

# Barque Prospect

# **Basin Opening Material Opportunity**

Four-Way Amplitude Supported Trap
~11TCF and ~1.5 B Bls liquids in Place (mean)
within Proven Petroleum System
Canterbury Basin, New Zealand

Reservoir Outcrop

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Primary Objective Depth Map (3D-PSDM)



Late Cretaceous Herbert Formation shoreface sands. Wainakarua River North Branch. North Ota

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For the enclosed resources the estimated quantities of petroleum that may potentially be recovered by the application of a 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.

All volumes presented are based on a best estimate, derived from a probabilistic methodology for resources in place and a deterministic methodology for recoverable volumes, which are net of royalties and have not been adjusted for risk.

Oil and gas contingent and prospective resources reported in this statement are as at 30 December 2016 and follow the guidelines set out by Chapter 5 of the ASX listing rules (July 2014) and the PRMS Guidelines (2011). Prospective Resources are those quantities of petroleum which are estimated, as of a given date, to be potentially recoverable from undiscovered accumulations. For the conversion to equivalent units; standard industry factors have been used of 6BCF: 1mmboe and 1 BCF: 1.05 PJ. Summations are performed arithmetically and may not visually add up due to rounding.

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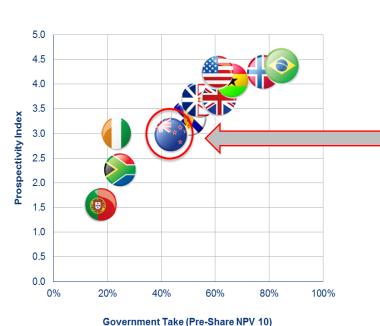
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# Why New Zealand?

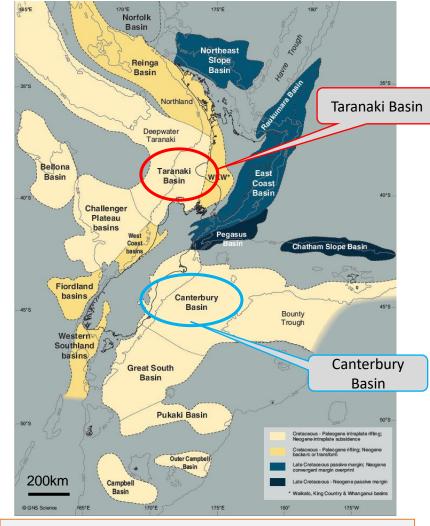
NEW ZEALAND OIL & GAS

- Proven petroleum systems in several basins
  - Late Cretaceous/Tertiary basin system (similar to SE Australia)
- Oil and wet gas fields in production in the Taranaki Basin
  - Produced 1.3 BBOE to date, 30% liquids
  - Good operational support
- Extensive deep water frontiers available
  - Proven Petroleum System in Canterbury Basin
- Diverse basins and play types

**Government Take vs. Prospectivity** 



- Stable OECD Economy
- Favorable fiscal regime for oil and gas
  - Mineral rights to petroleum vested in the crown
- Low royalty (5% net revenue) and tax rates (28%) to developer/producer
- Regular blocks offers administered by NZ Petroleum and Minerals (NZP&M)
  - Supportive government framework
  - Excellent access to data
    - Visit booth (Booth 24)



Population: 4.5 million
Land Area: 268,680 km²
Exclusive Economic Zone: 5,700,000 km²

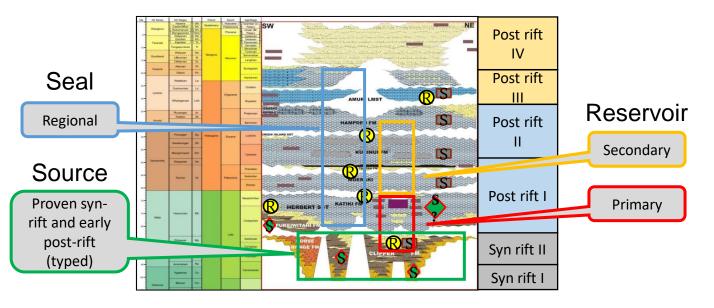
Annual Production: ~15 mmbo (~40,000 bbl/d)

