressed commodities prices.
- Lower Henry Hub differential, as it is located close to Texas, the largest gas-consuming state.
- High free cash flow due to lower capex requirement to maintain base production.
- Established wells data helped facilitate cost rationalization.

Note: *NGLs constitutes about 30% of Barnett's total production volume.

Banpu Gas: synergies between assets to drive greater value

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MARCELLUS

- Located in Marcellus "Super Core" area, best acreage for gas production in the US
- Low breakeven costs
- Greater access to domestic demand from new pipelines

~200 MMcfd
net production

~1.0 Tcfe
1P reserves

ASSET SYNERGIES

1. **Diversified portfolio**
   Natural gas liquids exposure, Marcellus and Gulf coast pricing basis
2. **Technology sharing**
   Field automation and wells data
3. **Economies of scale**
   Lower cost for gas marketing, vendors negotiations and internal G&A
4. **Flexibility to capture price fly-ups**
   Flexible capex to conserve cash in the downturn

BARNETT

- Located in largest gas-consuming state in the US, Texas
- Access to export market
- Natural gas liquids (NGLs) c. 30% of production volume
- Long reserve life, low capex

~597 MMcfed
net production

~3.5 Tcfe
1P reserves

Note: Barnett production and reserves are based on effective time of the acquisition (Sept'19)

Gas price expected to improve with falling production and storage

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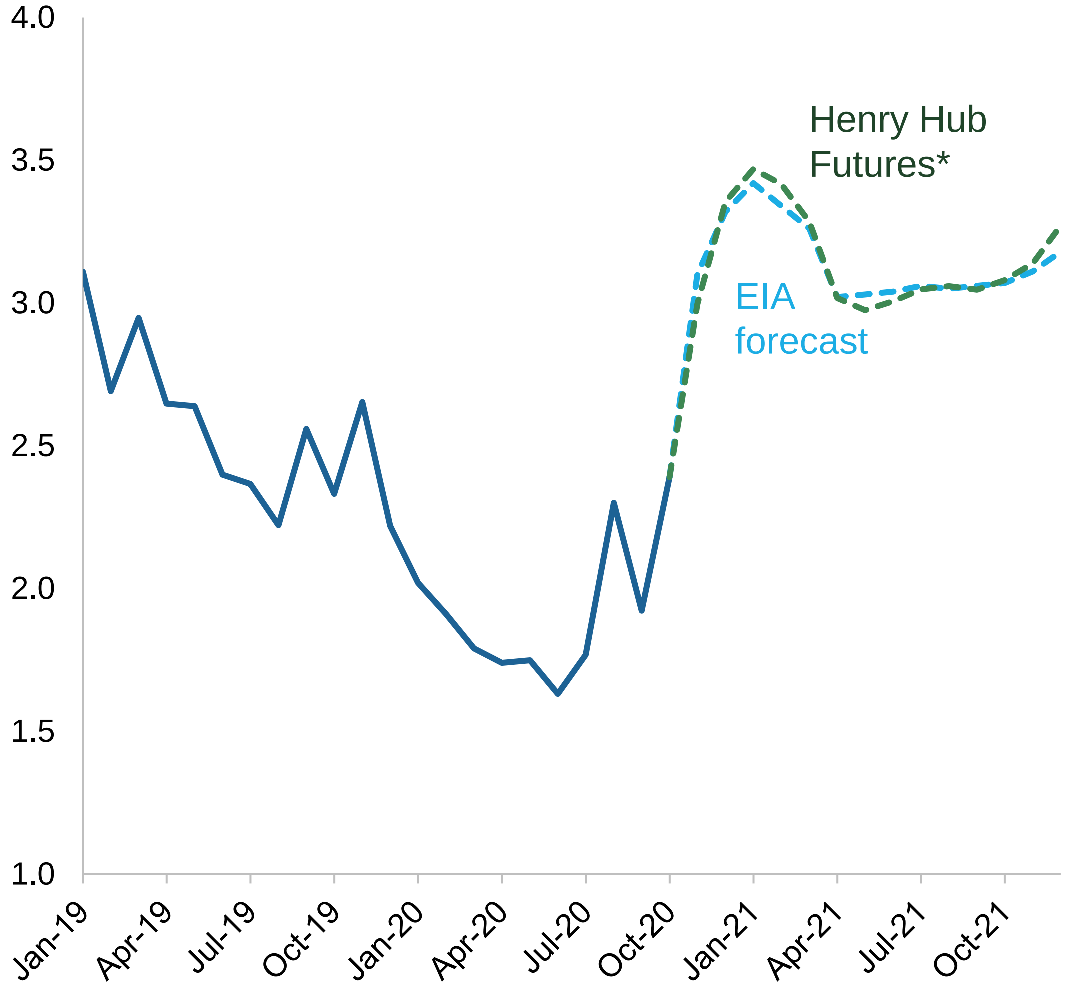
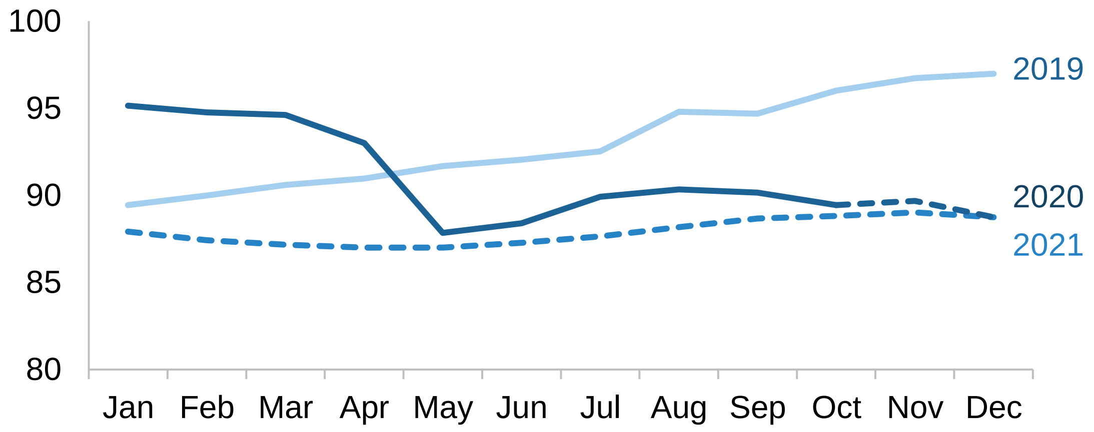
HENRY HUB PRICE FORECASTS

Unit: US$/MMbtu



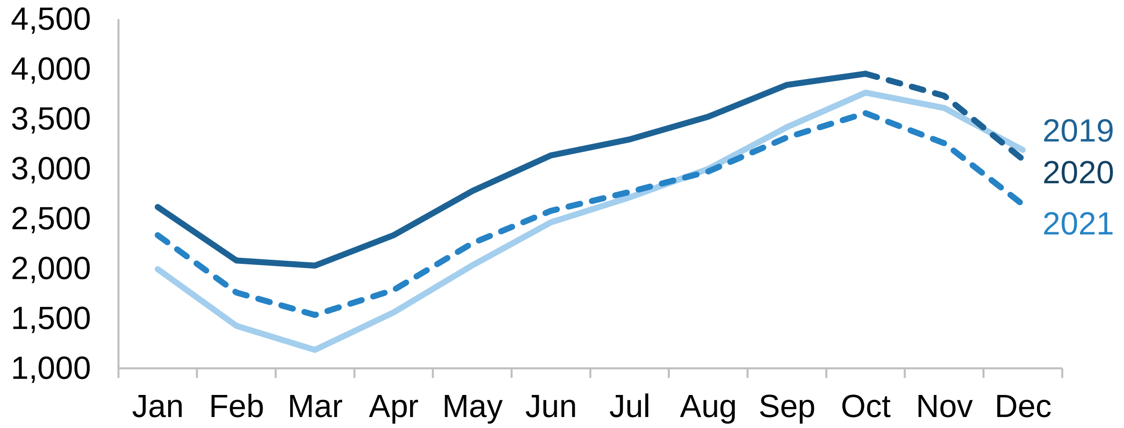
US DRY GAS PRODUCTION

Unit: Bcfpd



US GAS INVENTORY

Unit: Bcf



*as of October 30th, 2020

Source: EIA Short-term Energy Outlook (November 2020), S&P Market Intelligence

Banpu: growth opportunities across the gas value chain

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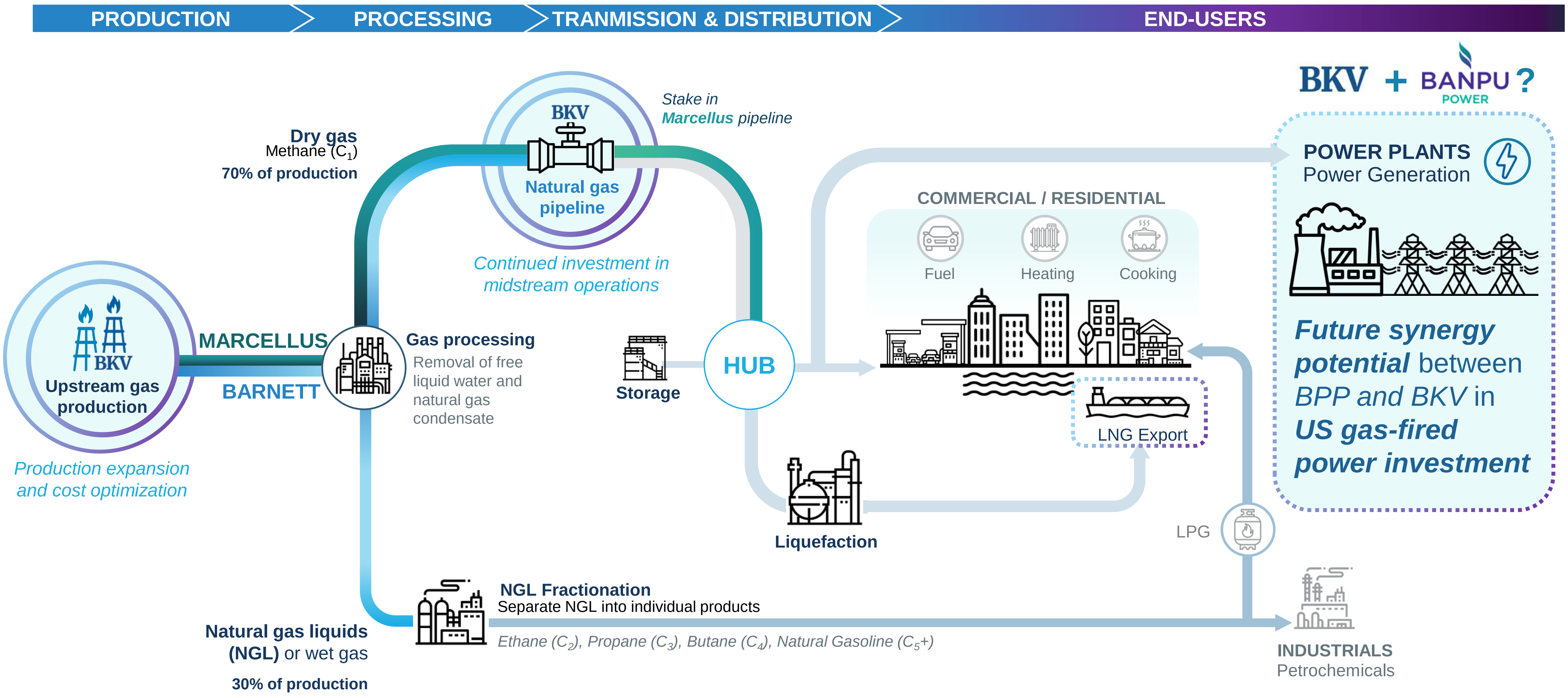

PRODUCTION:
Upside to commodity prices

GAS PIPELINE:
EBITDA and cash flow stability – resistant to commodity price volatility

Banpu Gas: growth strategy

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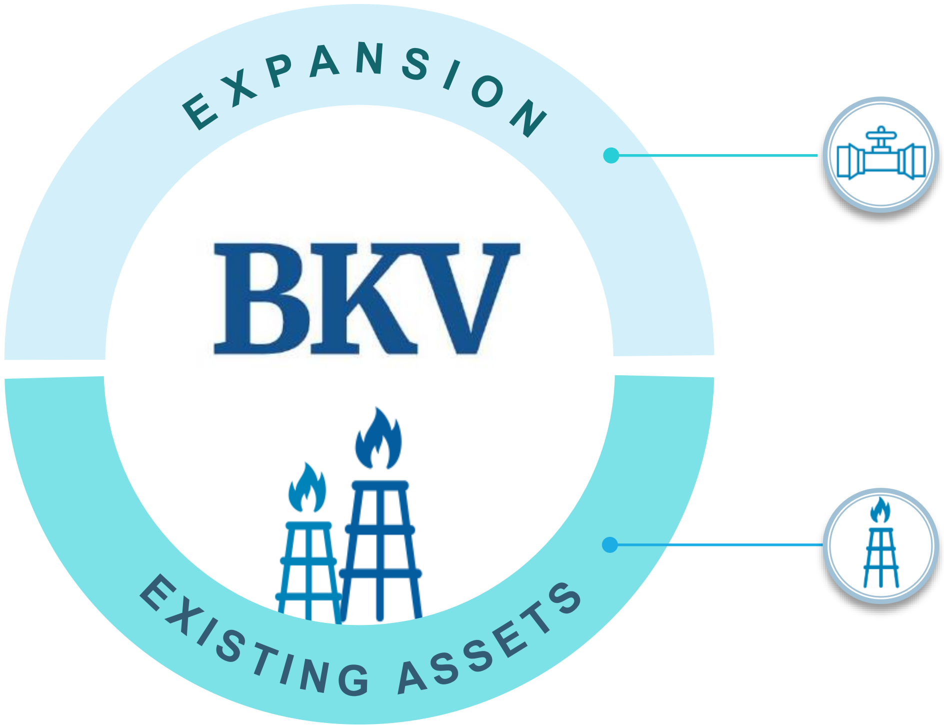
BKV CORPORATION



- *Growth platform for Banpu US gas business*
- *Ability to raise capital for future growth pipeline*
- *Increased control for Banpu's long-term control over US gas business*

STRATEGY GOING FORWARD

UPSTREAM ACQUISITIONS

- Focus on synergistic acquisitions, capturing opportunities at a discount during this buying window

MIDSTREAM ACQUISITIONS

- Explore investment opportunities in midstream gas pipelines and infrastructure

ASSET ENHANCEMENT

- Maintain our base production volume and improve reserves life with effective production development program

OPERATIONAL IMPROVEMENTS

- Enhance efficiencies and cost efficiencies through technology transfer from Barnett (incl. field automation, real-time monitoring)
- Improve margins through gas marketing and operational excellence

01 Highlights 3Q20

02 Focus: US Gas

03 Financial Summary

04 Energy Resources

05 Energy Generation

06 Energy Technology

Banpu consolidated financial summary 3Q20

KEY FIGURES

Unit: USD million

EBITDA **$146 M**

Strong result driven by improved commodity prices and effective cost reduction initiatives

NPAT **-$16 M**

Improved performance from previous quarter with increased contribution from Coal and Gas business

