

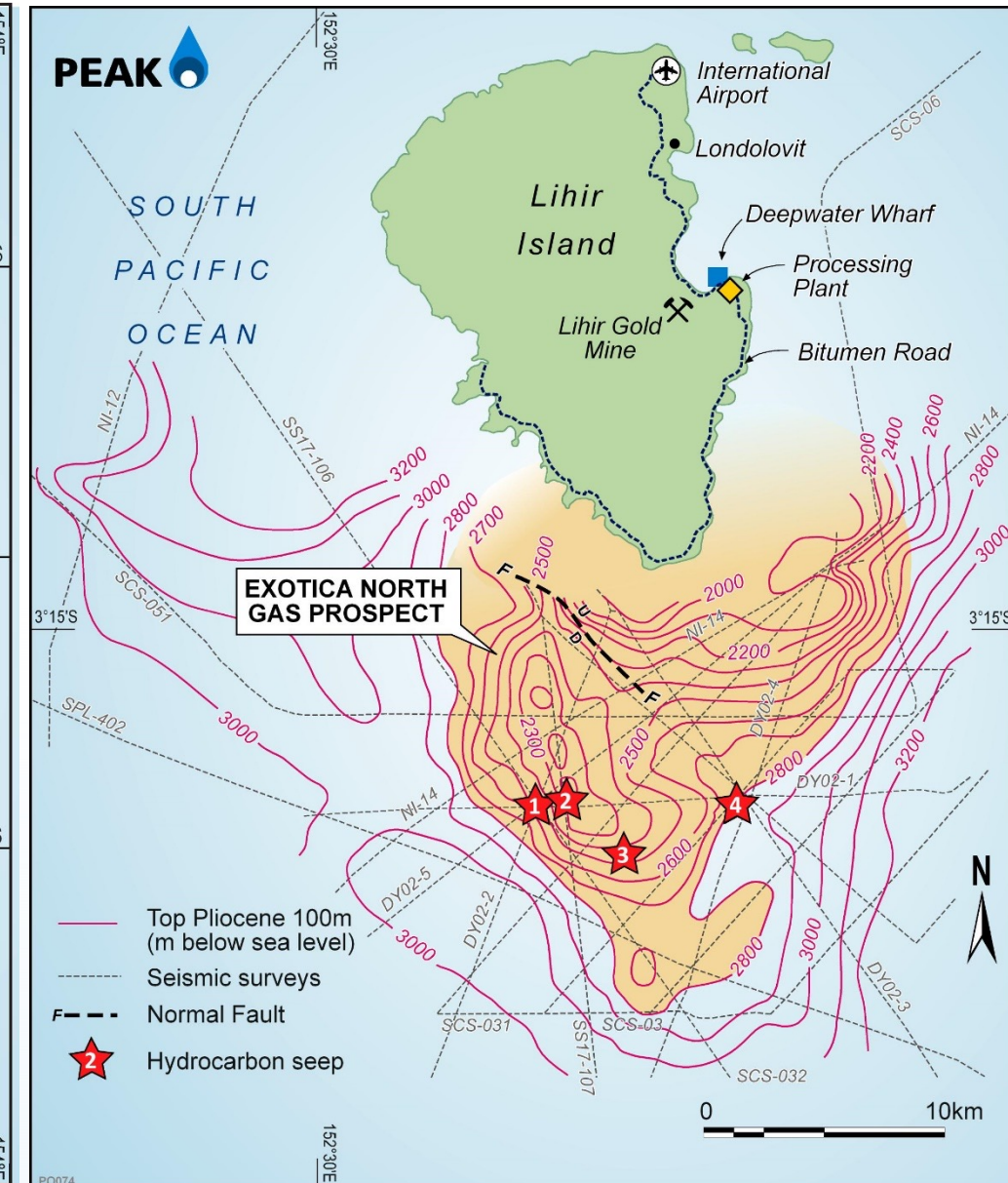
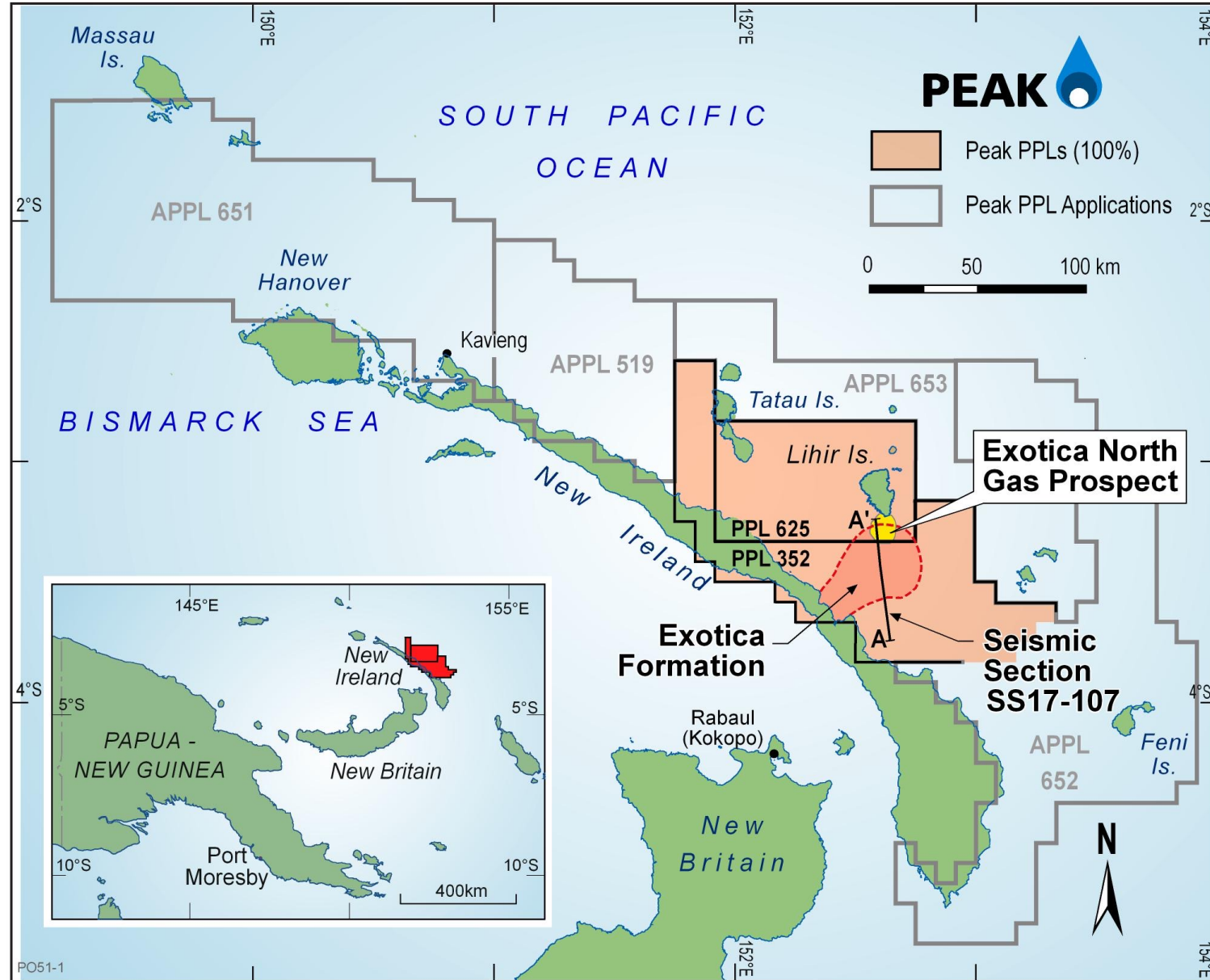
Commercialization Pathways for the Exotica North Gas Field: Unlocking the Value of Energy Resources in the New Ireland Basin



