











Investor pack November 10 2017

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



# Cooper Energy – an introduction

ASX300, growing its business through a leading position in gas supply to south-east Australia

#### Gas production



- Supply to S E Australia
- 8 PJ FY18 rising to 35 PJ in FY20
- Utility & industrial customers

## Exploration & development



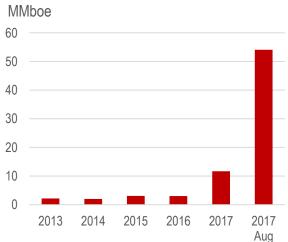
- Sole gas project, Gippsland Basin
- Gippsland & Otway Basin development
- Low risk offshore exploration

#### Oil production

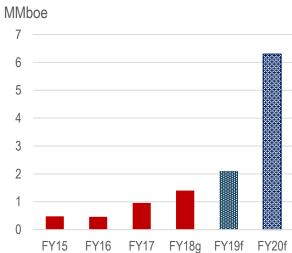


- Cooper Basin, Western Flank
- ~ 200 kbbl 300 kbbl pa
- Low cost production: A\$30/bbl direct cost

#### **2P Reserves**



#### Production





# Background

# Portfolio assembled through patient strategy execution over 5 years

#### 2011-12

#### Strategy & analysis

Cooper Basin oil production International exploration

- ✓ Identifies opportunity in south-east Australia gas
- Identifies Gippsland and Otway basins as most competitive supply source

#### 2012 -14

#### **Build Basin understanding**

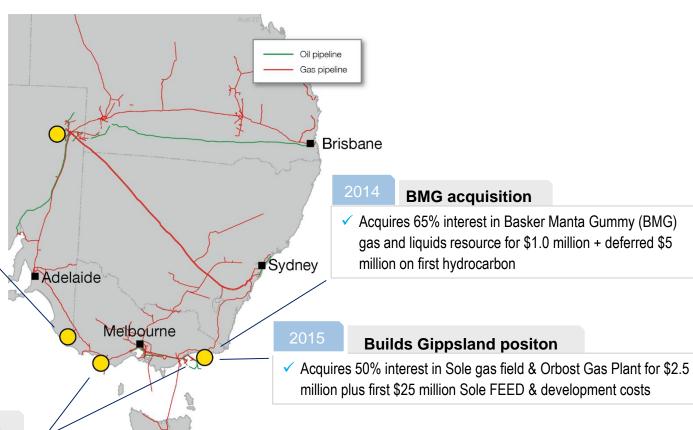
- Somerton Energy acquisition adds Otway acreage
- Onshore Otway drilling
- Stake and technical support for Bass Oil in Gippsland

#### 2016

#### Otway & Gippsland acquisition

- Acquires Santos Victorian Gas Assets in Otway and Gippsland for \$62 million plus \$20 million on Sole FID
- ✓ Takes equity in Sole & Orbost to 100%
- ✓ Moves to 100% of BMG





#### 2017

■ Hobart

#### Producing, operating & developing

- ✓ Agreement with APA Group to acquire, upgrade operate Orbost Gas Plant
- Appointed Operator of Otway Basin and Gippsland licences
- ✓ Sole gas project FID

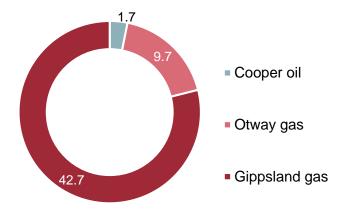
# Cooper Energy - assets

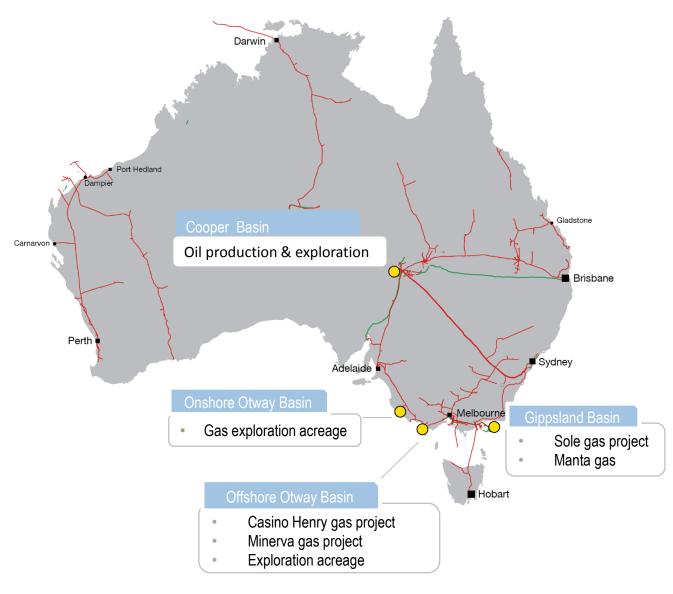
# Portfolio built around winning position on cost curve

# Key statistics\*

Proved & Probable Reserves	54.1 MMboe
Contingent Resources (2C)	34.9 MMboe
Production FY18 guidance	1.4 MMboe
Market capitalisation	\$520 million
Net cash/(debt)	\$243 million
Issued share capital (million)	1,600.7

# Proved & Probable Reserves 54.1 MMboe



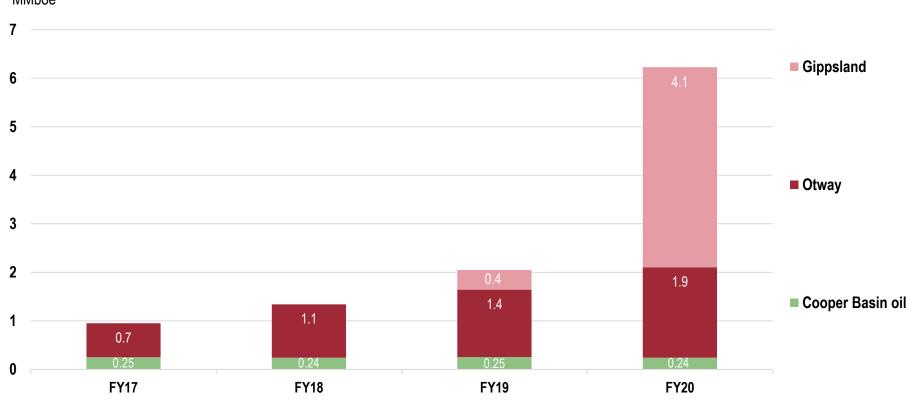




# Production profile from existing assets and projects

Gas production from current assets has capacity to drive 3 year production uplift over 5 times

