

## Compliance statements



#### **Disclaimer**

This presentation contains forward looking statements that are subject to risk factors associated with oil, gas, geothermal and related businesses. It is believed that the expectations reflected in these statements are reasonable but they may be affected by a variety of variables and changes in underlying assumptions which could cause actual results or trends to differ materially, including, but not limited to: price fluctuations, actual demand, currency fluctuations, drilling and production results, reserve estimates, loss of market, industry competition, environmental risks, physical risks, legislative, fiscal and regulatory developments, economic and financial market conditions in various countries and regions, political risks, project delays or advancements, approvals and cost estimates.

All references to dollars, cents or \$ in this presentation are to Australian currency, unless otherwise stated. References to "Beach" may be references to Beach Energy Limited or its applicable subsidiaries.

Unless otherwise noted, all references to reserves and resources figures are as at 30 June 2014 and represent Beach's share.

#### **Competent Persons Statement**

The reserves and resources information in this presentation is based on, and fairly represents, information and supporting documentation prepared by, or under the supervision of, Mr Tony Lake (Reservoir Engineering Manager). Mr Lake is an employee of Beach Energy Limited and has a BE (Mech) degree from the University of Adelaide and is a member of the Society of Petroleum Engineers (SPE). The reserves and resources information in this presentation has been issued with the prior written consent of Mr Lake in the form and context in which it appears.

# Welcome



Time	Topic	Presenter
09:00 - 09:05	Welcome	Derek Piper
09:05 - 09:10	Investor relations update	Chris Jamieson
09:10 - 09:25	Strategy update	Reg Nelson
09:25 - 09:40	Operational update	Neil Gibbins
09:40 - 09:55	Otway Basin and Bonaparte Basin	Neil Gibbins
09:55 - 10:05	International	David Spence
10:05 - 10:15	Q&A	All
10:15 - 10:45	Morning tea	
10:45 - 10:55	Eastern Australia gas market	Rod Rayner
10:55 - 11:10	Cooper Basin – Delhi (SACB and SWQ JVs)	Mike Dodd
11:10 - 11:20	Cooper Basin – Oil and wet gas	Mike Dodd
11:20 - 11:40	Cooper Basin – Nappamerri Trough Natural Gas	Carrie Trembath
11:40 - 11:50	Q&A	All
11:50 - 12:00	Close	Reg Nelson



# **Investor relations update**

**Chris Jamieson – General Manager Investor Relations** 



# Company overview



- ASX 100 company with a market capitalisation of ~\$1.4 billion<sup>1</sup>
- Largest Australian onshore oil producer
- Strong balance sheet with cash of \$343 million<sup>2</sup>
- Undrawn secured debt facility of A\$300 million
- Record FY14 production and sales revenue



1. As at 18 November 2014; 2. As at 30 September 2014

# Launch of Beach Energy app

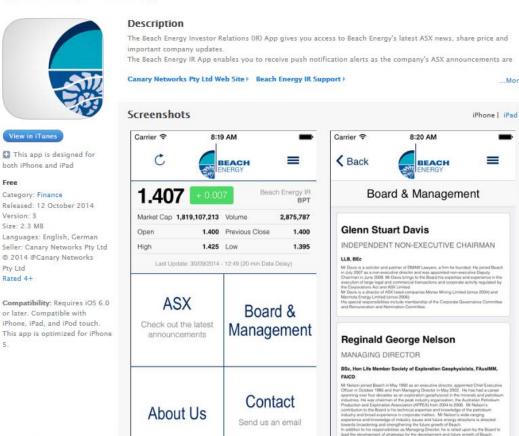


- First Investor Relations app offering from an Australian oil and gas company
- Key features:
  - Push notifications for ASX releases
  - Market data and share price charting
  - Investor Relations support
- Developed for all smart phones and tablets
- Free download in the iTunes and Google Play stores

#### Beach Energy IR

#### By Canary Networks Pty Ltd

Open iTunes to buy and download apps.



More Apps by Canary Networks Pty Ltd

# Shareholder register perspectives



#### Seasoned offshore energy investors increasing presence on Beach register

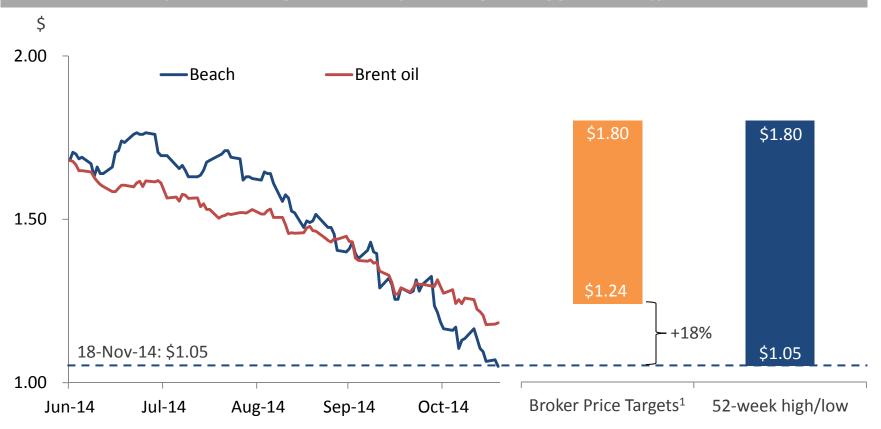
- Significant increase in US institutional ownership over past 12 months
- Deep understanding of unconventional plays from US shale experience
- Attracted by early-stage nature of Cooper Basin deep gas
- Recognise long-term potential of NTNG program given prolific gas saturated acreage



# Broker valuation perspectives



#### Share price tracking oil; broker price targets suggest sell-off overdone



NB. Chart data to 18 November 2014; Brent oil re-based to BPT share price; source: EIS

<sup>1.</sup> Range of 10 price targets from broker research reports post release of Beach Q1 FY15 quarterly report



# **Strategy update**

**Reg Nelson – Managing Director** 



# Global demand dynamics

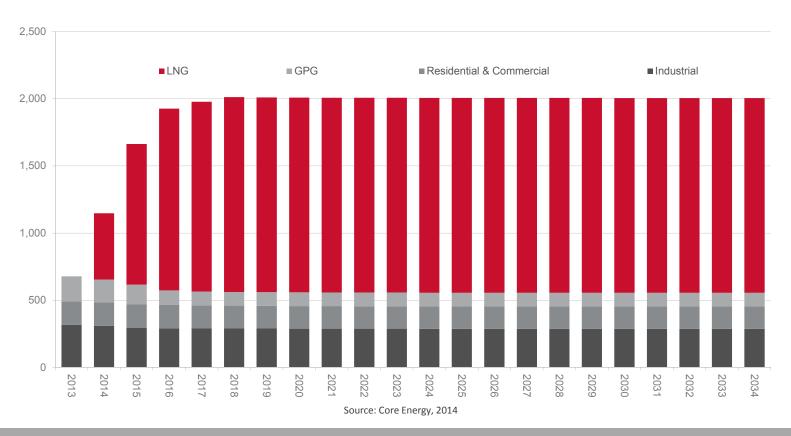




A greater population lives inside this circle than outside it

## Domestic supply response





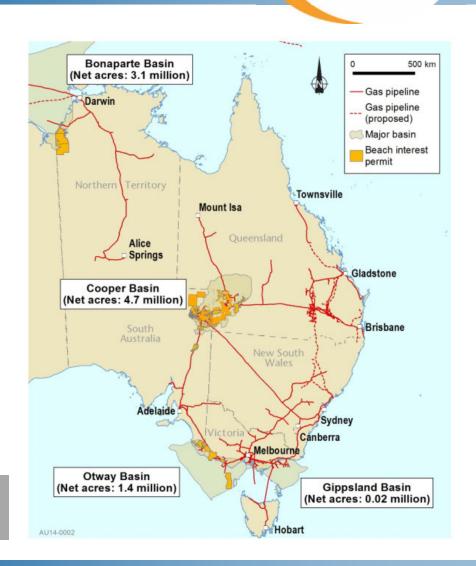
Transformational change for the Australian east coast gas market, with potential for higher gas prices driven by offshore LNG demand and increased finding and development costs

# Strategically positioned gas acreage



- Quality acreage footprints accessing multiple markets
- Strategically targeting three key basins for deep and conventional gas
- Cooper Basin deep gas activity:
  - Nappamerri Trough Natural Gas with Chevron and Icon
  - SACB JV REM and BCG plays
- Otway and Bonaparte Basins targeting gas and gas liquids
- All areas proximal to infrastructure

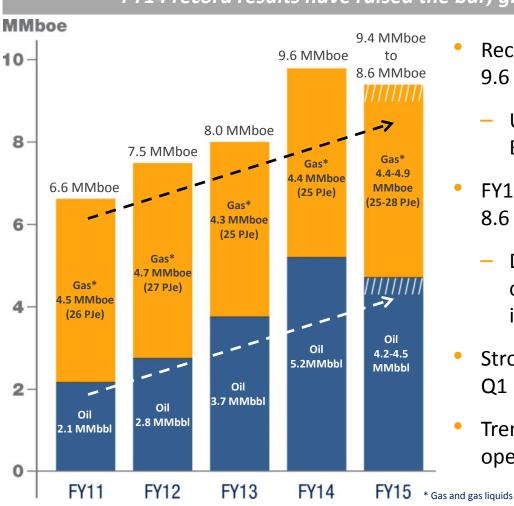
Multi-basin portfolio to feed eastern and northern Australian markets



# Demonstrated track record of growth



#### FY14 record results have raised the bar; growth trend continues



- Record FY14 production of 9.6 MMboe
  - Underpinned by outperforming Bauer field
- FY15 production guidance of 8.6 9.4 MMboe
  - Dependent on timing of new fields coming on-line; nothing factored in for exploration success
- Strong start to financial year with Q1 FY15 production of 2.4 MMboe
- Trend lines reflect sustained operational growth



# **Operational update**

**Neil Gibbins – Chief Operating Officer** 



## Future direction



- 1. Western Flank oil and wet gas
- 2. Growing Cooper Basin acreage
- 3. NTNG moving toward Stage 2
- 4. SACB and SWQ JVs gas production ramp-up
- 5. Australian multi-basin focus
- 6. Whole of portfolio review





## 1. Western Flank oil and wet gas



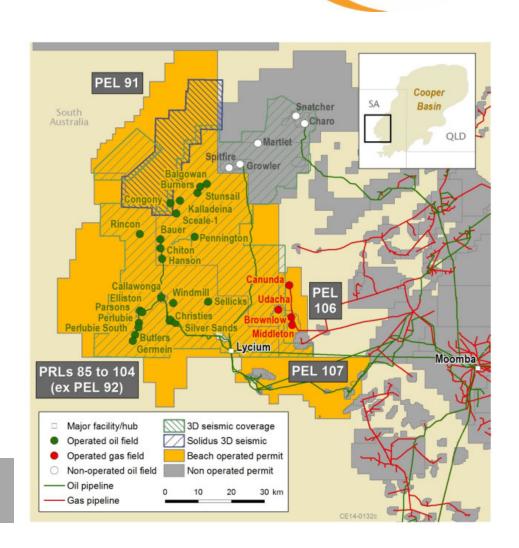
### **Key facts**

- High net back; lowest cost operator in the Cooper Basin
- Quick drill times and high flow rates
- Excellent geological understanding
- Established infrastructure
- ~4,000 km² of 3D seismic

