



**EMPEROR ENERGY**  
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# **Emperor Energy (ASX: EMP)**

**APPEA Conference Brisbane**

**May 2019**



## Disclaimer

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The information in this document will be subject to completion, verification and amendment, and should not be relied upon as a complete and accurate representation of any matters that a potential investor should consider in evaluating Emperor Energy Limited. Assumed in-the ground values of unrisks prospective potential resources assets as stated in text (ignoring finding and development costs). No assumption of either commercial success or development is either implied with their adoption by either the Company and its directors and representatives in the application of these indicative values to its assets.

Information on the Reserves and Resources on the Company's operated assets in this release are based on an independent evaluations conducted by 3D-Geo Pty Ltd (3D-Geo). 3D-Geo is a independent geoscience consultancy specialising in petroleum. The technical work was undertaken by a team of geoscientists and petrophysicists and is based on open-file seismic and well data and data supplied by EMP. The technical assessment was performed primarily by, or under the supervision of Keven Asquith, Director 3D-Geo.

The technical information quoted has been compiled and / or assessed by Mr. Geoff Geary who is a professional geologist (Bachelor Science – Geology) with over 35 years standing and who is a Member of Petroleum Exploration Society of Australia. Mr. Geary has consented to the inclusion in this announcement of the matters based on the information in the form and context in which they originally appear – investors should at all times refer to appropriate ASX Releases.

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## Key Points



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- New management team appointed April 2019
- Bass Strait Gas Exploration Focus
- 100% ownership of Exploration Permit **Vic/P47** (Judith Structure)
- Independent Resource Statement completed by RISC November 2018
  - 2C Contingent Resource (Gas Sales) of 122 Bcf
  - P50 Unrisked Prospective Resource (Gas Sales) of 844 Bcf
- Gas Production Dynamic Modelling completed by 3D-Geo November 2018
- Simulated Judith production wells estimated to each deliver;
  - 20 to 30 Million Standard Cubic Feet Per Day (MMcf/d)
  - 5 Well Program simulated to deliver 29 Bcf/year across 20 year period
- Ocean Reach Advisory recently appointed to find major project partner
- Discussions underway with potential partners for Infrastructure and gas Off-Take agreements



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## Company overview

- ASX Listed Energy Company
  - 1.017 Billion Ordinary Shares (ASX: EMP)
  - 518 Million Options (ASX: EMPOC)
- Market Capitalisation \$3 Million
- Strong management team with extensive exploration and financial experience
- Strong shareholder alignment
  - Management holding 10% ownership
  - Top 20 holding 65% ownership

<b>Auditors</b>	Deloitte, Melbourne	<b>Office:</b>	Level 32, 1 Market St
<b>Lawyers</b>	Hopgood Gamin, Perth		Sydney NSW Australia 2000
<b>Share registry</b>	Automic, Sydney	<b>Phone:</b>	+61 2 9275 8878
<b>Website:</b>	<a href="http://www.emperorenergy.com.au">www.emperorenergy.com.au</a>	<b>email:</b>	<a href="mailto:carl@emperorenergy.com.au">carl@emperorenergy.com.au</a>





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## Management Team

### **Carl Dumbrell, Director**

- Appointed July 2015
- EMP Company Secretary
- Chartered Accountant, Australia, England & Wales
- CEO / Executive Director Herencia Resources Plc (AIM: HER)

### **Phil McNamara, Director**

- Appointed April 2019
- 37 years in the resource industry
- Former CEO and Managing Director, Amour Energy ASX: AJQ
- Former Managing Director Waratah Coal
- Qualified Mining Engineer

### **Malcolm King, Director**

- Appointed April 2019
- Over 30 years experience in upstream oil & gas
- Former head of Commercial and Business Develop for Sennex Energy ASX: SXY
- Well site geologist for Shell during the drilling of the Judith-1 Gas Discovery

### **Nigel Harvey, Director**

- Appointed April 2019, was previously a director of EMP
- Chairman of mid size not for profit organisation
- AFSL licence holder
- Former investment banker with JP Morgan and Macquarie

### **Geoff Geary, Geological Consultant**

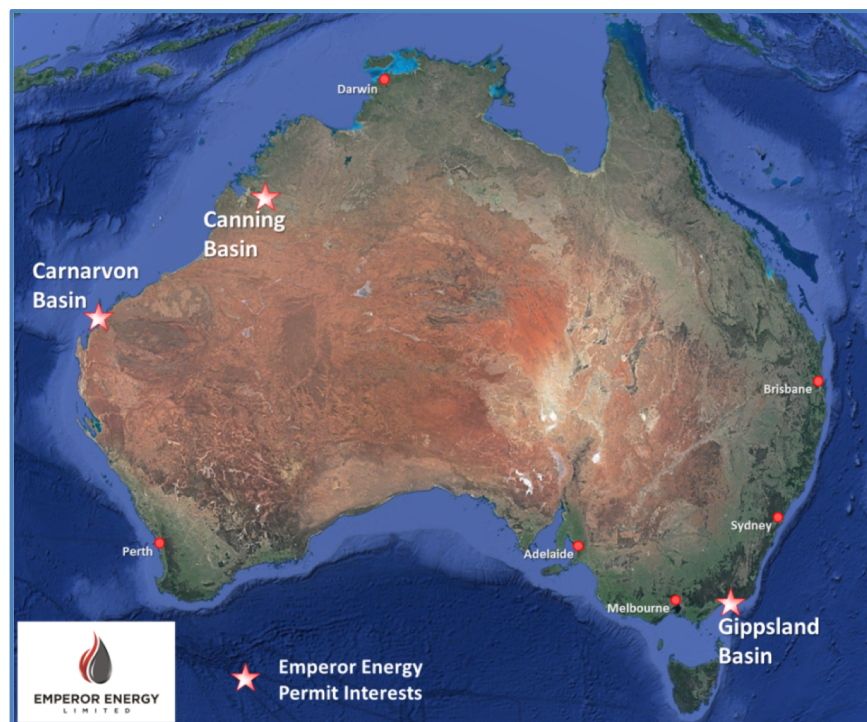
- Over 35 years experience as a geologist in the Petroleum industry
- Member of the Petroleum Exploration Society of Australia.
- Extensive experience in the Bass Strait with Shell



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## Schedule of Tenements

Permit	Type	Location	Ownership
Vic/P47	Exploration Permit	Offshore Gippsland Basin	100%
Backreef	Exploration Area	Onshore Canning Basin	100%
R1/R3	Retention Lease	Offshore Carnarvon Basin	100%