# **Cooper Energy total production FY17 and forecast** MMboe



- Otway gas includes: Casino Henry workover and Henry development well<sup>1</sup>, Minerva which is approaching depletion;
- Sole project underway to commence gas deliveries to plant in March '19
- Evaluating optimisation of Gippsland interests as part of Manta planning



# Contracted and uncontracted gas

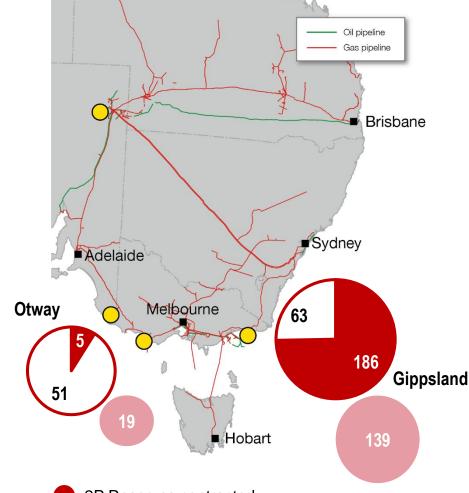
# 305 PJ 2P<sup>1</sup> gas and 158 2C<sup>1</sup> gas in south-east Australia close to markets and infrastructure

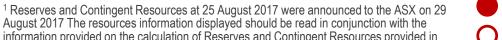
## **Otway Basin**

- 56 PJ proved & probable gas reserves at Casino Henry & Minerva
- 43 PJ undeveloped; planning for development via Henry development well mid CY18
- Marketing uncontracted gas for supply from March '18
- 19 PJ contingent resource (2C) at Black Watch
- Significant unaddressed exploration potential

#### **Gippsland Basin**

- 249 PJ proved & probable reserves at Sole
- Manta 106 PJ contingent resource (2C)
- Basker smaller contingent resource
- Additional gas exploration potential in deep Manta reservoir





information provided on the calculation of Reserves and Contingent Resources provided in the appendices to this document. The announcement included recognition of proved and probable reserves for the Sole gas field, the contingent resource for which was previously announced 27 February 2017. The contingent resource estimate for the Manta resource was announced to the ASX on 16 July 2015.

2P Reserves contracted

2P Reserves uncontracted

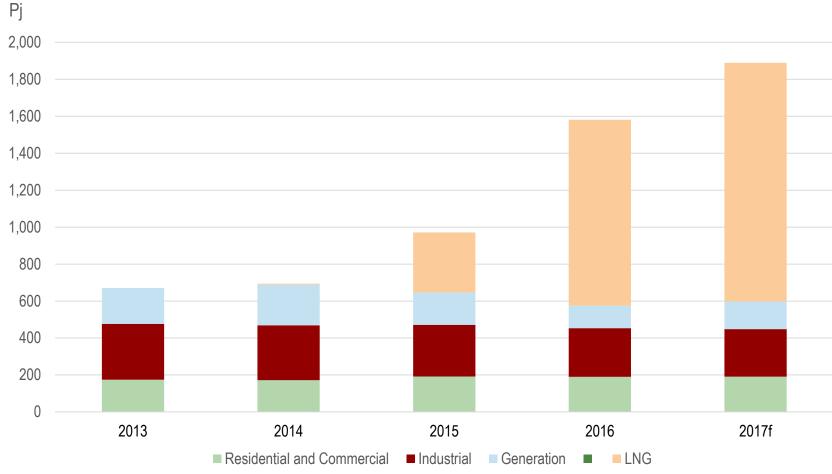
2C Contingent resources uncontracted



# Eastern Australian gas demand

# LNG manufacture has brought a 200% increase to gas supply requirements

# **Eastern Australian gas consumption**





# Eastern Australian gas market

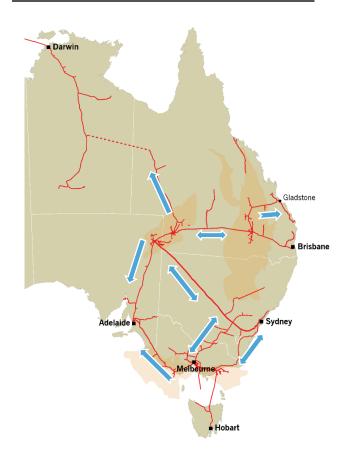
LNG demand has drawn gas away from south-east Australia<sup>1</sup> providing an opportunity for new suppliers

# Supply

- Existing producing fields in decline
- Queensland and Cooper Basin commitments to Gladstone I NG
- CSG producers have committed gas will be available for south-east market
- State governments restricting onshore development and exploration
- Delivered cost to south-east Australia estimated to be ~A\$10/GJ plus