#### **FY15**

- 22 exploration and appraisal wells
- 13 development wells
- Three oil discoveries in Q1 FY15

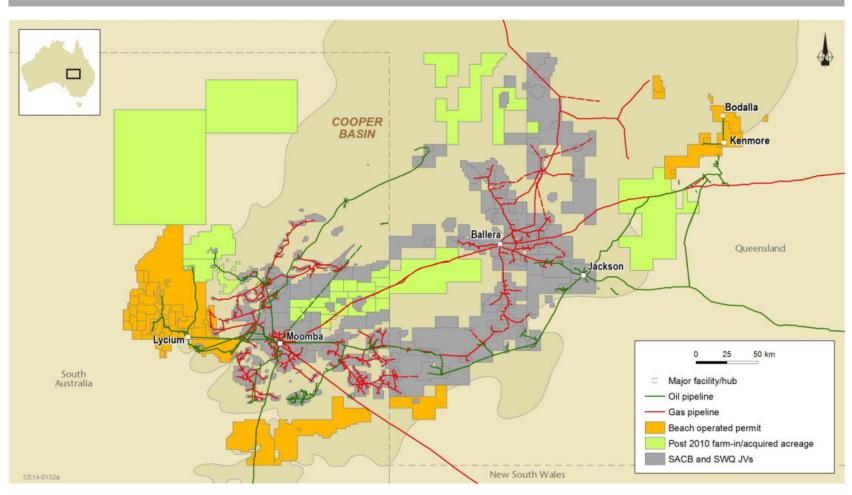
Largest Australian onshore oil producer



# 2. Growing Cooper Basin acreage



### Prolific and increasing gross acreage position of over 56,000 km<sup>2</sup>



# 3. NTNG moving toward Stage 2



#### PRLs 33 to 49 – potential payments

### Stage 1 (initial 30%)

- US\$36 million cash
- US\$95 million carry

### Stage 2 (additional 30%) (1)

- US\$41 million cash
- US\$47 million carry
- Commitment bonus payment of US\$35 million
- (1) Permian section equity interests post stage 2 farm-in would be: PRLs 33 to 49 (Beach 40% and operator, Chevron 60%) and ATP 855 (Beach 28.9% and operator, Chevron 36%, Icon Energy 35.1%)

#### ATP 855 – potential payments

#### Stage 1 (initial 18%)

US\$59 million cash

#### Stage 2 (additional 18%) (1)

US\$36 million cash

US\$349 million of potential payments to Beach over several years

#### **Stage 1 timing:**

- PRLs 33 to 49 Beach to notify Chevron following completion of Stage 1 work program; once notified, Chevron has 60 days to advise of its decision on whether to proceed to Stage 2
- ATP 855 Chevron to decide on whether it proceeds to Stage 2 by 31 March 2015

## 4. SACB and SWQ JVs ramp-up



- Multi-well pad infill drilling, with four rigs currently operating
- Ramp-up profile to be provided by the operator prior to end of calendar year 2014
- Operator targeting 30% production capacity increase from 2012 trough to meet new contracts
- Maintenance strategies continue to deliver record low downtime and resultant production benefits

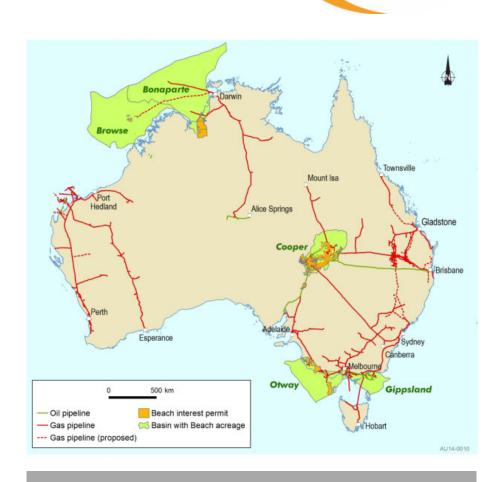
Infill drilling program extracting more gas from existing fields



### 5. Australian multi-basin focus



- Cooper and Eromanga Basins the engine room for Beach
  - Generating all Australian production
  - Conventional oil, gas and deep gas activity
- Otway Basin
  - Offshore 3D seismic underway
  - Onshore conventional wells to be drilled
  - Proximal to infrastructure supplying Victoria and SA
- Bonaparte Basin
  - Initial Cullen-1 findings highly encouraging

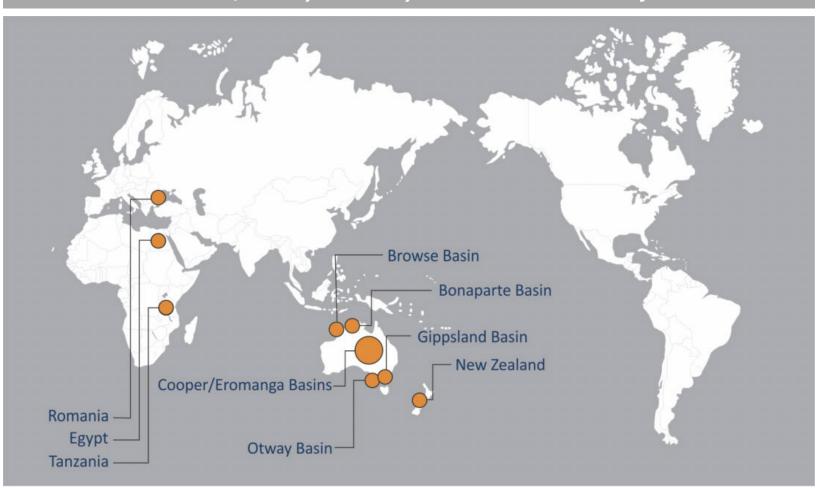


Exciting opportunities beyond Cooper and Eromanga Basins

# 6. Whole of portfolio review



All assets under review; activity underway in a considered and confidential manner





# **Otway Basin and Bonaparte Basin**

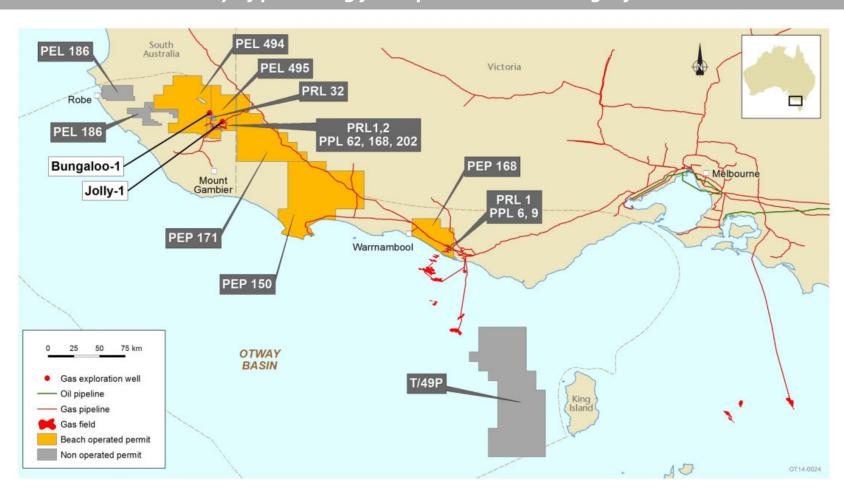
**Neil Gibbins – Chief Operating Officer** 



# **Otway Basin**



### A rich history of producing fields proximal to existing infrastructure

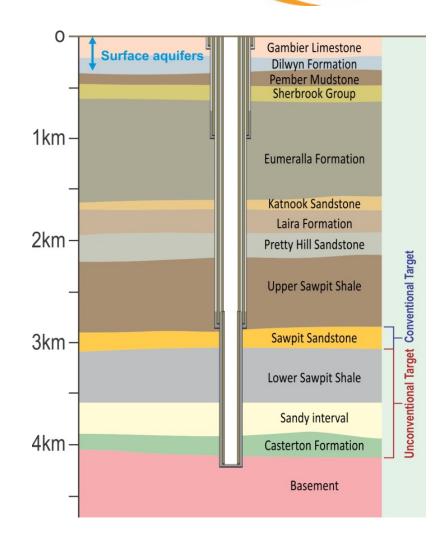


# Otway Basin onshore – PELs 494 and 495



- Beach 70% and operator, Cooper Energy 30%
- Bungaloo-1 (PEL 494) and Jolly-1 (PEL 495) targeted deep tight sandstones and shales
- Elevated gas readings from Lower Sawpit
   Shale to the Casterton Formation
  - 181 metres of core recovered; gas evolving from core
- Strong gas shows from the Sandy interval indicating a potential tight sand gas play
- Good reservoir properties in Sawpit Sandstone, a conventional target
- Beach Katnook gas facility capacity of 10 TJ per day
- SEA Gas pipeline proximal to Katnook facility

Gas prospectivity in both conventional and unconventional targets in the Penola trough



# Otway Basin offshore – T/49 P



- Beach 20%, 3D Oil 80% and operator
- Lightly explored permit adjacent to Geographe and Thylacine gas fields
- Polarcus Asima vessel undertaking 3D seismic survey
- 974 km<sup>2</sup> Flanagan 3D seismic survey targeting prospects and leads in north of block
- Final processed Flanagan 3D data expected mid 2015
- Close proximity to existing material gas production

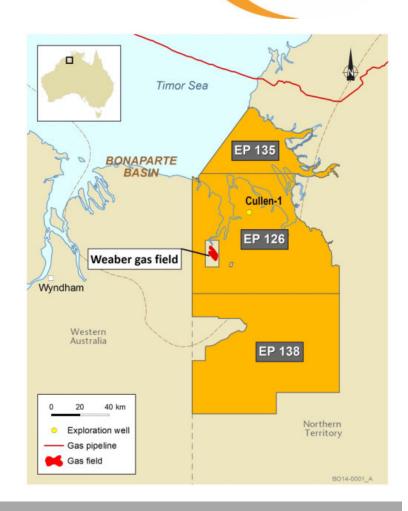
Highly prospective permit in proven gas province; clear route to markets



## Bonaparte Basin – EP 126



- Beach 55% and operator, Territory Oil & Gas 45%
- Cullen-1 results currently being assessed
- 1,600 metres of over-pressured marine shale with variable carbonate content
  - Encouraging gas and oil shows in tight sands
  - 54 metres of core recovered
- 1,000 metres of fractured platform carbonate
  - Elevated gas shows over natural fracture intervals
  - Extended production testing required to assess potential
- Forward program to consider 3D seismic