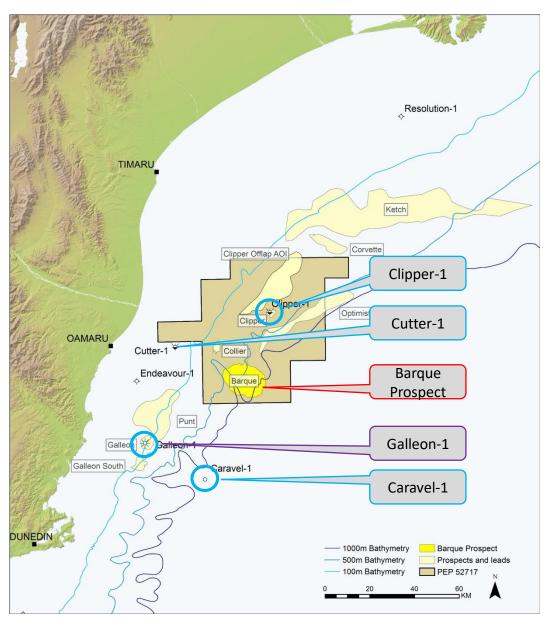
180 PJ gas (~500 mmcf/d)

# **Canterbury Basin**



- Proven frontier basin for wet gas with running room potential
- Canterbury basin is >400,000 sq.km. with 6 offshore wells
  - Galleon-1 (1985) flow tested 10.6mmcfd +2240 bcpd
  - Significant shows/hc-column in two other wells (Clipper-1, Cutter-1)
  - Caravel-1 (2014) proved extension of excellent primary reservoir target, but lateral seal breached. Gas shows in the Eocene
- High CGR (up to 230 stb/mmscf) based on offset wells is likely
- Development can optimise liquid recovery with blow-down gas fed to the domestic market

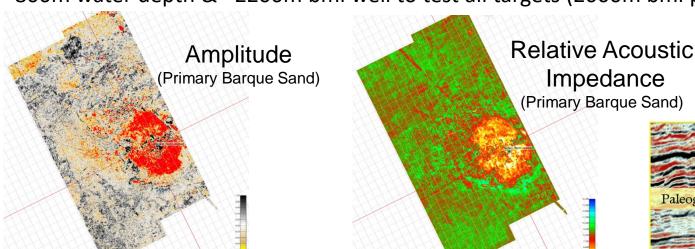




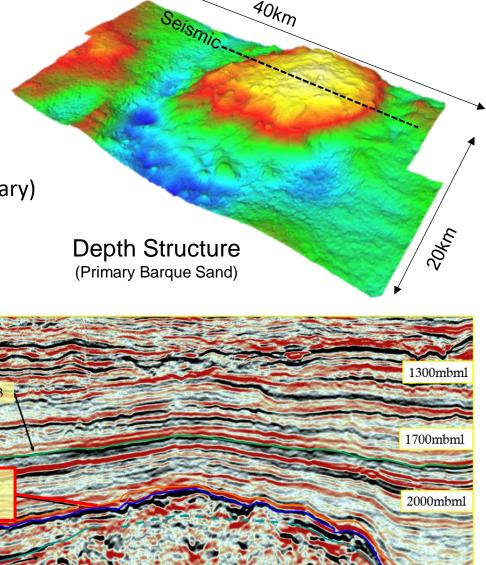
# **Barque Prospect – Stacked Play**

OIL & GAS

- 150 sq.km four-way depth closure mapped on PSDM 3D seismic
  - amplitude supported prospect
- ~11TCF (mean) of Wet Gas over three mapped horizons
- Gas recycling development of the primary reservoir yields a gross unrisked best estimate of **460mmbl plus subsequent development of 1.3TCF of gas**
- No seismic indications of seal breach over the crest of the structure
- 800m water depth & ~2200m bml well to test all targets (2000m bml primary)



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Unrisked GIIP volumes	P90	P50	Mean	Condensate*	P10	
Barque Sand	2,235	4,860	5,529	785	9,978	
Intra Paleogene 3	921	1,894	2,142	496	3,786	
Herbert Sandstone	727	2,431	3,494	304	7,871	
Total			11,165	1585		