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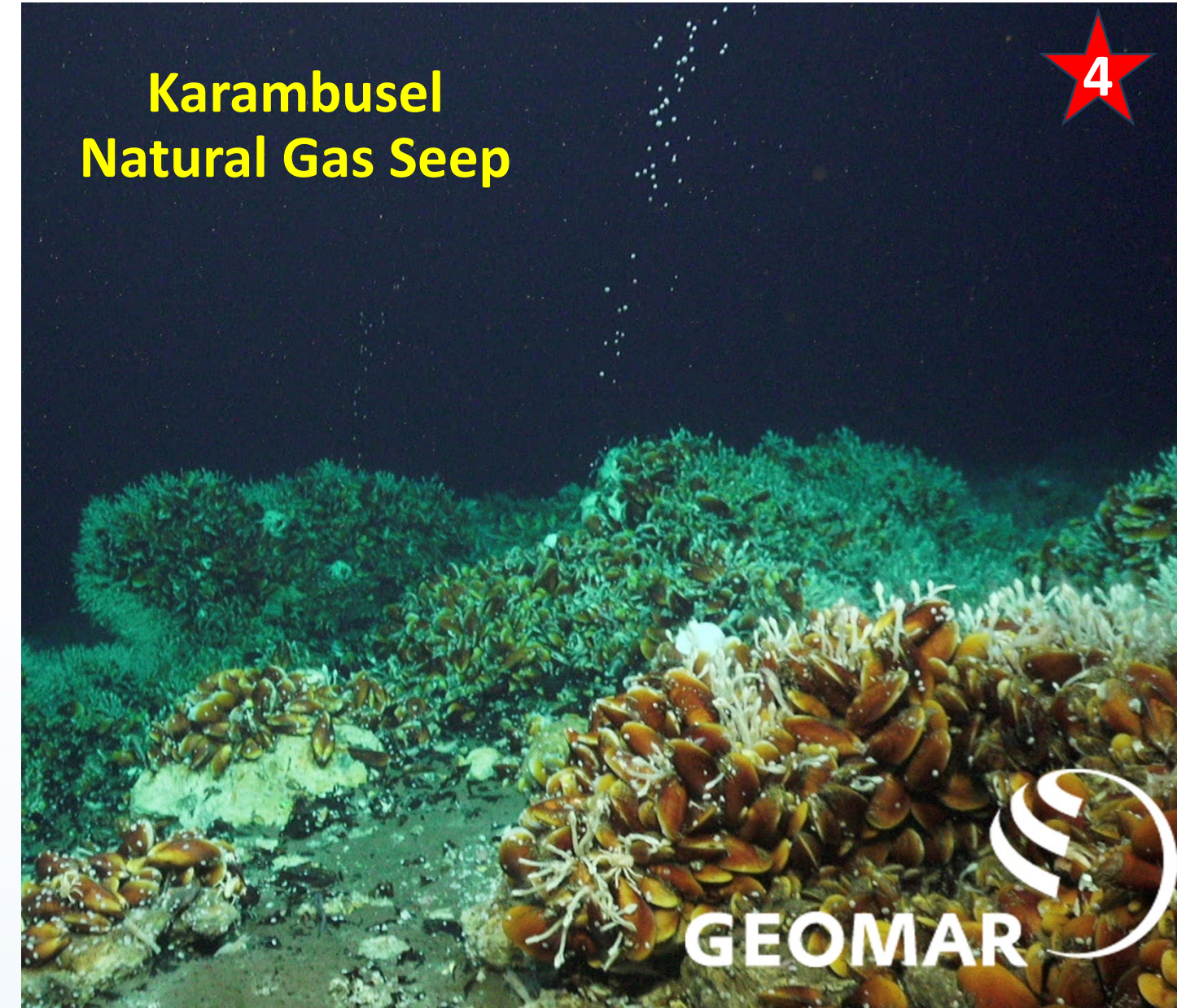
*ROV submersible descending to Exotica North hydrocarbon seeps (July 2023)
Photo credit: Cristoph Beier*

