# 3Q18 results

## Opportunity day

15th November 2018

BANPU

ROBECOSAM
Sustainability Award
Gold Class 2018

ROBECOSAM
Sustainability Award
Industry Mover 2018

MEMBER OF
Dow Jones
Sustainability Indices
In Collaboration with RobecoSAM

Banpu has been recognized as a member of
Dow Jones Sustainability Indices (DJSI) since 2014

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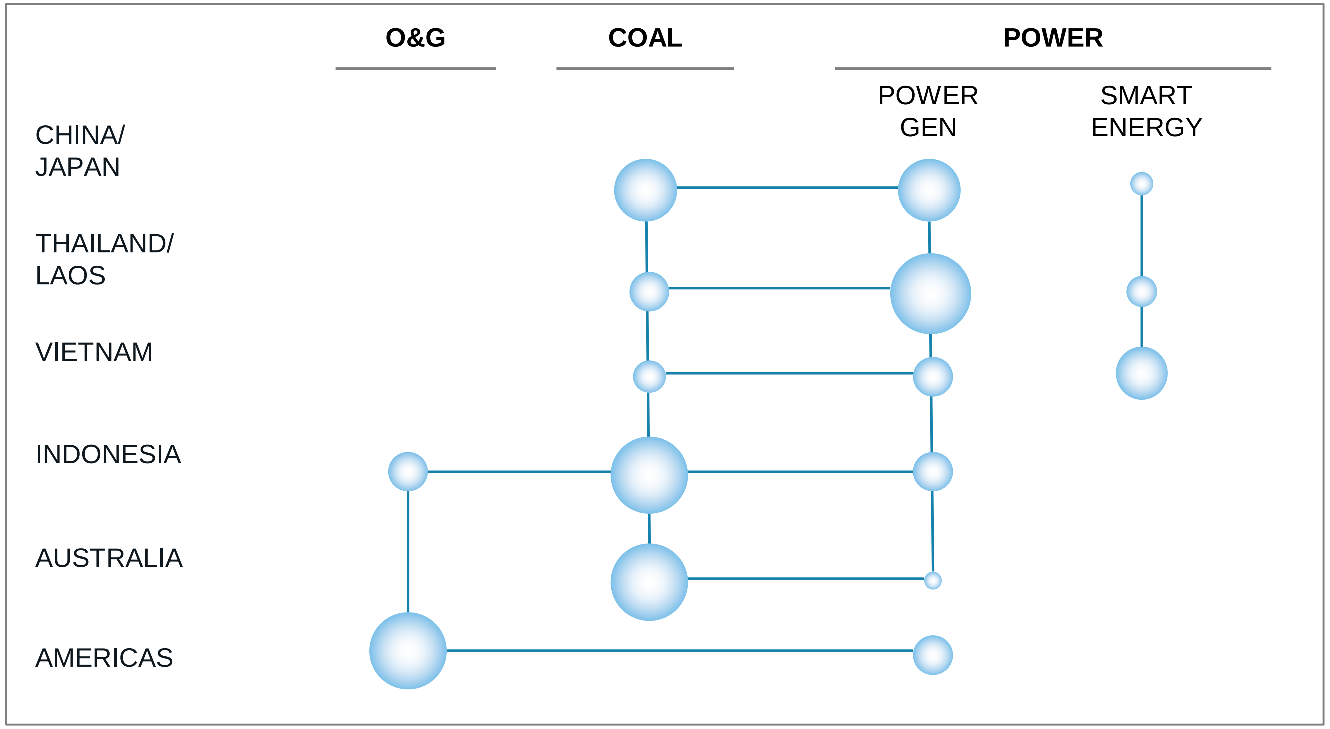
# Banpu strategic integration concept: capturing synergy value



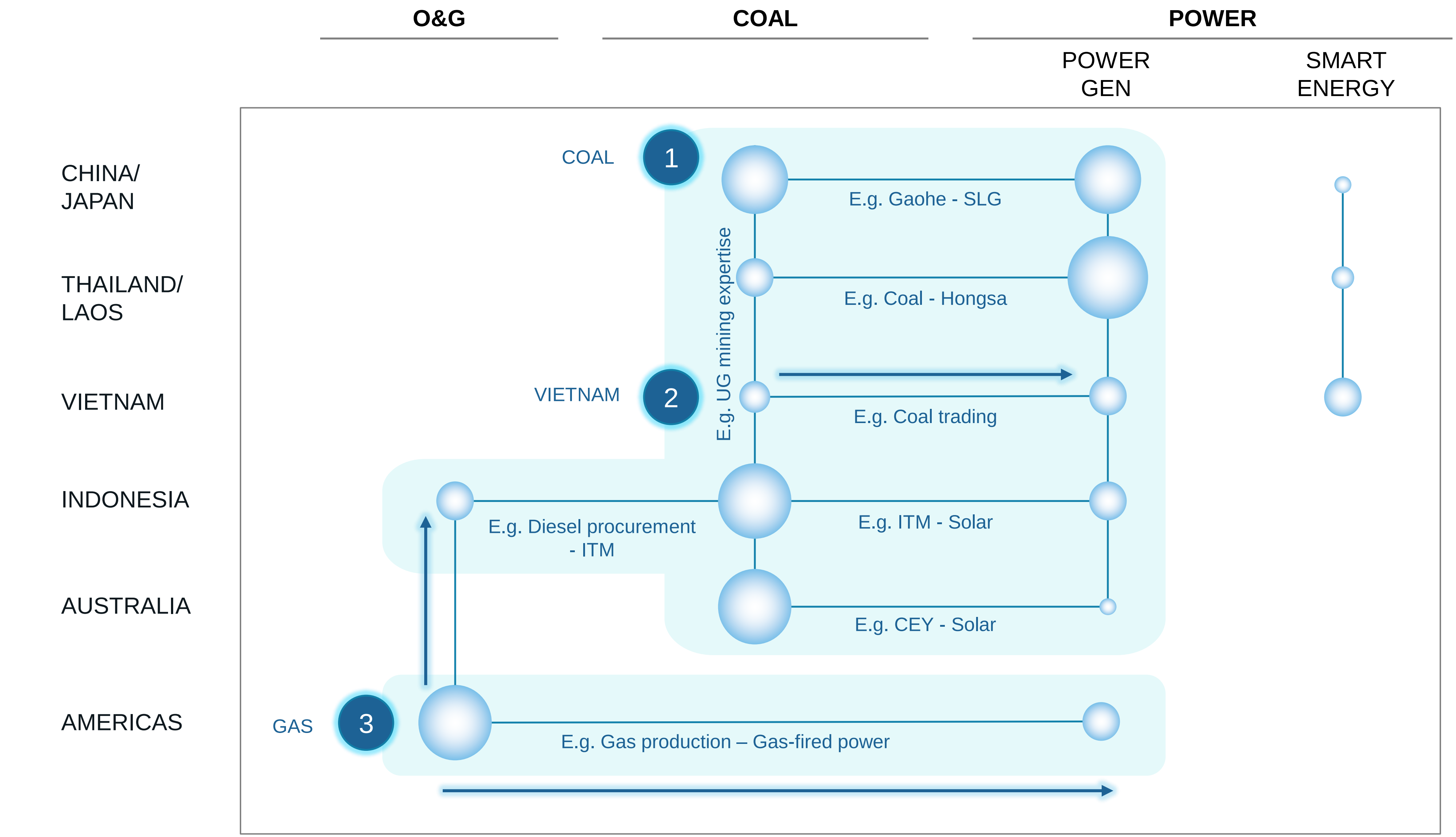

## HORIZONTAL INTEGRATION
GEOGRAPHIC

- ✓ **New market entry**
  office set-up, overheads, local country knowledge
- ✓ **Stakeholder relationships**
  government, banks, others
- ✓ **Growth**
  positioning and flexibility to cherry-pick best new opportunities

## VERTICAL INTEGRATION
INDUSTRY VALUE CHAIN

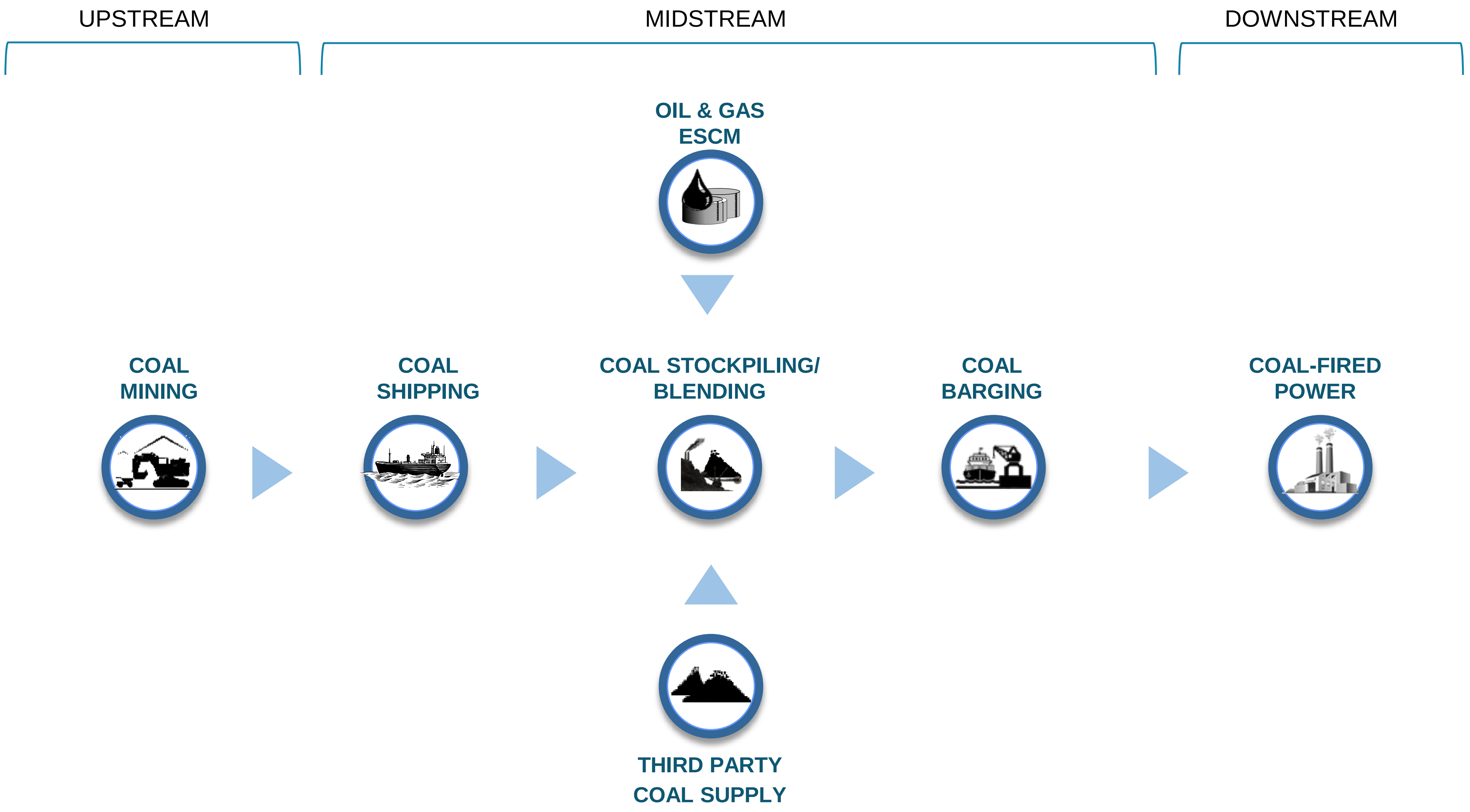
- ✓ **Economics**
  cost synergies, increased demand and capture logistics and marketing margins
- ✓ **Risk mitigation**
  reduce procurement and logistics risks, enhance offtake security
- ✓ **Skills and intelligence**
  skills cross-fertilization (e.g. UG mining), market intelligence (e.g. CFP demand for coal)

# Integration examples

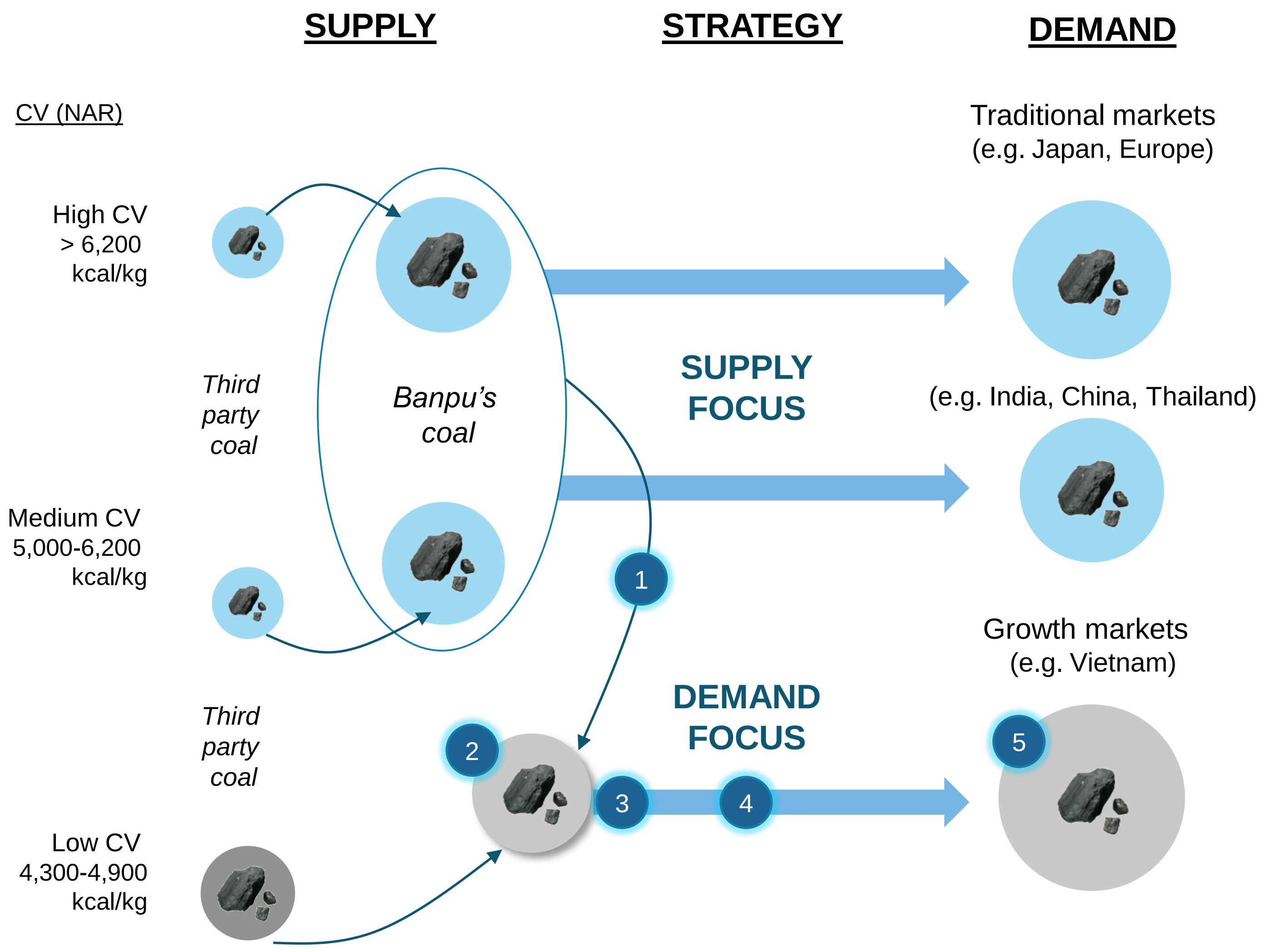



Bubble sizes indicative of midterm value to Banpu

# Banpu coal integrated strategy



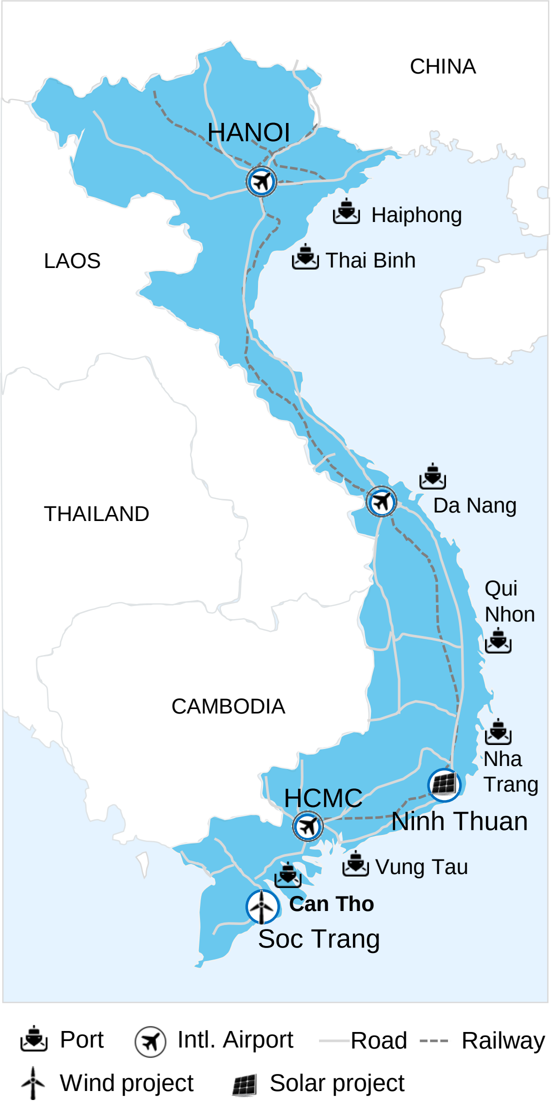
# Banpu coal marketing strategy




*Broadening midstream coal strategy from traditional supply-focus towards demand-focus*

1. **More demand for equity coals**
2. **Blending, trading synergies**
3. **Logistics development**
4. **Additional tonnage**
5. **Capture growth opportunities**

# Banpu in Vietnam: horizontal synergy strategy

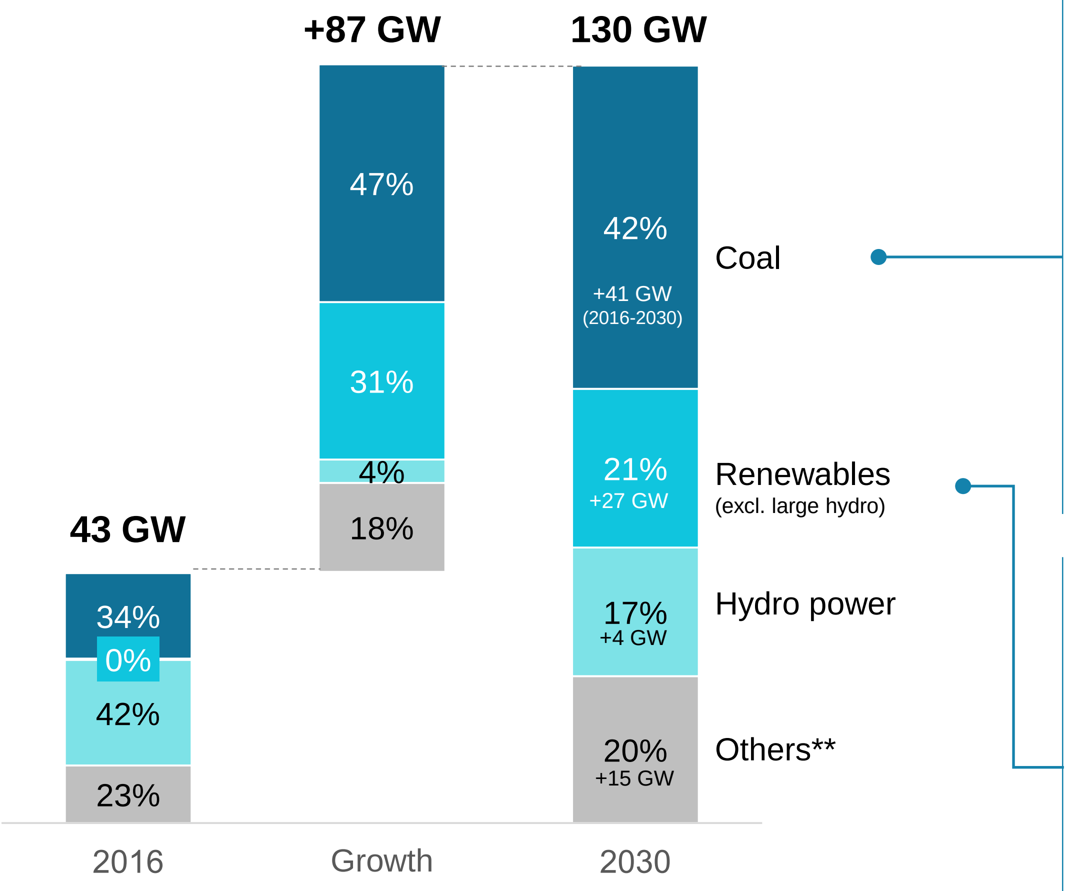



- Banpu has established cross-BU office in Ho Chi Minh City to co-ordinate business development
- Coal supply contracts with EVN secured for 1.3Mt in 2018
- Banpu's diversified coal portfolio, strong trader and mining partners relationships, extensive blending and logistics experience ideally suited for Vietnam market growth
- 200 MW wind power project in Soc Trang of which 80 MW received Investment Registration Certificate in July 2018 (COD targeted 2020-21)
- 44 MW effective equity capacity in 168 MW Vietnam's largest solar power project (COD targeted June 2019) in Ninh Thuan through Sunseap
- Potential synergies with future coal-fired power plant investment in Vietnam

# Vietnam growth opportunities

**VIETNAM POWER SUPPLY FORECAST***

Unit: GW




*Vietnam's Power Development Plan, April 2017
** Include gas and oil-fired power

**CFP growth:**

- Coal becomes dominant source of Vietnam's energy supply
- Over 40 GW of additional coal-fired capacity by 2030

**Coal imports demand:**

- Vietnam domestic coal supply is not sufficient to support growth
- Approx. 80 Mt additional coal imports required by 2030