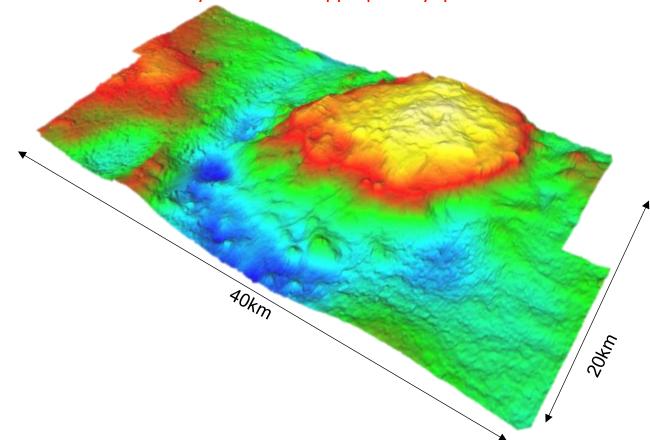


Primary objective:

<sup>\*</sup>Mean estimated condensate in place (mmbc)

# Farm in Opportunity

- NZOG is farming out on behalf of the Joint Venture
- At least 50% equity available on negotiable terms
- Operatorship available, if qualified for frontier operations
- The PEP 52717 Joint Venture aims to have new partners in place by **30 November 2017** 
  - Offers considered on first-come basis
  - Offer only available to appropriately qualified entities



## **Current permit status (PEP 52717 "Clipper")**

- NZOG (Operator 50%), Beach Energy 50%
- Permit Area: 3,423 km<sup>2</sup>
- 15 year term (expiry Oct 2027)

	2016		2017		2018		2019		2020	
	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
PEP 52717										
	Commit to drill					Drilli:	ng			

## All commitments fulfilled to date

## **Next commitment point**

- Drilling commitment by 10 April 2018
- Drill by 10 June 2020

#### **BARQUE PROSPECT**

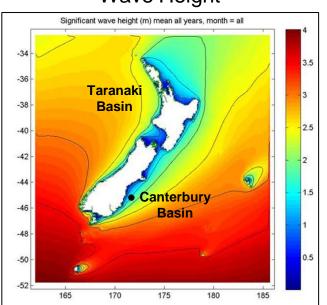
11 TCF and 1.5 B Bbls condensate in place (mean) Single horizon development gives 460 mmbl liquids recovered before gas blow-down plus 1.3 TCF of gas

# **Operational Support & Benign Metocean Conditions**

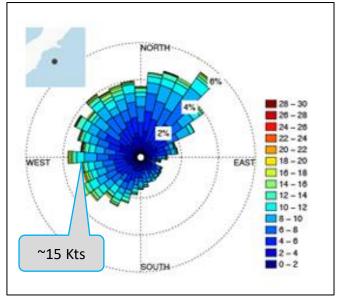


 Well-established contractor and marine support services for the oil industry

Wave Height



Wind Speed & Direction





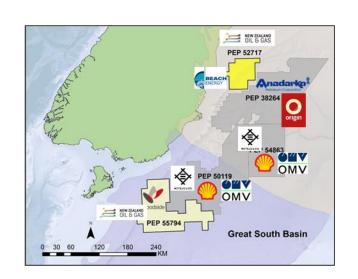
 Shelter provided by the South Island of New Zealand, means metocean conditions are better than those in NZ producing Taranaki Basin and comparable to UK North Sea

Wave height is typically much lower than deep-water Taranaki & wind strengths are generally mild

## **Barque Costs**

- Shared mob/demob expected with at least 2 wells based on the numerous deep water wells in existing NZ deep-water permits
- Dry hole exploration well cost estimated at around US\$60 million, assuming rig share
- Back costs to date US\$12 million

