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Qualified petroleum reserve and resources evaluator: This Presentation contains information on petroleum reserves and resources which is based on and fairly represents information and supporting documentation reviewed by Mr Andrew Thomas who is a full time employee of Cooper Energy holding the position of General Manager, Exploration & Subsurface, holds a Bachelor of Science (Hons), is a member of the American Association of Petroleum Geologists and the Society of Petroleum Engineers and is qualified in accordance with ASX Listing Rule 5.41 and has consented to the inclusion of this information in the form and context in which it appears.

Reserves and Contingent Resources estimates: Information on the company's reserves and resources and their calculation are provided in the appendices to this presentation.

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Currency: All financial information is expressed in Australian dollars unless otherwise specified.

P50 as it relates to costs is best estimate; P90 as it relates to costs is high estimate



# Cooper Energy gas strategy: focussed on south-east Australia

Portfolio driven by gas market analysis & assets selected on strict investment metrics

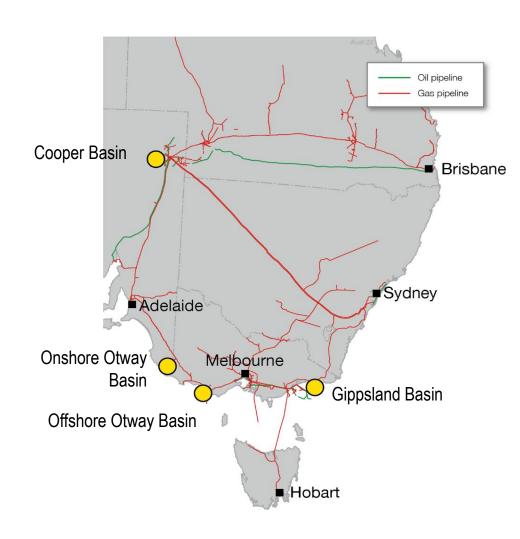
## Demand & supply analysis conducted 2012-2013

#### Identified that:

- south-east Australia would be seeking new gas supply
- supply opportunities to emerge from 2018
- projects in south-east Australia would be the most competitive supply source for gas demand in south-east Australia

## Asset acquisition/investment criteria

- Return Suitable return for risk?
- Competitiveness Does the asset possess a superior position on delivered cost to the customer?
- Likelihood Is development foreseeable within 5 years?
- Value accretive The asset must add value to Cooper Energy and/or present the opportunity for Cooper Energy to add value

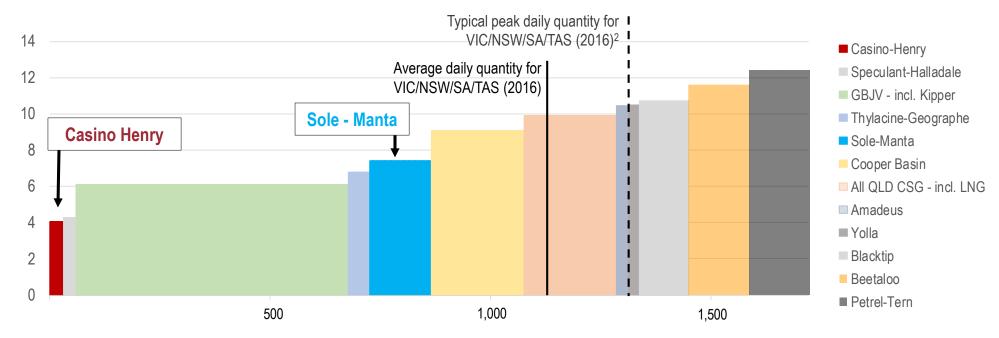




# South-east Australia<sup>1</sup> gas supply costs in 2020\*

## Cooper Energy projects are cost competitive for south-east Australia

# Delivered Melbourne city gate cost for gas from eastern Australia available for delivery to domestic market in 2020\* AUD / GJ



Gas available for supply to Victoria, New South Wales, South Australia and Tasmania 2020 (TJ/day)

\* Note: all estimates are as calculated by EnergyQuest and based on known capital expenditure to date, which may exceed cost to the current project owner(s).

Source: EnergyQuest

- Delivered Melbourne city gate gas cost in 2017 AUD based on economic upstream cost (including acceptable return) and pipeline charge
- Average daily volume determined by upstream reservoir & facilities capacity and taking account of pipeline capacities, from known gas reserves and resources with access
  to infrastructure and anticipated to be available in 2020/21
- Excludes gas that may be available from storage



<sup>&</sup>lt;sup>1</sup> South-east Australia comprises New South Wales, Victoria, South Australia and Tasmania

<sup>&</sup>lt;sup>2</sup>Cooper Energy estimate. Represents 75th percentile of 2016 daily gas flows