# Gippsland Basin



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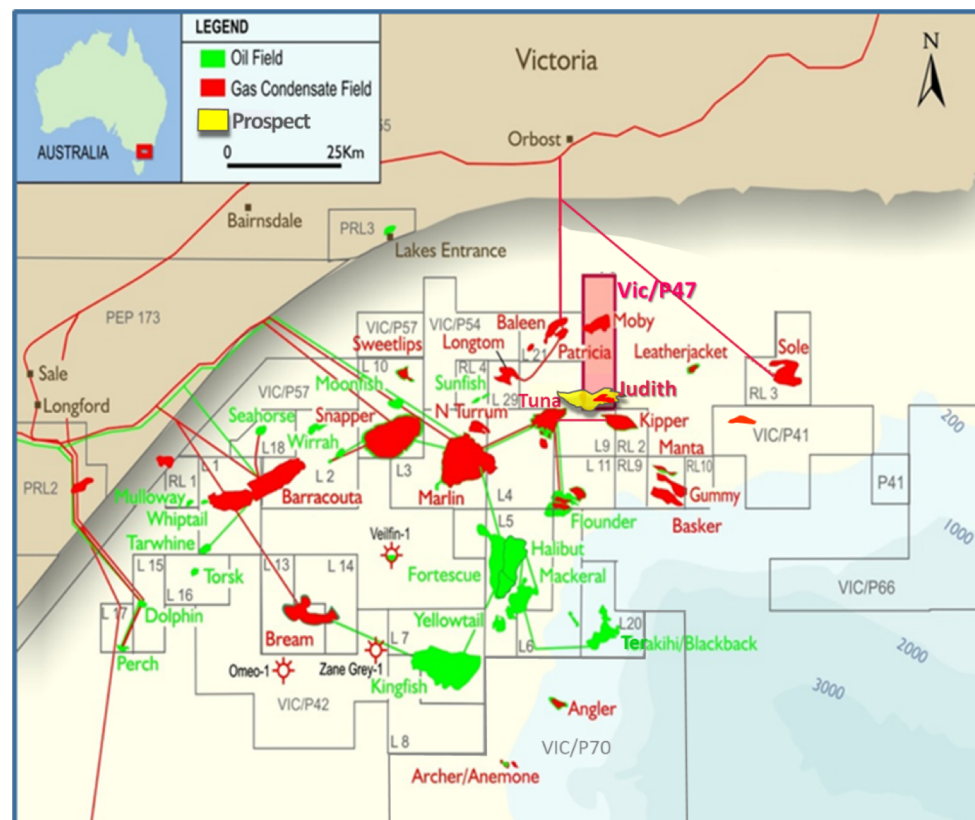
- Australia's premier hydrocarbon province
- Located 200 km east of Melbourne
- Exploration commenced in 1924
- Over 400 exploration wells
- Some 90,000 line km of 2D seismic
- More than forty 3D seismic surveys
- Petroleum infrastructure well developed with a network of pipelines to onshore petroleum processing facilities at Longford and Orbost.

- Gas delivered across southeastern Australia to Sydney, Adelaide, Tasmania and Queensland

- Operators include Esso/BHPP, Seven Group, 3D-Oil and Cooper Energy

- Esso/BHP have developed the Kipper gas field adjacent to Vic/P47 investing over \$5.5 billion in the basin as part of its Kipper – Tuna – Turrum gas project

- Recent development of Sole Gas Field by Cooper





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## Vic/P47 - Bass Strait Victoria

EMP holds 100% of 202 km<sup>2</sup> Vic/P47 Permit

EMP is Operator of the Permit

Shallow water depths: 20 – 85 m

Two-gas discovery wells drilled within the permit

- Judith-1 drilled by Shell in 1989
- Moby-1 drilled by Bass Strait Oil in 2004

3D seismic reprocessing, mapping and interpretation completed in August 2017

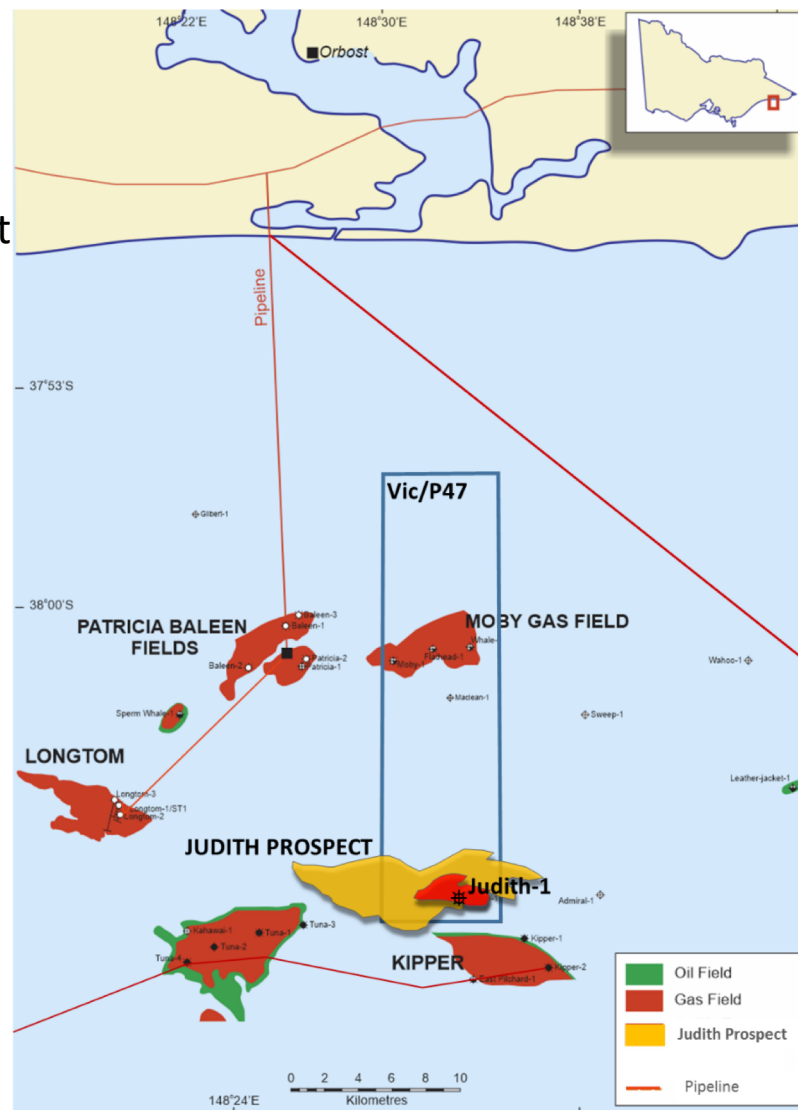
Petrophysics study completed March 2018

Resource Statement completed by Independent Resource Certifier, RISC November 2018

Gas Production Dynamic Modelling completed November 2018 by 3D-Geo

Judith is located 2 km north of the Kipper Gas Field brought recently into production by Esso / BHP Petroleum

- **Permit renewed for 5 years in February 2018**





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## Gippsland Basin Current and Potential Future Developments - Field Size

