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

**Cooper Energy finds, develops and commercialises  
oil and gas.**



**We do this with care and strive to provide attractive  
returns for our shareholders and good commercial  
outcomes for our customers.**

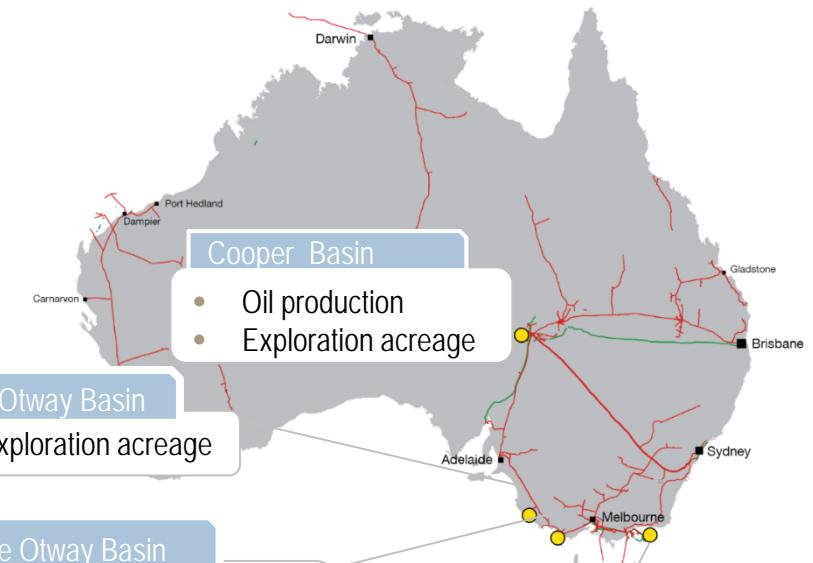
# Snapshot

**Cooper Energy is an ASX 200 E & P company that generates the majority of its revenue from a portfolio purpose-built for gas supply opportunities foreseen emerging in south-east Australia.**

## Key statistics\*

Proved & Probable Reserves	52.4 MMboe
Contingent Resources (2C)	34.9 MMboe
Market capitalisation	\$859 million
Net debt	\$32.3 million
Issued share capital (million)	1,621.6

\* Reserves and resources as at 30 June 2018, net debt as at 31 March 2019 and issued share capital and market capitalisation as 18 June 2019



### Onshore Otway Basin

- Gas exploration acreage

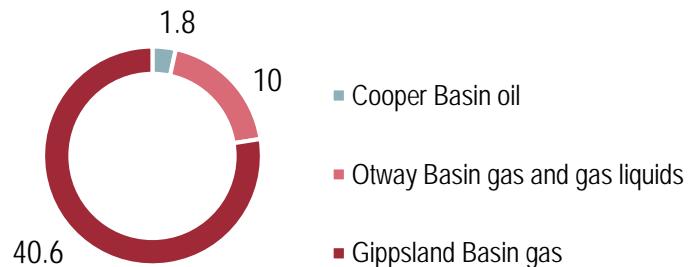
### Offshore Otway Basin

- Casino Henry gas operations
- Minerva gas field and plant
- Exploration acreage

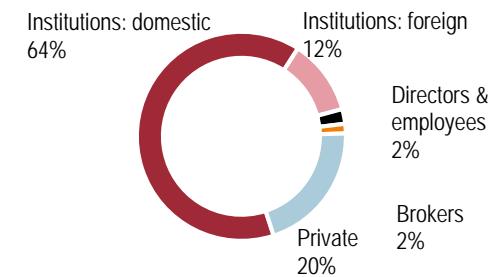
### Gippsland Basin

- Sole Gas Project
- Manta gas resource
- Exploration acreage

### Proved & Probable Reserves 52.4 MMboe at 30 June 2018



### Shareholders by type at April 30 2019

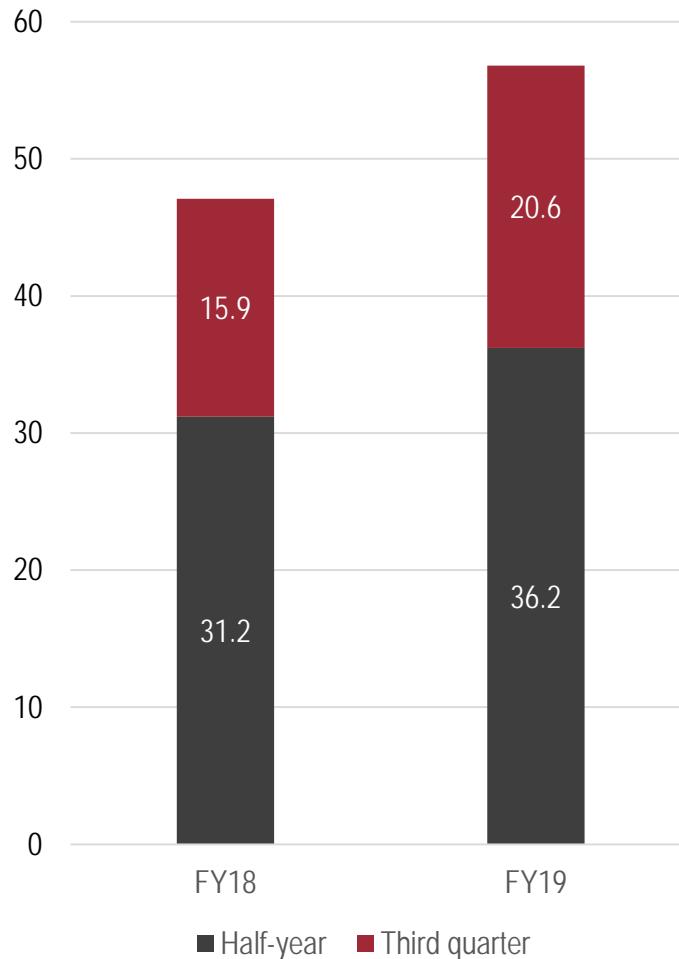


# Update on recent developments

## Revenue up, Sole moving to completion, gas exploration and contracts

Sales revenue YTD to 31 March

\$ million



### Financial

- March quarter revenue up 43%; new gas contracts commenced 1 Jan 2019
- March YTD sales revenue up 21%
- Full year production expectation 1.3 MMboe (FY18 full year: 1.5 MMboe)

### Development

- Sole Gas Project taken to 99% complete and within budget
- Offshore project construction completed. Pipeline repair and hydrotest conducted
- APA advise Sole start-up within September quarter
- Casino Henry umbilical repair completed in May as planned; Netherby-1 production restored

### Exploration

- Offshore Otway campaign: rig handover late July
- Onshore Otway: Dombey-1 expected in July

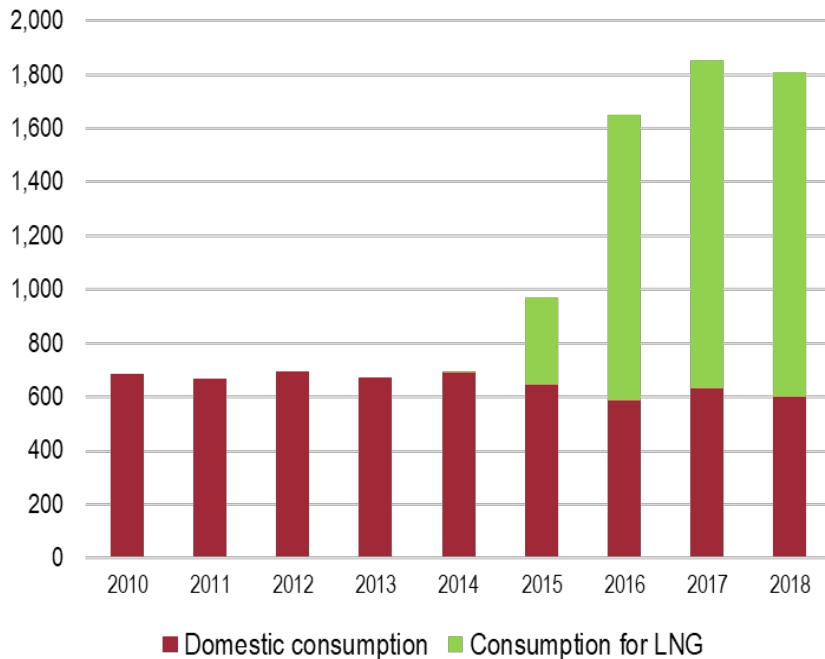
### Gas marketing

- New gas contracts announced with AGL for Sole gas and Casino Henry
- Further negotiations ongoing

# Strategy origins

Value-creation opportunity identified in 2012 for gas supply to south-east Australia