# Cooper Energy today: focussed on south east Australia

305 PJ 2P + 158 PJ 2C conventional gas & exploration acreage close to markets & infrastructure

## Cooper Basin: oil production

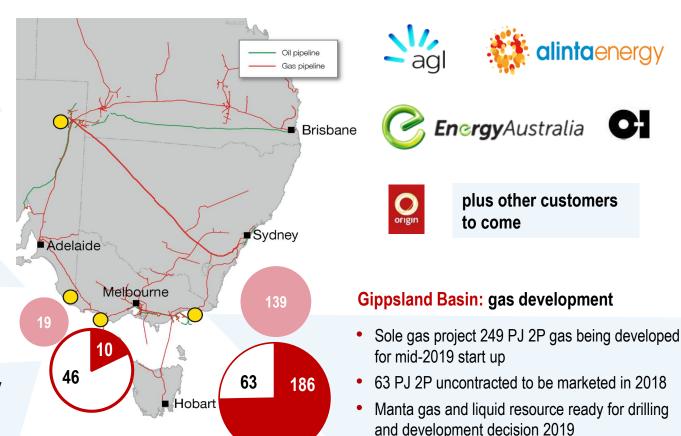
- historical production source
- production of ~250 kbbl oil pa
- low cost operations

## **Otway Basin onshore:** gas exploration

- gas exploration acreage
- extends over Sawpit sandstone fairway and surrounds Haselgrove discovery

# **Otway Basin offshore:** gas production and exploration

- 2018 production fully contracted to Origin Energy
- 46 PJ uncontracted to supply from 2019
- Minerva gas plant
- Prime gas exploration acreage with favourable economics





2P Reserves contracted



2P Reserves uncontracted



2C Contingent resources uncontracted



# Cooper Energy gas production outlook

## Rising to 35 PJ pa on fully funded current projects, with upside to 56 PJ pa by FY22

#### Reserves and resources:

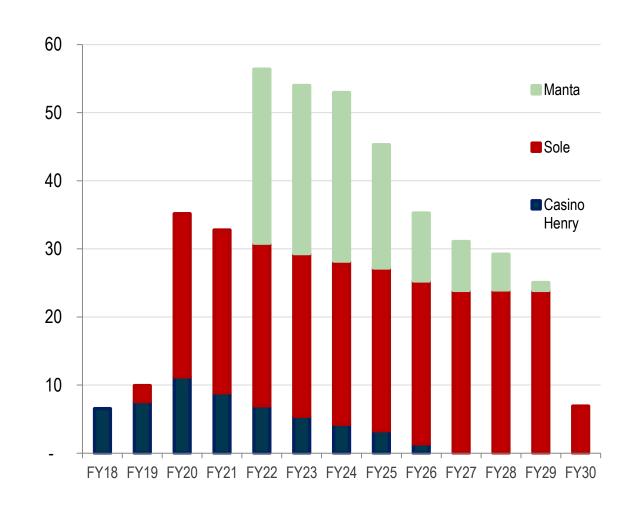
305 PJ of 2P gas plus 158 PJ 2C

## **Production profile**

- Production to rise to 35 PJ pa in 2 years to FY20 (Sole + Henry development)
- Manta project takes production to 56 PJ pa in FY22 (subject to appraisal well and FID)

## **Exposure to south-east Australian gas**

- 109 PJ uncontracted 2P reserves.
- 158 PJ 2C gas
- Contracts held with AGL, EnergyAustralia, Origin, Alinta and O-I
- Negotiated 5 term gas contracts since 2015
- Marketing gas from mid-2018





Indicative and assumes:

- Sole proceeds to schedule for March quarter 2019 first Sole gas to plant
- Manta 3 appraisal well
- Development well required for Casino Henry
- No new exploration success

All numbers rounded.

\* Profile is indicative and comprises 56 PJ 2P Casino Henry gas and 249 PJ 2P Sole gas and 116 PJ from Manta. Profile illustrated includes additional 11 PJ Risked Prospective resource anticipated from Manta. Cooper Energy announced Manta Contingent and Prospective Resource 16 July 2015. Cooper Energy is not aware of any new information or data that materially affects the information provided in those releases and all material assumptions and technical parameters underpinning the assessment provided in the announcement continues to apply.

# Gippsland Basin

## Cost competitive resource, existing plant and Sole production planned for FY19

## Sole gas project 100% equity and operator

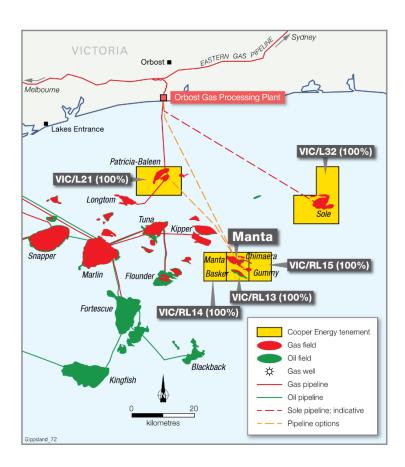
- 249 PJ 2P gas field being developed to supply gas from mid-2019
- FID 29 August 2017, project proceeding to schedule, upstream project 40% complete end-March

## Manta 100% and operator

- 106 PJ 2C gas plus 3.2 MMbbl liquids,
- Second stage development to Sole, processing at Orbost Gas Processing Plant agreed
- Economics enhanced by cost discovery from Sole FEED and gas price and demand expectations
- Working towards appraisal well in FY20