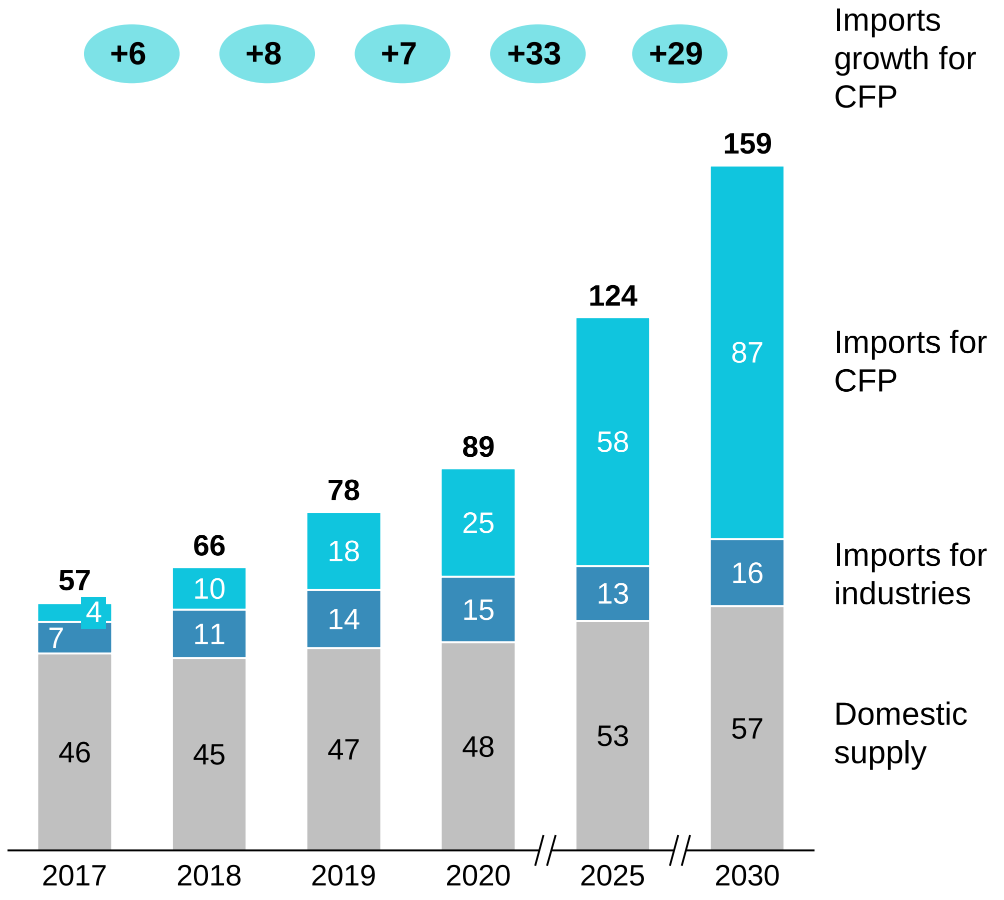
**Renewables growth:**

- Second fastest-growing energy source, following CFP
- Over 27 GW of additional capacity by 2030 – mainly from small hydro, solar, and wind power

# Vietnam coal focus

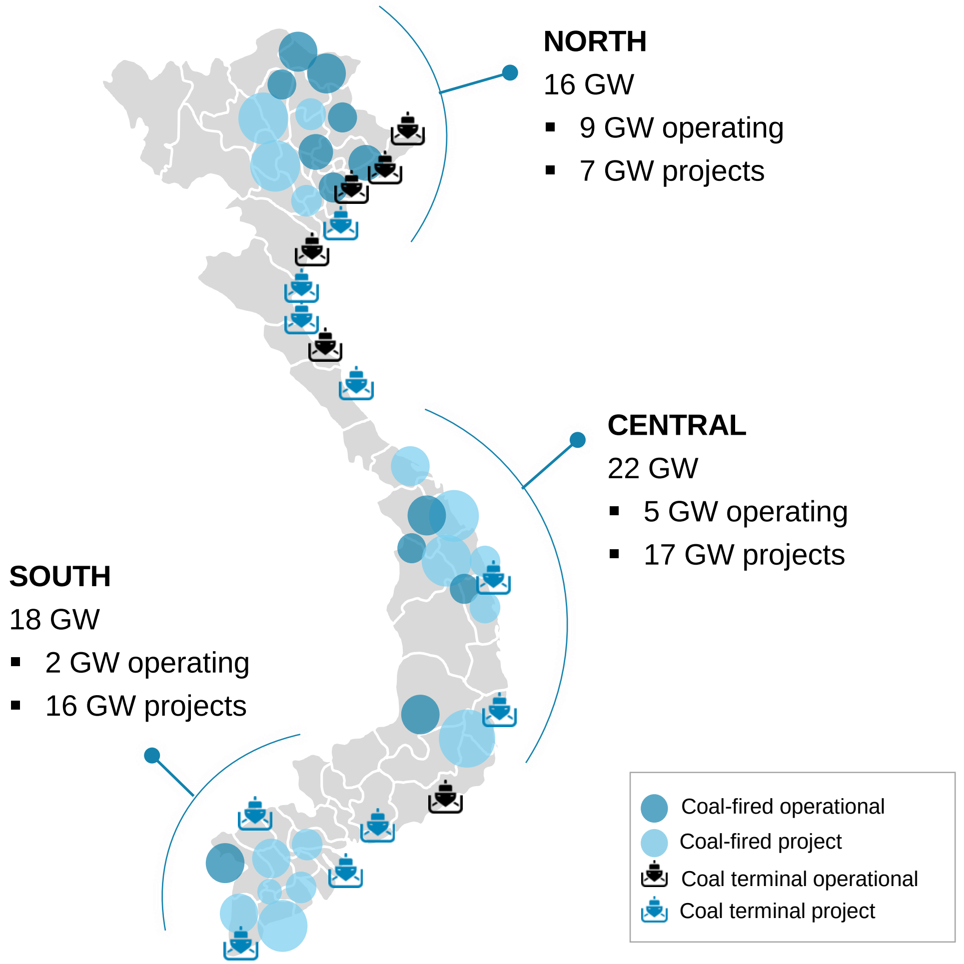
## VIETNAM COAL DEMAND FORECAST*

Unit: Mt




Source: Vietnam’s Power Development Plan, April 2017

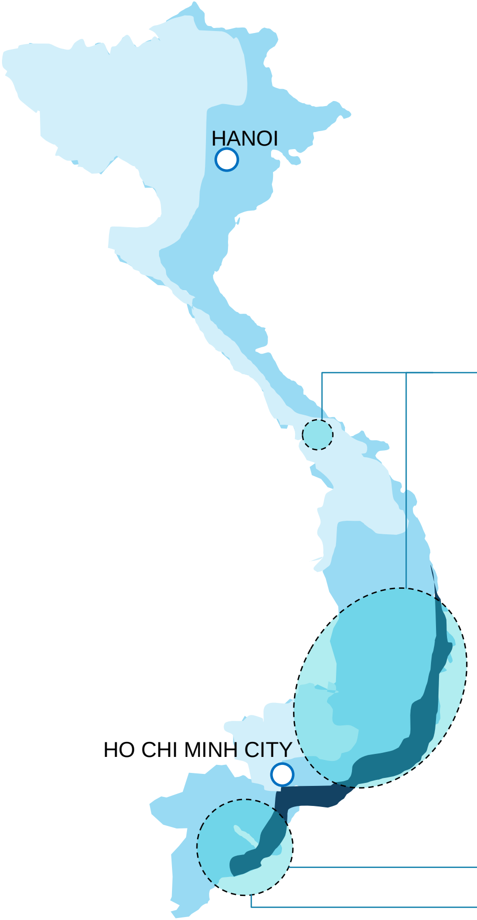
## COAL-FIRED POWER PLANTS AND PROJECTS




Source: Vietnam’s Power Development Plan, April 2017, AWR Lloyd research

# Vietnam renewables focus

## VIETNAM WIND POWER




Average wind speed (100 m)
- <5 m/s
- 5-6 m/s
- >6 m/s

**CENTRAL**
- >48 projects (4.5 GW)
- 4 operating (90 MW)
- 13 approved license
- 31 under FS status

**SOUTH**
- >23 projects (1.7 GW)
- 1 operating (99 MW)
- 5 approved license
- 17 under FS status

**BPP PROJECT:**
**200 MW, Soc Trang**

Source: AWR Lloyd research

## VIETNAM SOLAR POWER


SOLAR RADIATION
- <4.0 kWh/m2/day
- 4.0-5.0 kWh/m2/day
- >5.0 kWh/m2/day

**Phú Yên**
- 0.4 GW
- > 6 projects
- 5 approved, license

**Ninh Thuan**
- 1.7 GW
- 24 projects
- 13 approved, license

**Dong Thap**
- 1 MW (operating)

**BANPU PROJECT (JV WITH SUNSEAP): 44 MW*, Ninh Thuan**

**Long An**
- 0.1 GW
- 3 projects
- All approved, license

**Ca Mau**
- 50 MW (feasibility study)

Source: MOIT and AWR Lloyd research

# Growing our gas portfolio

## PORTFOLIO

Cumulative production capacity

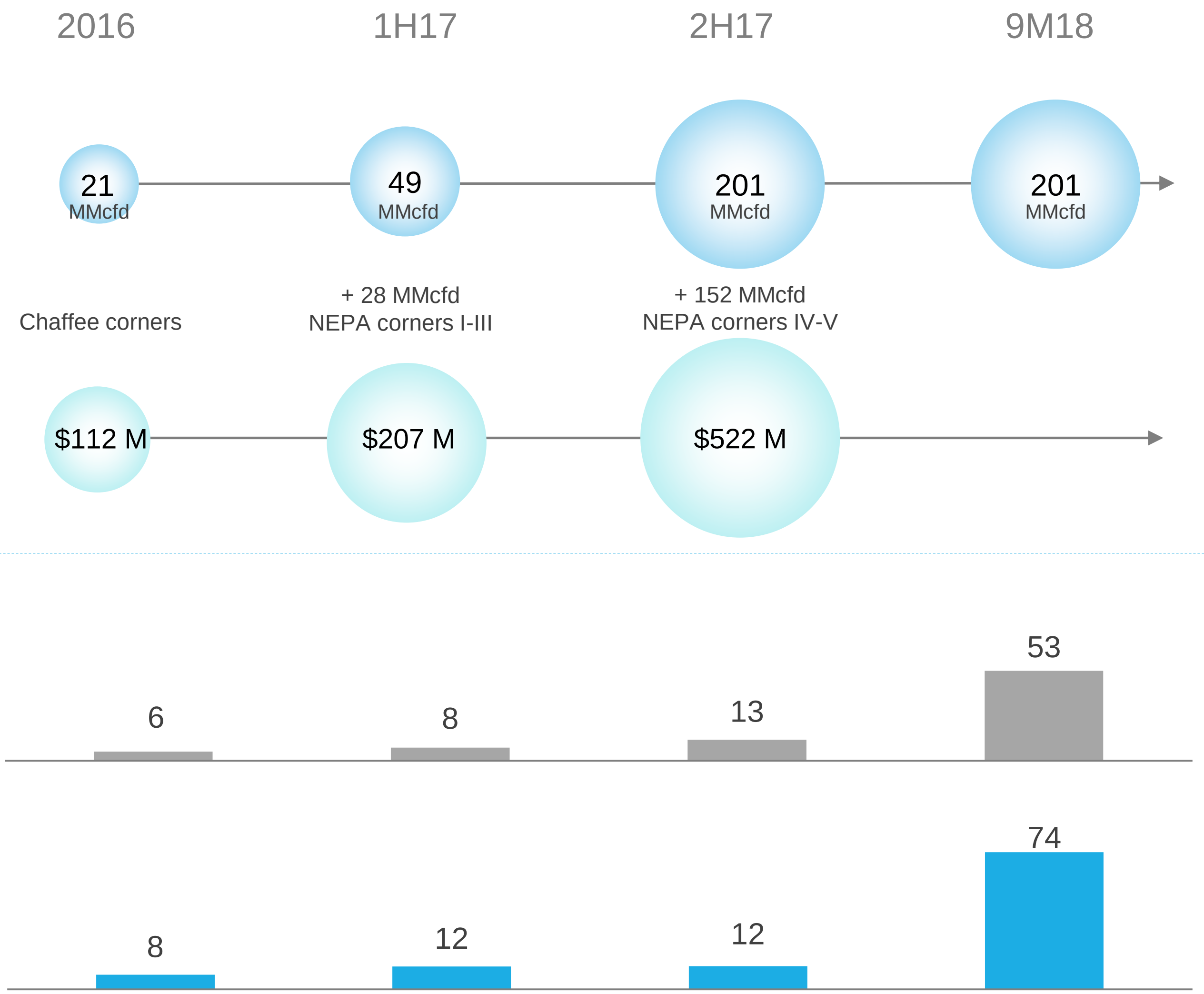
Asset acquisitions

Cumulative investment (US$ M)

## PERFORMANCE

Sales volume (Bcf)

Ebitda (US$M)

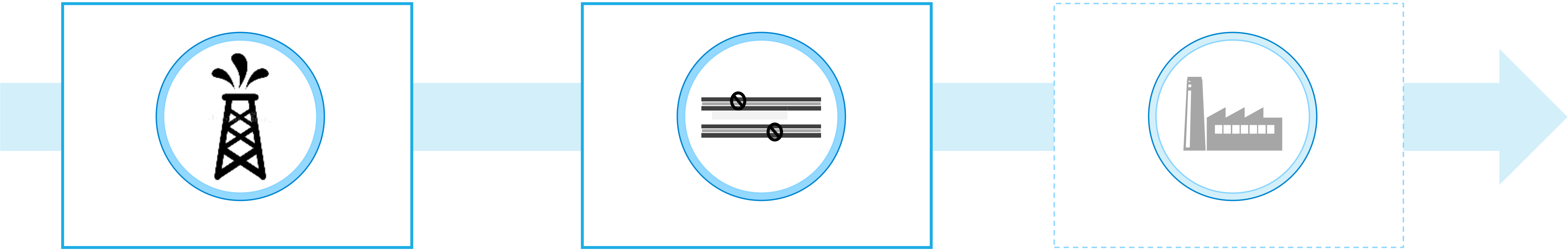





Note: Includes lignite but excludes anthracite

# Gas: further integration

**UPSTREAM** | **MIDSTREAM** | **DOWNSTREAM**



**UPSTREAM**

- Increase production and reserves from existing assets
- Seek opportunity to strengthen position in N.E. Marcellus area

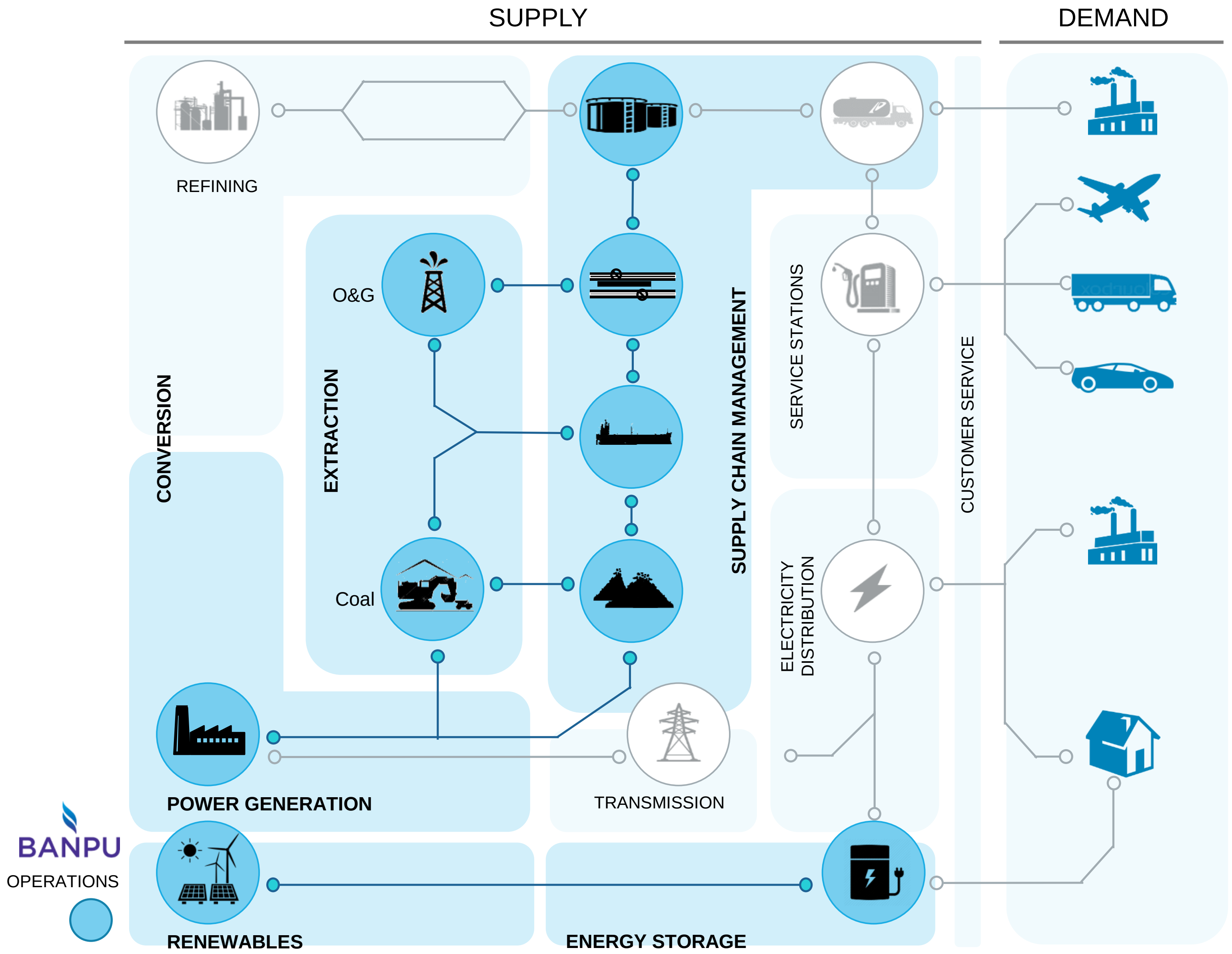
**MIDSTREAM**

- Enhance margin from effective gas marketing program
- Explore investment opportunity in midstream gas pipeline and infrastructures

**DOWNSTREAM**

- In process of study on potential to supply gas to local gas-fired power plant

# Banpu: energy ecosystem platform business model




## SUSTAINABLE ENERGY

***Affordable*** ✓

***Reliable*** ✓

***Eco-friendly*** ✓

# Global demand trends: 2018 vs 2017

| GEOGRAPHY | CHANGE 2018-17 (Mt) | COMMENTS |
|---|---|---|
| **CHINA** | +5 | ▪ Several typhoons helped to reduce temperatures coastal areas resulting in reduced power consumption for air conditioning and led to weaker coal burn and high stocks<br>▪ Maintain coal import restrictions |
| **INDIA** | +24 | ▪ Strong demand due to continuous industrial production growth<br>▪ Domestic production constraints amid monsoons<br>▪ 2GW nuclear capacity has remained in maintenance |
| **OTHER N.ASIA** | -6 | ▪ Air pollution control continued to curtail coal burn<br>▪ Raise demand of high quality coals<br>▪ Nuclear recovery could weigh on coal imports |
| **EUROPE** | -8 | ▪ Rising gas prices, nuclear outages and lower hydro increase coal burn in 2H-2018. |
| **OTHERS** | +23 | ▪ Demand growth continued driven by Malaysia, Philippines, Vietnam and Pakistan on addition of new coal-fired power plants |
| **GLOBAL** | **+38** | *Strong high quality coal demand from north Asia due to environmental issue will keep high grade coal price at high level. China import restrictions will limit demand for lower quality coals in 2H-2018* |



Note: Includes lignite but excludes anthracite

# Global supply trends: 2018 vs 2017

| GEOGRAPHY | CHANGE 2018-17 (Mt) | COMMENTS |
|---|---|---|
| **INDONESIA** | +24 | ▪ Government attempts to boost exports to support currency<br>▪ But exports has been driven by seaborne demand, particular China, rather than government intervention |
| **AUSTRALIA** | +6 | ▪ Weather and logistics constraints prevalent in 1H 2018 since removed |
| **COLOMBIA** | -4 | ▪ Production constraints continue to curtail export growth<br>▪ Rainy season will impact production in Q4 |
| **RUSSIA** | +3 | ▪ Seasonal tightness in rail capacity |
| **S.AFRICA** | -2 | ▪ Strong domestic demand<br>▪ High stocks of lower CV coal at RBCT port<br>▪ Shortage of high quality product |
| **USA** | +10 | ▪ Strong domestic demand constrained availability for export<br>▪ Increase discounted other origin off-spec coals and strengthening US dollar threatens US export |
| **OTHERS** (e.g.VIETNAM) | -5 | ▪ Exports from Poland, China and Canada are expected to decline |
| **GLOBAL** | **+32** | *High quality product is likely to continue to be tight due to limited supply and high producer discipline but supply of lower quality coal is improving.* |

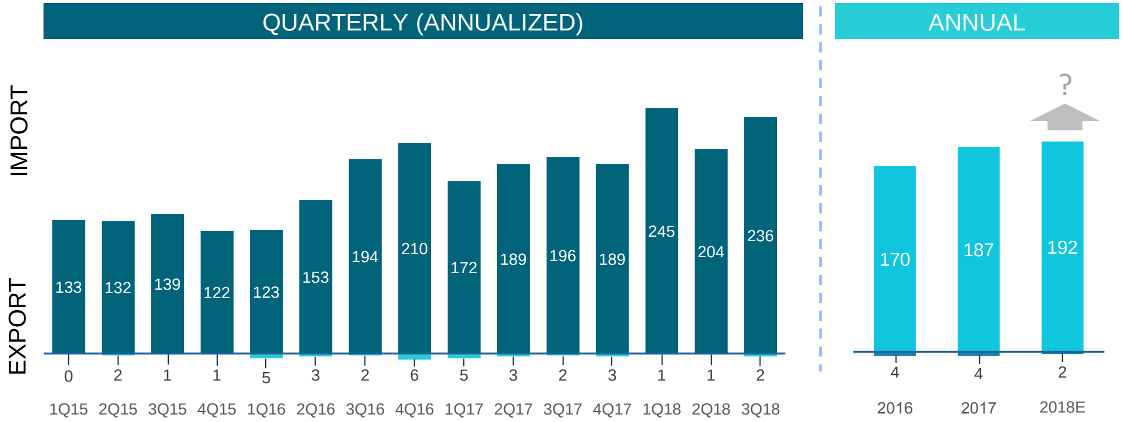
**OUR WAY IN ENERGY**

Note: Includes lignite but excludes anthracite

# China: weak demand season

CHINA THERMAL COAL IMPORTS/EXPORTS*

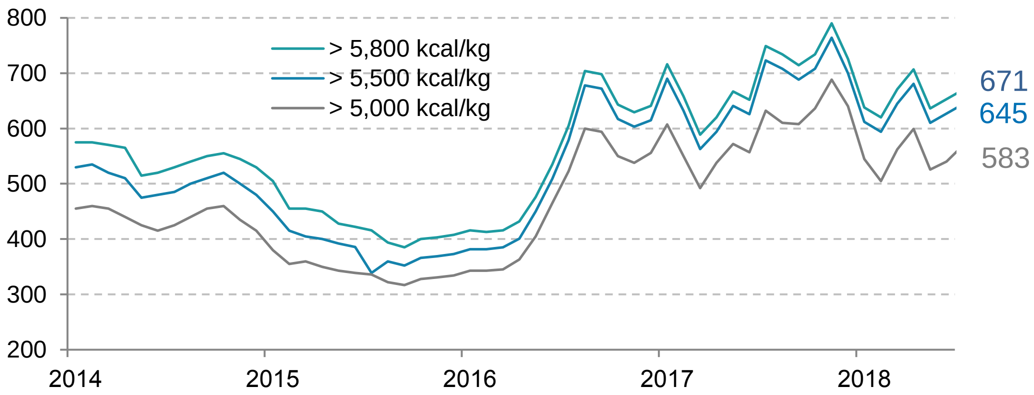
Unit: Mt




Sources: Banpu MS&L

CHINA DOMESTIC COAL PRICES

Unit: RMB/t




**3Q18**

- Strong inland thermal coal demand due to hot weather but coastal demand not as strong as inland due to several typhoons bringing lower temperatures with them
- Weaker coal burn in coastal area led to high coal stocks at power plants
- Domestic coal production keeps improving although safety monitoring continued
- Increased environmental protection measures in industrial sector helps to boost power demand
- Tough import control policies and strong demand from non-coastal power plants helped to boost domestic coal prices
- Widened spreads for off-spec coal prices in international market