= supply opportunity for competitive priced gas

## **Gas flows**



#### **Demand**

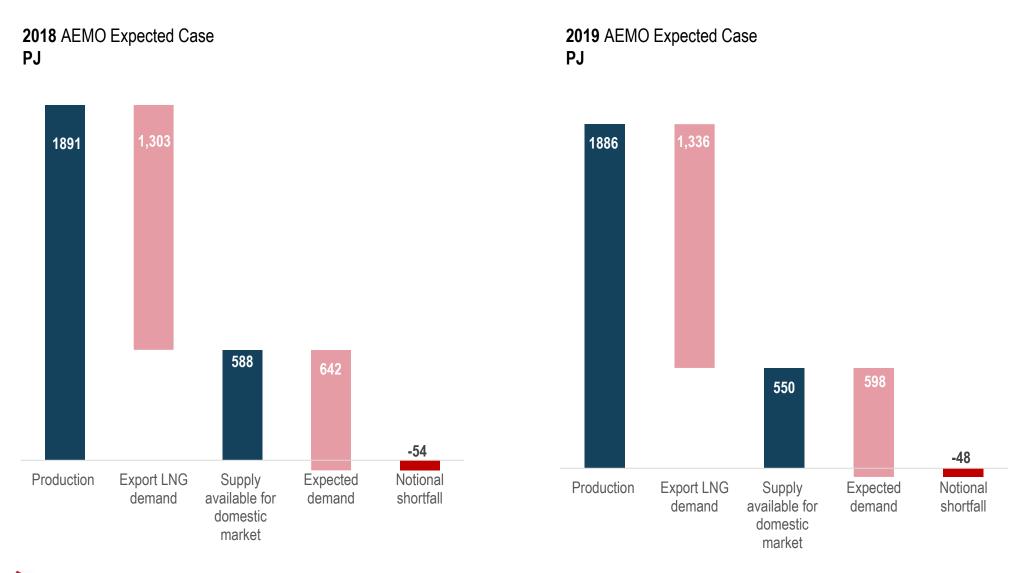
- Utilities and industrial users in southeast Australia<sup>1</sup> experiencing difficulty sourcing gas supply
- Industrial buyers seeking supply but reluctant to commit to long term
- Utilities value longer term supply which they are looking to secure
- Customers uneasy with exposure to price volatility

= gas buyers moving to higher prices that are not excessive



# Forecast eastern Australia gas supply and demand outlook

AEMO\* forecast indicates tight market

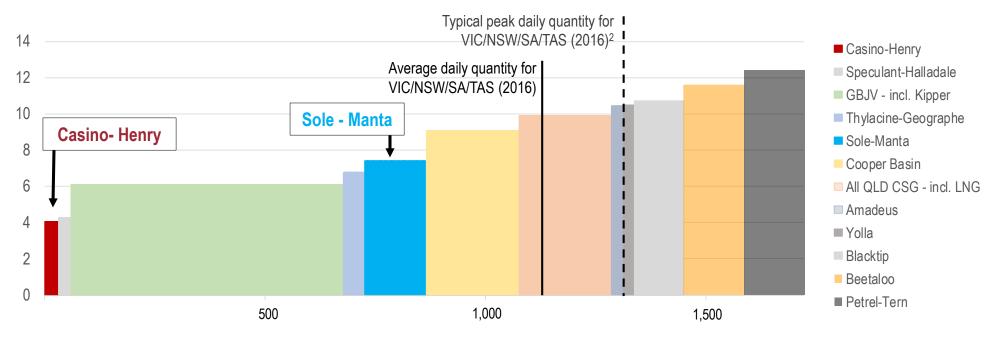




# South-east Australia<sup>1</sup> gas supply costs in 2020\*

# 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



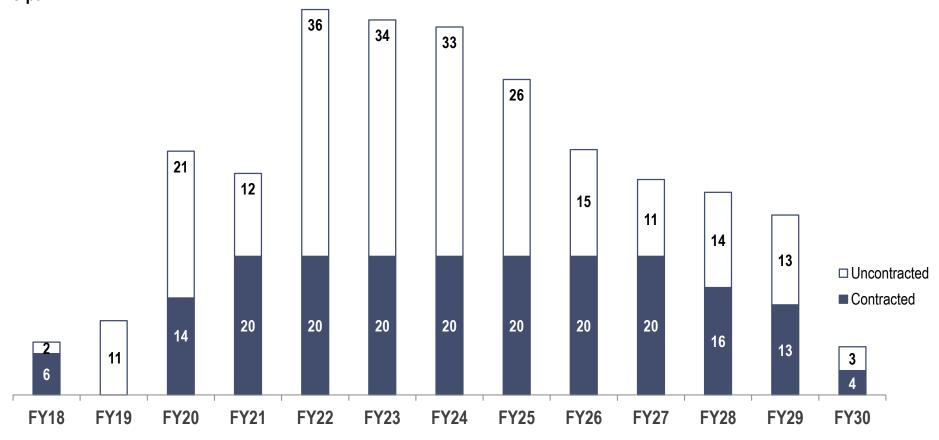
<sup>&</sup>lt;sup>1</sup> South-east Australia comprises New South Wales, Victoria, South Australia and Tasmania

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

# Profile of contracted and uncontracted gas

# Indicative production profile from Casino-Henry, Sole and Manta

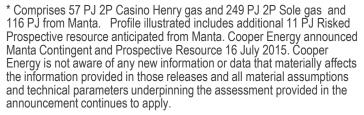
# Gas production<sup>1</sup> from current assets: contracted & uncontracted PJ pa



#### <sup>1</sup> Assumes:

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

All numbers rounded





# Offshore Otway Basin

# Gas production and marketing for new contracts to supply from March'18

#### **Casino Henry**

- Supplying gas to EnergyAustralia under current contract which expires March '18
- Processed at Iona Gas Plant
- Pursuing new contract and processing agreements applicable from March '18
- Development opportunities

#### Minerva gas field and plant

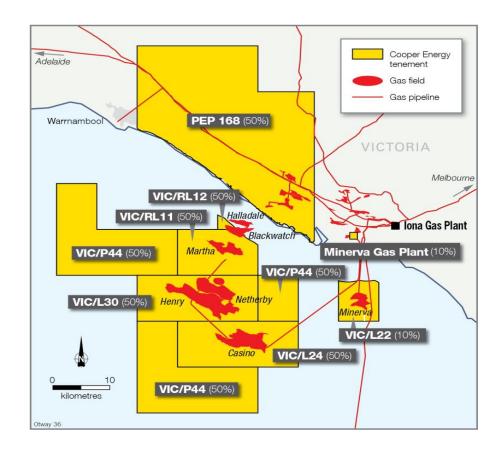
Field approaching depletion; Plant strategically located