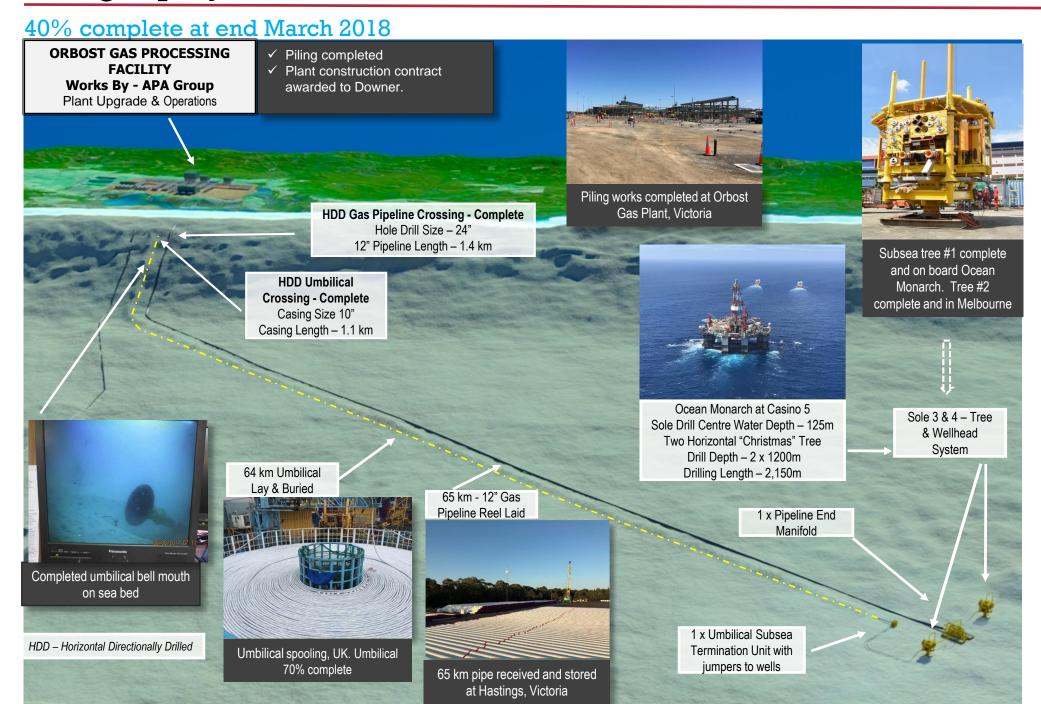
# Sole gas production: contracted and uncontracted $\mbox{\rm PJ}$ $\mbox{\rm pa}$





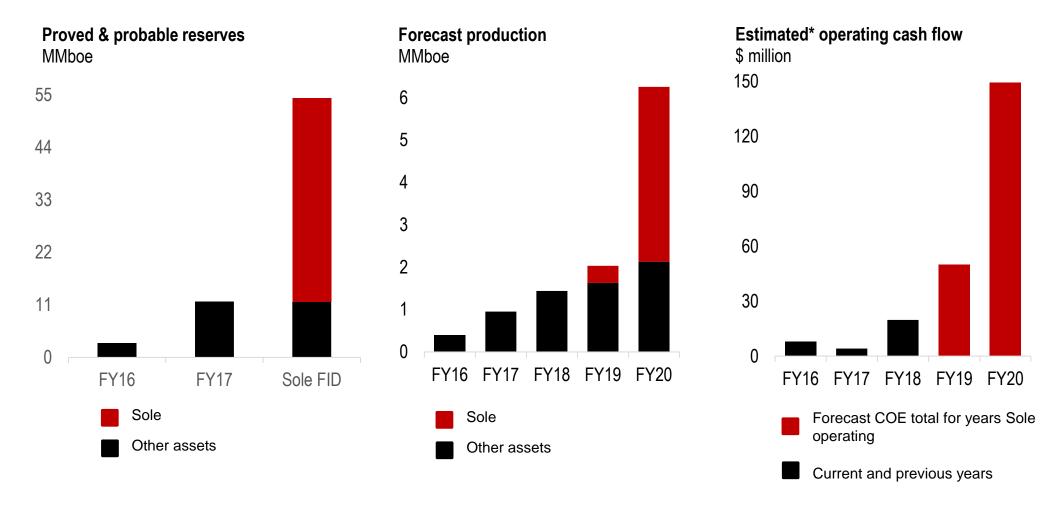


# Sole gas project



# Impact of Sole on Cooper Energy

Transformational impact on reserves and expected production and cash flows

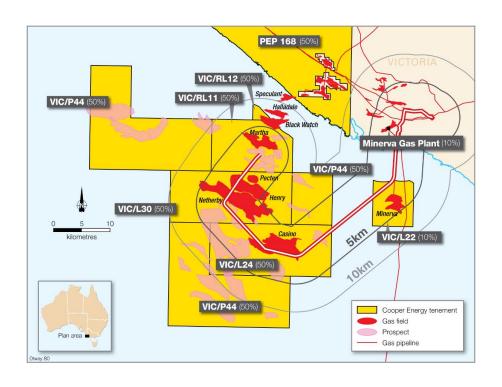




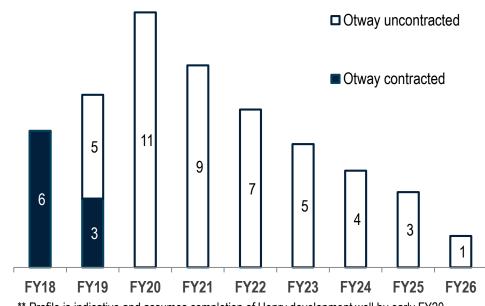
<sup>\*</sup> Average of analyst estimates for years FY18-FY20. Averages of analyst estimates displayed are not Cooper Energy estimates and accordingly should be regarded as indicative and not as company estimates.