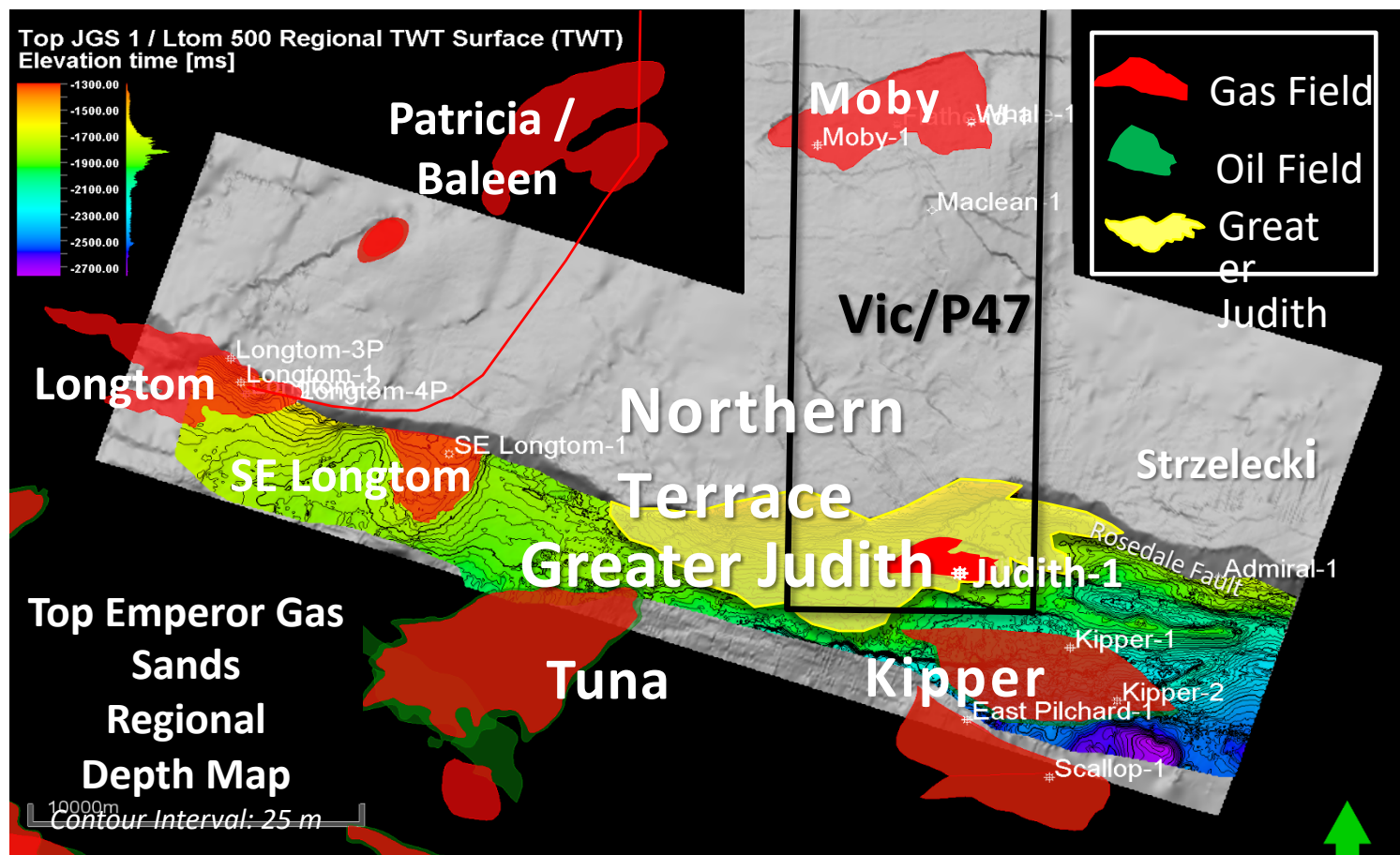
Field	Production Licence / Permit	Operator	Reserve / Resource Category	Estimated Initial Resource (Bcf)	Source Reference
Judith	VicP47	Emperor	2C Contingent	122	1,2
Judith	VicP47	Emperor	P50 Prospective	844	1,2
Sole	Vic/L32	Cooper	2C Contingent	236	6
Manta	Vic/RL13	Cooper	2C Contingent	101	6
Manta	Vic/RL13	Cooper	P50 Prospective	499	6
Kipper	Vic/L09 & Vic/L25	Esso	Uncategorized	588	5
Turrum		Esso	Uncategorized	1000	5
South East Remora	Vic/RL4	Esso	Uncategorized	265	3,7
Longtom Wells 3 & 4	Vic/L29	SGH Energy	Uncategorized	20	3,4,8
Longtom Proposed Well 5	Vic/L29	SGH Energy	Uncategorized	60	3,4,8





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## Proximity of other Gas Fields

