The Petroleum Geology of the 2018 Offshore Acreage Release Areas

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Bonaparte Basin

- Focus on Bayu/Undan resource replacement
- Expanding oil and gas infrastructure
- Paleozoic targets remain underexplored
- Geoscience Australia studies have revealed significant Helium content in Bonaparte gas fields and elsewhere
- New exploration permit awarded in Vulcan Sub-basin (AC/P63)
Bonaparte Basin:

Main Operators

- Bounty Oil & Gas
- Carnarvon Petroleum
- ConocoPhillips
- Engie Bonaparte
- Eni Australia
- Finder
- Finnis Offshore Exploration
- Lattice Energy
- Magellan Petroleum

- Murphy Australia
- Octanex
- PTTEP
- Santos
- Shell Australia
- Sinopec
- Timor Sea Oil & Gas
- Total
- Vulcan Exploration
- Woodside Energy
Vulcan Sub-basin: AC18-1 and W18-1 (closing 18 Oct 2018)

AC18-1
- Boundary between eastern Vulcan Sub-basin and Londonderry High
- Numerous oil shows
- Effective source rocks, good reservoir facies
- Exploration success dependant on improved understanding of migration pathways

W18-1
- Londonderry High and Sahul Syncline
- Mainly 2D seismic coverage
- 12 exploration wells, 9 with shows
- Uncertainties related to geometries, lack of charge, post-charge fault movements
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Awarded to Carnarvon Petroleum (AC/P63)
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- Large resource base of natural gas and condensate
- Condensate and LNG production about to commence (Ichthys, Prelude)
- Acreage located in highly prospective Caswell Sub-basin
- Geoscience Australia’s new study highlights distribution of petroleum systems and confirms hydrocarbon potential
Browse Basin

Main Operators

- ConocoPhillips
- Cornea Resources
- INPEX
- IBP WA
- Karoon Gas
- Pathfinder Energy
- Santos
- SGH Energy
- Shell Australia
- Woodside Energy
• All source rocks in the Caswell Sub-basin are sufficiently mature to generate hydrocarbons

• Main source–reservoir lithologies are hosted by Plover and Vulcan formations (Lower - Middle Jurassic; Upper Jurassic - Lower Cretaceous)

• Majority of expulsion occurring from Late Cretaceous to present

• Gas-prone source rocks are dominant, but liquids (light oil) can accumulate in low pressure reservoirs

• Caswell-1 recorded oil and gas shows, located in W18-3.
W18-4, W18-5: Beagle Sub-basin
Closing 21 March 2019

W18-9: Exmouth Plateau
Closing 18 October 2018

W18-11, W18-12: Exmouth Plateau
Closing 18 October 2018

W18-6: Dampier SB
W18-7: Rankin Platform
W18-8: Barrow SB
W18-10: Exmouth SB Plateau
Cash bid areas
Pre-qualification: 4 October 2018
Auction: 7 February 2019
Northern Carnarvon Basin

Main Operators

- AWE
- BHP Billiton Petroleum
- BP Developments Austr.
- Carnarvon Petroleum
- Chevron Australia
- Cue Exploration
- Eni Australia
- Esso Australia
- Exmouth Exploration
- Finder Exploration
- Flow Energy
- Hydra Energy
- Jadestone Energy
- Lightmark Enterprises
- Mobil Australia
- Octanex
- Pilot Energy
- Quadrant Northwest
- Quadrant Oil Australia
- Santos
- Shell Australia
- Tap Oil Limited
- Vermilion Oil and Gas
- Western Gas
- Woodside Energy
Beagle Sub-basin: W18-4 and W18-5 (closing 21 March 2019)

- Under-explored part of the Northern Carnarvon Basin
- 9 wells drilled between 1971 and 2007
- Nebo-1 oil discovery in Jurassic (Oxfordian, Calypso Fm)
- Geochemical affinities with Exeter/Mutineer in Dampier Sub-basin
- New exploration phase stimulated by recent discoveries in neighbouring Bedout Sub-basin
- Triassic emerging as likely new play fairway
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- Triassic emerging as likely new play fairway
- Partly covered by 3D seismic (Polly 3D MSS, 2013)
- Capreolus MC 3D (2015) provides new insight into Beagle Sub-basin
- Structural architecture dominated by N-S oriented features
Beagle Sub-basin: W18-4 and W18-5 (closing 21 March 2019)

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- Capreolus MC 3D (2015) provides new insight into Beagle Sub-basin
- Structural architecture dominated by N-S oriented features
- TD 4,200m
- New targets?
Bight Basin: S18-1 (closing 21 March 2019)