Eastern Australian gas consumption  
PJ pa



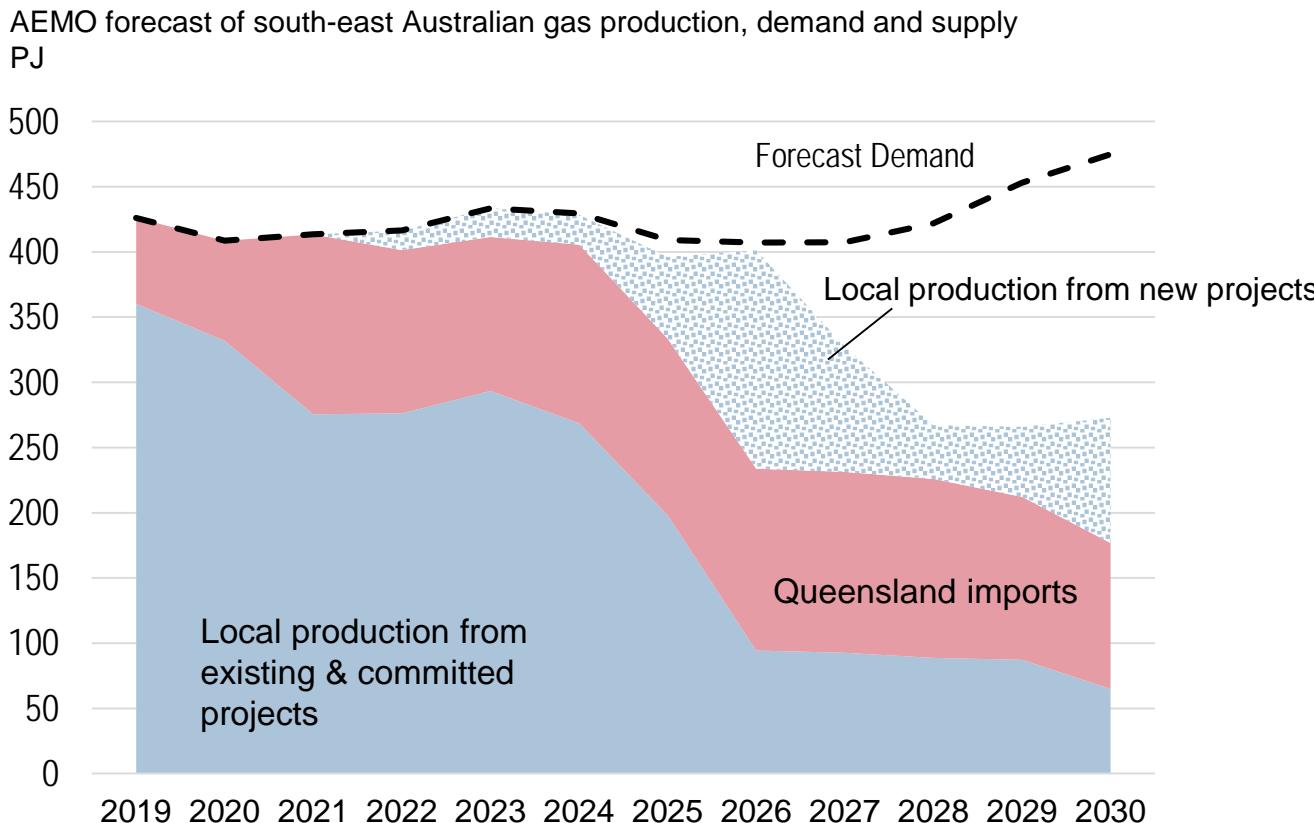
Source: AEMO



Forecast gap between available supply and forecast demand identified as business building opportunity

# Gas market outlook

Gap between local production and supply creating favourable market for south-east Australian gas



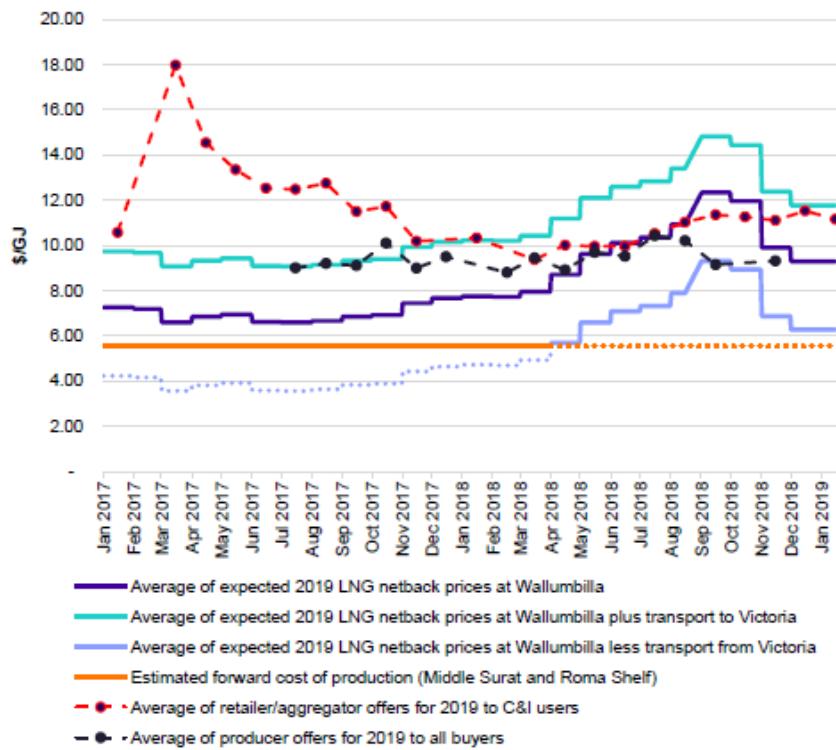
- South-east Australia is reliant on Queensland gas to meet shortfall between local production and local demand
- Queensland providing ~70 PJ in 2019-20 then over 100 PJ pa
- Cost of Queensland gas delivered to south-east Australia is setting gas price
- Good market opportunities for gas from south-east Australian resources

Source: AEMO, Gas Statement of Opportunities 2019

# Southern states gas prices: ACCC view

## Gas price and LNG netback trend

Average monthly commodity prices offered for 2019 supply against contemporaneous expectations of 2019 LNG netback prices (southern states)



## 2020 expected prices

Expected 2020 wholesale gas commodity prices in the East Coast Gas Market (under GSAs executed between 31 August 2018 and 23 January 2019)

Expected 2020 wholesale gas commodity prices*	Avg price \$/GJ	Price range \$/GJ
Producers (Vic & SA)	9.77	8.92 - 10.97
Producers (QLD)	8.92	7.75 - 9.58
Retailer (NSW, Vic, Qld)	10.05	9.44 - 10.73

\* excludes transport

Source: ACCC Gas Inquiry 2017 – 2020 Interim Report April 2019  
Based on contract information provided to ACCC

Source: ACCC Gas Inquiry 2017 – 2020 Interim Report April 2019 (page 31)  
Based on contract information provided to ACCC

# Gas asset portfolio

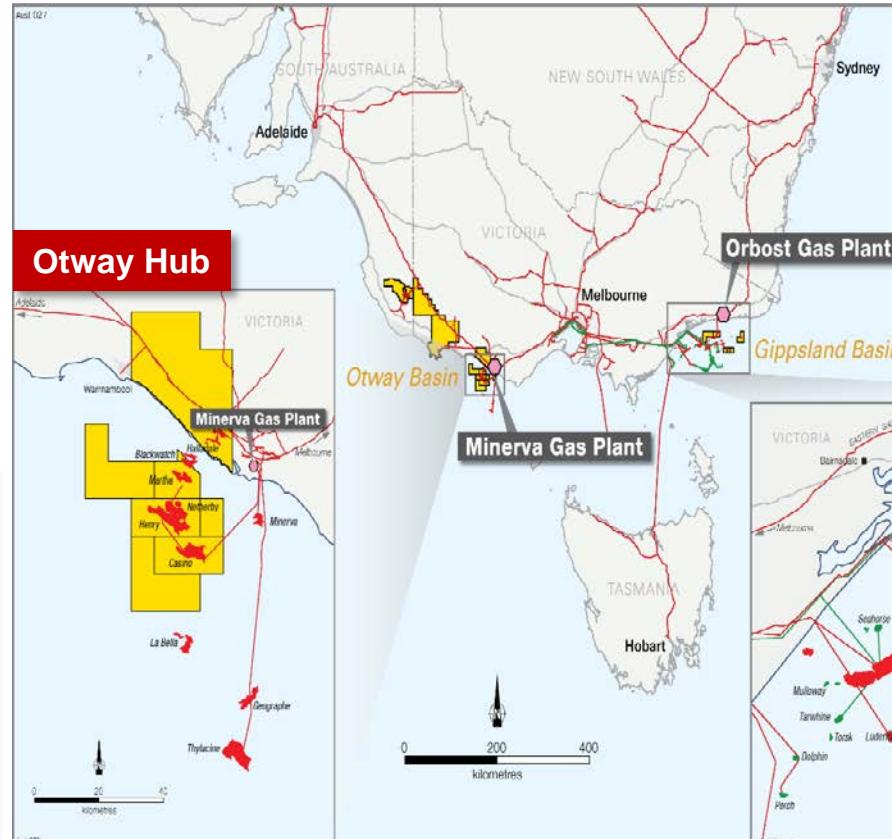
Assets acquired for competitiveness in delivered gas price to south-east Australia

## Otway Hub: gas production, development & exploration

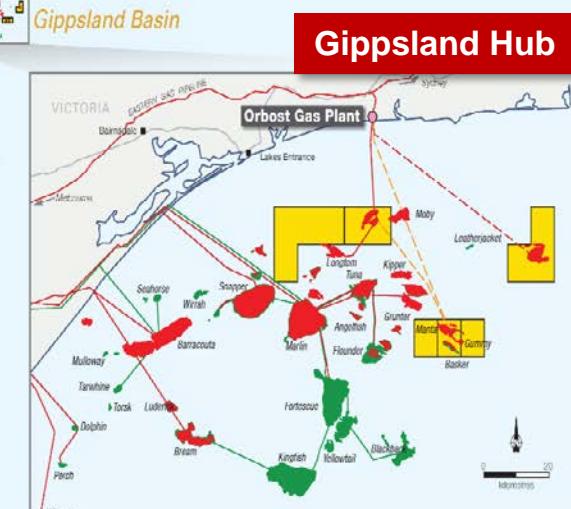
- Casino Henry gas production (Operator, 50% interest)
- Minerva gas production (10%)
- VIC/P44 exploration acreage (Operator, 50%)
- Onshore Penola Trough exploration acreage in SA & VIC