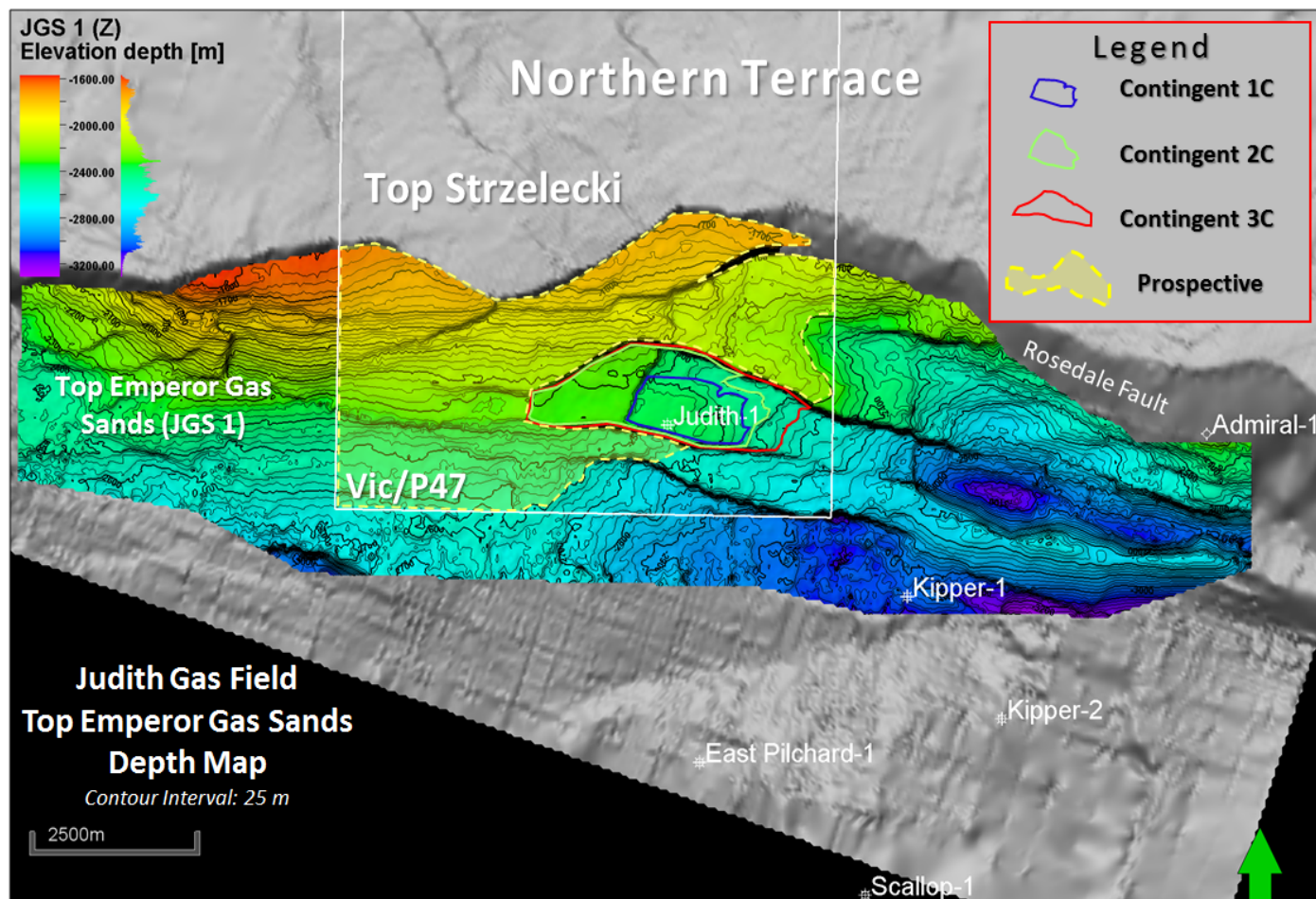


Regional Map of Top Emperor Gas Sands showing Oil and Gas Fields  
adjacent to VIC/P47



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# Judith Structure

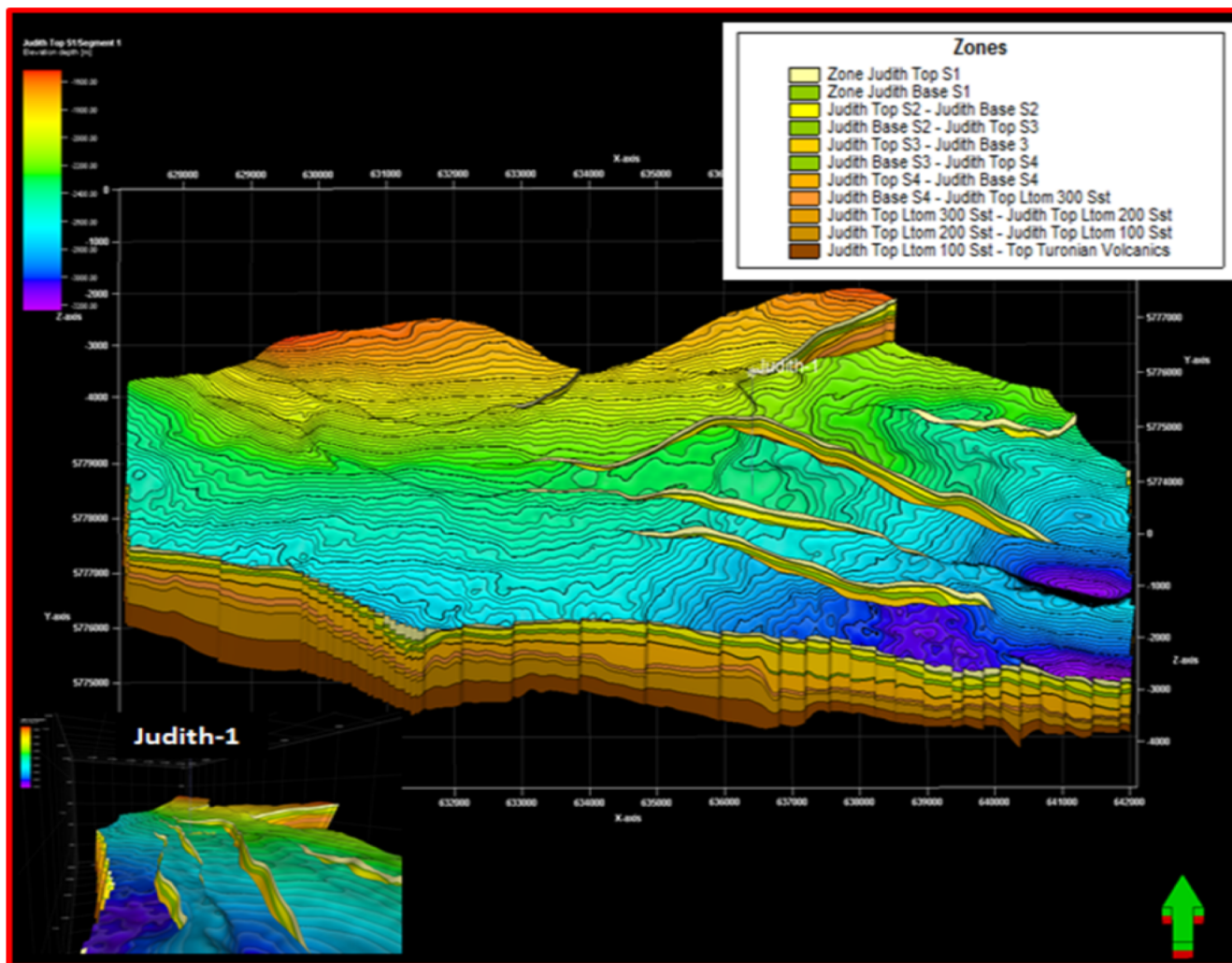


Top Emperor Gas Sands interpreted and mapped from reprocessed 3D seismic data within Vic/P47 showing location of Judith-1 drilled close to gas water contacts and significantly down-dip from structural crest.