# Offshore Otway Basin

## Gas production, development, marketing and exploration



# Indicative Casino Henry gas production\*\* PJ pa Cooper Energy 50% share



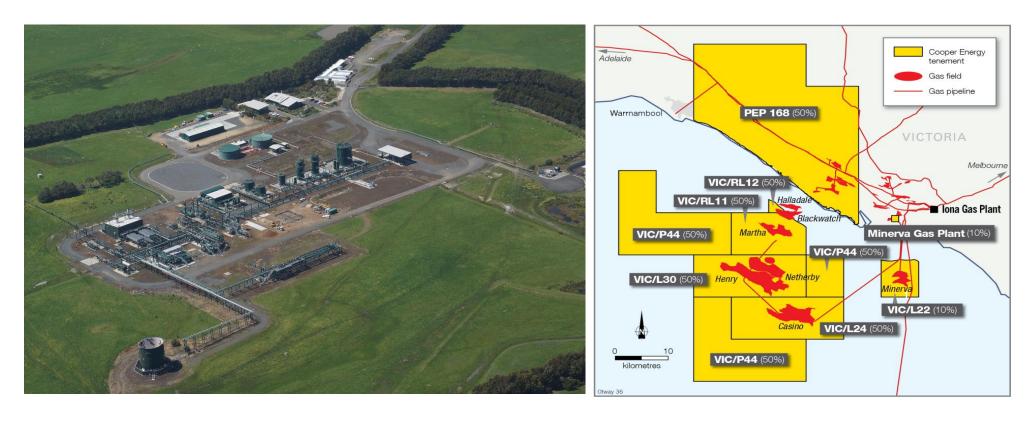
\*\* Profile is indicative and assumes completion of Henry development well by early FY20

- Current production and sales: contracted to Origin Energy to December 2018, processing at Iona
- Development to increase production: Casino-5 workover in progress; Henry development well proposed for mid CY19
- Marketing uncontracted gas: Uncontracted gas from Jan 2019 to be marketed in H2 CY18
- **Exploration:** highly prospective for gas, high success rate, currently reprocessing seismic to identify targets to propose for drilling in 2019/20; target sizes 30 PJ to 300 PJ
- Existing infrastructure: supportive of development, pipelines and access to gas processing plant



## Minerva Gas Plant

## Ideally located, owned 90% BHP and 10% Cooper Energy



- BHP built and operated gas plant
- 150 TJ/day capacity, plus liquids handling capability
- Processing gas from Minerva gas field of approx 40 TJ/day; Minerva gas field approaching end of life



# Otway Basin, Penola Trough onshore

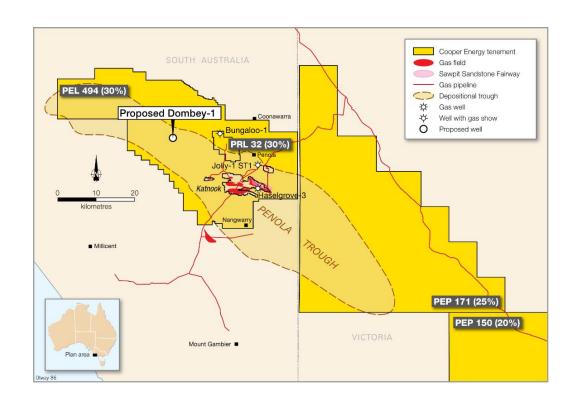
## Haselgrove drilling results confirm prospectivity for deep conventional gas

#### **South Australia**

- Haselgrove-3 discovery in adjoining PPL 62 confirmed conventional gas prospectivity of the Sawpit sandstone at depths below previous producing reservoirs
- SA government grant to PEL 494 JV (Cooper Energy 30% interest) of \$6.9 million awarded to drill Dombey-1 gas exploration well. Expected FY19.

#### **Victoria**

- Prospectivity of Penola Trough acreage upgraded by Haselgrove-3 discovery
- Cooper Energy to assume 100% of PEP 171 and 50% of PEP 150 on government ratification
- Exploration permits in Victoria subject of application to suspend and extend due to state government moratorium on onshore gas production





# Portfolio style business built around Gippsland and Otway hubs

Plans escalating with gas contracting and capex around 2 hubs best placed for supply to south-east Australia

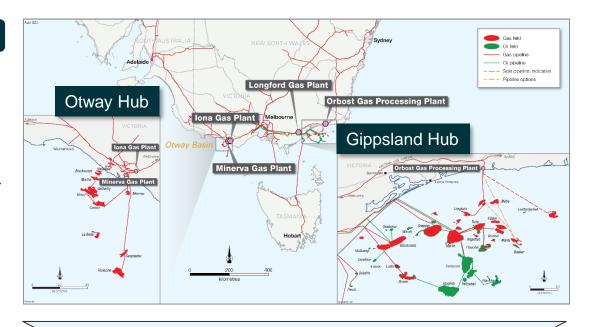
## Otway: offshore & onshore

#### 2018:

- Casino-5 workover
- Onshore exploration in Penola Trough: Dombey-1
- Marketing uncontracted gas for supply from 2019
- Minerva production test