**Outlook**

- Domestic coal production is expected to continue improving in Q4
- Expected low coal import in Q4 due to lack of import quota
- Stimulus package to offset trade dispute's negative will boost coal demand
- Q1 demand outlook optimistic

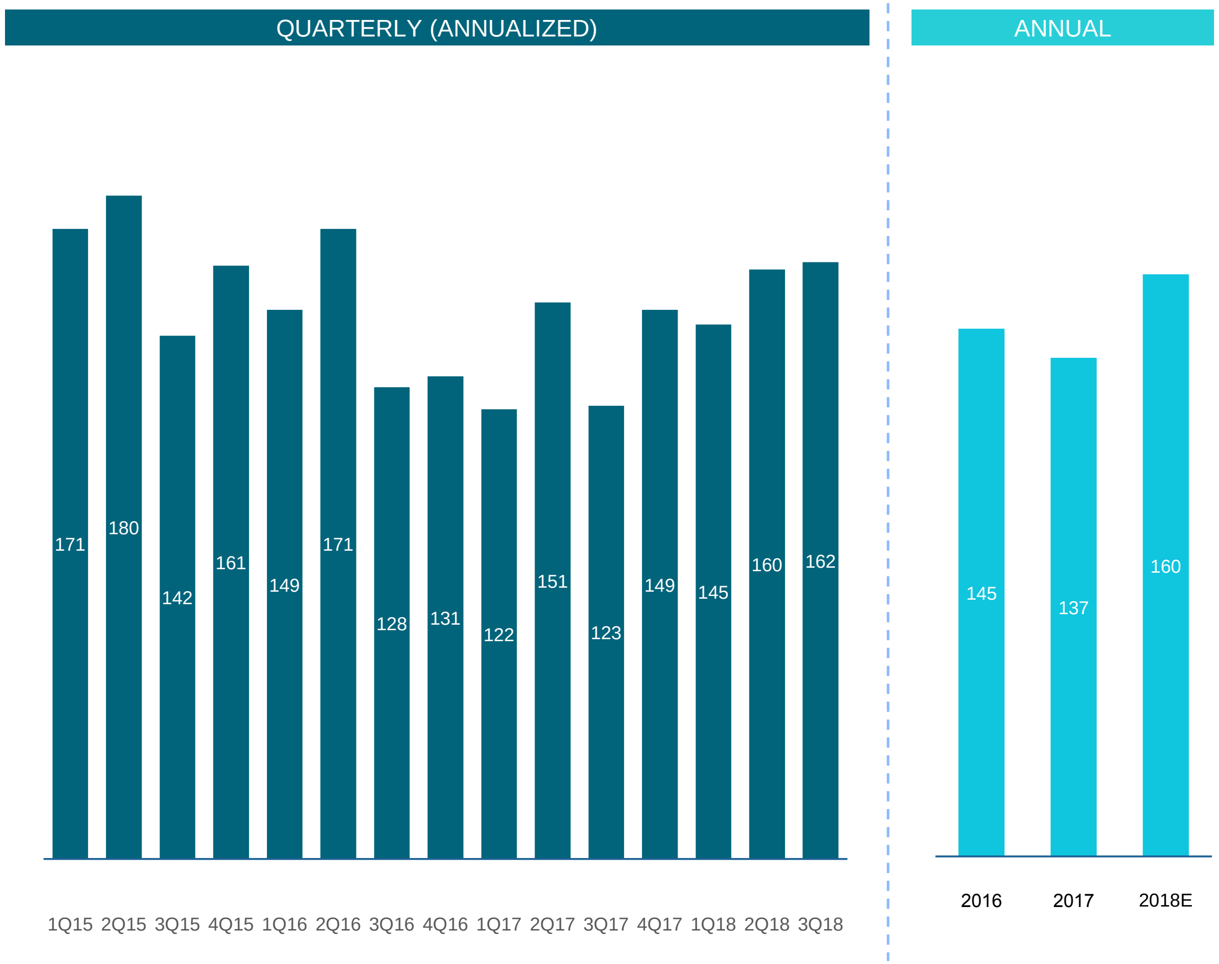


Note: * includes lignite but excludes anthracite imports/exports
Source: www.sxcoal.com/cn 30 October 2018

# India: import rally amid supply deficit

INDIA THERMAL COAL IMPORTS*

Unit: Mt




**3Q18**

- Strong power demand growth due to increasing industrial production
- A dip in supply from nuclear and hydropower led to increased reliance on coal power generation
- Growth in domestic production and despatches can only partially meet the growing demand for coal
- Policies to strengthen the power sector have started to improve local load factors at several plants
- High import demand in non-power sector

**Outlook**

- State-owned power companies are seeking imported coal due to inadequate domestic supply
- Supreme Court has agreed to changes in power purchase agreements (PPAs) in Gujarat state for struggling privately owned coal-fired power utilities which could allow them to increase power tariffs to compensate for higher costs of imported coal
- This should enable the coastal generators to buy significantly more imported coal and ramp up utilization rates at underused plants

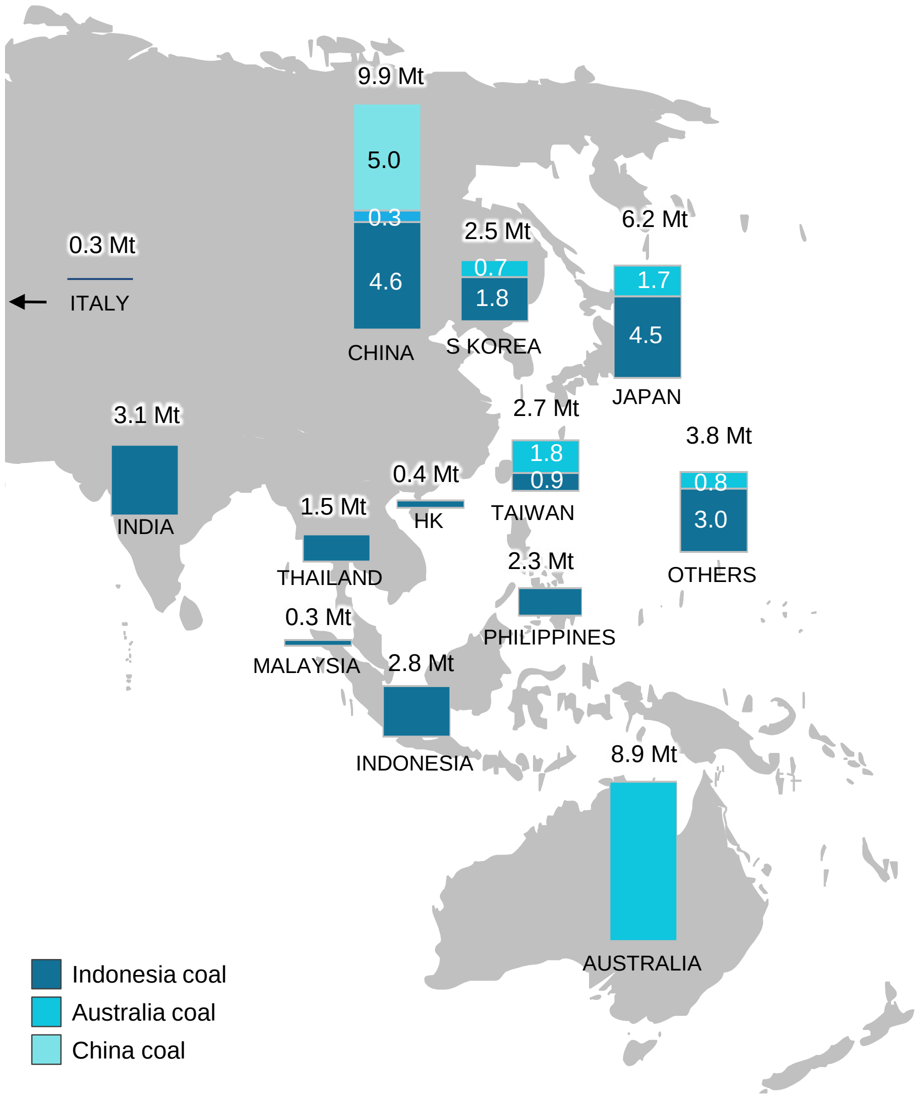


Note: * includes lignite grade imports

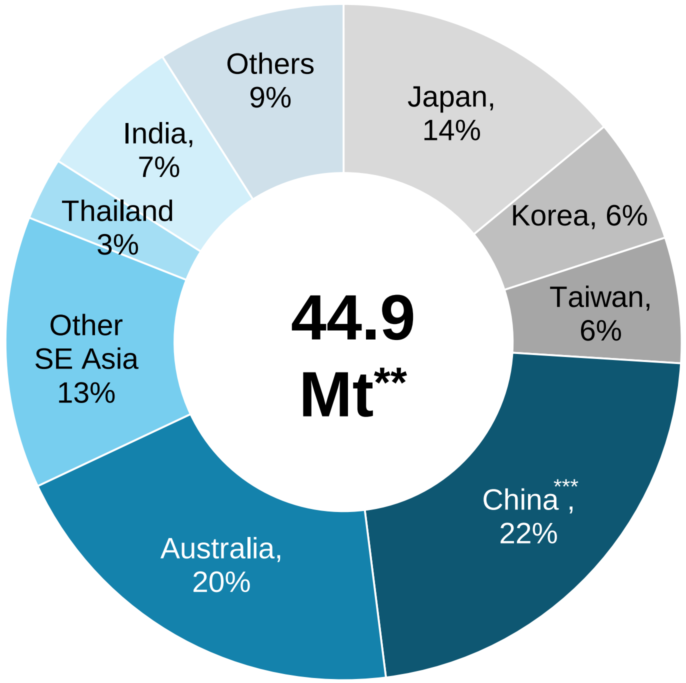
Sources:: Commodity Insights, Banpu MS&L

# Banpu group coal sales 2018e

## COAL SALES* SOURCE – DESTINATION ANALYSIS 2018e




## GLOBAL COAL SALES* 2018e BY REGION




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

** Illustrative target

*** Includes coal sales from domestic production in China

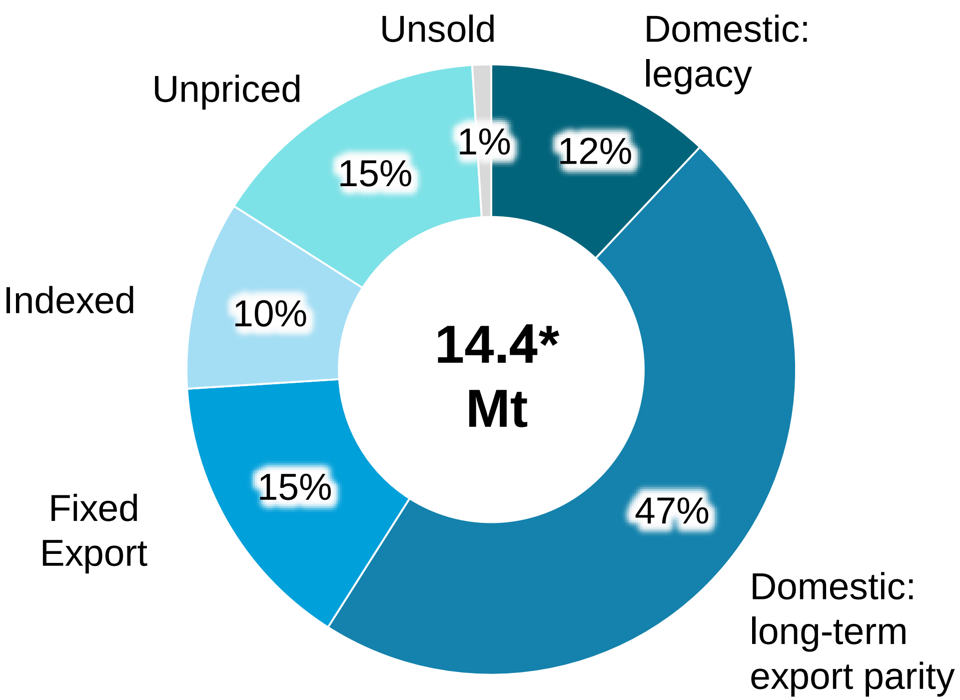


Note: * excluding Mongolia coal

# Banpu coal sales pricing status

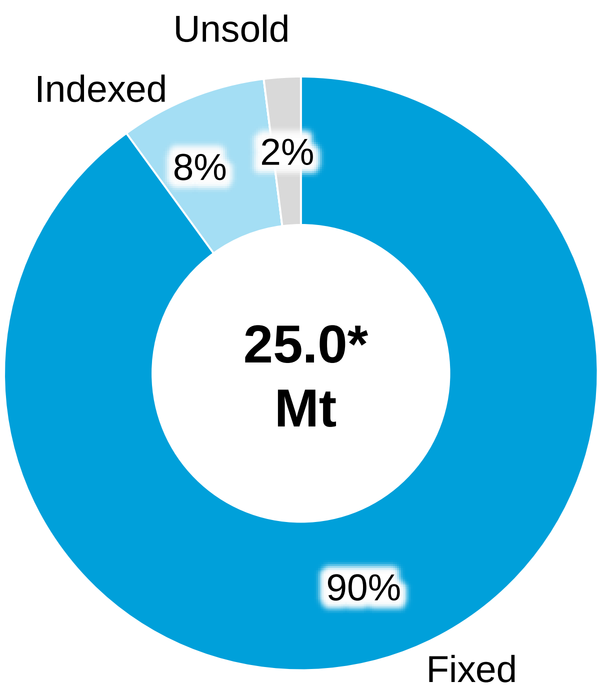
## AUSTRALIA COAL

**2018e**




## INDONESIA COAL

**2018e**



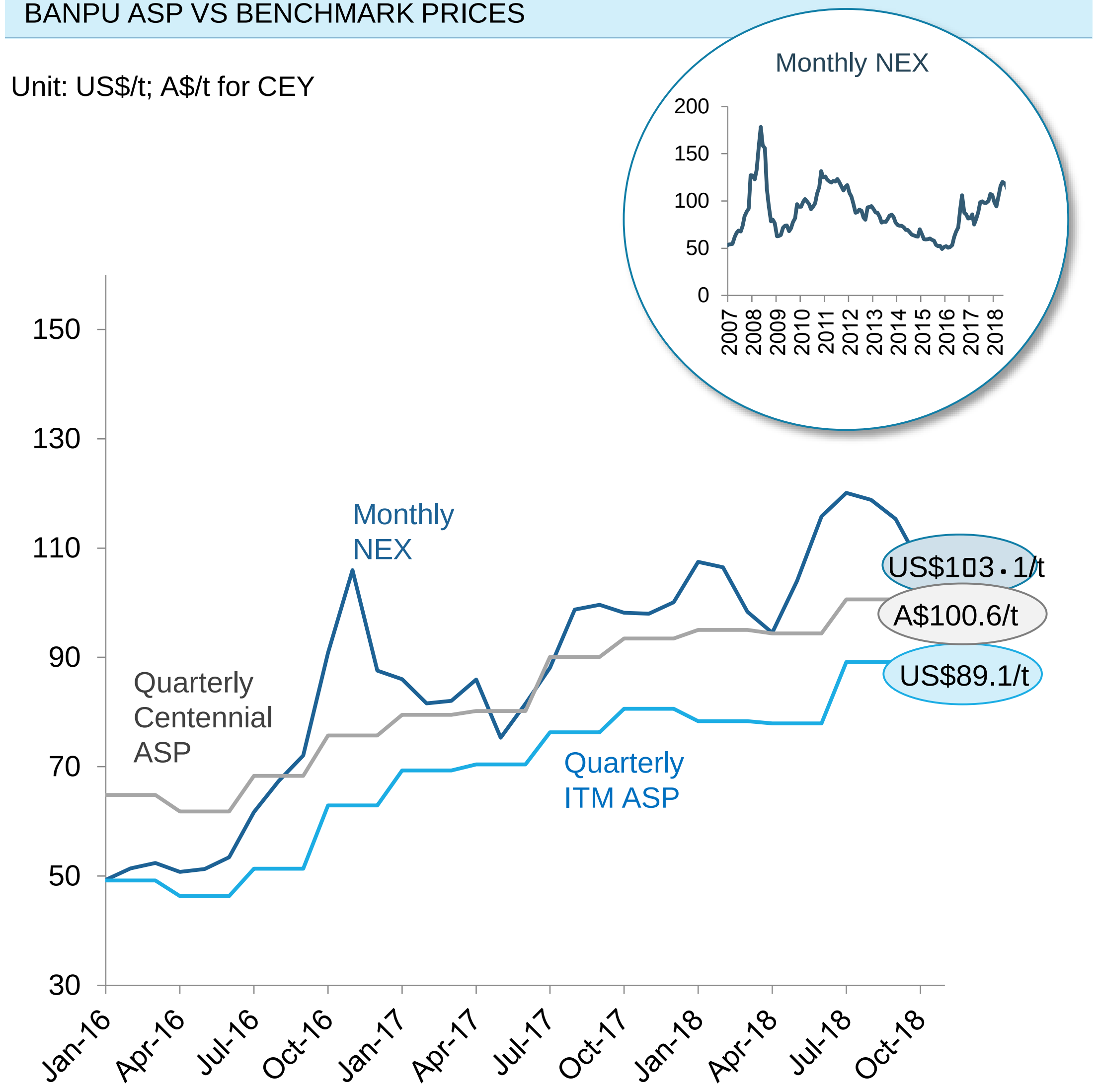



Note: * target sales; Indonesia coal sales includes third-party sourced coal

# Banpu ASPs vs thermal coal benchmark prices

## BANPU ASP VS BENCHMARK PRICES

Unit: US$/t; A$/t for CEY




## COMMENTS

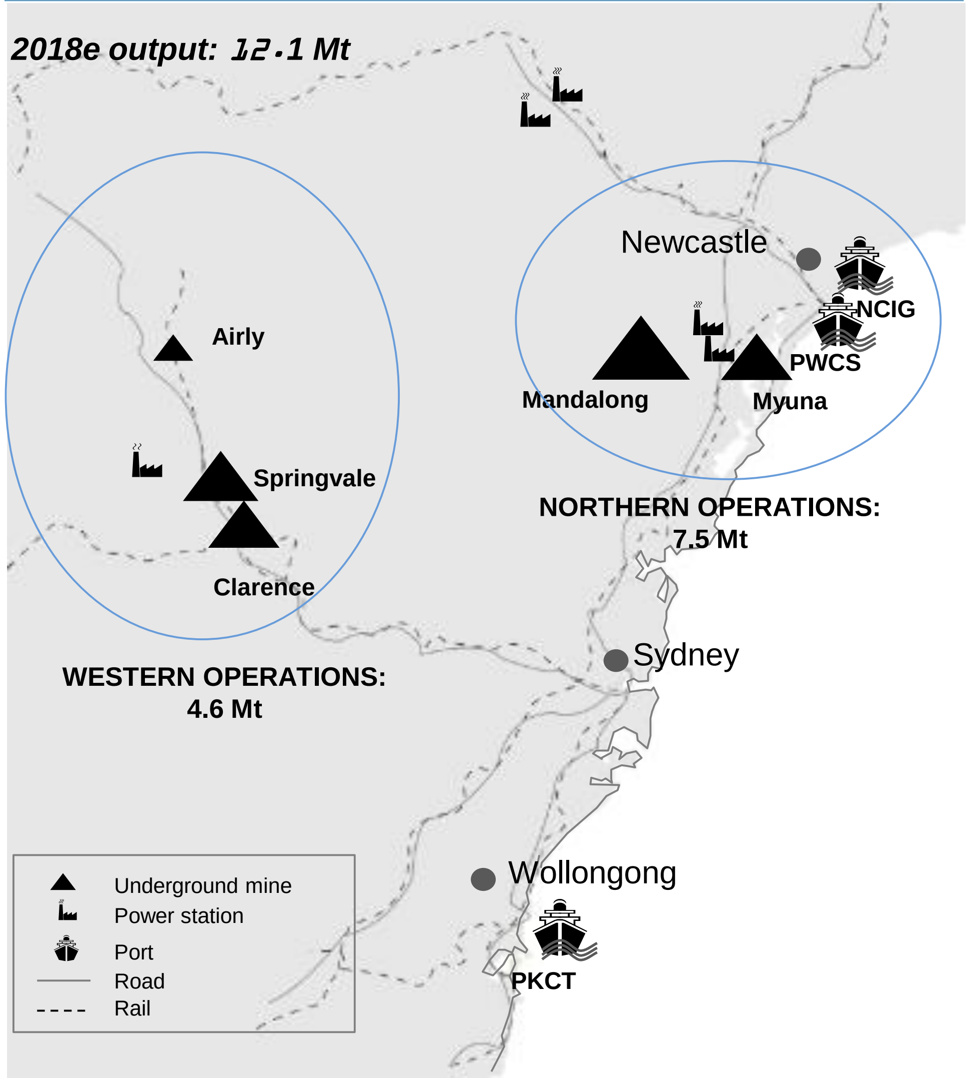
- 3Q18 ASP firmed up according to strong market due supply tightness
  - ITM ASP: US$89.1/t* (+14% QoQ)
  - CEY ASP: A$100.6/t* (+7% QoQ)
  - NEX (Nov 9, 2018)**: US$103.1/t
- Market continued strong in 3Q18, however, price gap between HCV and LCV coal was widening due a massive flow of lower quality coal from Indonesia and Chinese import restriction policy
- Supply tightness continued to be a major factor on benchmark coal price, while Chinese policy remains a major influence
- Other markets remain positive (Northeast Asia, India, Philippines)



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

# Australia: operational and financial summary

## 2018e OUTPUT (ROM EQUITY BASIS)




## KEY UPDATES - 3Q18 PRODUCTION AND PROGRESS

**Production**

- Equity ROM: 2.4 Mt (down 30% QoQ, down 27% YoY) as a result of extended longwall changeovers at Mandalong and Springvale
- Productivity and efficiency improvements continue, with production records achieved at Myuna and Airly
- However, difficult mining conditions were experienced at Mandalong and Springvale
- New bolting regime introduced, slowing productivity as mine develops proficiency to return to previous levels

**ASP**

- 3Q18: ~A$97/t vs 2Q18: ~A$95/t, ASP benefitting from higher export prices, however contracted domestic sales were a higher proportion of overall sales
- Sales volume down 15% QoQ, down 1% YoY – reflecting timing of longwall changeovers and difficult mining conditions in 3Q18
- Quarterly domestic: export split 58%:42% (2Q18: 62:38%) (2017: 61%:39%)
- 3Q18 Third party coal sales at 0.7 Mt, down 0.1 Mt on 2Q18

## FINANCIAL SUMMARY

| | 3Q18 | YoY | QoQ |
|---|---|---|---|
| **Sales revenue** | A$327 M | 12%▲ | 13%▼ |
| **EBITDA** | A$51 M | 39%▼ | 54%▼ |
| **PBT** | A$6 M | 84%▼ | 90%▼ |
| **NPAT** | A$5 M | 83%▼ | 89%▼ |

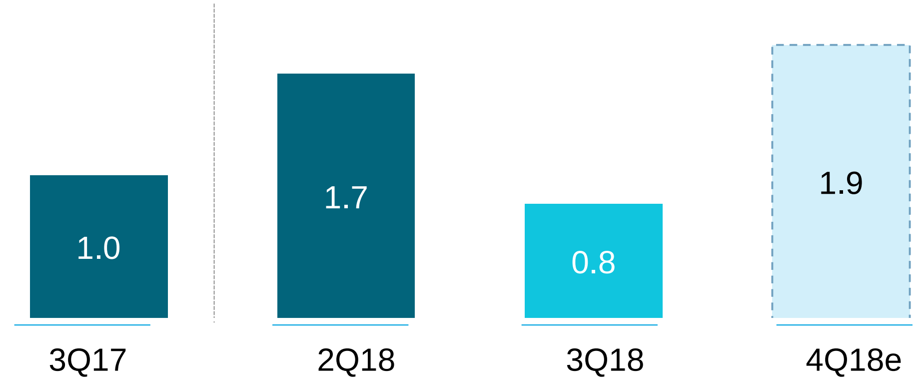


Note: NCIG = Newcastle Coal Infrastructure Group; PWCS = Port Waratah Coal Services; PKCT = Port Kembla Coal Terminal.