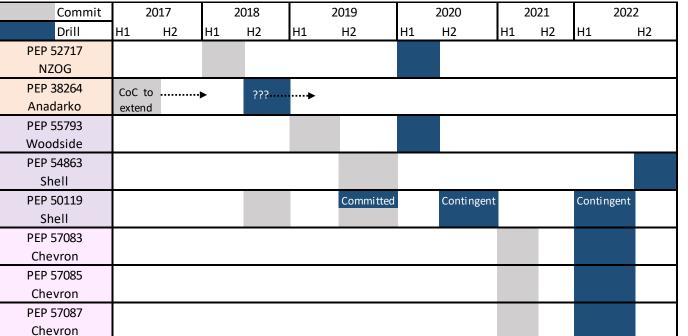






Commit

Drill

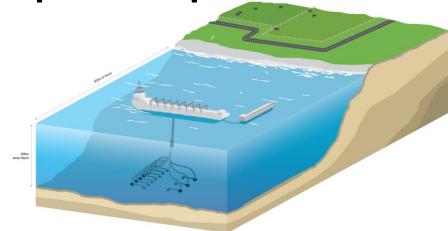


New Zealand's upcoming deep water drilling schedule

PEP 57090

ONGC

**Development Options** 



## **Gas Recycling - Preferred Development**

### 460mmbl plus 1.4TCF best estimate gross unrisked recoverable

**Development Analogue – Bayu Undan (ConocoPhillips)** 

- Gas separated and reinjected, liquids sold internationally (SE Asia)
- Liquids-focused development (Rich Gas Condensate & oil), gas to shore later in project
- Separation & compression facilities on-board FPSO
- Shuttle tanker for oil/condensate
- Gas reinjected
- Minimises emissions trading scheme exposure
- Minimal onshore impact

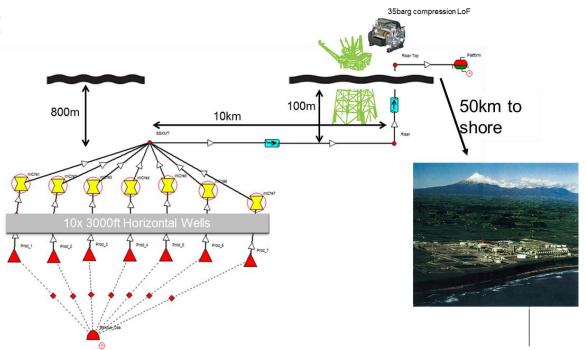
## Gas to shore



#### 3.5TCF plus 290mmbl best estimate gross unrisked recoverable

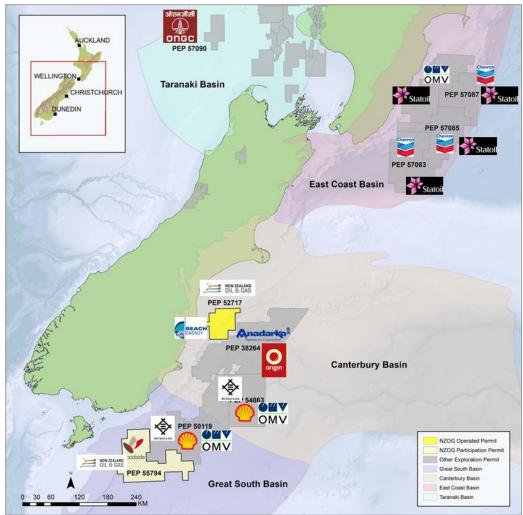
Development Analogue – Liwan Gas Project (Husky/CNOOC)

- Subsea production wells
- ~10km of pipeline from 800m water depth to 100m-200m water depth
- Allows more proximal compression to wellheads, lower cost on controls / chemicals infrastructure
- Further 50km of gas pipeline to shore
- To either LNG or Methanol processing terminal
- Liquids removed and shuttled from offshore