#### 2019 & 2020:

- Drill Henry development well
- Drill 2 to 3 offshore exploration wells
- Onshore follow-on



## Delivering:

## Gippsland

#### 2018:

- Sole gas project
- Marketing uncontracted Sole gas
- Evaluating other opportunities

#### 2019 & 2020:

- Sole gas project start-up
- Drill Manta-3
- Other opportunities



- ► A superior balance of prices for customers and returns for shareholders
  - enabled by competitive supply cost, operations and capabilities



# Offshore drilling program schedule

## Casino workover in progress, Sole production wells scheduled for completion in June

Location	Project	March	April	May	June	July
Otway	Casino-5 workover					
	Sole-3 drill & complete					
	Sole-4 drill & complete					
Gippsland	Sole-2 abandonment					
	BMG abandonment					First phase

- March/April: Casino-5 workover
- April/May: Sole-3 production well drill and complete
- May/June: Sole-4 production well drill and complete
- June/July: Sole-2 abandonment
- July: BMG abandonment (first phase)





Diamond Offshore Ocean Monarch

# Wrap-up

Established east coast gas business approaching production ramp-up and cash inflection point with new opportunities being developed

Sound cash generating existing business

- Established operations generating cash
- Strong balance sheet with senior bank funding
- Experienced management, Operator of key licences offshore Victoria

East coast gas exposure

- Gas projects, production, contracts and reserves focussed on supply to south-east Australia
- Marketing of uncontracted gas for supply from 2019 to commence from mid 2018

6X growth fully funded

- Poised for 6 times growth in annual production to FY20 through fully funded projects, Sole & Henry
- Cash generation to surge from commencement of Sole production in FY19

Sole gas project

- Sole project is proceeding within schedule and budget
- Milestones in May and June with drill and complete of production wells

'Next wave' growth

- Preparing for FY19 drilling campaign featuring exploration, appraisal and development drilling in Otway Basin and Gippsland (Manta) assets
- Additional upside emerging in the onshore Otway, Dombey-1 to spud in current calendar year



# **Appendices**



# Cooper Energy - assets

## Portfolio built around winning position on cost curve

\$203.8 million

1,601.1

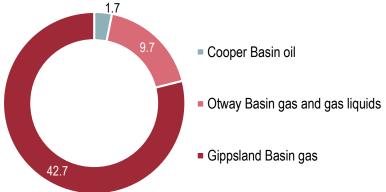
# Key statistics\*Proved & Probable Reserves54.1 MMboeContingent Resources (2C)34.9 MMboeProduction FY18 guidance1.4 MMboeMarket capitalisation\$500 million

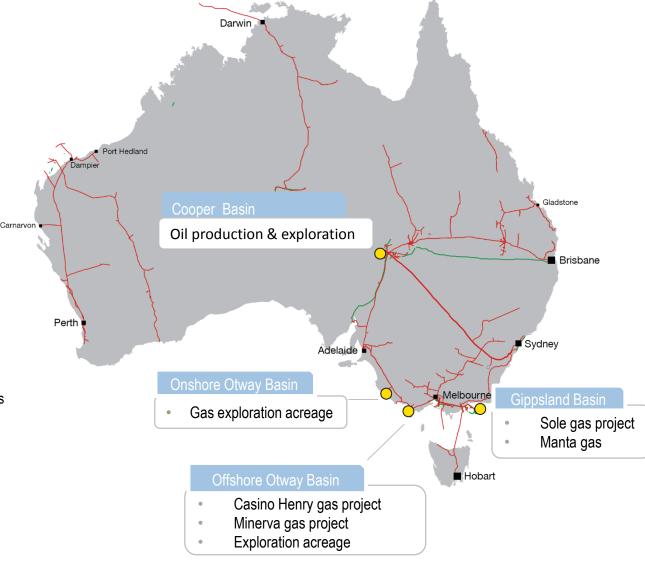
Proved & Probable Reserves

Issued share capital (million)

Net cash/(debt)

54.1 MMboe



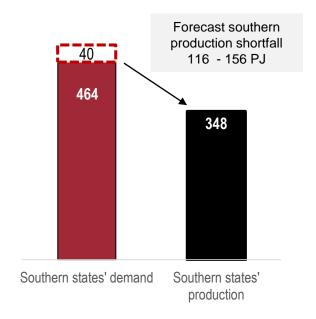




# ACCC view of supply and pricing for south-east Australian gas

Forecast gas demand exceeds forecast local production ...

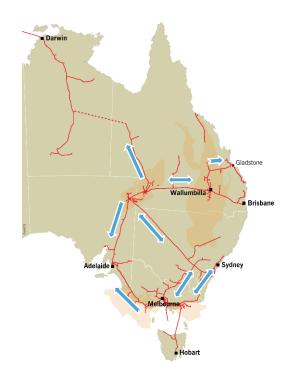
Southern states\* gas demand & supply balance 2018 PJ



<sup>\*</sup> Excludes Cooper Basin Source: ACCC Gas Inquiry 2017-2020 Interim Report December 2017

...necessitating supply from northern fields...