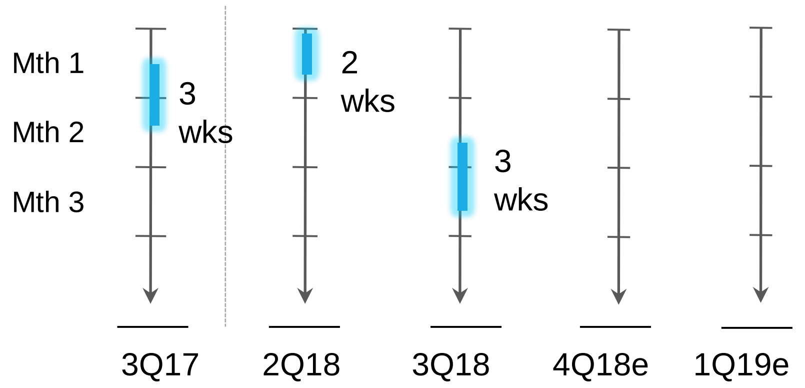
# Australia: northern operations quarterly output

## MANDALONG

COAL OUTPUT (Mt)[1]
CV: 6,700 kcal/kg[2]

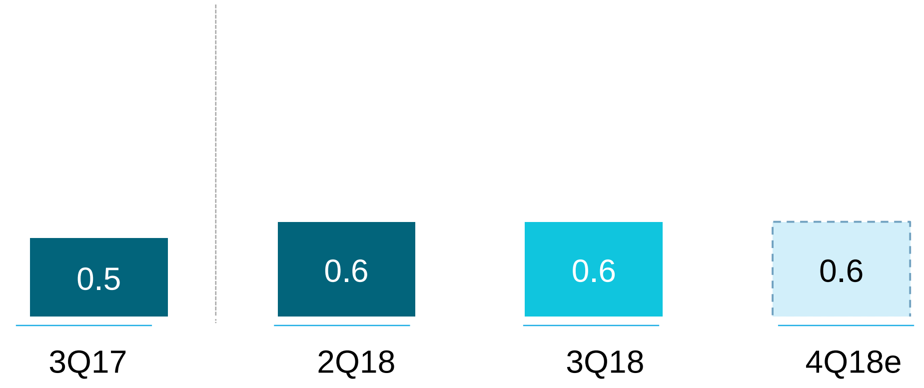



LW [3] MOVE SCHEDULE




## MYUNA

COAL OUTPUT (Mt)[1]
CV: 6,700 kcal/kg[2]




## COMMENTS

- **Mandalong:** Production down 49% QoQ and 14% YoY, due to an extended LW changeover as a result of difficult end of block conditions around the sill area. The LW recommenced on 2 October 2018
- **Myuna:** Production down 1% QoQ and up 12% YoY

  Following the success of the introduction of super panels in 2016 & 2017, a third super panel was introduced in early 2018, with productivity rates continuing to improve

  Over the past 12-15 months, numerous production records were achieved including, monthly, quarterly, 6-month and 12-monthly (to 30 June) with a new weekly production record of 55,203 tonnes during 3Q18

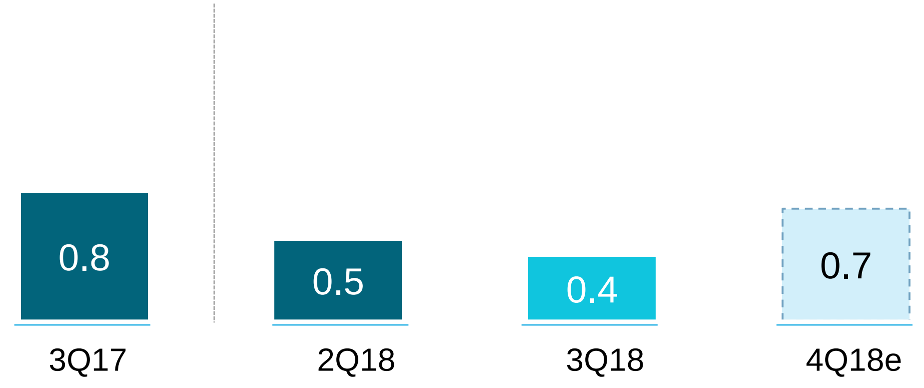


Note: 1 ROM output on an equity basis, 2 CV figures are air-dried basis, 3 Longwall

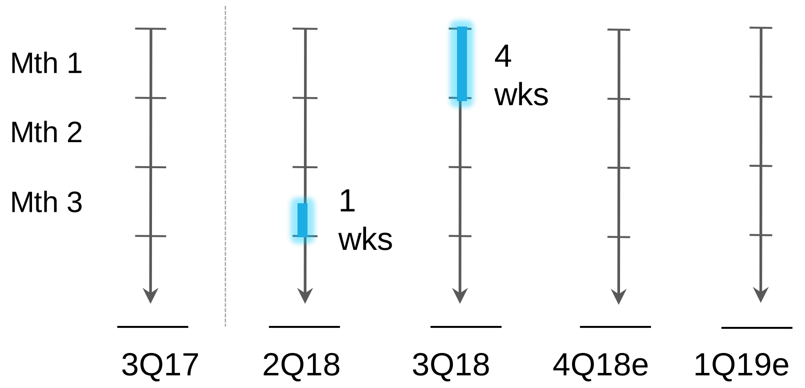
# Australia: western operations quarterly output

## SPRINGVALE

COAL OUTPUT (Mt)[1]
CV: 6,700 kcal/kg[2]

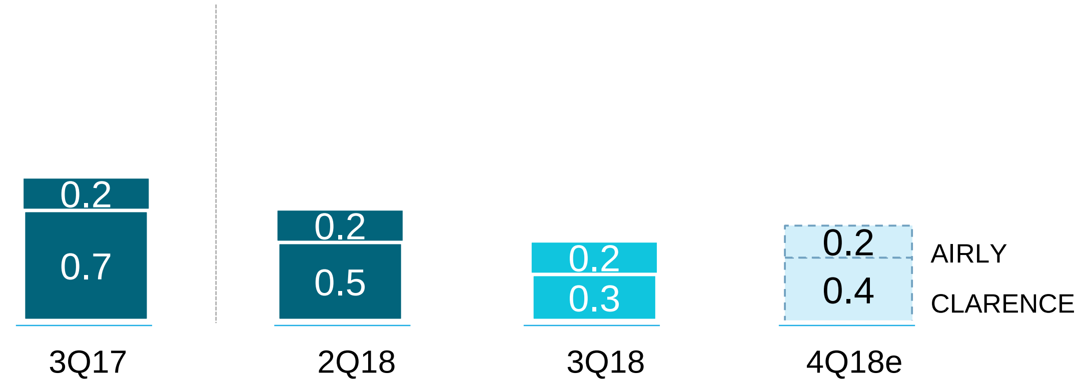



LW [3] MOVE SCHEDULE




## OTHER OPERATIONS

COAL OUTPUT (Mt)[1]
CV: 6,700 kcal/kg[2]




## COMMENTS

- **Springvale:** Output up 17% QoQ and down 6% YoY
  - LW changeover in June, which extended into 3Q18
  - Poor lithology impacted the changeover and coal quality
  - LW recommenced operation on 3 August 2018 (The mine was on full production during 3Q17)
- **Clarence:** Output down 33% QoQ and 57% YoY
  - Following an incident in early July, Clarence introduced a new bolting regime, which involves additional bolting and meshing. This has slowed productivity as mine develops proficiency to return to previous levels
- **Airly:** Output up 17% QoQ and down 2% YoY
  - Airly continues to perform strongly, with numerous records achieved during 3Q18

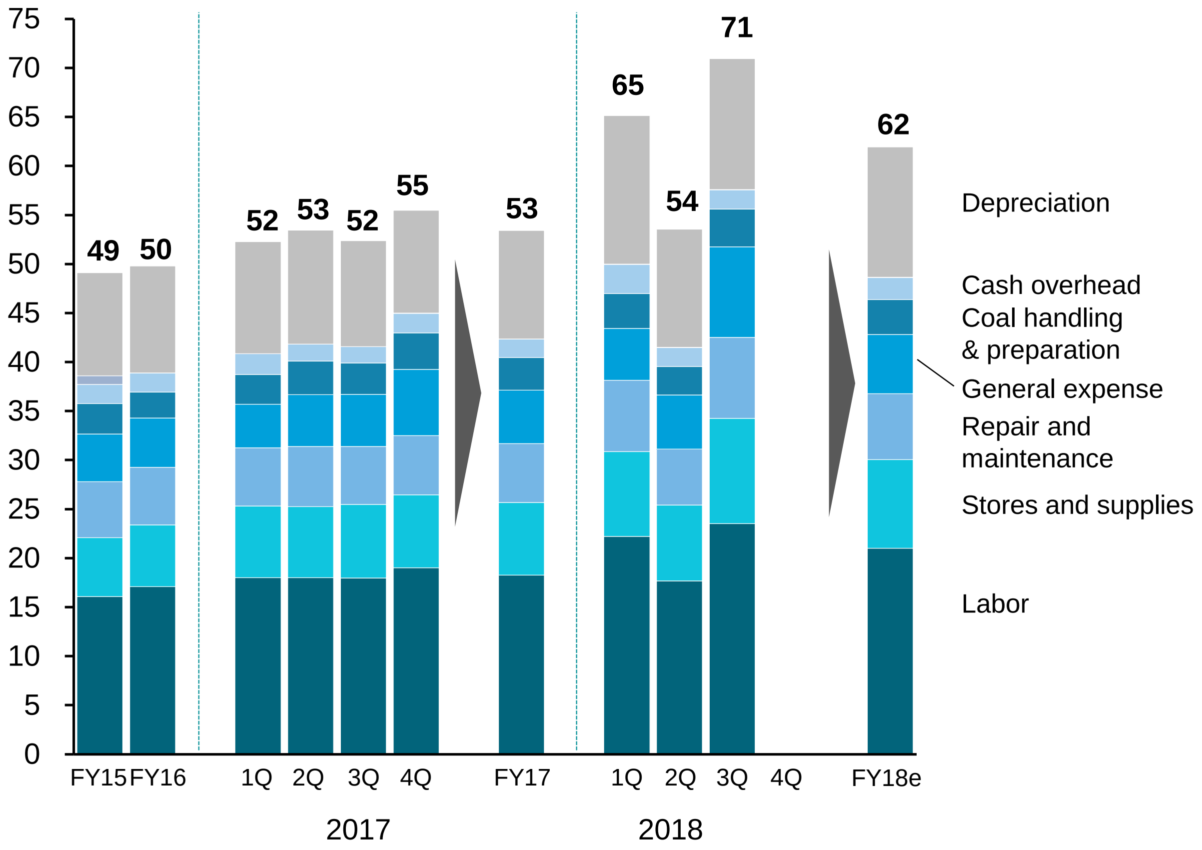


Note: 1 ROM output on an equity basis, 2 CV figures are air-dried basis, 3 Longwall

# Australia: operating costs

AVERAGE PRODUCTION COST [1]

Unit: A$/t




COMMENTS

- Both longwall mines, Mandalong and Springvale underwent planned LW changeover impacting production and costs
- Clarence introduced a new bolting regime, which involves additional bolting and meshing following a safety incident in July. Productivity rates have significantly slowed and increased costs as the mine develops proficiency to return to previously achieved productivity levels
- The lithology at Springvale has adversely impacted mined coal quality and increased saleable coal costs due to additional washing costs. The operation of the longwall is being carefully managed to minimise these impacts
- Looking forward:
  - Focus on cost control, improved production in 4Q18 with both LW's in full production and improved productivity through "lean" activities
  - Continue to develop automation, technology, digital and engineering opportunities through a programme of digital transformation

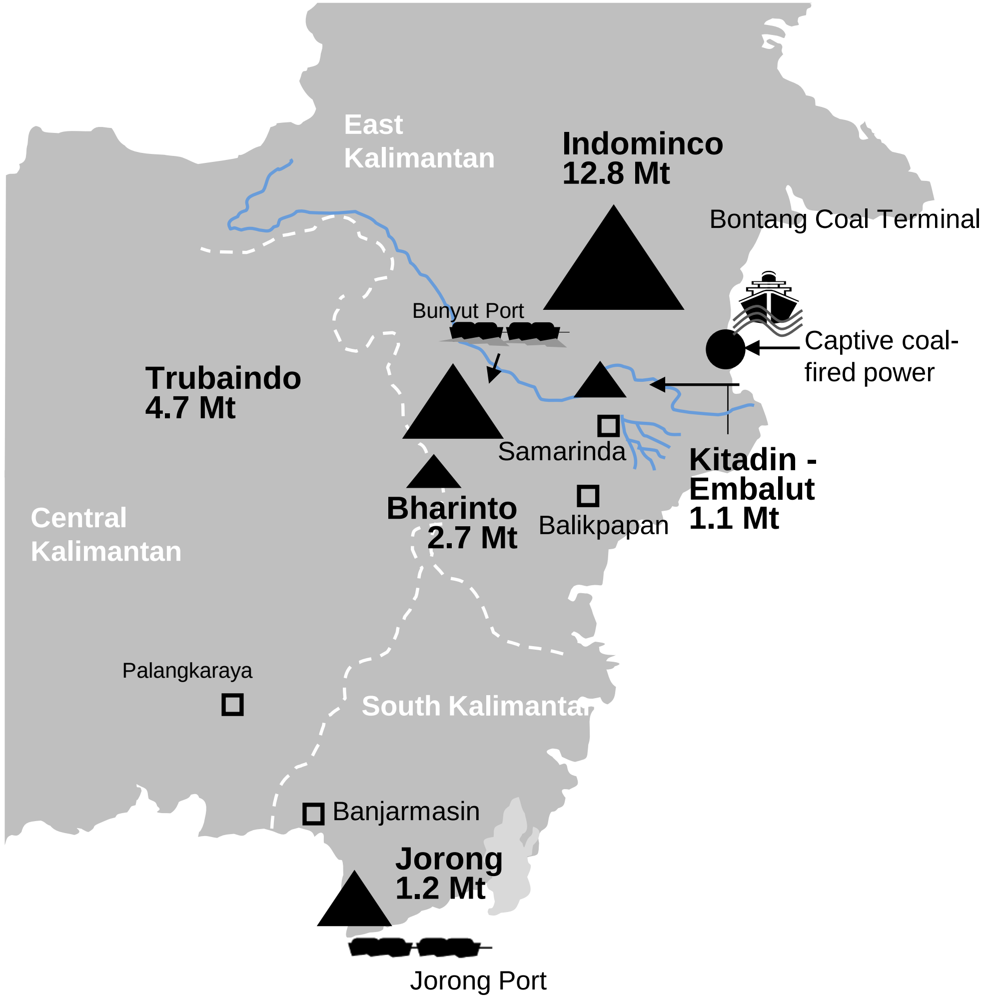


Note: 1 These figures do not include selling, distribution and royalty costs; based on 'sold' production

# Indonesia: operational and financial summary

PRODUCTION OUTPUT* 2018

***2018 target: 22.5 Mt***




KEY UPDATES - 3Q18 PRODUCTION AND PROGRESS

- **Indominco:** achieved target output of 3.7 Mt supported by good weather condition
- **Trubaindo:** 3Q18 production output was 1.4 Mt slightly higher than target
- **Bharinto:** 3Q18 production output was 0.8 Mt, close to target
- **Embalut:** achieved target output of 0.3 Mt
- **Jorong:** achieved target output of 0.3 Mt

FINANCIAL SUMMARY

| | 3Q18 | YoY | QoQ |
|---|---|---|---|
| **Sales revenue** | US$606M | 46%▲ | 41%▲ |
| **EBITDA** | US$170M | 39%▲ | 82%▲ |
| **PBT** | US$134M | 47%▲ | 106%▲ |
| **NPAT** | US$95M | 42%▲ | 113%▲ |

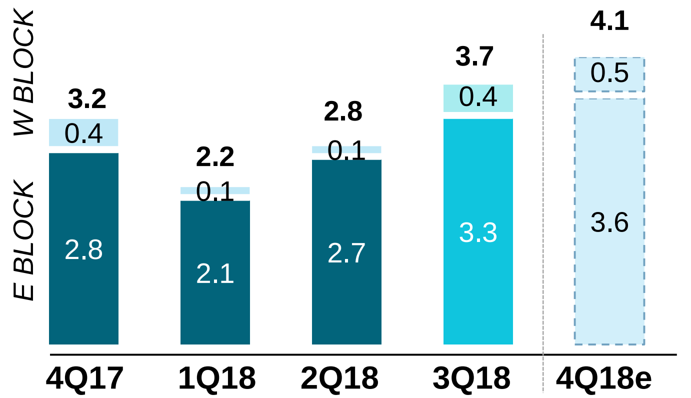


Note: * saleable tonnes basis

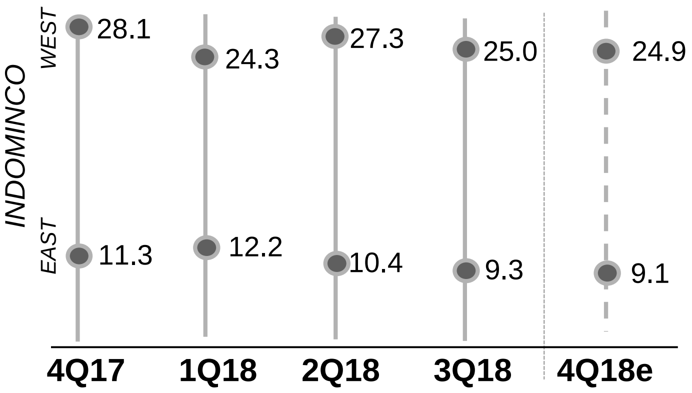
# Indonesia: quarterly output

## INDOMINCO - BONTANG

COAL OUTPUT (Mt)*
CV: 5950 - 6250 kcal/kg**

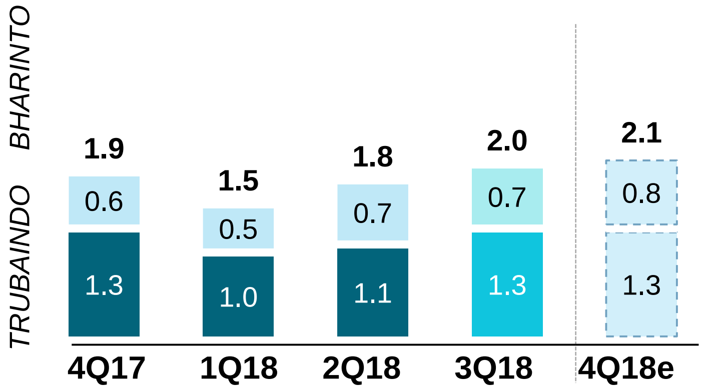



STRIP RATIOS (bcm/t)

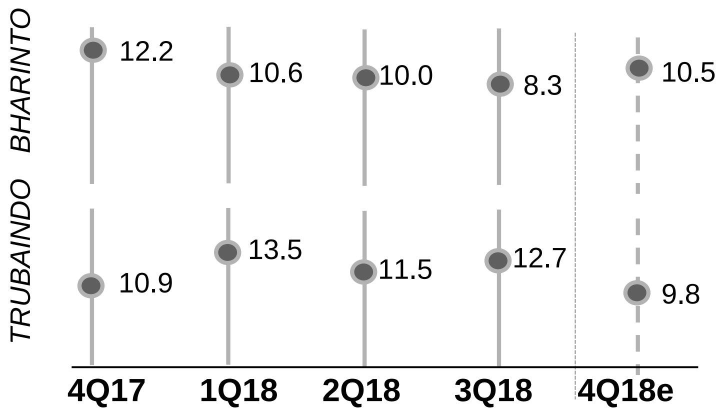



## TRUBAINDO - BHARINTO

COAL OUTPUT (Mt)*
CV: 6550 - 6700 kcal/kg**

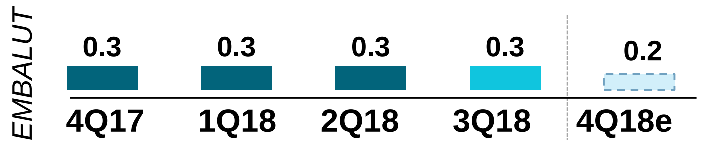



STRIP RATIOS (bcm/t)

