Lakes Oil NL

Scoping Paper

A big year underway

Energy

Lakes Oil NL (LKO.ASX) is a junior energy explorer with assets across southern and eastern Australia (and PNG). The company has been listed on the ASX since December 1985. The outlook for Lakes extending through FY20 has the capacity to materially change the structure and base of the company with drilling nearing completion at Nangwarry-1, potentially securing a partner for the Cape Vogel Basin project and most importantly the lifting of the Victorian exploration moratorium on 1-Jul-2020. LKO could commence a transition towards production, particularly given the development opportunity inherent at its Wombat Gas Project where the economics look favourable in a continuingly supportive operating environment. Crystallising the inherent value is dependent on successful drilling outcomes and the company's capacity to secure financing but certainly the opportunity set looks attractive with a number of event drivers through FY21.

Scope

This report has been commissioned by Lakes Oil NL to present investors with an analysis of the opportunities emerging for the company over the next 12 months. Due to the early phase nature of LKO's exploration assets, investors should consider this a high-risk investment. High risk investments should be a small part of a balanced portfolio.

Business model

Lakes Oil is a junior energy company holding extensive acreage across three Australian states (and PNG), dominantly focussed on exploring for gas. Although the portfolio consists of assets at an early exploration stage, the company is drilling at Nangwarry-1, and continuing to seek a partner for its Cape Vogel Basin (PNG) project. Upon the lifting of the Victorian exploration moratorium (1-Jul-2020), LKO should be able to fast track its Wombat Gas Project, which on success, could be in production within 24 months of the resumption of activity.

Scenario analysis

We have evaluated the LKO portfolio against a range of risk factors based on our assessment of the operating environment accounting for commodity prices, location, phase of exploration, timing and scale of work programmes, potential timeline to development and financing. At this point we exclude considerations based on factors such as comparative analogues as LKO has only a broadly defined pre-development opportunity at Wombat which is subject to appraisal risks. However, we note our current assumptions are subject to potentially significant adjustment as definitive drilling results come to hand.

Valuation of $110m (0.3cps) at the mid-point

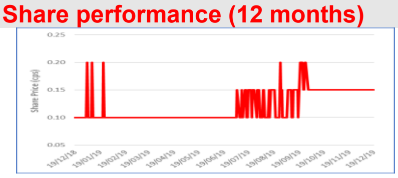
Valuing early phase exploration assets is a subjective exercise, particularly when work programmes and financing are uncertain. We base our indicative valuation on typical unit NPV values across a range of pricing scenarios on low and high resources estimates and apply discretionary probability weightings to pricing, volume and success factors, which we believe are reasonable given the commercial operating environment and available data. We assign a base case (mid-point) valuation of $110m (0.3cps) to LKO, with an upside case to $209m (0.6cps). **The reference share price (0.15cps) would suggest the market is appropriately weighting the asset base for the current operational and corporate risks.** We note the portfolio contains a number of event drivers over the next 6-12 months with the potential to upgrade and crystallise a significant increase in NAV above our upside case on success.

19 December 2019

Share details

ASX Code	LKO
Share price (**In suspension**)	$0.0015
Market Capitalisation	$60.1M
Shares on issue	33,337.5M
Net cash at 30 Sep 2019	$1.88M
Free float	47.3%

Share performance (12 months)



Upside Case

- Drilling success at Nangwarry crystallises a commercial outcome
- Lifting of moratorium and success at Wombat-5 deliver a significant production opportunity, deliverable within 24 months
- Success opens alternate financing options and restricts dilution

Downside Case

- Nangwarry-1 is unsuccessful with impact across remainder of Otway Basin portfolio
- Victorian exploration moratorium is extended effectively rendering assets within the state worthless
- Continuing financing through equity issues or high cost Convertible Notes – dilutionary effects rendering capitalisation meaningless

Board of Directors

Roland Sleeman	CEO
Richard Ash	Non-Executive Chairman
Nick Mather	Non-Executive Director

