



Judith Gas Field Appraisal & Exploration Opportunity

2.2 Tcf P50 Prospective Recoverable Gas Resource
198 Bcf 2C Contingent Resource

RIU Good Oil Conference

7th September 2023

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- 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 MC3D 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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Introducing Emperor Energy Team



A team of experienced E&P and corporate professionals



Phil McNamara
Director

- 37 years in the resource industry
- Former CEO and Managing Director of Amour Energy (ASX:AJQ)
- Former Managing Director Waratah Coal



Carl Dumbrell
Director

- Chartered Accountant, Australia, England & Wales
- EMP Company Secretary
- Executive Director of Herencia Resources PLC (AIM:HER)



Nigel Harvey
Director

- Former investment banker with JP Morgan and Macquarie
- Chairman of mid size not for profit organisation
- AFSL licence holder



Malcolm King
Project & BD Consultant

- ~30 years' experience in upstream oil & gas and power with Shell
- Former Head of Commercial and New Ventures for Senex Energy (ASX:SXY)
- Wellsite geologist for Shell Judith-1 Gas Discovery (1989)



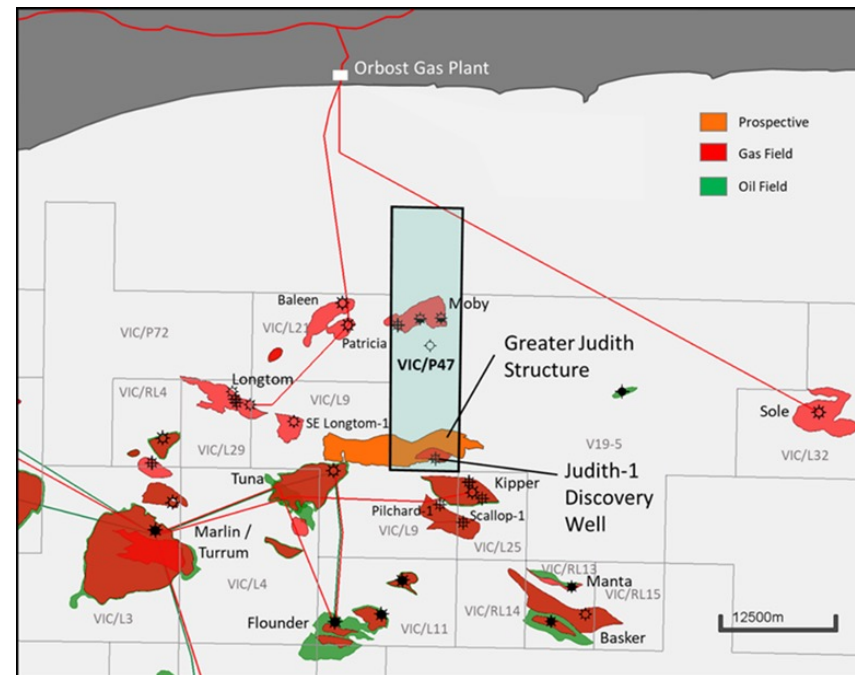
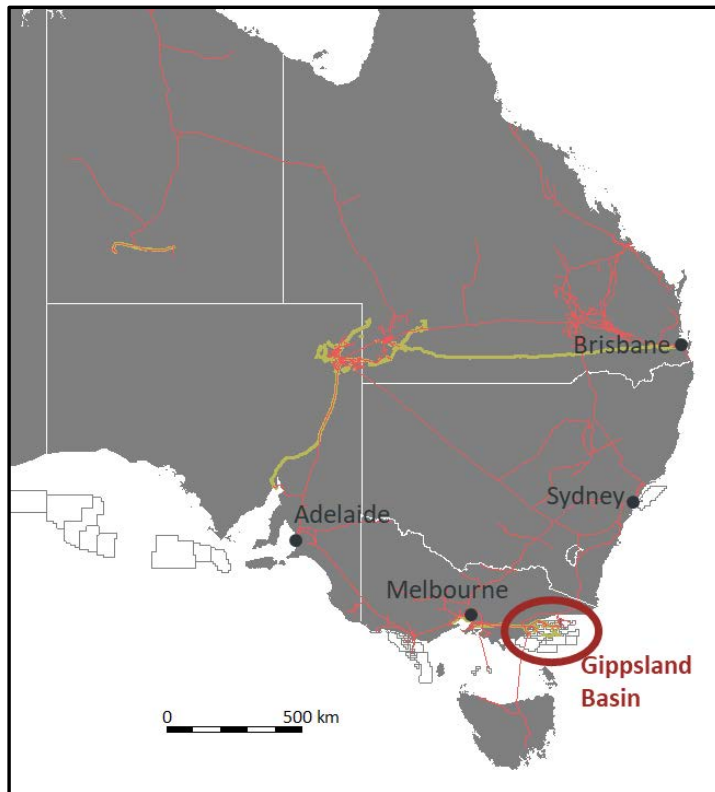
Geoff Geary
Geological Consultant

- Over 35 years experience in the petroleum industry
- Extensive experience in the Bass Strait with Exxon



Gippsland Basin, 40km offshore

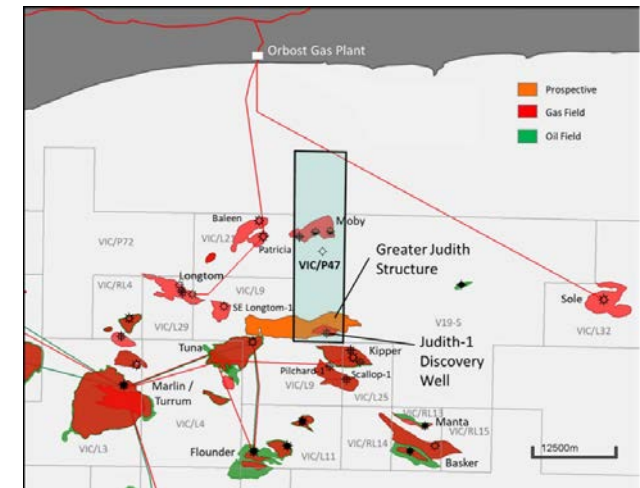
New pipeline to shore at Orbest would provide access to East Coast domestic gas market