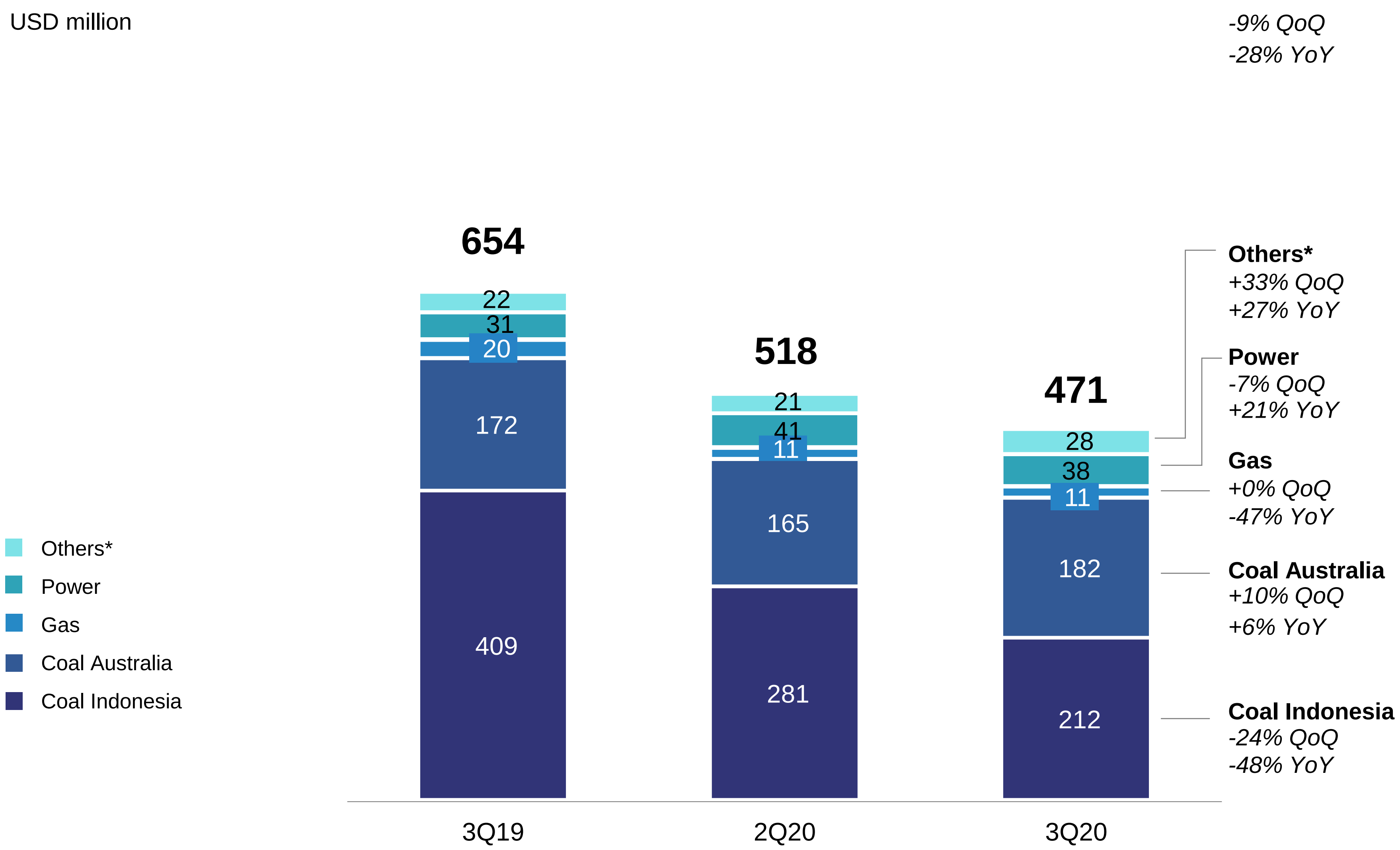
ND/E **1.36 x**

ND/E increased from 1.34x in the previous quarter

KEY TAKEAWAYS

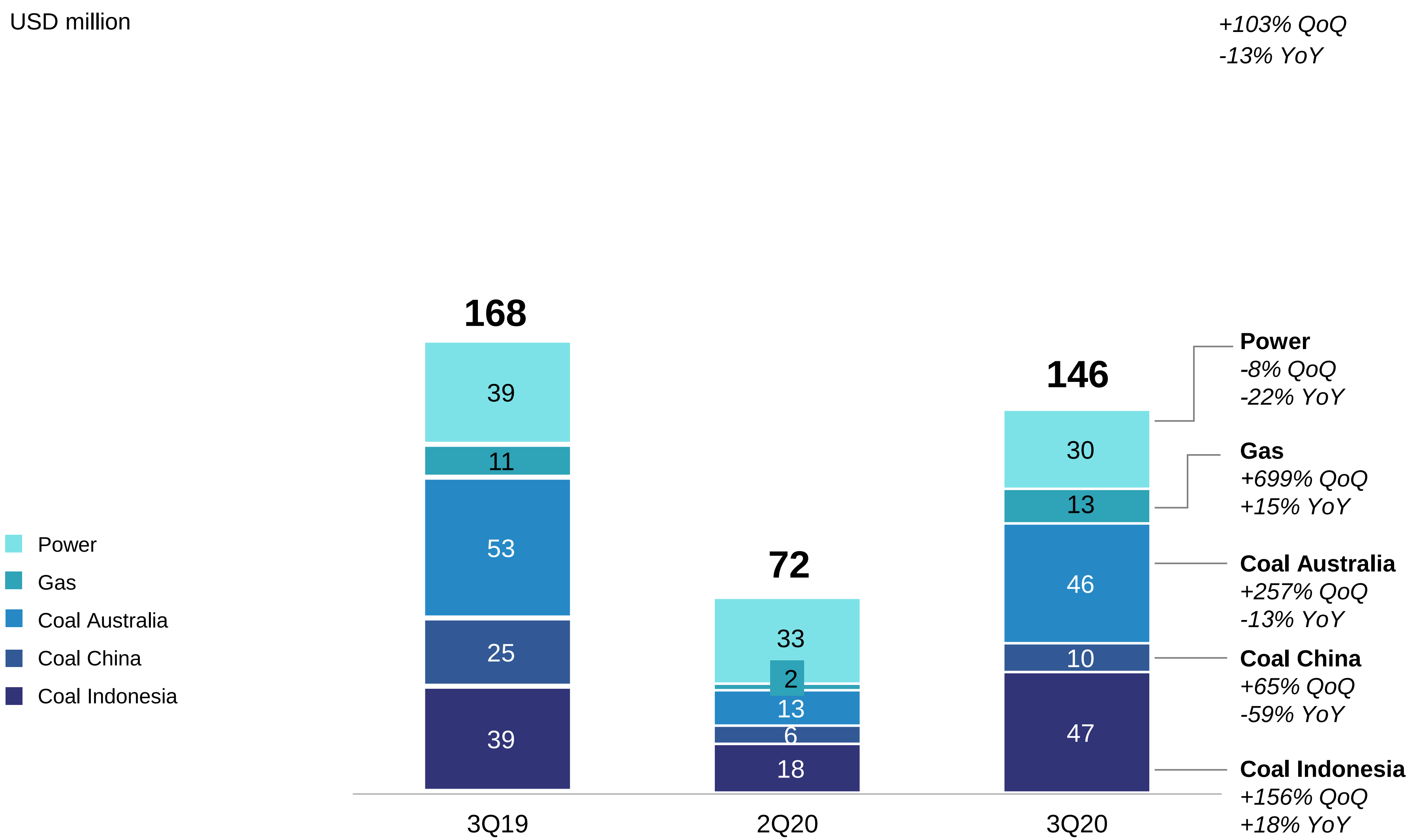
1. **EBITDA:** strong growth (+103% QoQ); driven by improvement in Coal and Gas EBITDA, and stable Power EBITDA
2. **Strategic positioning:** Coal and Gas businesses well-positioned to benefit from expected further improvements in commodity prices and demand
3. **Cash flow:** resilient and growing cash flow amid Covid-19 pandemic and global economic recession
4. **Cost reduction:** continued emphasis on cost reduction program to meet 2020 targets and improve profitability

Banpu consolidated sales revenues – 3Q20



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

Banpu consolidated EBITDA – 3Q20



Banpu consolidated NPAT – 3Q20

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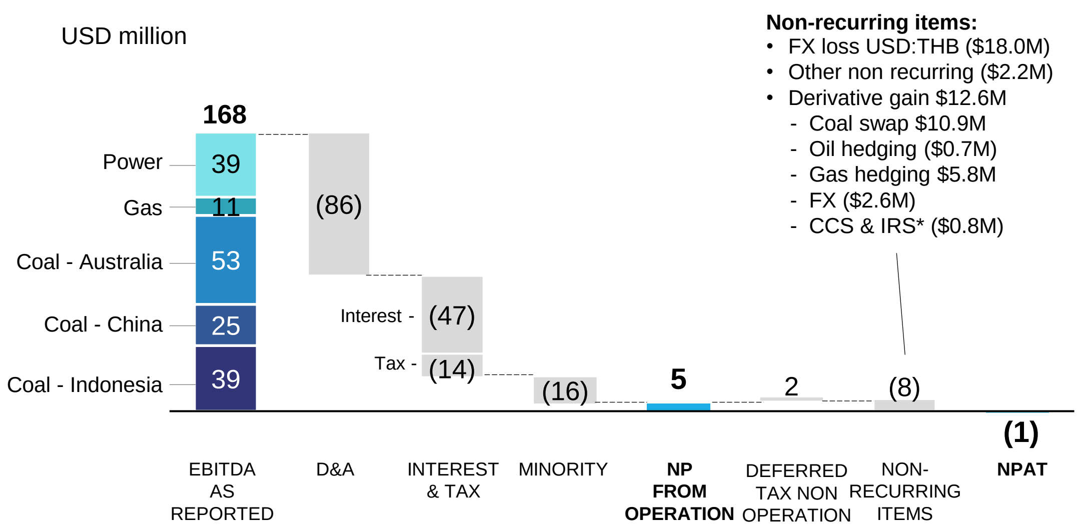
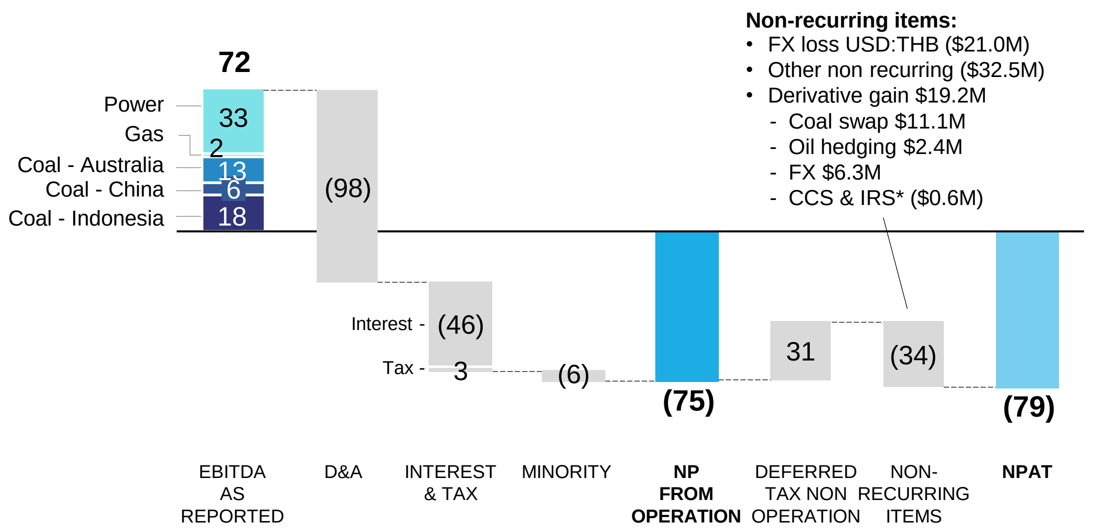
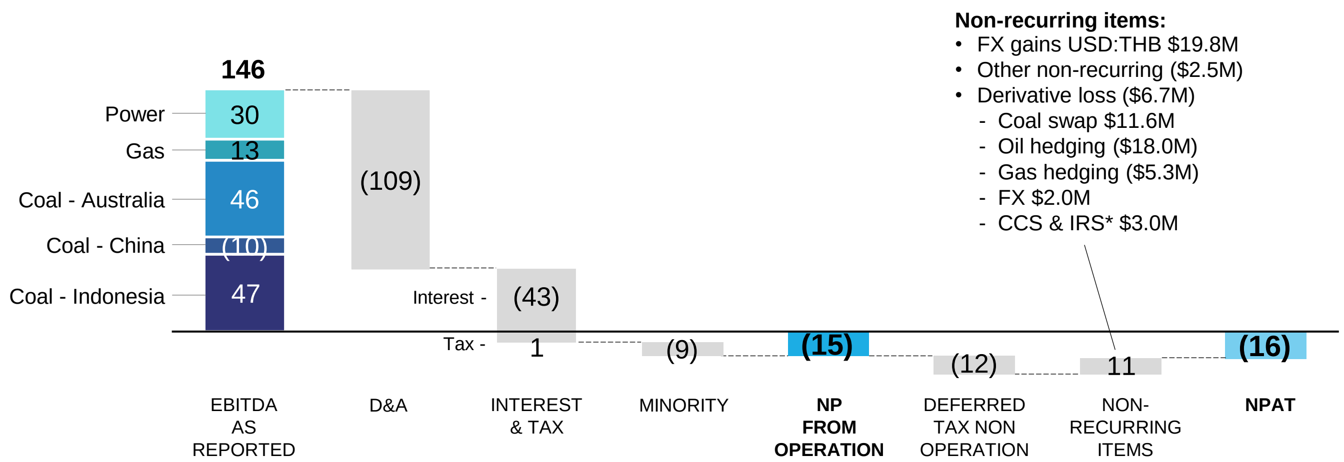
3Q19 NET PROFIT AFTER TAX



2Q20 NET PROFIT AFTER TAX



3Q20 NET PROFIT AFTER TAX

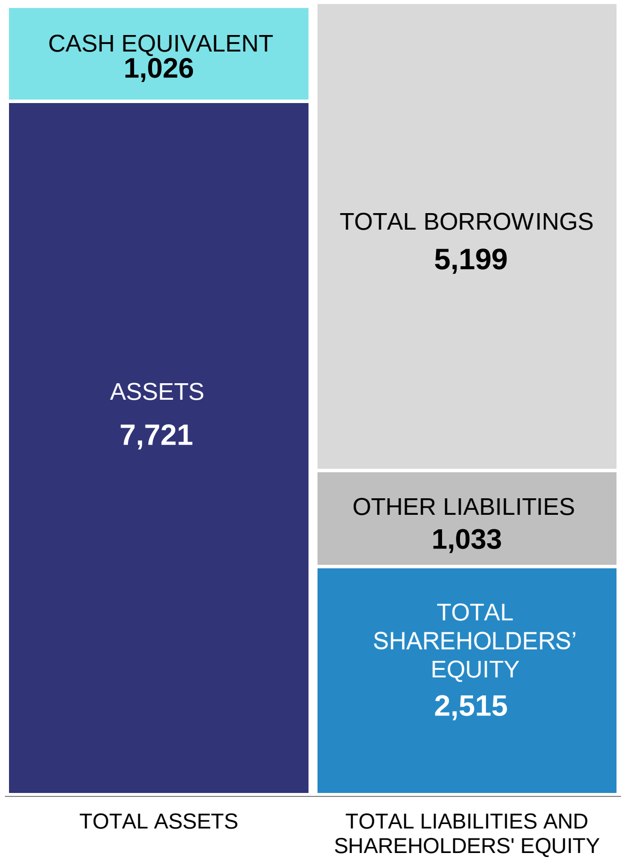


Note: *interest rate swap, cross currency swap

Banpu consolidated balance sheet – 3Q20

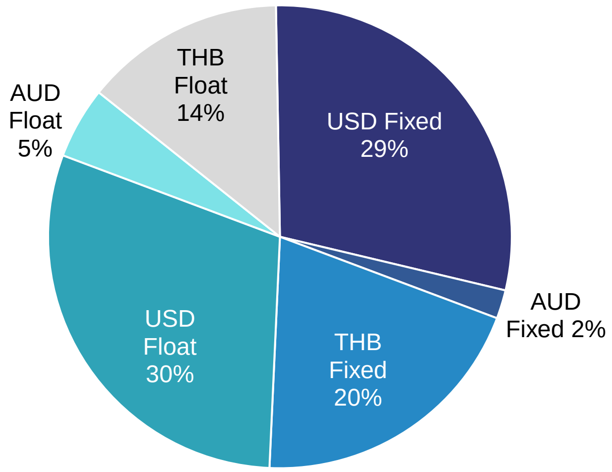
3Q20 CONSOLIDATED FINANCIAL POSITION

USD million



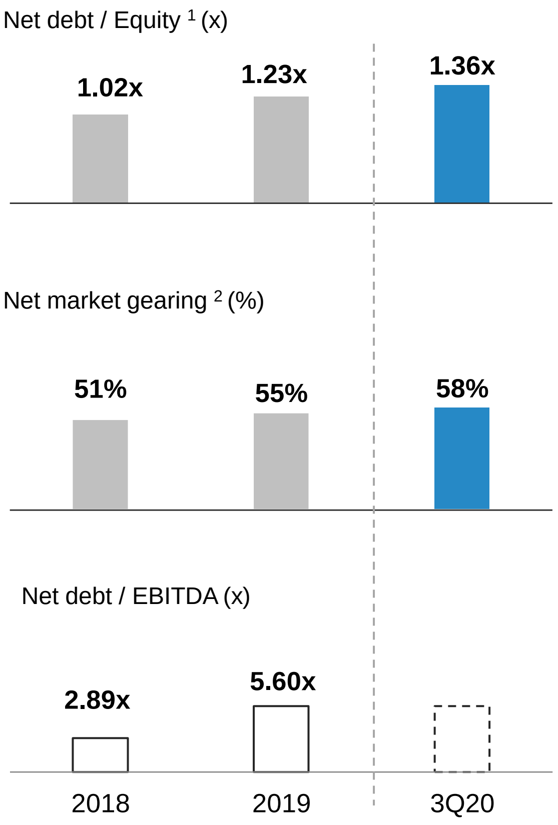
Note:
1 Net debt to book value of shareholders' equity
2 Net debt to enterprise value (enterprise value = net debt + market capitalization as at 30 September 2020)