Underexplored permit with conventional and unconventional oil and gas potential



# **International**

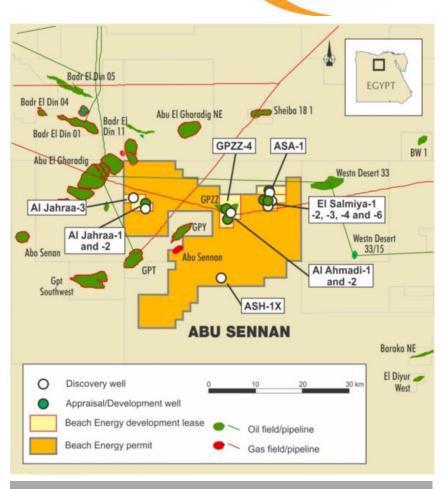
**David Spence – Senior Geologist International** 



# Egypt – Abu Sennan Concession



- Beach 22%, Kuwait Energy Egypt 50% and operator, Dover Investments 28%
- 16 wells drilled since initial farm-in in 2010 with 75% success rate
- Currently producing ~3,000 bopd (gross)
- El Salmiya-6 intersected an 82 metre oil column, 53 metres of net pay, in the deeper Kharita Formation
- Further success realised at Al Jahraa-2 in the Abu Roash "C" and at ASA-1 ST3 in the Abu Roash "C" and "E"
- ASH-1X exploration well drilling ahead
- Gas pipeline to be tied-in to the El Salmiya field to enable increased production (both oil and gas)
  - First gas expected Q1 2015



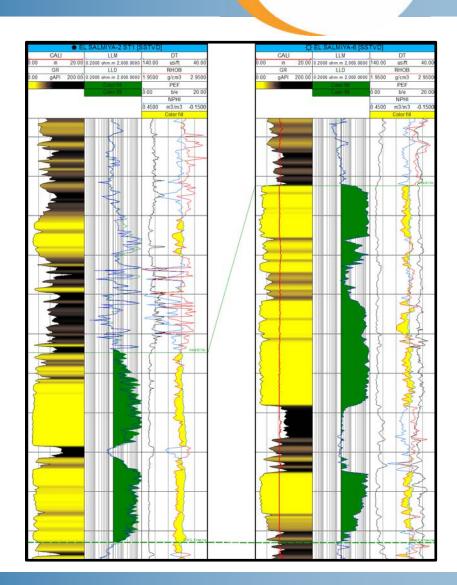
Clear oil fairway identified through
Abu Sennan Concession

# El Salmiya-6 – Kharita Formation



- Intersection of an 82 metre vertical column with 53 metres of net pay
- Tested at 2,750 bopd with 9.7 MMscfd
- Production from Kharita Formation in excess of 210 kbbls since 2013
- Reserve booking of 13.4 MMbbl (gross) at 30 June 2014
- Flaring restrictions limit daily production flows of both oil and gas
- Installation of gas pipeline to eliminate gas flaring, resulting in unrestricted flows from wells

Excellent sandstone reservoir; discovery well flowed at 3,530 boepd on test

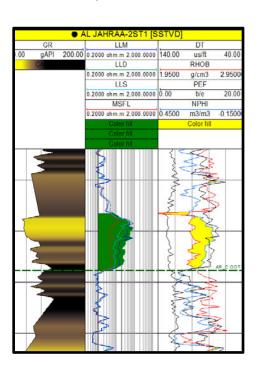


### Abu Roash discoveries

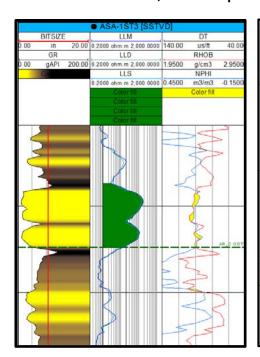


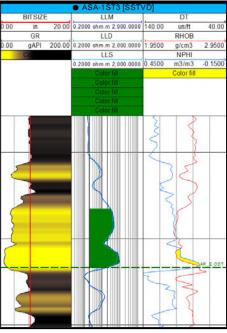
#### Smaller stacked oil columns delivering strong flow rates

Al Jahraa-2 intersected 11
metres of net pay in the Abu
Roash "C"; flow tested at
1,533 bopd



- ASA-1 ST3 intersected 7.5 metres of net pay in the Abu Roash "C"; flow tested at 2,164 bopd
- Intersected 6.5 metres of net pay in the Abu Roash "E"; flow tested at 1,619 bopd

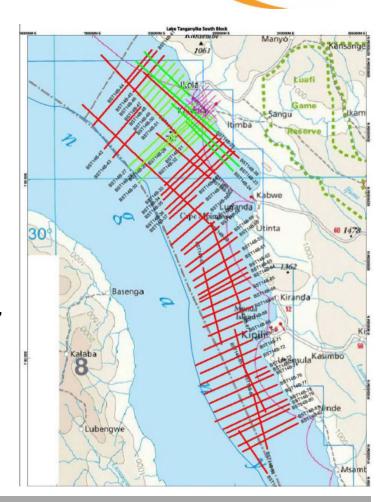




# Tanzania – Lake Tanganyika South Block



- Farm-out to Woodside announced in July 2014, in line with portfolio review
  - New equity interests (subject to Government approvals): Beach 30% and operator, Woodside 70%
- 2,080 kilometre 2D seismic survey completed in August 2012 (red lines)
- Extensive structuring confirmed, similar to Lake Albert in Uganda
- Hydrocarbons indications over tilted fault blocks, low-side rollovers and mounded features
- 1,300 kilometre marine 2D seismic commenced early November (green lines)
- 100 kilometre land/transition 2D seismic to commence imminently (purple lines)

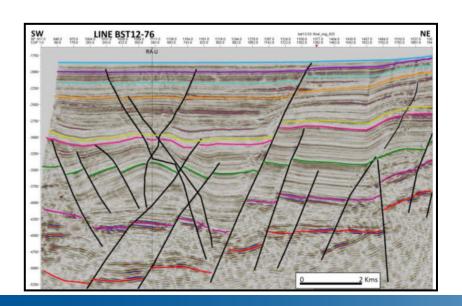


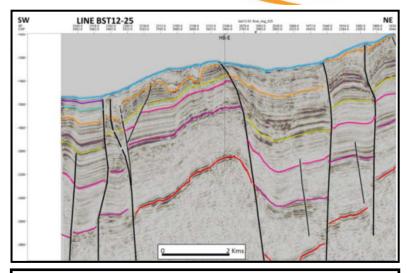
Significant acreage position in the prospective East African Rift

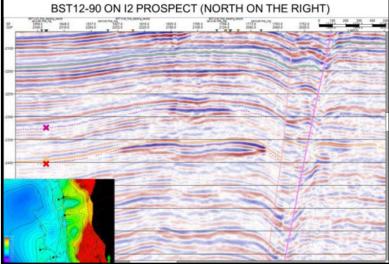
# Tanzania – Multiple play types identified



- Exploration program has identified multiple play types across the permit
- 18 prospects and leads generated from original high quality 2D seismic
- Follow up marine and transition 2D seismic being acquired



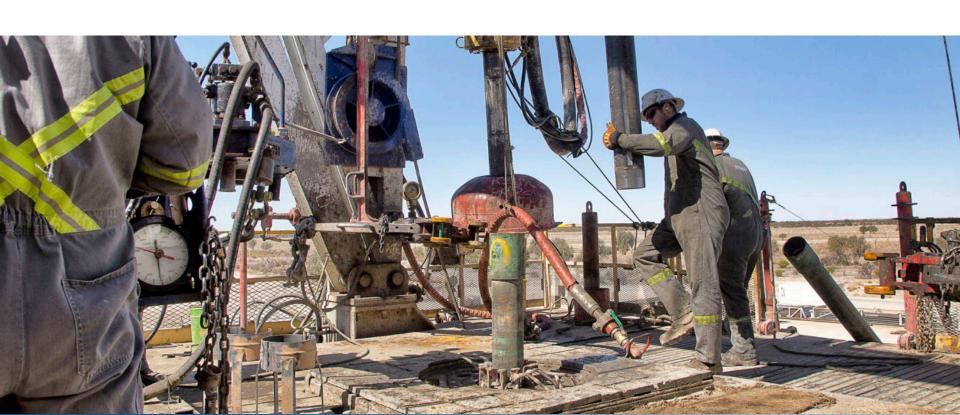






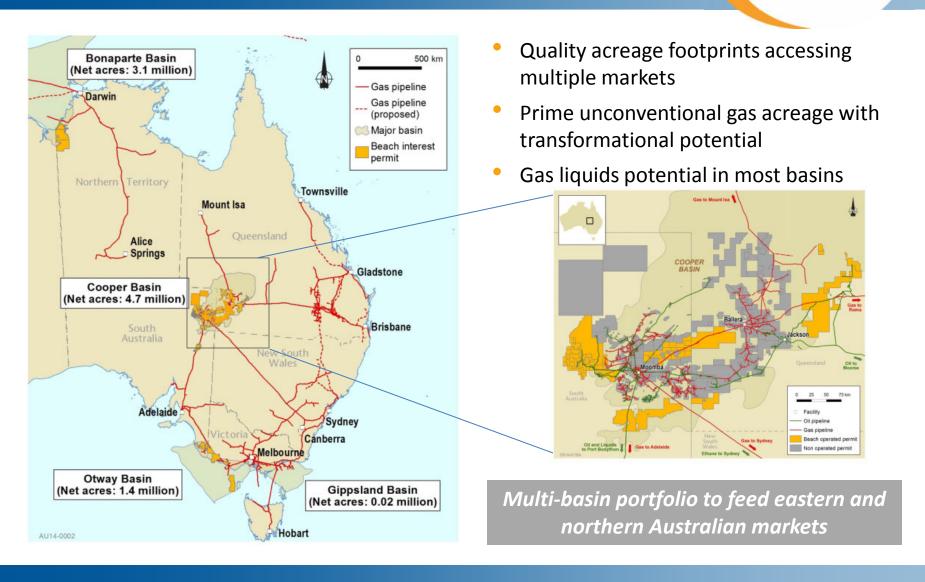
# **Eastern Australia gas market**

**Rod Rayner – Group Executive Commercial** 



# Prolific gas acreage strategically located





# Key Beach gas transactions





- Origin gas sales agreement
  - Signed April 2013
  - 139 PJ over eight years; potential to extend to 173 PJ over ten years
  - Supply to start by 1 July 2015



- PEL 106B SACB JV raw gas sales agreement
  - Signed March 2013
  - Minimum of 10 Bcf



- Chevron Nappamerri Trough joint venture farm-in agreement
  - Signed February 2013
  - PEL 218 and ATP 855
  - \$349 million of potential payments to Beach