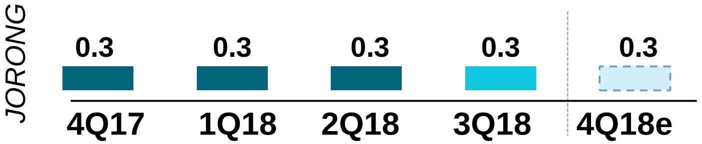



## EMBALUT - JORONG

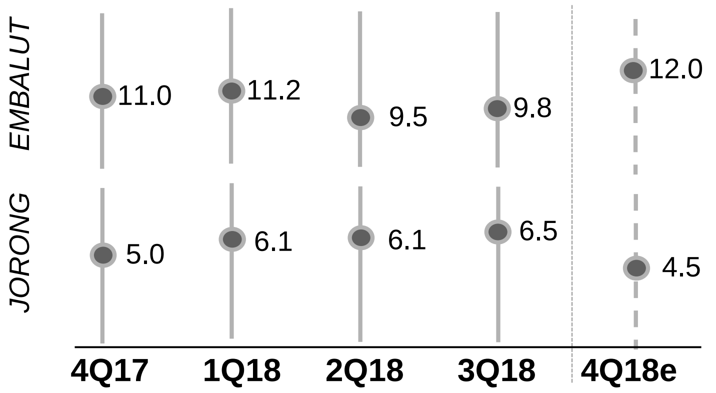
COAL OUTPUT (Mt)*
CV: 5800 kcal/kg**




CV: 5300 kcal/kg**




STRIP RATIOS (bcm/t)



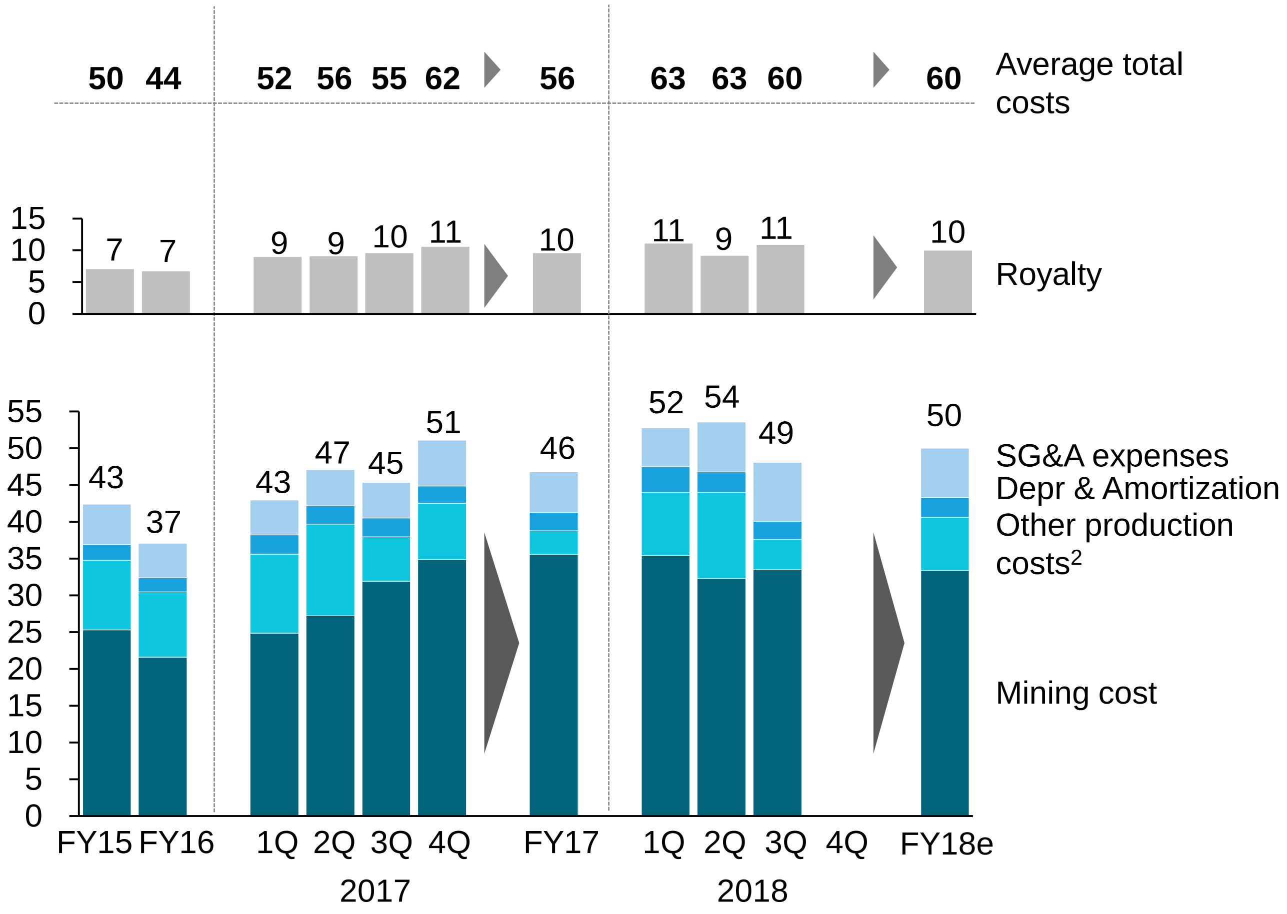



Note: *Output figures are 100% basis
**CV figures are air-dried basis

# Indonesia: total costs

INDICATIVE AVERAGE TOTAL COSTS[1]

Unit: US$/t




COMMENTS

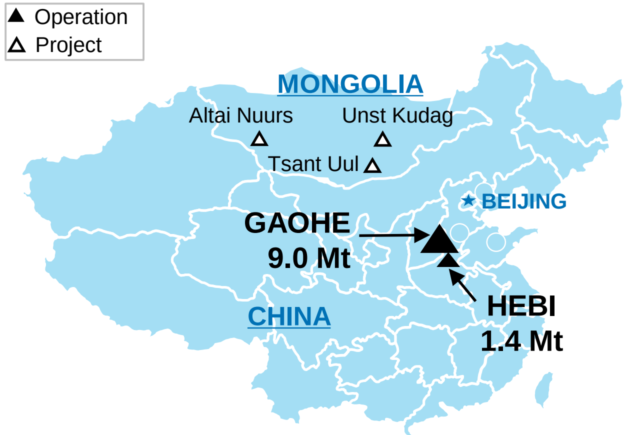
- 3Q18 average total cost lower than 2Q18 mainly due to decreased overhead cost and inventory movement
- Higher fuel price impacted the production cost in 3Q18, but was compensated by lower stripping ratio
- Higher selling cost in 3Q18 as a result of DMO expenses



Note: 1 Coal business only, 2 Repair and maintenance, salaries and allowances, inventory adjustment, others etc.

# China and Mongolia summary

## CHINA COAL 2018e PRODUCTION



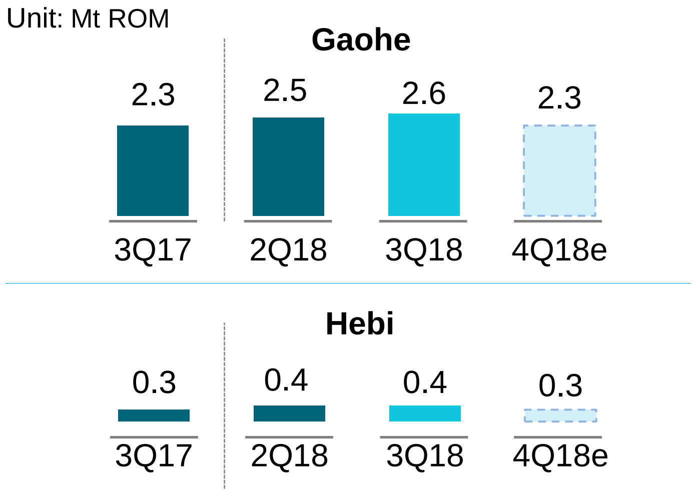

## GAOHE OPERATIONAL UPDATES

- Stable production with continued focus on safety
- Overall coal market remains stable with stable demand but transportation constraints along supply chain
- Expected slightly lower demand in Q4 due to environmental control during winter heating season

## HEBI OPERATIONAL UPDATES

- Higher production QoQ due to stable mining conditions
- Continue to manage gas drainage and to improve development rate

## 3Q17-4Q18e CHINA COAL OUTPUT*




Note: * Output figures are ROM output (100% basis)

| Gaohe summary | 4Q17 | 1Q18 | 2Q18 | 3Q18 |
|---|---|---|---|---|
| Sales (Mt) | 2.5 | 2.1 | 2.4 | 2.4 |
| ASP (US$/t) | 84 | 96 | 96 | 92 |
| Revenue (US$M) | 208 | 199 | 229 | 221 |
| COGS (US$/t) | 55 | 55 | 51 | 47 |
| EBITDA (US$M) | 100 | 104 | 126 | 126 |

## MONGOLIA PROJECTS UPDATES

**Tsant Uul**

- Collaborate with pyrolysis vendors and oil upgrading vendors to add more value to tar oil and char

**Unst Khudag and Altai Nuurs**

- Preliminary feasibility study for UK coal conversion
- Received MRPAM[1] approval of Feasibility Study for AN Coal Fired Power Plant
- Received approval DEIA[2] report for AN Coal Fired Power Plant from MEGD[3]

Note: 1 Mineral Resources and Petroleum Authority of Mongolia
2 Detail Environmental Impact Assessment
3 Ministry of Environment and Green Development

# Banpu Power overview 3Q18: Greater Mekong region

THAILAND

## BLCP

*Complete unit 1 minor inspection for 3 weeks and continue unit 2 EMJ* activities for 10 weeks which expected to complete by December 2018*

- EAF** reported at 88% resulted from the planned maintenance of unit 1
- EBITDA of THB 1.6 Bn, -7% YoY and -28% QoQ
- Profit contribution of THB 0.3 Bn, -24% YoY and -47% QoQ

LAOS

## Hongsa

*Consistent operational performance with better reliability, the reported EAF at 84% level*

- EAF reported at 84%, +2% improvement QoQ and YoY though underwent planned maintenance of unit 2 for 6 weeks
- EBITDA of THB 3.3 Bn, -7% QoQ, due to higher investment for plant improvement program during the quarter
- Profit contribution of THB 0.8 Bn, +27% YoY and -45% QoQ



Note: *EMJ = Extended Major Overhual, ** Equivalent Availability Factor (EAF) is a percentage and measures of the potential amount of energy that could be produced by the unit after all planned and unplanned losses are removed

# Banpu Power overview 3Q18: North Asia

CHINA

## China CHP

*Performance still impacted by seasonality, with improvement in cost management*

- EBITDA of RMB 23 M improve 21% QoQ due to coal cost management

## SLG

- Construction progress as planned with target COD by end 2019-early 2020

## China Solar

*Stable operational performance from high irradiation during summer*

- Power sold slightly down by -3% QoQ
- Reported revenue of RMB 40 M, -5% QoQ

JAPAN

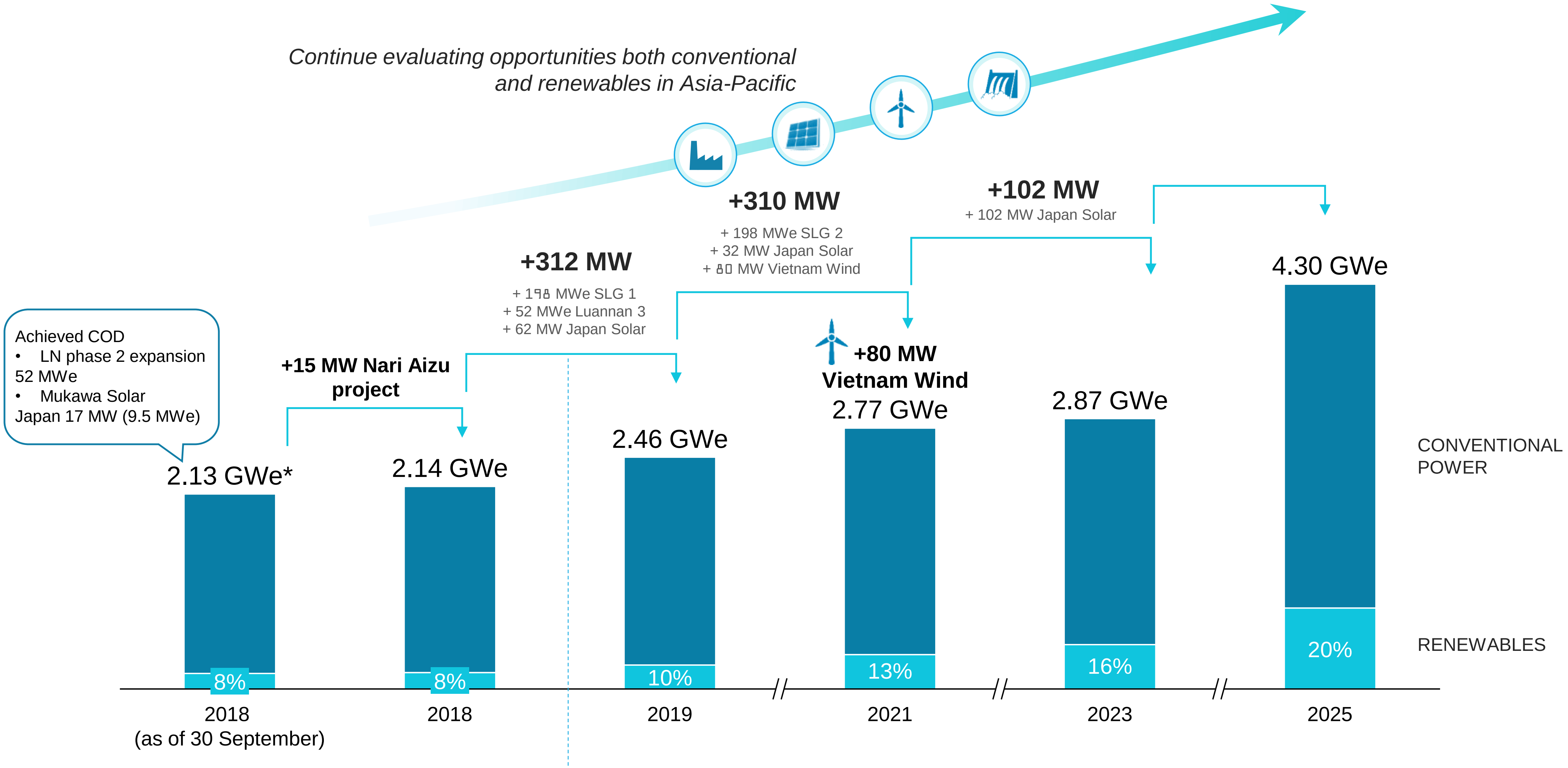
## Japan Solar

*Lower capacity factor QoQ from unfavorable weather conditions and typhoon in September*

- Capacity factor slightly decrease to 15% QoQ
- Project Nari Aizu ready for COD on 1st December 2018
- Expected COD adjustment of project Yamagata

# Banpu Power: growth target on track

**TOTAL EXPECTED OPERATING EQUITY CAPACITY AT YEAR-END**



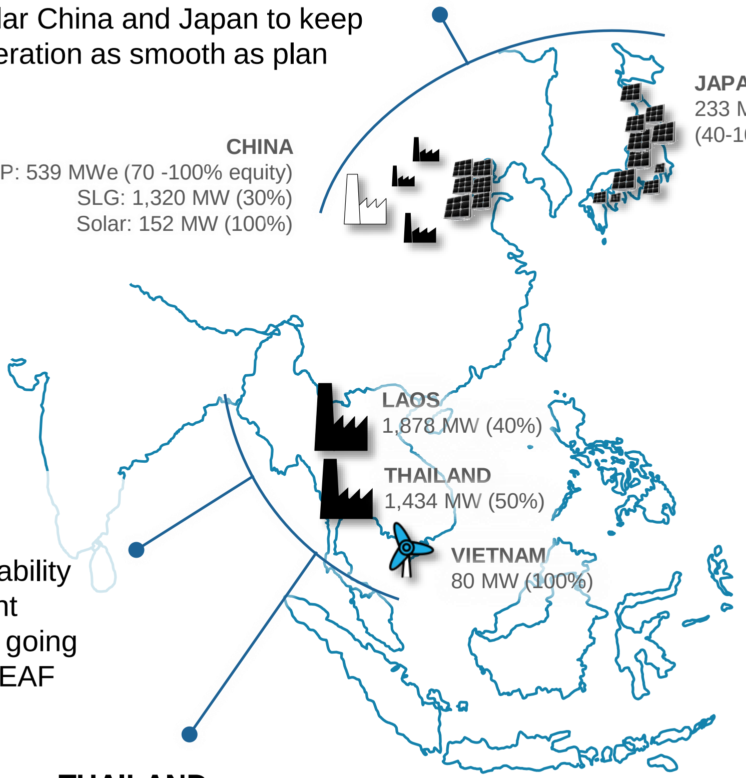



Note: *GWe = equity GW equivalent including steam

# Committed to growth performance

**CHINA AND JAPAN**

- China CHP continue its plant improvement and emission control
- Solar China and Japan to keep operation as smooth as plan



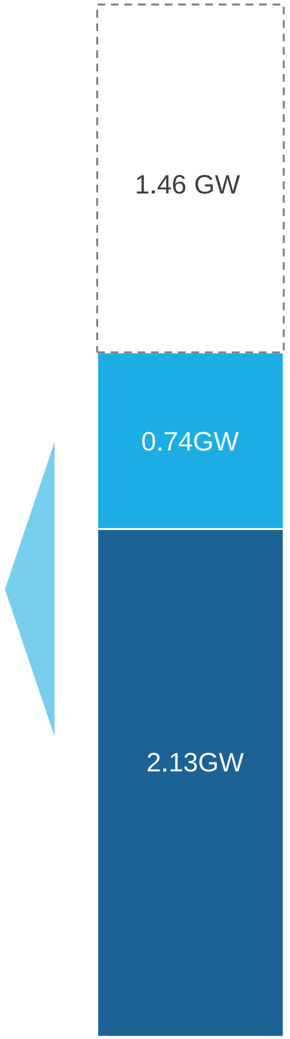

**LAOS**

- Hongsa reliability improvement program on going with higher EAF target

**THAILAND**

- BLCP to complete 2 Units EMJ* by December 2018, resume normal operation next year onward

**TARGET 4.3 GW**
**(20% renewable)**




**NEW GROWTH**

- Seeking new conventional coal-fired power project in target countries i.e., Vietnam, Philippines, and Indonesia

**COMMITTED PIPELINE**

- 740 MW committed capacity in pipeline with target to achieve COD by 2023
- Achieved 10% of renewable capacity in portfolio

**OPERATIONAL CAPACITY**

- Operation improvement and reliability enhancement



Note: *Extended Major Overhaul

# U.S. gas market update

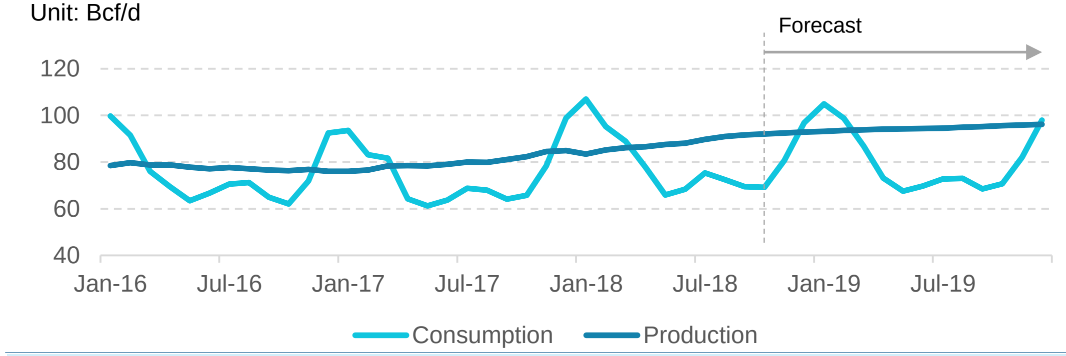
## AVERAGE HENRY HUB PRICE AS OF 26 OCT-18

Unit: US$/MMbtu


- **Price has jumped to $3.16 per MMbtu due to concern on lower than normal gas inventories** before gas burning season. However strong production growth and warm winter forecasts could be the downside, otherwise price will maintain at the high level throughout 4Q18
- According to the trade dispute between the US and China, China imposed a 10% tariff on US LNG and could seek option on supply from Russia and Iran while US is required to push hard to sell more gas to EU and Japan instead

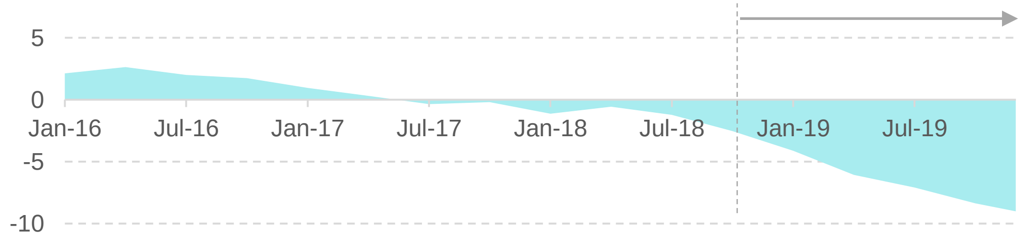
## U.S. TOTAL NATURAL GAS PRODUCTION – CONSUMPTION