Company contacts

Roland Sleeman +613 9629 1566
lakes@lakesoil.com.au

RaaS Advisory contacts

Andrew Williams +61 417 880 680
andrew.williams@raasgroup.com

Finola Burke +61 414 354 712
finola.burke@raasgroup.com

Table of contents

RaaS
Research as a Service

Lakes Oil NL – there's exciting things brewing

Lakes Oil NL (LKO.AX) has been listed on the ASX since December 1985 and holds significant exploration tenements across three Australian states and onshore PNG. The company represents an early stage exploration play but does have a significant short-term development opportunity in its PRL 2 permit on the Wombat/Triton gas discoveries, which have been ascribed >700Bcf at 2C (contingent resource). Project definition awaits the drilling of the Wombat-5 appraisal well which is subject to a lifting of the Victorian exploration moratorium from 30-Jun-2020. In the immediate short-term, LKO is participating in the drilling of the Nangwarry-1 well in SA and could progress its Cape Vogel Basin (PNG) project through securing a farm-in partner in the short-medium term.

Exhibit 1: LKO NAV – the Low-Mid range estimates largely mirror the 10month trading range of the stock

			Risked Range			
			Low*	**Mid**	**High**	
				A$m		
Wombat	PRL 2	100%	$0	$49	$98	Only ascribed 2C volumes in the portfolio (with Triton) so represent 'lowest risk' asset
Trifon	PRL 2	57.5%	$0	$10	$19	2C volumes ascribed
Otway-1	PEP 169	49%	$0	$2	$3	"Unrisked" upside to $70m
'Focus Area'	PEP 175	100%	$0	$11	$21	Success could ultimately be transformational given size of Prospective Resource
Other VIctoria	Various		$0	$6	$11	Nominal only
Nangwarry-1	PEP 155	50%	$3	$7	$10	Low value assumes minimum economic gas discovery
Other SA	Various		$2	$3	$5	
Wellesley/Major East	ATP 1183	100%	$4	$8	$15	Gas opportunity peaking at 41Bcf Prospective Resources
Other Queensland	Various	100%	$4	$9	$15	
PNG	Various	93%	$8	$8	$8	Prospective Resources (only) suggest commercial outcomes (gas) would likely be tied to export projects – domestic opportunities too small and capex too high
			$23	**$114**	**$213**	
Net cash (as at 30-Jun)				($3)		
Corporate				($2)		
TOTAL				**$110**	**$209**	
Shares issued (mn)*		33,377	0.1cps	0.3cps	0.6cps	

Source: RaaS analysis; Risked ranges based on company POS for drilling and weighted by a RaaS risk overlay. * The 'Low" case ascribed to Victorian assets represents the continuation of the drilling and exploration moratorium by the State Government – as a practical value of permits that would be in effect, suspended indefinitely.

Risk adjusted asset valuation at $110m (mid-point)

We value LKO using estimated unit values on contingent and prospective resources adjusted for our discretionary probability weighting (1-risk %), to derive a gross portfolio worth. Probability weightings are subject to change as the company delivers the next phase of exploration results and operating conditions (eg. Victorian Government legislation) change.

We note that most of the portfolio is early stage exploration and particularly Prospective Resource estimates are subject to potentially significant change related to drilling results.

Intuitively we suggest our ascribed value is not unreasonable given the location of the assets and position along the evaluation curve, particularly accounting for the subjective nature of assumed risk weightings.

There's intrinsic value in exploration

Although at the high end of the risk spectrum, exploration remains the cheapest way of creating substantial (transformational) value to an asset base – certainly in the initial phases of work. The value of discoveries can be delivered eventually through the commencement of production or in early stages through farm-ins which can provide look-through economics at a premium to pre-drill estimates.

Ascribing a value to assets at a conceptual stage can be somewhat arbitrary, but this is often the nature of small-cap stocks and we note the portfolio is dominated by estimates of Prospective Resources and 'in-ground' volumes – categories at the high-risk end of the spectrum.