Minerva Gas Plant



Orbost Gas Plant



Gippsland Hub

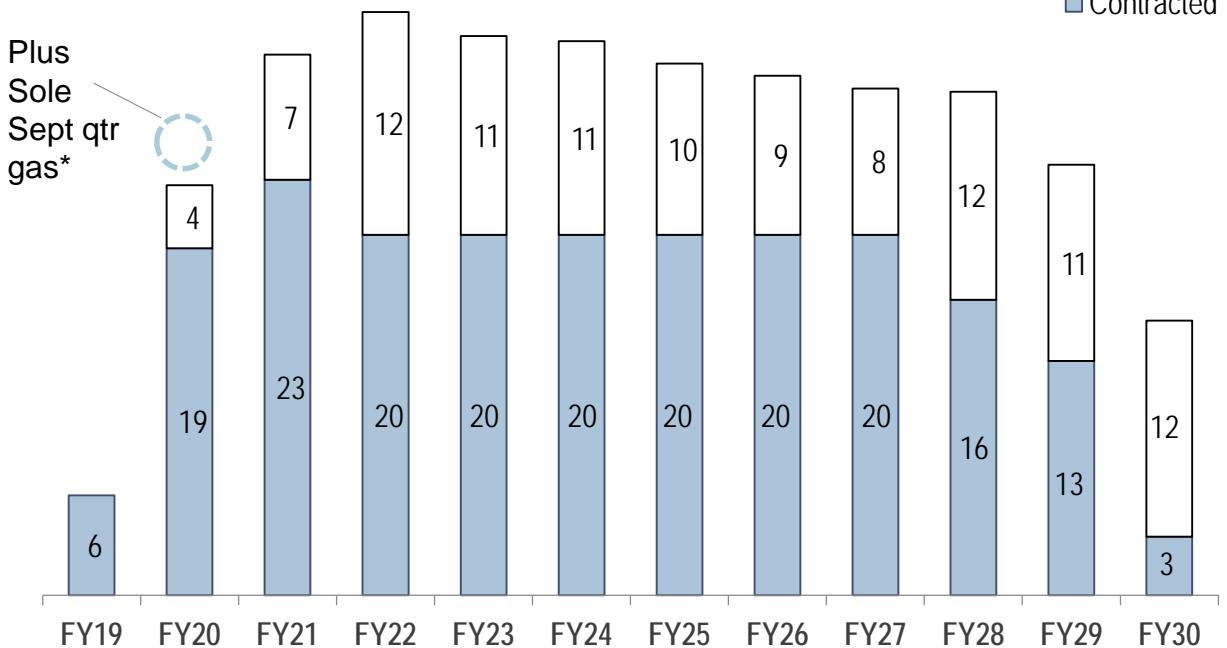
## Gippsland Hub: gas development & exploration

- Sole Gas Project (Operator, 100% interest)
- Manta gas & liquids resource (Operator 100% interest)
- VIC/P72 exploration acreage (Operator, 100% interest)
- Access to Orbost Gas Plant

# Gas supply from 2P reserves

3 year growth profile commencing and revenue upside from new supply agreements

Gas sales profile by project contracted & uncontracted  
PJ pa



□ Uncontracted  
■ Contracted

- Commencement of gas production from Sole to trigger ~4 times uplift in gas sales
- Existing contract portfolio features mix of blue-chip utility and industrial customers
- Negotiations in progress on agreements for supply of uncontracted gas from FY20 onwards

## Existing customers



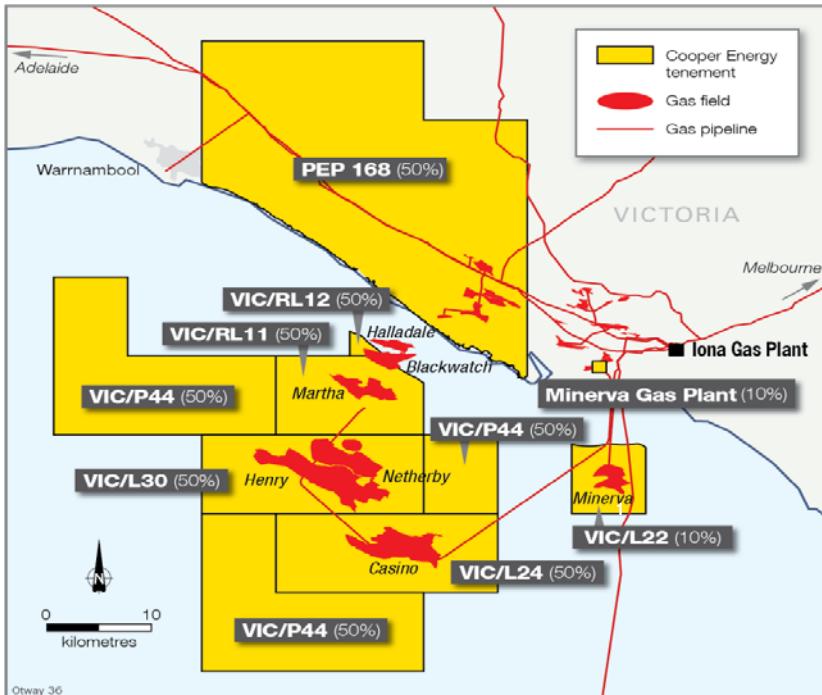
Santos

### \* Note

- Sole sales subject to project completion and Orbost Gas Plant availability which is scheduled for September quarter at a date to be advised by APA.
- As Sole start-up is not set, production for the September quarter 2019 is not included in the volumes charted above which include Sole production from 1 October 2019 onwards. Production from Sole prior to 1 October is additional to the volumes charged above. Sole daily production rate assumed is 68 TJ/day
- Henry development well Dec 20 – Feb 21, subject to rig availability & JV approval
- No exploration success
- Production profile from most recently announced reserves figures, as at 30 June 2018
- All numbers rounded and Cooper Energy equity share

# Operations: offshore Otway Basin

Operated gas production, development and exploration in proven and competitive gas province



Production	FY19 YTD March 31	FY18 YTD March 31	
Sales gas PJ comprised of:	4.92	5.37	
Casino Henry	4.15	4.34	
Minerva	0.77	1.03	
Condensate kbb	3.5	5.0	
2P Reserves	Developed	Undeveloped	Total
Sales gas PJ	26	35	61

## Casino Henry (50% interest and Operator)

- Lower FY19 production due to scheduled maintenance shutdown & Netherby-1 shut-in; remedied with umbilical backbone repair
- Gas contracted to:
  - Origin Energy and O-I (CY19)
  - AGL (CY20)

## Minerva gas field (10% interest)

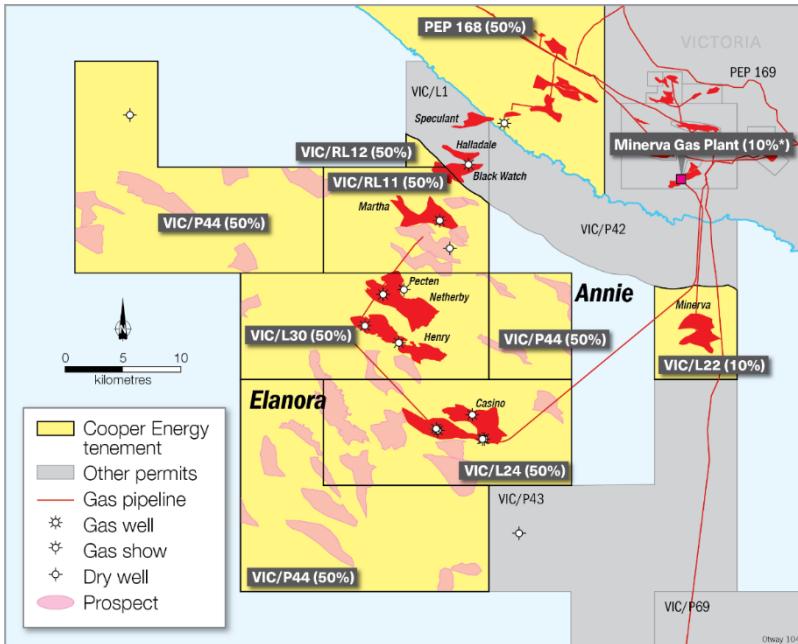
- approaching end of field life with high rate blowdown on Minerva-4

## Exploration

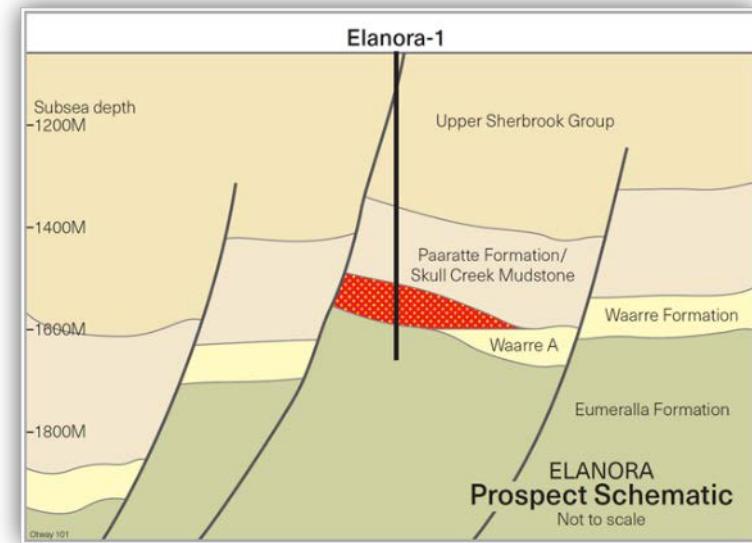
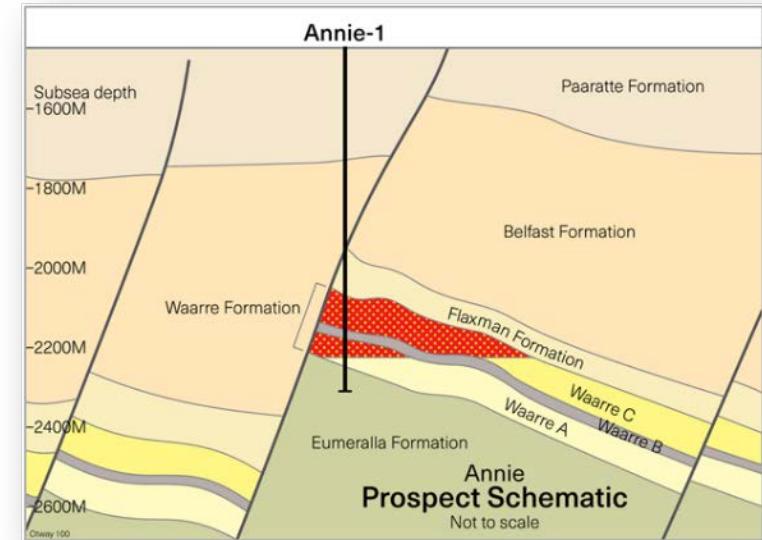
- Geotechnical modelling and analysis completed; prospects identified and ranked
- Drilling forecast to commence from late July 2019