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## Static Model



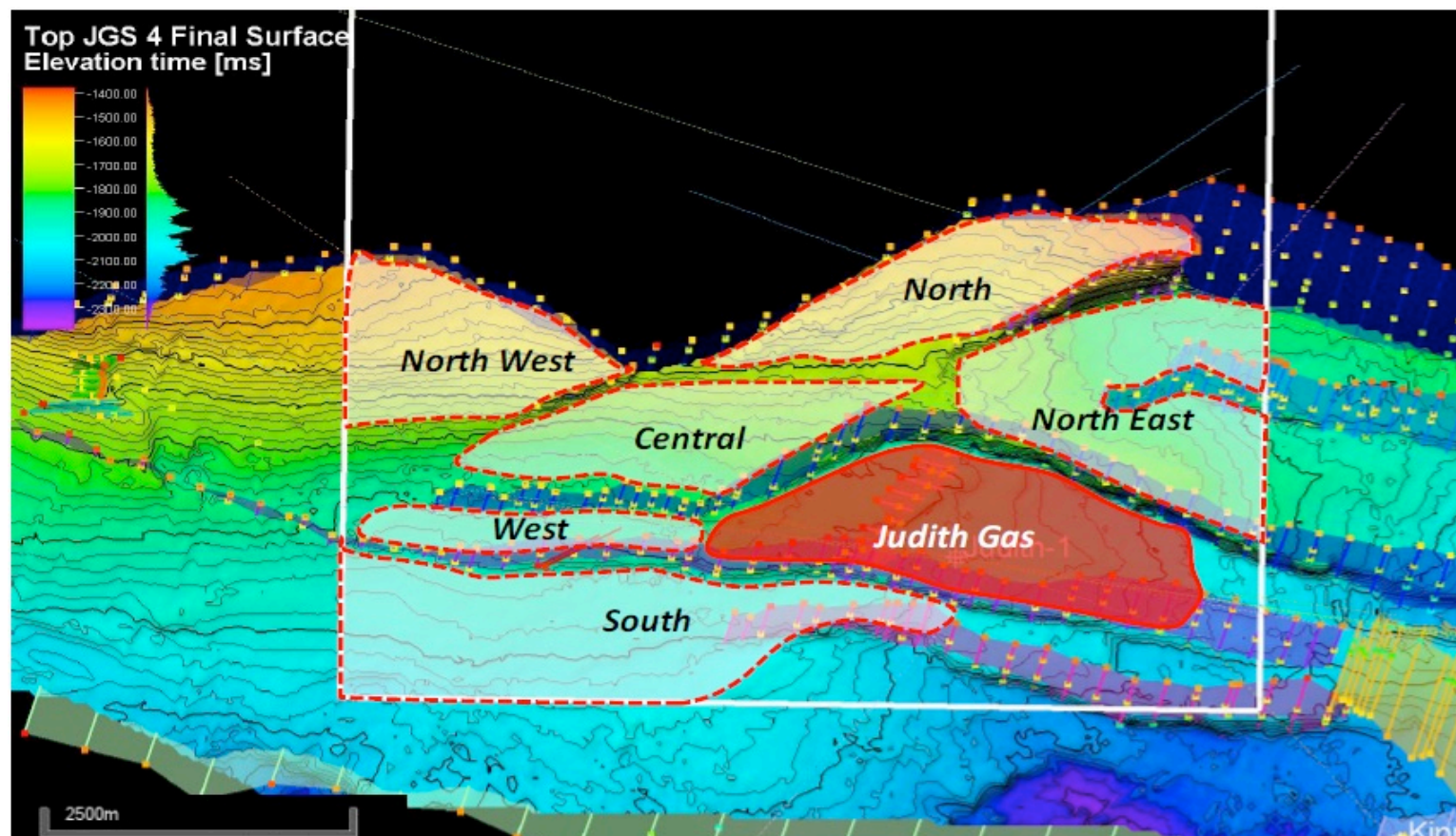
**Greater Judith Prospect 3D Structural Model showing the structural framework (horizons and faults) 3D-Geo**





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## Review by RISC



**Judith Gas Field, Prospects and Leads (RISC, November 2018)**



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## Vic/P47 Volumetrics Summary

### Summary of Contingent and Prospective Resources for the Judith Gas Field in VIC/P47 (RISC, November 2018)

Judith Gas Discovery		Contingent Resources		
		Low 1C	Best 2C	High 3C
GIIP	Bcf	85	229	302
Sales gas	Bcf	34	122	202
Condensate	MMbbl	0.6	1.3	3.8

Judith Gas Discovery		Unrisked Prospective Resources (Sales Gas)		
		P90	P50	P10
Judith Deep	Bcf	46	63	82
West	Bcf	54	65	77
Central	Bcf	120	183	268
North	Bcf	98	137	180
North East	Bcf	169	239	321
North West	Bcf	63	89	120
South	Bcf	30	68	181
Total	Bcf	580	844	1229



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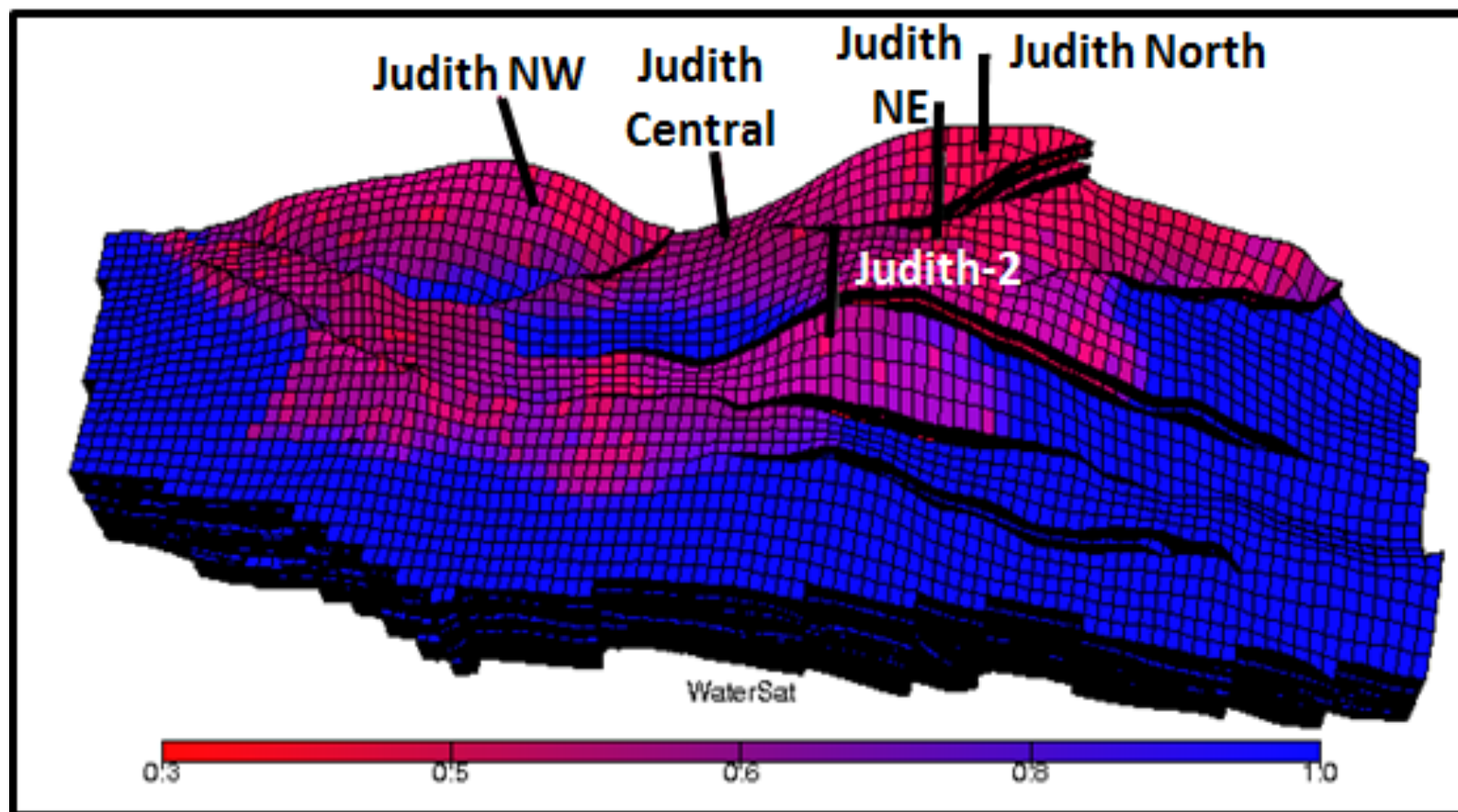
## Dynamic Modelling