Unit: Bcf/d



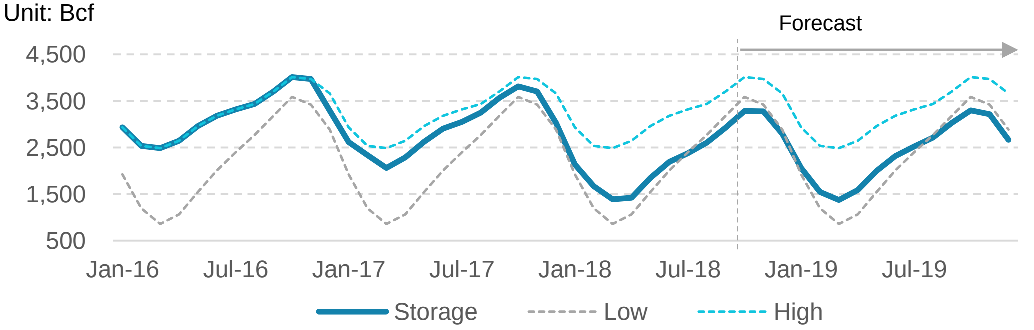

## U.S. NET NATURAL GAS TRADE

Unit: Bcf/d




## U.S. STORAGE LEVEL

Unit: Bcf





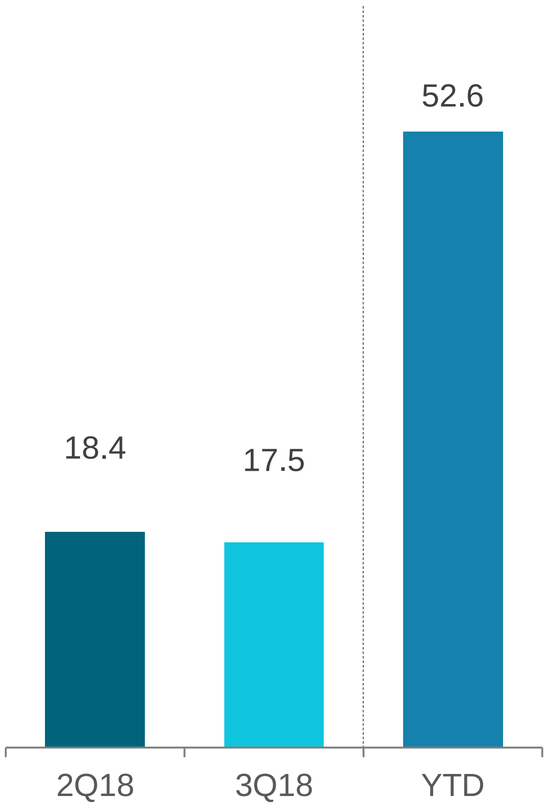

Source: EIA

# Gas business 3Q18 performance

*YTD EBITDA reached $US74 M with positive momentum of Henry Hub price should be continued through 4Q18 and strong contribution of volume from new wells*

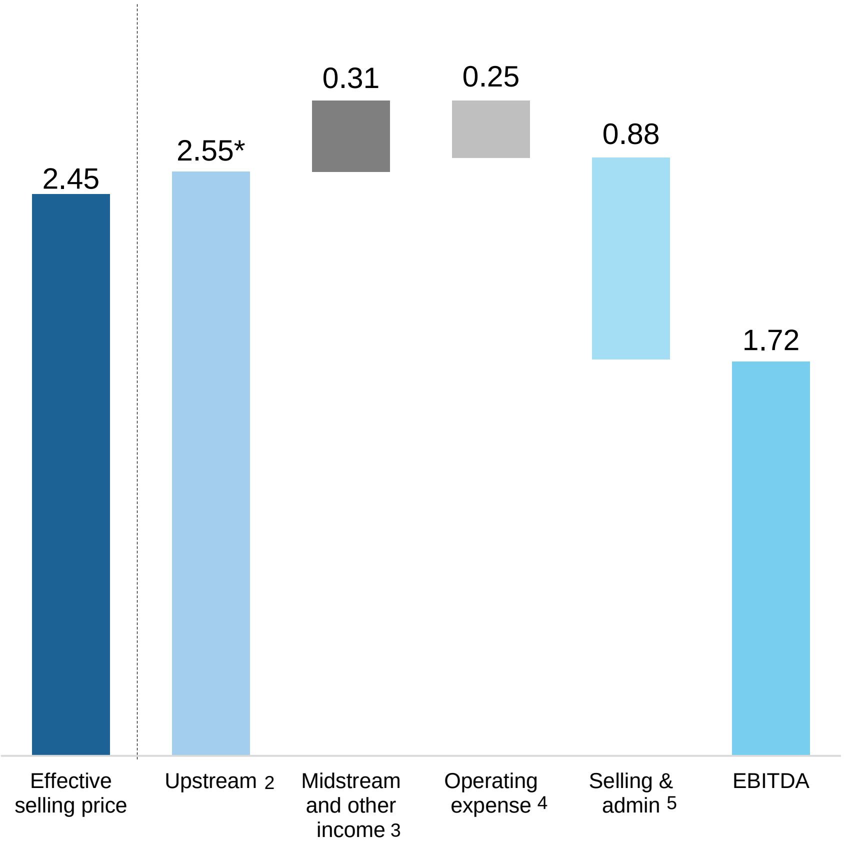
## SALES VOLUMES

Unit: Bcf [1]



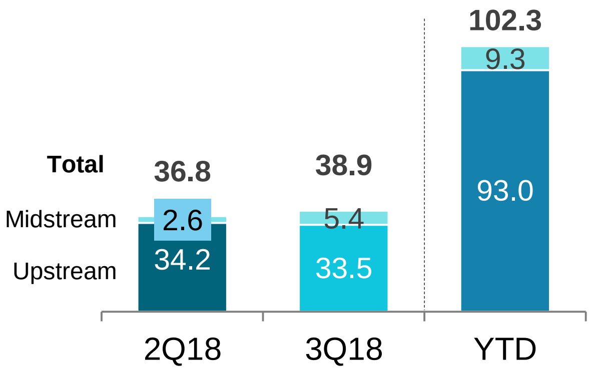

## 3Q18 EBITDA BREAKDOWN PER UNIT

Unit: US$/1000 Cubic Feet (Mcf)



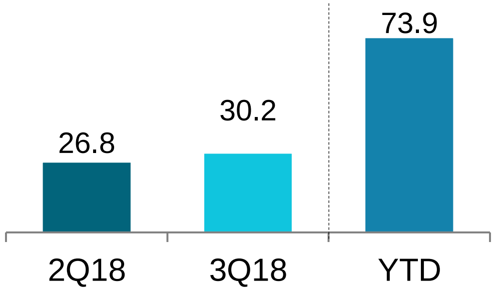

## TOTAL REALIZED REVENUE

Unit: US$M




## EBITDA

Unit: US$M

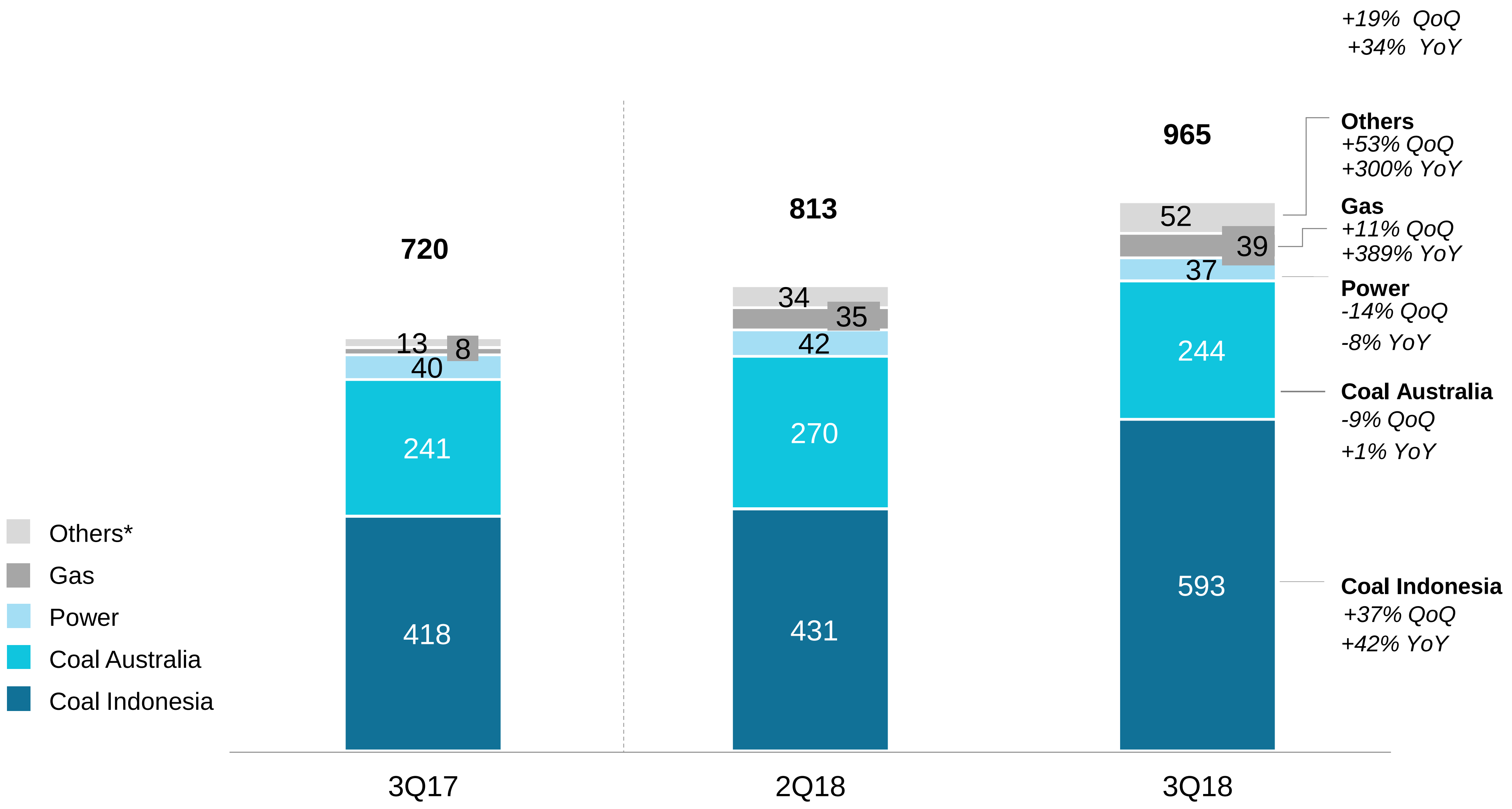



Note:
1 Billion cubic feet
2 Revenue after royalties and fees
3 Pipeline recovery income and derivatives
4 Lease operating expense and work over expenses
5 Taxes, marketing and transportation expenses, and administrative expense