DEBT FX STRUCTURE



Total gross debt: US$5.2 billion
As of 30 September 2020

GEARING RATIOS



01

Highlights
3Q20

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Focus:
US Gas

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Financial
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Energy
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06

Energy
Technology

U.S. gas market update

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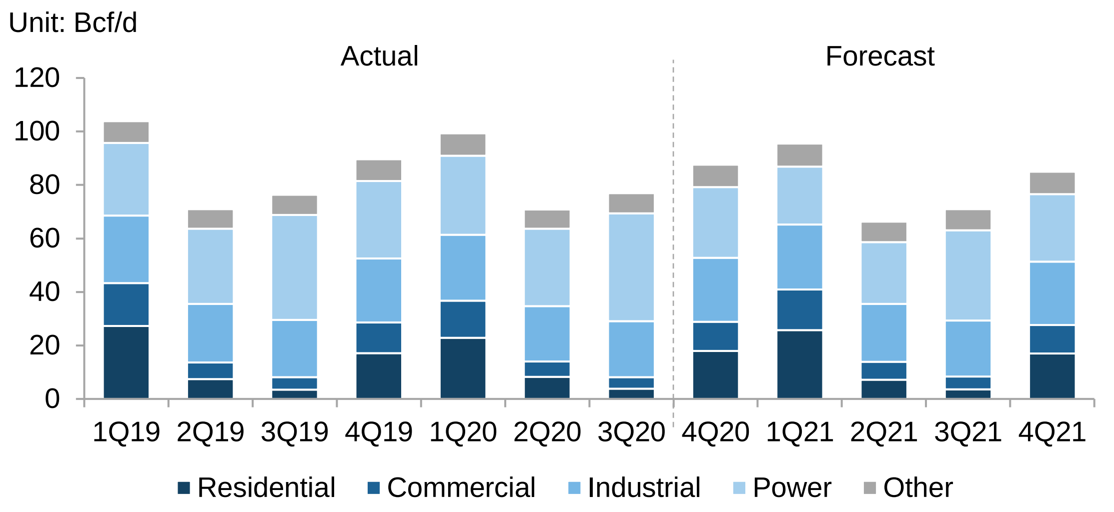
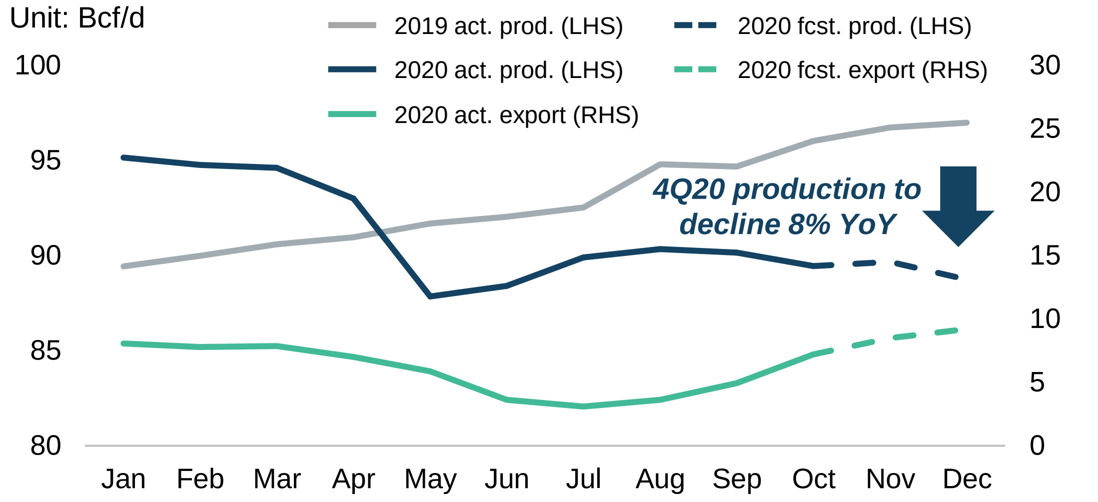
RESILIENT DEMAND PROJECTION

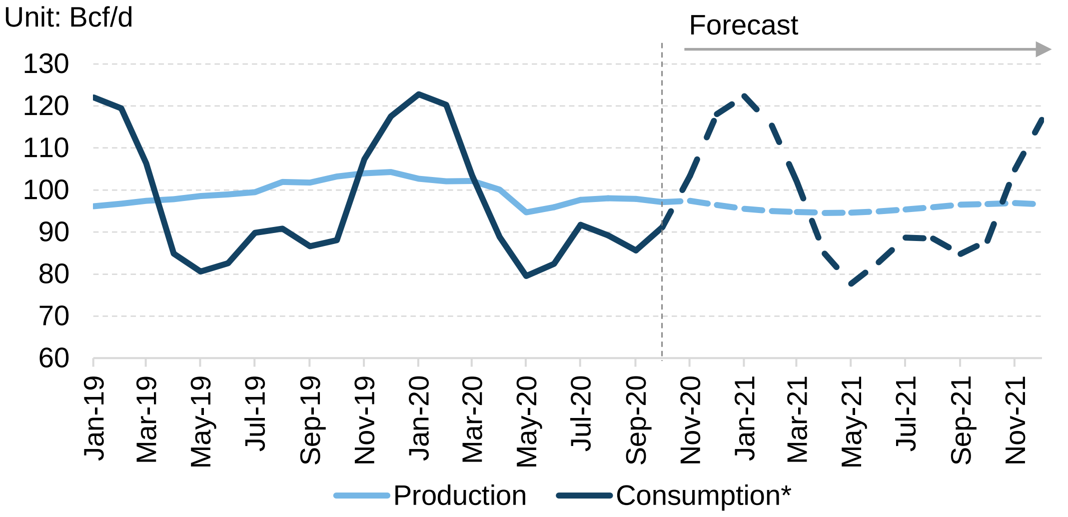


- Majority of US gas demand is domestic consumption. Price determined by local demand and supply with indirect linkage to oil via associated gas production.
- Despite Covid-19 and economic slowdown, demand remains resilient, with consumption in 3Q20 very steady compared to 3Q19.
- Production averages 90 Bcfd in 3Q20 (-4% YoY) amidst sharp drop in drilling activity (rig count decline), production curtailment and bankruptcies.
- Strong sign of recovery emerges in 4Q20 supported by rising winter demand and structural production decline. These will be the tailwinds supporting the price rally in the medium term as we enter winter.

US NATURAL GAS PRODUCTION



US NATURAL GAS PRODUCTION VS CONSUMPTION



Note: *consumption is adjusted to include export
Source: EIA

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

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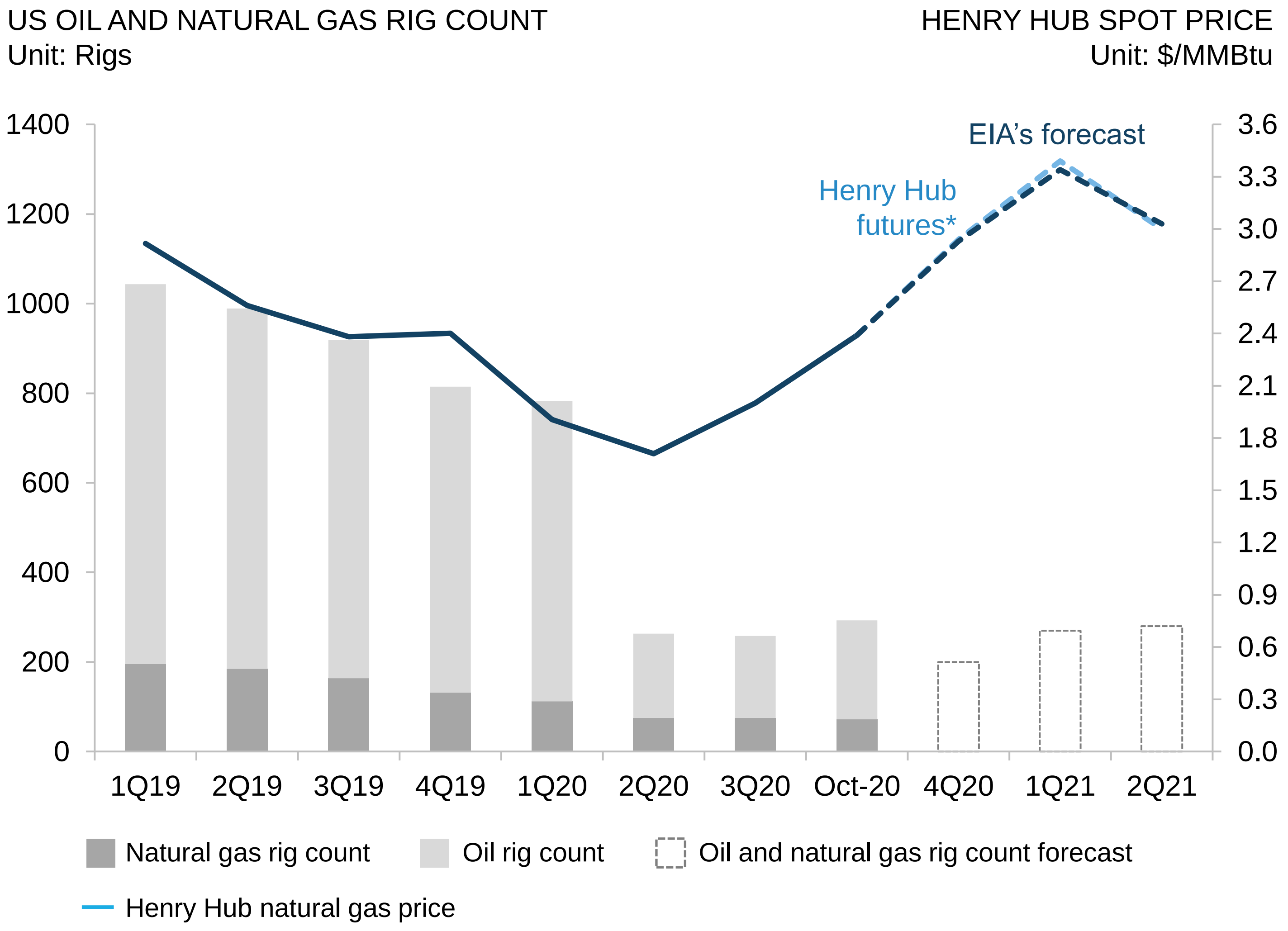
US RIG COUNT VS HENRY HUB PRICE



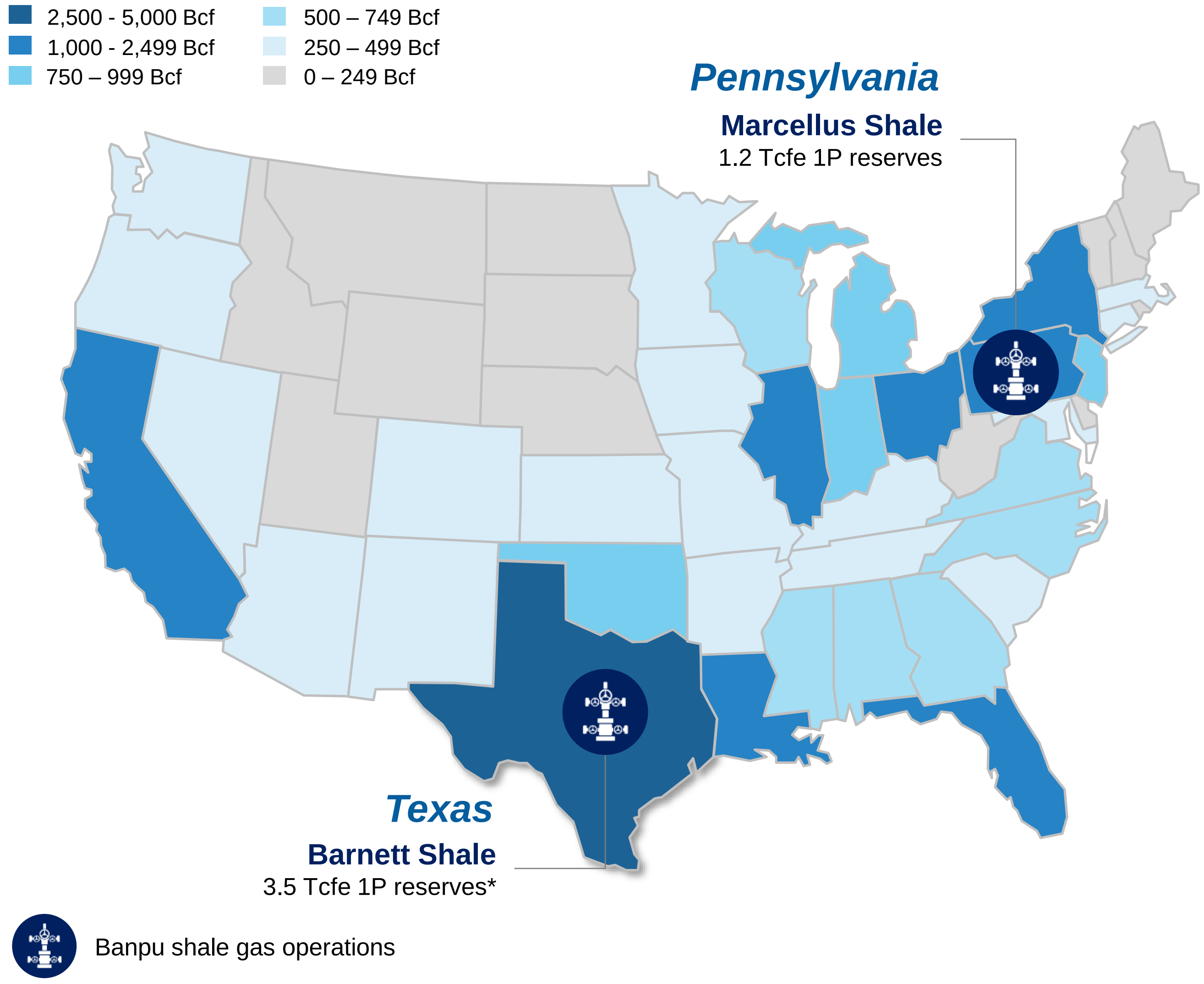
Note: *as of Oct 30th, 2020
Source: IHS Markit report, WoodMac research and Baker Hughes US natural gas rotary rig count (October 2020)

COMMENT

- Major US gas producers have announced capital spending reduction by 15-30% in response to impact from Covid-19.
- Oil rigs down 67% to 221, gas rigs down 45% to 72 YTD; fewest since 2016
- Decline in rig count and reduction in capital spending indicate lower gas production (associated gas from oil wells and from gas wells)
- Henry Hub futures signal an increase as domestic demand remains stable vs. decline in gas supply.