- Static geological model developed using Schlumberger's Petrel software for Judith 1 and greater Judith Structure
- To confirm well productivity and gas production forecasts, 3D-GEO then developed a Dynamic Reservoir Model using Schlumberger's Eclipse software.
- The Dynamic Model simulated hydrocarbon flow for the seven separate reservoirs (four Judith Gas Sands and three underlying Longtom Gas Sands)
- The model employed a 350 m maximum gas column in each block, except in the Judith Gas block where the contact was defined as 25 m below the Lowest Known Gas in the Judith-1 well.
- Daily production was limited to a nominal 80 MMscf/d with the purpose of reflecting the capacity of the nearby Orbost Gas Processing Plant.
- Five vertical wells were modelled, with one well each in the Judith Gas Block, Judith Central, Judith Northeast, Judith North, and Judith Northwest.
- These timing of the wells was staggered. The simulation assumes Well 1, Well 2 and Well 3 being drilled in the first year. The simulation then allows for Well 4 to be drilled in Year 4 and Well 5 to be drilled in Year 8.
- Well simulation results indicated well production rates ranged between 20 and 30 MMcf/d while total daily production was limited to 80 MMscfd. Decline rates were controlled by Bottom Hole Pressures in the wells.



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## 5 Well Simulation

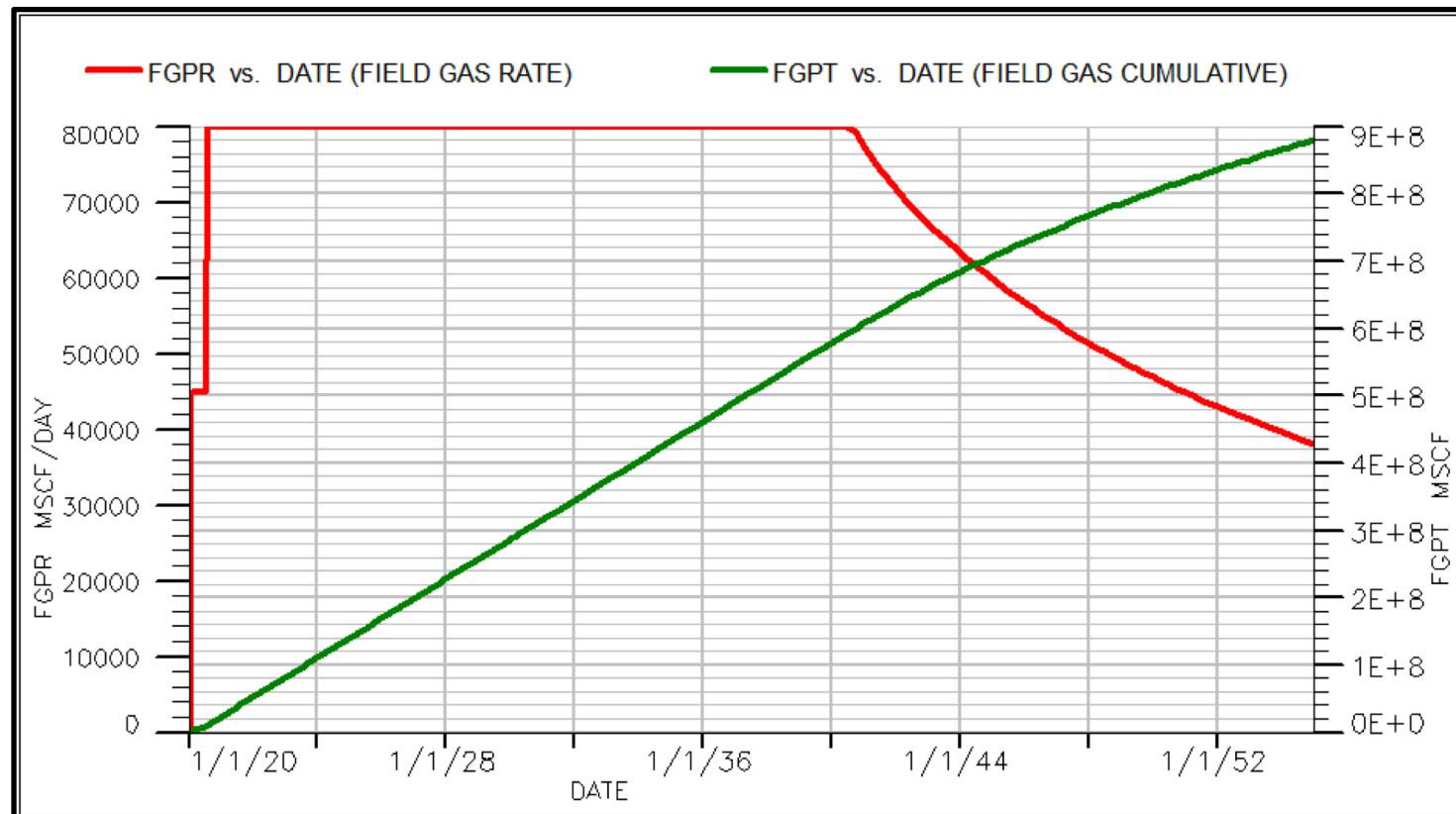


**Dynamic Model of Emperor Gas Sands  
illustrating the five well development plan**



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## Dynamic Modelling Output



**Dynamic Model Gas Production Forecast for  
five well development plan (3D-GEO)**



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## Petro-physics Study Completed