Gas flows



...the delivered cost of which is the price benchmark, which will be affected by oil & LNG prices

# Delivered 2018 gas prices A\$/GJ at southern demand centres based on Queensland benchmark prices

Demand Centre	Transportation ex-Wallumbilla	Delivered prices using benchmark range
Adelaide	1.85	7.72 - 9.70
Sydney	2.07	7.94 - 9.92
Melbourne	2.45	8.32 - 10.30

Source: ACCC Gas Inquiry 2017-2020 Interim Report December 2017 – which assumes US\$6/mm Btu to US\$7.50/mm Btu Asia LNG price



R

# Sole gas project: the field

## Simple, well-defined structure with good reservoir quality

## **Shallow depth**

 Reservoir at shallow depths below the sea floor - mapped depth to top of gas column is 745 m subsea, maximum gas column height is 71.5 m

## Well defined, simple structure

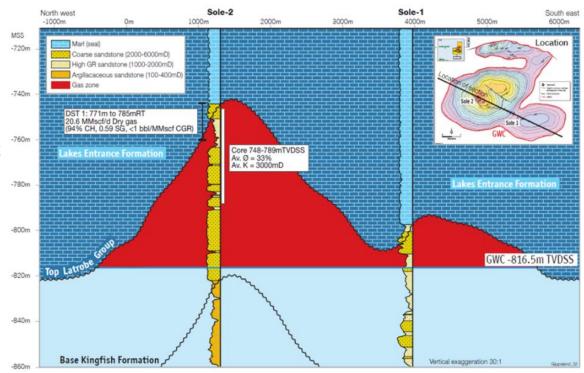
- Reservoir well defined high structural confidence as direct hydrocarbon indicator coincides with the gas-water-contact (GWC)
- Field simple four way dip closed structure with excellent seismic definition

## **Excellent porosity and permeability**

- Average porosity greater than 30%
- Permeability greater than 1 darcy

## Composition

- H<sub>2</sub>S (but no CO<sub>2</sub>) removal required gas contains 1% CO<sub>2</sub>, 0.15% (1500 ppm) H<sub>2</sub>S and less than 1bbl condensate / MMcf
- H<sub>2</sub>S to be removed in plant with proven Thiopaq biological process in operation in the USA



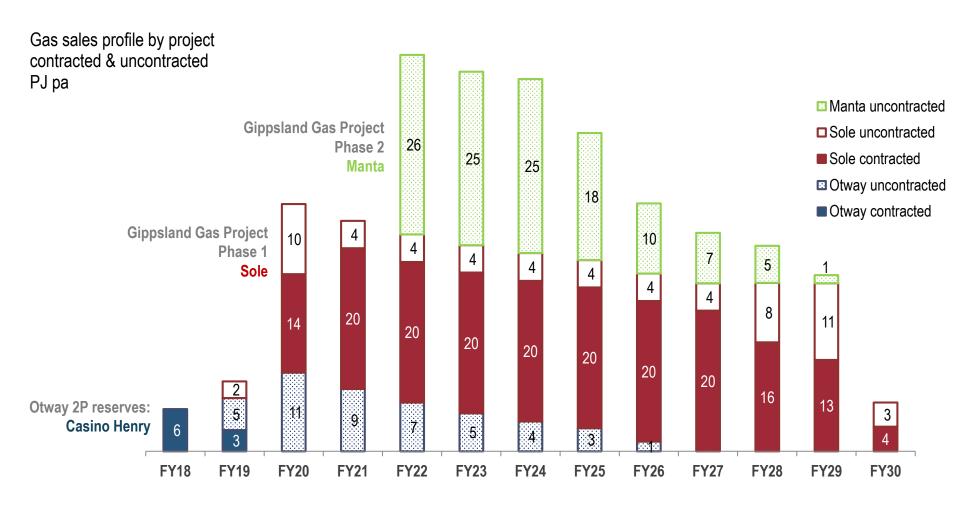
## Discovery & appraisal

- Sole-1 drilled by Shell in 1973 on the flank of the field intersected 16 m of net gas pay in the Palaeocene Kingfish Formation
- Sole-2 drilled by OMV in 2002 near the crest of the structure intersected 68 m net gas pay. Production test flowed gas to surface at 20.6 MMcf/d



# Cooper Energy contracted and uncontracted gas profile\* by project

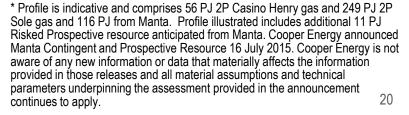
Existing assets & projects offer growth over 5 years before exploration



Indicative and assumes:

- Sole proceeds to schedule for March guarter 2019 first Sole gas to plant
- Manta 3 appraisal well
- Development well required for Casino Henry FY19
- No new exploration success

All numbers rounded.