#### VIC/P44

Prospect rich acreage close to infrastructure & market

2017 production (6 months to 30 June)	
Sales gas PJ	4.0
Condensate kbbl	3.6

2P reserves at 30 June 2	017 <sup>1</sup>		
	Developed	Undeveloped	Total
Sales gas PJ	14.1	43.1	57.2
Condensate Kbbl	0.01	0.04	0.04



#### **Key Assets**

- Casino Henry gas project (50% interest & Operator) ,
- Minerva gas field and plant (10% interest)
- VIC/P44 exploration permit (50% interest & Operator)

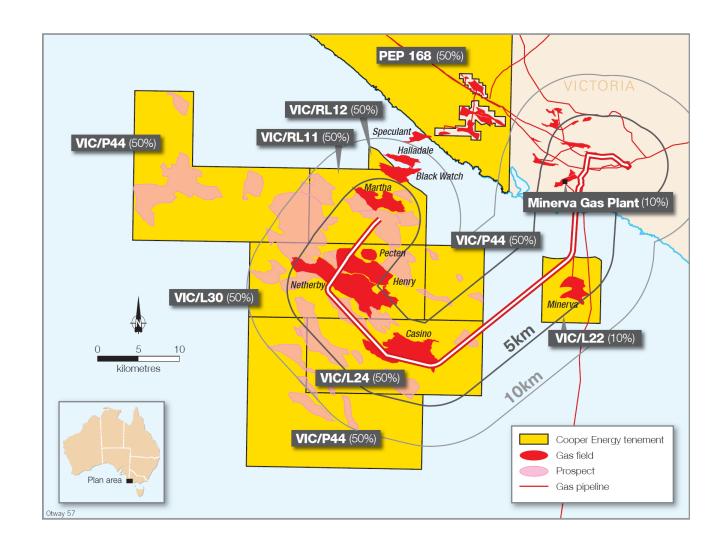


<sup>&</sup>lt;sup>1</sup> Reserves and Contingent Resources at 30 June 2017 were announced to the ASX on 29 August 2017 Prior to that Cooper Energy announced its initial assessment of its Otway Basin reserves to the ASX on 27 February 2017. The resources information displayed should be read in conjunction with the information provided on the calculation of Reserves and Contingent Resources provided in the appendices to this document.-

# Offshore Otway Basin prospectivity

# Attractive low risk portfolio located adjacent to infrastructure and market

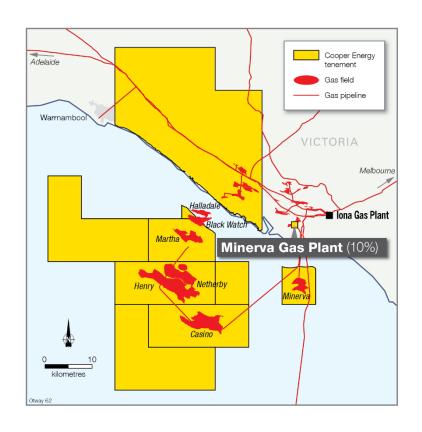
- 33 prospects identified in VIC/P44, VIC/RL11, VIC/RL12, VIC/L24 and VIC/L30
- 21 prospects within 5 km of existing Casino-Henry-Netherby pipeline
- 29 prospects within 10 km of existing Casino-Henry-Netherby pipeline
- 9 prospects are considered low risk: > 45% chance of technical success





# Minerva gas plant

# Approaching depletion of Minerva field to create potential gas infrastructure opportunity





- 10% interest in Minerva Gas Plant
- Capacity 150 TJ/day, with liquids handling capability
- Connected to SEA Gas pipeline
- Well located for processing of Otway Basin gas



# Gippsland Basin

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

#### **Sole Gas Project**

- Gas contracts secured
- Sale of Orbost Gas Plant to APA Group announced
- Sole gas project approved to proceed, FID announced 29 August 2017

#### Manta

- Secured provision for processing at Orbost Gas Plant under agreement with APA
- Detailed planning to commence
- Economics enhanced by cost discovery from Sole FEED and gas price and demand expectations

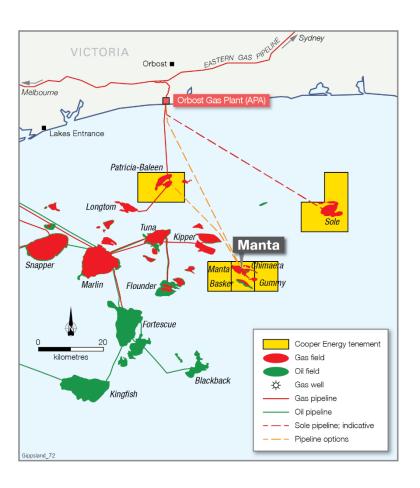
Reserves & resources <sup>1</sup>		
	Sole 2P Reserves	Manta 2C Resource
Sales gas PJ	249	106
Condensate MMbbl	-	3.2

<sup>&</sup>lt;sup>1</sup> Reserves and Contingent Resources at 25 August 2017 were announced to the ASX on 29 August 2017 The resources information displayed should be read in conjunction with the information provided on the calculation of Reserves and Contingent Resources provided in the appendices to this document. The announcement included recognition of proved and probable reserves for the Sole gas field, the contingent resource for which was previously announced 27 February 2017. The contingent resource estimate for the Manta resource was announced to the ASX on 16 July 2015.