Judith-1 discovered multiple stacked reservoirs



- Judith & Longtom Gas Sands:
 - **1.627 TCF (P50)** Prospective Recoverable Resource (unrisked)
 - Plus additional 2C Contingent Resource of **198 BCF (P50)** Recoverable
- Kipper and Golden Beach Sands
 - Additional **622 BCF (P50)** Prospective Recoverable Resource (unrisked)
- Project de-risked by **Judith-1 discovery well** and **new 3D seismic with positive AVO response**
- Judith is on trend and directly analogous to the Longtom and SE Longtom gas fields
 - Longtom-3 (H) flowed 75 MMSCFD
- Potential path to production at Orbost Gas Plant via MOU with Cooper Energy
- Pre-FEED previously completed with APA prior to sale of Orbost Gas Plant to Cooper Energy
- Preliminary design, schedule and costings are understood enabling a fast-track development
- Judith Gas Project well positioned to sell into the supply constrained Eastern Domestic Gas Market



Emperor owns 100% of VIC/P47



Judith appraisal well was due in August 2023.

An application for Permit Extension has been submitted to NOPTA based on the Force Majeure event that has now resulted in a significantly more complex and extended Environmental Plan (EP) Stakeholder Consultation process across the Offshore Industry

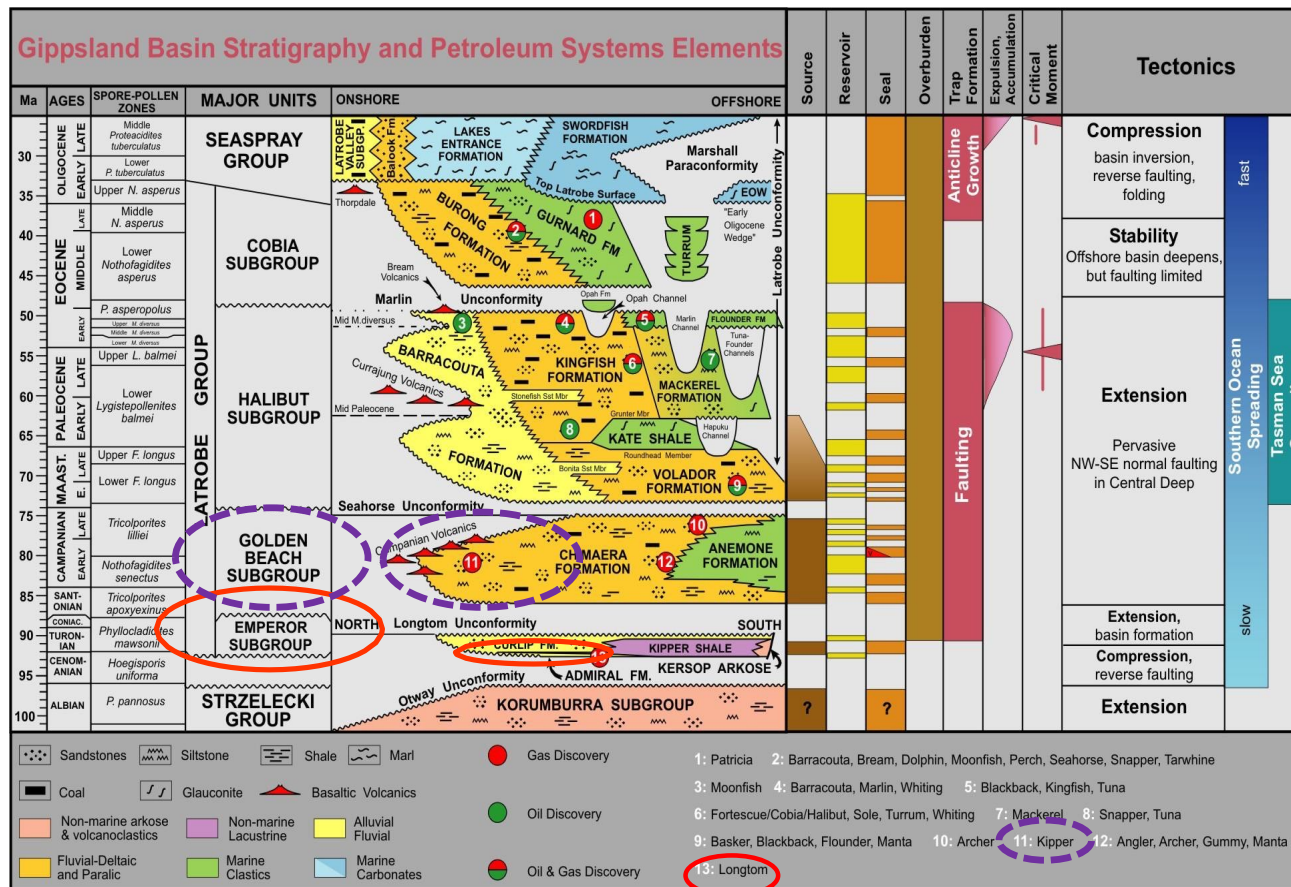
- **Ownership:** Emperor owns 100% of 203 km² VIC/P47, which covers the Judith-1 gas discovery

Year	Start Date	End Date	Activity Description	Indicative Expenditure (AUD)	Complete?
1-3	23/02/2018	22/08/2023	Geotechnical studies including detailed resource assessment, preliminary reservoir engineering, target selection and well planning	\$400,000	✓
			Purchase of 45 km ² of multi-client 3D seismic from CGG - comprising all available MC3D full-fold coverage in VIC/P47*	\$580,000	✓
			Interpretation and mapping of newly purchased 45 km ² of Multi Client 3D seismic data*	\$150,000	✓
			Confirmation of drilling target/s and detailed well planning and preparation	\$1,300,000	In progress
			Drill one well	\$35,000,000	
4	23/08/2023	22/08/2024	Post-well evaluation studies	\$500,000	
5	23/08/2024	22/08/2025	Geotechnical studies including commerciality assessment	\$300,000	



Gippsland Basin Stratigraphy

- **Judith and Longtom gas reservoirs** – early rift fluvio-lacustrine Cenomanian sediments of the Emperor Subgroup
- **Kipper and Golden Beach Subgroup reservoirs** – a secondary, developing play extending from Kipper Gas Field