Banpu Gas: 3Q20 highlights

US DRY GAS CONSUMPTION 2018 BY STATE (Bcf)



Average netback price**

$0.55/Mcf

+5% QoQ

Sales volume**

15.2 Bcf

-5% QoQ

EBITDA**

$12.6 M

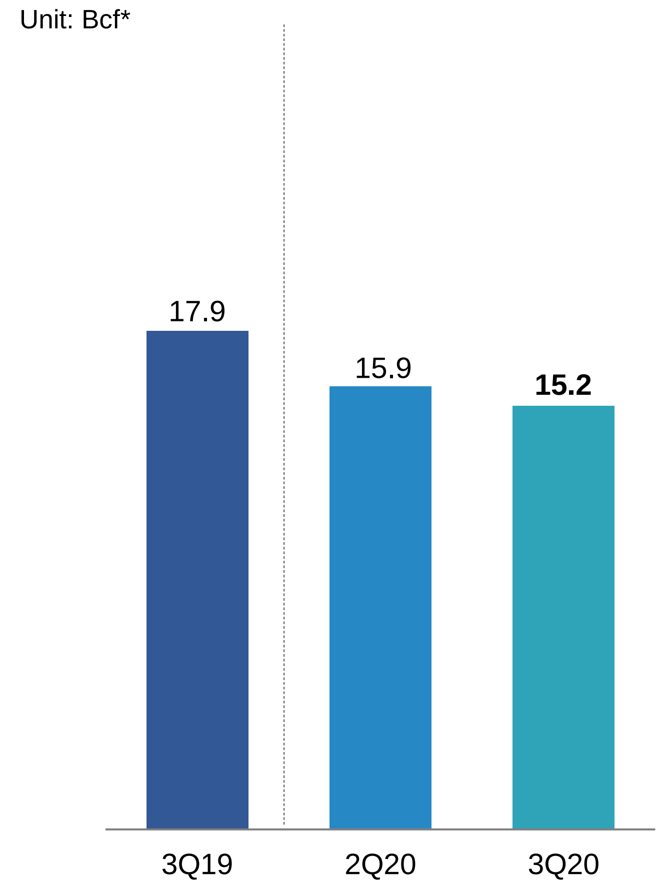
+699% QoQ

* Banpu signed Purchase & Sale Agreement with Devon Energy Corp in December 2019 subject to conditions precedent; the deal was closed on 1 October 2020, ** Marcellus only

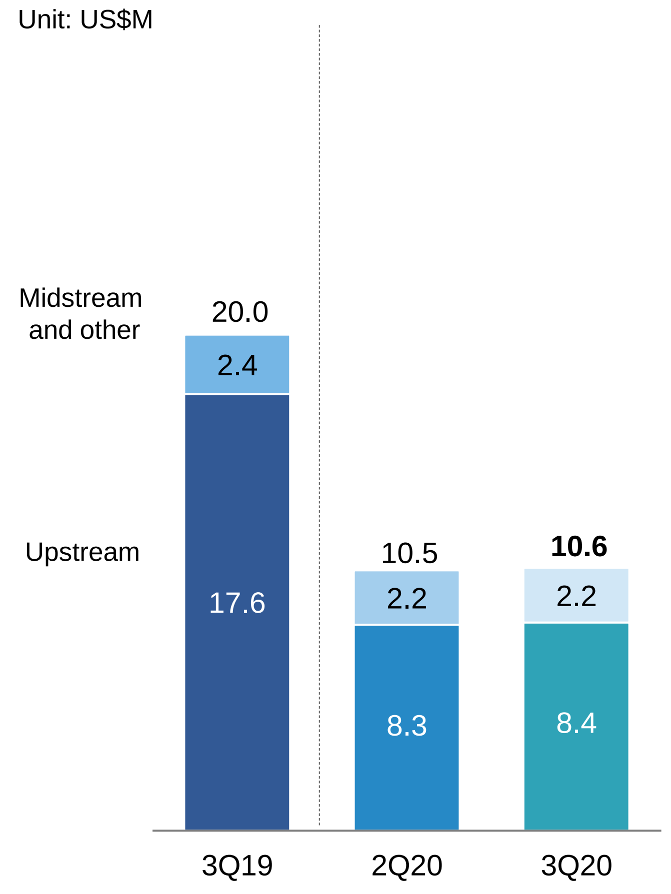
Banpu Gas: 3Q20 performance – Marcellus

3Q20 EBITDA was supported by steady production, saving initiatives, and transaction costs capitalization amid the low pricing environment. Barnett's performance and winter prices will provide uplift to cash flow and profitability in 4Q20.

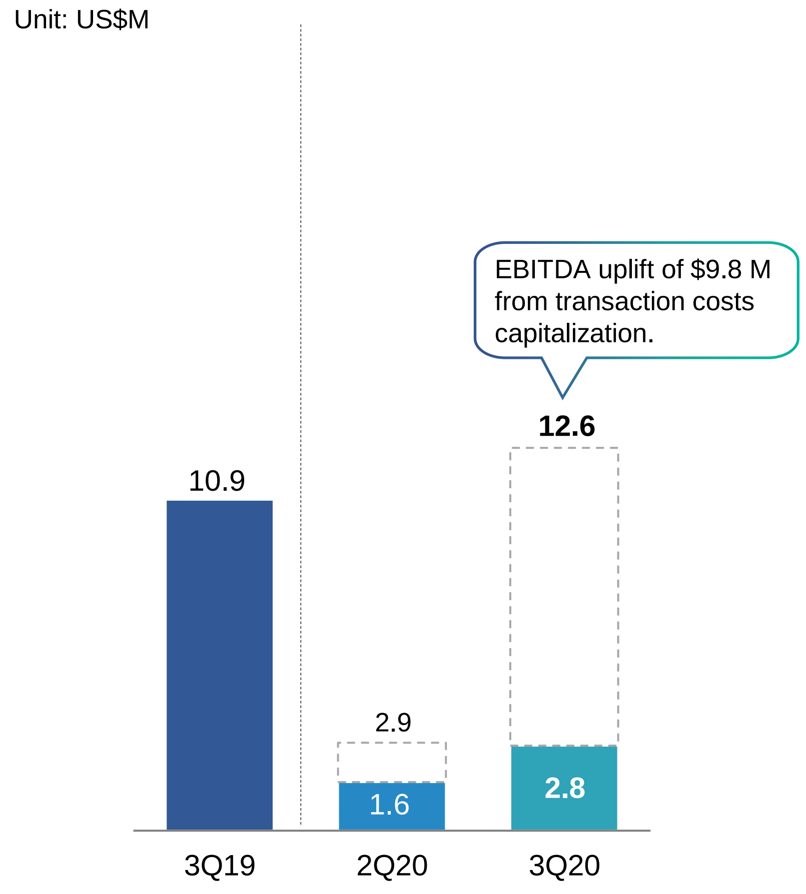
SALES VOLUMES



TOTAL REALIZED REVENUE



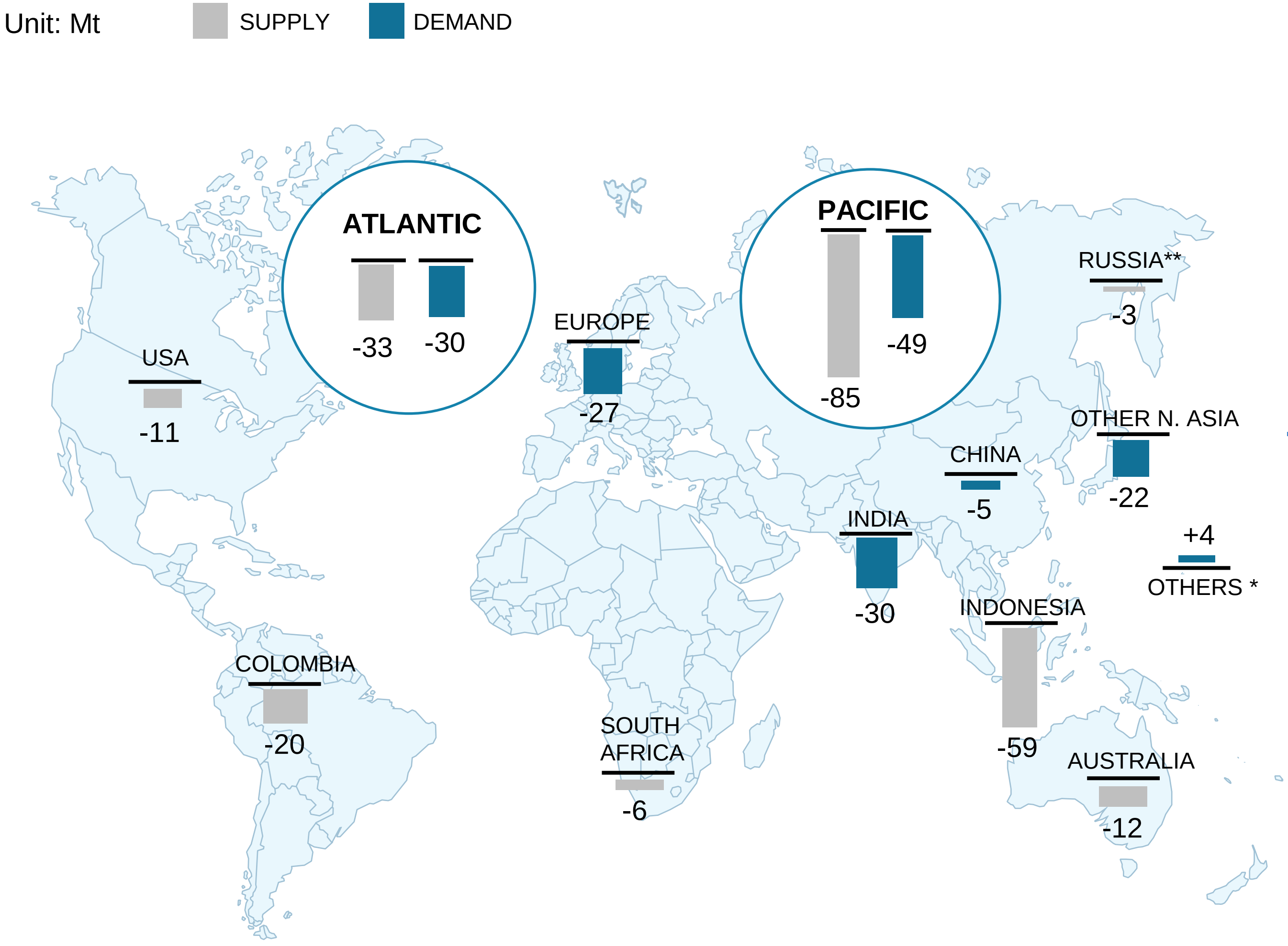
EBITDA



Note: * Bcf = Billion cubic feet

Global thermal coal market

COAL DEMAND AND SUPPLY CHANGE – 2020E VS 2019



TRENDS

DEMAND

Industrial activity has been recovering gradually from disruption caused by Covid-19. Expected colder winter set to drive thermal coal demand in the Northern Hemisphere. Risk on the second wave of Covid-19 remains.

- **China:** Continued economic recovery. High stocks and improving domestic production seems continued import restrictions.
- **India:** Economic reopening and high pet coke prices support imported coal demand although government pushes for domestic coal use.
- **JKT:** Economic coal-to-gas switching reduced coal burn in Q3.
- **Europe:** Coal demand fundamentals are improving with increasing natural gas prices and weak renewable output.

SUPPLY

Production cut continues with tighter supply of HCV product while LCV coal still oversupply. Low spot prices unlikely to continue for long due to lower than several producers' costs.

- **Indonesia:** Continued production decline due to weak demand. Indonesian miners made an effort to cut production, but the scale is insufficient to rebalance the market.
- **Australia:** Thermal coal exports stable despite China import ban. Shipments are being bolstered by increased demand from economies outside of China that are reopening following Covid-19 lockdowns.
- **Others:** Significant Colombian production cut due to low prices and key producers suspended operations. Improved Indian demand post monsoon supports South African exports. Weakened ruble helped to improve competitiveness of Russian coal both in Atlantic and Pacific.

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

Banpu ASPs vs thermal coal benchmark prices

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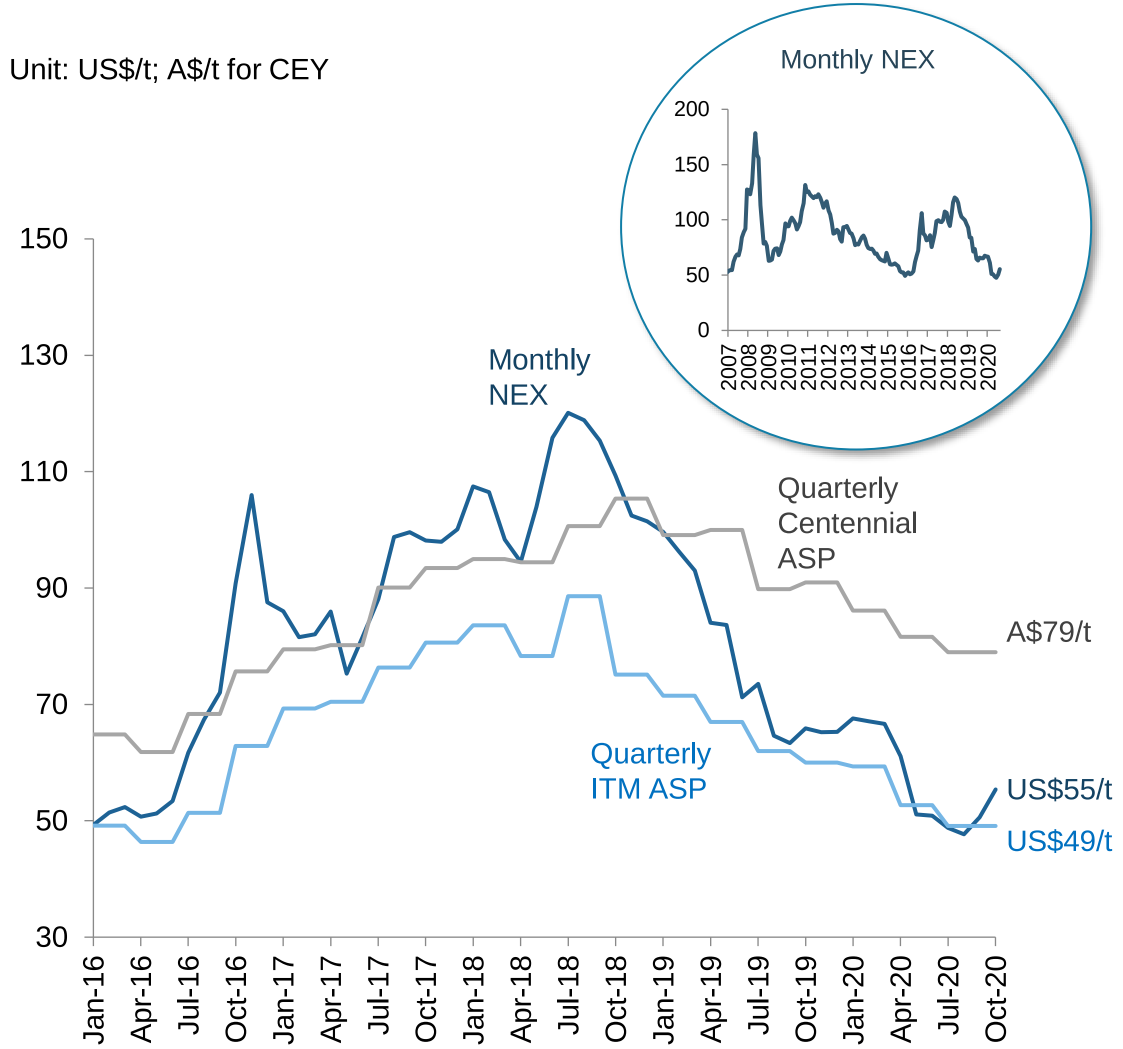
BANPU ASP VS BENCHMARK PRICES



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

COMMENTS

- NEX has recovered since late September mainly from supply cuts.
- Bottom has passed but demand remains subdued as Covid-19 surges in few areas, however high demand is expected as winter is around the corner and restocking to prepare for heating will soon commence.
- China domestic vs. import price gap widening increases demand for import but is suppressed due strict control by the government. Anticipation of 2021 quota reset has strengthen the Indonesia coal price.
- ASP in Q4 is expected to shadow the price recovery trend.
- Key price metrics:
  - ITM ASP: US$49.1/t* (-7% QoQ)
  - CEY ASP: A$79/t* (-3% QoQ)
  - NEX (November 6th, 2020)**: US$58.0/t