#### Key Assets: (all 100% equity & Operator)

- Sole gas project (VIC/L32)
- Manta gas resource (VIC/RL13,14, 15)
- Patricia Baleen gas field & associated infrastructure (VIC/L21)

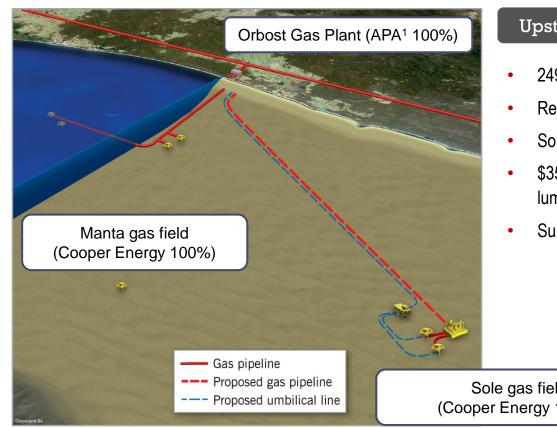


# Sole gas project

# New supply for south-east Australia with blue chip customers & uncontracted gas

#### Midstream: APA Group

- undertake \$250 million plant upgrade to process Sole gas
- operate Orbost Gas Plant to process Sole gas under agreed tariff for supply to Cooper Energy customers
- provision for Manta and other gas



### **Upstream: Cooper Energy**

- 249 PJ 1 2P gas
- Ready to proceed: March '17
- Sole gas into plant: March '19
- \$355 million capex and c 60% lump sum contract
- Supply: ~24 PJ pa

Sole gas field (Cooper Energy 100%)

#### Enabling customers















# Sole gas project: current and completed work

Within plan and budget; at end October 23% complete for overall project (plant and field).

#### Onshore

- Bulk earthworks completed
- Site handover from Santos
- APA handover completed
- Flare de-construction commenced

## Pipeline

- Welding of shore crossing pipeline
- ✓ Manufacture of 65 km pipe completed
- Umbilical HDD completed

### Wells

- Rig contracted: Ocean Monarch
- Major drilling contracts awarded: vessels, completion equipment and services, well test and shore base.
- ✓ Subsea trees manufacture on plan. Tree 1 delivery Dec 2017, tree 2 Jan 2018



Horizontal directional drill (HDD) of umbilical shore crossing



Welded shore crossing pipe, laid out to plant ready to by pushed through HDD

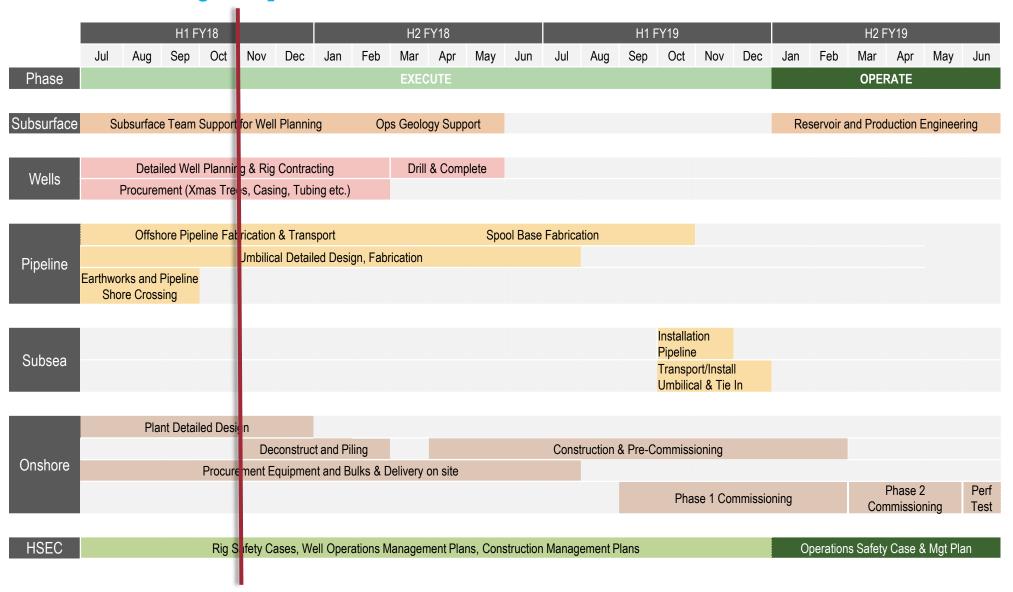


Diamond Offshore Monarch; contracted for drilling



# Sole gas project schedule

# On track for first gas to plant in March 2019

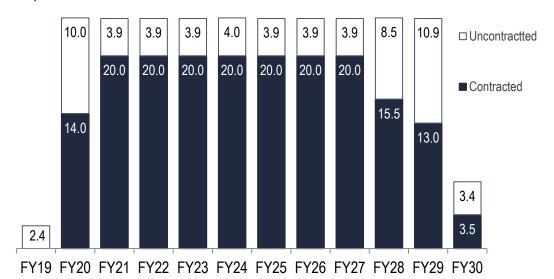




# Sole gas marketing

# Gas contracts in place support financing, with upside retained in uncommitted gas

# **Sole gas production: contracted and uncontracted** PJ pa



O-I Australia; foundation gas customer for Sole

- Take or pay contracts support financing: 20 PJ pa (55 TJ/day) with blue chip customers:
  - AGL: 12 PJ pa
  - EnergyAustralia: 5 PJ pa
  - Alinta Energy: 2 PJ pa
  - O-I Australia: 1 PJ pa
- Uncontracted gas retained for shorter term, higher value sales in tight market