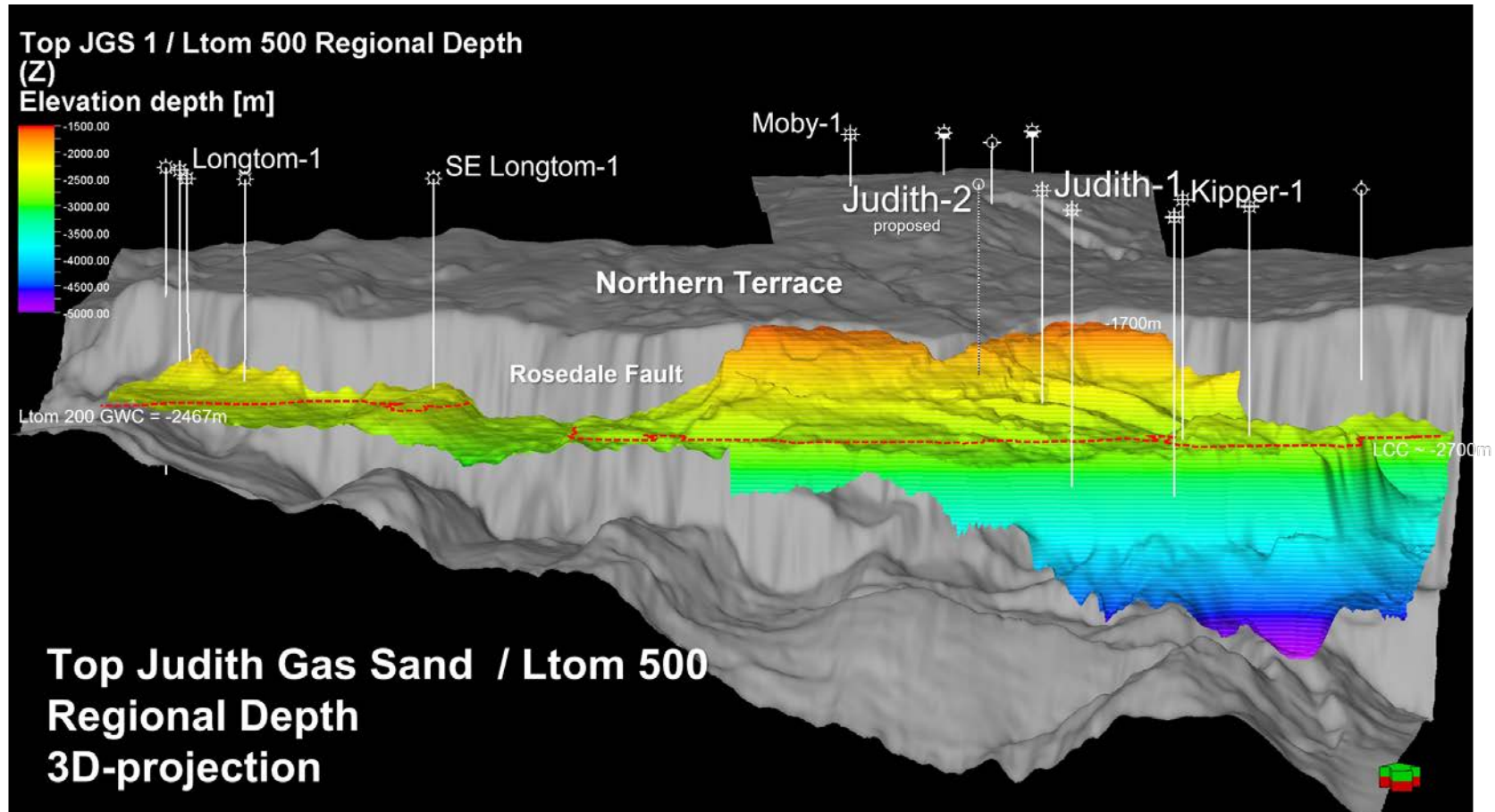
Golden Beach Subgroup (Kipper)
Secondary Developing Play