# Significant participants are already exploring......





Our hydrocarbon potential

## Our cities



Our movie sets





Our wine

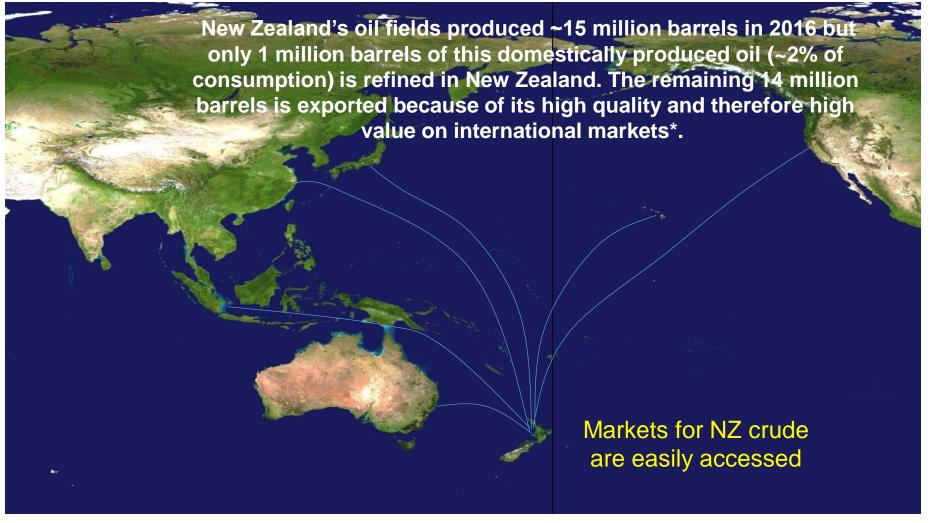


Our stunning scenery

## Closer than you think.....



We are in close proximity to High Demand and High Growth markets

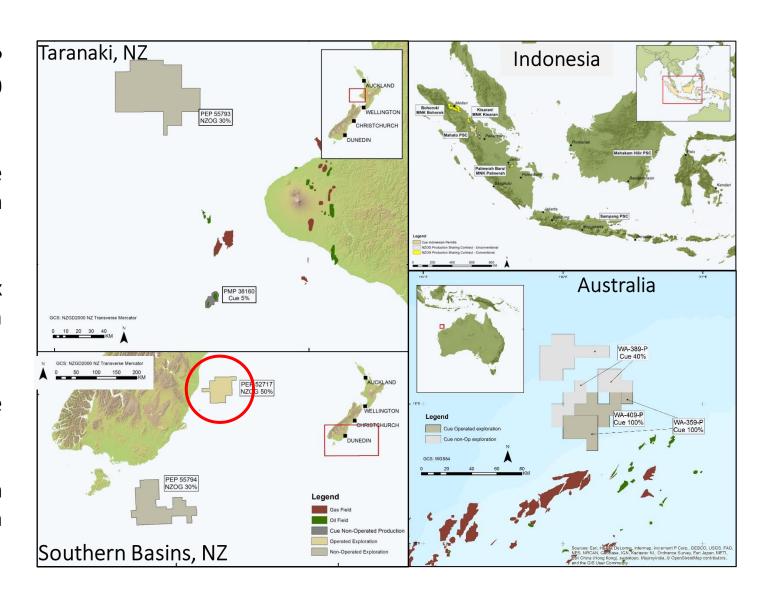


\*http://oilshockhorrorprobe.blogspot.co.uk/2011/06/new-zealands-oil-security-how-dependent.html updated to 2016 statistics Annual consumption of oil ~52 mmbo

# New Zealand Oil & Gas Ltd (NZOG)



- NZOG is New Zealand's largest listed E&P company and has been operating for over 30 years
- Our New Zealand values position us as the partner of choice for oil and gas investment in New Zealand
- We have a strong balance sheet and hold a mix of New Zealand and international exploration and production assets
- We have a controlling interest in ASX listed Cue Energy
- Our technical team is actively screening growth opportunities in the Asia Pacific Region leveraging their expertise in this region



# **Summary**

# Visit Booth 36



- New Zealand is a great place to explore and invest
- Barque Prospect offers:
  - MATERIAL ENTRY ASSET to build a business in New Zealand
  - Mean estimated gross unrisked IN-PLACE hydrocarbons ~11 TCFG & ~1.5 B BbIC (HCIIP)
  - FOUR WAY DIP CLOSED trap
  - 3D DEFINED (PSDM)
  - DHI defined, STRUCTURALLY CONFORMABLE, no indication of seal breach
  - ~2200m Bml WELL to test all targets in 800m of WATER
  - EXCELLENT LOCAL PORT INFRA-STRUCTURE within 50 km of location
  - FAVOURABLE METOCEAN conditions
  - DETAILED COMMERCIALISATION OPTIONS documented by NZOG
  - Additional LEADS AND PROSPECTS (running room)
- >50% participation and operatorship available
  - No outstanding commitments (Drill or Drop by 1Q2018: Drill by 1H2020)
  - Offers considered on first-come basis
  - Offer only available to appropriately qualified entities

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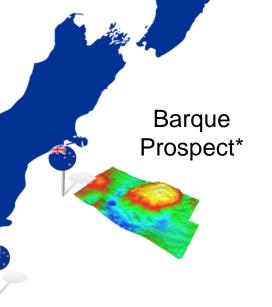
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(\*not accurate scale or location)