We ascribe nominal values only against some parts of the portfolio where ascribed volumes look low or development opportunities are limited (eg. PNG assets). We do not imply there is no intrinsic value but rather reflect on the early stage activity and financing risks associated with timely activity in a large portfolio.

We note on the Cape Vogel Basin asset (PNG offshore) that LKO may receive a farm-in offer from a process currently in train. This could provide a look through transactional value higher than our ascribed NAV.

Valuation Considerations

The value of the LKO exploration assets is a subjective exercise and dependent on a number of probability factors, from a company's ascribed drilling probability of success (POS) to an analyst's risk weightings, particularly on conversion of Contingent Resources (C volumes), Prospective Resources (U volumes) and resource-in-place estimates to 'commercial' outcomes.

In the case of LKO, the portfolio is heavily weighted towards Prospective and 'in-place' volumes, which places the associated risk at the high end of the spectrum and the realisation of value is dependent on the success of drilling outcomes, which is inherently a speculative activity or transactional (partnering) activities.

Complicating the outlook are the sovereign risk issues associated with the Victorian onshore assets, impacted by the state's exploration (drilling) moratorium and which hold the only Contingent Resources in the portfolio with the shortest timeline to development (on success).

We note indicative company modelling on a Wombat (pro-forma) development scenario could deliver project NPV margins of >20% on a gas price of ~$7.50/gj…of course, dependent on a successful result from W-5 and the lifting of the exploration moratorium.

This accords favourably with the RaaS Probabilistic estimate although we'd suggest an average life of project gas price would likely be higher, with upside to an unrisked development project.

Investment in exploration companies is by definition a speculative undertaking but generally underpinned by the transformational potential of the assets and this applies to LKO where the success case outcomes on a number of projects in the portfolio offer 'multiples' in terms of upside.

We caution that financing through the resource definition and evaluation phases is likely to be equity based (or in the case of Convertible Notes, equity linked) and at some point, we'd suggest a capital reconstruction will be required.

The most critical variable in our valuation risk overlay, positive changes (on drilling success or partnering), can have a multiplying effect on a look through basis to other parts of the asset base.

A quick SWOT – Drilling success changes the outlook

As typical for small resources companies – offsetting strengths and weaknesses, opportunities and threats although we suggest the macro opportunities more than outweigh the commercial risks.

Exhibit 2: SWOT Analysis and Comments

Strengths	Comments
Diversification - geographically diverse portfolio	Not tied to one play in one region and portfolio contains mix of near and long-term opportunities (small and transformational)
High equity (working) interests across the portfolio	High working interests provide leverage and financing options (on success)
New plays – first mover advantage	Chasing intra-Eumeralla gas targets is an innovative move providing transformational upside on success
Many assets located in close proximity to infrastructure-hubs.	Access to plants and pipelines with ullage enhances success case economics
Weaknesses	**Comments**
Portfolio perhaps too large on company's financial and capital base	Permit commitments can be onerous – as indicated in the FY19 Final Report Financials (30-Jun-2019) – 24month forward capital commitments range from $25-140mn.
Capital constraints/financing and reliance on equity markets in the short term	Not unusual for small-cap energy stocks. Raising money on a well by well basis is not optimal.
Almost exclusively exploration nature of the portfolio	High risk nature of activity – at best Probabilities of Success on any well are likely to be in the order of 20% Exploration is a capital-intensive game. Potentially long lead times to development on drilling success.
High equity (working) interests across the portfolio	A strength can be a weakness. High initial interests need to be solely funded until assets are sufficiently evaluated to be of interest to third parties or at a pre-development stage.
Capital structure is cumbersome and recent addition of Convertible Note funding adds complication.	We suggest a capital reconstruction is required (at some point).
Opportunities	**Comments**
Supportive macro investment theme – East Coast gas supply	The macro environment is strong and we suggest sustainable. Gas supply-demand scenarios suggest there is significant opportunity for new suppliers to enter the market. We expect gas prices to remain high.
Wombat gas project	Holds the only Contingent Resource bookings for the company and success at Wombat-5 (hz) could catalyse a development rapidly.
Buyers will support additional supply sources	
Threats	**Comments**
Regulatory regime	The company's Victorian assets will be subject to an exploration moratorium till 30-Jun-2020 with uncertainty around whether the drilling bans will be lifted
Acceleration of the development of renewables	
Rush to market - there's other parties looking to enter the gas game	New provinces are being touted as sources of supply with scale – Narrabri and Beetaloo basins; and the very strong likelihood of LNG imports. The addition of significant, new gas volumes could negatively impact the pricing and supply dynamic for smaller operators.