Banpu Mining: group coal sales and pricing status 2020e

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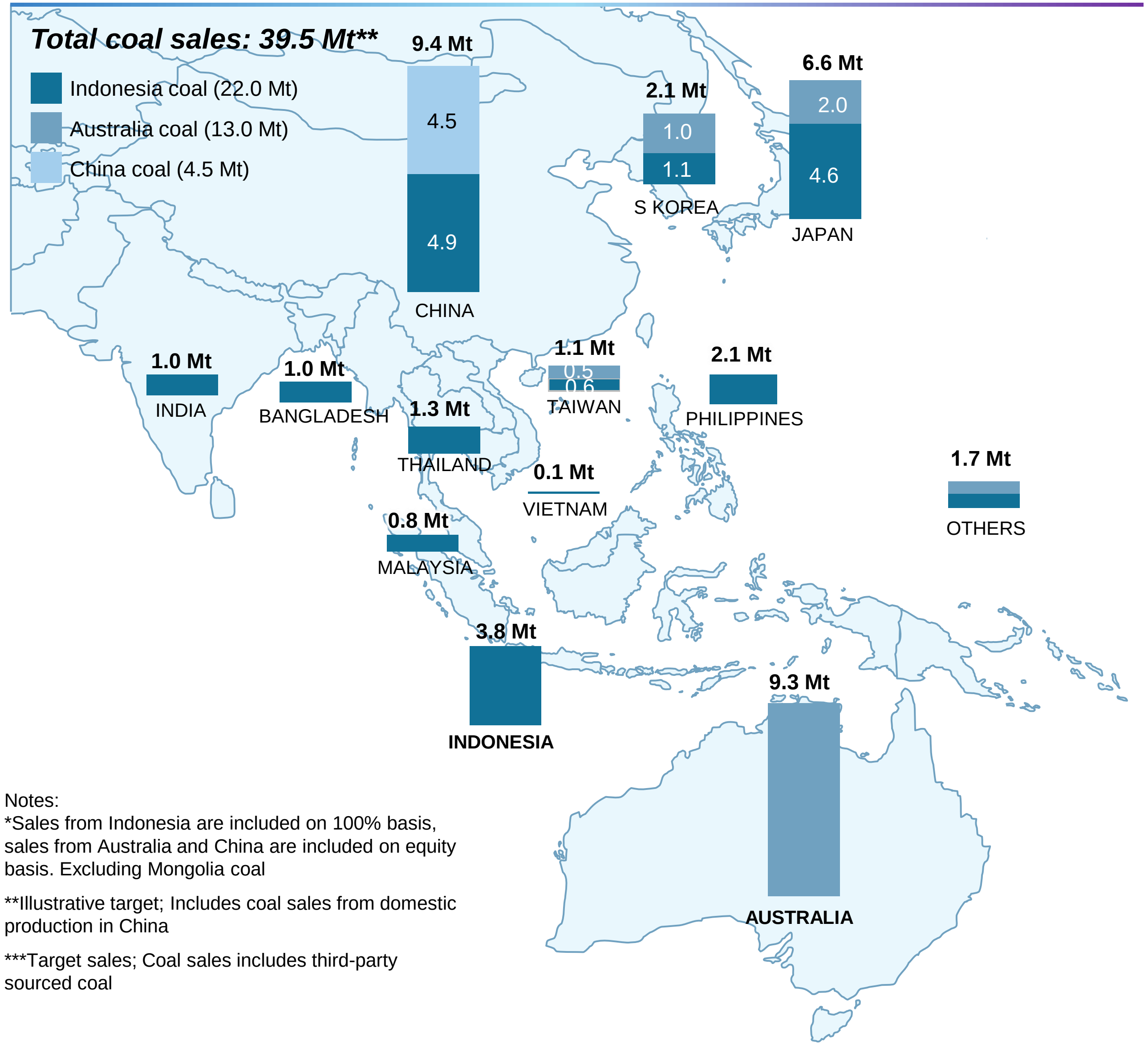
COAL SALES* SOURCE – DESTINATION ANALYSIS



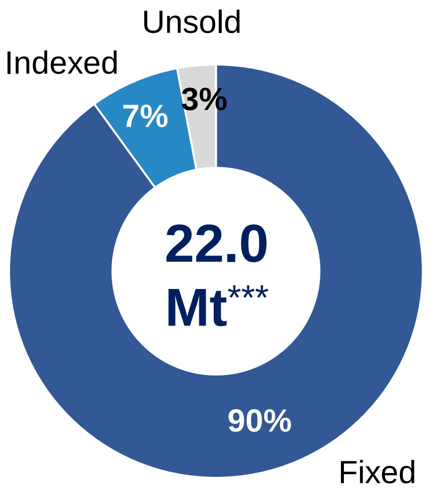
Notes:
*Sales from Indonesia are included on 100% basis, sales from Australia and China are included on equity basis. Excluding Mongolia coal

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

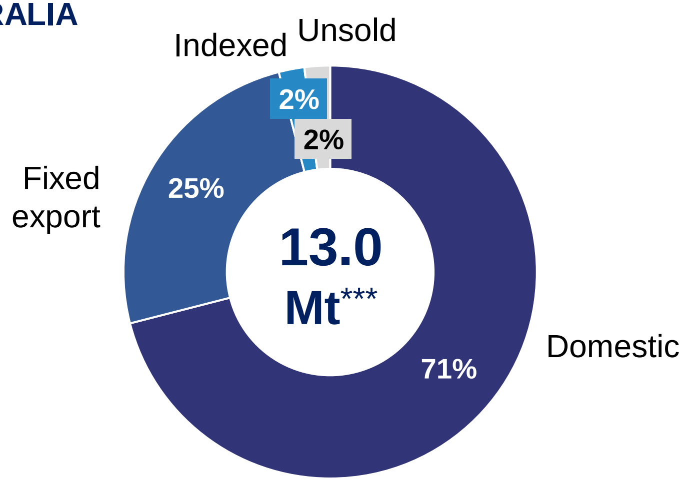
***Target sales; Coal sales includes third-party sourced coal

COAL SALES PRICING STATUS

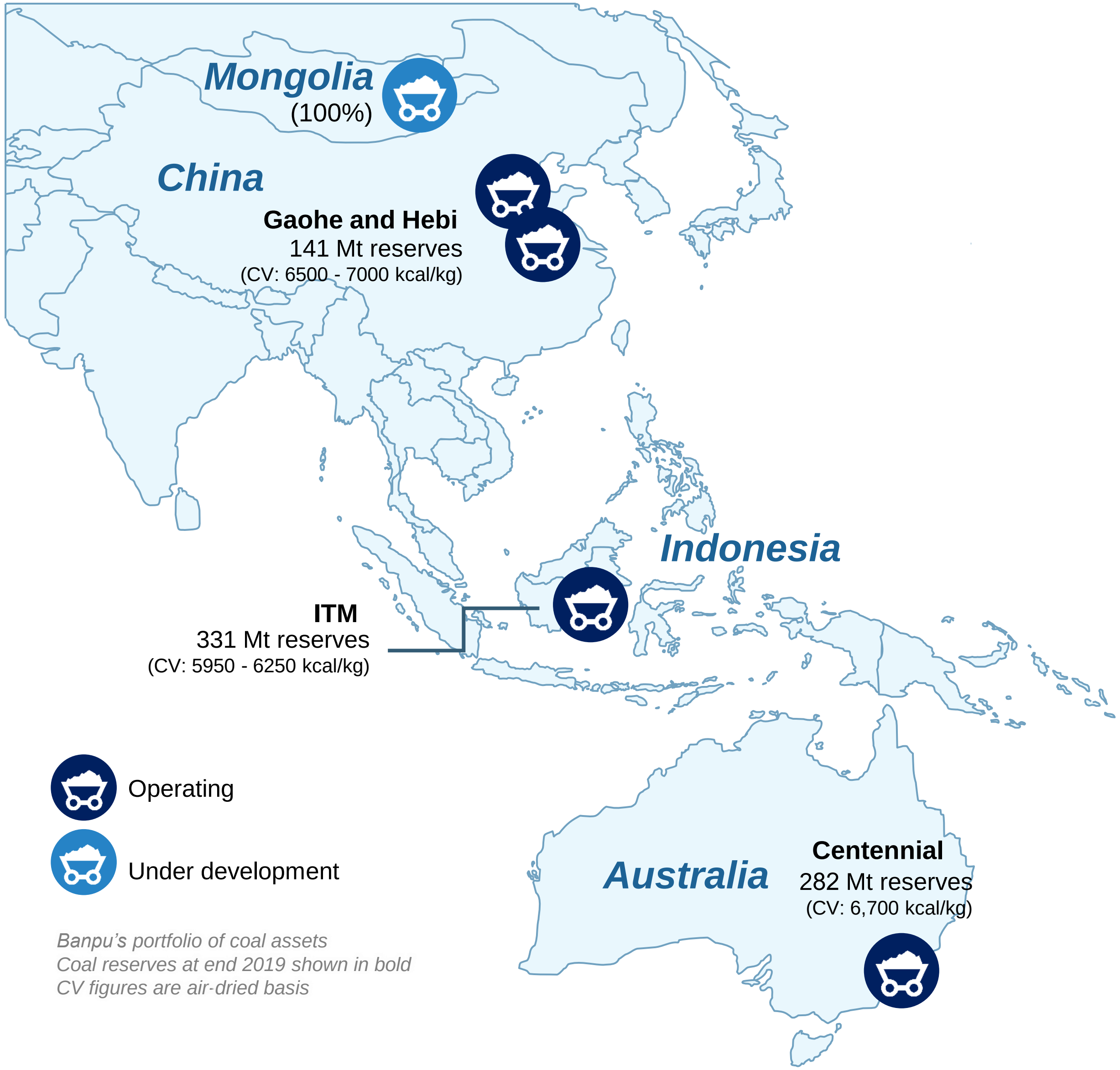
INDONESIA



AUSTRALIA



Banpu Mining: 3Q20 highlights



Banpu's portfolio of coal assets
Coal reserves at end 2019 shown in bold
CV figures are air-dried basis

Production volume*

10.4 Mt

-2% QoQ

Sales volume*

10.4 Mt

-7% QoQ

EBITDA

$103 M

+176% QoQ

Note: *Based on 100% basis

Banpu Mining: operational summary

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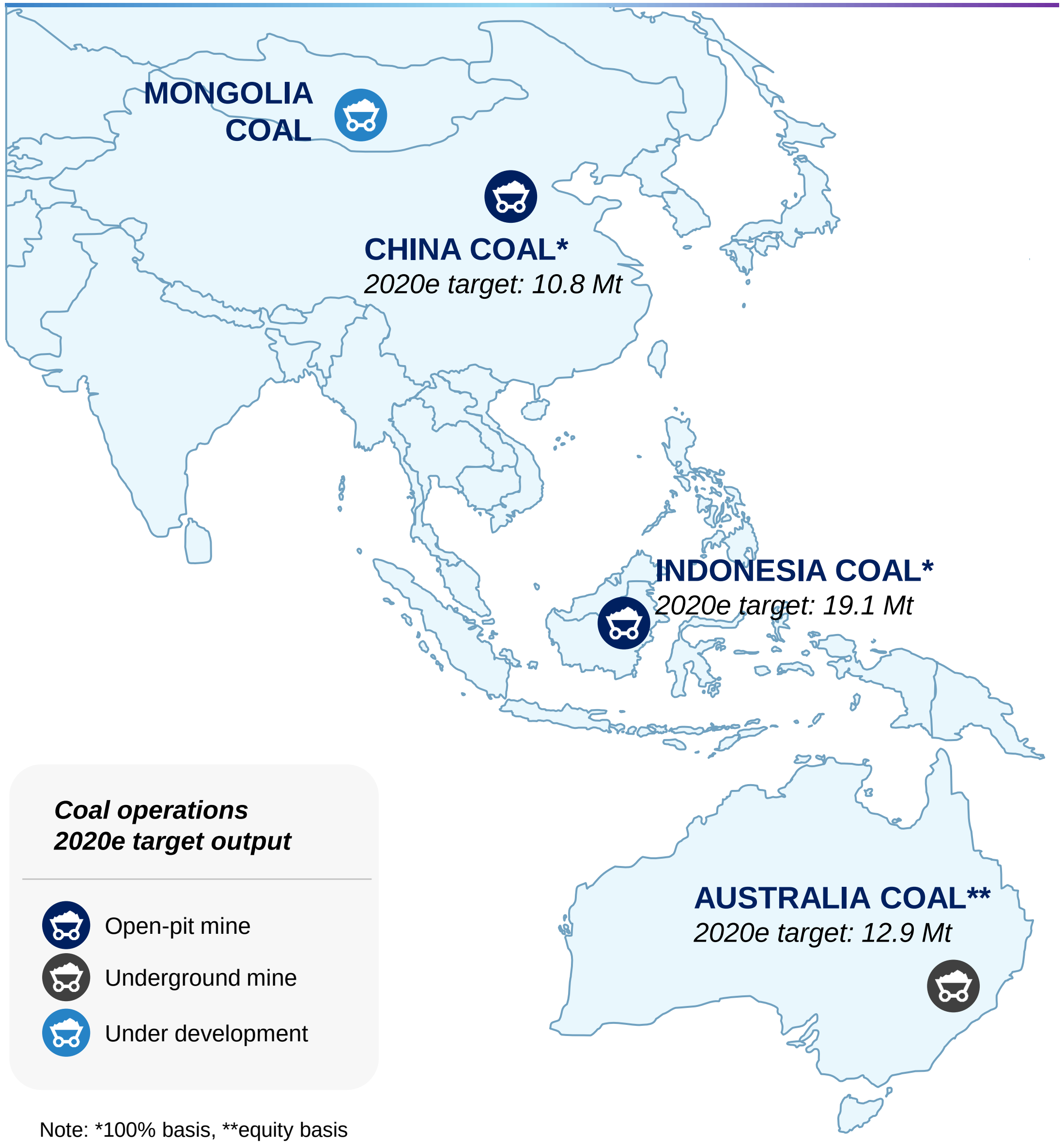
2020E COAL OUTPUT



Note: *100% basis, **equity basis

ROM PRODUCTION AND KEY UPDATES

	3Q19	2Q20	3Q20	4Q20e	Change
TOTAL COAL OUTPUT (Mt)	12.6	10.6	10.4	11.9	-2% QoQ, -17% YoY
AUSTRALIA COAL**	2.8	3.3	2.8	3.6	-15% QoQ, 0% YoY
INDONESIA COAL*	6.8	4.4	4.9	5.3	+11% QoQ, -28% YoY
CHINA & MONGOLIA COAL*	3.0	2.9	2.7	3.0	-7% QoQ, -10% YoY

- Western operations were down, compared to last quarter, with a longwall move at Springvale and NPE panel move at Airly
- Northern operations production was up, with a monthly production record at Mandalong prior to a longwall move, partly offset by Myuna's poor performance.

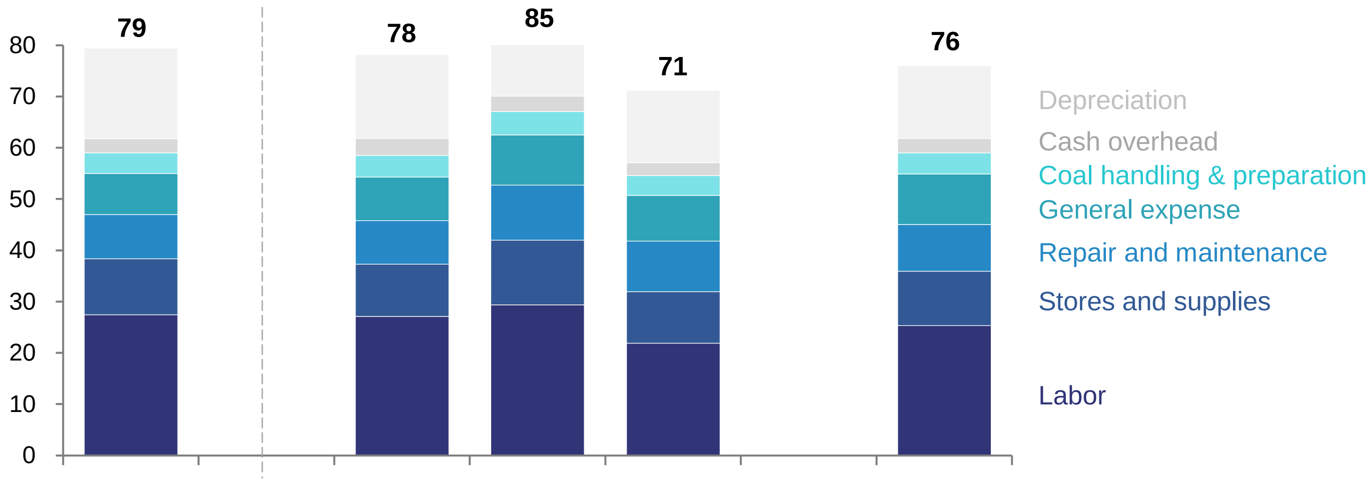
- Lower Indominco output due to heavy rainfall slightly balanced out by Trubaindo higher production.

- Gaohe: Lower production in Q3 due to weak market and lithology change (sinkhole).
- Hebi: Higher production in Q3 with Longwall panel 3201 starting production during August.