# Offshore Otway Basin exploration

Two leading targets identified for drilling from July 2019



- Subsurface / structures well defined on 3D seismic data
- 2 exploration wells, Cooper Energy share (50%) = ~\$40 million
- Annie: high quality Waarre C primary reservoir target (as in Minerva and Casino-5)
- Elanora: high quality Waarre A primary reservoir target (as in Casino-4, Henry and Netherby)
- High deliverability production wells, simple development to pipeline tie-in 7-10 km
- Annie success de-risks several adjacent prospects with similar resource potential
- Elanora success extends fairway south and derisks adjacent prospects
- Success may lead to drilling of production wells in FY21



# Gippsland Basin development

## Cost competitive resource, existing plant and Sole production planned for FY20

### Sole Gas Project (100% interest)

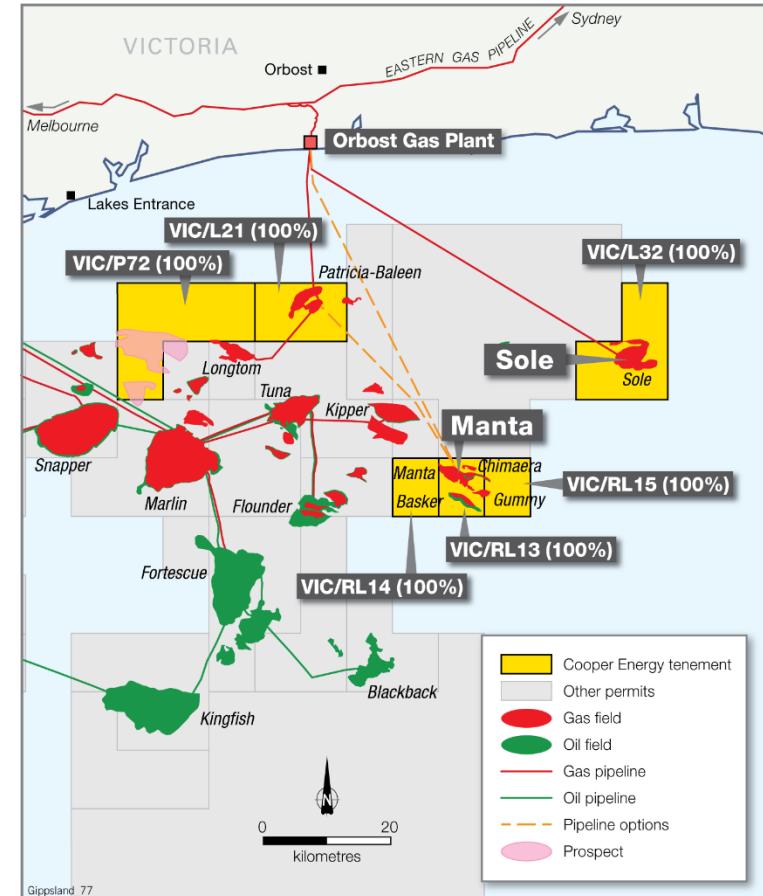
- 24 PJ per annum
- Gas project involving offshore development by Cooper Energy and Orbost Gas Plant upgrade by APA
- Offshore project construction completed in June 2019
- APA advise plant commissioning within September quarter 2019

### Manta (100% interest)

- Secured provision for processing at Orbost Gas Processing Facility under agreement with APA
- Appraisal well required, planned for 2020/21 drilling campaign



Orbost Gas Plant (APA Group 100%) provides a hub for Gippsland Basin gas development



Reserves & resources	Sole 2P <sup>1</sup>	Manta 2C <sup>1</sup>
Sales gas PJ	249	106
Condensate MMbbl	-	2.6

# Sole Gas Project

99% complete and within budget. Offshore project construction completed.

## Offshore project

Shore Crossing



Production wells



Umbilical



Pipeline



Orbost Gas Plant



✓ Completed

- ✓ Completed
  - Gas composition confirmed
  - Reservoir to expectations
  - Production upside potential

✓ Completed

- To be completed:  
June 2019
  - 65 km pipe laid & hydrotested
  - Repairs conducted and hydrotested
  - Final acceptance

□ To be completed:

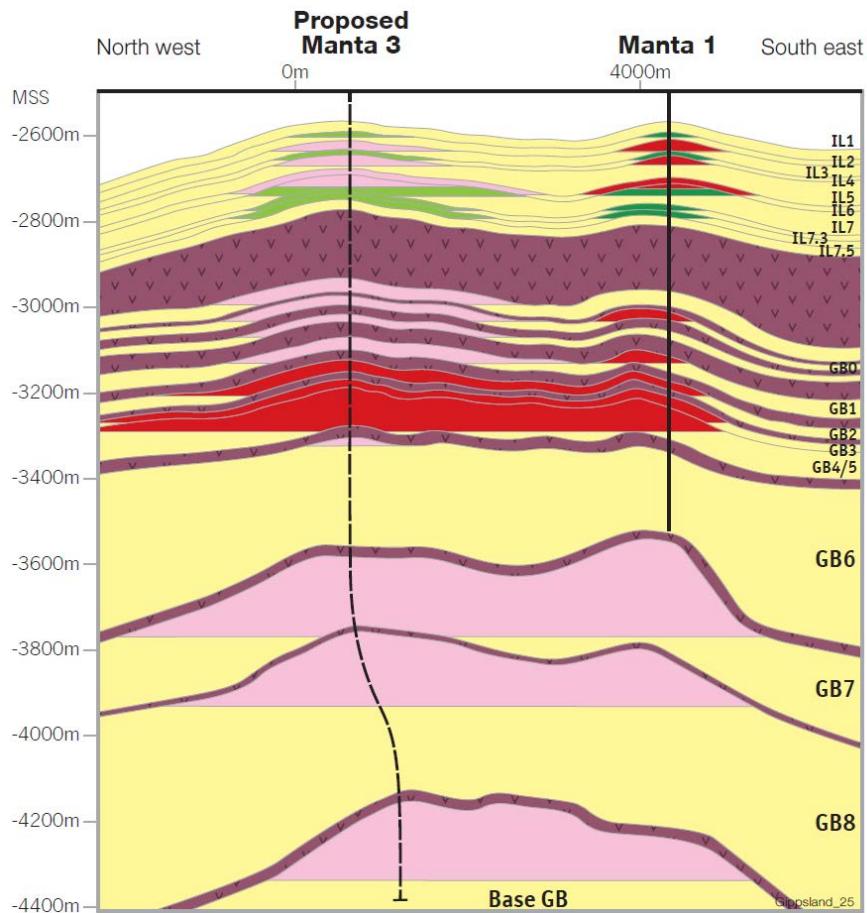
- Mechanical completion
- Commissioning
- Performance Test
- APA forecast within Sept quarter