*Royalty burden review and adjustment

# Banpu consolidated sales revenues

USD million

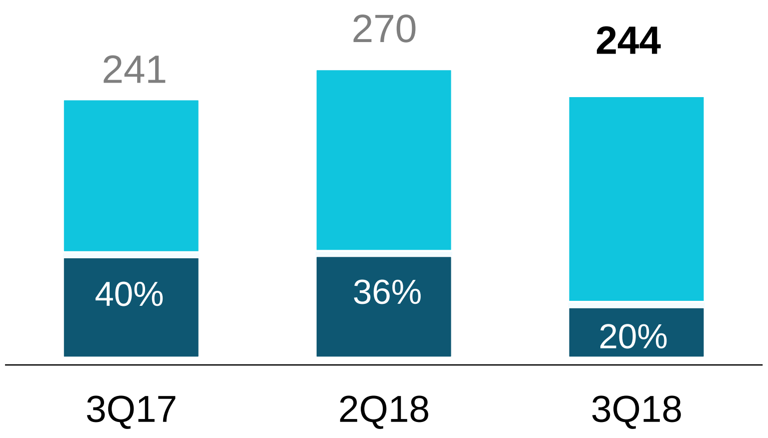


# Banpu consolidated coal gross margin 3Q18: 39%

## AUSTRALIA COAL

USD million

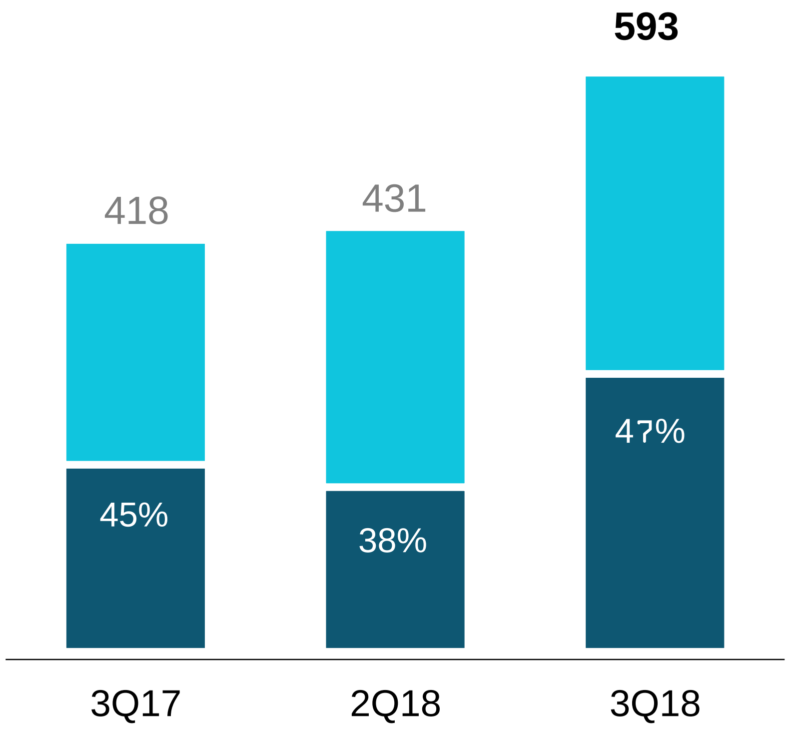
*Australia coal gross margin: 20%*




## INDONESIA COAL

USD million

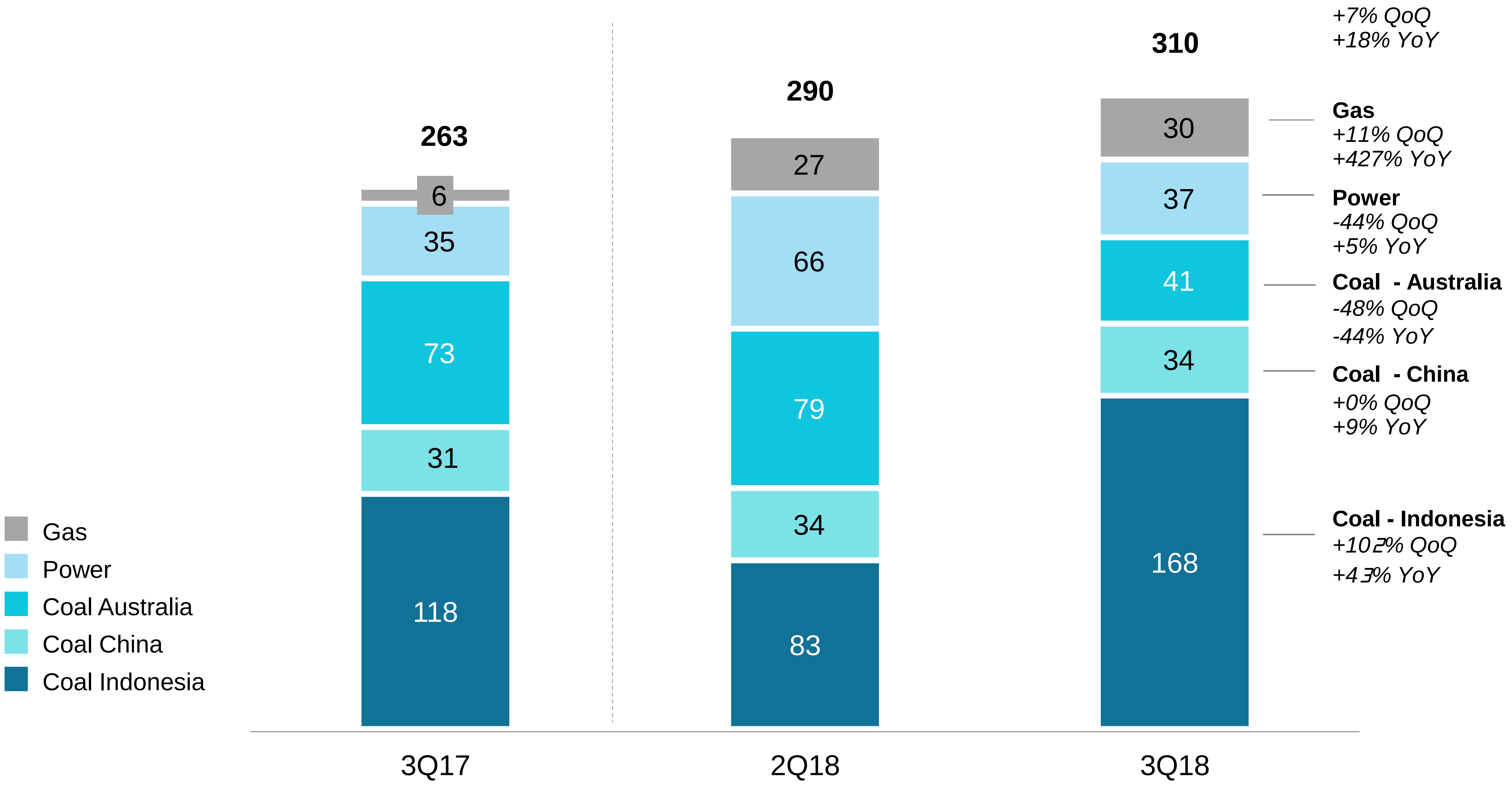
*Indonesia coal gross margin: 47%*




Coal sales   Gross margin

# Banpu consolidated EBITDA

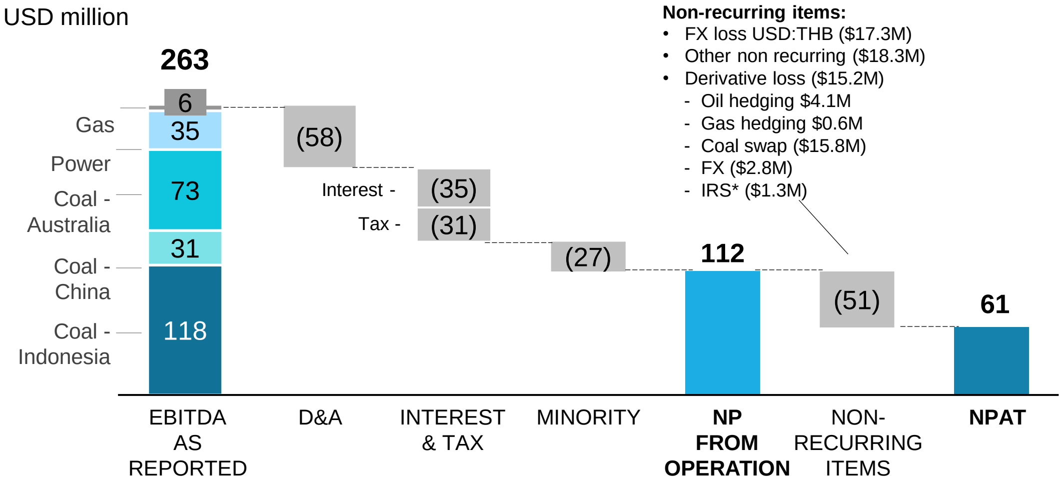
USD million



# Banpu consolidated NPAT

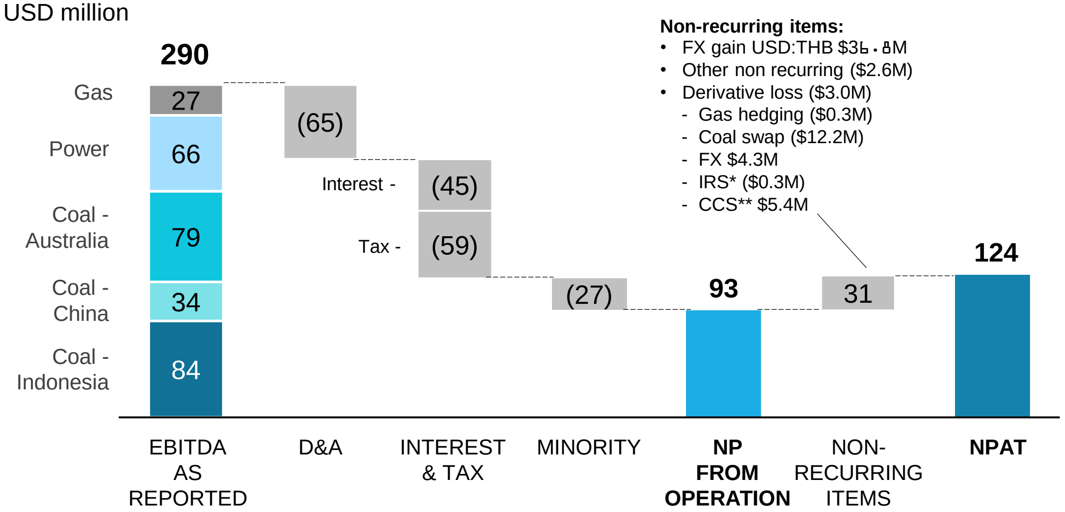
## 3Q17 NET PROFIT AFTER TAX

USD million



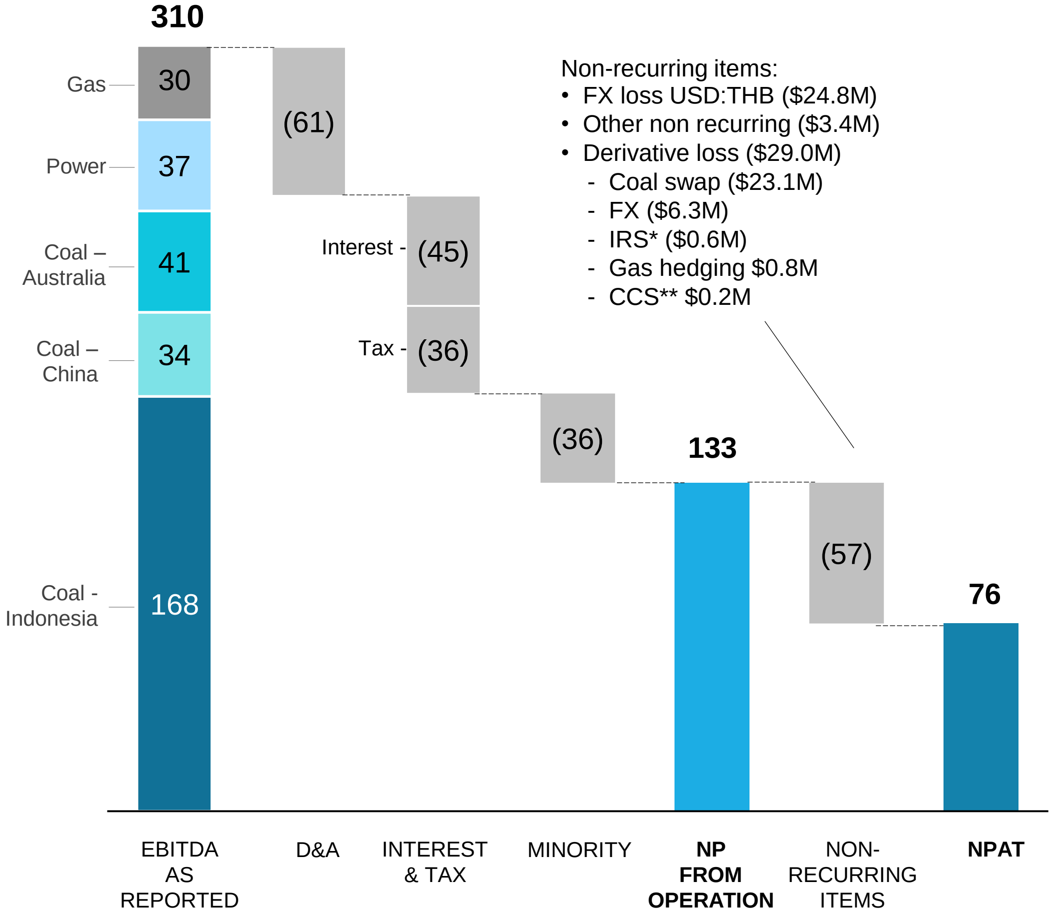

## 2Q18 NET PROFIT AFTER TAX

USD million




## 3Q18 NET PROFIT AFTER TAX

USD million



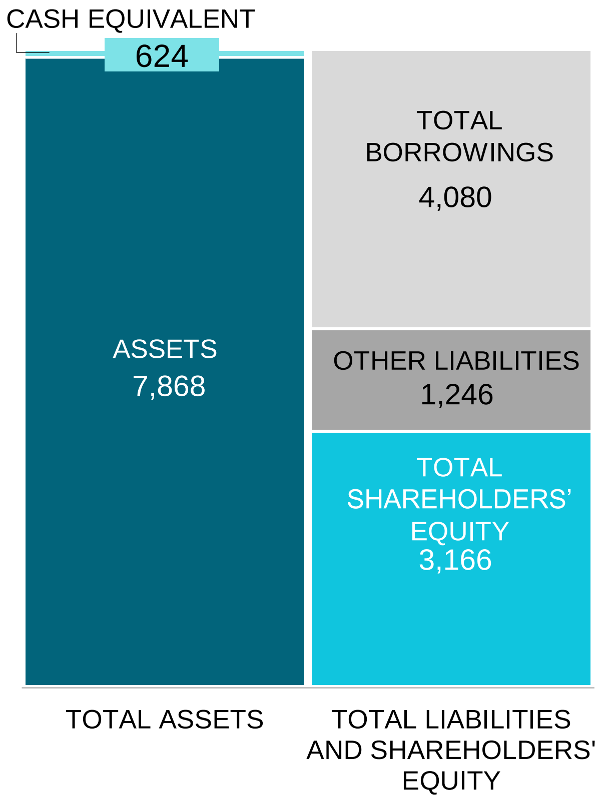



Note: *interest rate swap, **cross currency swap

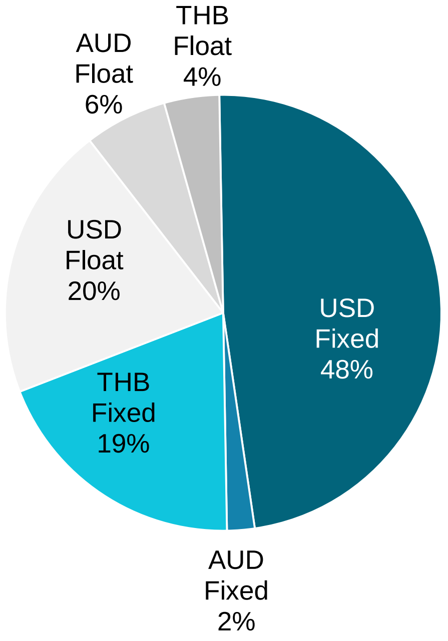
# Banpu consolidated balance sheet

## 3Q18 CONSOLIDATED BALANCE SHEET

USD million

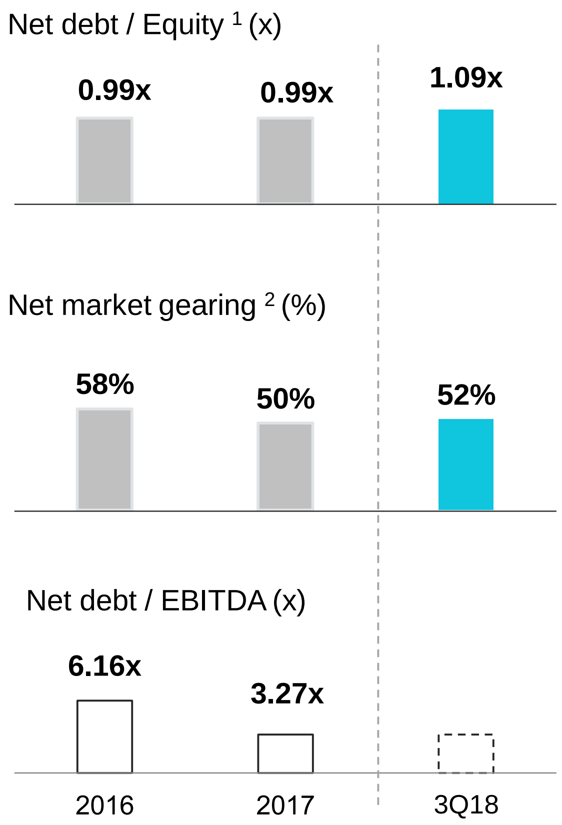



## DEBT FX STRUCTURE




Total gross debt: US$4.08 billion
As of 30 September 2018

## GEARING RATIOS




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 2018)

# Key takeaways Q3 2018

### US$133 M NET PROFIT FROM OPERATION

Adjusted net profit from operation (before FX and other non-recurring items)
+43% QoQ, +19% YoY

### US$310 M GROUP EBITDA

Consolidated EBITDA
+7% QoQ, +18% YoY;
Strong coal and gas EBITDA improvement offsets lower power contribution

### COAL EBITDA REMAINS STRONG

US$243 M coal EBITDA
+24% QoQ, +10% YoY;
ITM exceeded target output;
CEY impacted by difficult mining conditions and extended longwall

### HONGSA HIGH EAF DESPITE MAINTENANCE

Hongsa achieved >80% EAF despite planned maintenance showing better realibility; Hongsa's profit before FX US$28 M +4% QoQ, +6% YoY

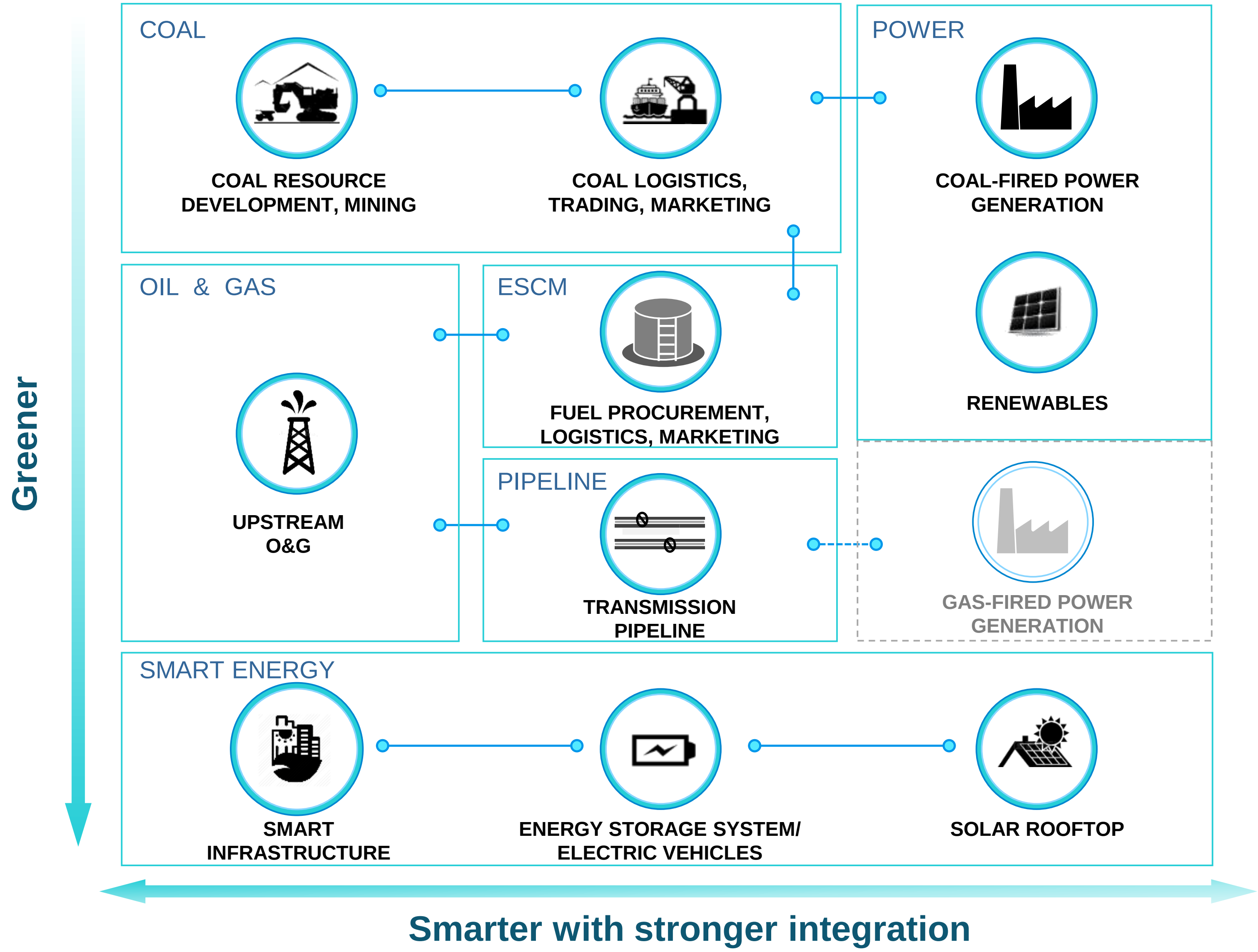
### SOLAR POWER: STABLE PERFORMANCE

China solar's profit
+23% QoQ, +78% YoY;
Japan solar performance impacted by weather conditions

### GAS EBITDA STRONG CONTRIBUTION

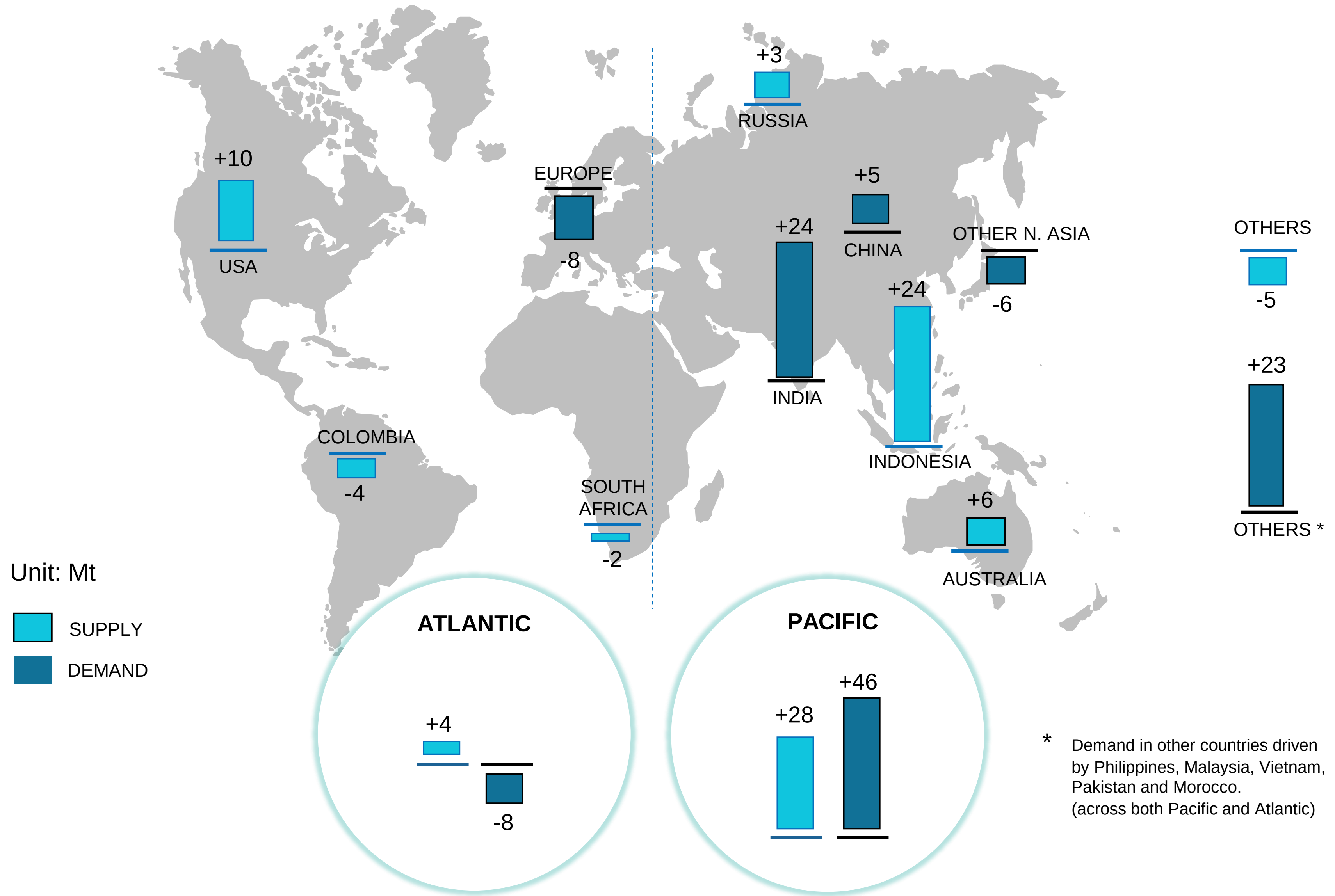
US$74 M YTD Gas EBITDA supported by higher volume from new wells and portfolio selling price improvement

# Greener, smarter - and stronger integration



# APPENDIX

# Regional thermal coal market:  2018 vs 2017




* Demand in other countries driven by Philippines, Malaysia, Vietnam, Pakistan and Morocco.
(across both Pacific and Atlantic)

# Gas business: 2018 indicative guidance

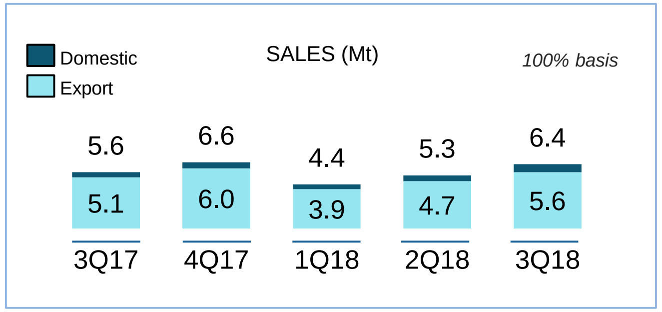
ILLUSTRATIVE AND INDICATIVE ONLY

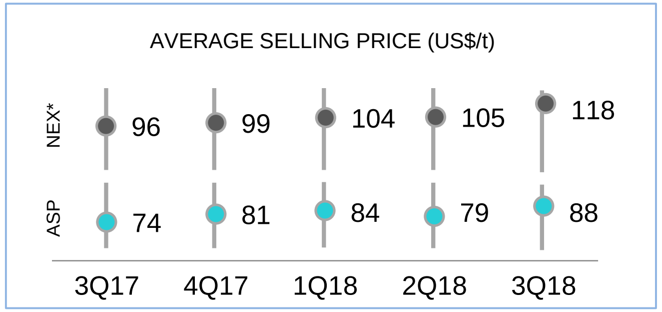
| UNIT GUIDANCE (US$/ MCF) | | COMMENTS |
|---|---|---|
| REVENUE | | |
| Average differential to Henry Hub | $0.5-$0.8 | Difference selling points and (NYMEX basis) and Henry Hub |
| Pipeline revenue | $0.05-$0.15 | Applicable to Chaffee Corners volume only |
| COSTS | | |
| G&C costs | $0.3-0.4 | Gathering and compression costs (to intrastate pipelines) |
| Lease operating costs | $0.2-$0.3 | Main component of operating costs |
| G&A | $0.25-$0.35 | General and administrative costs |
| DD&A | $0.75-0.85 | Depreciation, depletion and amortization |
| Taxes | 21% | Currently benefit from tax shield due to accelerated DD&A |

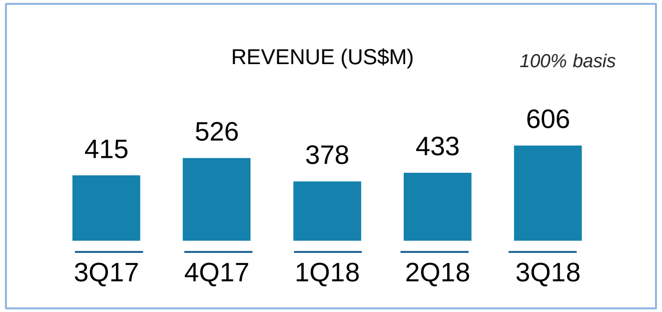
| **CURRENT PORTFOLIO (2018)** | |
|---|---|
| Reserves (Bcf) | 1,074 |
| Production (mmcfd) | 200 - 230 |

# Banpu group Q-Q revenue analysis: coal

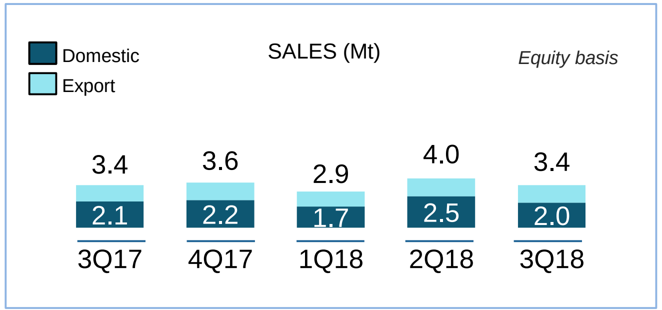
## INDONESIA COAL (ITM)

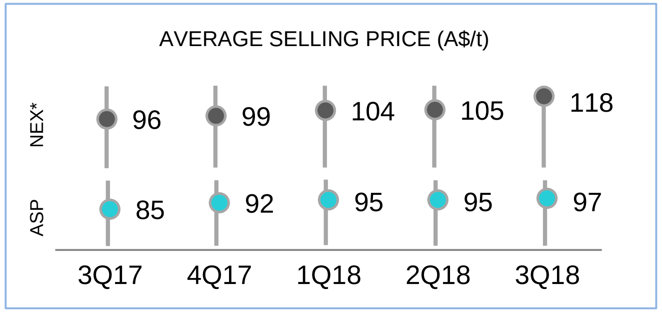


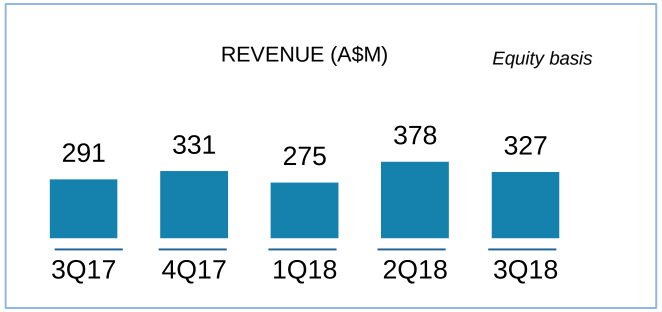



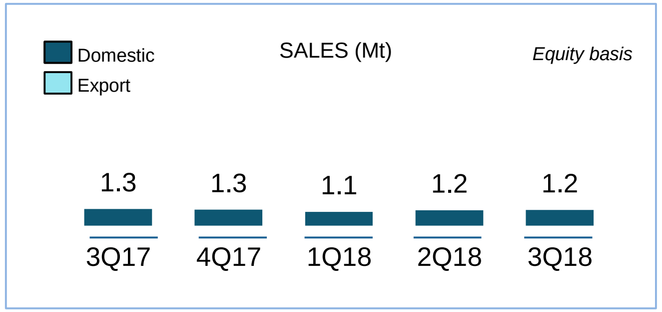

## AUSTRALIA COAL (CENTENNIAL)

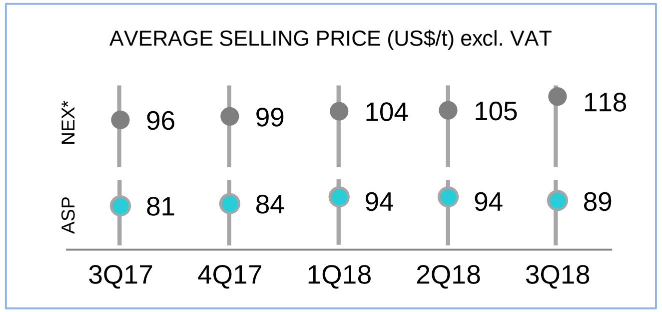


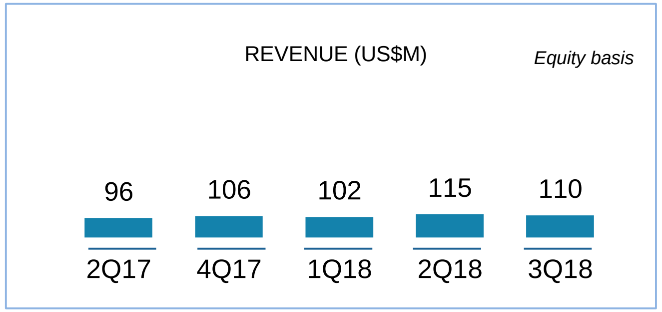




## CHINA COAL



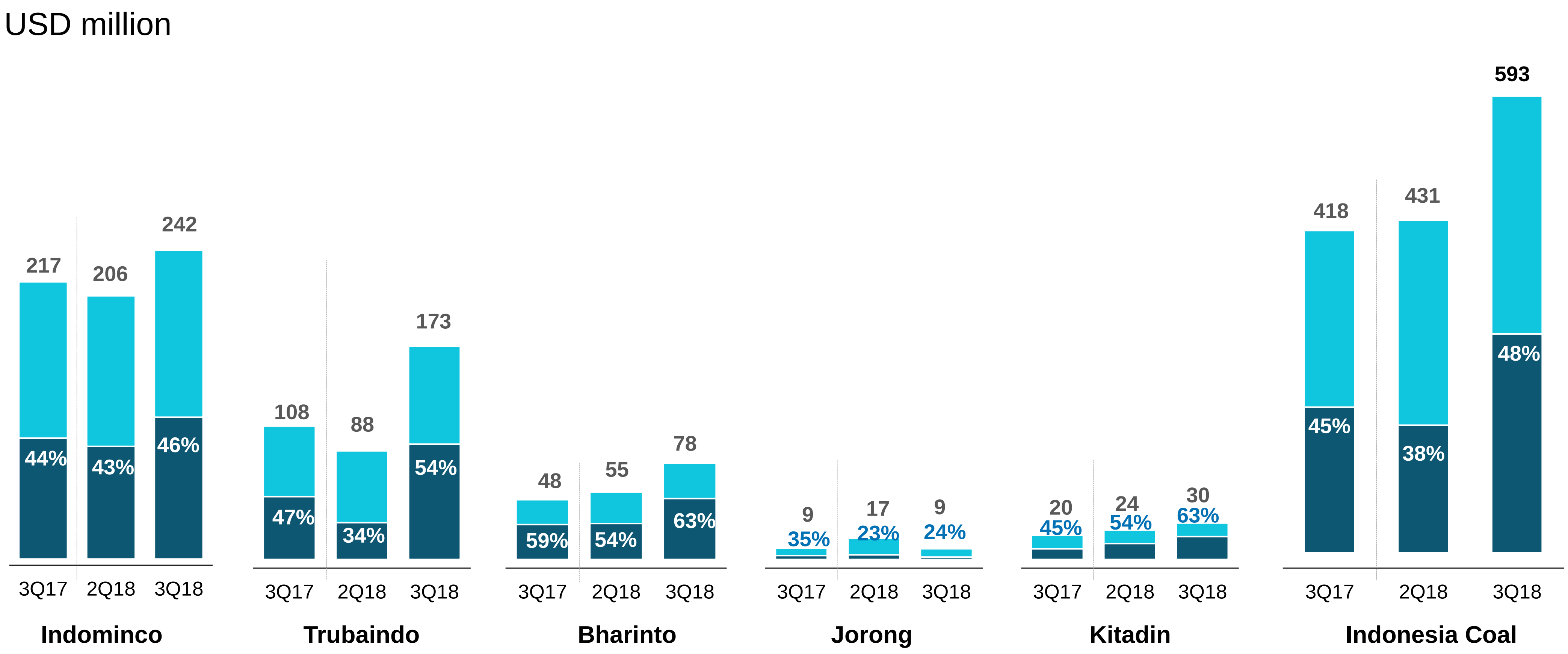




Note: ITM and Centennial revenues are consolidated in Banpu income statement.
Australia Coal – Third party coal sales included.