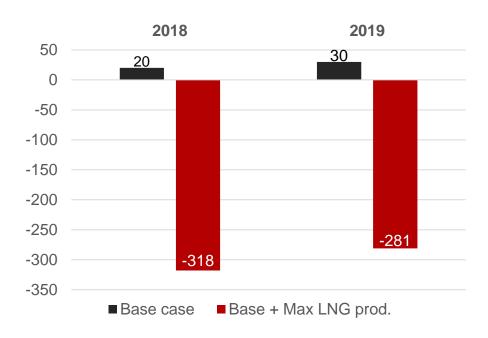




## Gas market outlook for eastern Australia

## Forecast ongoing tight supply supportive of contracting at current prices or better

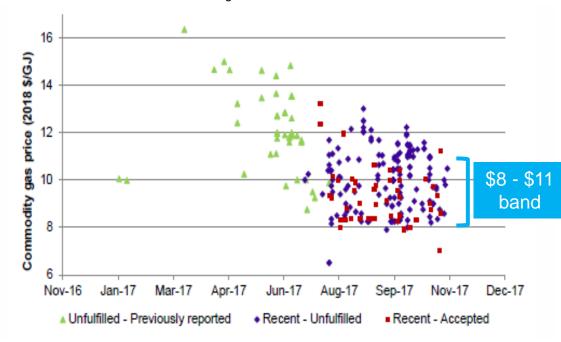
# Forecast eastern Australia gas demand supply balance 2018 – 2019 PJ



Source: ACCC Gas Inquiry 2017 – 2020 Interim Report December 2017

## ACCC analysis of gas prices offered & accepted

Unfilled offers between 1 January 2017 and 14 July 2017 and all subsequent offers up to 9 November 2017 across the east coast gas market



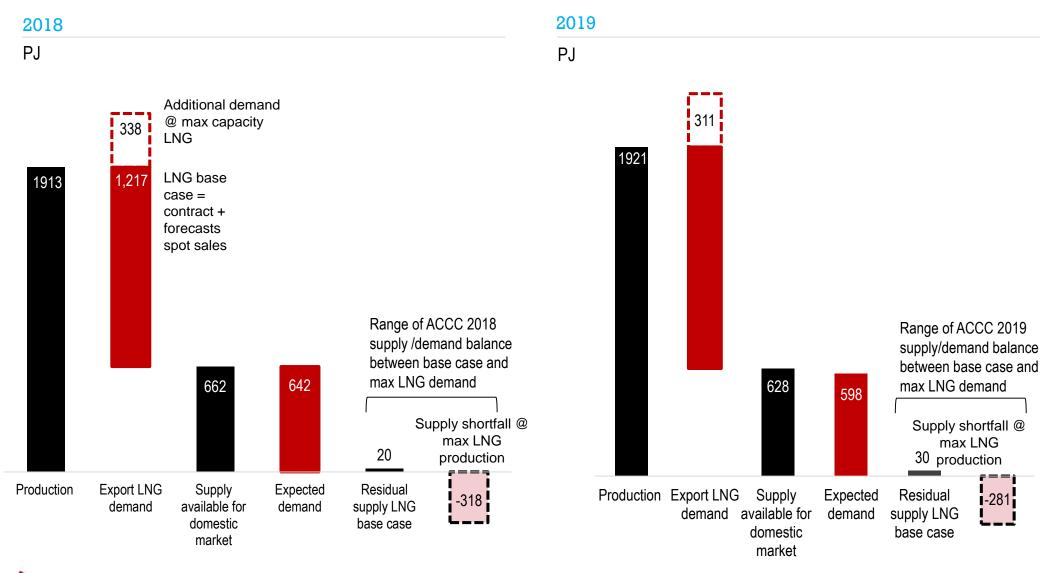
Source: ACCC Gas Inquiry 2017 – 2020 Interim Report December 2017

Note: Offers up to 14 July are for annual quantities of at least 1 PJ; offers after this are for annual quantities of at least 0.5 PJ.



# Forecast eastern Australia gas supply and demand outlook

## Tight market forecast\* for 2018 and 2019





<sup>\*</sup> Source: ACCC Gas Inquiry 2017 - 2020 Interim Report December 2017 ACCC using AEMO Expected Domestic Demand

# Senior management

#### Managing Director David Maxwell

David Maxwell has over 30 years' experience as a senior executive with companies such as BG Group, Woodside and Santos. As Senior Vice President at QGC, a BG Group business, he led BG's entry into Australia, its alliance with and subsequent takeover of QGC. Roles at Woodside included director of gas and marketing and membership of Woodside's executive committee.

#### General Manager, Projects Michael Jacobsen

Michael Jacobsen has over 25 years' experience in upstream oil and gas specialising in major capital works projects and field developments. He has worked more than 10 years with engineering and construction contractors and then progressed to managing multi discipline teams on major capital projects for E&P companies.

#### General Manager, Development Duncan Clegg

Duncan Clegg has over 35 years' experience in upstream and midstream oil and gas development, including management positions at Shell and Woodside, leading oil and gas developments including FPSO, subsea and fixed platforms developments. At Woodside Duncan held several senior executive positions including Director of the Australian Business Unit, Director of the African Business Unit and CEO of the North West Shelf Venture.

# General Manager, Operations Iain MacDougall

lain MacDougall has more than 28 years' experience in the upstream petroleum exploration and production sector. His experience includes senior management positions with independent operators and wide ranging international experience with Schlumberger. In Australia, lain's previous roles include Production and Engineering Manager and then acting CEO at Stuart Petroleum prior to the takeover by Senex Energy.