Emperor Subgroup (Judith & Longtom)
Primary Play



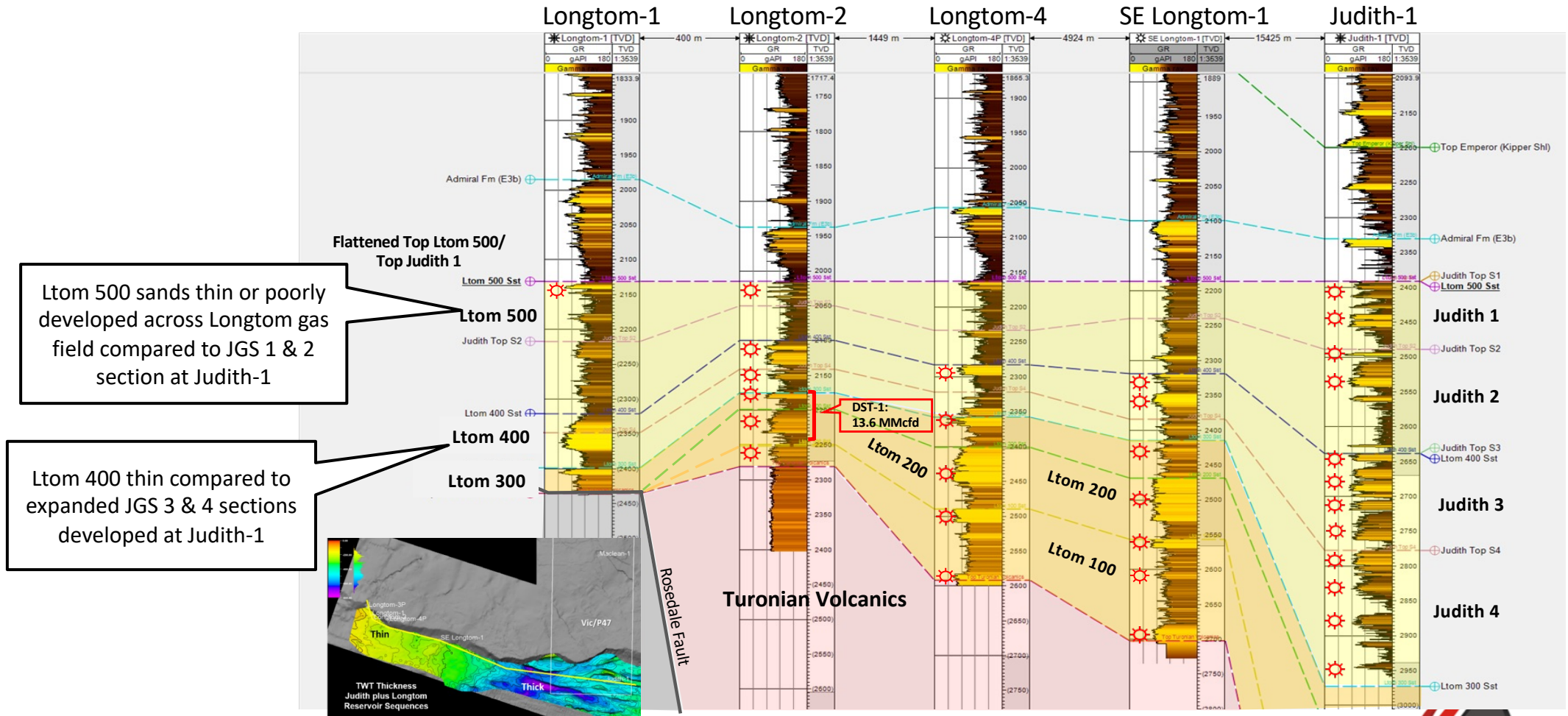
VIC/P47 Structural Configuration

The shallowest Judith reservoir (JGS1) was interpreted to Longtom where it correlated with the Longtom 500 Gas Sand



Longtom-1 Well to Judith-1 Well

Cross-section of Longtom and Judith reservoir sequences



Recent Petrophysics Evaluation

- Evaluation recently completed by Steve Adams at TPL (The Petrophysicist Limited)
- New methodology used for reservoir evaluation
 - Has been successfully applied by TPL at other gas field locations in the Gippsland Basin.
- Quantitatively evaluated Judith-1 over the objective sections for porosity, permeability, net reservoir and gas saturations
 - Incorporating a review of the Judith-1 Repeat Formation Test (RFT) data
- Interpretation shows the presence of mobile gas in the Judith sand units 1, 2, 3 & 4
 - Net reservoir thickness of 189.5 m
- These gas sands are interpreted as most likely separate gas columns
 - Based on pressure data and the log-derived (saturation-height) contacts.
- Evaluation confirms the previous analysis of mobile gas columns and gas saturations (Cernovskis, 2022)
- Significant order of magnitude increases in permeabilities over the previous analysis
 - Permeability calculations are based on correlations to regional core data
 - Have been checked against a re-evaluation of RFT mobilities from the Judith-1 well.



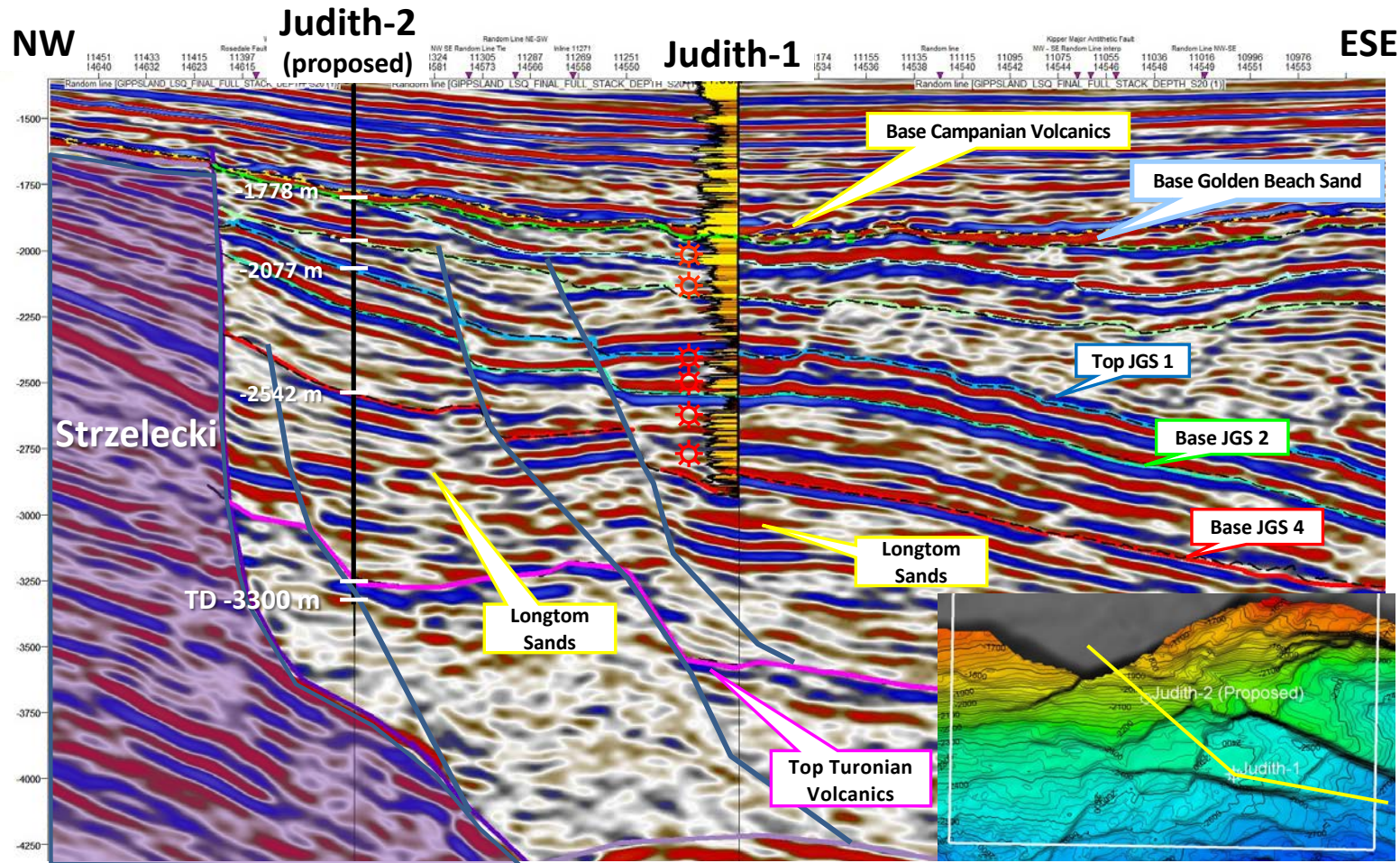
Order of Magnitude Increase in Average Permeabilities