High value opportunities

Exposure to oil linked gas prices

**Quality counterparties** 

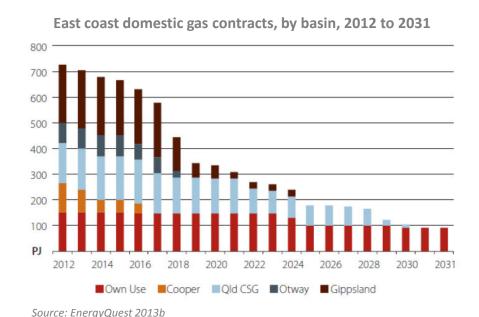
**Diversified options** 

Positioned for future growth

# East coast gas market dynamics



- Falling quantity of contracted gas in key Eastern Australia market
  - Contractual arrangements covering around 260 PJ of gas due to expire in next four to five years
- Large domestic gas users currently seeking to recontract gas to ensure long-term supply....
- ....while LNG producers are commissioning projects with concerns over CSG production risks and supply
- AIG survey in 2013 indicated substantial increases in gas prices offered on longer term contracts is now a reality (up to \$9/GJ on average)



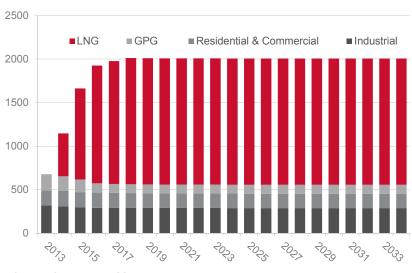
Tension in uncertain Eastern Australia gas market

#### Critical gas price drivers



- Impending LNG project commissioning
- Delay in delivery of CSG to meet export requirements
- Increasing costs to develop CSG adding to demand for other gas resources
- Future opportunities exist in international markets to fully utilise eastern Australia LNG trains
- Need for substantial infrastructure investment to facilitate entry for remote new gas supplies
- Certain lobbyist activity restricting permit access and resultant supply
- Progressive move to LNG netback pricing
  - With supply shortage, potential for prices to exceed LNG netback price

#### Eastern Australia total gas demand scenarios (PJ)



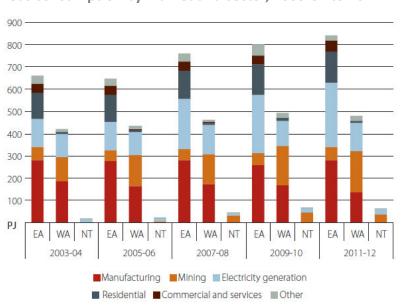
Source: Core Energy, 2014

CBA Energy Research prediction for 2014: "East Coast Gas prices spike above \$13/GJ with Gladstone LNG projects....hoovering up supply to fill facility LNG capacity shortfall"

### Gas pricing and supply



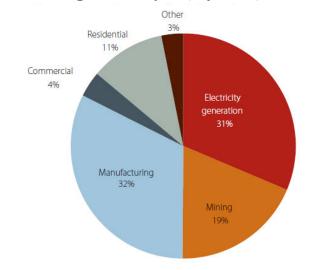




Source: BREEE, 2013a

Note: Mining gas use includes use by LNG plants in the liquefaction process

#### Australian gas consumption, by sector, 2011-12



Source: BREEE, 2013a

- Gas is a vital and efficient source of energy in all segments of the community
- Strong gas demand and higher gas prices likely to deliver more upstream activity
- Beach's multi-basin portfolio well positioned to supply key gas markets



# Cooper Basin - Delhi (SACB and SWQ JVs)

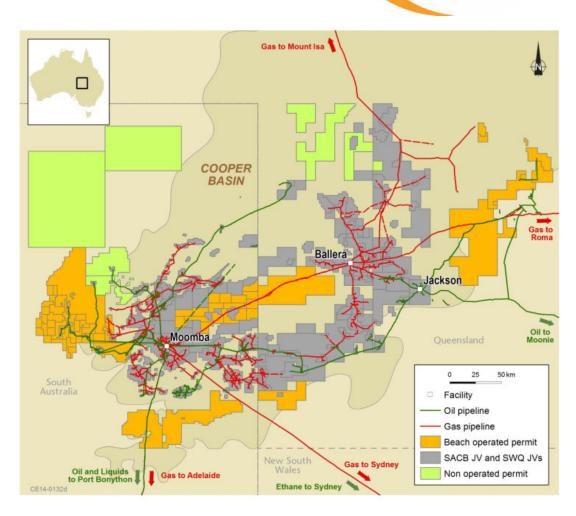
**Mike Dodd – General Manager Exploration and Development** 



#### SACB and SWQ JVs



- Significant acreage with strategic infrastructure
- Gross joint venture area of ~26,800 km² (~6.6 million acres)
- ~6,000 kilometres of flowlines
- Primary processing and transportation facilities
- Upside from shale, coal and basin centred gas plays
- Beach ownership interests:
  - SACB JV ~20%
  - SWQ JVs ~20% to 40%



### Moomba processing facility



- Strategically located, expandable facility
- Daily capacity of approximately:
  - 420 TJ gas (post de-bottlenecking);
  - 35 kbbl oil/condensate; and
  - 600 tonnes LPG
- Substantial gas storage system with capacity of ~70 PJ
- Gas supplied directly into New South Wales, Queensland and South Australian markets
- Further processing capacity at Ballera of >80 TJ per day

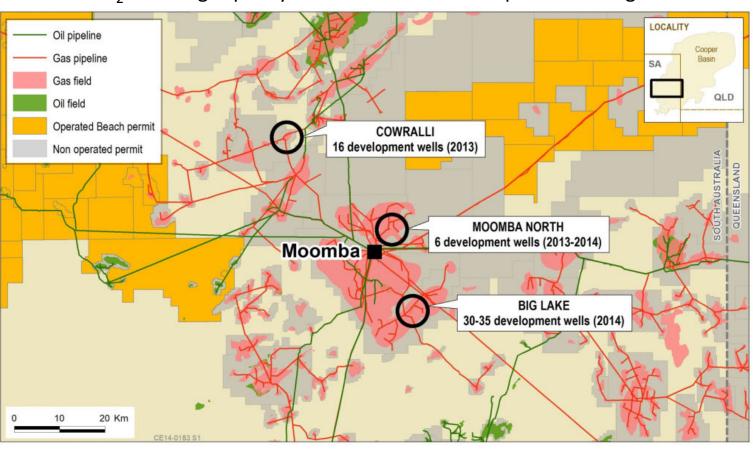
The key processing point for Cooper Basin oil and raw gas



### SACB JV gas - 2013/14



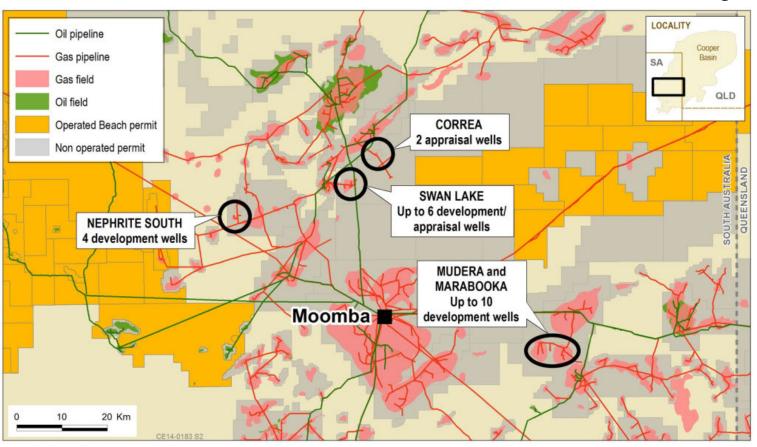
- Development in 2013 and 2014 primarily focused on close spaced infill drilling at Cowralli, Moomba North and Big Lake; program results mixed
- Expansion of CO<sub>2</sub> handling capacity at Moomba tracked to plan and budget



#### SACB JV gas – 2015



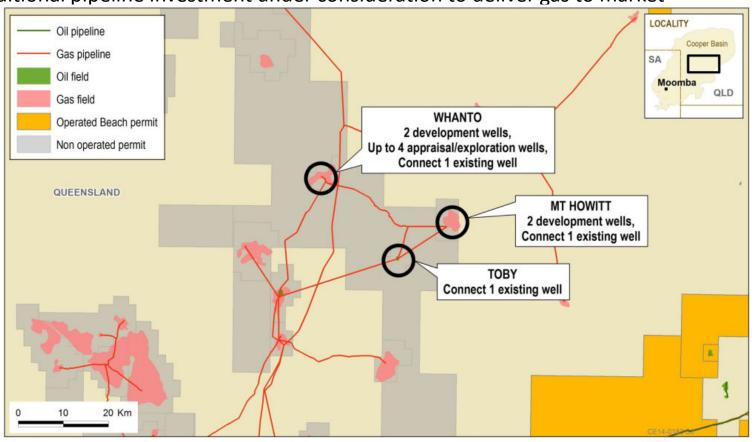
- Following a period of concentrated infill drilling, 2015 program will be more geographically widespread
- Mudera and Marabooka to focus on shallower Coorikiana sands, with lower drilling costs



#### SWQ JVs - 2015

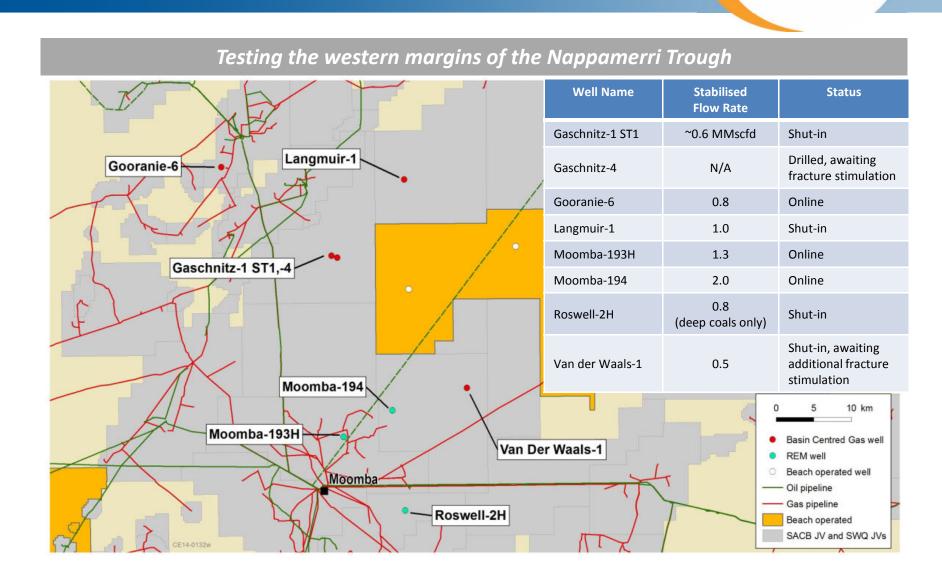


- 2015 program to focus on northern fields, with appraisal and exploration drilling
- Significant development and appraisal/exploration at Whanto
- Additional pipeline investment under consideration to deliver gas to market



#### Recent SACB JV unconventional results





#### SACB JV unconventional – 2015



#### The program is likely to include:

- Deep coal fracture stimulation stages in conventional gas development wells wherever deemed commercial;
- Drilling a follow up well in the vicinity of Moomba-194 to address multiple stacked unconventional targets;
- Fracture stimulation and testing of Gaschnitz-2 and -3 (multiple lithologies/stacked targets/natural fracturing);
- Fracture stimulation and testing of Gaschnitz-4 (Toolachee targets only),

