



PAPUA NEW GUINEA

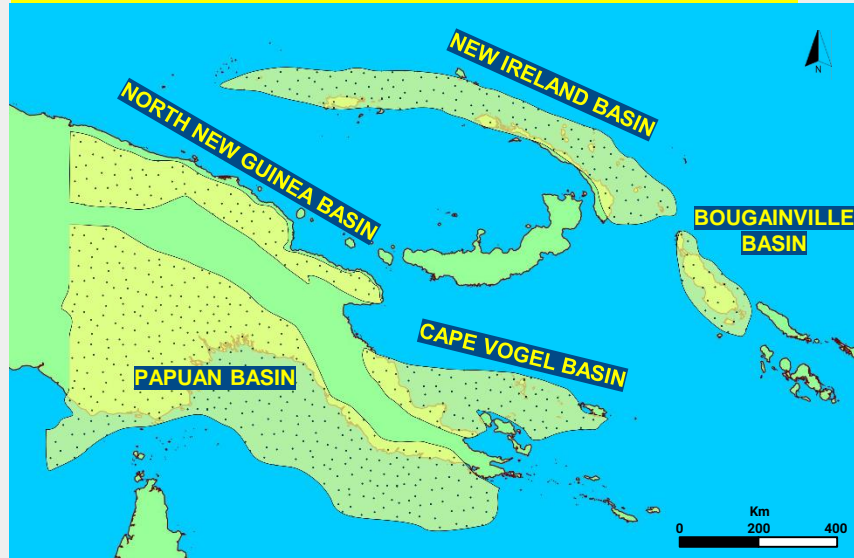
A LARGE EMERGING NEW PLAY IN THE GULF OF PAPUA

John Chambers and Alaister Shakerley

13 December 2023

PAPUA NEW GUINEA SEDIMENTARY BASINS

ONLY THE PAPUAN BASIN HAS HAD SIGNIFICANT EXPLORATION FOCUS TO DATE!

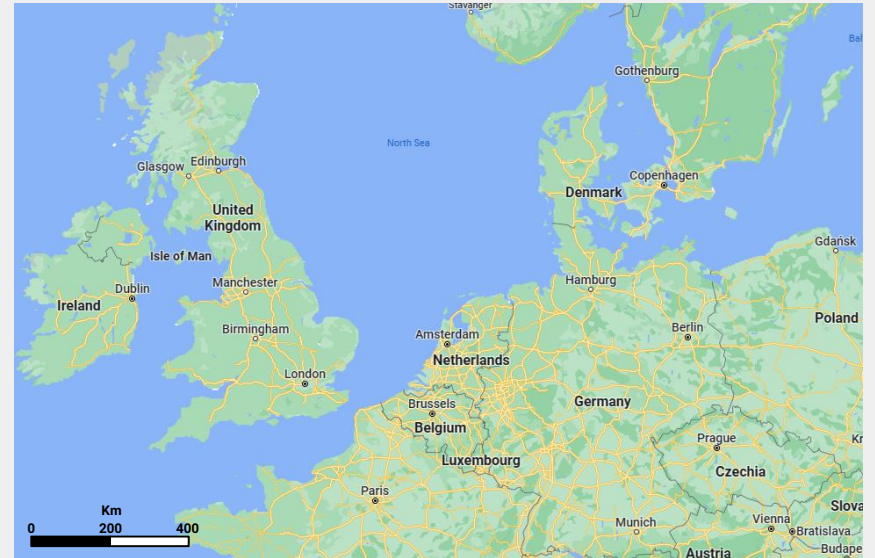


Adapted from: http://www.ccop.or.th/epf/png/png_petroleum.html



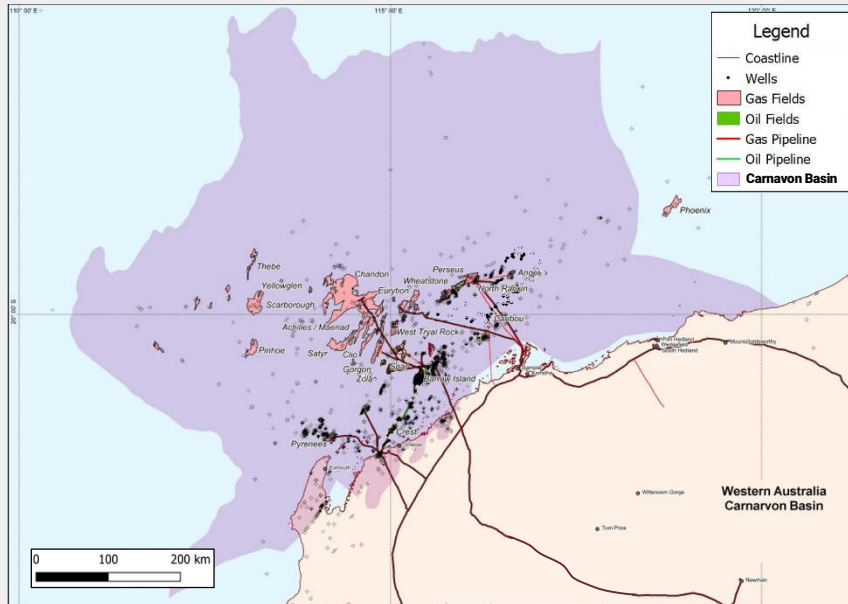
PNG SEDIMENTARY BASINS

- Rift basins
- passive margins
- Fold & thrust belts

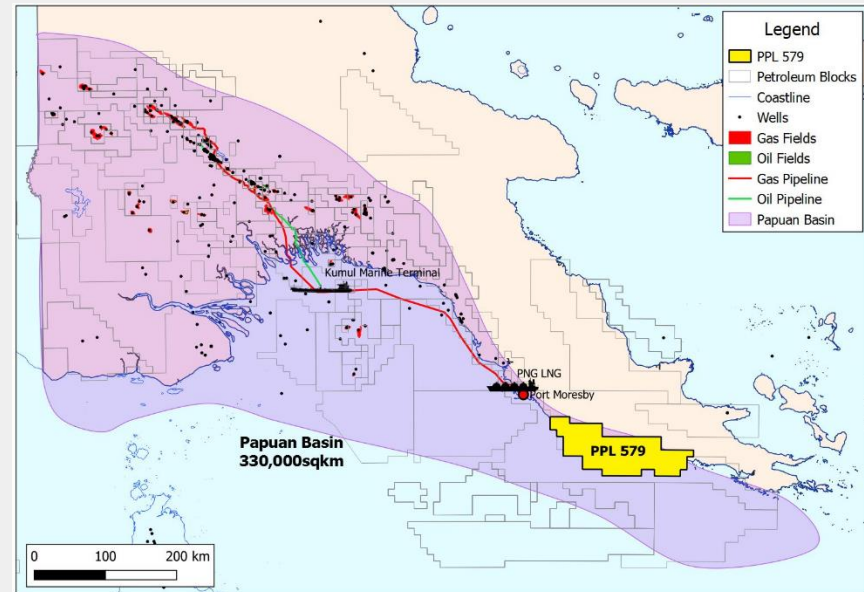


PAPUAN BASIN: RELATIVELY UNEXPLORED COMPARED TO AUSTRALIAN BASINS

CARNARVON BASIN
 ~376,000 KM²
 ~800 EXPLORATION WELLS



PAPUAN BASIN
 ~330,000 KM²
 ~160 EXPLORATION WELLS (SINCE 1950)