Zone	Depth	Interpretation	Net Thickness	Porosity %	Av. Permeability mD	Av. Gas Saturation %
Gas Sand 1	2370m to 2441m	Mobile Gas	40.5	14.1	12.3	52.2
Gas Sand 2	2489m to 2543m	Mobile Gas	38.8	15.0	24.2	63.8
Gas Sand 3	2626m to 2720m	Mobile Gas	63.1	13.6	5.2	61.1
Gas Sand 4	2778m to 2839m	Mobile Gas	47.1	12.6	1.6	56.4

- **Reservoir properties derived at higher permeabilities** can now be used for further dynamic modelling
 - Expectation of significantly higher flow rates from gas production simulation.
- **An additional independent AVO analysis** is currently being carried out
 - Will be calibrated against the mobile gas columns as defined by Steve Adams.

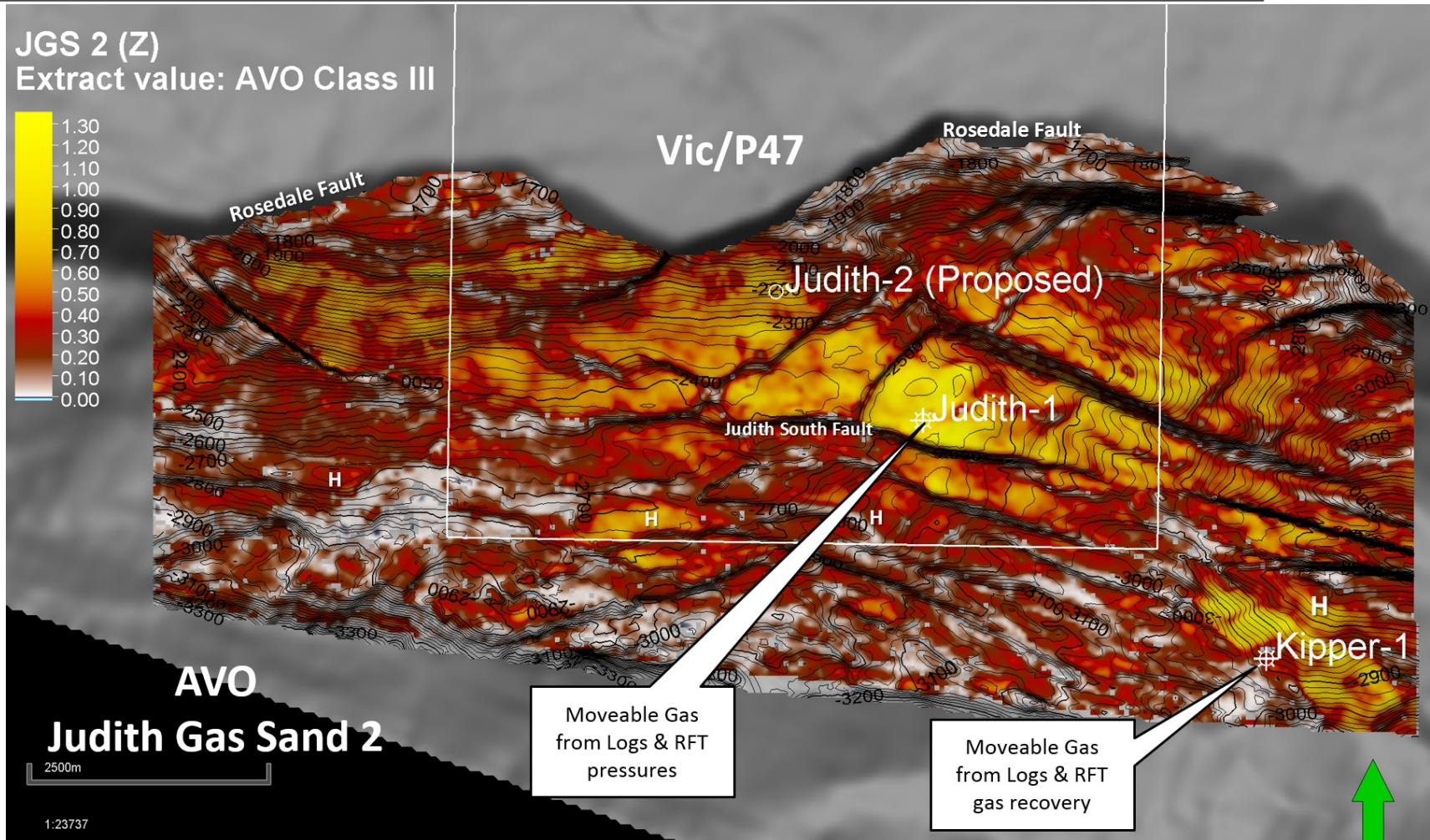
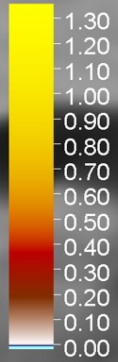