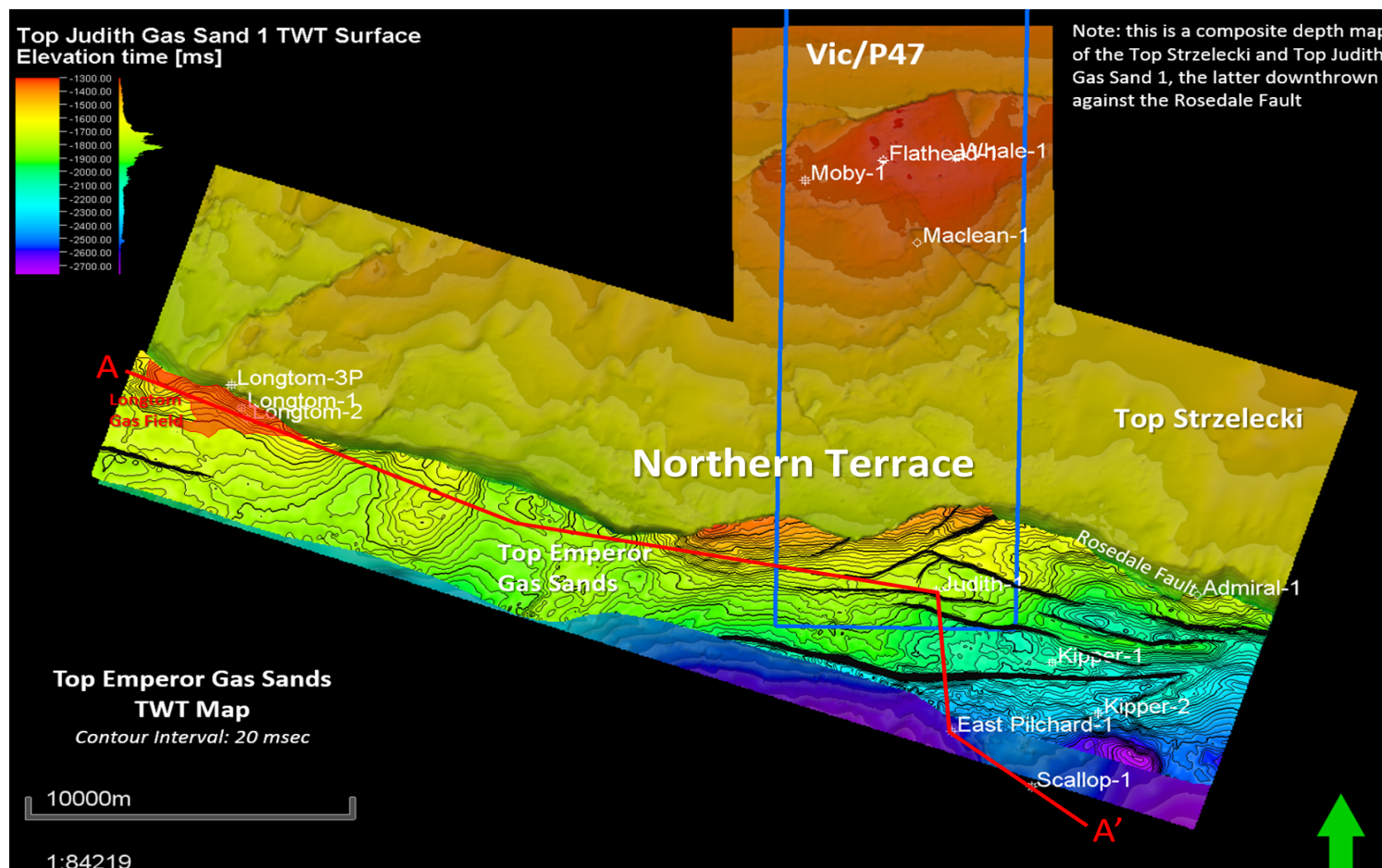
- **Net Reservoir Thickness** of 234m
- **Four (4) reservoirs**
- **Net gas pay** (in gas sands) of 162m
- **Average Porosity** in gas pay reservoirs of 13 - 14.9%
- **Average Permeabilities** in gas pay reservoirs of 0.7 - 1.9 millidarcies (md)
- **Average Gas Saturations** for gas sands vary from 39.9 - 45.4%
- **Lowest-Known-Gas (LKG)** picked in four reservoirs
  - suggests that Gas-Water-Contacts are nearby down-dip from Judith-1
- **Judith-1 drilled through a major fault** 50 m above the upper gas sand
- **Fluid flow from the fault zone** has likely caused local reduction in porosity and permeability
- **Evaluation suggests that Depth-of-Burial** is the major factor controlling reservoir degradation
- **Improved gas reservoir characteristics** *as good as, if not better than* the Longtom wells are expected to be developed up-dip of Judith
- **Longtom Analogue** suggests that Judith-1 gas reservoirs are likely to be sufficiently developed over the Judith structure to be commercially productive particularly where horizontal drilling is employed in development wells as at the Longtom Gas Field





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## Analogue with Longtom Production Field



**Judith Structure in Vic/P47 is located 15km along strike  
to the East of Longtom Production Field**







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## 2019 Business Schedule - Vic/P47



### **Partnership Development**

- Ocean Reach Advisory recently appointed to assist in global search for exploration and development partner.
- Emperor Energy to progress with scoping study costings for
  - Field Development
  - Gas Production
  - Gas Delivery
- Establish Conditional Gas Supply Contracts
- Establish Partnership for Infrastructure and Gas Delivery

### **Well Design Engineering**

- Commencement of engineering work for design of well

### **Environmental and Drilling Approvals**

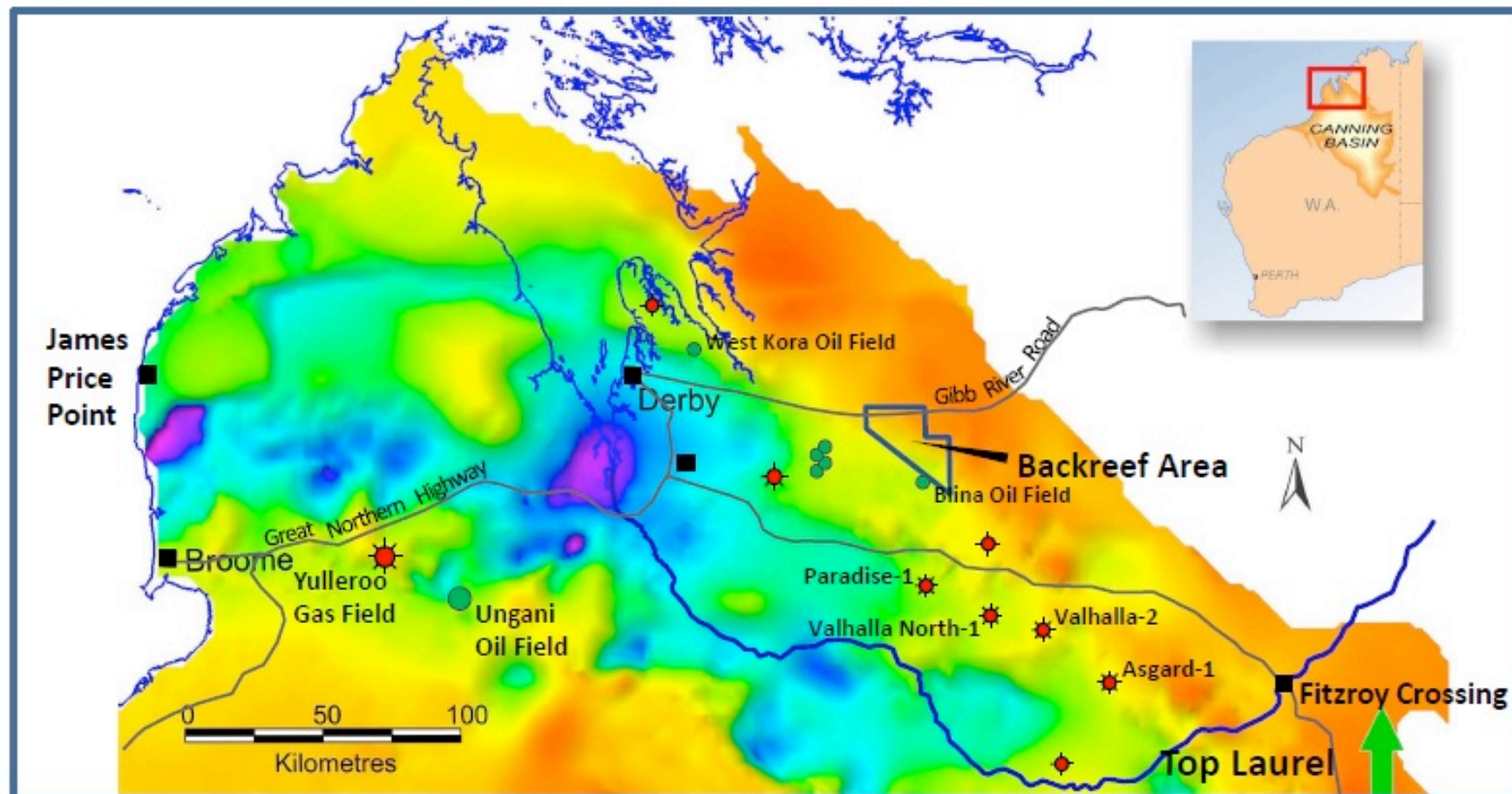
- Commencement of environmental & drilling approval process