PEAK New Ireland Basin Licence Portfolio & Exotica N Prospect

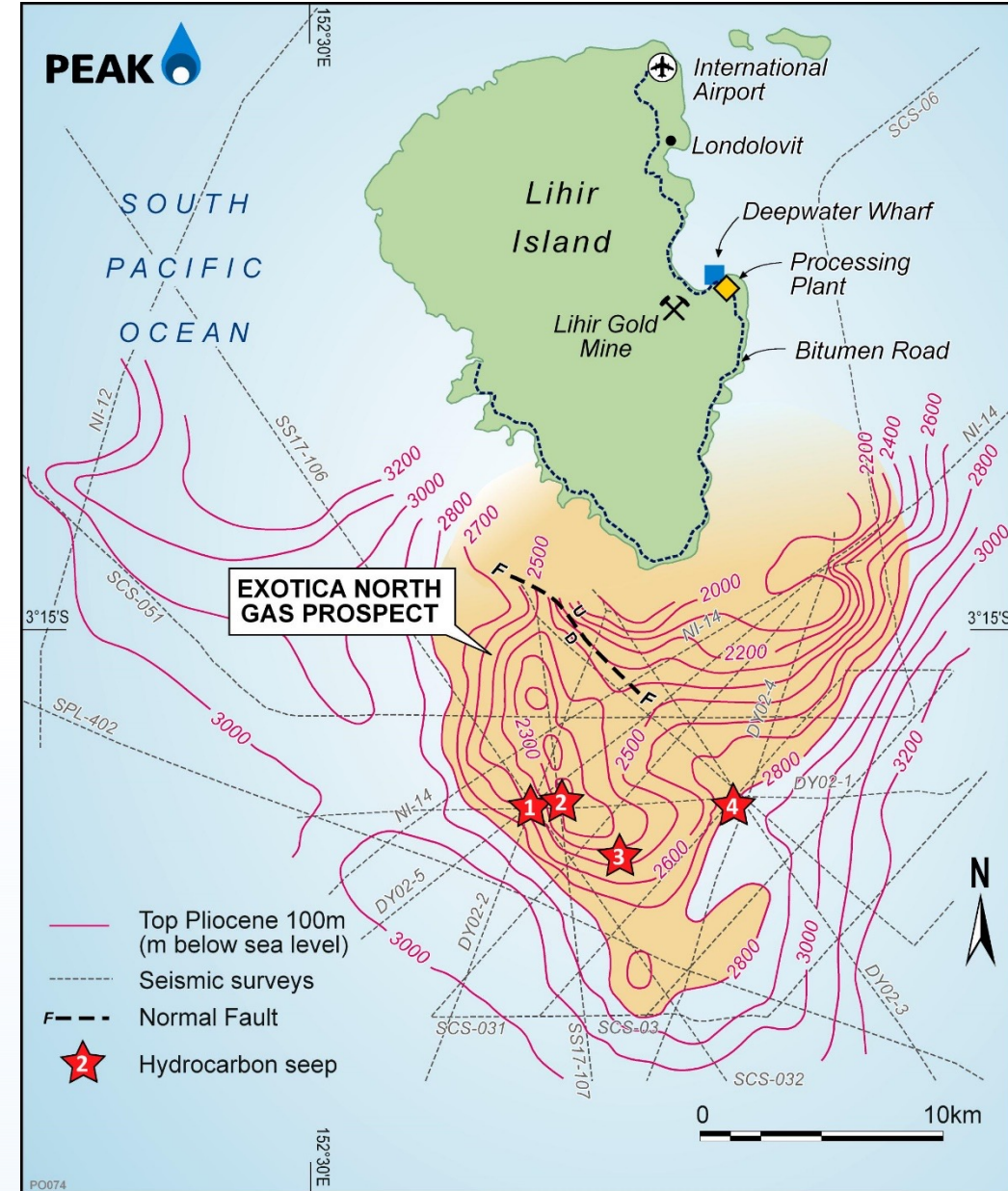


Exotica North Prospect: Gas Condensate Seepage

**Karambusel
Natural Gas Seep**



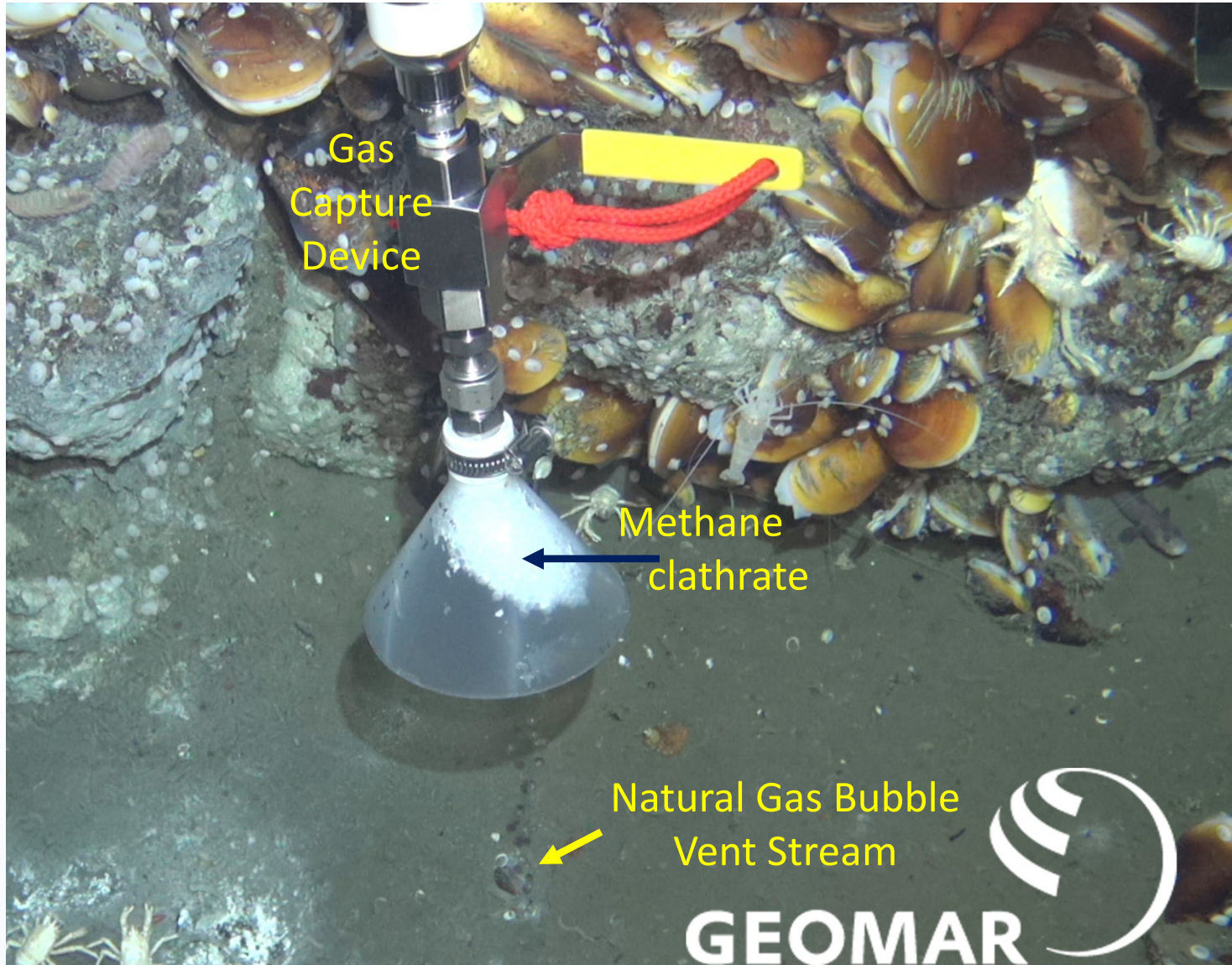
GEOMAR







Exotica North: Premium Low-Emissions Natural Gas

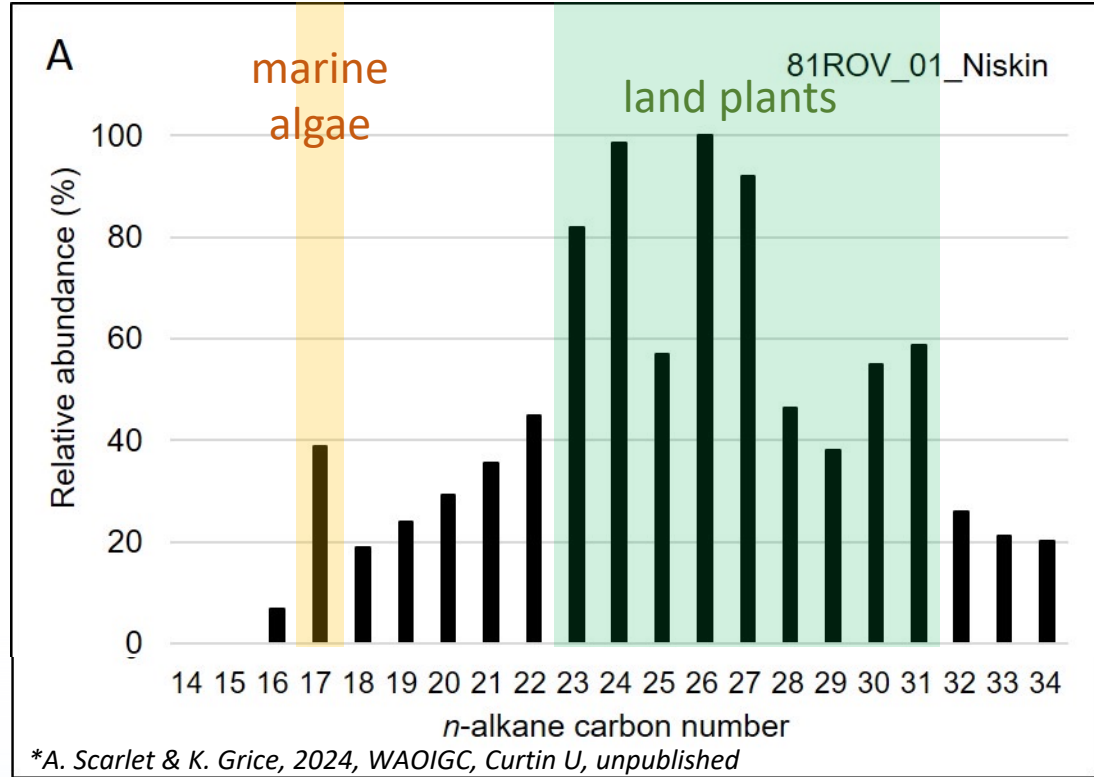
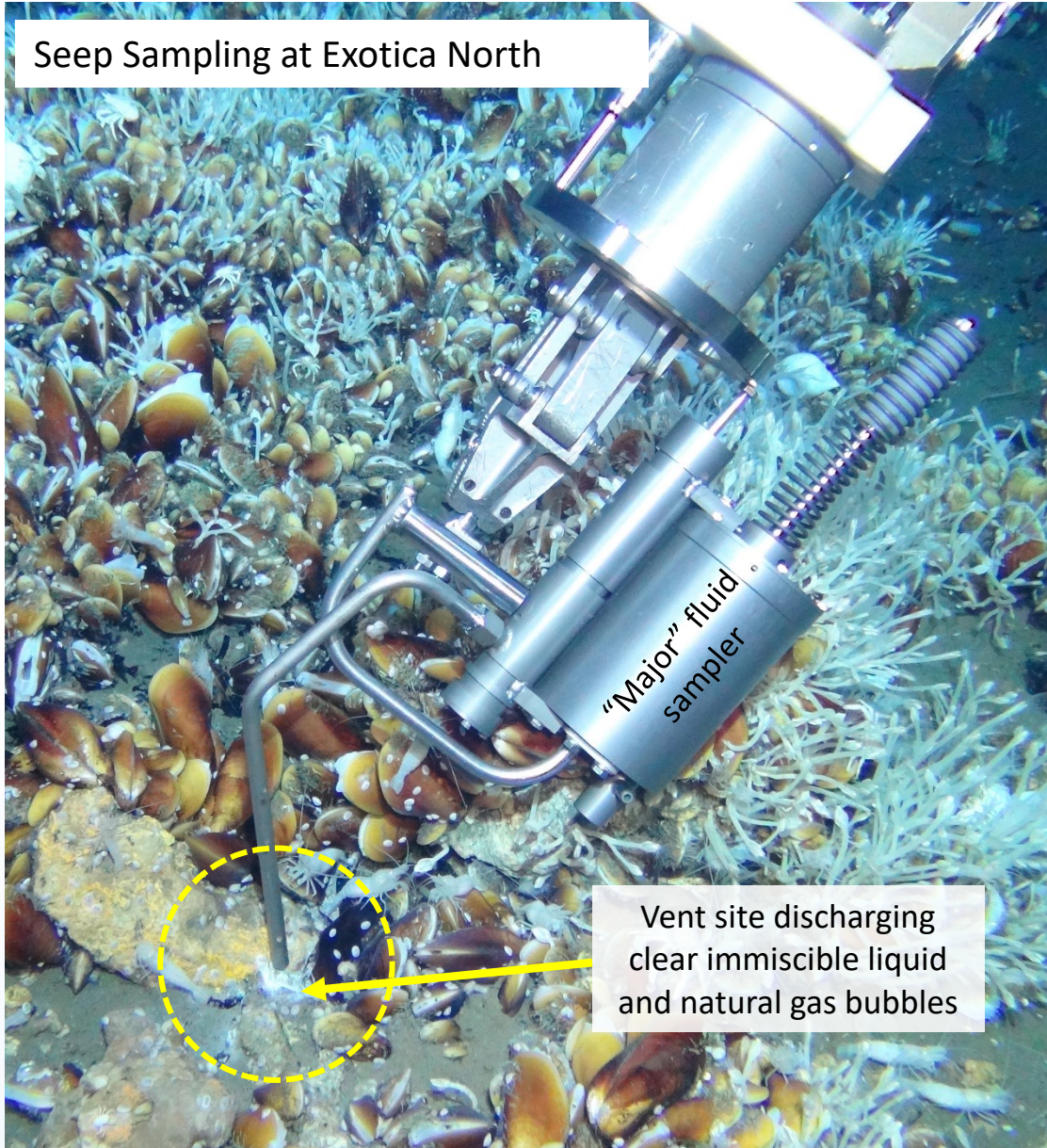


Gas (mol%)	Exotica North (3 samples*)	China Imports (average#)
Methane	81.6	86.3
Ethane	2.8	2.8
Propane	1.5	0.9
Butane	0.5	0.3
Pentane	0.1	?
N ₂	9.4	5.1
CO ₂	4.2	3.0
H ₂ S	0.1	1.0
Total	100	99.4

*M.Schmidt, 2023, GEOMAR, unpublished data
 # Gan, 2020, Nature Comms

CO₂ and H₂S contents are in lowest quartile of Asia-Pacific gas fields.