Judith-1 to Judith-2 Appraisal Well Location



AVO Class III Judith Gas Sand 2

JGS 2 (Z)
Extract value: AVO Class III

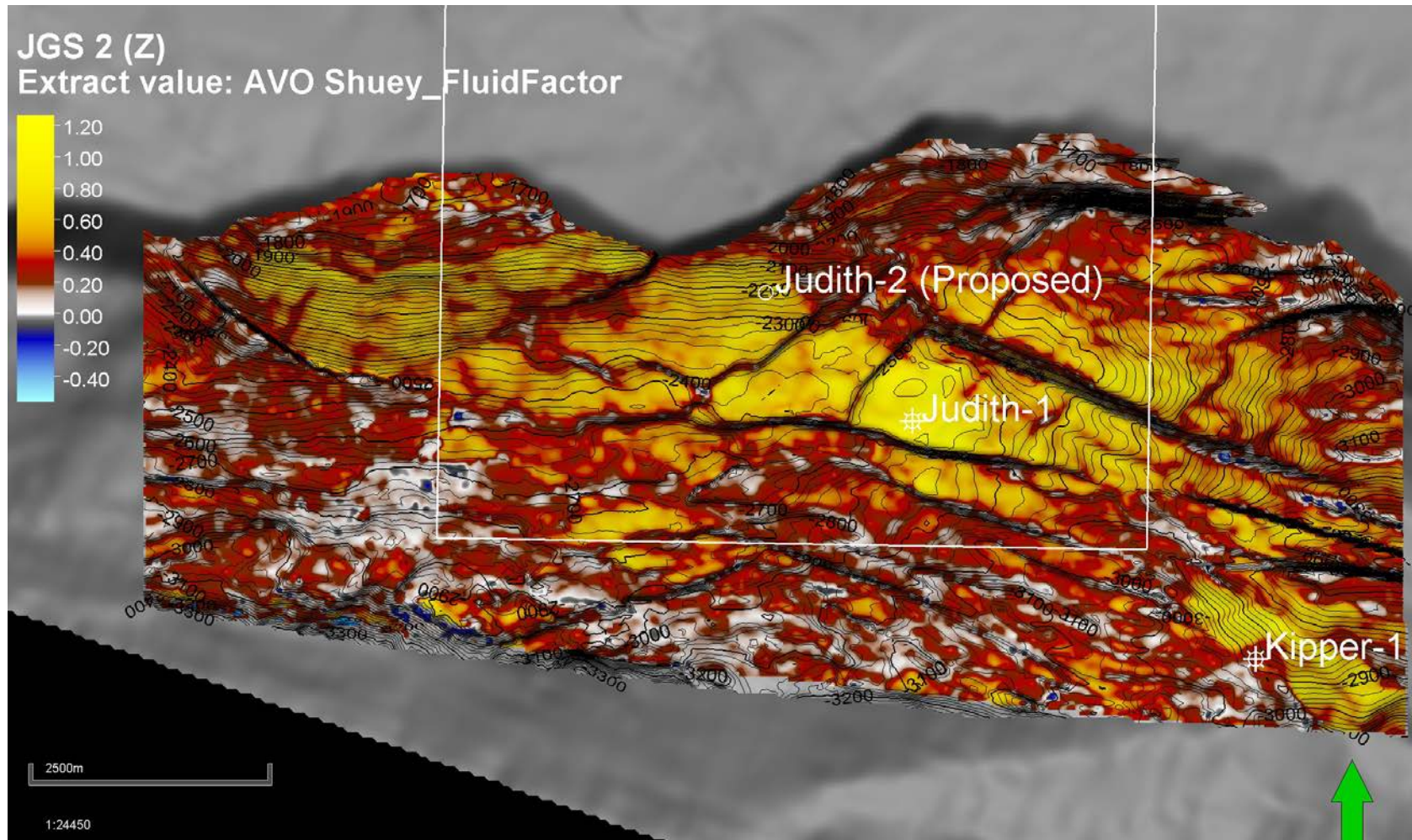


Moveable Gas
from Logs & RFT
pressures

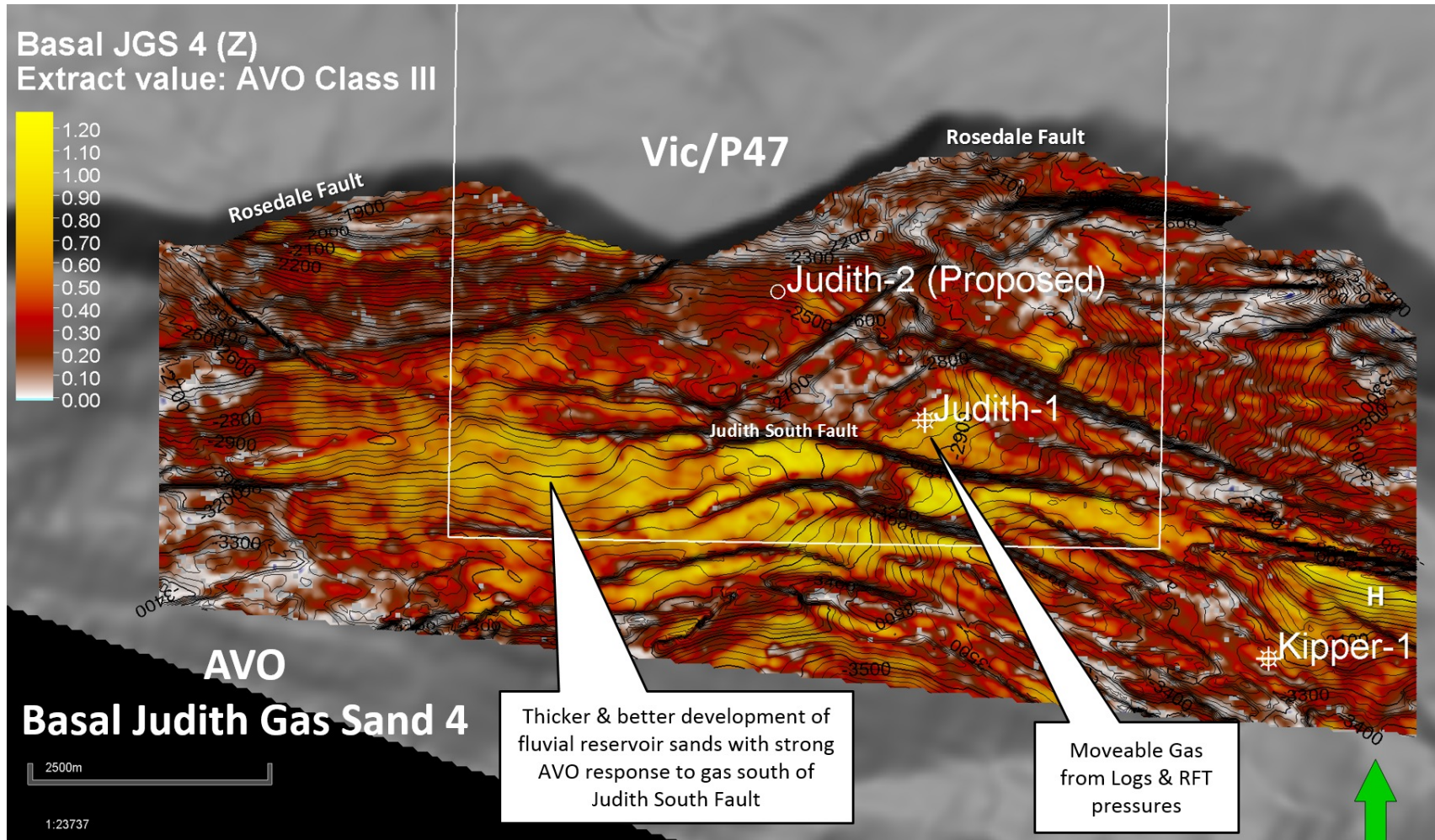
Moveable Gas
from Logs & RFT
gas recovery