#### and may be expanded to include:

- Drilling, fracture stimulation and testing of one well located on structural high within the Nappamerri Trough, targeting an interpreted "sweet spot" for permeability and natural fracturing; and
- Completion of the fracture stimulation program at Van der Waals-1 with a further nine stages and subsequent flow testing (multiple lithologies/stacked targets)



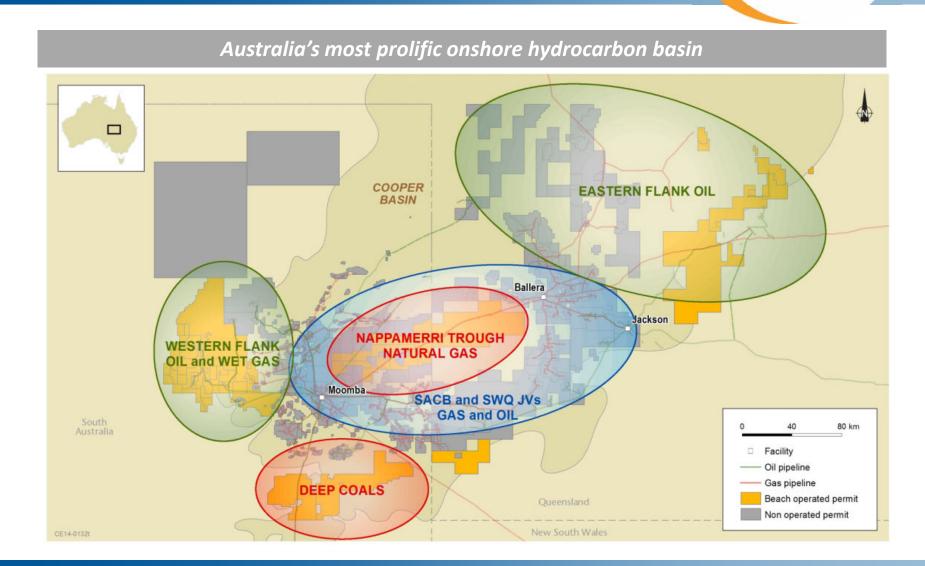
# **Cooper Basin – Oil and wet gas**

**Mike Dodd – General Manager Exploration and Development** 



### Multi-play Cooper Basin acreage





### New oil fields coming on-line

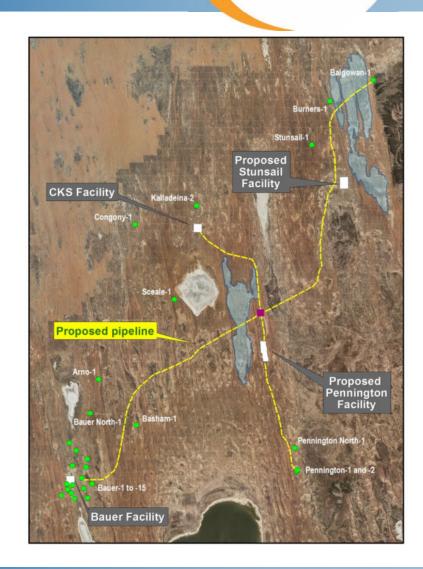


#### **PEL 91**

- New pipelines from CKS, Stunsail and Pennington facilities feeding in to new hub
- Hub to be gateway for transportation of oil through single pipeline to Bauer
- CKS on-line in October 2014
- Balgowan field to tie-in to Stunsail facility
  - Expected on-line April 2015
- Pennington facility planning underway
  - Two to four additional wells required to develop field
  - Expected on-line June 2015

#### PEL 104/111

 Martlet field development planning underway, expected on-line December 2014

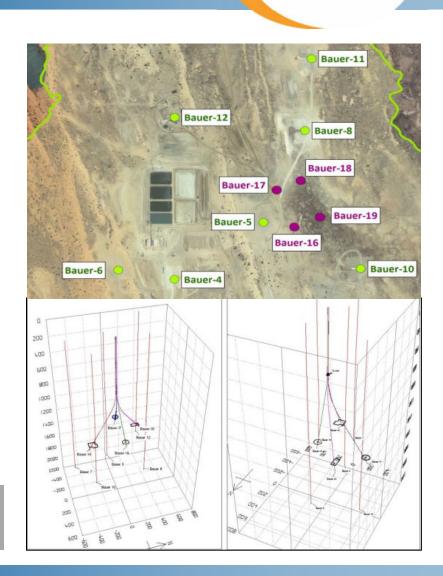


#### PEL 91 - Bauer well pad development



- Bauer-16 to -19 development well pad drilling underway
- Initial 12¼" surface hole drilled for each, after which each drilled to total depth
- Directional drilling from ~1,200 metres depth
- Time and cost savings already achieved
  - Sideways walk from Bauer-16 to -17 completed in two hours
  - Estimated 30-day drilling campaign for all four wells

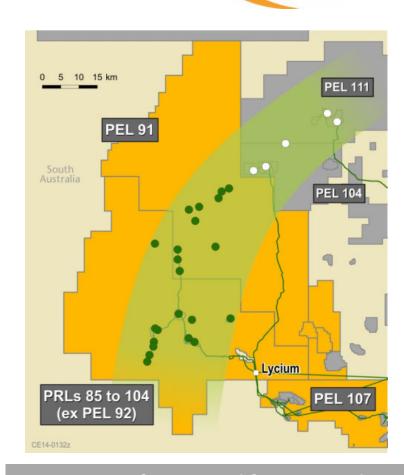
Pad drilling techniques yielding significant time and cost savings



#### **Exploration success continues**



- Namur play fairway extended to the northeast with discoveries at Stunsail-1, Balgowan-1, Burners-1 and Martlet-1
- Planning underway to further appraise
   Bauer, Chiton, Stunsail, Pennington, Hanson,
   Spitfire and Martlet
- New focus on untapped potential beyond original targets
  - PELs 91 and 92 Mid Namur, Birkhead,
     Poolawanna and Patchawarra
  - PELs 104 and 111 McKinlay Member and Namur Sandstone
- Ongoing expansion of prospect seriatim from 3D seismic (new, reprocessed and inversion)



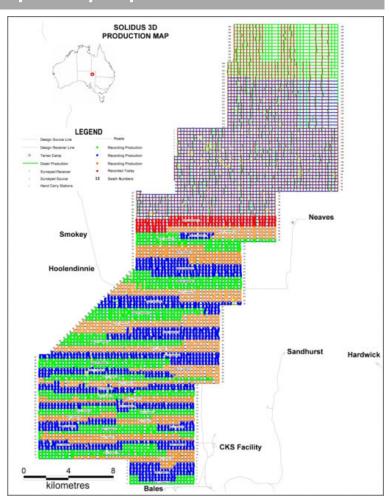
Extension of Namur oil fairway to the north-east with discovery of Martlet-1

#### PEL 91 - Solidus 3D seismic survey



#### New 3D seismic survey expected to add up to 50 prospects and leads

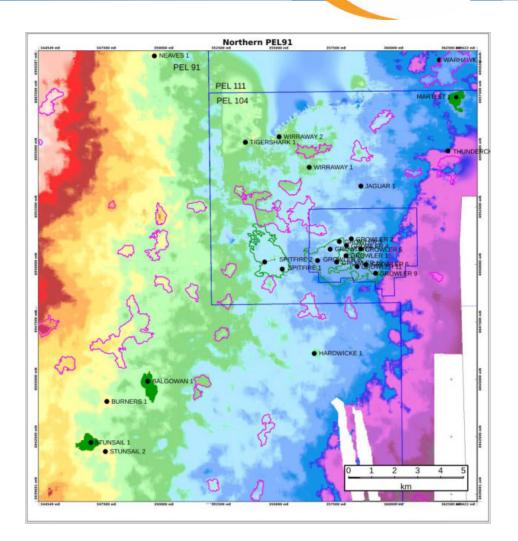
- 492 km² acquisition area
- Line preparation completed
- Recording ~90% complete
- Focusing on prospective acreage to the north of Bauer
- Non-traditional PEL 91 formations to be targeted, for example the Birkhead Formation
- Processing and interpreting of data expected to take six months



#### Namur Sandstone oil play



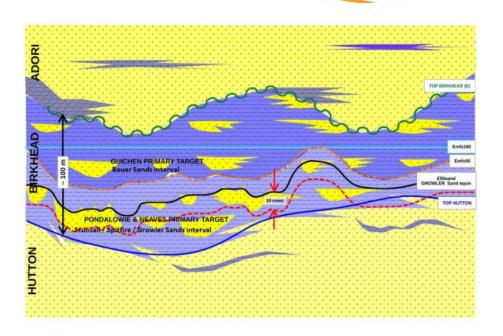
- Numerous Namur oil prospects defined from 3D seismic data
- Play extended to PEL 104/111 with success at Martlet-1
- Up to four PEL 91 exploration wells targeting Namur prospects in Q3 FY15
- Production facility at Stunsail designed to accommodate further exploration success without delay



#### Birkhead Formation oil play



- Birkhead fields in PEL 104 and PEL 111 include:
  - Growler and Spitfire (PEL 104); and
  - Snatcher and Mustang (PEL 111)
- Birkhead oil discoveries in PEL 91 include:
  - Bauer-5, Stunsail-1 and Pennington
     North-1
- Inversion of 3D seismic data has proven a successful technique for locating reservoir sands
- Inversion of Caseolus and Irus 3D datasets ongoing



Inversion techniques proving successful for locating additional reservoirs

### Operated gas and gas liquids

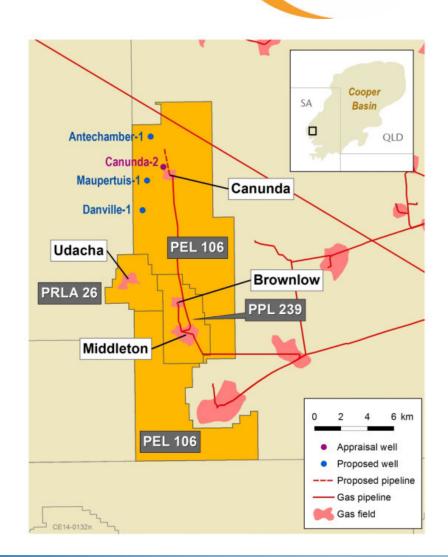


#### **PEL 106**

- Beach 50% and operator, Drillsearch 50%
- Canunda-2 appraisal well cased and suspended
- Gas sales agreement with SACB JV to March 2016
- Maupertuis-1 drilling ahead, two further exploration wells in FY15
- Potential compression at Middleton to accelerate production to the market

