NEW PETROLEUM OPPORTUNITIES
IN SOUTH AUSTRALIA

Elinor Alexander
Energy Resources Division
DMITRE

www.petroleum.dmitre.sa.gov.au
SOUTH AUSTRALIA

• Two new onshore acreage releases for work program bidding in Cooper and Otway basins
  • Bids close 4 April 2013
  • Conventional oil and gas
  • Unconventional plays:
    o shale gas, tight gas
    o coal seam gas
    o coal gasification plays
    o 9 unconventional plays being chased by 24 JVs

• Offshore Otway and Bight blocks open now

Department of Manufacturing, Innovation, Trade, Resources and Energy
Government of South Australia
Acreage Release CD available now

- Closing date 4pm ACDT 4 April 2013
- The Minister is expected to announce the winning bidders in time for APPEA Conference May 2013
- Get your free copy of the Acreage release from the DMITRE stand at Good Oil
Enablers

• Cooper & Otway basins are competitive tender regions
• Petroleum & Geothermal Energy Act 2000
• Ready access to digital data
• Open and transparent conjunctive access agreements with Native Title claimants

• 2012 Fraser Institute Survey
SA 2nd in Oceania Region
“Best organised. Only jurisdiction that anticipates problems. Most competent and knowledgeable staff”.
“Ease of dealing with government departments and acquiring the necessary information”.
A variety of access agreements with native title claimants and indigenous owners are in place for 46 PELs (6 new PELs granted last year)

Cooper Basin – RTN and ILUAs

Otway Basin – mostly freehold land, not subject to RTN

Agreements cover exploration and production phases and are public domain
SA COOPER BASIN ACREAGE RELEASE

CO2012-A
- PEL 111 relinquished acreage
- Comprises 2 areas totalling 392 sq km
- 1 well and 581 km 2D acquired in the block
- 22 wells on Charo/Snatcher field in-between

Potential plays
- Birkhead Fm channel play - western margin
- New unconventional plays (e.g. Merrimelia Formation shale oil play)
- Cambro-Ordovician Warburton Basin
- Undrilled structural and stratigraphic traps
- Darter 1 (1991, basal Patchawarra oil show)
- 581 km 2D seismic
- 22 wells on nearby Charo-Snatcher field
- 11 wells on nearby Growler field
- Nearby discoveries:
  - Mustang
  - Warhawk
  - Tigercat
  - Wirraway
- Fly Lake/ Moorari Oil & Gas fields
RECENT ACREAGE RELEASE RESULTS: CO2009 and CO2010

**CO2009**
5 blocks, 20 bids
Guaranteed: $107.8m
Non-guar: $47.3m

**CO2010**
3 blocks, 11 bids
Guaranteed: $49.9m
Non-guar: $4.6m

Oil price from BP, 2011 Statistical Review of World Energy
- Value of Cooper Basin ‘real estate’ has been sustained since 1998
- Core more attractive than flank, but western margin flank blocks are now core blocks!
WORLD CLASS SUCCESS RATES

Oil discovery ⇨ production in months

Productive play trends extended

Proven conventional play find-size modest but 3D enabling >1mmbo finds

New unconventional gas (and oil?) plays
UPCOMING COOPER ACREAGE DROPS – more releases on the way

All but two of the original 27 PELs are in their second term
Partial acreage relinquishments are required every 5 years
Further releases are being planned based on normal partial relinquishments & expiries

Southern Blocks (PEL 94 & PEL 95) to relinquish ~2200 km² by year end
PEL 93 ~600 km² to be relinquished

So, more new Cooper PELs to be offered for work program bidding soon. Impact of new unconventional resource plays....
SA OTWAY BASIN

Onshore OT2012-A block
- One large block, 5660 km²
- 22 wells, 4450 km 2D
- 90 wells in SA onshore Otway basin
- Gas production since 1991
- Pipeline infrastructure - access to SE Australian gas market
- Bids close 4 April 2013

Offshore S12-4
- Large block 3865 km²
- Water depth 20–3,000 m
- Thick Cretaceous section
- Bids close 8 November 2012
OT2012-A release block

Five main plays:

- Penola Trough proven gas play (Pretty Hill Sst, Laira Fm reservoir-seal)
- Jacaranda Ridge Sst/Sawpit Sst reservoirs overlain by Sawpit Shale seal
- Flaxman Fm/Waarre Sst reservoirs overlain by Belfast Mudstone seal (in the oil window in the Voluta Trough)
- Casterton Fm shale oil play (flanks of Penola, Robe and St Clair Troughs)
- Casterton Fm/Sawpit shale gas play (flanks of Penola, Robe and St Clair Troughs).
Five main plays:

- Flaxman Fm/Waarre Sst reservoirs overlain by Belfast Mudstone seal (in the oil window in the Voluta Trough)
- Penola Trough proven gas play (Pretty Hill Sst, Laira Fm reservoir-seal)
- Jacaranda Ridge Sst/Sawpit Sst reservoirs overlain by Sawpit Shale seal
- Casterton Fm shale oil play
- Casterton Fm/Sawpit shale gas play
CASTERTON FM PLAYS

- Regarded as source of commercial Penola Trough gas fields
- Rift lake - lacustrine shales, siltstones and sandstones and volcanics
- Maximum intersected thickness 230 m (Casterton 1), up to 500m in Robe Trough (based on seismic).
- Up to 3800 m deep (Penola and Robe Troughs)
- Marginally mature for oil on northern flanks
- TOC: 0.6 - 9 %, avg 1.9 % (39 samples; 6 wells)
- Type II (algal-rich oil-prone kerogen) to Type III (Gas-prone) at the threshold of the oil window.

Map shows maturity at Basement – Casterton Fm – Base Pretty Hill Fm

- Trough flanks: early mature - mature for oil
- Basement highs: immature - marginally mature for oil
- Deep troughs – gas prone, liquid potential
WORK PROGRAM BIDDING

- Bids close 4pm on 4 April 2013
- Application fee $3862
- Bid 5 year work program for first term of PEL
- Bids are opened and assessed promptly by two separate teams, and winners typically announced within a month or two.
- Bids ranked by a published scoring system which establishes a ‘risked NPV in well equivalents’
- An access agreement is required before a Cooper Basin PEL can be granted, either via RTN or ILUA.
- The Otway Basin PEL is not subject to native title - freehold land, prompt grant of PEL.
The Draft Roadmap for Unconventional Gas Projects in SA was launched by the Premier at APPEA in May.

It is a draft plan aimed at maximising the potential of South Australia’s unconventional gas resources, in an environmentally sustainable way.

Final report to be released November 2012.

Get your free copy of the 1st draft report from the DMITRE stand at Good Oil.