Shuey Fluid Factor Judith Gas Sand 2



AVO Class III Judith Gas Sand 4



Longtom demonstrates high flow rates from Emperor sands

Increases positive likelihood of high flow rates from Judith-2

Longtom-H3 (2006) flow tested

- L'tom 400 @ 30 MMscfd
- L'tom 300, 200 & 100 @ 77 MMscfd

Peak Longtom production flow rates of 56-77 MMscfd achieved from two horizontal wells: Longtom-3H and Longtom-4H



Judith-2 Appraisal Well



Judith-2 appraisal well objectives:

1. Prove up more contingent resource

- a) Drilling of Judith-2 in the Central Block is expected to access and improve Contingent Resource by 430 BCF P50. When combined with existing 198 BCF P50 Contingent Resource from Judith-1 summing to 628 BCF > ~ 200 BCF MEFS threshold for a standalone development

2. Demonstrate reservoir producibility at this location via DST

3. Explore/test for the underlying Longtom 200 sands (below TD of original Judith-1)

- a) Longtom 200 sands, the principal producing sand of the Longtom Gas Field

4. Appraise/evaluate the Kipper / Golden Beach Sands (*recent additional objective*)

- MEFS: minimum economic field size
- Well management to be from well engineering and design through to supervision and execution. It will also manage the well health and safety and regulatory aspects.
- It is envisaged that AGR will be the wells management partner for the development wells.
- Opportunities exist to reduce well costs including rig of opportunity

P90 dry hole well cost (including well test planning), from rig EOIs, of U\$25m (semi-sub)

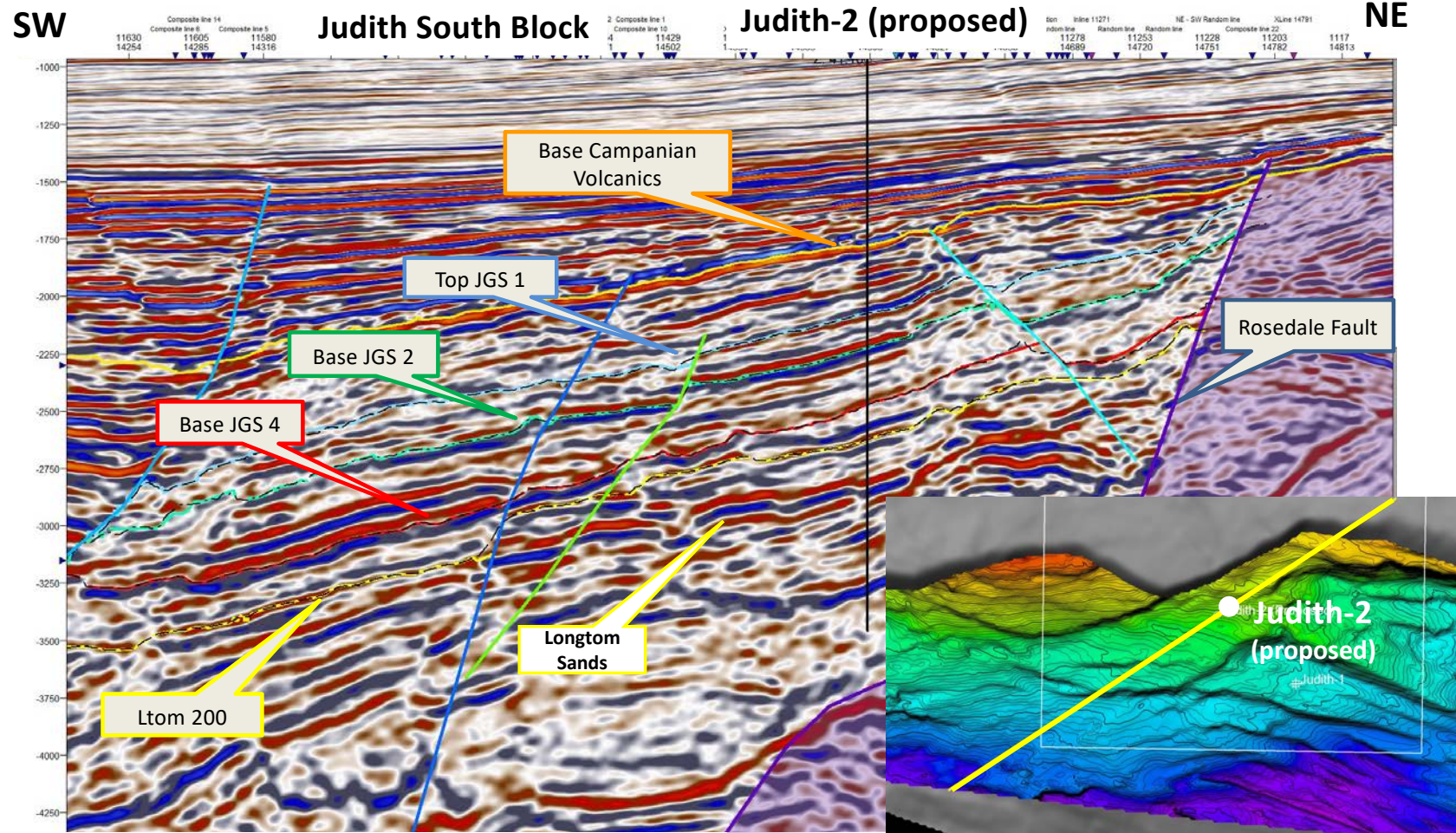
- Semi-sub or jack-up rig (70m water depth)
- March 2025 planned spud
- Flow test in success case - estimated at US\$7m to \$21m

AGR is Emperor's Wells Management Partner

- AGR progressing Judith-2 well permitting process and will be responsible for well design, contracting and operations
- AGR has delivered over 550 well projects across six continents and has recorded zero loss time incidents.