Offshore project complete, available to supply Orbost Gas Plant in June 2019

Firm gas supply commences

# Manta gas and liquids resource

## Contingent Resource with exploration potential



### Manta Contingent Resource<sup>1</sup> estimate

		1C	2C	3C
Oil	MMbbl	0.0	0.6	1.2
Condensate	MMbbl	1.7	2.6	4.0
Gas	PJ	68	106	165

### Manta unrisked Prospective Resource<sup>1</sup> estimate

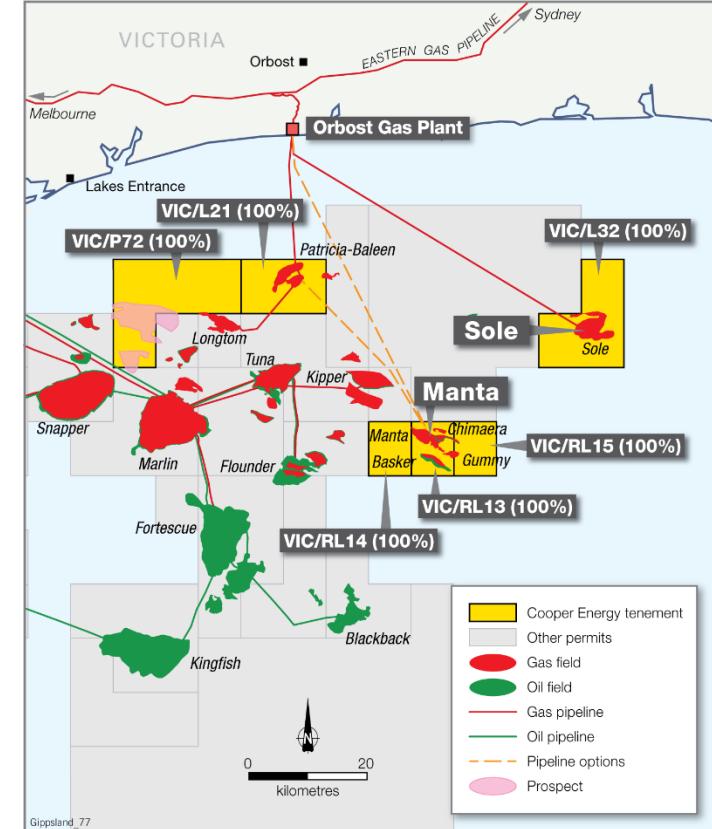
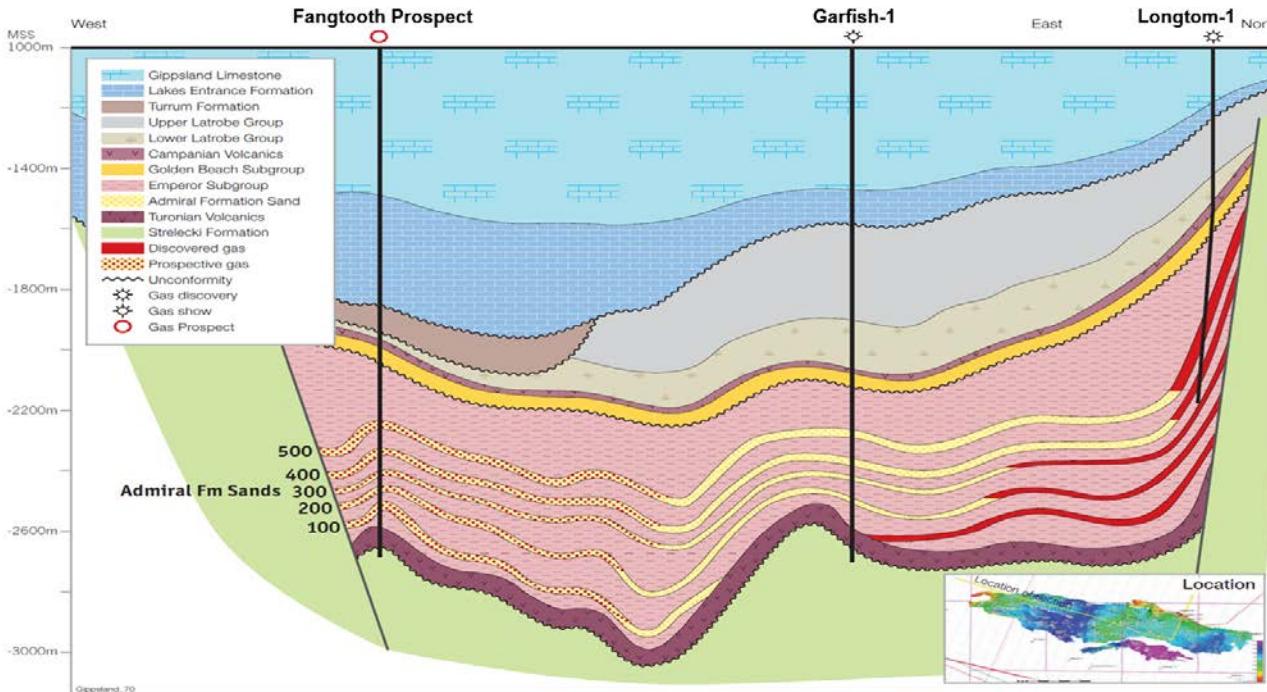
		Low (P90)	Best (P50)	High (P10)
Oil	MMbbl	1.0	1.5	2.3
Condensate	MMbbl	6.8	12.9	25.9
Gas	PJ	276	526	1,054

The estimated quantities of petroleum that may be potentially recovered by the application of future development project(s) relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Further exploration, appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.

<sup>1</sup> Contingent Resource for the Manta gas and liquids resource was announced to ASX on 16 July 2015. Prospective Resource for the field was announced to the ASX on 4 May 2016. Cooper Energy confirms that it is not aware of any new information or data that materially affects the information included in the announcements of 16 July 2015 or 4 May 2016 and that all the material assumptions and technical parameters underpinning the estimates in the announcements continue to apply and have not materially changed.

# Exploration: Gippsland Basin

New prospectivity adjacent to existing Patricia Baleen infrastructure



- VIC/P72 adjoins VIC/L21 (Cooper Energy 100%) which holds the depleted Patricia Baleen gas field and its associated subsea production infrastructure connected to the Orbost Gas Plant
- Close proximity to several Esso-operated gas and oil fields including Snapper, Marlin, Sunfish and Sweetlips and the Longtom gas field operated by SGH Energy

## VIC/P72

Equity: 100%

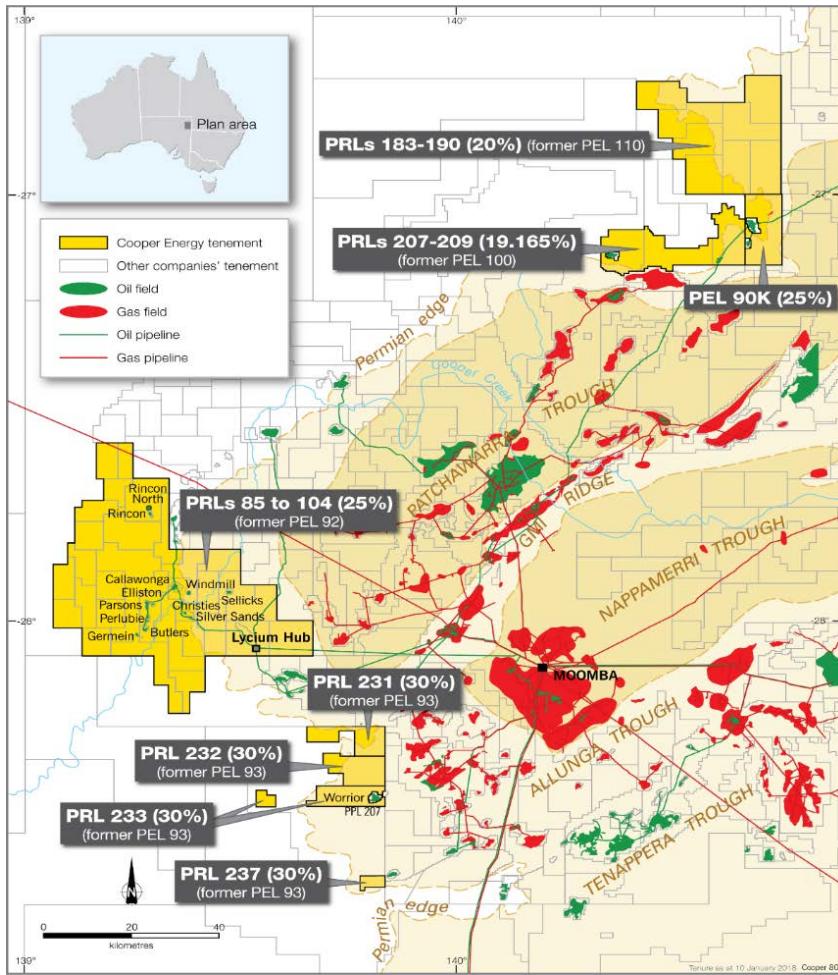
Term: 6 years

Work program: 3 years guaranteed

- 260 km<sup>2</sup> 3D seismic reprocessing studies
- 1 well

# Operations: Cooper Basin

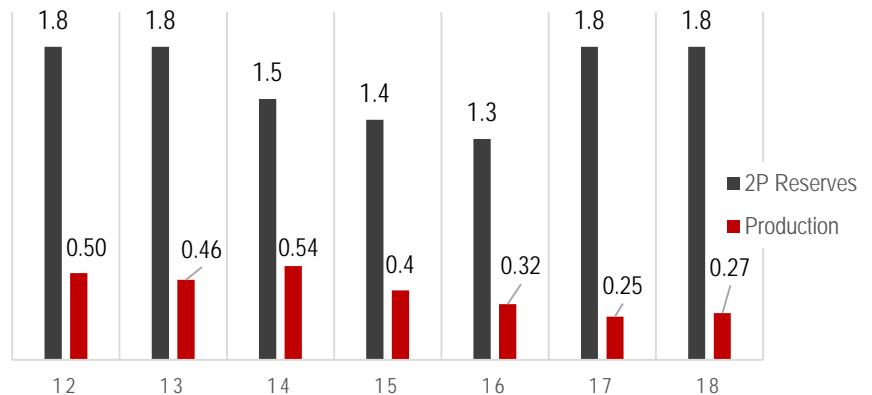
Low cost, cash-generating Western Flank oil production



Production	FY19 YTD	FY18 YTD	
Crude oil MMbbl:	0.18	0.21	
2P Reserves	Developed	Undeveloped	Total
Crude oil	1.4	0.4	1.8

- Low production cost, high cash margin, oil production
- Reserve replacement through drilling and field performance
- Drilling activity to pick up:
  - 3 wells at Parsons in June/July 2019
  - Plans to drill up to 10 'step-out' appraisal wells to test full oil pool extent. Plan similar to Bauer oil field growth strategy