High-Quality Very Light Crude Oil



Fluorescence: Bluish-white; API 50-60 (very light crude oil); diesel-quality

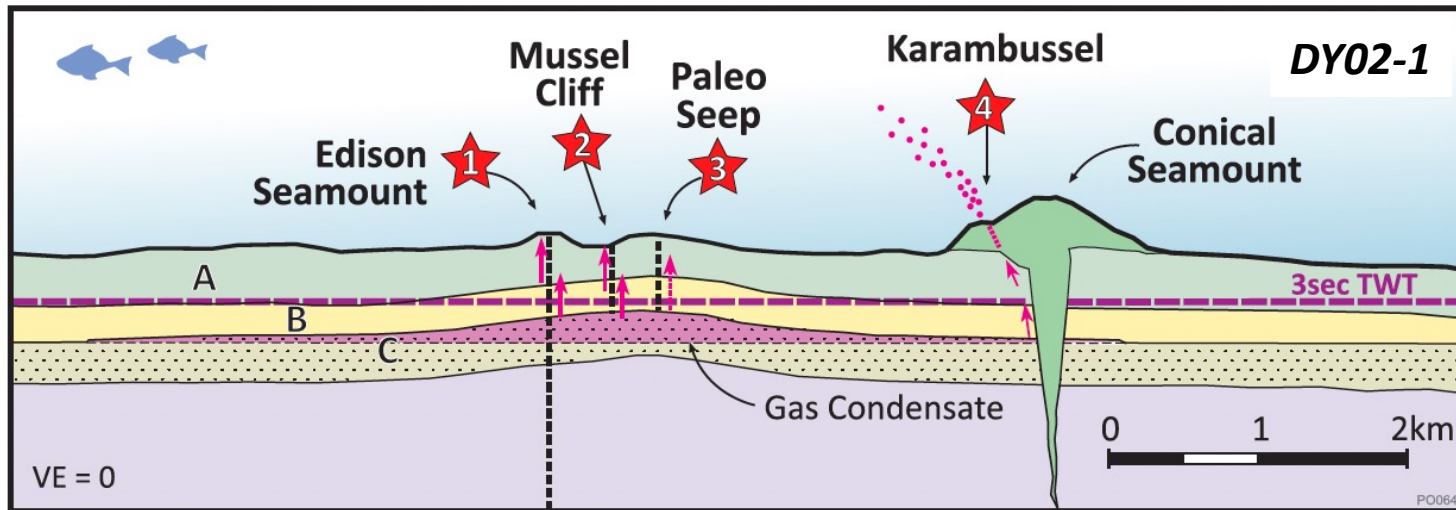
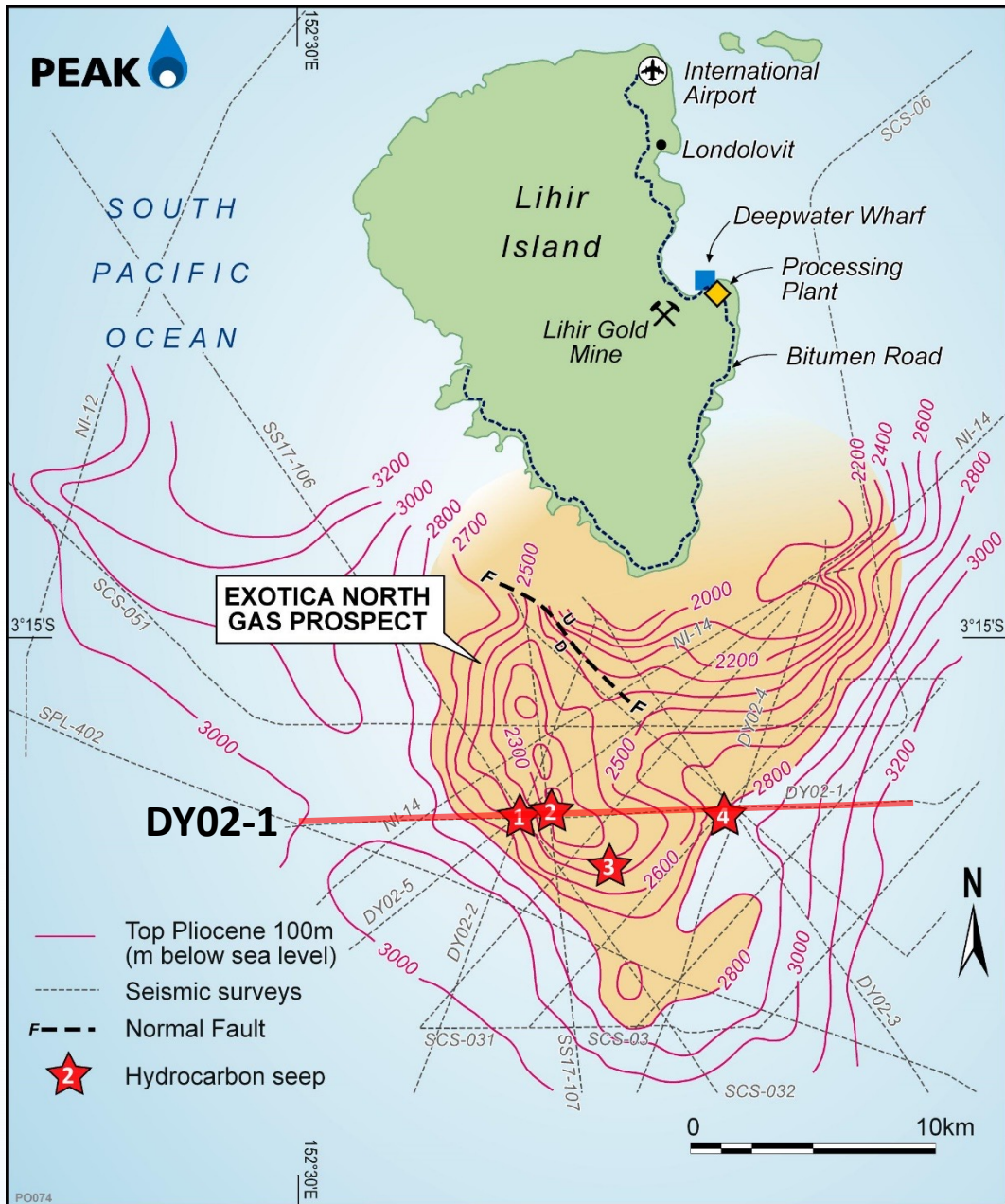
GC x GCTOF-MS Analysis:

- C₂₄ to C₃₁: hydrocarbons derived from land plants.
- C₁₇: hydrocarbons derived from marine algae or microbial matter.

Conclusion:

- Clear immiscible liquid discharging from seep is a very light crude oil (or condensate) sourced from thermally mature rocks containing a mixture of terrestrial plant material and marine algal matter.

Exotica North X-Section: Stratigraphy, Structures and Volumes



- 3-way closed anticline structure (18 km x 8 km x 600+ m)
- defined by >350 line km of marine 2D seismic
- 4 HC seeps intersect the reservoir horizon over 600 m elevation
- minimum height of the gas column is 600 m.