ACCORDING TO USGS THERE IS **54 TCF GAS YET TO FIND** IN PNG

USGS estimate of **10 billion barrels** of oil equivalent (BOE) yet to find vs 6 BOE found to date

Analysis only includes the established plays in PNG

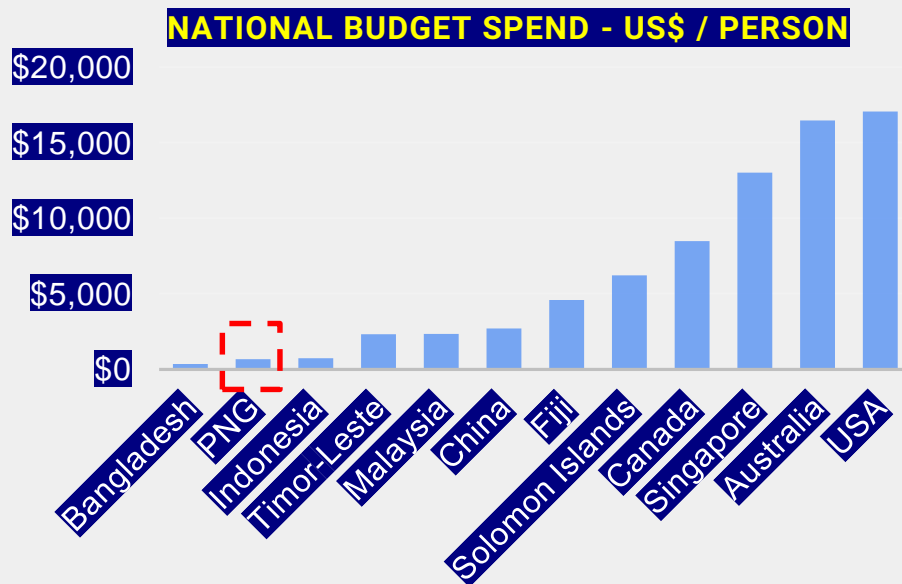
PNG Yet to Find Petroleum resources (from USGS 2022 https://pubs.usgs.gov/fs/2022/3046/fs20223046.pdf)	Mean oil (MMbbl)	Mean Gas (BCF)	Mean billion BOE
PNG Fold Belt	524	41152	7
PNG Foreland "Papua Platform"	252	13755	3
Total yet-to-find USGS	776	54907	10
Discovered Resource (creaming curve slide this presentation)			6

NEW PLAYS SUCH AS THE TERTIARY CLASTIC PLAY AND TERTIARY CARBONATE PLAY ARE NOT INCLUDED BY USGS

PNG IS CAPITAL POOR BUT NATURAL RESOURCES RICH

INVESTMENT IS REQUIRED TO DRIVE PNG'S NATIONAL INTEREST

- 2023 PNG Budget: PNGK 24,567 million
- Population (2023): c.10.3 million

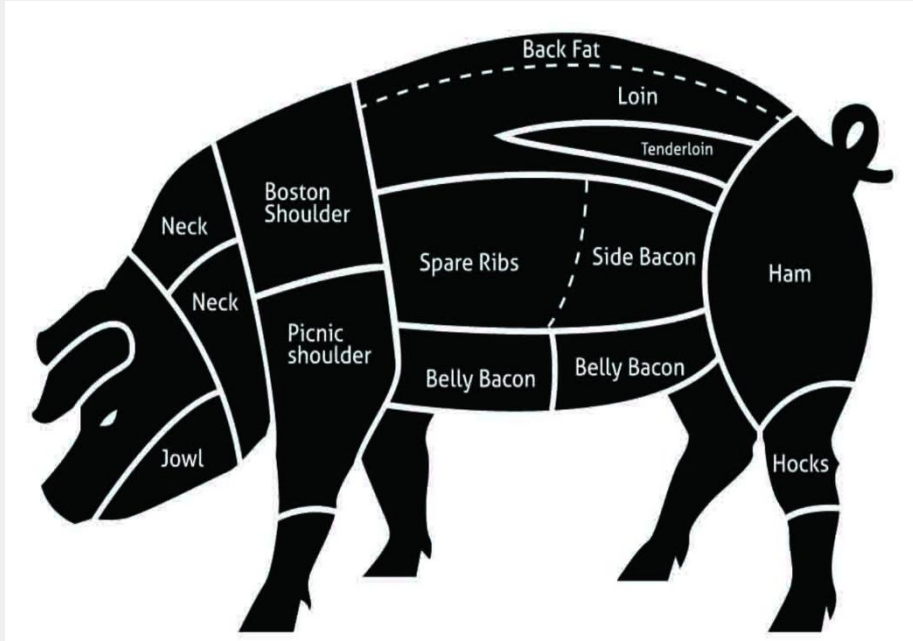


PNG IS A NATION RICH IN NATURAL RESOURCES:

- Petroleum
- Copper / Gold
- Nickel
- Mineral sands
- Forestry & carbon offsetting
- Agriculture
- Hydro Power
- Fisheries

How do we divide up a resource? “Cut im Pig”

A fiscal system is a way of dividing up a resource between stakeholders



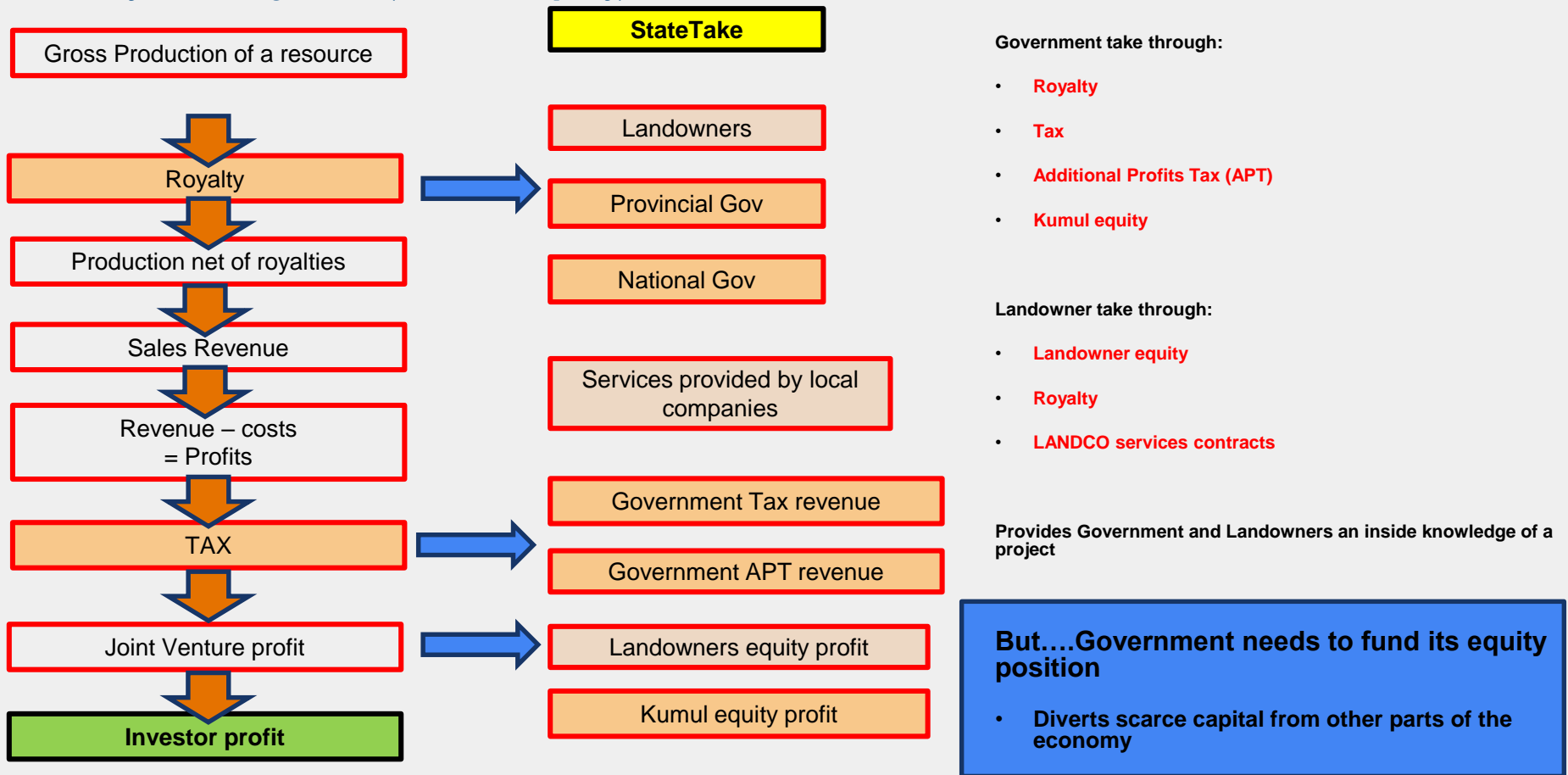
Stakeholders:

- Investors
- Landowners
- Provincial Government
- National Government
- Citizens
- Environment

PNG has relied upon simple royalty – tax systems across its resource industries

PNG Fiscal system for Mining and Petroleum industries is unique

Fiscal system brings State (Kumul Company) and Landowners into the investor JV



PNG PETROLEUM PLAY TYPES

PNG DISCOVERED RESOURCES ARE SO FAR DISTRIBUTED OVER 3-MAIN (MATURE) PLAY TYPES IN THE PAPUAN BASIN.

FORELAND CLASTICS EXAMPLE O&G FIELDS: Elevala, Stanley, Puk Puk, Douglas, Langia, Manta

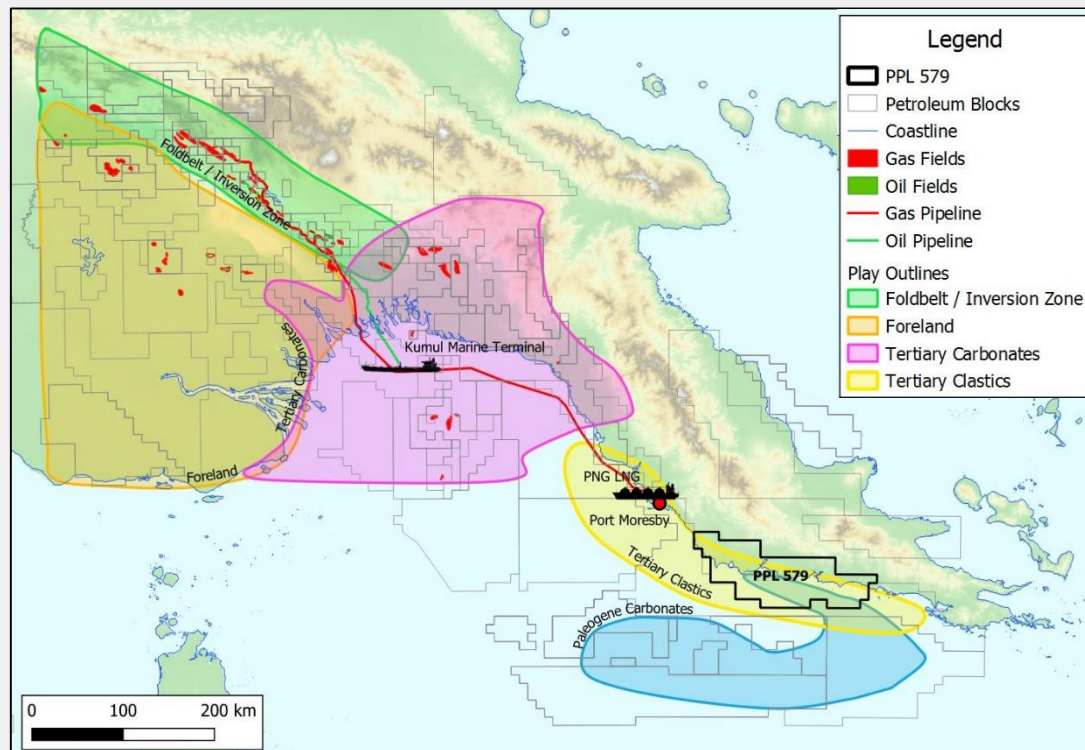
FOLDBELT/ INVERSION CLASTICS EXAMPLE O&G FIELDS: Hides, Juha, P'Nyang, Manada, Gobe.

TERTIARY CARBONATE EXAMPLE O&G FIELDS: Pandora, Pasca, Uramu, Elk, Antelope.

RECENT HIGH-QUALITY SEISMIC DATA IN UNDER-EXPLORED OFFSHORE HAS REVEALED NEW PLAY TYPES FOR EXPLORATION

PALEOGENE CARBONATE EXAMPLE GIANT PROSPECTS: Mailu (Total Energies).

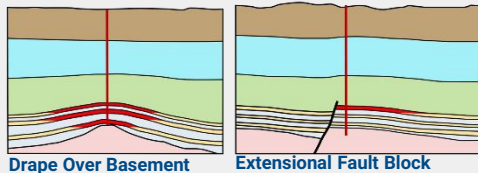
MIOCENE CLASTICS EXAMPLE GIANT PROSPECTS: Nanamarope (Larus Energy).



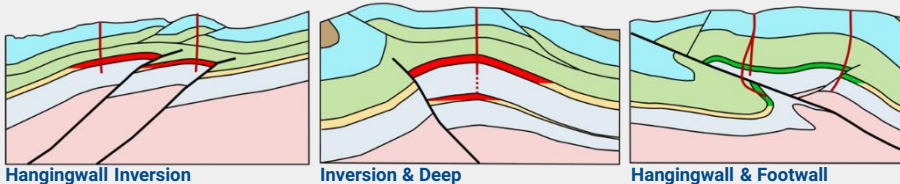
PNG PLAY TYPES – THE PAPUAN BASIN PROVIDES A VARIETY OF PROVEN AND NEW PLAY TYPES