Cooper Basin production & reserves  
Cooper Energy share MMbbl



# Otway Basin: Penola Trough onshore

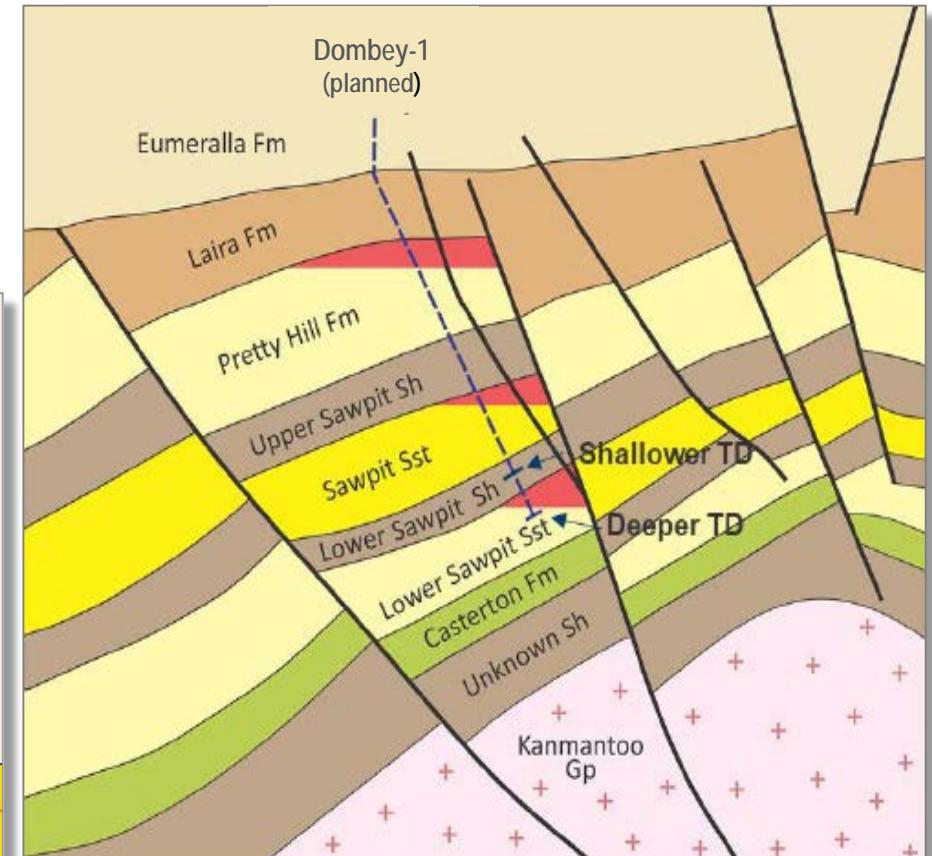
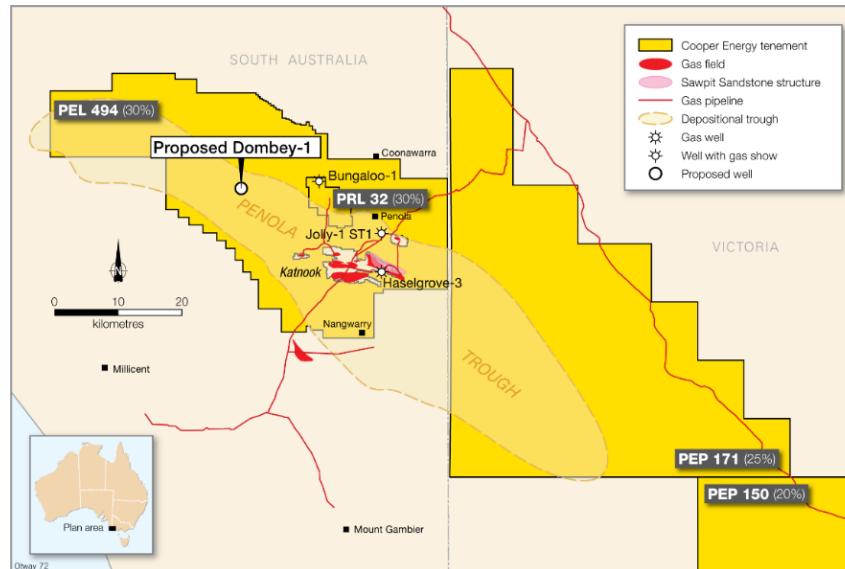
Dombey-1 to be drilled to evaluate Pretty Hill Formation and Sawpit Sandstone potential

## South Australia

- Haselgrove-3 discovery in adjoining PPL 62 confirmed conventional gas prospectivity of Sawpit Sandstone at depths below previous producing levels.
- Dombey-1 gas exploration well is testing similar stratigraphic section as Haselgrove gas field. Supported by SA government PACE grant to PEL 494 JV (Cooper Energy 30% interest) of \$6.9 million. Expected in September quarter.

## Victoria

- Haselgrove-3 discovery upgraded prospectivity of greater Penola Trough.
- Activities suspended pursuant to moratorium on onshore gas exploration until June 2020.
- A 100% interest in PEP 171 may reduce by up to 50% on fulfilment of farm-in arrangements with Vintage Energy Ltd.



# Projects pipeline

5 year development program that can lift gas production more than 10 times FY19 levels

FY19	FY20	FY21	FY22	FY23	FY24
<b>Sole construct</b>	<b>Sole:</b> <sup>1</sup> production 68TJ/d (~24 PJ per annum)				
	<b>Minerva Gas Plant:</b> <sup>2</sup> acquire, integrate and operate				
	<b>Henry</b> <sup>3</sup> development well: production uplift				
		<b>Potential offshore Otway production</b> <sup>4</sup> Production from FY19 exploration			
			<b>Manta</b> <sup>5</sup> 24 PJ pa plus liquids		

<sup>1</sup> Sole offshore project 99% complete. APA advise plant is expected to be ready to receive gas from Sole gas field within September quarter.

<sup>2</sup> Minerva Gas Plant: Casino Henry JV have agreement to acquire on cessation of Minerva production

<sup>3</sup> Henry development well: subject to joint venture FID to access 26 PJ undeveloped 2P reserves

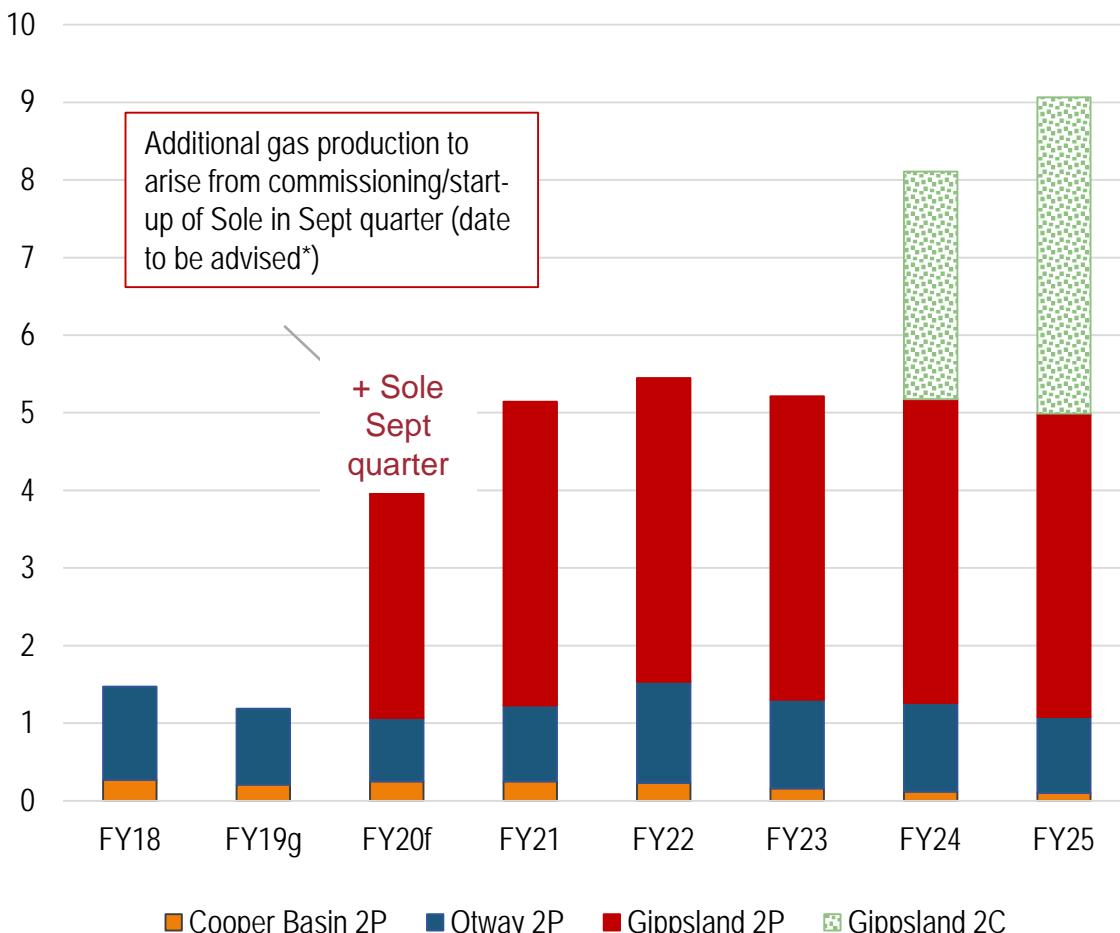
<sup>4</sup> Offshore Otway: potential development from exploration success in CY19 drilling subject to rig availability and JV approval

<sup>5</sup> Manta: subject to appraisal well planned for 2020/21 subject to rig availability

# Expected production from existing 2P Reserves and 2C Resource

## Advent of Gippsland gas production to deliver step change in production and cash generation

Indicative Cooper Energy oil and gas production  
million boe



- Sole gas field scheduled to commence after completion of offshore project and completion by APA of Orbost Gas Plant upgrade for commissioning adding 24 PJ pa
- Manta gas and liquids resource in Gippsland Basin, currently 2C Contingent Resource from FY24 (requires appraisal well)
- Exploration success not included in profile, drilling planned for Otway Basin in 2019 and Gippsland Basin in 2020/21 offers further upside

# Funding

## Redetermination released funds and increased available debt

### FY19 first half

- Redetermination of \$250 million project finance facility which recognises Sole project performance and outlook
- Variations to key terms include:
  - facility to fund 60% of Sole development costs (previously funded 55% of Sole development costs)
  - facility now assumes financiers' total project cost of \$369 million (previously \$395 million)
  - release of \$23.3 million in surplus equity (cash) for general corporate purposes otherwise earmarked exclusively for Sole development costs
- Increase in available cash to be used in support of offshore Otway Basin gas exploration planned for FY19 H2

### Outlook

- Satisfaction of 90 day production test after Sole commences triggers facility transition from construction to operation
- Available amount to benefit from transition from undeveloped case to developed case
- Capacity to refinance without penalty

\$ million	31 March 19	30 Jun 18
Cash	151.6	236.9
Drawn debt	189.4	125.9
Debt available		
• Project facilities	43.6	98.9
• Working capital	14.1	14.1

### A\$250 million reserve-based project financing facility

- Senior secured A\$ syndicated facility agreement with ANZ, Natixis, ABN AMRO, ING and NAB.
- Funding exclusively for Sole development prior to project completion. Facility can be used for general corporate purposes post project completion.
- Amortisation subject to redetermination and reducing facility schedule. Loan repayments commence the first quarter post project completion.
- Subject to floating interest rate based on BBSW reference rate + margin. Margin reduces post project completion.
- Interest rate swaps convert interest from floating to fixed. Hedging in place until Q2 2020. Minimum hedge coverage of 60% of drawn debt prior to project completion. Discretionary post project completion.