Banpu Mining: average production cost breakdown

AUSTRALIAN COAL – AVERAGE PRODUCTION COST[1]

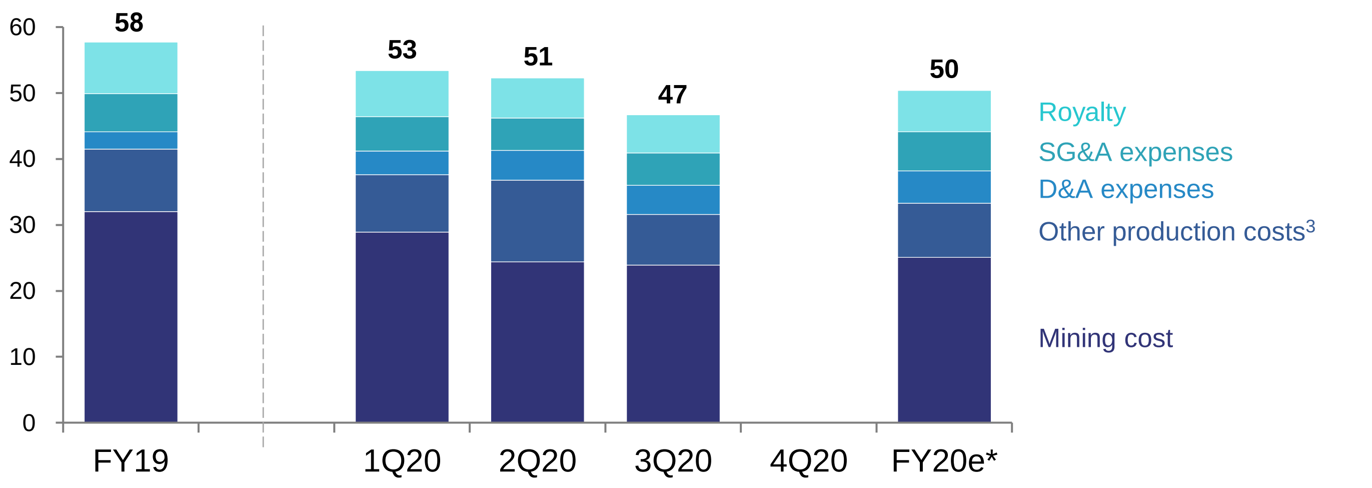
Unit: A$/t



- Costs impacted by mining conditions and more frequent longwall relocations.
- Lower labour and amortisation, partly offset by higher R&M and deferrals, with Airly, Mandalong & Springvale all undertaking panel moves in the quarter.
- Continued cost reduction in contractor labour and overheads targeted to further drive costs down.

INDONESIAN COAL – AVERAGE TOTAL COST[2]

Unit: US$/t



- Average total cost reduced further due to lower mining cost, driven by lower strip ratio, and lower royalty in 3Q20.
- Progressing on to reduce average total cost for the whole year to target $50/t.

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., *indicative target


BANPU

Banpu Energy Generation: 3.3 GW committed capacity

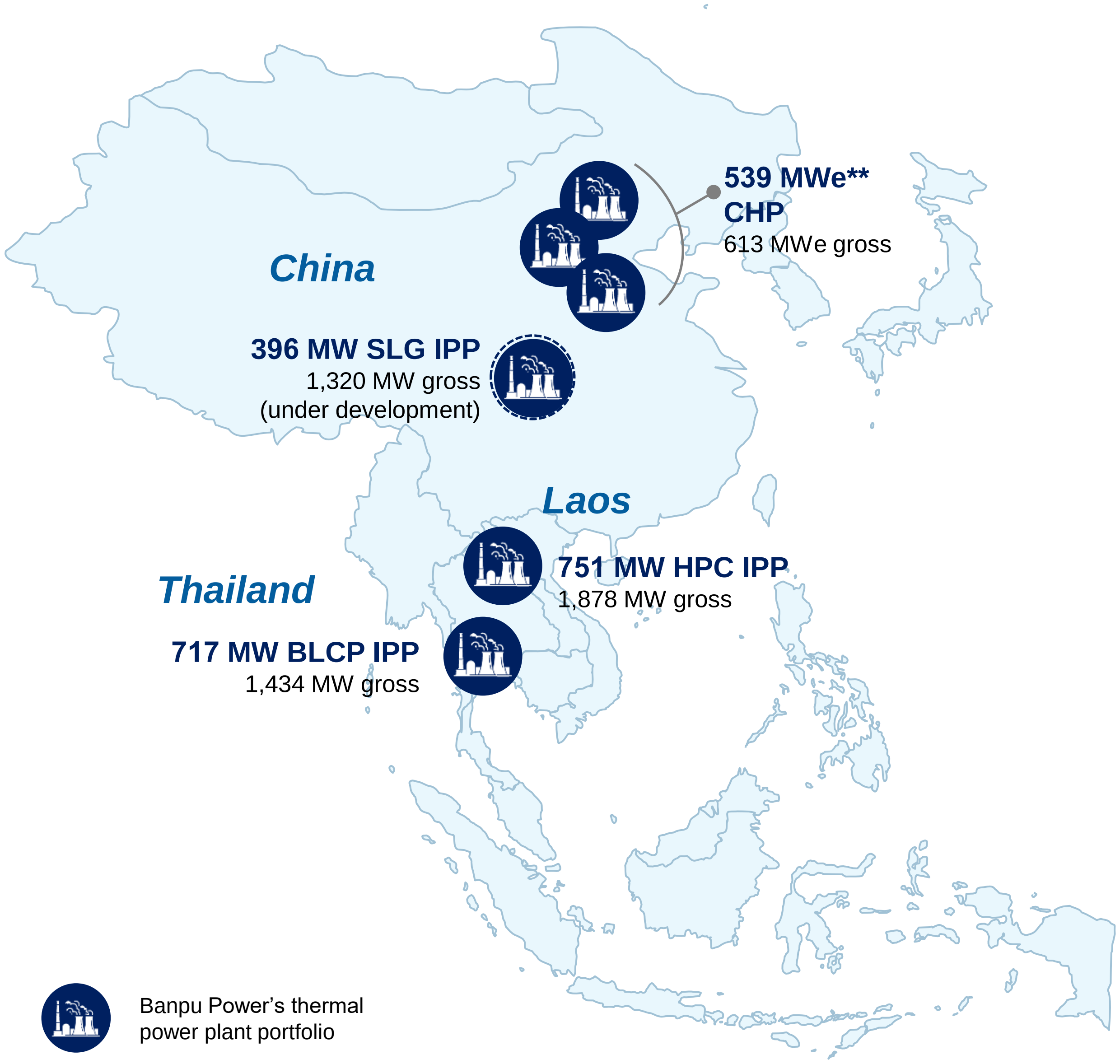
11 countries
operations across Asia

2.4 GW
committed thermal equity capacity*

0.9 GW
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: 3Q20 highlights



Banpu Power's thermal power plant portfolio

EBITDA

$30 M

-9% QoQ

Achieved EAF

100% at BLCP

72% at HPC

Project update

89%

completed for SLG project

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

Banpu Thermal Power: 3Q20 updates

BLCP

Consistent reliability result in high efficiency and plant availability support by strong dispatch order from EGAT

- Continue its high plant efficiency and reliability with EAF* at 99.9%
- Total revenue report at THB 4 Bn, EBITDA of THB 0.9 bn
- Operating profit reported at THB 0.3 Bn

HPC

Extended planned maintenance at unit 3 to ensuring sustainable long-term performance

- Operational performance result with EAF of 72% resulted from maintenance of unit 3
- Total revenue report at THB 4 Bn, EBITDA of THB 2.3 bn
- Operating profit reported at THB 0.6 bn

China CHP

Strong power and steam demand driven by recovery of industrial users

- Reported revenue of RMB 214 M

SLG

- Construction progress achieved 89% with completion in Transmission line construction and expect to supply heat by end of 2020

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 Thermal Power: near term growth, SLG at 89% completion

BANPU

PROJECT PROGRESS

POWER PLANTS

95%

Unit 1 completed 93%, construction work and debugging, scheduled to supply power and heat in 2021

Unit 2 completed 98%, finishing work and debugging, scheduled to supply power and heat in 2020

Heating Pipes to Changzhi city

85%

TRANSMISSION LINE & SUBSTATIONS

100%

1,000 kV out-going project completed, power backfeeding scheduled on November 10th, 2020

#2 Turbine

#2 FGD

Centralized control building

Coal handling system

Coal stockyard

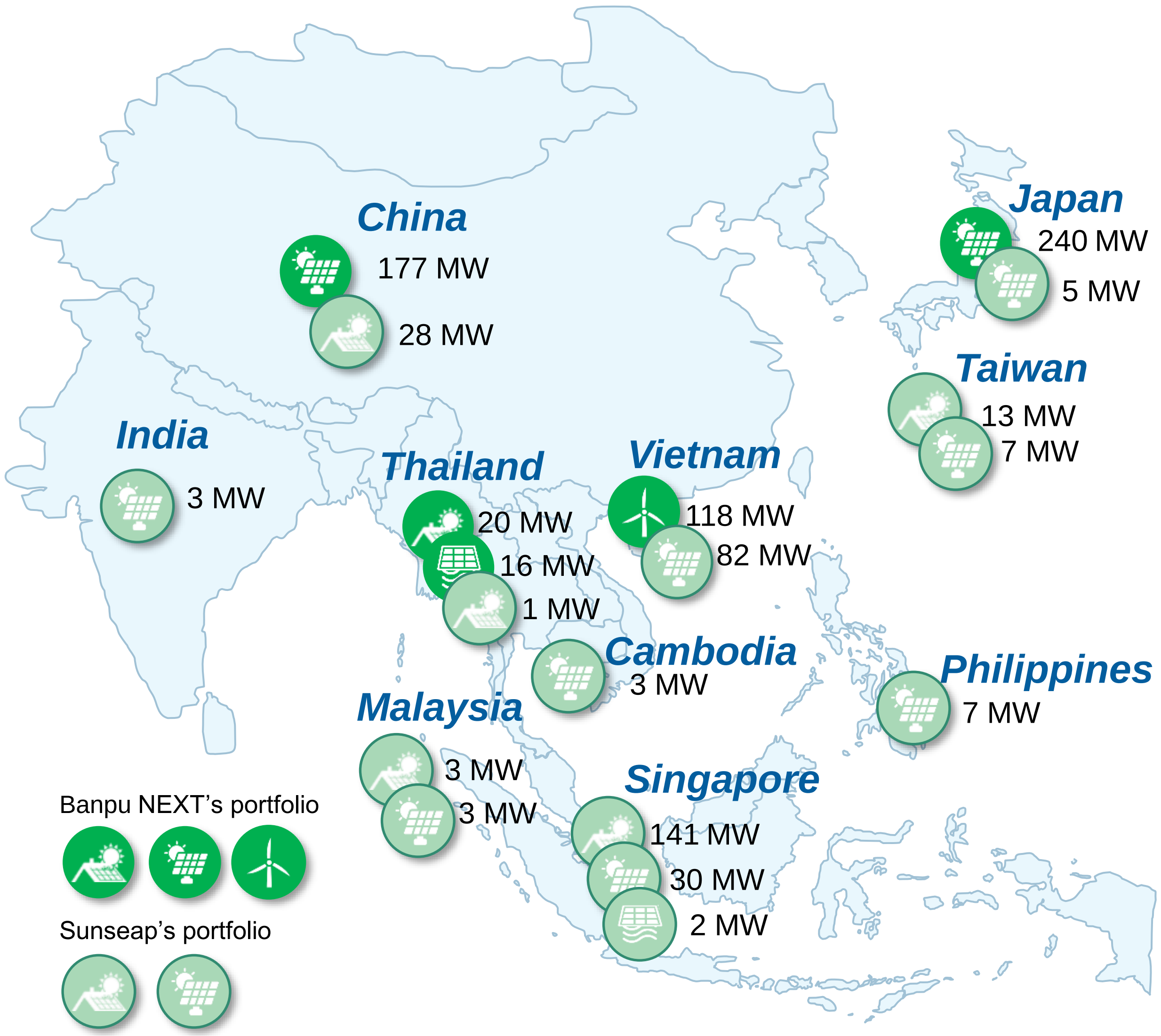
1000kV GIS

SLG – Zhaozhuang Line

Zhaozhuang – Changzhi Line

Banpu Renewable Power: diversified Asia-Pacific portfolio*

BANPU



900 MW
committed renewables capacity across Asia

558 MW
committed solar power capacity

224 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: 3Q20 updates

BANPU

China Solar

Capacity factors remain strong though slightly lower power sold due to more raining days compare YoY

- Average capacity factor reported at 15%, -2% QoQ
- Power sold was 60 GWh, -10% QoQ
- Reported revenue of RMB 50 M, -9% QoQ and +9% YoY

Japan Solar

Lower average capacity factor and power sold due to unfavorable weather conditions

- Average capacity factor reported at 14%, -3% QoQ
- Power sold was 35 GWh, -19% QoQ
- Additional operating capacity is expected from target COD of Yamagata and Yabuki solar by 4Q20

Vietnam Wind

Ongoing Soc Trang phase 1 construction Additional capacity of operating Mui Dinh wind farm of 37.6 MW will be in 4Q20

- Project Soc Trang phase 1 construction progress reach 30%, COD target shifting to 1H21
- Immediate earning upside from Mui Dinh once the deal is completed in 4Q20

Note: Banpu Power has 50% shareholding in Banpu NEXT


EV
BANPU

Banpu Energy Technology: growing portfolio

BANPU

	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		
2019	109 MW Operating capacity	0.5 GWh Li-ion battery production capacity	2,000 passengers/day ride hauling via Muvmi 22 electric vehicles under fleet management	4 projects Includes energy management, smart infrastructure, etc.	0 GWh Electricity sales
9M20	224 MW	0.5 GWh	4,000 passengers/day 50 electric vehicles	5 projects	280 GWh**
2025 target	500 MW	1.4 GWh	10,000 passengers/day 100+ electric vehicles	9 projects	1,000 GWh

*Based on 100% Banpu NEXT. Banpu NEXT is 50% owned by Banpu and 50% by Banpu Power **2020 target

Banpu Energy Technology 3Q20: updates

BANPU

SOLAR: ROOFTOP & FLOATING

ENERGY STORAGE SYSTEMS*

E-MOBILITY

SMART CITIES

ENERGY TRADING

CAPACITY EXPANSION

SECURED FLOATING SOLAR CONTRACT
First to secure floating solar electricity sale contract to a private customer, with contracted capacity of 16 MW

3-SOLAR ROOFTOP CONTRACT SECURED
with total capacity of 2.6 MW, increasing the Banpu NEXT's total contracted capacity to 20 MW

SUNSEAP CAPACITY EXPANSION
Added 32.2 MW of solar rooftop capacity increasing Sunseap's total capacity to 186 MW

NEW PRODUCT LAUNCH

E-PROMPT MOVE LAUNCH
Delivered 20 units of E-Prompt Move, which integrates solar panels and stationery storage, adding 600 kWh to the total capacity

ELECTRICITY SALES

AWARDED A SUPPLY CONTRACT
Awarded a contract to supply 41 GWh electricity to a water treatment center in Nara from November 2020 - October 2021

ELECTRICITY SUPPLY AGREEMENT
to deliver 52 GWh electricity to two end-user clients from November 2020 - October 2021

*Achieved lithium-ion battery sales of 0.28 GWh on equity basis in 3Q20

Banpu Energy Technology 3Q20: updates (cont'd)

BANPU

SOLAR: ROOFTOP & FLOATING | ENERGY STORAGE SYSTEMS | E-MOBILITY | SMART CITIES | ENERGY TRADING

E-MOBILITY SOLUTIONS

E-TUKTUK SERVICES MOU SIGNED
Between Banpu NEXT Green leasing, Urban Mobility Tech, and Thammasat University to provide ride hailing services at Rangsit campus

EV CAR SHARING LAUNCH
Banpu NEXT introduced FOMM car sharing through Haup Car platform with a plan to increase to 100 FOMM cars to serve sharing business

E-FERRY PRODUCT DELIVERY
Delivered and commercially operated E-Ferry for maritime transportation in Phuket

SMART CITY SOLUTIONS

MOU SIGNED FOR KHON KAEN SMART CITY DEVELOPMENT
In collaboration with Khon Kaen City Development (KKTT), Banpu will conduct a feasibility study on the province's adoption of clean energy ecosystem