PROVEN PLAY TYPES

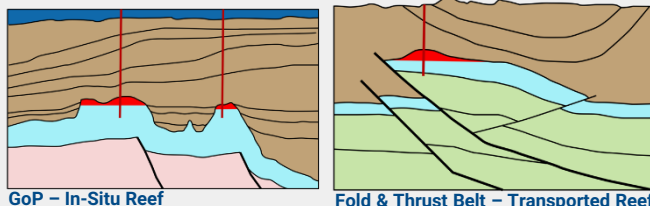
FORELAND CLASTICS LATE JURASSIC TO EARLY CRETACEOUS SANDSTONES



FOLDBELT/ INVERSION CLASTICS LATE JURASSIC – EARLY CRETACEOUS SANDSTONES

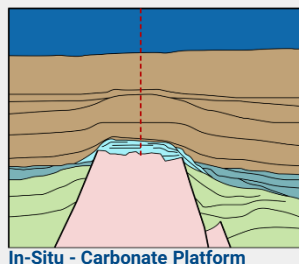


TERTIARY CARBONATES OLIGO – MIO – PLIO REEF CARBONATES

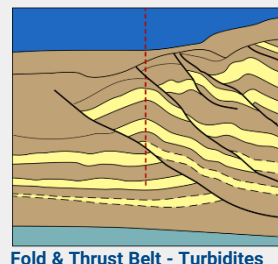


NEW PLAY TYPES

PALEOGENE CARBONATES PALEOGENE PLATFORM AND RAMP CARBONATES



MIOCENE CLASTICS MIOCENE – PLIOCENE TURBIDITE SANDSTONES



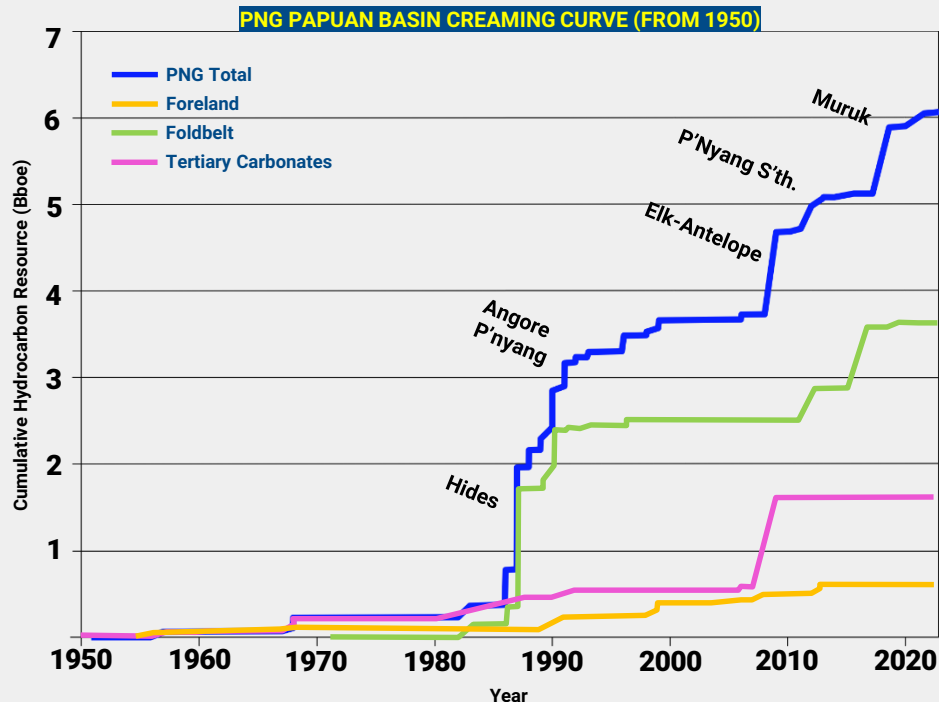
PPL579 LARUS ENERGY

PNG PLAY DISCOVERY HISTORY

PNG DISCOVERED RESOURCES

HISTORICAL TARGET PLAYS

FORELAND CLASTICS	EXAMPLE O&G FIELDS: Elevala, Stanley, Puk Puk, Douglas, Langia, Manta
FOLDBELT/ INVERSION CLASTICS	EXAMPLE O&G FIELDS: Hides, Juha, P'Nyang, Manada, Gobe.
TERTIARY CARBONATES	EXAMPLE O&G FIELDS: Pandora, Pasca, Uramu, Elk, Antelope.



PNG PLAY TYPES

PNG DISCOVERED RESOURCES

HISTORICAL TARGET PLAYS

FORELAND CLASTICS
 EXAMPLE O&G FIELDS:
 Elevala, Stanley, Puk Puk, Douglas,
 Langia, Manta

FOLDBELT/ INVERSION CLASTICS
 EXAMPLE O&G FIELDS:
 Hides, Juha, P'Nyang, Manada,
 Gobe.

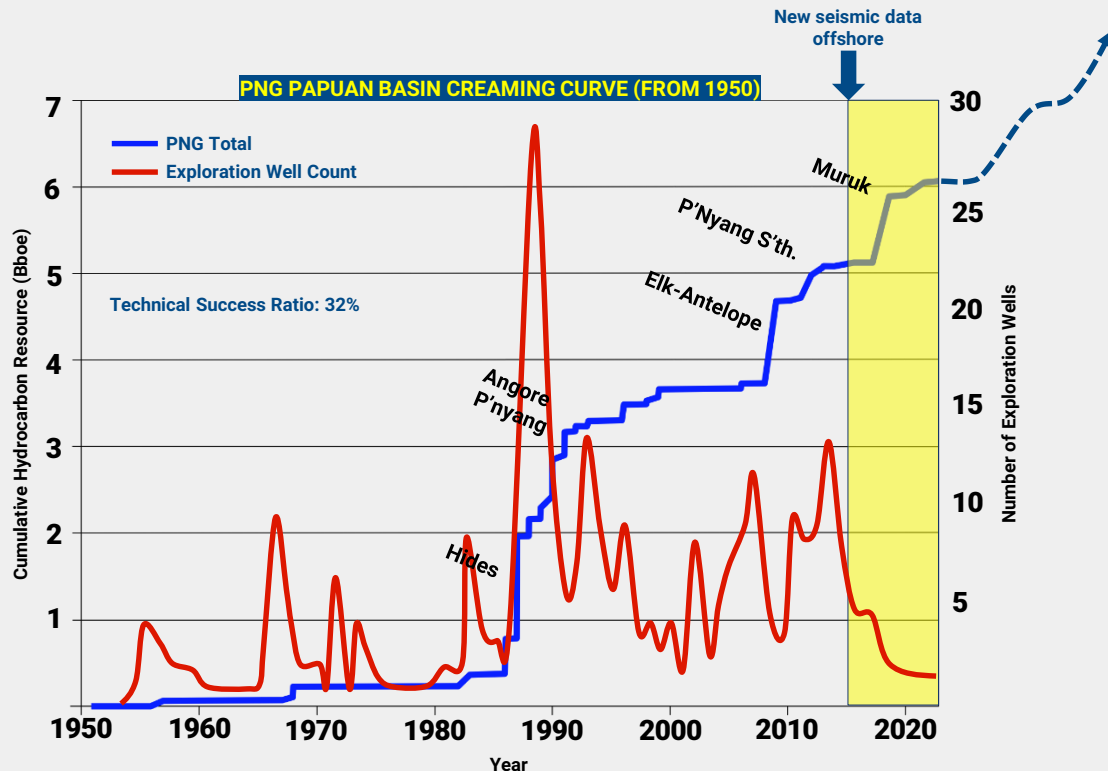
TERTIARY CARBONATE
 EXAMPLE O&G FIELDS:
 Pandora, Pasca, Uramu, Elk,
 Antelope.

OFFSHORE: STEP CHANGE IN SEISMIC DATA COVERAGE/QUALITY

NEW PLAY TYPES REVEALED FOR EXPLORATION

PALEOGENE CARBONATE
 EXAMPLE GIANT PROSPECTS:
 Mailu (Total Energies).