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# Canning Basin, Western Australia

## Backreef Block



## **Canning Basin, Western Australia Backreef Block**



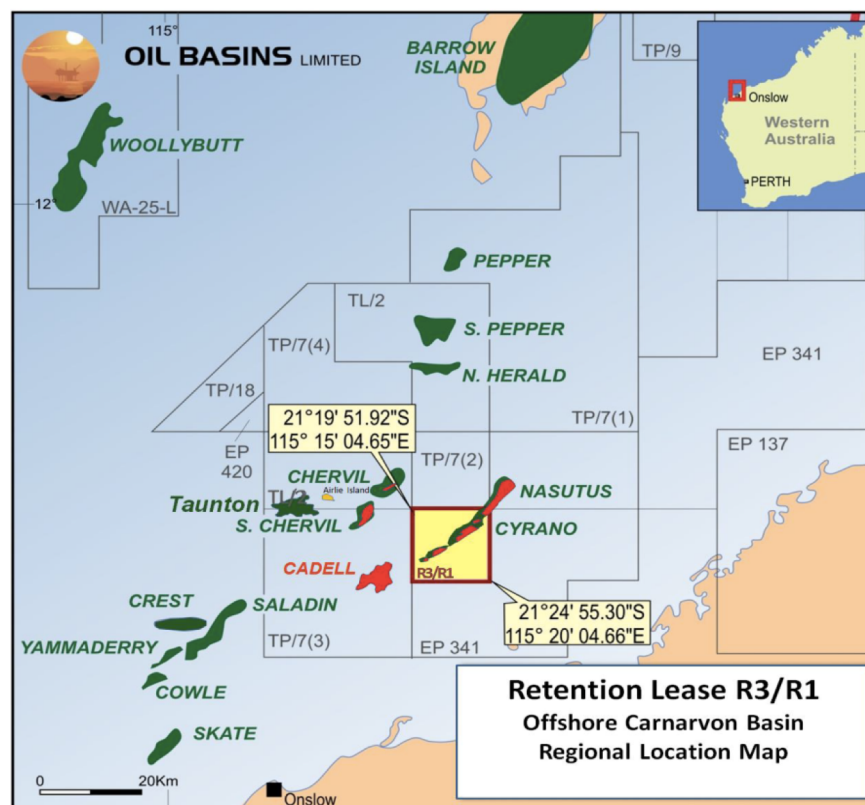
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- EMP owns 100% of the Backreef Block and is Operator
- Backreef-1 was drilled in October 2010 to a depth of 1800m
- Oil was discovered in porous and permeable Laurel dolomites
- Production tests confirmed the discovery as non-commercial
- The well is currently cased and suspended at 1155 m
- Environmental plan lodged in September 2017
- Environmental work was completed in Q4, 2018
- Following the improvement in global oil prices, the company is monitoring exploration activity in the basin with consideration of potentially undertaking further work at Backreef



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## Carnarvon Basin, Western Australia Retention Lease R3 / R1 (Cyrano)



- Cyrano has Contingent Resource (2C) of 3.01 MMbbl of oil
- Additional Prospective Resources (P50) estimated at 0.928 MMbbl



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## **Carnarvon Basin, Western Australia Retention Lease R3 / R1 (Cyrano)**

- EMP is Operator and holds 100% of R3/R1
- Permit Area – 81 km<sup>2</sup>
- The Cyrano Oil Field was discovered in 2003
- The field is defined by 4 vintage wells and 3D seismic
- The field is located in 17 m of water.
- Productive reservoirs commence at 600 m depth.
- Permit renewed for 5 years in early 2017
- EMP is looking to **farm out** R1/R3

## Source References

- 1 RISC (2018): Judith Gas Field: Independent technical specialist's report for Emperor Energy Limited, *November 2018*
- 2 Emperor Energy Limited (2018): Independent resource statement - Judith Gas Field, offshore Gippsland Basin, Victoria, 100% Emperor owned, *12 November 2018*. ASX market announcement. Available at <https://emperorenergy.com.au/wp-content/uploads/2018/11/ASX-release-12-Nov-18.pdf>
- 3 AEMO (2018): Victorian gas planning report update. *March, 2018*. Report available at: [https://www.aemo.com.au/-/media/Files/Gas/National\\_Planning\\_and\\_Forecasting/VGPR/2017/2018---Victorian-Gas-Planning-Report-Update.pdf](https://www.aemo.com.au/-/media/Files/Gas/National_Planning_and_Forecasting/VGPR/2017/2018---Victorian-Gas-Planning-Report-Update.pdf)
- 4 Offshore Technology (2018): Longtom Gas Field, Gippsland Basin. Webpage available at: <https://www.offshore-technology.com/projects/longtom-field/>
- 5 ExxonMobil (2018): Kipper Tuna Turrum (KTT). Webpage available at: <https://www.exxonmobil.com.au/en-au/energy/natural-gas/natural-gas-operations/kipper-tuna-turrum>
- 6 Cooper Energy Limited, 2018: Reserves and contingent resources update at 30 June 2018. Media release available at <https://www.cooperenergy.com.au/Upload/Documents/AnnouncementsItem/01-2018.08.10-ASX-Reserves-and-Resources-at-30-June-2018.pdf>
- 7 The Australian (2017), "Oil giants ExxonMobil and BHP bid for delay on new Bass Strait gas", 30 May 2017, available at <https://www.theaustralian.com.au/business/mining-energy/oil-giants-exxonmobil-and-bhp-bid-for-delay-on-new-bass-strait-gas/news-story/a2fcf1fdce5e889b38344be5678b0d9c> (paywall).
- 8 Seven Group Holdings Investor Presentation 3<sup>rd</sup> May 2018.



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