South Australian update and investment opportunities

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South Australia offers:

- Large acreage positions (10,000 km² = 2,471,054 acres),
- Exploration licence application fee US$3222,
- Low geopolitical risk – bipartisan support,
- Favourable royalty and taxation regime,
- Easy access to comprehensive data – cost of transfer or free,
- Australia’s largest onshore oil and gas producer - Cooper-Eromanga basins,
- Infrastructure – oil+gas pipelines to major Australian markets & export + new Otway Basin gas plant in 2020,
- Carbon Capture, Storage & Utilisation (CCUS) for EOR – trials underway in Cooper Basin, start up planned in 2022,
- Blue sky opportunities in frontier basins – most have evidence of petroleum systems but are under-explored.
State of play in South Australia

**SA and Qld Cooper-Eromanga basins** - remain Australia’s largest onshore oil and gas producer.

- Rated as #1 Super Basin for above ground prospects for development (I.H.S. 2018).
- Huge remaining oil, gas and CCSU-EOR potential.
- Prolific Cooper Basin western flank oil play trend.
- 43% post-3D commercial success rate.
- All 2019 release blocks attracted bids.

**Otway Basin** - new commercial gas discoveries & gas plant.

**How to apply for a licence**

- Application fee ~US$3222, 5 year work program, statements of technical and financial capacity.
- Competitive tender regions - acreage releases in Cooper & Otway basins based on 5 year work program bids.
- Over-the-counter applications – everywhere else. ‘Top filing’ over current Petroleum Exploration Licence Applications allowed.

**Royalties**

- 10% wellhead value, with deductions the average paid since 1969 is ~6-7%.
Wells drilled each year

- Shale gas boom
- Flooding prompts new pipelines
- Oil price crash – ‘lower for longer’
- New Cooper Basin explorers start drilling

Cheaper drill costs = more wells
Cooper and Otway basins
2019 acreage release results

**CO2019**
Applications received for all 5 blocks at close of bidding on 29 Nov 2019.

**OT2019**
OT2019-B under application.

Successful applicants to be announced in Jan-Feb 2020.
Upcoming Cooper Basin Licence expiries – more opportunities

Vacant land in this region must be offered via acreage release.

- stacked high quality Permo-Carb to Jurassic fluvial sandstone reservoirs,
- high flow rates of sweet light oil, condensate & gas,
- variety of oil and gas plays,
- drilling costs ~halved since 2015 (2019 oil well cost ~ US$2m),

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Western Flank Oil

- More discoveries, successful appraisal drilling.
- 3D seismic – ‘hoses on noses’.
- Excellent sandstone reservoirs.
- Horizontal wells ~8x more productive than verticals.
- Vertical oil well avg US$ 1.9m cost
- Horizontal well avg US$ 3.0m cost

Bauer Oil field

- Flat structural relief so seismic is limited value, drilling is defined field extent.
- Pre-drill mean recoverable resource 0.5 mmbbl.
- Mapped on 3D & drilled in 2011,
- Reservoir 1400m, 45 API oil, recovery factor ~75%.

The Bauer Field, Cooper/Eromanga Basin: Case Study of a Low-Relief, High-Productivity Oil Field. Glen Buick. AAPG Search and Discovery Article #110225 (2016).

Cooper Basin Gas

- Structural and structure-stratigraphic traps, sandstone reservoirs, coal and shale source,
- Sustained historical success rate of ~40% for exploration wells,
- Deep self-sourcing coals - liquids rich gas,
- Mixed reservoirs with coal and shale source,
- Tight sandstone reservoirs,
- NEW - underbalanced drilling, CCSU, “Granite Wash” play, deeper plays underneath producing horizons, horizontal drilling,
- OLD target but NEW focus on Warburton Basin – Cambro-Ordovician marine basin.
Otway Basin

Mesozoic rift basin, gas production recommencing this year.
Vacant land must be offered via acreage release.

OT2019 Acreage release
• Block OT2019-B under application.

PACE Gas drilling – co-funded by up to USD$4m SA Govt grants
• Beach/Cooper Energy Haselgrove 3 ST1 gas discovery.
• Beach/Cooper Energy Dombey 1 gas discovery.
• Vintage/Otway Energy Nangwarry 1, CO₂ discovery, C&S.

New Katnook Gas Processing Facility
• US$4m Federal Gas Acceleration Program grant awarded to Beach to construct new US$15m Katnook Gas Plant.

South Australian Government partners with CSIRO
• CSIRO is researching community concerns about gas industry social and environmental impacts. Commenced in 2018, results to be released this year.
Easy access to data

• Downloadable WCRs - including scanned mudlogs and composite logs,
• Digital well logs + images,
• 2D & 3D seismic data – new Cloud database coming – self service,
• Field, edit tapes, cased hole, digital mudlogs, image logs – Cloud access to logs via PEPS in future,
• Maps, GIS - Cooper isolith, isopach, gas wetness etc.,
• Core and cuttings available for viewing and sampling,
• Core & thin section photo databases - free downloads,
• SARIG – DIY maps.
For service and supply companies - ICN Gateway

• Pivotal link between major project requirements and suppliers across Australia.
• For project owners – we can connect you with local suppliers (in SA our services are fully subsidised by the SA Government).
• For suppliers – you need an Australian Business Number to register on ICN Gateway, as we focus on local suppliers. A basic registration for Australian businesses is free of charge, and subscription options are also available that come with additional benefits.
• For overseas suppliers looking to break into the Australian market – ICN can identify suitable local partners to make it easier for you to do business in Australia.

gateway.icn.org.au
SA offers best practice regulation, one window into Government, Roundtable for Oil & Gas, innovative tenure etc.

South Australia
Petroleum and Geothermal Energy Act 2000
An Act to regulate exploration for, and the recovery or commercial utilisation of, petroleum and certain other resources; and for other purposes.
Look back 2014-19, Look Forward 2020-21

Look fnd 2020–21

- Onshore Otway gas production re-starts
- CCUS EOR
- More new oil & gas discoveries & plays
- Productivity gains
- Costs cut
- M&A, divestment
- Offshore Bight exploration
- New O&G Road Map
- Review PGE Act 2000

Productivity gains, cost cutting, increased investment, horizontal drilling & steady oil price
South Australia’s door is open.

- Rated most attractive petroleum jurisdiction in the Oceania region by Fraser Institute in 2018
- Cooper Basin remains Australia’s largest onshore oil and gas province
- Bight Basin attracting massive exploration investment
- Oil and gas roundtable with thousands of members working to address priorities
- A framework placing local companies into a global supply chain

energymining.sa.gov.au/petroleum