MIOCENE CLASTICS
 EXAMPLE GIANT PROSPECTS:
 NANAMAROPE (LARUS ENERGY).

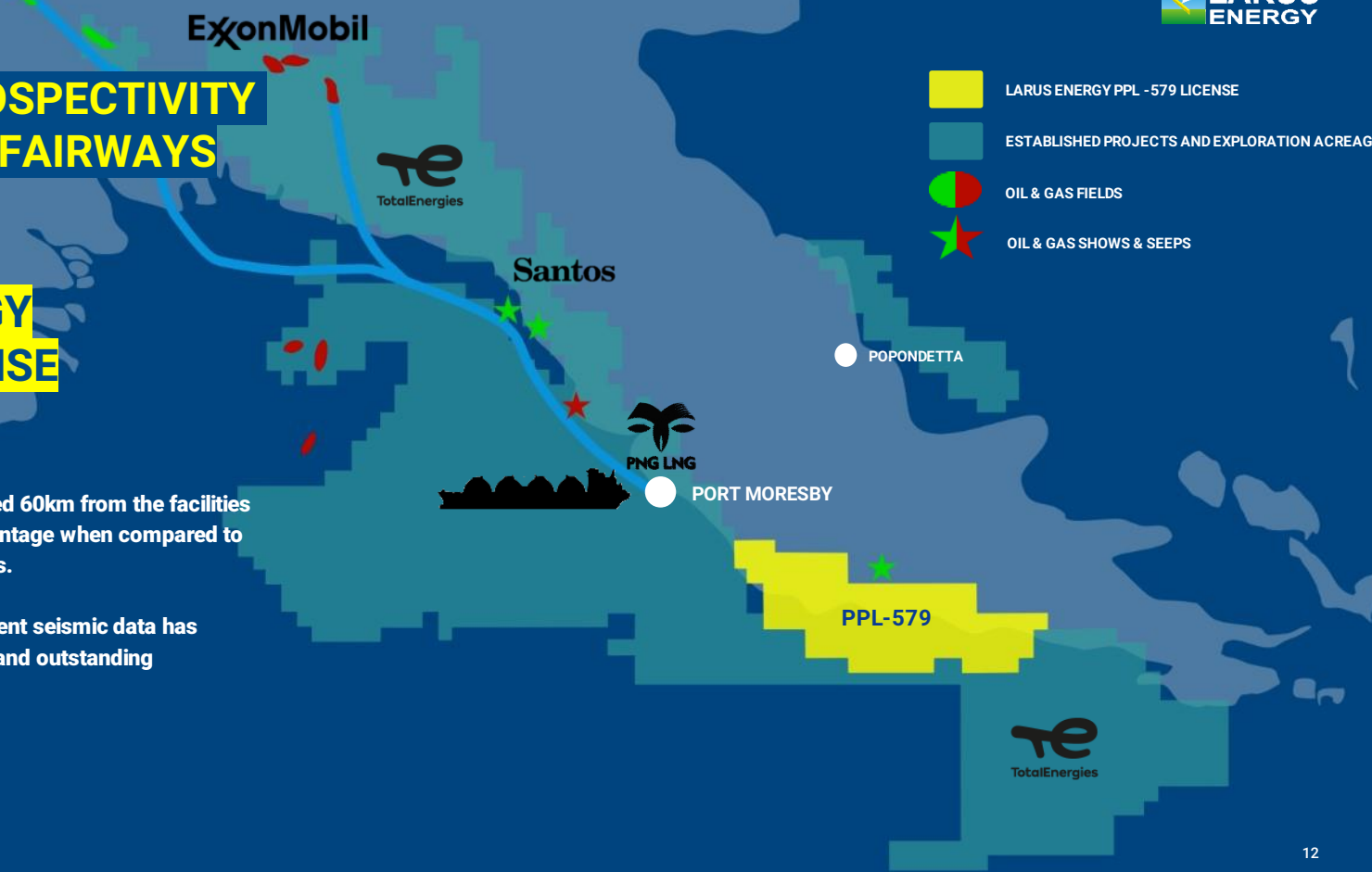


FURTHER PROSPECTIVITY IN NEW PLAY FAIRWAYS EXAMPLE:

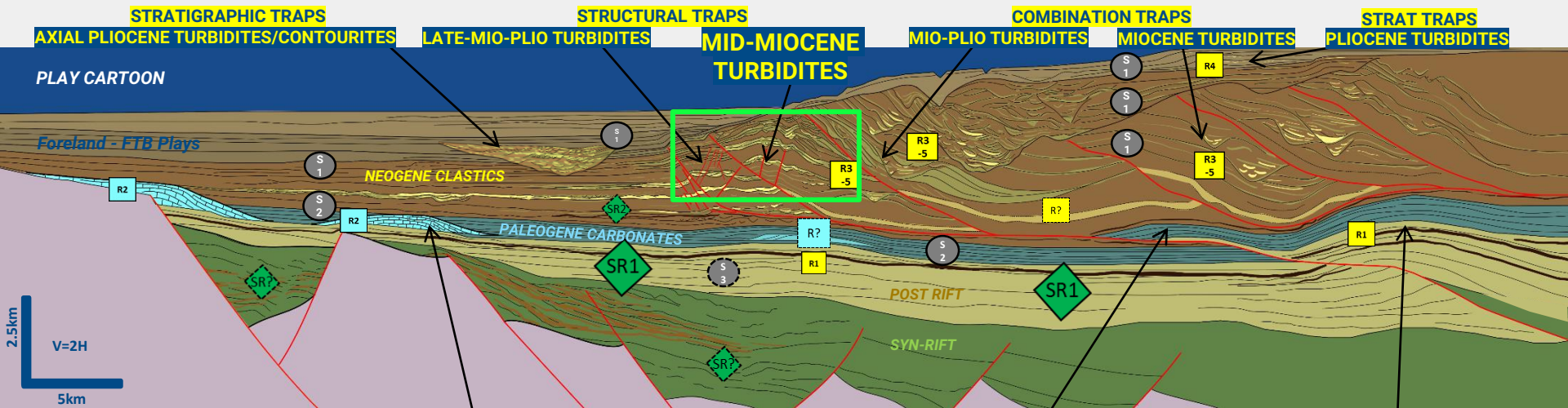
LARUS ENERGY PPL579 LICENSE

The PPL579 License is located 60km from the facilities at Port Moresby, a clear advantage when compared to other PNG petroleum projects.

New proprietary and multi-client seismic data has revealed new offshore plays and outstanding exploration potential.



PPL579 PLAY TYPES & PLAY ELEMENTS



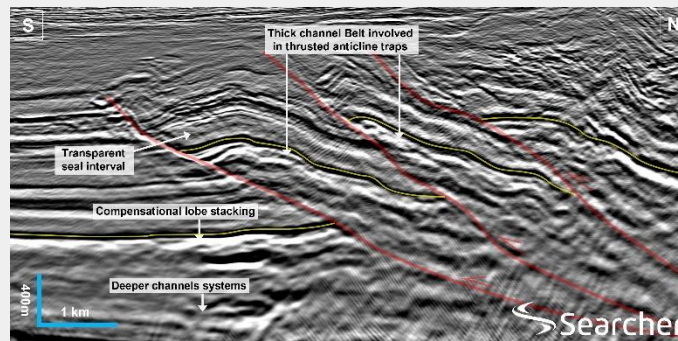
Rift – Passive margin plays

**PALEOGENE CARBONATES
(CONTEMPORANEOUS TO MAILU)
STRATIGRAPHIC TRAPS**

**PALEOGENE CARBONATES
STRUCTURAL TRAPS**

**LATE CRET-PALEOGENE CLASTICS
STRUCTURAL TRAPS**

Play Elements		Seal	
Reservoir			
R4	Pro-delta fans.	●	Miocene - recent DW sediments (hemipelagites).
R3 -5	DW turbidites: Confined – unconfined channel complexes & basin floor fans.	●	Eocene - Miocene DW condensed interval.
R2	Paleogene shallow water carbonates.	●	Late Cretaceous - Paleocene DW shales.
R1	Pale & Barune sandstone & quartzarenite.	◆	Source
		◆	Miocene DW clastics (GoP – Pasca).
		◆	Cretaceous – Paleogene marine (Imlia seep & Barune fluid inclusion).