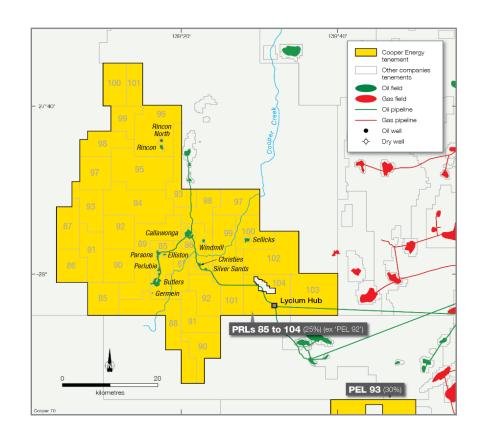
# Cooper Basin

# Low cost production, drilling success contributes to 40% increase in year end 2P reserves

Key figures	FY17	FY16
Production crude oil Kbbl	0.25	0.32
2P Reserves <sup>1</sup> MMbbl oil		
Developed	1.1	1.0
Undeveloped	0.6	0.3
Total	1.8	1.3

All numbers rounded and as a result some totals may not equate addition of numbers displayed

- Production movement reflects suspension of drilling in FY16
- Facilities upgrade at Callawonga
- 2P Reserve replacement ratio 260% following successful drilling campaign
  - 6 of 9 wells successful
  - Successful wells: Callawonga 12-18
  - Callawonga development drilling campaign added reserves and identified potential

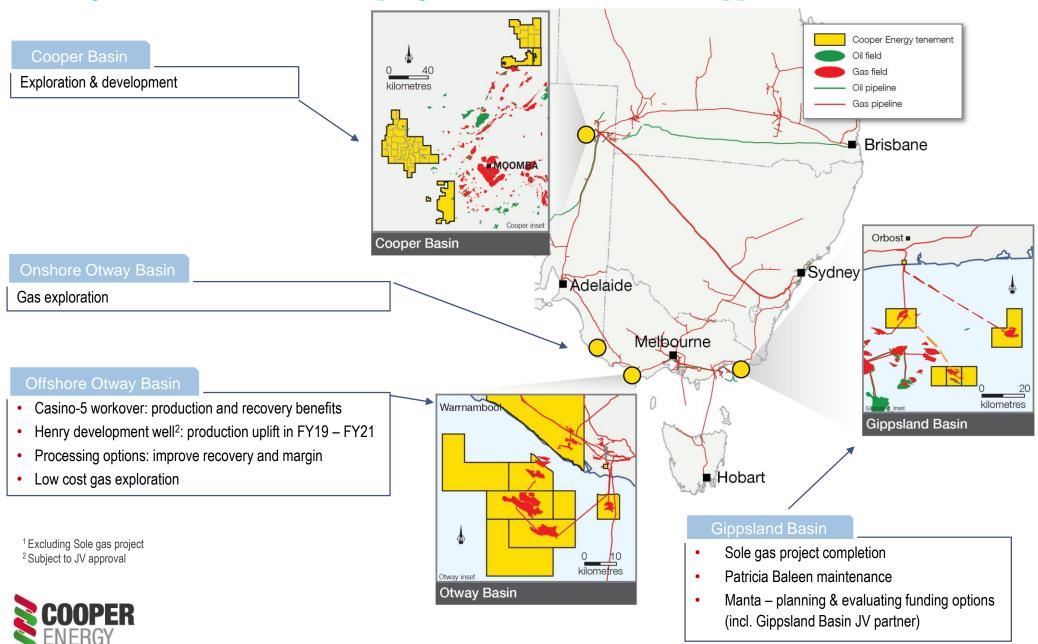




<sup>&</sup>lt;sup>1</sup> Reserves and Contingent Resources at 30 June 2017 were announced to the ASX on 29 August 2017 The resources information displayed should be read in conjunction with the information provided on the calculation of Reserves and Contingent Resources provided in the appendices to this document.-

# Portfolio program and opportunities

Existing cash and facilities funds program of commitments and opportunities



# Event pipeline

# Drilling, development and commercial program to December 2018

# November 17 - May 18

# May - December 18

# Drilling & developing

- Casino-5 workover
- Sole-2 abandonment
- Sole-3 production well
- Sole-4 production well
- Offshore Otway 3D seismic inversion & prospectivity studies

- Henry development well contracted for FY19 H2<sup>1</sup>
- Otway gas exploration well drilled or in planning<sup>1</sup>
- Manta-3 drilled or timing clarified
- Sole gas field connected to plant
- Orbost Gas Plant commissioning commences

# Contracting & commercial

- New Casino Henry contract signed & supply commenced
- New Casino Henry processing
- Initiated Gippsland Joint Venture evaluation

- Minerva Gas Plant options
- New and additional Sole gas contracts
- Gippsland Joint Venture decision



# **Appendices**



# Bank debt package

#### Element/term

# A\$250 million reserve based lending (RBL) facility

#### **Features**

- Senior secured
- ~ \$220 million expected to be available at financial close based on P90 capex, of which ~\$200 million would be drawn for P50 capex<sup>1</sup>
- Potential to increase available amount as further gas contracts (and prices) are confirmed and/or reserve upgrades
- 7-year tenor
- Refinance flexibility
- Requirement to fully amortise by maturity date

# Working capital facility A\$15 million

#### **Financial covenants**

**Status** 

#### **Conditions Precedent**

- Senior secured
- 3-year tenor with annual renewals thereafter
- Liquidity reserve of \$20 million to be retained
- Debt service coverage test after Sole completion
- Borrowing base asset<sup>2</sup> (BBA) cashflows only applied to BBA expenditures or debt service (during construction)
- ANZ and Natixis credit approvals in place to fully underwrite the facilities
- Binding commitment letters and terms sheet entered into with ANZ and Natixis
- Facility documentation
- Cooper Energy equity funding (announced 29 August 2017)
- Independent due diligence reports including environmental, insurance and market (underway)
- Other market standard conditions