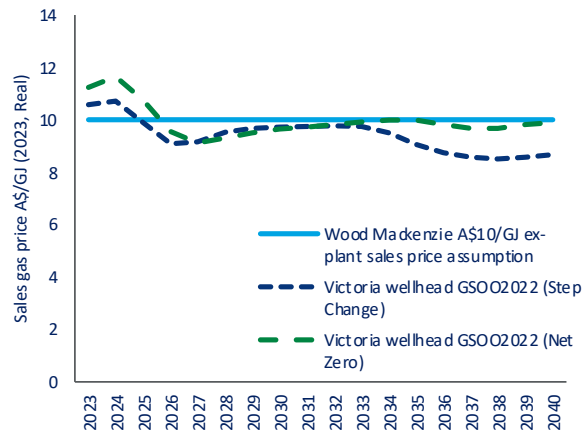


Judith-2 Appraisal Well Seismic Cross-Section



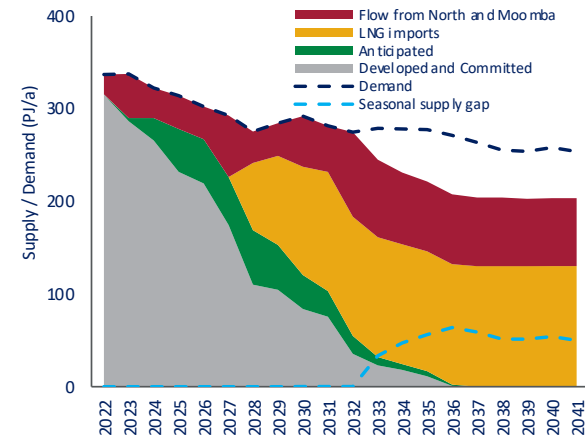
Project Economics: Gas Pricing

Sales Gas Price (Victoria ex-plant) forecast (A\$/GJ)



Source: Wood Mackenzie

AEMO Step Change South East Supply Demand



Source: Wood Mackenzie



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- **Competent Persons Statement. Consents**

- The Resources information in this ASX release is based on, and fairly represents, data and supporting documentation supplied in an Independent Technical Specialist's Report (ITSR) prepared by 3D-GEO Pty Ltd. The preparation of this report has been managed by Mr Keven Asquith who is Chairman and Director of 3D-GEO Pty Ltd.
- Mr Asquith holds an Honours BSc. Geological Sciences – University of Western Ontario, Canada, 1978, and a Diploma in Project Management from the University of New England, Australia - 2000. Mr Asquith has over 35 years' experience in the sector and is a long-time member of the American Association of Petroleum Geologists (AAPG).
- Mr Asquith is a qualified Petroleum Reserves and Resources Evaluator as defined by ASX listing rules. The Resources information in this ASX announcement was issued with the prior written consent of Mr Asquith in the form and context in which it appears.
- 3D-GEO Pty Ltd is an independent oil and gas consultancy firm. All the 3D-GEO staff engaged in this assignment are professionally qualified engineers, geoscientists or analysts, each with many years of relevant experience and most have in excess of 25 years of industry experience.
- 3D-GEO was founded in 2001 to provide geotechnical evaluations to companies associated with the oil and gas industry. 3D-GEO services domestic and international clients with offices in Melbourne and Madrid.
- Reserves and resources are reported in accordance with the definitions of reserves, contingent resources and prospective resources and guidelines set out in the Petroleum Resources Management System (PRMS) approved by the Board of the Society of Petroleum Engineers in 2018.
- The Independent Technical Specialist's Report (ITSR) has been prepared in accordance with the Code for the Technical Assessment and Valuation of Mineral and Petroleum Assets and Securities for Independent Expert Reports 2005 Edition ("The VALMIN Code") as well as the Australian Securities and Investment Commission (ASIC) Regulatory Guides 111 and 112.
- SPE-PRMS Society of Petroleum Engineer's Petroleum Resource Management System - Petroleum resources are the estimated quantities of hydrocarbons naturally occurring on or within the Earth's crust. Resource assessments estimate total quantities in known and yet-to-be discovered accumulations, resources evaluations are focused on those quantities that can potentially be recovered and marketed by commercial projects. A petroleum resources management system provides a consistent approach to estimating petroleum quantities, evaluating development projects, and presenting results within a comprehensive classification framework. PRMS provides guidelines for the evaluation and reporting of petroleum reserves and resources.



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- Under PRMS “**Reserves**” are those quantities of petroleum which are anticipated to be commercially recoverable from known accumulations from a given date forward. All reserve estimates involve some degree of uncertainty. The uncertainty depends chiefly on the amount of reliable geologic and engineering data available at the time of the estimate and the interpretation of these data. The relative degree of uncertainty may be conveyed by placing reserves into one of two principal classifications, either proved or unproved. Unproved reserves are less certain to be recovered than proved reserves and may be further sub-classified as probable and possible reserves to denote progressively increasing uncertainty in their recoverability.
- “**Contingent Resources**” are those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations, but the applied project(s) are not yet considered mature enough for commercial development due to one or more contingencies. Contingent Resources may include, for example, projects for which there are currently no viable markets, or where commercial recovery is dependent on technology under development or gaining access to existing infrastructure or where evaluation of the accumulation is insufficient to clearly assess commerciality.
- Contingent Resources are further categorized in accordance with the level of certainty associated with the estimates and may be sub-classified based on project maturity and/or characterized by their economic status.
- “**Prospective Resources**” are those quantities of petroleum estimated, as of a given date, to be potentially recoverable from undiscovered accumulations by application of future development projects. Prospective Resources have both a chance of discovery and a chance of development. Prospective Resources are further subdivided in accordance with the level of certainty associated with recoverable estimates assuming their discovery and development and may be sub-classified based on project maturity.
- The estimated quantities of petroleum that may potentially be 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.





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