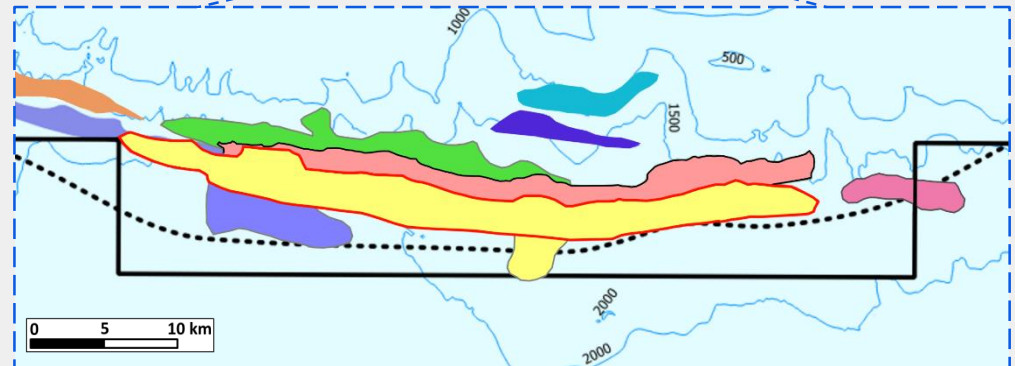
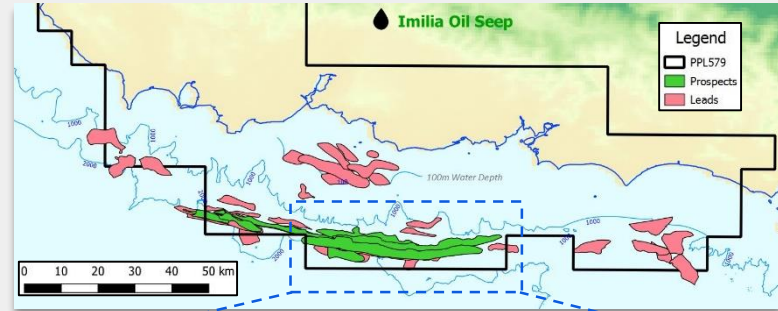


2-D seismic dip-line typical of green box area on play cartoon, showing channel belt involved within thrust-anticline traps.

MULTI-BILLION-BARREL POTENTIAL IN WELL IMAGED OFFSHORE PROSPECTS

THE NANAMAROPE PROSPECT IS A **WORLD-CLASS** 123 SQ. KM PROSPECT IN A CURRENTLY UN-DRILLED BASIN.

- Material, standalone prospects, with billion-barrel potential identified within thrust anticline traps.
- PPL579 offers the opportunity to open a new hydrocarbon province for Papua New Guinea.



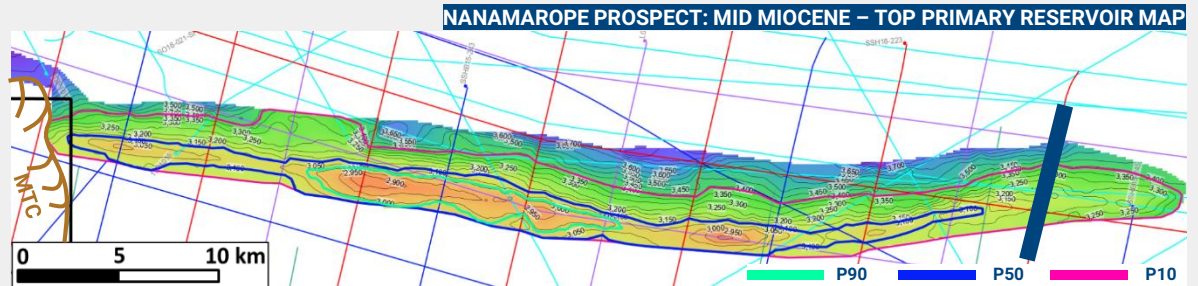
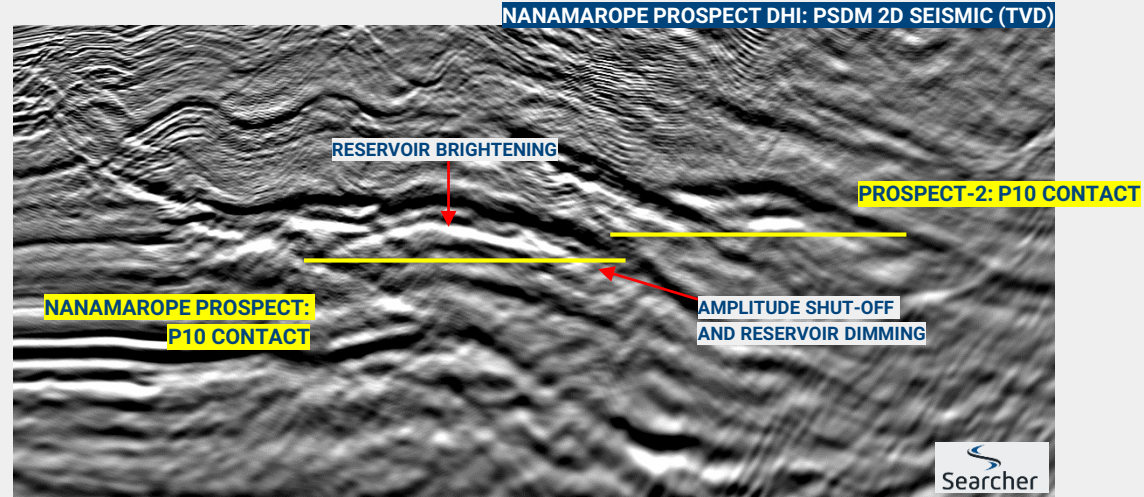
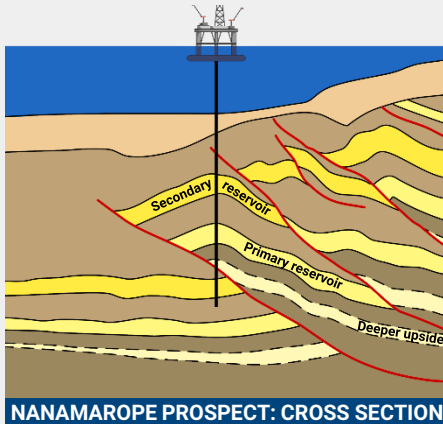
PPL-579 CLUSTER 1 PROSPECTS

■ NANAMAROPE ■ PROSPECT-2 ■ PROSPECT-3 ■ PROSPECT-4

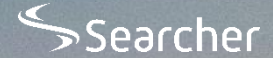
NANAMAROPE PROSPECT

2D SEISMIC DATA REVEALS POTENTIAL DIRECT HYDROCARBON INDICATORS

Bright reservoir interval and strong correlation with dimming at the mapped structural spill point observed in 2D seismic data.