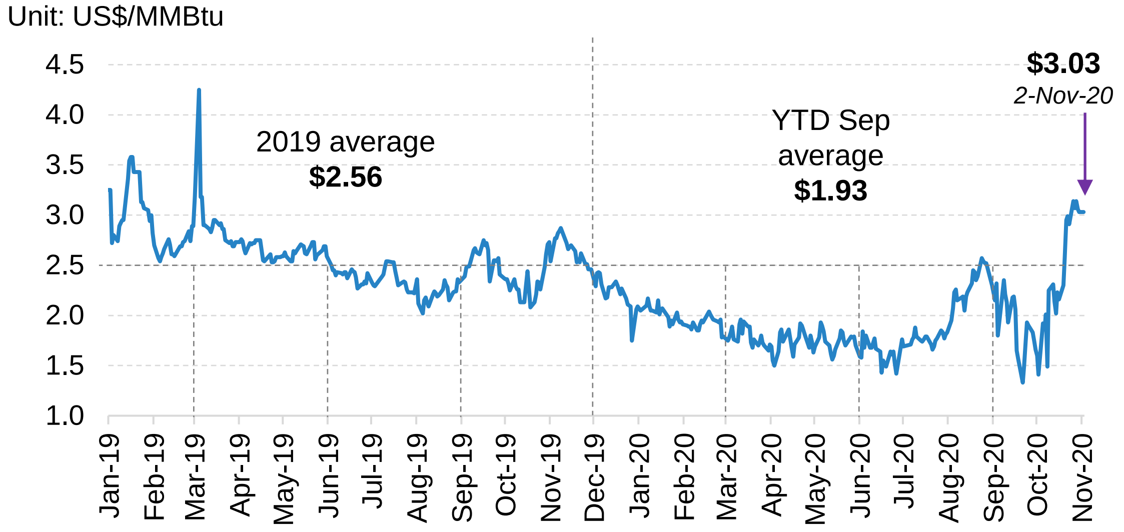
25% STAKE ACQUISITION IN WASTE MGMT. COMPANY
Invested $0.4 M in GEPP Sa-Ard, which provides end-to-end solutions for waste management, particularly to residential and commercial customers

APPENDIX

U.S. gas market update

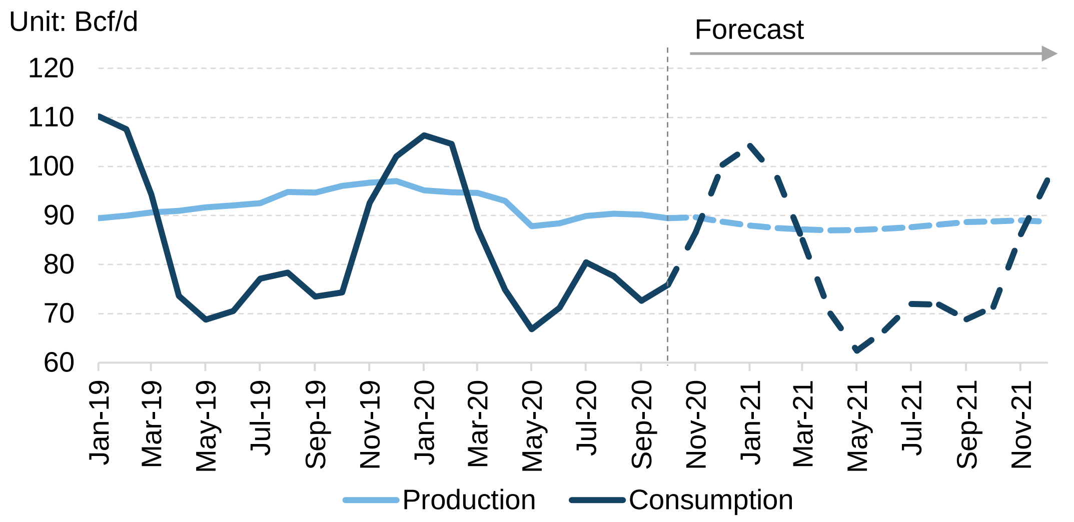
BANPU

AVERAGE HENRY HUB PRICE AS OF OCTOBER 2020

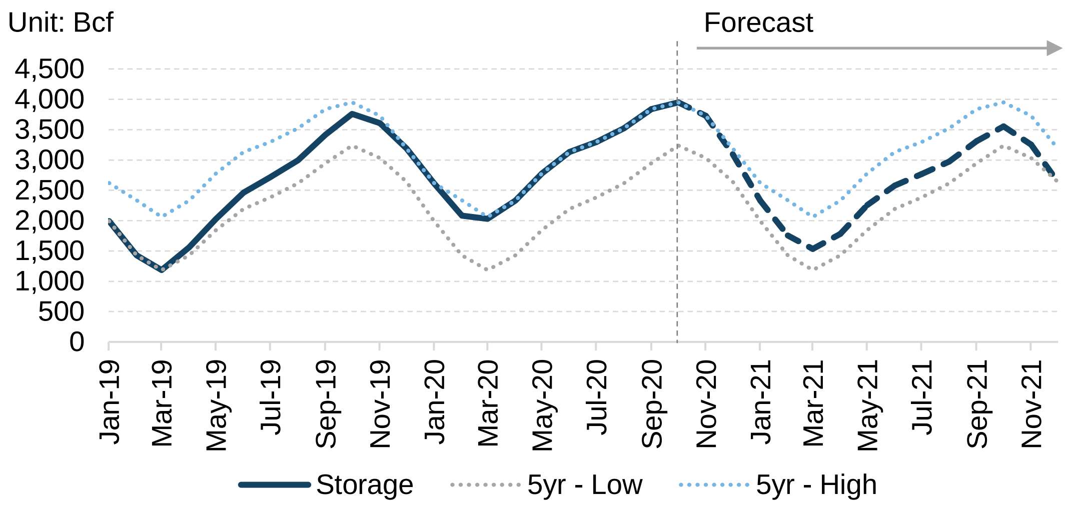


- **Gas Price:** Henry Hub natural gas spot price averaged 2.4/MMbtu in October, up from an average of $1.9/ MMbtu in September due to stronger demand for LNG exports as LNG terminals increased liquefaction following hurricane-related disruptions in August and September.
- The recovery is trending back on track again during the second week of October as positive signs emerge: 1) Post-storm LNG feed gas recovery, 2) Lower-than-normal injection in Oct due to production downgrade and higher power demand, and 3) Early cold front weather.
- **Outlook:** We remain bullish for natural gas from this winter onward, expecting that rising domestic demand for natural gas and demand for LNG exports heading into winter, combined with reduced production, will cause Henry Hub prices to spike up again this winter and in the medium term.

US NATURAL GAS PRODUCTION VS CONSUMPTION



U.S. STORAGE LEVEL



Source: EIA

Natural gas: reserve and production term

BANPU

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

4Q20 indicative guidance

BANPU

ILLUSTRATIVE AND INDICATIVE ONLY

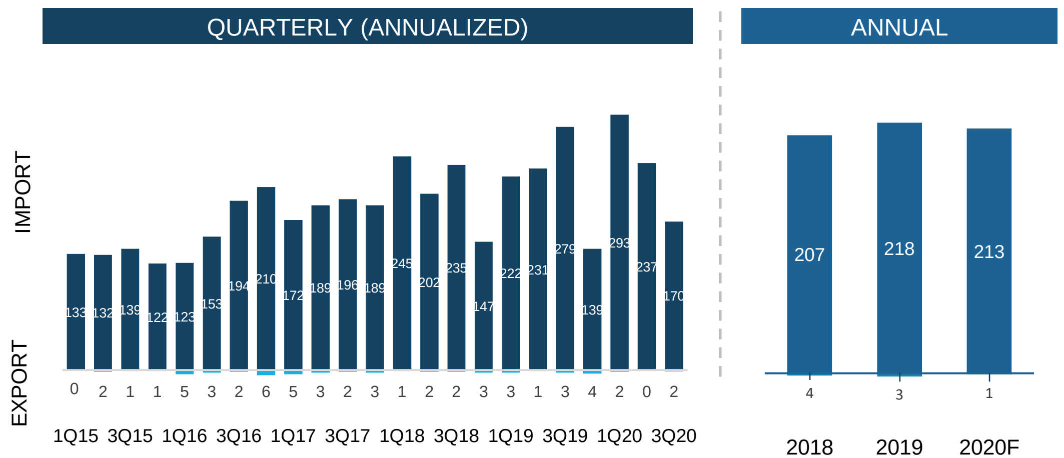
UNIT GUIDANCE (US$/MCF)		COMMENTS
REVENUE		
Reserves (Tcf)	*3 – 4*	
Production volume (Mmcfd)	*700 – 800*	
Average differential to Henry Hub	\$0.20 - \$0.40	Difference selling points and Henry Hub (NYMEX basis)
GCP&T costs	\$1.28 - \$1.35	Gathering, compression, fractionation and transportation costs
Pipeline revenue	\$0.02 - \$0.05	Applicable to Chaffee Corners volume only
COSTS		
Lease operating costs	\$0.29 - \$0.34	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: tight domestic supply ahead of winter demand

CHINA THERMAL COAL IMPORTS/EXPORTS*

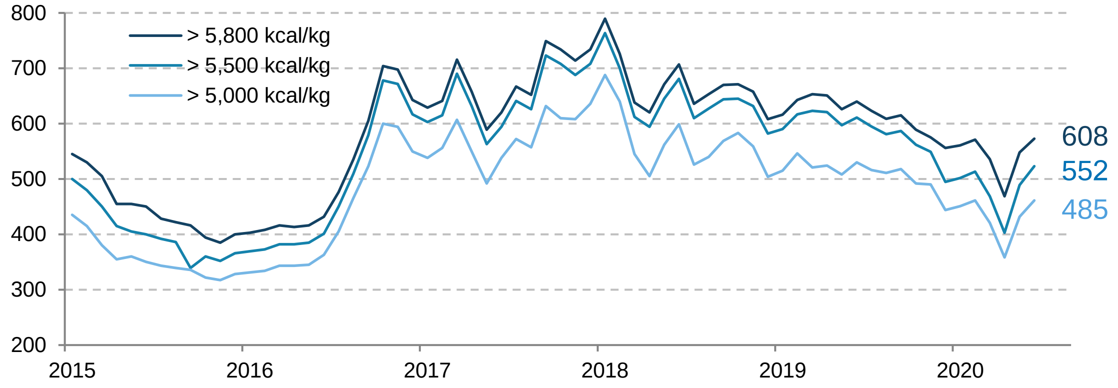
Unit: Mt



Sources: Banpu MS&L

CHINA DOMESTIC COAL PRICES

Unit: RMB/t



3Q20

- Government's economic stimulation measures bring large investment in the infrastructure, offsetting the damage done by the Covid-19 outbreak.
- Floods in southern China and strong hydro generation weakened thermal coal demand in Q3.
- Rail transport on the Daqin line was disrupted by derailments and maintenance which reduced availability of spot materials at ports and raise domestic coal prices.
- Domestic coal supply remains constrained. Anti-corruption investigation in Inner Mongolia and safety checks have tightened domestic supply.
- Thermal coal import in Q3 fell 39% from a year ago with some ports close to exhausting annual import quotas. China continues to tighten its import restrictions which pressured seaborne coal prices.
- Australian cargoes continued facing prolonged waiting periods at Chinese ports, resulting in large numbers of Australian cargoes waiting at Chinese ports for more than three months.

OUTLOOK

- Most large Chinese coal importers have suspended of purchasing Australian coal since mid-October after the government issued verbal warnings to some companies to halt buying.
- Chinese buyers increased purchases of other origin coals such as Indonesia / Russia to replace Australian coal which support coal prices of that origins.
- Government pushes efforts to raise domestic supply to meet strong winter demand.
- Hydro generation is expected to grow on the year in October on expected stronger rainfall levels.
- Expected colder-than-normal winter will boost coal demand.
- However, government is unlikely to relax import quotas in Q4 due to high stocks at power plants and domestic coal production starts to improve.

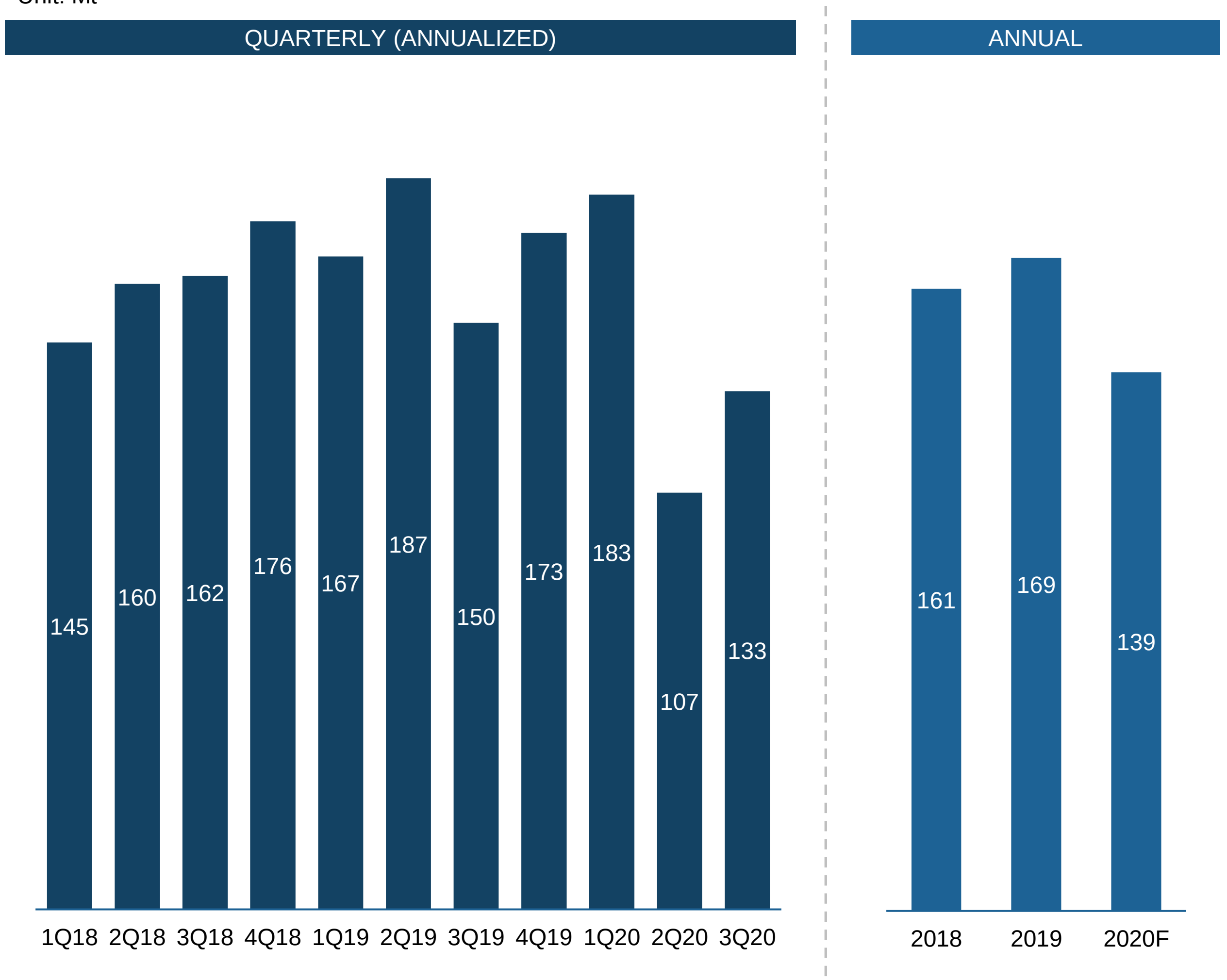
Note: *Includes lignite but excludes anthracite imports/exports
Source: www.sxcoal.com/cn 13 October 2020

India: pathway to recovery post lockdown

BANPU

INDIA THERMAL COAL IMPORTS*

Unit: Mt



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

3Q20

- Thermal coal demand witnessed a revival in Q3 after reopening of economic activities post lockdown though the pandemic situation continues.
- Government continued pushing to revive demand in the short term by several measures including easing out liquidity position and lowering of interest rates.
- Total power generation in Q3-2020 was up by 15% QoQ but down by 0.03% versus Q3 last year. Coal-fired generation in Q3-2020 was up by 15% QoQ and marginally up 1% on the year.
- Thermal coal imports recovered in Q3 as construction season has commenced supporting demand from cement and steel industries.
- Restocking activities post the monsoon season, supporting thermal coal imports growth in September
- High pet coke prices continued support thermal coal import into cement industry.
- High inventory drive Coal India Limited (CIL) to push more domestic thermal coal to both power and non-power sector in Q3.

Outlook

- With most of economic activities resumed, we expected steady recovery in industrial activities.
- Most of large private still mills are back to their pre-pandemic rates.
- CIL will continue offer large volume in the spot market in Q4.
- Government announced stimulus package of about US$266bn in Q2 to revive growth which likely to boost economy in medium to long term.
- Rebound in domestic coal consumption supports the prospects of a recovery in demand for imported coal although government continues to push for greater use of domestic coal.