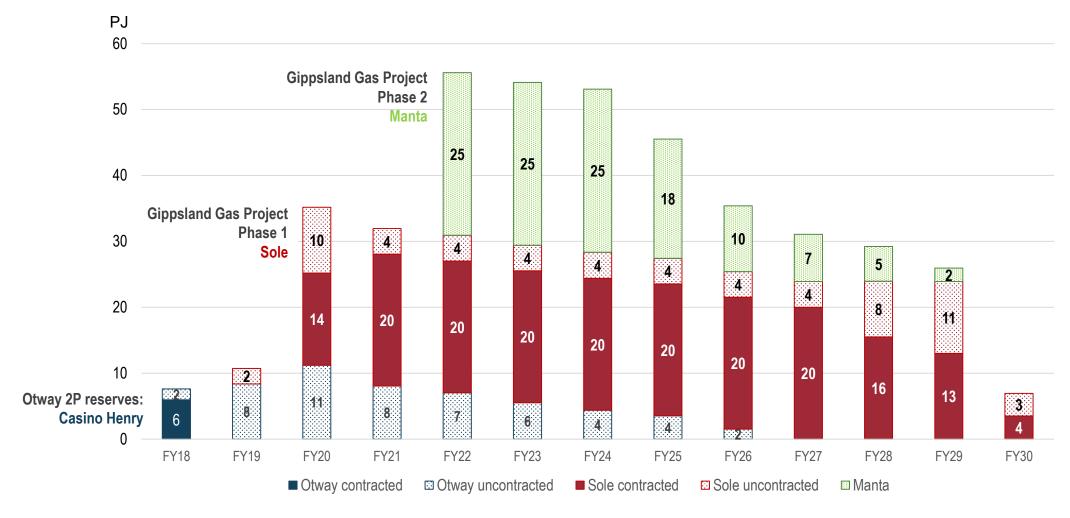


<sup>&</sup>lt;sup>1</sup> Subject to certification of base case financial model at financial close.

<sup>&</sup>lt;sup>2</sup> Borrowing base assets include the Casino Henry Netherby gas fields, the Sole gas field, the Cooper Basin PEL 92 and PPL 207 oil interests and the Minerva gas field and Minerva Gas Plant.

# Profile\* of contracted and uncontracted gas by project

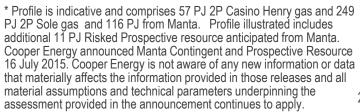
# Existing assets & projects offer growth over 5 years before exploration



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 FY19
- No new exploration success

All numbers rounded.





# FY18 guidance

- Production guidance : 1.4 MMboe
- Drilling:
  - Cooper Basin: 3 wells & completion of 5 wells
  - Gippsland: 2 wells (Sole):
- Operating costs per barrel:
  - in line with previous guidance (A\$31/bbl)
- G&A costs
  - ~ \$13 million (or approximately \$11 million excluding share based payments) anticipated;
  - includes costs of larger business structure and finalisation of funding

# FY18 capital expenditure outlook \$ million approximate

	FY18 Expenditure			FY18 Wells #		
	Total	Exp.	Dev.	Exp.	Dev.	
Cooper Basin	6	2	4	3	-	
Otway Basin	35	-	35	-	-	
Gippsland Basin	222	2	220	-	2	
Other <sup>1</sup>	3	3	-			
Total	266	7	259	3	2	

<sup>1</sup> Includes Corporate

All numbers are rounded and as a result totals shown may not equate to arithmetical addition of rounded numbers shown.



# 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

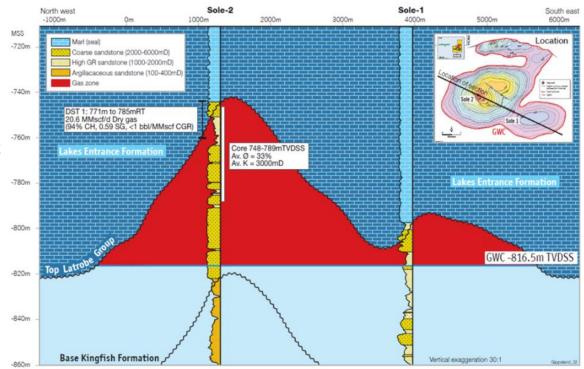
- Reservoir well defined high structural confidence as direct hydrocarbon indicator coincides with the gas-water-contact (GWC)
- Field simple four way dip closed structure with excellent seismic definition

#### **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



# Manta gas field

# Contingent resource plus significant deeper exploration potential

#### **Geological setting**

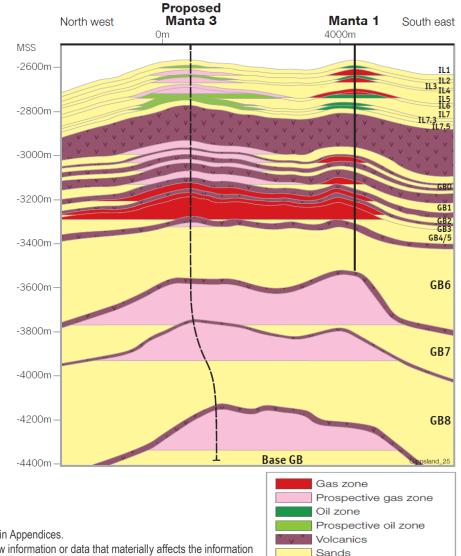
- a structural three-way dip, one-way fault closure against a NE-SW trending fault
- Manta-1, exploration well drilled in 1984, and Manta-2A, production well drilled in 2006
- Gas, condensate and oil, within sands of the top Intra-Latrobe Group and the deeper Golden Beach Subgroup

#### **Exploration upside**

- Potential for discovery of gas bearing reservoirs in the Golden Beach formation below the proven gas reservoirs at Manta-1. Untested structures are mapped below the maximum depth of the Manta-1 discovery well
- By drilling c. 1,000 metres deeper than Manta-1, several additional targets can be tested whilst appraising the proven gas & oil in the Intra-Latrobe and Golden Beach formations
- Evaluation of the Manta field prospectivity is being incorporated into conceptual planning for Manta-3.