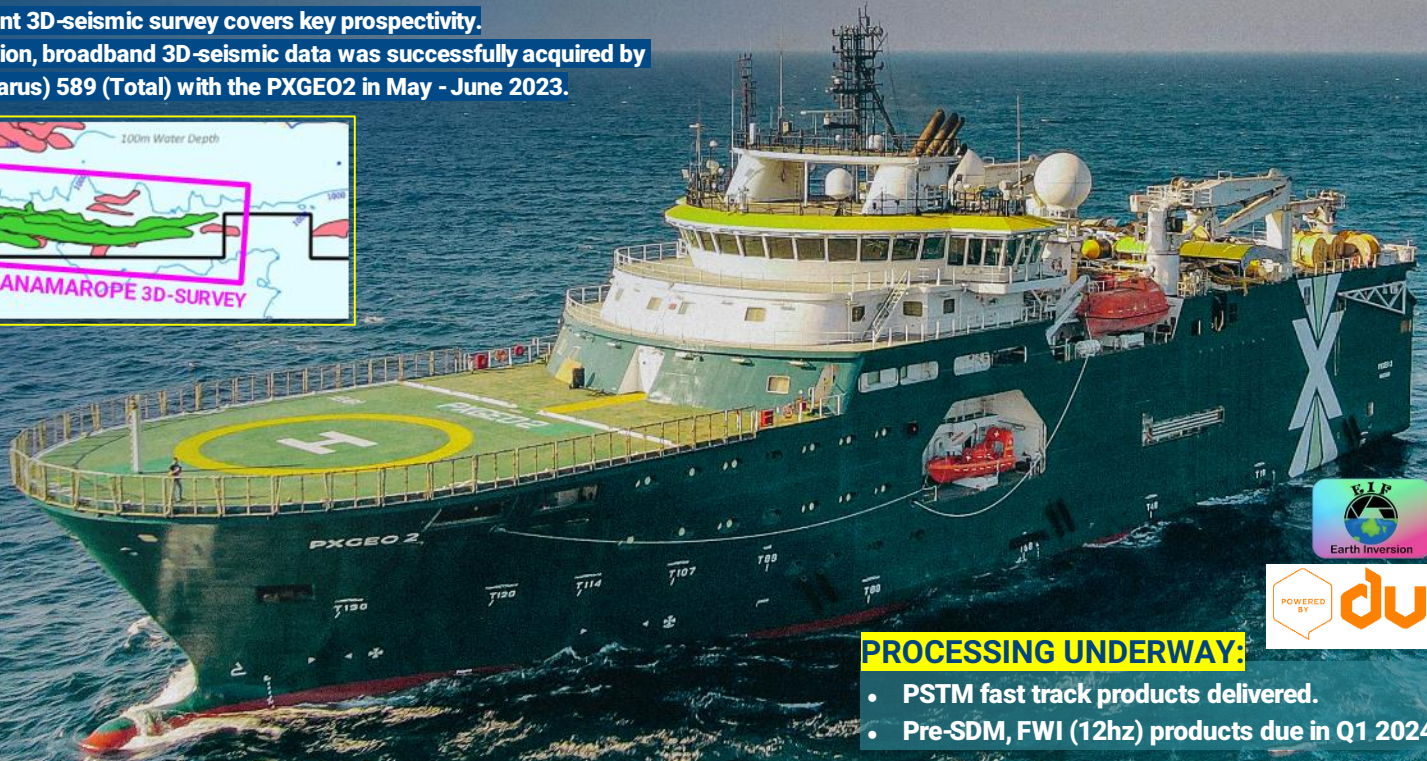
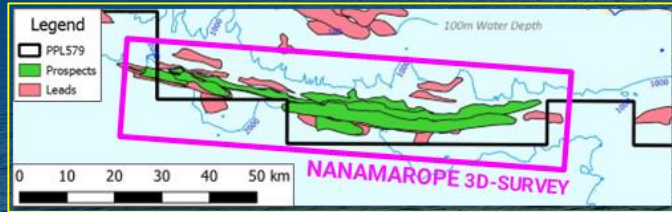


NANAMAROPE 3D-SEISMIC SURVEY



3D SEISMIC ACQUISITION COMPLETED -

- The Nanamarope multi-client 3D-seismic survey covers key prospectivity.
- 1,855 sq km of high resolution, broadband 3D-seismic data was successfully acquired by Searcher over PPL's 579 (Larus) 589 (Total) with the PXGEO2 in May - June 2023.



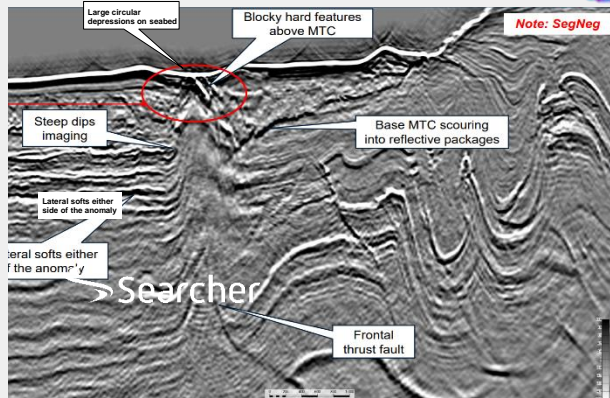
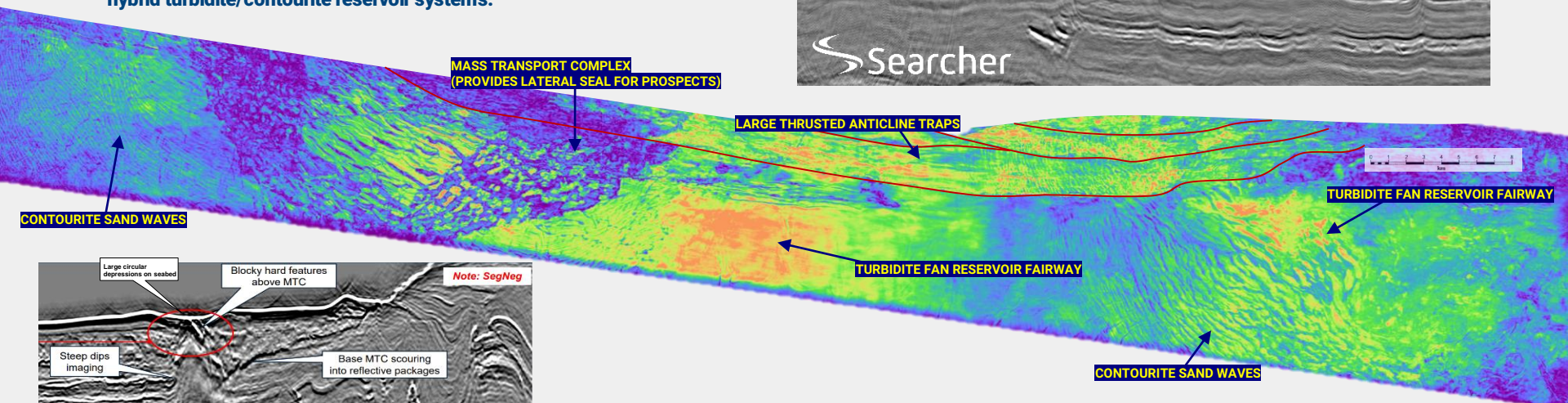
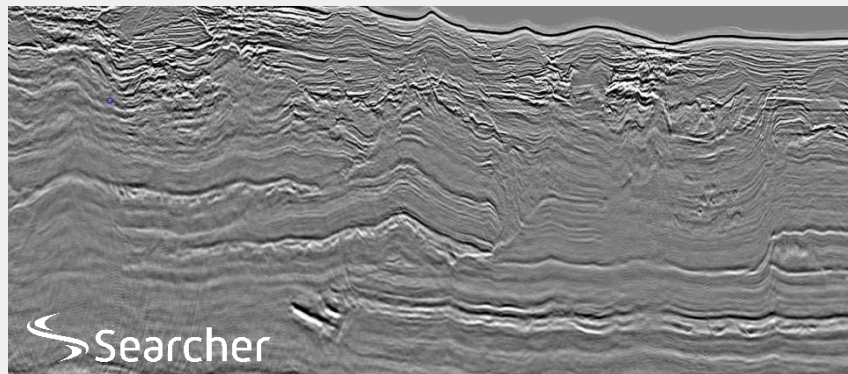
PROCESSING UNDERWAY:

- PSTM fast track products delivered.
- Pre-SDM, FWI (12hz) products due in Q1 2024.

ILLUMINATING PPL579 POTENTIAL

MAJOR MID-MIOCENE DEPOSITIONAL SYSTEMS OBSERVED IN FAST-TRACK 3D SEISMIC DATA

- 3D interpretation confirms the presence of world class traps and hybrid turbidite/contourite reservoir systems.

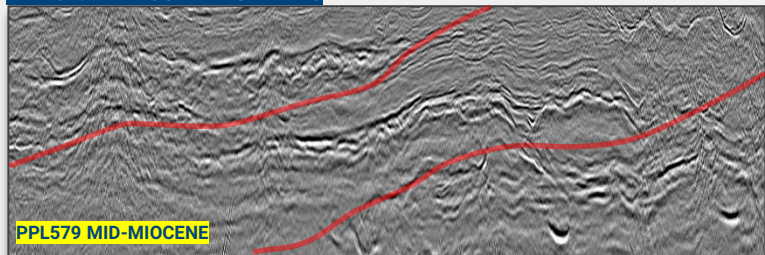


- Encouraging results from high-quality fast-track 3D data supporting a working petroleum system, including potential mass fluid escape features, sourced from breached shallow reservoirs.

MID-MIOCENE RMS AMPLITUDE MAP

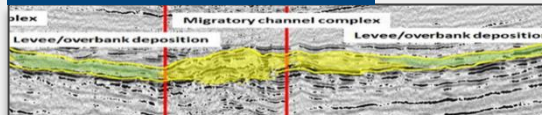
THE PPL579 MID-MIOCENE PLAY COMPARED WITH GLOBAL ANALOGUES

PPL-579: LARUS ENERGY - PNG



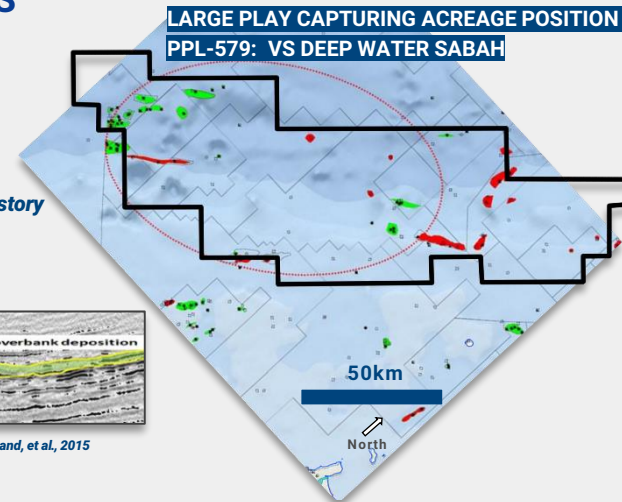
FOR SCALE COMPARISON ONLY:
Contrasts in tectonic setting, source to sink story and depositional environment.

TORTUE: BP - SENEGAL MAURITANIA

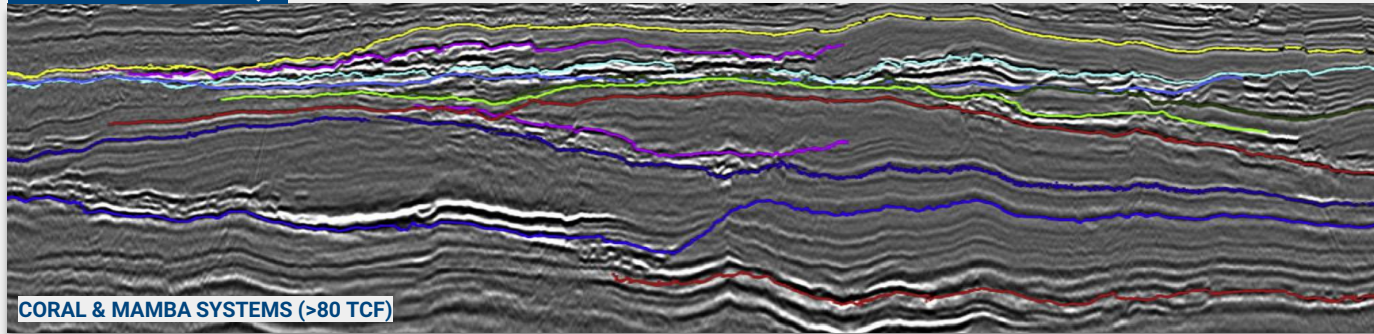


15 TCF

Hand, et al., 2015



AREA-4: ENI - MOZAMBIQUE



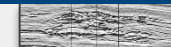
Fonnesu, et al., 2020

GIRASSOL FIELD: TOTAL - ANGOLA



725 mmbbls

KUITO FIELD: CHEVRON - ANGOLA



Seismic images shown to approximate same scale

25km

1km

PPL-579 TIMELINE LOOKING AHEAD

Creating a clear line of sight to exploration
well drilling in 2025.

2023

Acquisition and
Processing of 3D
Seismic Data

Seismic
interpretation
studies.



Value Creation
Milestones

2024

Prospect
Maturation and
De-risking
Studies

Nanamarope-1
Well Planning



**FARM DOWN / WELL
FINANCING**

2025

Exploration Well
Drilling



**NANAMAROPE PROSPECT
DISCOVERY**



KEY TAKEAWAYS

PAPUA NEW GUINEA

- **Established industry and regulatory framework**
- **Established domestic market and export routes**
- **Existing play fairways relatively unexplored with 55 TCF of gas yet-to-find**
- **Unexplored play fairways illuminated by new data in the offshore Papuan Basin.**
- **Unexplored basins.**

PPL-579: WORLD CLASS PROSPECT POTENTIAL

- **Potentially a giant new hydrocarbon province with multi-billion bbl potential**
- **3D seismic acquisition completed, high quality fast-track processed data delivered. Interpretation studies underway.**
- **3D data will be utilised to further de-risk and optimally locate and execute the first exploration well in the PPL579 License.**
- **A deep-water well and test could cost approximately US\$100 m**