# Near term drilling and development

Gas exploration drilling offshore and onshore. Cooper Basin oil appraisal.

Location	Activity/Project	June	July	August	September	October
Otway Offshore	Exploration: VIC/P44 & VIC/L24			Otway well 1	Otway well 2	
Otway Onshore	Exploration PEL 494		Dombey-1			
Cooper Basin	Appraisal: Parsons in-fill		3 wells			

# Summary

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## 1. On the cusp of transformative uplift in production and cash flow

- Commencement of Sole gas sales expected on APA plant completion
- Sole to add 24 PJ to existing gas production of 6 PJ pa

## 2. Price and volume exposure to east coast gas

- FY19 H2 to benefit from new gas contracts that commenced 1 January 2019
- New prices flowing from new agreements announced and in prospect

## 3. Pipeline of low risk exploration and development projects that can generate growth in production over 6 years and over 10 times FY18 level

- Sole
- Offshore and onshore Otway exploration
- Minerva Gas Plant
- Manta
- Henry development

## 4. Sound financial position set to be strengthened on completion of Sole project

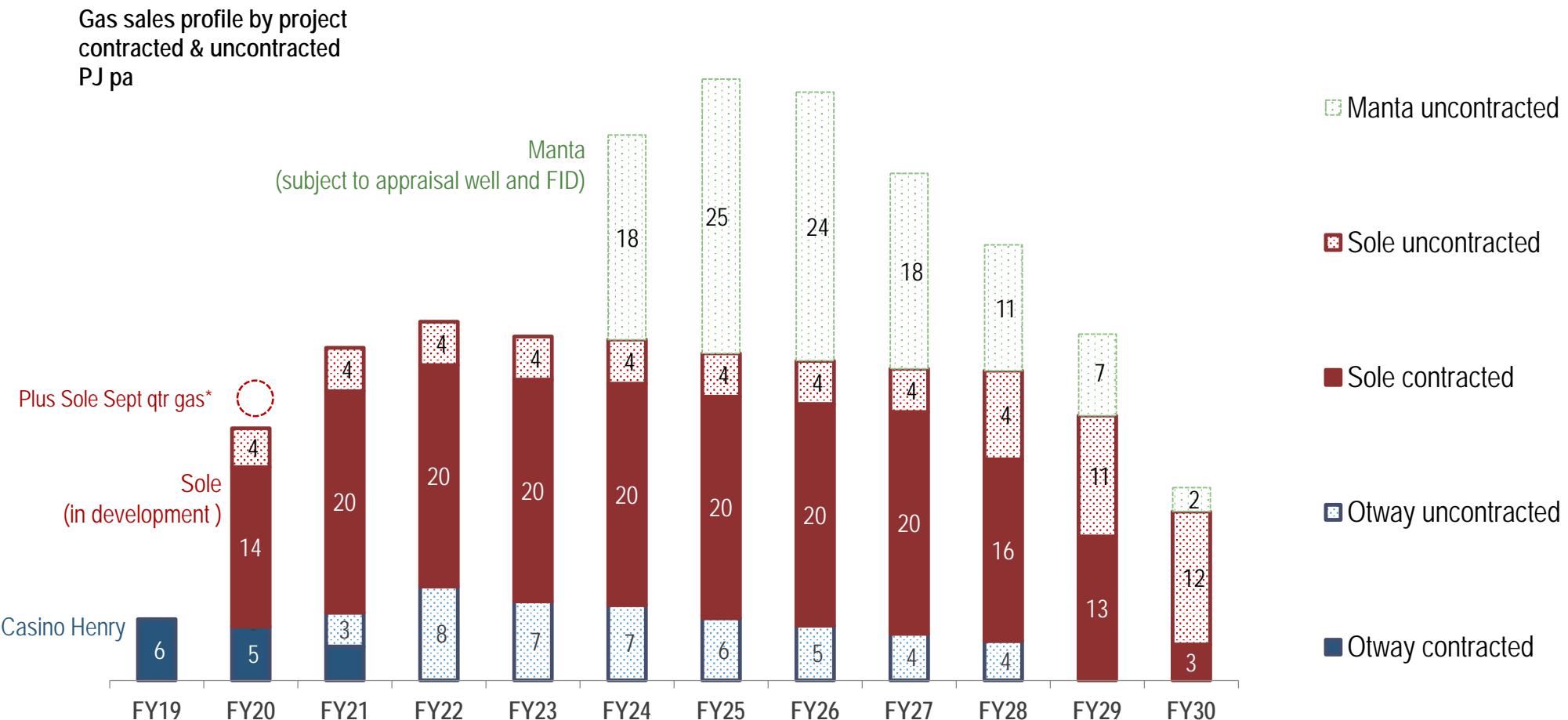
- Sole Gas Project is expected to complete within budget
- Position and resources expected to strengthen on completion of Sole finance production test



## Appendices

# Profile of contracted and uncontracted gas by project

Existing reserves and resources offer growth before exploration upside

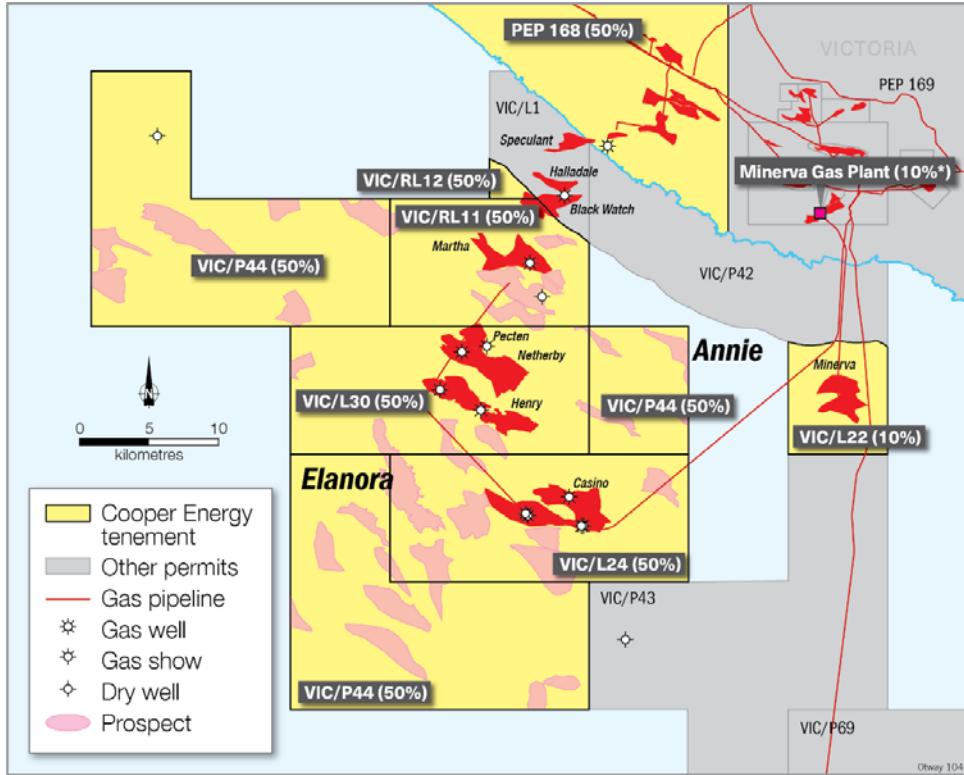


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- All numbers rounded and Cooper Energy equity share

# Offshore Otway Basin prospects

Prospect rich and favourable economics due to pipeline and plant access  
Seismic inversion and subsequent studies identified 2 leading candidates for drilling



<sup>1</sup> As announced to the ASX today 8 November 2018. Cooper Energy confirms that it is not aware of any new information or data that materially affects the information included in the announcement and that all the material assumptions and technical parameters underpinning the estimates in the announcements continue to apply and have not materially changed.