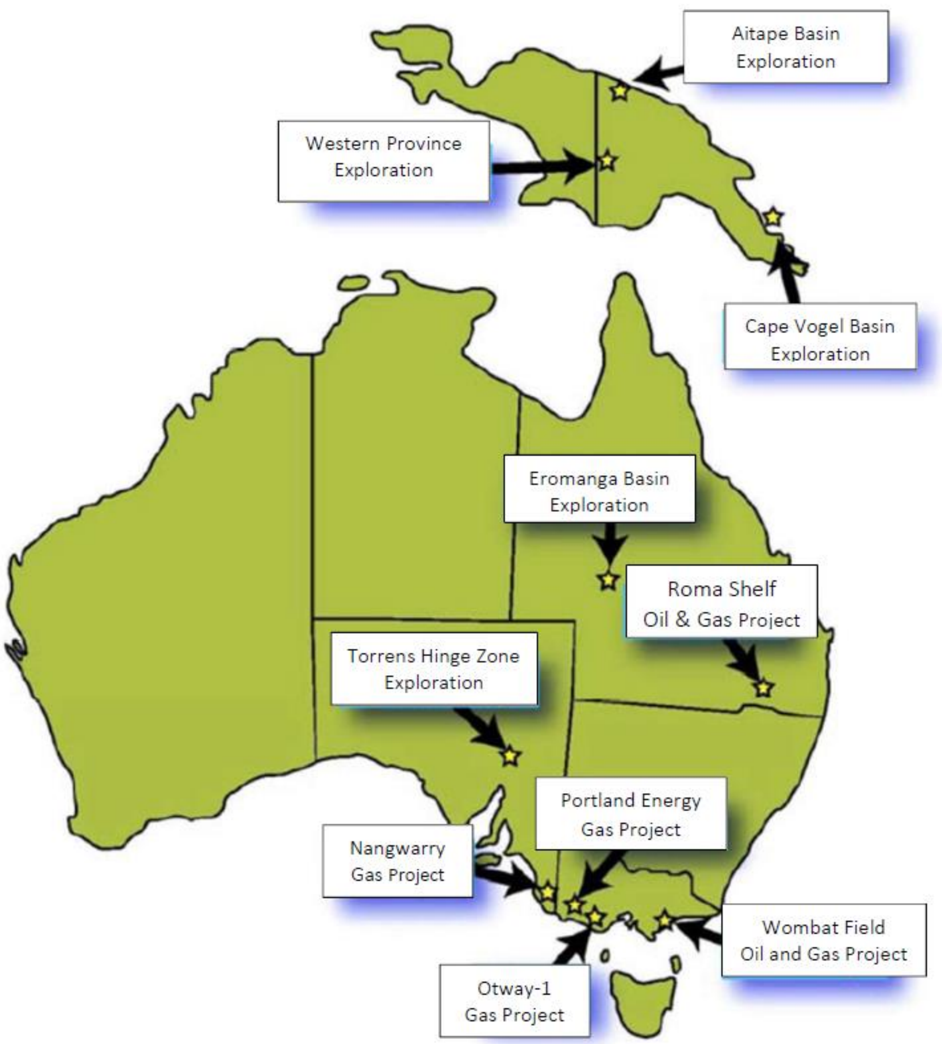
Source: RaaS analysis

The first step – looking at the assets

Lakes Oil has a diversified set of exploration assets lying across the risk spectrum, with the potential to provide a mix of short-term and long-term opportunities. The company's primary work focus is on its south-eastern gas assets where, subject to changes in Victorian legislation and financing, a number of wells could be drilled for exploration and evaluation.