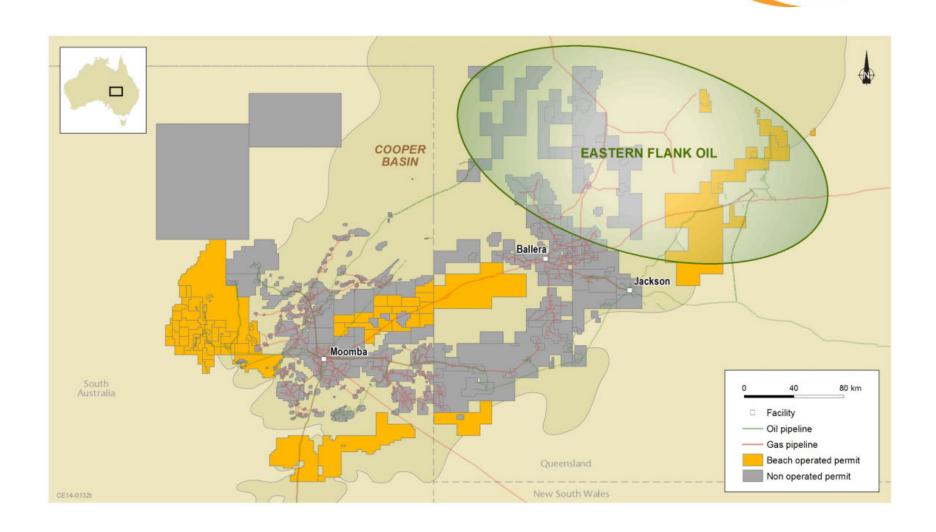
#### **PRLA 26**

- Beach 15% and operator, Drillsearch 75%,
   Rawson 10%
- Udacha-1 well to be recompleted for fracture stimulation in Q3 FY15; plan to tie-in to Middleton facility



## Cooper Basin Eastern Flank

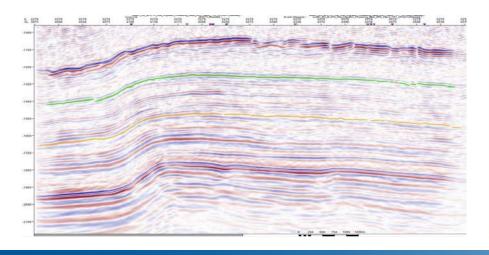


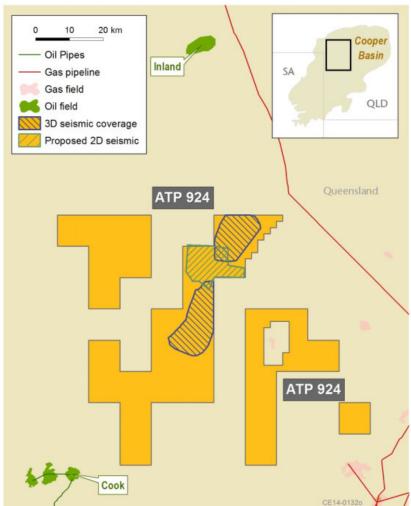


#### Eastern Flank – ATP 924



- Farming-in 45% with Drillsearch
- Permit area ~2,300 km² and located between the Inland and Cook oil fields
- Agreement to drill up to two wells and acquire 150 km<sup>2</sup> of 3D seismic
- Targeting Jurassic oil and Permian gas reservoirs on large structural ridges
- One well planned in Q4 FY15



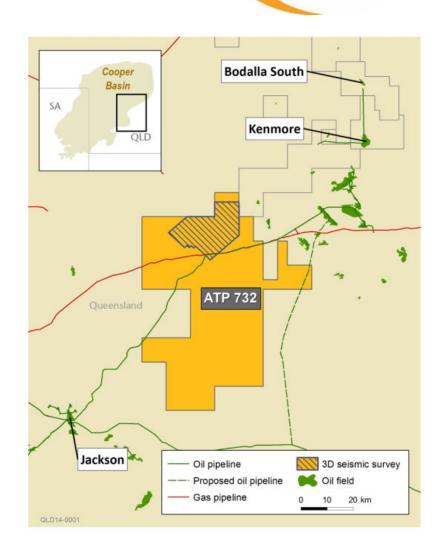


#### Eastern Flank – ATP 732



- Farming-in 50% with Bengal Energy
- 306 km<sup>2</sup> Nassarius 3D acquired in 2014 in the north of the permit
- Seismic processing ongoing
  - Excellent data quality
- Targeting Birkhead/Hutton reservoirs beneath meteorite disturbance
- One well planned in Q4 FY15

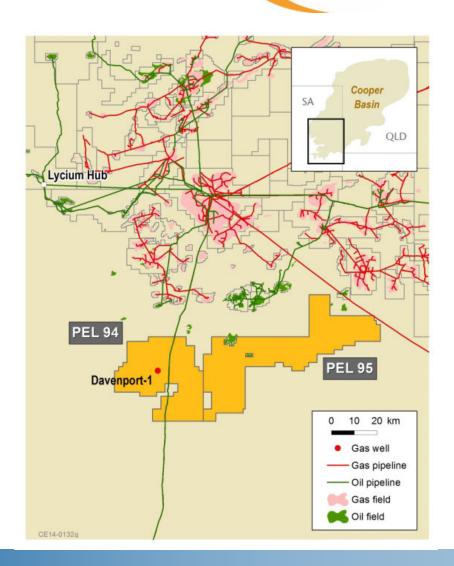
New oil fairway potential in an underexplored area between two prolific oil fields



#### PEL 94 and PEL 95



- PEL 94 Beach 50% and operator,
   Strike 35%, Senex 15%
- PEL 95 Beach 50% and operator,
   Strike 50%
- Targeting deep coals at 1,500 metres –
   2,000 metres depth in PEL 94
- Well costs of ~\$3 million
- Davenport-1 exploration gas well:
  - Fracture stimulated over a lower zone in the VU Patchawarra coal
  - Upper VM3 Patchawarra coal perforated
  - Testing indicated good permeability
  - Proven gas content in core
  - Extended flow test to follow





# **Cooper Basin – Nappamerri Trough Natural Gas**

**Carrie Trembath – Senior Geologist** 

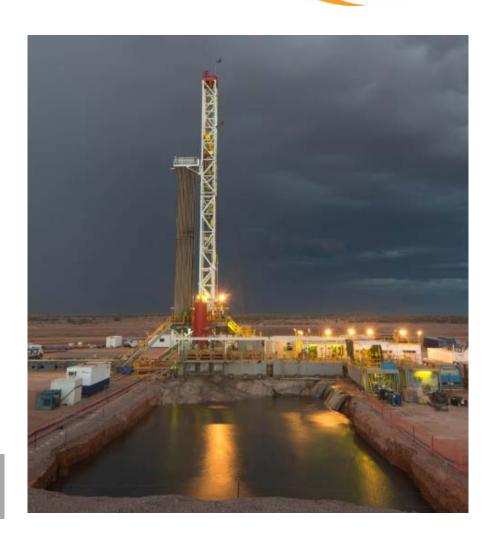


### Nappamerri Trough Natural Gas



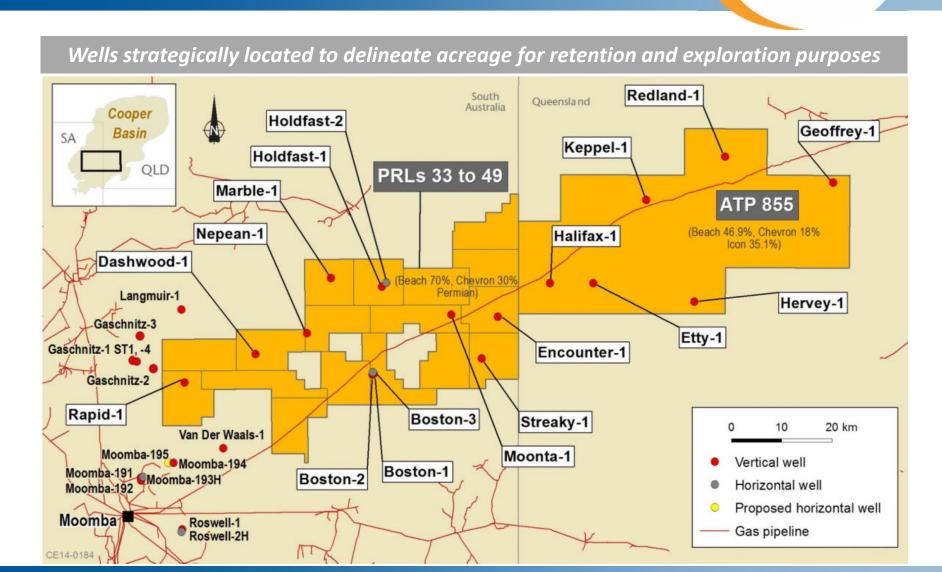
- Permian section equity interests:
  - PRLs 33 to 49 (Beach 70% and operator, Chevron 30%)
  - ATP 855 (Beach 46.9% and operator, Chevron 18%, Icon Energy 35.1%)
- Aerially extensive with permits covering more than 800,000 acres
- In excess of 1,000 metres of gas saturated section
- Fracture stimulation campaign in ATP 855 nearing completion
- Retention licenses granted over
   PEL 218, now PRLs 33 to 49

Net 1.6 Tcf of 2C resource booked at 30 June 2014 in PRLs 33-49 and ATP 855



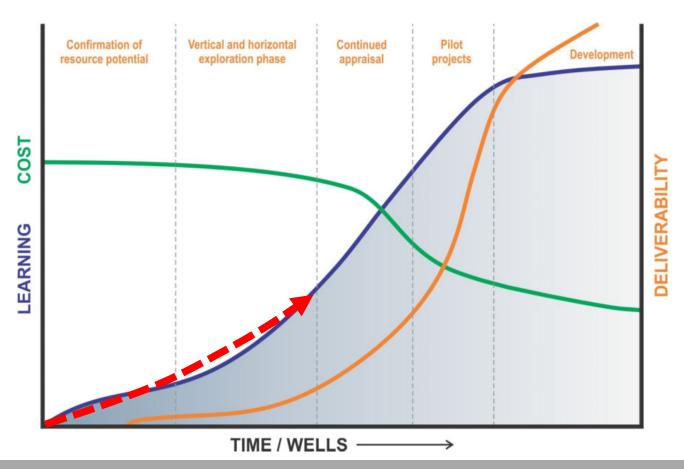
#### Stage 1 exploration wells





#### Learning curve





Knowledge from exploration phase has delivered an understanding of lithology across the Nappamerri Trough; able to fracture stimulate and flow gas from target zones

### Stage 1 exploration phase objectives



1. Geographically and vertically delineate target zones

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2. Identify and prioritise play types for future appraisal activities