*NEX = Newcastle Export Index (formerly Barlow Jonker Index or BJI)
It is relevant but not linked to China Coal's ASP

Note: Hebi and Gaohe revenues are not consolidated in Banpu income statement.

# Indonesia coal gross margin 3Q18 : 47%



# Key external and corporate events

## EXTERNAL EVENTS

### INDIRECT

- *Fed increased policy rate to 1.75%-2% range*
- *SET fell by c.28 points or 2% due to concern related to US-China tariff trade war effect*
- *BoT maintains policy rate at 1.5%*
- *Argentina and Turkey currency cries*
- *BoT maintains policy rate at 1.5%*
- *Fed increased policy rate to 2%-2.25% range*

### DIRECT

- *Thai gov. targeted 40% of electricity generation from renewable by 2036*
- *China expanded its coal import restrictions, with several more ports and heavier control*
- *GPSC buys 69.11% of Glow Energy*
- *Indonesia rupiah hit its weakest in last 3 years*

**2Q18** | **3Q18**

## CORPORATE EVENTS

- *1Q18 results presentation*
- *Banpu Infinergy and Phuket City to jointly develop Phuket Smart City*
- *TRIS rating assigned A+ rating to US$50 M senior unsecured debt*
- *2Q18 results presentation and launch of new Banpu brand*
- *Banpu and BPP dividend XD date*

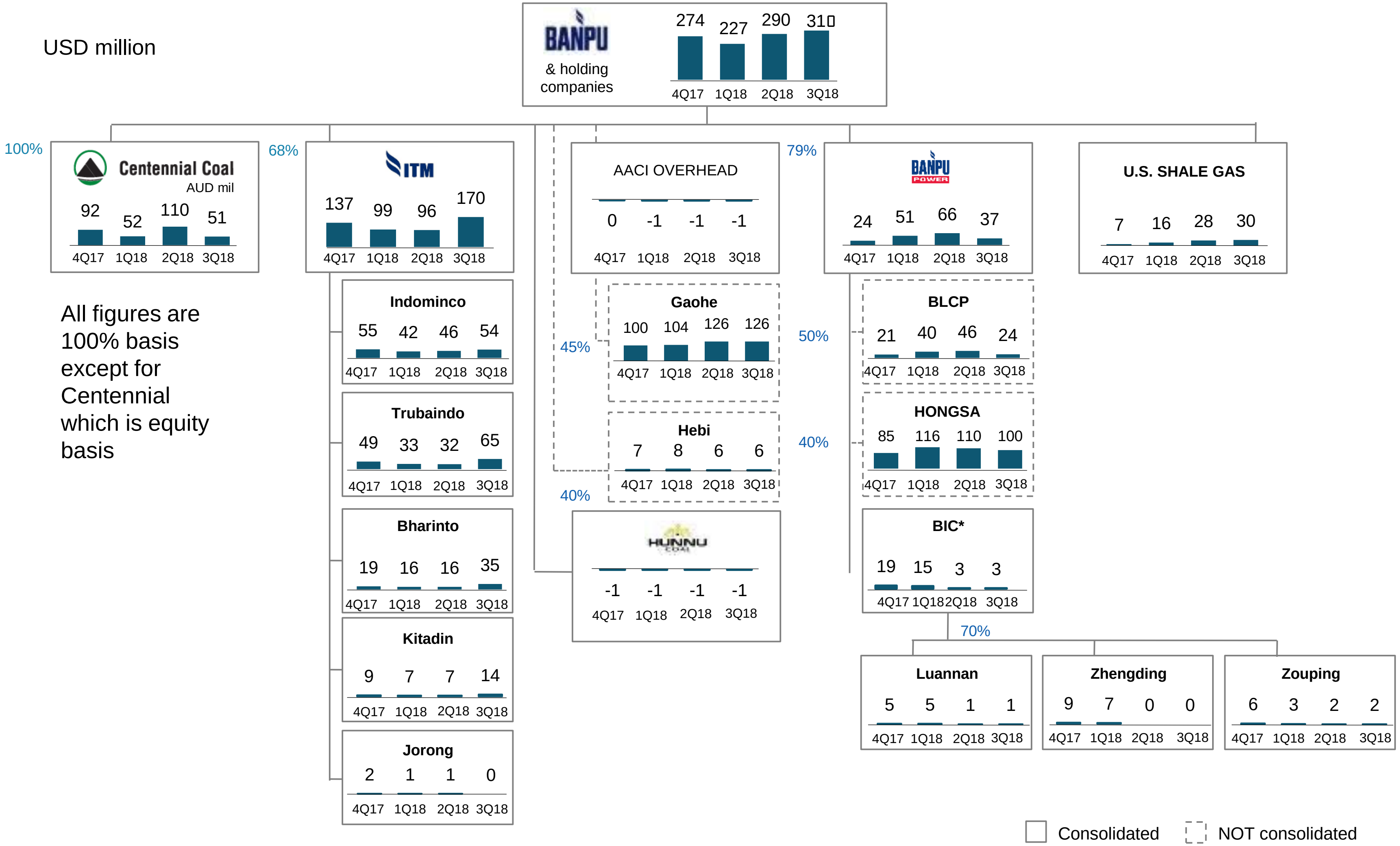
# Fx impact analysis guidance on P&L

| CURRENCY EXPOSURE | NPAT IMPACT 2Q18 (US$M) | APPROXIMATE FX EXPOSURE (US$M) NET LIABILITY / NET ASSET | NPAT 5% SENSITIVITY 3Q18 (US$M) *Assuming 5% depreciation of local currencies against USD* |
|---|---|---|---|
| **Banpu: THB bond and others** | -23.0 | -950 | 55 |
| **ITMG: IDR asset and liabilities** | -3.7 | -80 | -2.5 |
| **CEY: USD asset** | 1.8 | 15 | 0.8 |
| **Net** | -24.9 | | 53 |

- *BOT forecast growth 4.4% in 2018 and 4.2% in 2019*
- *BI forecast 2018 growth lower range of 5.0-5.4%.*
- *RBA forecast 2018 - 2019 growth 3.5%*

# Banpu group EBITDA breakdown

USD million



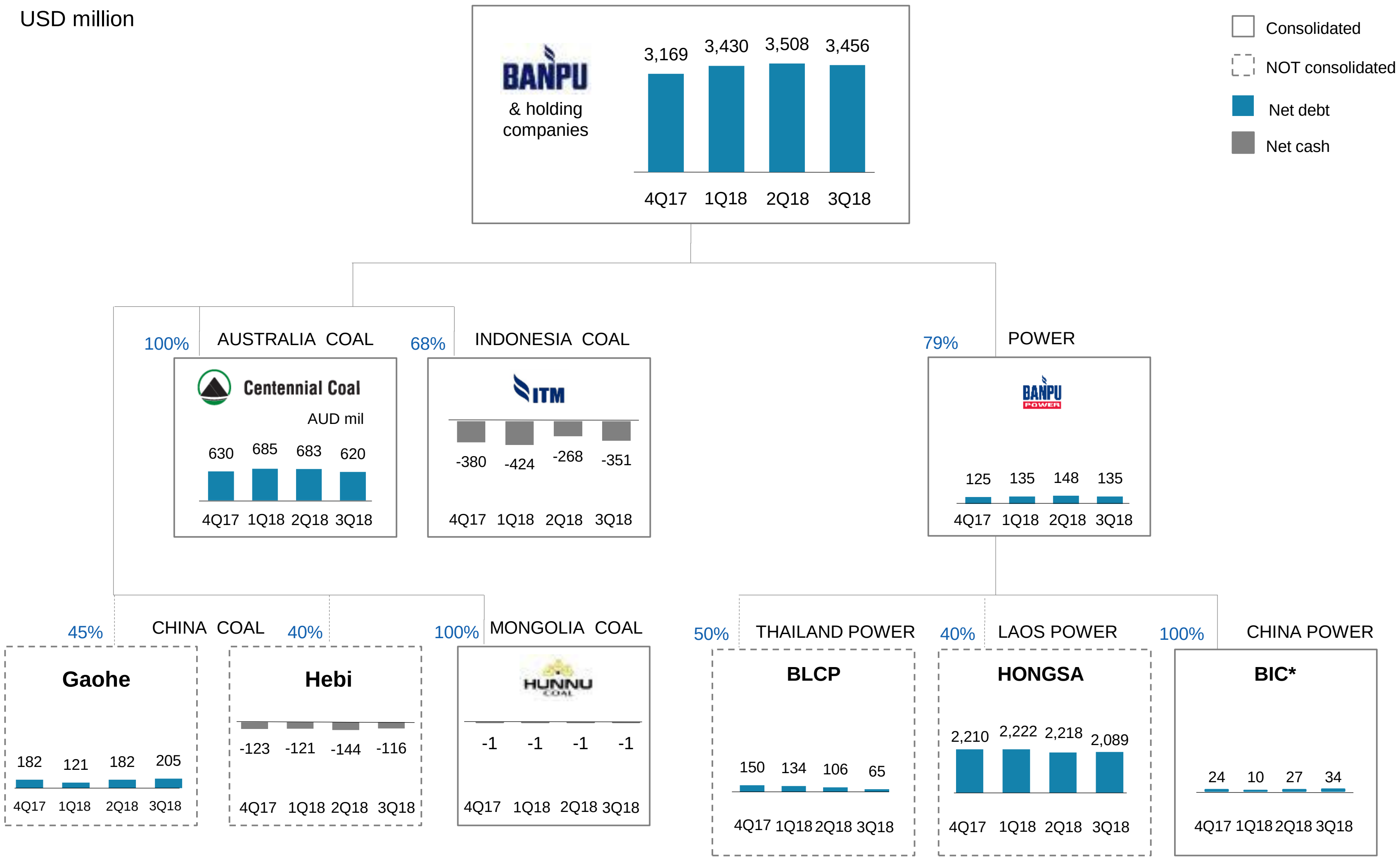

All figures are 100% basis except for Centennial which is equity basis



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

| | 3Q18 | 2Q18 | 3Q17 | QoQ% | YoY% |
|---|---|---|---|---|---|
| **Total sales revenues*** | **965** | **813** | **720** | 19% | 34% |
| Sales revenues – Coal | 846 | 706 | 669 | 20% | 27% |
| Sales revenues – Power | 37 | 43 | 40 | -14% | -8% |
| Sales revenues – Gas | 39 | 35 | 8 | 11% | 389% |
| **Cost of sales** | (609) | (521) | (422) | | |
| **Gross profit*** | **356** | **292** | **298** | 22% | 20% |
| Gross profit – Coal | 329 | 263 | 285 | 25% | 15% |
| Gross profit – Power | 6 | 6 | 7 | 0% | -16% |
| Gross profit – Gas | 20 | 16 | 3 | 23% | 541% |
| ***GPM*** | ***37%*** | ***36%*** | ***41%*** | | |
| *GPM – Coal* | *39%* | *37%* | *43%* | | |
| *GPM – Power* | *16%* | *15%* | *18%* | | |
| *GPM – Gas* | *52%* | *47%* | *39%* | | |



Note: * including other businesses

# Banpu consolidated : operating profit

USD million

| | 3Q18 | 2Q18 | 3Q17 | QoQ% | YoY% |
|---|---|---|---|---|---|
| **Gross profit*** | **356** | **292** | **298** | 22% | 20% |
| ***GPM*** | ***37%*** | ***36%*** | ***41%*** | | |
| SG&A | (84) | (92) | (75) | | |
| Royalty | (84) | (64) | (68) | | |
| Income from associates | 66 | 93 | 60 | | |
| Other income and Dividend | 5 | 6 | 5 | | |
| Mining property | (8) | (12) | (15) | | |
| **EBIT** | **249** | **224** | **205** | 11% | 22% |
| EBIT - Coal | 202 | 151 | 172 | 34% | 17% |
| EBIT - Power | 32 | 61 | 31 | -47% | 3% |
| EBIT - Gas | 16 | 13 | 2 | 23% | 777% |
| **EBITDA** | **310** | **290** | **263** | 7% | 18% |
| EBITDA - Coal | 243 | 196 | 222 | 24% | 10% |
| EBITDA - Power | 37 | 67 | 35 | -44% | 5% |
| EBITDA - Gas | 30 | 27 | 6 | 11% | 427% |



Note: * including other businesses

# Banpu consolidated : net profit

USD million

| | 3Q18 | 2Q18 | 3Q17 | QoQ% | YoY% |
|---|---|---|---|---|---|
| **EBIT** | **249** | **224** | **205** | 11% | 22% |
| Interest expenses | (43) | (43) | (35) | | |
| Financial expenses | (2) | (2) | (1) | | |
| Income tax (core business) | (43) | (20) | (28) | | |
| Minorities | (36) | (27) | (27) | | |
| **Net profit before extra items** | **126** | **132** | **115** | -5% | 10% |
| Non-recurring items* | (3) | (3) | (18) | | |
| Gain (Loss) on Derivatives Transactions | (29) | (3) | (15) | | |
| Income tax (non - core business) | (0) | (1) | (4) | | |
| Deferred tax income (expenses) | 7 | (38) | 0 | | |
| **Net profit before FX** | **101** | **88** | **78** | 15% | 29% |
| FX translations | (25) | 37 | (17) | | |
| **Net Profit** | **76** | **124** | **61** | -39% | 25% |
| EPS (US$/share) | 0.015 | 0.024 | 0.012 | | |



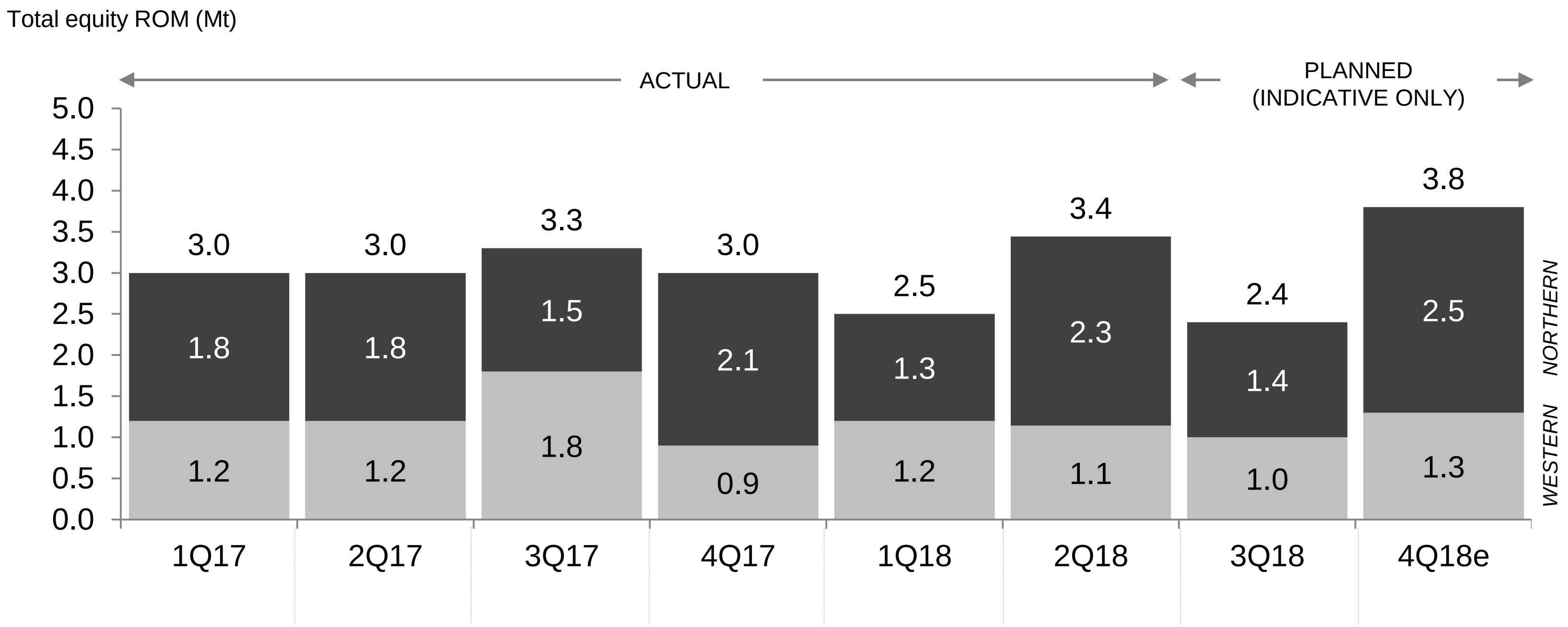
Note: * income from non-core assets and other non-operating expenses

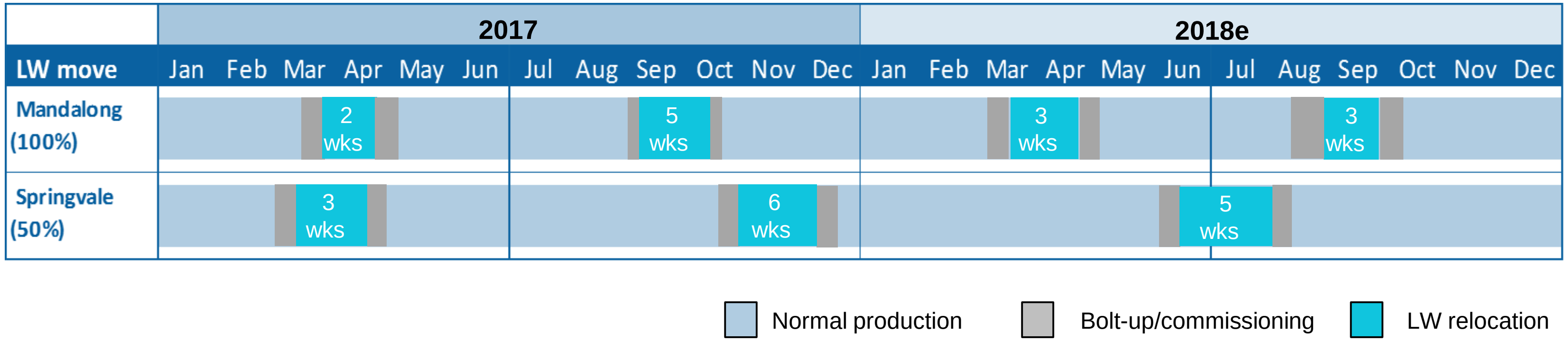
# Centennial : income statement

USD million

| | 3Q18 | 2Q18 | 3Q17 | QoQ% | YoY% |
|---|---|---|---|---|---|
| **Sales volume (Mt)** | **3.4** | **4.0** | **3.4** | -15% | -1% |
| Sales revenue | 248.4 | 288.0 | 241.4 | -14% | 3% |
| Cost of sales | (200.4) | (187.4) | (145.6) | | |
| **Gross profit** | **48.0** | **100.5** | **95.7** | -52% | -50% |
| *GPM* | *19%* | *35%* | *40%* | | |
| SG&A | (16.4) | (30.5) | (30.4) | | |
| Royalty | (13.9) | (15.2) | (16.3) | | |
| Other income | 1.9 | 1.8 | 1.3 | | |
| Other expenses | - | - | - | | |
| **EBIT** | **19.6** | **56.7** | **50.4** | -65% | -61% |
| Interest expenses | (6.1) | (6.4) | (6.3) | | |
| Financial expenses | (1.2) | (1.6) | (0.2) | | |
| Gain (loss) on exchange rate | 1.8 | 0.9 | (1.5) | | |
| Gain (loss) on derivative | (9.3) | (2.9) | (11.1) | | |
| Corporate income tax | - | - | - | | |
| Deferred tax income | (1.1) | (14.4) | (9.2) | | |
| **Net profit** | **3.8** | **32.3** | **22.1** | -88% | -83% |

# Australia coal: quarterly equity rom output




Note: 1 Bar width is indicative of the equity production contributions to Centennial
2 Production generally responds to the timing of longwall changeovers (i.e. lower production results during a longwall changeover period)
3 Angus Place was put on care and maintenance from February 2015.

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