Ascribing value to early stage exploration assets is problematic and dependent on the analyst's assumptions and subjective risk assessments. Most of the company's asset base is defined by Prospective Resources and GIIP/OIIP (in-place) estimates - the highest level of uncertainty through the evaluation process.

Exhibit 3: A geographically diverse portfolio, dominantly composed of early exploration phase assets but offering exposure to the strong east coast gas investment thematic



We highlight the six projects within the portfolio that provide the investment interest, extending over a 24-month period.

#6 PPL 560 – Cape Vogel Basin

 # 5 ATP1183 Roma Shelf

#1 Nangwarry-1
#4 Portland Energy Project
#2 Wombat Gas Field development
#3 Otway-1 gas well

Source: Company data

We focus our outlook on those assets with short-medium term activity, commercial appeal and supported by potentially advantageous economics.

- Nangwarry (LKO 50%) – currently being drilled
- Wombat Gas Project – containing the only Contingent Resources in the portfolio. It has scale, a short-lead time to production and projected low capex [subject to the successful drilling of Wombat-5 (hz)]
- Otway-1 – a cheap well targeting known productive intervals in close proximity to existing infrastructure
- Portland Gas Project – a 'new' play of transformational potential
- Roma Shelf Project – small but near infrastructure so low costs and quick [assuming success]
- Cape Vogel Basin – subject to completing a farm-out deal (ambit terms of up to 70% equity for work required up to and completion of an exploration well)

Research as a Service

Otway Basin – nearby success lifts the prospectivity

The Otway Basin is a NW-SE trending sedimentary basin located along the southern coast. Some 80% of the basin lies offshore, however, the company's assets are contained within an onshore setting. Geologically the basin contains formations spanning the late Jurassic to late Cretaceous periods and was formed by multi-stage rifting during the separation of the Antarctic and Australian plates. The basin is structurally complex which has made exploration and commercial production challenging…oil and gas production in this region has been a relatively recent event.

Onshore gas production commenced in the Victorian part of the basin, in April 1986, when the North Paaratte Field was connected via a pipeline to Warrnambool. In South Australia, gas was delivered from the Katnook group of fields (Katnook, Haselgrove, Haselgrove South and Redman) between 1991 and 2011.

Offshore production commenced from late 2005 with the start-up of the Geographe-Thylacine and Minerva gas projects.