Probability	Natural Gas (TCF)	Light Oil (MMBOE)
90%	3.7	75-185
50%	7.4	150-370

Exotica North Prospect: Commercialisation Pathways



Lihir Mine – Gas to Electricity

- Located within 20 km of Exotica North gas field
- 7th largest gold mine in the world; 650,000+ oz pa
- 120 MW oil-fired power generation requires 10 PJ pa
- Imports **heavy fuel oil** from Malaysia (5,000 km transit)
- Power infrastructure ageing @ 30 years
- Energy costs are 20% of cost of Au production
- Operating life: 16-26 years

Lihir Fuel Switching Study: HFO to Natural Gas



LIHIR POWER SUPPLY ASSESSMENT

Lihir Power Supply Assessment: Gas Power Station Opportunity – Commissioned by PEAK Oil (PNG) Pty Ltd (PEAK)

November 2024

64MW Power Plant at the Tanami Au Mine, Australia



Exotica North: Gas to Electricity Study



LIHIR POWER SUPPLY ASSESSMENT

Lihir Power Supply Assessment: Gas Power
Station Opportunity – Commissioned by PEAK
Oil (PNG) Pty Ltd (PEAK)

November 2024

- **Objective:** Build & operate a 140 MW gas-fired power plant
- **Opportunity for Lihir Mine:**
 - New power infrastructure built at \$0 cost to mine
 - \$1.6 B in savings over 15 years
 - extend life of mine due to lower AISC per oz (~US\$ 57)
 - CO₂ emissions reductions of 32%
 - Security of fuel supply from domestic source
- **Opportunity for Investors**
 - Gas supply revenue worth up to \$1.3 B
 - Power supply 15% IRR for life of mine
 - Natural gas liquid stripping and export sales

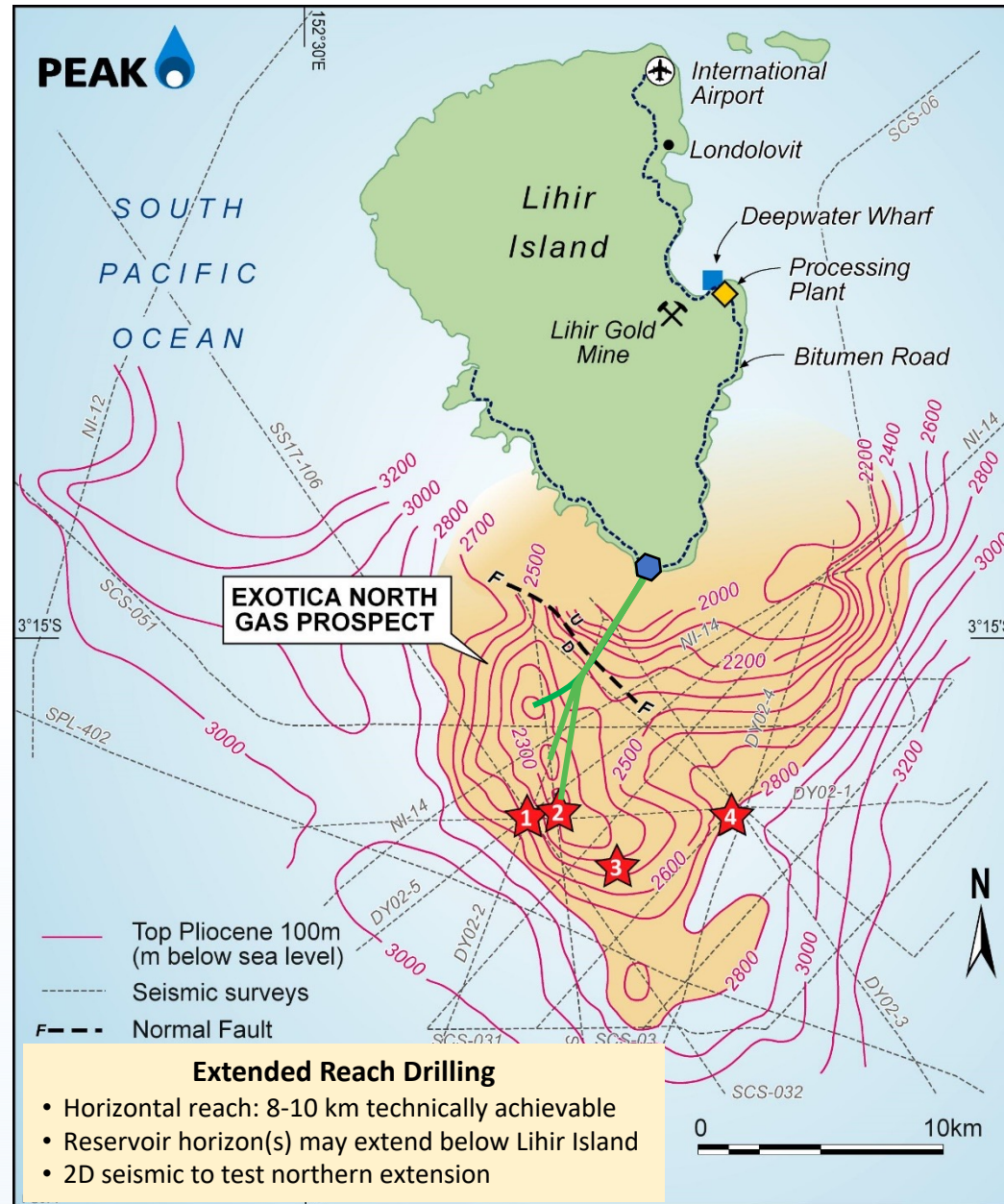
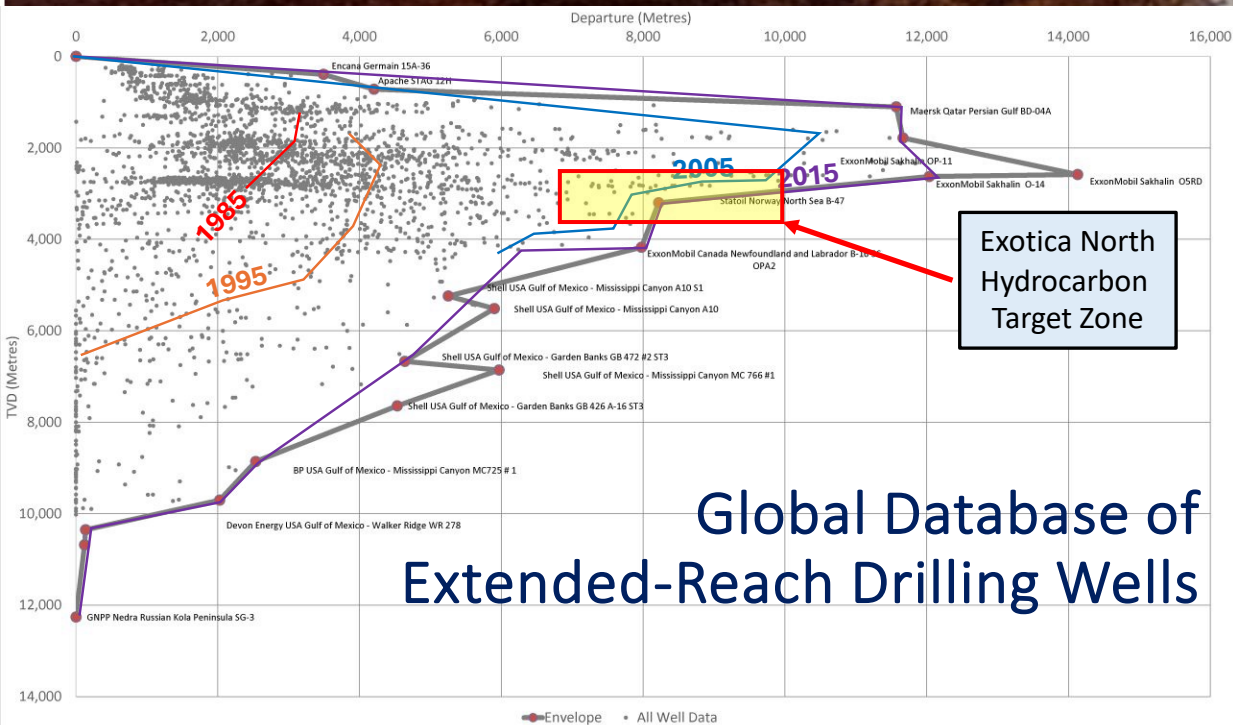
"moving forward with the development of a gas power station is viable, presenting both economic and environmental advantages for Newmont's operations on Lihir Island."