Test various fracture stimulation techniques and technologies for optimal design

/

4. Flow gas and test deliverability

**/** 

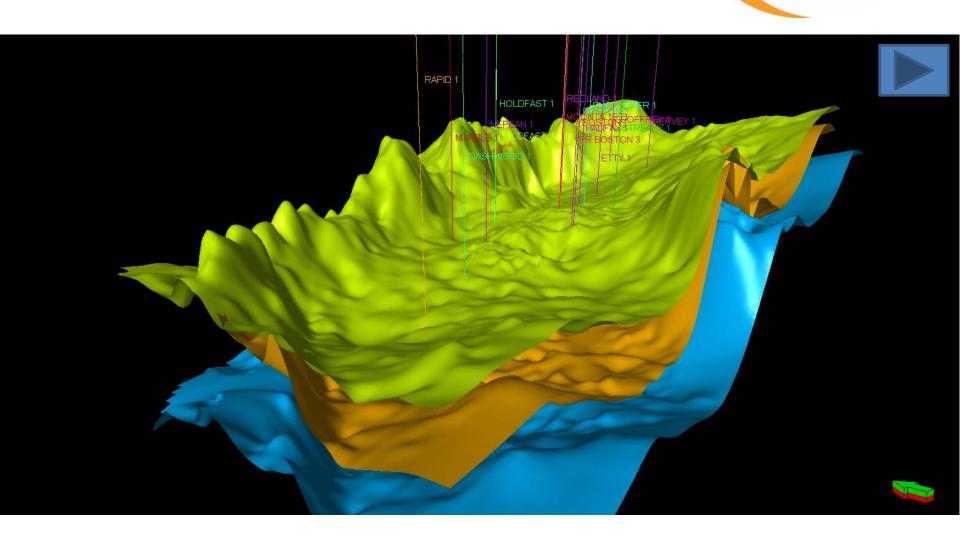
5. Increase 2C contingent resource booking

 $\checkmark$ 

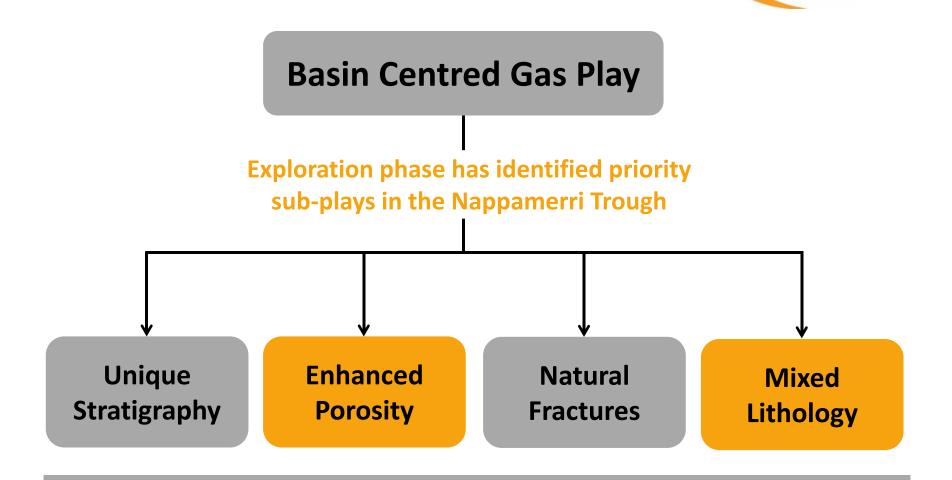
Beach's objectives for Stage 1 exploration have been met; outcomes lay the foundation for future appraisal activities

# 1. Geographical and vertical delineation









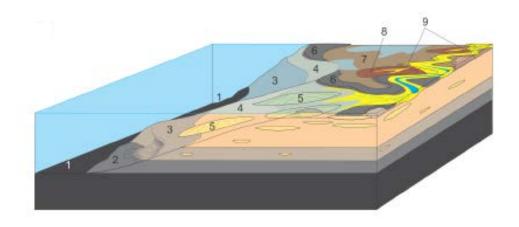
Identification of critical sub-plays has paved the way for future appraisal

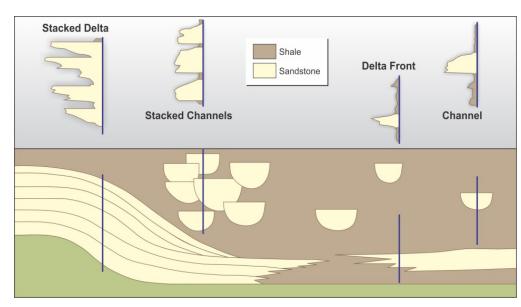


#### **Unique Stratigraphy**

- Intersected stratigraphic sections in the Nappamerri Trough not seen elsewhere in the Cooper Basin
- Thick sand packages in Daralingie to be further appraised
- Daralingie sand packages productive when tested to date
- Potential for further vertical wells to test regionally extensive sand packages, including gas filled Toolachee, Daralingie, Epsilon and Patchawarra stacked sands

Unique sands in the Daralingie providing additional focus for the NTNG program



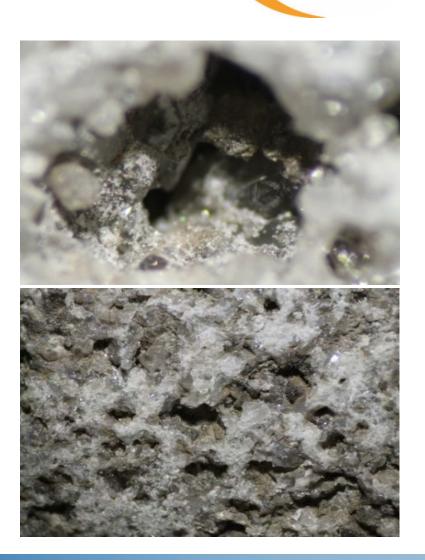




#### **Enhanced Porosity**

- Dissolved rock matrix in certain high maturity areas have caused large gas filled pores
- Large pores, or secondary porosity, increase gas storage potential
- Secondary porosity increases the sandstone permeability, resulting in improved productivity
- Secondary porosity mechanism predictable, as is location and distribution of enhanced porosity
  - Location of secondary porosity proprietary information

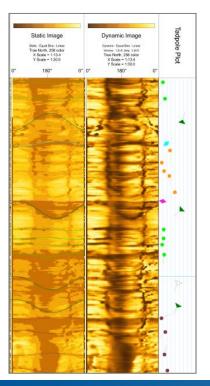
Potential high productivity intervals identified and to be targeted in Stage 2

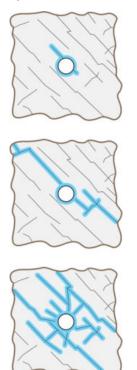




#### **Natural Fractures**

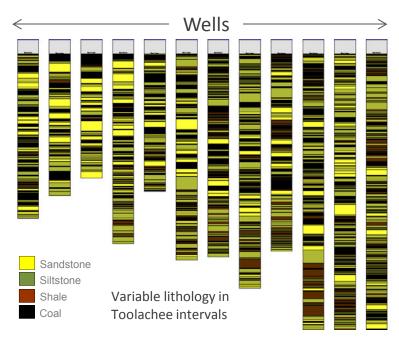
- Identified in the Nappamerri Trough using image logs
- Enhance permeability and increase induced fracture complexity





#### **Mixed Lithology**

- All lithology types within the Nappamerri Trough are gas saturated
- Multiple options for well design and development, depending on subsurface properties

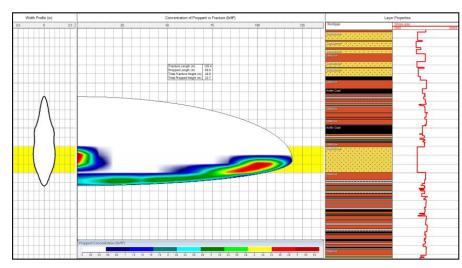


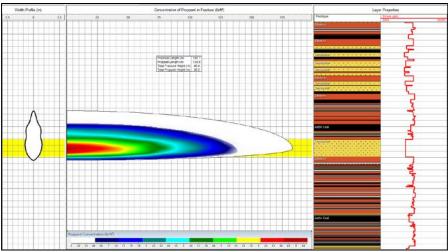
### 3. Fracture stimulation optimisation



- Learnings from previous fracture stimulations leveraged in the current ATP 855 campaign
- Experimentation with:
  - Fluid types (X-linked vs Linear);
  - Fluid viscosity;
  - Proppant concentration;
  - Proppant hardness and size; and
  - Perforation configurations

Analysis ongoing regarding fluid types and the impact on fracture complexity, growth and conductivity



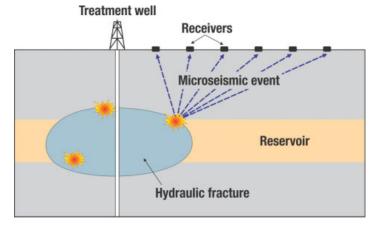


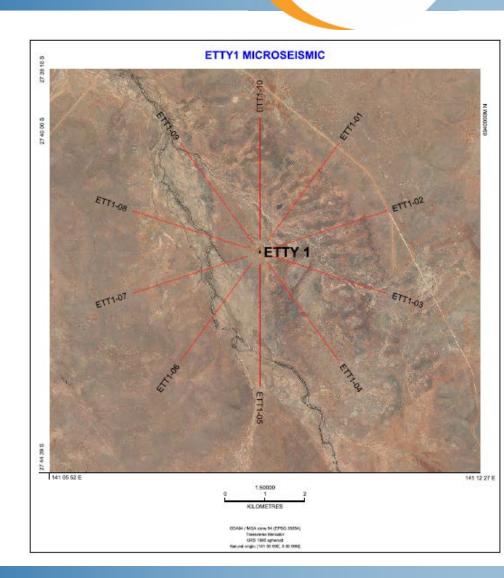
### 3. Fracture stimulation optimisation



# Microseismic testing has improved understanding for stimulation design

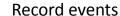
- Technology successfully implemented to gain information about:
  - Fracture height;
  - Fracture half length;
  - Fracture complexity; and
  - Reservoir response to different stimulation designs



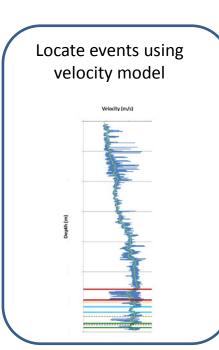


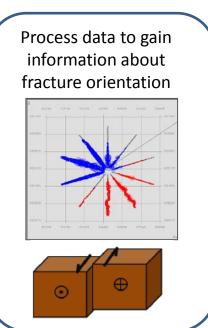
#### 3. Fracture stimulation optimisation

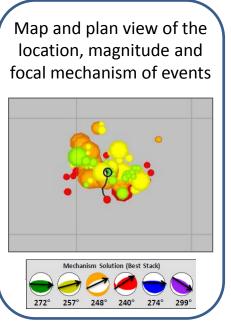








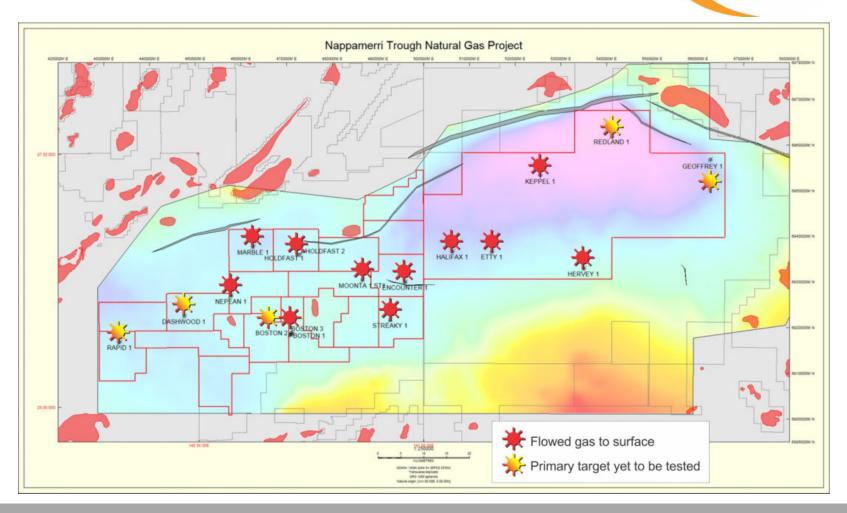




Microseismic results are integrated with all other subsurface data to better understand rock response to fracture stimulation