#### Company Secretary & Legal Counsel Alison Evans

Alison Evans is an experienced company secretary and corporate legal counsel with extensive knowledge of corporate and commercial law in the resources and energy sectors.

Alison has held Company Secretary and Legal Counsel roles at a number of minerals and energy companies including Centrex Metals, GTL Energy and AGL. Ms Evans' public company experience is supported work at leading corporate law firms.

#### Chief Financial Officer Virginia Suttell

Virginia Suttell is a chartered accountant with more than 20 years' experience, including 16 years in publicly listed entities, principally in group finance and secretarial roles in the resources and media sectors. This has included the role of Chief Financial Officer and Company Secretary for Monax Mining Limited and Marmota Energy Limited. Other previous appointments include Group Financial Controller at Austereo Group Limited.

### General Manager, Commercial & Business Development Eddy Glavas

Eddy Glavas has more than 18 years' experience in business development, finance, commercial, portfolio management and strategy, including 14 years in oil & gas. Prior to joining Cooper Energy, he was employed by Santos as Manager Corporate Development with responsibility for managing multi-disciplinary teams tasked with mergers, acquisitions, partnerships and divestitures.

#### General Manager, Exploration & Subsurface Andrew Thomas

Andrew Thomas is a successful geoscientist with over 28 years' experience in oil and gas exploration and development in companies including Geoscience Australia, Santos, Gulf Canada and Newfield Exploration. At Newfield he was SE Asia New Ventures Manager and Exploration Manager for offshore Sarawak.



## Notes on calculation of Reserves and Resources

#### Notes on Calculation of Reserves and Contingent Resources

Cooper Energy has completed its own estimation of reserves and resources in accordance with the definitions and guidelines in the Society of Petroleum Engineers (SPE) 2007 Petroleum Resources Management System (PRMS). All reserves and contingent resources figures in this document are net to Cooper Energy.

Petroleum Reserves and Contingent Resources are prepared using deterministic and probabilistic methods based on information provided by the permit Operators Beach Energy Ltd, Senex Ltd, Santos Ltd, and BHP Billiton Petroleum (Victoria) P/L. Cooper Energy undertook the following analytical procedures to estimate the Reserves: independent interpretation of 3D seismic data; analysis of historical production data to assess accessed gas volumes and future production forecasts; review of the Operator's reservoir and production simulation models to define raw gas recovery consistent with existing processing facilities; and independent probabilistic Monte Carlo statistical calculations to establish the range of recoverable gas. The resources estimate methodologies incorporate a range of uncertainty relating to each of the key reservoir input parameters to predict the likely range of outcomes.

Project and field totals are aggregated by arithmetic summation by category. Aggregated 1P and 1C estimates may be conservative, and aggregated 3P and 3C estimates may be optimistic due to the effects of arithmetic summation. Totals may not exactly reflect arithmetic addition due to rounding.

The information contained in this report regarding the Cooper Energy reserves and contingent resources is based on, and fairly represents, information and supporting documentation reviewed by Mr Andrew Thomas who is a full-time employee of Cooper Energy Limited holding the position of General Manager Exploration & Subsurface, holds a Bachelor of Science (Hons), is a member of the American Association of Petroleum Geologists and the Society of Petroleum Engineers, is qualified in accordance with ASX listing rule 5.41, and has consented to the inclusion of this information in the form and context in which it appears.

#### Reserves

Under the SPE PRMS, reserves are those petroleum volumes that are anticipated to be commercially recoverable by application of development projects to known accumulations from a given date forward under defined conditions. Reserves at 25 August 2017 were announced to the ASX on 29 August 2017. The Otway Basin totals comprise the arithmetically aggregated project fields (Casino-Henry-Netherby and Minerva) and exclude reserves used for field fuel. The Cooper Basin totals comprise the arithmetically aggregated PEL 92 project fields and the arithmetic summation of the Worrior project reserves, and exclude reserves used for field fuel. The Gippsland Basin total comprise Sole field only and is net of fuel gas.

#### **Contingent Resources**

Under the SPE PRMS, contingent resources are those petroleum volumes that are estimated, as of a given date, to be potentially recoverable from known accumulations but for which the applied projects are not considered mature enough for commercial development due to one or more contingencies.

The Contingent Resources at 25 August 2017 assessment includes resources in the Gippsland, Otway and Cooper basins and were announced to the ASX on 29 August 2017 Cooper Energy is not aware of any new information or data that materially affects the information provided in those releases, and all material assumptions and technical parameters underpinning the estimates provided in the releases continue to apply.



## **Abbreviations**

**\$, A\$** Australian dollars unless specified otherwise

**Bbl** barrels of oil

**Boe** barrel of oil equivalent

**EBITDA** earnings before interest, tax, depreciation and amortisation

**FEED** Front end engineering and design

**GJ** Gigajoules

**kbbls** thousand barrels

m metres

MMbbl million barrels of oil

MMboe million barrels of oil equivalent

MMbtu million British Thermal Units

**NPAT** net profit after tax

**PJ** petajoules

TJ terajoules

TRCFR Total Recordable Case Frequency Rate. Recordable cases per million hours worked

**1P reserves** Proved reserves

**2P reserves** Proved and Probable reserves

**3P reserves** Proved, Probable and Possible reserves

**1C, 2C, 3C** high, medium and low estimates of contingent resources