## Gross unrisked Prospective Resource<sup>2</sup>

(billion cubic feet, Cooper Energy share 50%)

Prospect	Low (P90)	Best (P50)	High (P10)
Annie	36.2	70.5	137.0
Elanora	33.9	100.1	284.8
Total	70.1	170.6	421.8

## Unrisked Prospective Resource<sup>2</sup> net to Cooper Energy

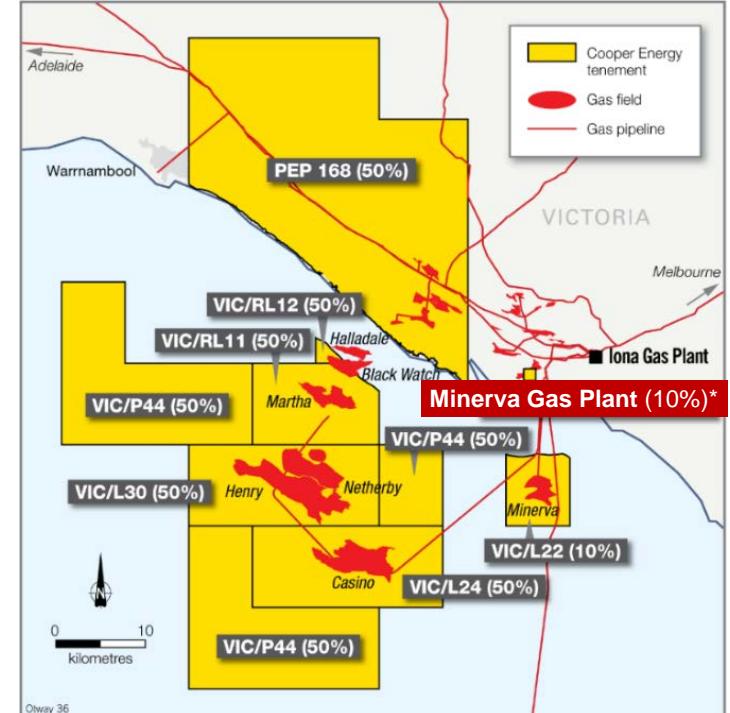
(billion cubic feet)

Prospect	Low (P90)	Best (P50)	High (P10)
Annie	18.1	35.3	67.5
Elanora	16.9	50.0	142.4
Total	35.0	85.3	210.9

The estimated quantities of petroleum that may be potentially recovered by the application of future development project(s) relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Further exploration, appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.

# Minerva Gas Plant

Strategically located offering gains in gas price, processing, recovery rates & production



## Minerva Gas Plant acquisition

- Casino Henry Joint Venture agreed acquisition of Minerva Gas Plant from BHP
- 150 TJ/day capacity, plus liquids handling capability
- Transaction subject to cessation of processing gas from Minerva Gas Field, regulatory approvals and assignments
- Minerva Cutback Project: engineering design advanced for connection of Casino Henry to Minerva Gas Plant
  - 250m pipeline connection
  - Control system integration
- Offers reduced processing costs; productivity and developed reserves increase on lower inlet pressure and processing for future developments

\* Equity to increase to 50% on completion of acquisition by Casino Henry Joint Venture as announced 1 May 2018

# Reserves and Contingent Resources at 30 June 2018

Reserves	Unit	1P (Proved)				2P (Proved + Probable)				3P (Proved + Probable + Possible)			
		Cooper	Otway	Gippsland	Total <sup>1</sup>	Cooper	Otway	Gippsland	Total <sup>1</sup>	Cooper	Otway	Gippsland	Total <sup>1</sup>
<b>Developed</b>													
Sales Gas	PJ	0	15	0.0	15	0	26	0	26	0	36	0	36
Oil + Cond	MMbbl	1.1	0.0	0.0	1.1	1.4	0.0	0.0	1.1	1.9	0.0	0.0	1.9
<b>Sub-total</b>	<b>MMboe</b>	<b>1.1</b>	<b>2.5</b>	<b>0.0</b>	<b>3.6</b>	<b>1.4</b>	<b>4.3</b>	<b>0.0</b>	<b>5.7</b>	<b>1.9</b>	<b>6.0</b>	<b>0.0</b>	<b>7.8</b>
<b>Undeveloped</b>													
Sales Gas	PJ	0	26	209	235	0	35	249	283	0	57	293	350
Oil + Cond	MMbbl	0.1	0.0	0.0	0.1	0.4	0.0	0.0	0.7	1.4	0.0	0.0	1.4
<b>Sub-total</b>	<b>MMboe</b>	<b>0.1</b>	<b>4.2</b>	<b>34.2</b>	<b>38.5</b>	<b>0.4</b>	<b>5.7</b>	<b>40.6</b>	<b>46.7</b>	<b>1.4</b>	<b>9.3</b>	<b>47.8</b>	<b>58.6</b>
<b>Total<sup>1</sup></b>	<b>MMboe</b>	<b>1.2</b>	<b>6.7</b>	<b>34.2</b>	<b>42.1</b>	<b>1.8</b>	<b>10.0</b>	<b>40.6</b>	<b>52.4</b>	<b>3.3</b>	<b>15.3</b>	<b>47.8</b>	<b>66.4</b>

<sup>1</sup> Totals may not reflect arithmetic addition due to rounding. The method of aggregation is by arithmetic sum by category. As a result, the 1P estimates may be conservative and the 3P estimates may be optimistic due to the effects of arithmetic summation. The Reserves exclude Cooper Energy's share of future fuel usage. See comment on conversion factor change in 'Notes on calculation of Reserves and Resources'.

Contingent Resources	1C			2C			3C		
	Gas PJ	Oil MMbbl	Total <sup>1</sup> MMboe	Gas PJ	Oil MMbbl	Total MMboe	Gas PJ	Oil MMbbl	Total MMboe
Gippsland	68	1.7	12.7	106	3.2	20.4	165	5.3	32.0
Otway	12	0.0	2.0	19	0.0	3.1	28	0.0	4.6
Cooper	0	0.1	0.1	0	0.1	0.1	0	0.2	0.2
<b>Total<sup>1</sup></b>	<b>80</b>	<b>1.8</b>	<b>14.8</b>	<b>125</b>	<b>3.4</b>	<b>23.6</b>	<b>193</b>	<b>5.5</b>	<b>36.8</b>

<sup>1</sup> Totals may not reflect arithmetic addition due to rounding. The method of aggregation is by arithmetic sum by category. As a result, the 1C estimate may be conservative and the 3C estimate may be optimistic due to the effects of arithmetic summation. See comment on conversion factor change in 'Notes on calculation of Reserves and Resources'.

# Senior management

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## 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

Iain MacDougall has more than 30 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, Iain'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 by 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 20 years' experience in business development, finance, commercial, portfolio management and strategy, including 16 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 30 years' experience in oil and gas exploration and development in companies including Geoscience Australia, Santos, Gulf Canada and Newfield Exploration. Prior to joining Cooper Energy he was SE Asia New Ventures Manager and Exploration Manager for offshore Sarawak for Newfield Exploration.

# Notes on calculation of Reserves and Resources

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## Notes on calculation of Reserves and Contingent Resources

Cooper Energy has completed its own estimation of Reserves and Contingent Resources for its fully-operated Gippsland Basin assets, and elsewhere based on information provided by the permit Operators (Beach Energy Ltd for PEL 92, Senex Ltd for Worrior Field, and BHP Billiton Petroleum (Vic) P/L for Minerva Field — in accordance with the definitions and guidelines in the Society of Petroleum Engineers (SPE) 2018 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. 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 Company has changed the FY18 energy conversion factor consistent with Society of Petroleum Engineers (SPE) conversions and PRMS guidance. The previous conversion factor of 1 PJ = 0.172 MMboe was adopted when the Company was predominantly a Cooper Basin oil producer. With the change to a predominantly offshore gas-producing Company, a conversion factor of 1 PJ = 0.163 MMboe (5.8 MMBtu/bbl) is more consistent with industry and SPE standard energy conversions. The new conversion factor has no impact on gas reserves expressed in PJ.

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 2018, "Reserves are those quantities of petroleum anticipated to be commercially recoverable by application of development projects to known accumulations from a given date forward under defined conditions".

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 comprises Sole Field only, where the Contingent Resources assessment at 30 June 2017 as announced to the ASX on 29 August 2017 has been reclassified to Reserves.

## Contingent Resources

Under the SPE PRMS 2018, "Contingent Resources are "those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations by application of development projects, but which are not currently considered to be commercially recoverable owing to one or more contingencies".

The Contingent Resources assessment includes resources in the Gippsland, Otway and Cooper basins. The following material Contingent Resources assessment was released to the ASX:

- Manta Field on 16 July 2015

Cooper Energy is not aware of any new information or data about Manta Field that materially affects the information provided in that release, and all material assumptions and technical parameters underpinning the Manta estimates provided in the release continue to apply.

Basker Field Contingent Resources reported on 18 August 2014 and carried unchanged through FY17 have been reclassified as Discovered Unrecoverable in FY18 due to approval of field abandonment.

# Abbreviations

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\$, A\$	Australian dollars unless specified otherwise
<b>APA</b>	APA Group
<b>Bbl</b>	barrels of oil
<b>Boe</b>	barrel of oil equivalent
<b>EBITDA</b>	earnings before interest, tax, depreciation and amortisation
<b>FEED</b>	Front end engineering and design
<b>FID</b>	Final Investment Decision
<b>kbbi</b>	thousand barrels
<b>m</b>	metres
<b>MMbbl</b>	million barrels of oil
<b>MMboe</b>	million barrels of oil equivalent
<b>NPAT</b>	net profit after tax
<b>PEL 92</b>	Joint Venture conducting operations in Western Flank Cooper Basin Petroleum Retention Licences 85–104 previously encompassed by the PEL 92 exploration licence
<b>PEL 93</b>	Joint Venture conducting operations in Cooper Basin Petroleum Retention Licences PRL 231-233 and PRL 237 previously encompassed by the PEL 93 exploration licence
<b>PJ</b>	Petajoules ( $10^{15}$ joules)
<b>TRCFR</b>	Total Recordable Case Frequency Rate. Recordable cases per million hours worked
<b>YTD</b>	Year to date
<b>1P Reserves</b>	Proved Reserves
<b>2P Reserves</b>	Proved and Probable Reserves
<b>3P Reserves</b>	Proved, Probable and Possible Reserves
<b>1C, 2C, 3C</b>	high, medium and low estimates of Contingent Resources