### 4. Flow gas and test deliverability

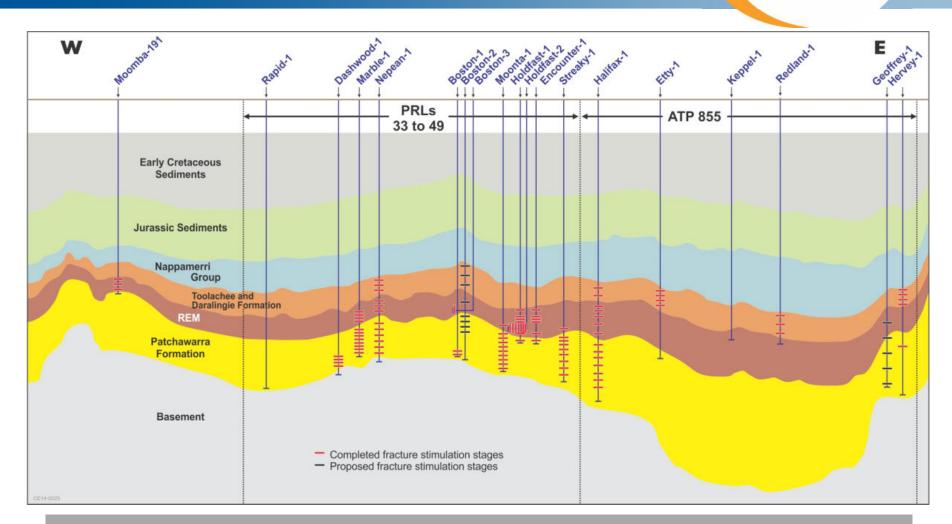




Gas produced to surface from targeted well locations in the NTNG permits

### 4. Flow gas and test deliverability

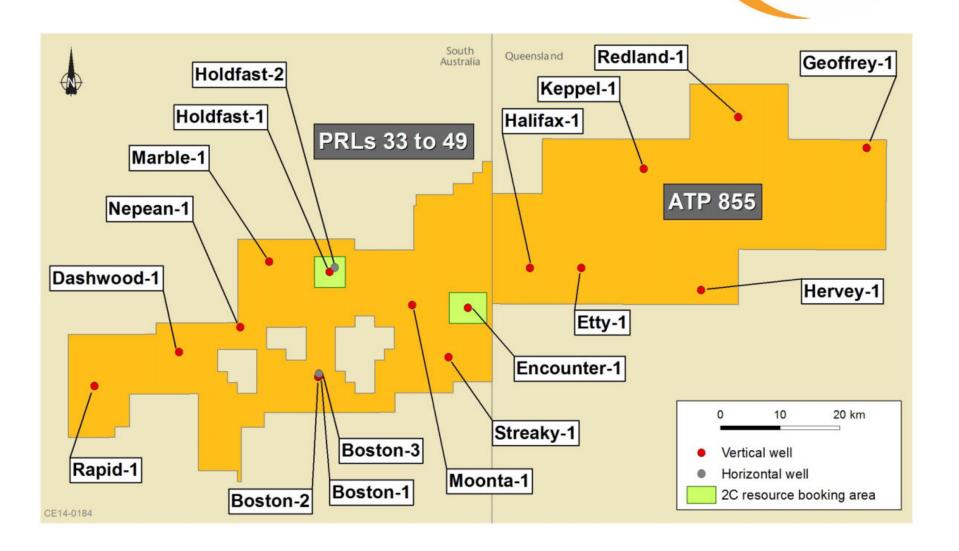




Areas of focus identified, with potential for discovery of additional play types

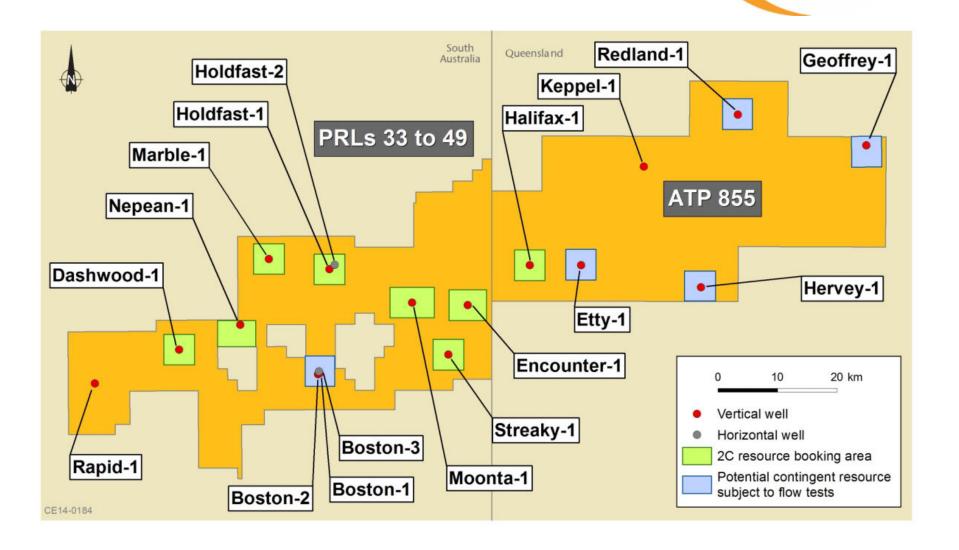
### 5. Increase 2C contingent resources





### 5. Increase 2C contingent resources





### Operational update



- Hervey-1 fracture stimulated in September
   2014 over five stages
  - Patchawarra: one stage; Daralingie: one stage; Toolachee: three stages
  - Flowed gas at 0.4 MMscfd at 50 psi wellhead pressure and 40/64" choke
  - Surface microseismic acquired
- Etty-1 fracture stimulated in October 2014 over four stages
  - Daralingie: one stage; Toolachee: three stages
  - Flowing gas at 0.85 MMscfd at 600 psi wellhead pressure and 22/64" choke
  - Surface microseismic acquired

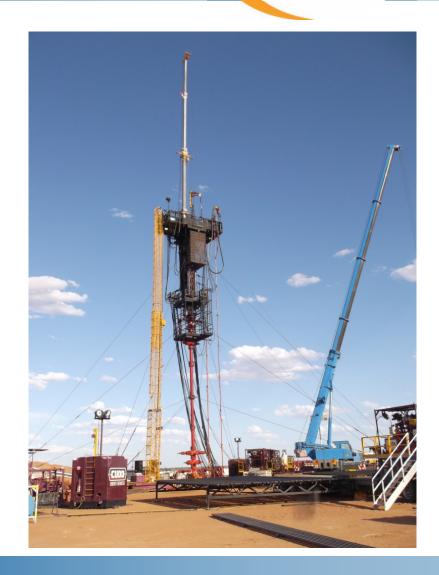
Etty-1 gas flowing primarily from one zone in the Daralingie Formation



### Operational update



- Redland-1 fracture stimulated in October-November 2014 over four stages
  - Daralingie: one stage attempted (high pressures and low injectivity); Toolachee: three stages
  - Surface microseismic acquired
  - Currently snubbing to complete well
- Geoffrey-1 fracture stimulated in November
   2014 over five stages
  - Patchawarra: four stages; Epsilon: one stage
  - Awaiting snubbing unit from Redland



#### Future direction



#### Stage 1

# Static Rock Properties

Data collection from multiple sources:

- Drilling
- Coring
- Core analysis
- Rock mechanics
- Seismic
- Petrophysics
- Temperature logs

#### Dynamic Rock Behaviour

Technology underpins rock behaviour analysis:

- Fracture stimulation
- Fracture diagnosis
- Microseismic
- Tiltmeters
- Proppant and fluid tracers
- Production tests

Delineate acreage, fracture stimulate and flow gas

#### Stage 2

#### **Optimisation**

Solid foundation for next phase of appraisal activities:

- Pad drilling opportunities
- Activity focused in prospective areas
- Increasing deliverability / resource confidence

Focus on improving recoveries



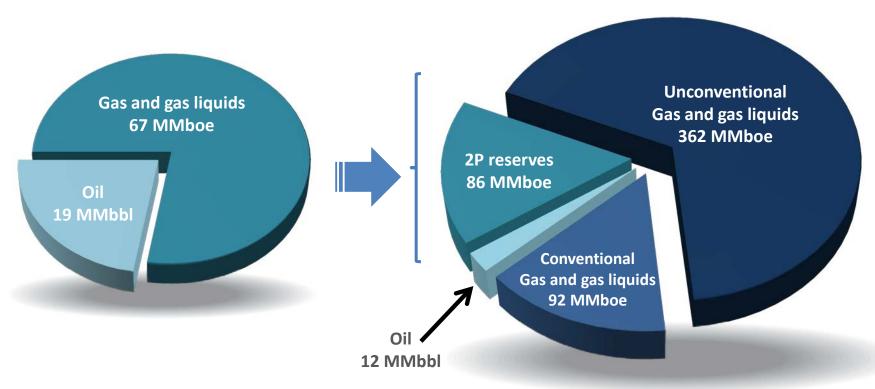
# **Appendices**



### Reserves and contingent resources



2P: 86 MMboe 2P and 2C: 552 MMboe



Large reserves and resources base supporting future production

# FY15 capital expenditure guidance



	Capex (\$ million)	Wells	3D Seismic (km²)
DEVELOPMENT			
Cooper Basin – non-SACB/SWQ JVs	55 – 60	10 – 13	_
Cooper Basin – SACB/SWQ JVs	270 – 300	70-80	_
International	10	3	_
Total Development	335 – 370	Up to 96	_
EXPLORATION			
Cooper Basin – non-SACB/SWQ JVs	40 – 45	23-26	500
Cooper Basin – SACB/SWQ JVs	5	4	_
Unconventional	50-55	4	_
International	20-25	6	450
Total Exploration	115 – 130	Up to 40	_
TOTAL	450 – 500	Up to 136	950

#### **Contact Information**



#### **Head office**

25 Conyngham Street

Glenside SA 5065

Tel: +61 8 8338 2833

Fax: +61 8 8338 2336

Website: www.beachenergy.com.au

Chris Jamieson

General Manager Investor Relations

Email: chris.jamieson@beachenergy.com.au

Derek Piper

**Investor Relations Manager** 

Email: derek.piper@beachenergy.com.au