Coal quarterly output summary

BANPU

AUSTRALIA OPERATIONS: COAL OUTPUT (MT) – ROM OUTPUT ON EQUITY BASIS					
Mines	**CV (kcal/kg)***	**3Q19**	**2Q20**	**3Q20**	**4Q20e**
Western operations		**1.0**	**1.8**	**1.1**	**2.3**
Springvale	6,700	0.1	0.9	0.3	1.4
Clarence	6,700	0.5	0.5	0.5	0.6
Airly	6,700	0.4	0.4	0.4	0.3
Northern operations		**1.8**	**1.5**	**1.7**	**1.3**
Mandalong	6,700	1.3	1.2	1.5	1.0
Myuna	6,700	0.5	0.3	0.2	0.3
Total Australia coal		**2.8**	**3.3**	**2.8**	**3.6**

INDONESIA OPERATIONS: COAL OUTPUT (MT) – ROM OUTPUT ON 100% BASIS									
Mines	**CV (kcal/kg)***	**3Q19**		**2Q20**		**3Q20**		**4Q20e**	
		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 – West block	5,950 – 6,250	0.5	22.7	0.7	16.9	0.7	13.6	0.5	13.8
Indominco – East block		2.8	7.5	1.5	9.6	1.3	11.1	1.8	10.7
Trubaindo	6,550 – 6,700	1.5	10.5	1.0	11.3	1.4	8.9	1.1	7.6
Bharinto		1.0	8.4	0.6	7.9	0.8	7.5	1.0	5.1
Kitadin-Embalut	5,800	0.4	8.6	0.4	10.9	0.4	10.6	0.4	10.9
Jorong	5,300	0.5	6.7	0.2	6.2	0.3	7.8	0.5	7.6
Total Indonesia coal		**6.8**	**9.5**	**4.4**	**10.8**	**4.9**	**10.0**	**5.3**	**9.1**

CHINA OPERATIONS: COAL OUTPUT (MT) – ROM OUTPUT ON 100% BASIS					
Mines	**CV (kcal/kg)***	**3Q19**	**2Q20**	**3Q20**	**4Q20e**
Gaohe		2.6	2.6	2.3	2.6
Hebi		0.4	0.3	0.4	0.4
Total China coal		**3.0**	**2.9**	**2.7**	**3.0**

Note: *CV figures are air-dried basis

Key external and corporate events

BANPU

EXTERNAL EVENTS

INDIRECT

SET

SET index gained by 6.7% amid pickup in crude oil prices and lock down easing

BANK OF THAILAND

BoT cut interest rate from 0.75% to 0.50%

OPEC

OPEC+ agreed to ease oil output cut from 9.7 to 7.7 M bpd in August on signs of recovering demand

BANK OF THAILAND

BoT left its key policy rates unchanged at 0.50%

Federal Reserve kept the policy rate unchanged at 0.25%

DIRECT

China's coal import in May fell 20% YoY following tightening coal import rules

Thai Baht appreciated to 30.93 baht per US dollar

Thai baht depreciated to 31.69 baht per US dollar, being the worst performer in Asia

Rapid increase in China domestic coal prices as thermal coal import rose 4% YoY in 1H20

2Q20 | **3Q20**

CORPORATE EVENTS

Announced the amended terms of Barnett shale assets

1Q20 results presentation

Banpu NEXT launched Thailand's first marine tour e-Ferry

2Q20 results presentation

Banpu and BPP announced dividend payment of THB 0.15/sh and THB 0.30/sh respectively

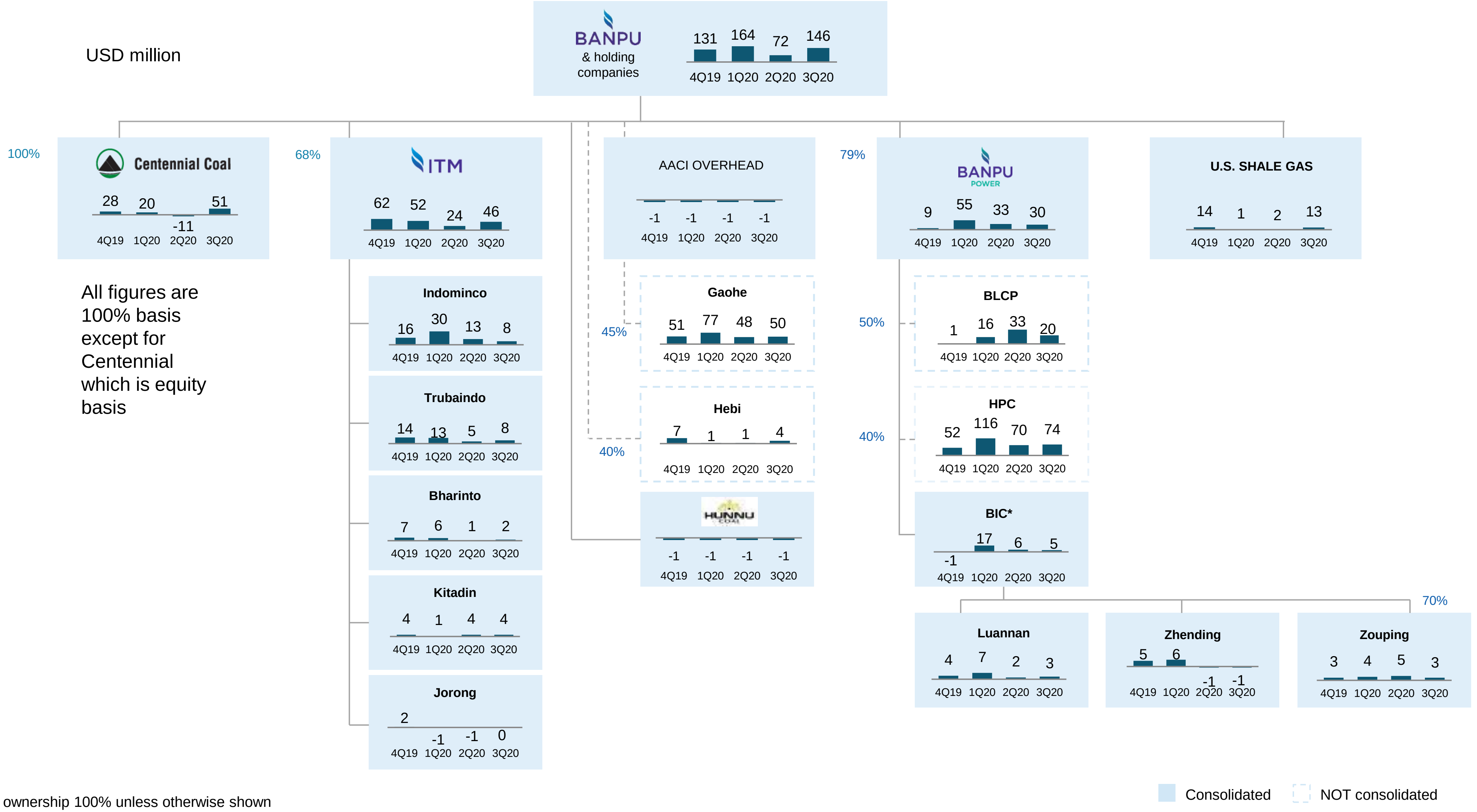
FX impact analysis guidance on P&L

BANPU

CURRENCY EXPOSURE	NPAT IMPACT 3Q20 (US$M)	APPROXIMATE FX EXPOSURE (US$M) NET LIABILITY / NET ASSET	NPAT 5% SENSITIVITY 4Q20 (US$M) Assuming 5% depreciation of local currencies against USD	
Banpu: THB bond and Others	11.7	-730	THB 36	*BOT revised growth forecast -7.8% in 2020 and 3.6% in 2021*
ITMG: IDR asset and liabilities	-2.8	20	IDR -1	*BI revised growth forecast 5.1-5.5% in 2020*
CEY: USD asset	10.9	-30	AUD -2	*RBA forecast revised growth -4% in 2020 and 5% in 2021*
Net	19.8		NET 33	

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	**3Q20**	**2Q20**	**3Q19**	QoQ%	YoY%
Total sales revenues*	**471**	**518**	**654**	-9%	-28%
Sales revenue – Coal	404	453	586	-11%	-31%
Sales revenue – Gas	11	11	20	0%	-47%
Sales revenue – Power	38	41	31	-7%	21%
Cost of sales	(373)	(456)	(483)		
Gross Profit*	**97**	**62**	**171**	57%	-43%
Gross profit – Coal	95	57	160	67%	-41%
Gross profit – Gas	(6)	(6)	0	n.a.	n.a.
Gross profit – Power	8	9	3	-11%	167%
GPM	***21%***	***12%***	*26%*		
GPM – Coal	*24%*	*13%*	*29%*		
GPM – Gas	*-60%*	*-55%*	*0%*		
GPM – Power	*20%*	*23%*	*10%*		

Note: * including other businesses

Banpu consolidated: operating profit

USD million	3Q20	2Q20	3Q19	QoQ%	YoY%
Gross Profit	**97**	**62**	**171**	57%	-43%
GPM	***21%***	***12%***	***26%***		
SG&A	(61)	(75)	(89)		
Royalty	(37)	(44)	(57)		
Income from associates	32	31	63		
Other income and Dividend	13	8	5		
Mining property	(7)	(8)	(12)		
EBIT	**36**	**(26)**	**81**	n.a.	-55%
EBIT – Coal	14	(42)	51	n.a.	-73%
EBIT – Gas	(3)	(12)	(5)	n.a.	n.a.
EBIT – Power	25	28	34	-8%	-26%
EBITDA	**146**	**72**	**168**	103%	-13%
EBITDA – Coal	103	37	118	176%	-12%
EBITDA – Gas	13	2	11	699%	15%
EBITDA – Power	30	33	39	-8%	-22%

Banpu consolidated: operating profit

USD million	**3Q20**	**2Q20**	**3Q19**	QoQ%	YoY%
Gross Profit	**97**	**62**	**171**	57%	-43%
GPM	***21%***	***12%***	***26%***		
SG&A	(61)	(75)	(89)		
Royalty	(37)	(44)	(57)		
Income from associates	32	31	63		
Other income and Dividend	13	8	5		
Mining property	(7)	(8)	(12)		
EBIT	**36**	**(26)**	**81**	n.a.	-55%
EBIT – Coal	14	(42)	51	n.a.	-73%
EBIT – Gas	(3)	(12)	(5)	n.a.	n.a.
EBIT – Power	25	28	34	-8%	-26%
EBITDA	**146**	**72**	**168**	103%	-11%
EBITDA – Coal	103	37	118	176%	-12%
EBITDA – Gas	13	2	11	699%	15%
EBITDA – Power	30	33	39	-8%	-22%

Banpu consolidated: net profit

USD million	3Q20	2Q20	3Q19	QoQ%	YoY%
EBIT	**36**	**(26)**	**81**	n.a.	-55%
Interest expenses	(43)	(46)	(47)		
Income tax (core business)	(5)	(7)	(29)		
Minorities	(9)	(6)	(16)		
Net profit before extra items	**(20)**	**(85)**	**(10)**	n.a.	n.a.
Non-recurring items*	(3)	(33)	(2)		
Gain (Loss) on Derivatives Transactions	(7)	19	13		
Income tax (non - core business)	(0)	(3)	-		
Deferred tax income (expenses)	(6)	44	16		
Net profit before FX	**(36)**	**(58)**	**17**	n.a.	n.a.
FX translation	(20)	(21)	(18)		
Net Profit	**(16)**	**(79)**	**(1)**	n.a.	n.a.
EPS (US$/share)	(0.003)	(0.015)	(0.001)		

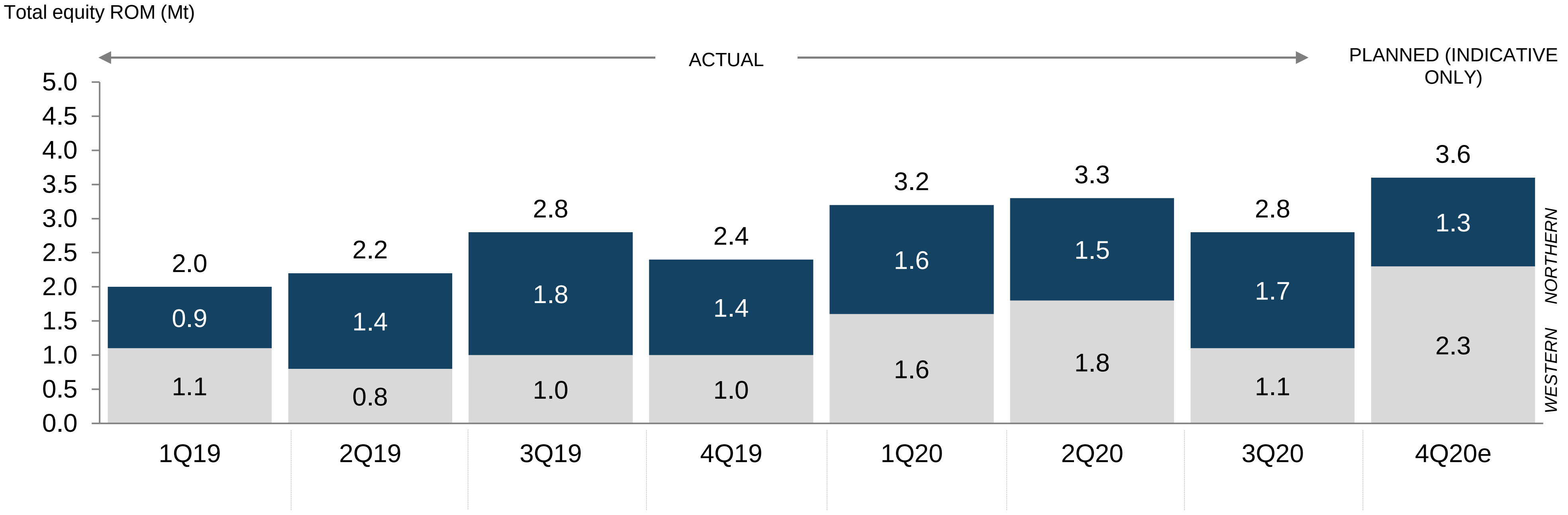
Note: * income from non-core assets and other non-operating expenses

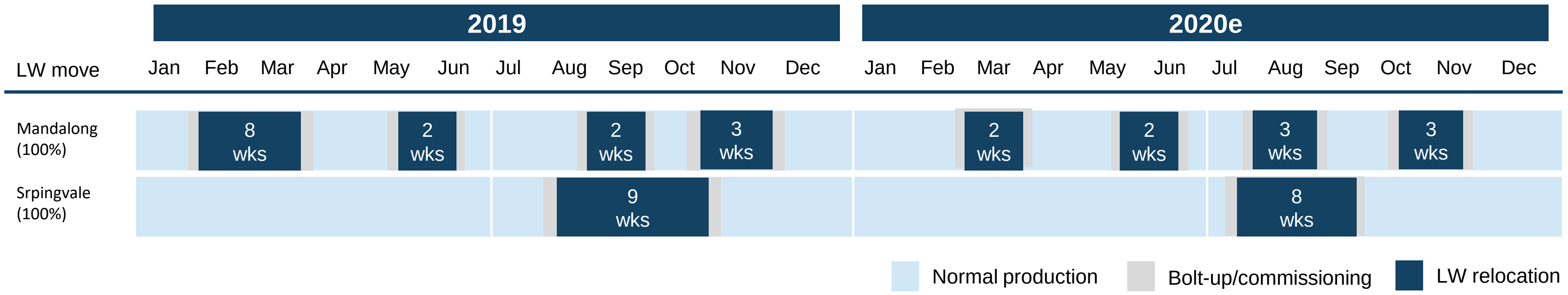
Centennial: income statement

BANPU

USD million	3Q20	2Q20	3Q19	QoQ%	YoY%
Sales volume (Mt)	**3.2**	**3.1**	**2.7**	5%	18%
Sales revenue	181.9	165.1	172.2	10%	6%
Cost of Sales	(161.3)	(170.7)	(125.3)		
Gross Profit	**20.6**	**(5.6)**	**46.9**	n.a.	-56%
GPM	11%	-3%	27%		
SG&A	(24.4)	(23.2)	(23.2)		
Royalty	(12.4)	(11.1)	(11.3)		
Other income	2.4	1.7	1.6		
Other expenses	-	-	-		
EBIT	**(13.8)**	**(38.3)**	**14.1**	n.a.	n.a.
Interest expenses	(6.2)	(5.2)	(5.5)		
Financial expenses	(0.6)	(0.5)	(0.5)		
Gain (loss) on exchange rate	11.0	(1.9)	0.3		
Gain (loss) on derivative	7.4	4.7	2.3		
Corporate income tax	-	-	-		
Deferred tax income	0.7	12.2	(3.2)		
Net Profit	**(1.6)**	**(29.0)**	**7.4**	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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