Presentation outline

• **Who** – Beach Energy

• **Where** – Cooper Basin Australia

• **What** – Technical overview of the play

• **How** – 2 well drilling program
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 2010 and represent Beach’s share.

Competent Persons Statement

• This presentation contains information on Beach’s Reserves and Resources which have been compiled by Mr Gordon Moseby, who is a full time employee of Beach, is qualified in accordance with ASX listing rule 5.11 and has consented to the inclusion of this information in the form and context in which it appears.
Presentation outline

- **Who** – Beach Energy
- **Where** – Cooper Basin Australia
- **What** – Technical overview of the play
- **How** – 2 well drilling program
Beach Energy Limited

Strong base business

- ASX 200 Energy company
- Diversified global interests
- 2P reserves of 66 MMboe
- Sustainable long-term oil and gas production
- FY10 production was 7.3 MMboe

Game changing long-term growth potential

- Huge Cooper Basin shale gas resource potential
- High potential East African rift oil exploration acreage
- LNG supply potential from existing portfolio

At the forefront of Australian shale gas exploration
Presentation outline

- **Who** – Beach Energy
- **Where** – Cooper Basin Australia
- **What** – Technical overview of the play
- **How** – 2 well drilling program
• Strategically located to supply existing and emerging eastern Australian markets
• Extensive infrastructure networks in place
• Beach has an extensive acreage position in prime areas
- Nappamerri Trough is highly prospective for shale gas
- Potential gas in place is greater than 200 Tcf
- Beach was a first mover in targeting acreage specifically for shale gas exploration
- Beach is developing key relationships to deliver technologies and new markets
Presentation outline

• **Who** – Beach Energy

• **Where** – Cooper Basin Australia

• **What** – Technical overview of the play

• **How** – 2 well drilling program
Geology of the Shale Gas Play - Nappamerri Trough
Nappamerri Trough - Early Permian shale sequence

Burley-2

GR  Resistivity  Sonic

50 - 70m  90 - 140m  70 - 80m

Roseneath Shale
Epsilon Formation
Murtereene Shale
Patchawarra Formation

‘REM’
Why is REM section so interesting for shale & tight gas

1. Thick and consistent target section
2. Gas prone
3. Presence of over-pressure
4. Favourable geochemistry
5. Highly mature / over-mature
6. Suitable lithotypes
REM Thickness – consistent across trough

- Target depths 3000 – 3600m
- Tectonically quiet
Regional data initially suggested poor source for both shale units
Lithology / Mineralogy

Rock composition - mineralogy from XRD:

- High silica, but moderate siderite based on cuttings
- Clays predominantly illite
- Expectation of good frac results
- Changed interpretation of Rock-Eval data
Nappamerri Trough Data

- High OI raised concern about kerogen type, however siderite presence suggested lithology control on OI
- Samples re-run after CO$_3$ removal showed consistent low OI

Regional Data

- Two shale facies recognised from Rock-Eval data
- Bulk of low HI values resulting from high maturity
- Overall initial good source potential

Shale clastic facies - not recognised in Nappamerri yet

Shale carbonate facies
Maturity data

- Nappamerri Trough has variable maturity gradients in Permian section
- Overprinted by late fluid flow in overlying Eromanga section
- Prospective Roseneath-Murteree Section 2-4%Ro depending on location
- High maturity due to highly radioactive granites in basement
- Neighbouring Patchawarra Trough has sedimentary basement and much lower maturity/heat flow
Overpressure - Nappamerri Overpressured at REM level

Regional pressure data – over-pressures confined to Nappamerri Trough

Sonic anomaly in shales indicative of gas and overpressure
Play comparison

- Following Nappamerri core availability - expectation of possible two lithology types as in Haynesville examples
- Nappamerri has similar TOC and HI as other plays
Depositional environment

- Roseneath and Murteree shales are lacustrine
- Epsilon lacustrine deltaic
- Bulk lithology and geochemistry not significantly different to marine play examples
- Current data from cuttings only - Core from future wells will allow better definition of facies and facies distribution
Technical conclusions

• Lacustrine play with broadly similar lithological and geochemical parameters to North American marine plays

• Overpressured, high maturity

• Moderate - high organic content

• Carbonate is siderite rather than calcite or dolomite

• Beach has varying interests in the Nappamerri Trough covering an area of approximately 8000km²

• Potential gas in-place 20-100Bcf/km²

The Nappamerri Trough is highly prospective for shale gas
Presentation outline

• Who – Beach Energy
• Where – Cooper Basin Australia
• What – Technical overview of the play
• **How** – 2 well drilling program
Evaluation program

• Drilling commenced October 2010 - two vertical exploration wells. Encounter 1 now drilling. Extensive coring program. Holdfast 1 to follow.

• Gas in place (GIP) and flow potential are key deliverables:
  – Evaluate gas content of shale
  – Determine porosity and free gas
  – Compositional analysis
  – Fracture stimulate and flow test

• Results will assist in the design of future pilot well program:
  – Evaluate mechanical properties and in-situ stress
  – Well design (vertical / horizontal / multi-lateral)
  – Completion design (liner / cement / stimulation)
Holdfast-1 and Encounter-1 are targeting some of the thickest shale sections in the trough.

Over-pressured and high temperature regime.

Off-structure to determine if Epsilon Formation has ‘Deep Basin’ gas potential.

Will TD in Patchawarra Formation to see if gas charged off structure.
Challenges:

• High formation temperature
• Overpressure

Knowledge outcomes required:

• Confirm gas outside closure
• Porosity and gas content - establish free gas component & OGIP estimates
• Stress regime – impact on stimulation program
• Flow rate potential
Conventional coring program - key objectives

To develop Core to Log relationships for:
- TOC%
- Mineralogy
- Sub-seismic fracture detection at both micro- and macro-scale
- Rock strength
- Porosity
- Water saturation

Ultimate aim of the vertical program is to:
- Determine Gas-in-Place volumes
- Design hydraulic fracture stimulation program
- Flow gas
- Book gas resource
Stimulation evaluation

- Tiltmeters to be deployed at both well locations
- Measures fracture induced tilt in the earth resulting from the hydraulic fracture treatment
- Is a direct measure of earth deformation with a high level of accuracy – in the order of nano-radians
- Evaluate fracture orientation and plane

- Approximately 44 holes drilled to about 12m depth with tools deployed
Shale gas exploration - Stage 1 indicative timeline

Proof of concept, 2010 - mid 2011

- **Drill and core**
  - Holdfast-1 & Encounter-1 vertical exploration wells
  - *Q4 2010*

- **Fracture stimulate wells**
  - *Q1 2011/Q2 2011*
  - ~ 8 zones/well

- **Flow test**
  - *Q1-2 2011*

- **BOOK GAS RESOURCE**
  - *Q2 2011*

- **Review & Refine Strategy**
Then what?

With successful proof of concept:

- Design pilot horizontal wells targeting highest yield zone in REM
- Drill further vertical delineation wells across acreage
- Expand production pilot to multiple wells
- Seek to monetise early production via existing facilities
- Determine market potential and processing requirements
Thank You