Exotica North Prospect: Onshore to Offshore Drilling

Extended Reach
Drilling



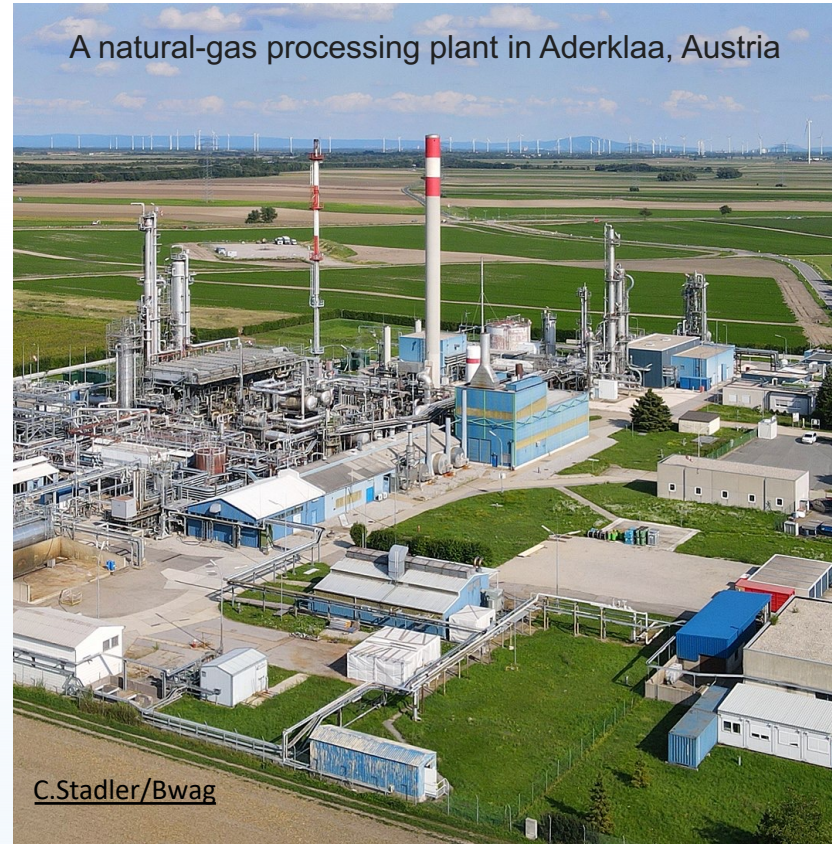
Argentina 1996
Hidra Field, 10 km offshore



PEAK  **Strategy 2025-30: Domestic gas sale & NGL export**



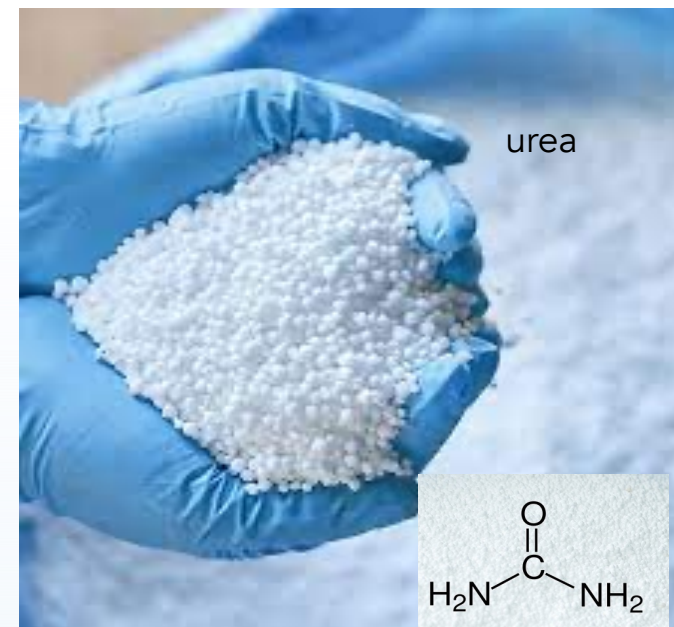
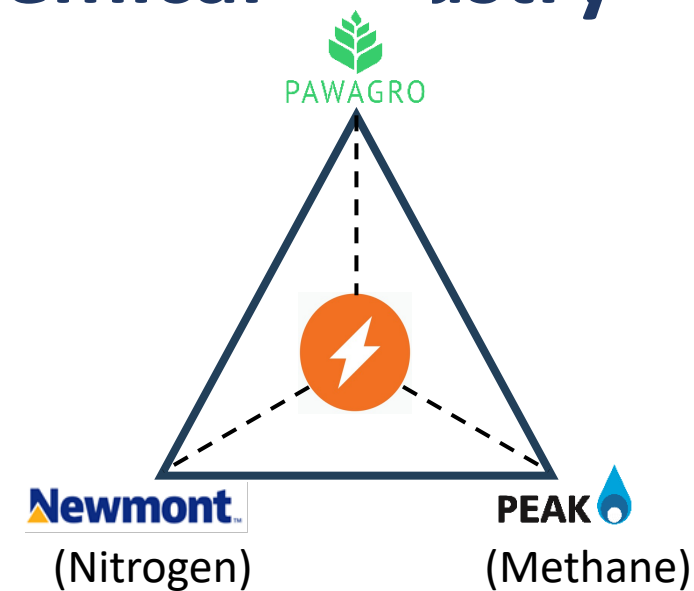
1. 2D Vibroseis land survey – 45 km along bitumen road
2. Drill test and develop onshore Pool A
3. Construct onshore pipeline & gas conditioning plant
4. Construct Construct 140 MW gas power plant
5. Domestic gas and electricity sales
6. Export NGL and condensate sales to Asian market



Project Pawagro: PNG's First Petrochemical Industry



[Brunei Fertilizer Industries 3,900 mtpd urea plant](#) (February 2022).