#### Resource

- Gas resource of 106 PJ 2C Contingent and Risked Prospective Resource of 10 PJ<sup>1</sup>
- Re-assessed Best Estimate Net Prospective Resource<sup>2</sup> in Manta and Chimaera is 97.5 MMboe consisting of 491 PJ gas and 13.1 MMbbls oil and gas liquid (Cooper Energy 100% net share)
- 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>&</sup>lt;sup>1</sup> As announced to ASX on 16 July 2015. Refer to notes on Reserve and Resource calculation in Appendices.

<sup>&</sup>lt;sup>2</sup> As announced to 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 and 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.

# Otway Basin, onshore

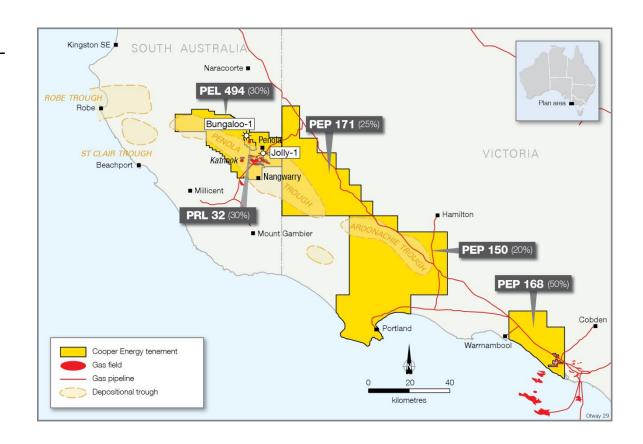
# Drilling results and analysis confirm prospectivity for conventional gas and shale potential

#### **South Australia**

- Analysis of Jolly-1 ST1 and Bungaloo-1 well data in PEL 494 and PRL 32 confirmed:
  - a deep conventional gas play in the Sawpit
     Sandstone and other reservoirs within the Sawpit
     Shale.
  - Casterton Formation unconventional shale gas play
- Seismic reprocessing and interpretation conducted to identify drilling opportunities focussing on conventional targets
- Proximity to infrastructure and markets is beneficial for development economics; Katnook Gas Plant is on neighbouring acreage
- Drilling by adjacent licence holders to provide additional information on prospectivity

#### **Victoria**

 Victorian acreage subject of application to suspend and extend due to state government moratorium on onshore gas production





# Reserves and Contingent Resources at 25 August 2017

Reserves	Unit		1P (Pr	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	5	0	5	0	13	0	13	0	28	0	28
Oil + Cond	MMbbl	0.6	0.00	0.0	0.6	1.1	0.01	0.0	1.1	2.0	0.02	0.0	2.0
Sub-total	MMboe <sup>2</sup>	0.5	0.9	0.0	1.4	1.1	2.2	0.0	3.3	2.0	4.8	0.0	6.8
Undeveloped													
Sales Gas	PJ	0	34	209	243	0	43	249	292	0	62	293	355
Oil + Cond	MMbbl	0.3	0.03	0.0	0.3	0.6	0.04	0.0	0.7	0.9	0.06	0.0	1.0
Sub-total	MMboe <sup>2</sup>	0.3	5.9	36.0	42.2	0.6	7.5	42.7	50.8	0.9	10.7	50.3	62.0
Total <sup>1</sup>	MMboe <sup>2</sup>	0.8	6.8	36.0	43.6	1.7	9.7	42.7	54.1	2.9	15.6	50.3	68.8

<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 estimate may be conservative and the 3P estimate may be optimistic due to the effects of arithmetic summation. The reserves exclude Cooper Energy's share of future fuel usage.

<sup>2</sup> The conversion factor of 1 PJ = 0.172 MMboe has been used to convert from Sales Gas (PJ) to Oil Equivalent (MMboe).

		1C			2C			3C	
Contingent Resources	Gas PJ	Oil MMbbl	Total <sup>1</sup> MMboe <sup>2</sup>	Gas PJ	Oil MMbbl	Total MMboe <sup>2</sup>	Gas PJ	Oil MMbbl	Total MMboe <sup>2</sup>
Gippsland	82	4.0	18.1	139	7.6	31.5	239	12.1	53.3
Otway	12	0.0	2.1	19	0.0	3.2	27	0.0	4.7
Cooper	0	0.1	0.1	0.0	0.1	0.1	0	0.2	0.2
Total <sup>1</sup>	94	4.1	20.3	158	7.7	34.9	267	12.3	58.2



<sup>&</sup>lt;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. The reserves exclude Cooper Energy's share of future fuel usage.

<sup>&</sup>lt;sup>2</sup> The conversion factor of 1 PJ = 0.172 MMboe has been used to convert from Sales Gas (PJ) to Oil Equivalent (MMboe). Reserves and Contingent Resources at 25 August 2017 were announced to the ASX on 29 August 2017 The resources information displayed should be read in conjunction with the information provided on the calculation of Reserves and Contingent Resources provided in the appendices to this document..

# 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. 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, where the contingent resource assessment announced to the ASX on 27 February 2017 has been reclassified to reserves. The Gippsland Basin total 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 assessment includes resources in the Gippsland, Otway and Cooper basins. The following material contingent resources assessments have been released to the ASX:

- Manta Field on 16 July 2015; and
- Basker and Manta fields on 18 August 2014.

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

**kbbls** thousand barrels

m metres

MMbbl million barrels of oil

MMboe million barrels of oil equivalent

**NPAT** net profit after tax

PEL 92 Joint Venture conducting operations in Western Flank Cooper Basin Petroleum Retention Licences 85 – 104 previously encompassed by

the PEL 92 exploration licence

PEL 93 Joint Venture conducting operations in Cooper Basin Production Licence 207

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

**1P reserves** Proved reserves

**2P reserves** Proved and Probable reserves

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

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



# Notes