• One of Australia’s remaining offshore frontiers
• 13 exploration wells drilled between 1975 and 2003
• Latest exploration phase stimulated by results of Geoscience Australia’s marine survey and geochemical studies
• New regional 3D seismic
Bight Basin: S18-1 (closing 21 March 2019)

- One of Australia’s remaining offshore frontiers
- 13 exploration wells drilled between 1975 and 2003
- Latest exploration phase stimulated by results of Geoscience Australia’s marine survey and geochemical studies
- New regional 3D seismic
Main Operators

- Bight Petroleum
- Chevron Australia
- Karoon Gas
- Murphy Australia
- Santos
- Equinor (formerly Statoil)
Very good to excellent organic richness, TOC 2.0 – 6.9%

- Excellent liquids potential, HI 274 – 479 mgHC/g TOC

- H–rich liptinite macerals, main component lamalganite

- Latest Cenomanian – earliest Turonian (base Tiger Sequence)

- Marine, anoxic, little terrestrial input
V18-1 and V18-2:
Closing 18 October 2018
- Existing gas infrastructure
- Sherbrook Group sediments (Turonian) are main targets
- V18-3 remains underexplored, only two wells drilled

V18-3:
Cash bid area
Pre-qualification: 4 October 2018
Auction: 7 February 2019
- La Bella gas field estimated to contain around 180 Bcf of natural gas
- Gas is geochemically different from other Otway gases
Otway Basin

Main Operators

- 3D Oil Limited
- BHP Billiton Petroleum
- Cooper Energy
- Lattice Energy
Gippsland Basin

- World class producing petroleum province
- Oil production rapidly declining
- New gas developments supporting SE Australia gas market
- Gas discovery at Dory-1 (1-2 Tcf)
- Untapped potential in eastern deeper water region
Gippsland Basin

Main Operators

- Bass Oil
- Carnarvon Hibiscus
- Cooper Energy Limited
- Esso Australia Resources
- Esso Deepwater Gippsland
- Llanberis Energy
- SGH Energy
- CarbonNet (Victorian Government)
Gippsland Basin: V18-4 (closing 18 October 2018)

- Southern flank of Central Deep
- Oil show recorded at Omeo-1
- Intra-Latrobe Group, including Golden Beach Subgroup, are main targets
- Migration pathways poorly understood
- Area covered by Southern Flank 2D MSS (2012) and additional 3D seismic
Gippsland Basin: V18-4 (closing 18 October 2018)

- Southern flank of Central Deep
- Oil show recorded at Omeo-1
- Intra-Latrobe Group, including Golden Beach Subgroup, are main targets
- Migration pathways poorly understood
- Area covered by Southern Flank 2D MSS (2012) and additional 3D seismic
Gippsland Basin: V18-5 (closing 18 October 2018)

- Giant fields hosted by top-Latrobe Group reservoirs
- Gas show recorded at Veilfin-1
- Last well drilled in 2008 (Bazzard-1)
- Deeper intra-Latrobe Group possible key to success
Gippsland Basin: Veilfin-1, thermal history

Veilfin 1

TD 3,521
Dominated by Type III kerogen, Types I and II mixed in during marine transgressions

Both Golden Beach and Emperor sub-groups reached maturity

Top-Latrobe Group remained immature

From: VIMP Report 62, 2002
Eastern Gippsland Basin: V18-6 and V18-7 (closing 21 March 2019)

- Under-explored part of the Gippsland Basin
- Deepest water Gippsland well is Whaleshark-1 (717mKB)
- Flank of the Bass Canyon provides access to deeper Latrobe Group
- New seismic data needed to image Cretaceous unconformities and incised canyons
Further Information

Acreage Release process, how to obtain acreage, petroleum geological information
Further Information

www.petroleum-acreage.gov.au
Acreage Release process, how to obtain acreage, petroleum geological information

Example: maps showing marine environmental zonation
Nominations for the 2019 acreage release can be registered now.

Nominations are treated as 'Commercial-in-Confidence'.

While expressing interest does not guarantee inclusion in the release, all nominations will be considered.

The closing date for nominations is yet to be confirmed, but will be no earlier than 5 September 2018.
Welcome to the new NOPIMS 2018

Geoscience Australia has developed the National Offshore Petroleum Information Management System (NOPIMS) as an online data discovery and delivery system for all Australian offshore petroleum wells and survey information.

Data Access

Core Library
24/11/2017

NOPIMS now includes open file information related to Petroleum Mining Samples held at NOPDCR in Canberra.

NOPIMS 2018
01/05/2018

We are pleased to present the latest developments made to the National Offshore Petroleum Information Management System.