New Ireland Basin LNG Hub



New Ireland LNG Liquefaction Plant

- Life of mine gas consumption (16 yrs) = **0.02 TCF !**
- P₉₀ volumes would justify an LNG liquefaction plant
- Proximity to Asian markets
 - 25% closer than PNG LNG hub
 - 40% closer than Aussie LNG hubs
- Unlock the New Ireland Basin play fairway

Exploration Strategy & Farm-in Opportunities

1. Initial focus on local GTE opportunity (Stage 1)

- Vibroseis survey on Lihir ring road (45 km)
- Drill onshore/nearshore Exotica North prospect

2. Firm up LNG export volumes (Stage 2)

- 3D seismic over Exotica play (1,500 km²)
- Convert Exotica S play to prospect status
- Drill Exotica South prospect

3. Open-up additional basin opportunities

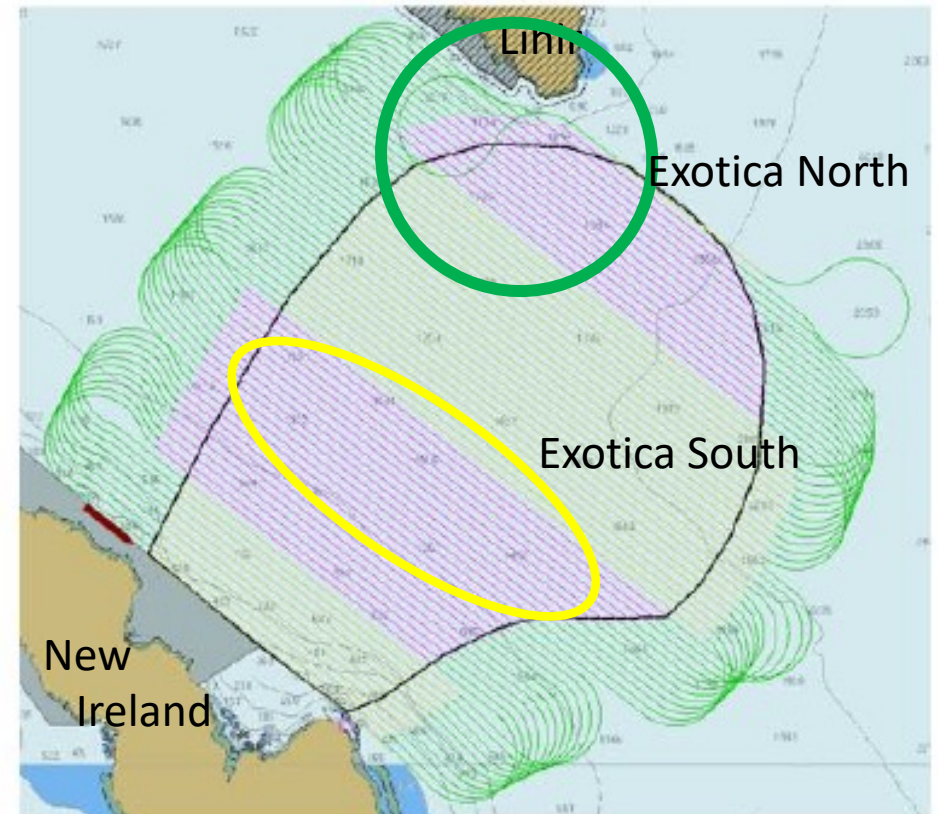
- Convert APPLs to PPLs (PPL 519 expected Q1 2025)
- 2D seismic surveys targeting other carbonate turbiditic reservoir types (debrites, channels, contourites)

Opportunity

- Farmout to partner to earn working interest

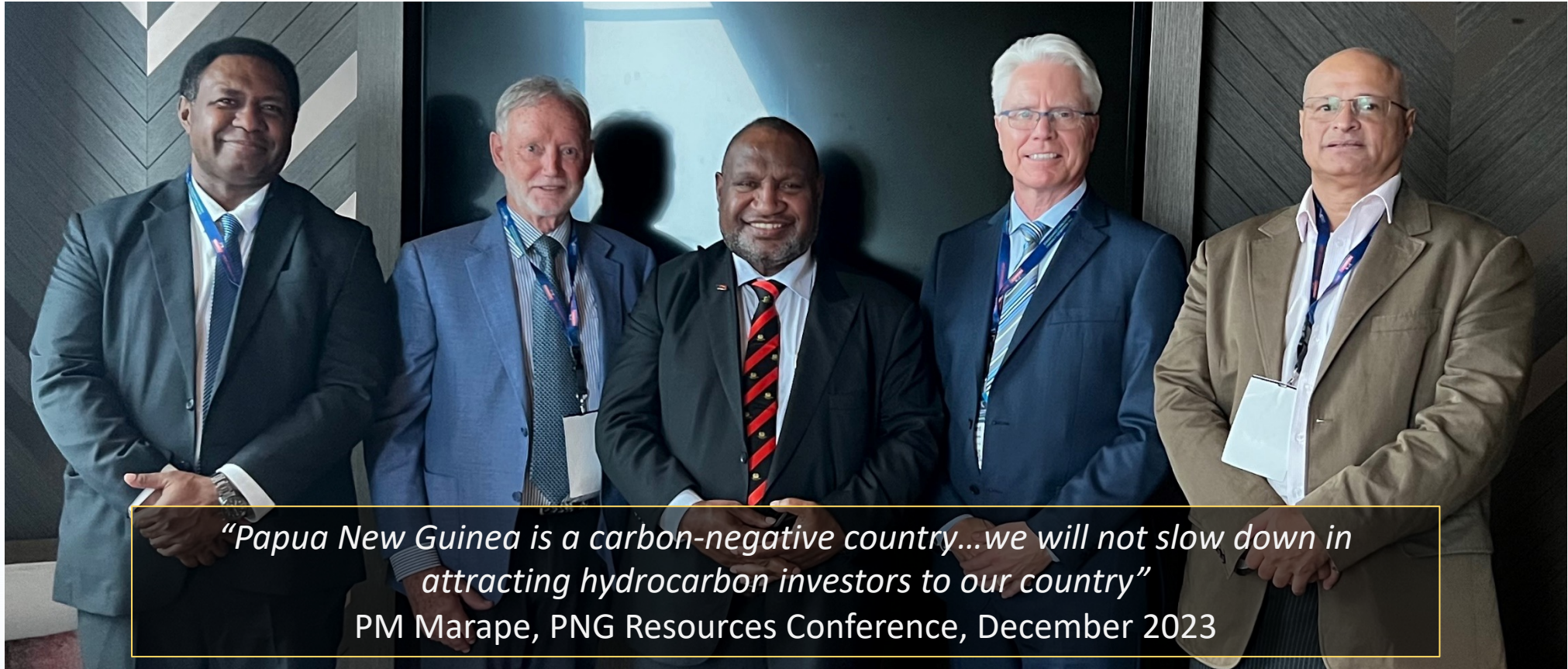
Investment Required:

- 45 km “vibroseis” survey on Lihir ring road
- 1,500 km² 3D seismic (2025)
- Drill test Exotica North Prospect
- Drill test Exotica South stratigraphic lead



Exotica Play (1,500 km²)

Government and Community Support



Hubert Namani
Strategic Advisor
PEAK

Harvey Cook
CFO
PEAK

Hon James Marape
Prime Minister
PNG

Brent McInnes
Chair
PEAK

Hon Walter Schaubelt
Member Namatanai
PNG Minister for Transport¹⁹

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ROV submersible working at Exotica-North hydrocarbon seeps (July 2023)
Photo credit: Cristoph Beier

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www.peakoilpng.com