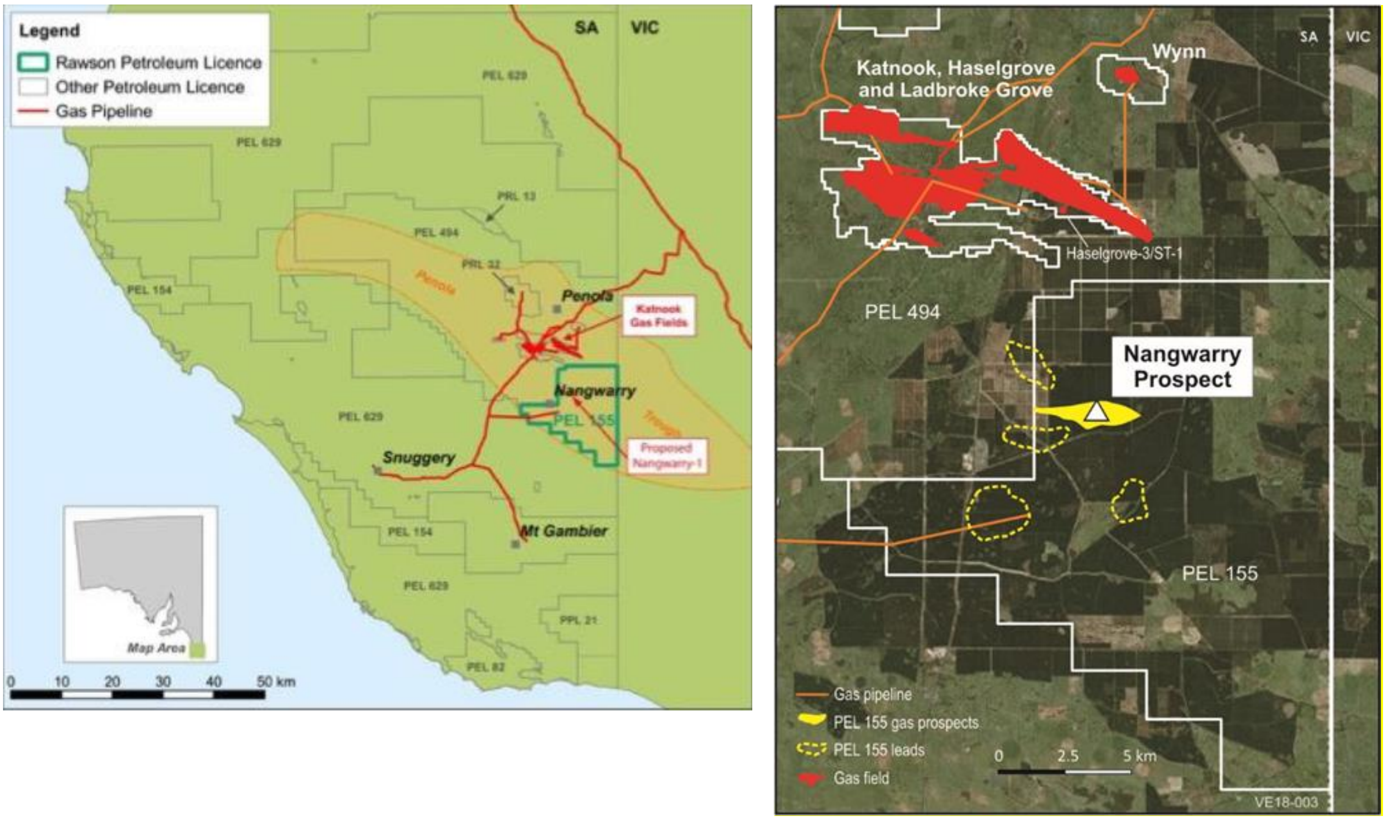
Although the basin has a large areal extent, drilling activity has been intermittent and the region could be considered under-explored and somewhat expensive.

The prospectivity of the SA region of the basin has been raised by the 2018 gas discovery at Haselgrove-3/ST-1 (Beach Energy – BPT.AX), a direct analogue for the Nangwarry Prospect, which is situated ~8km to the south-west.

Subsequent to the discovery BPT has drilled the Haselgrove-4 development well and reported it had encountered thicker sands than Haselgrove-3 in both gas sands, which points towards upside in reserves estimates and is indirectly encouraging for LKO at Nangwarry.

We believe BPT has assigned 2P reserves in excess of 100Bcf to its discovery. Testing of Haselgrove-3 flowed gas at rates greater than 25mmcfd (constrained). Testing of the -4 well delivered rates above expectation we understand with first sales gas expected around end-2019.

Exhibit 4: Nangwarry is well located within the regional infrastructure network – success can be monetised rapidly



Source: Company data (LHS), Vintage Energy (RHS)

RaaS
Research as a Service

We also note the recent success of the Dombey-1 well (BPT 75% and Cooper Energy (COE.AX) 25%) which tested gas in the Pretty Hill Formation, one of the zones of interest in Nangwarry-1.

PEL-155 (LKO 50%) – a strategically positioned opportunity

LKO holds a 50% interest in PEL-155, having acquired the interests in Rawson Oil & Gas via an off-market bid offering 15 LKO shares for every 1 Rawson share. As at 21-Feb-19, LKO held >90% of Rawson which was delisted from the ASX effective 18-Jan.

The JV is currently drilling the Nangwarry-1 well using the Easternwell Rig 106 with a rated capacity in excess of 5,000m. As at the last report, the well was being cased in preparation for drilling through the upper target zone – the Pretty Hill Formation.

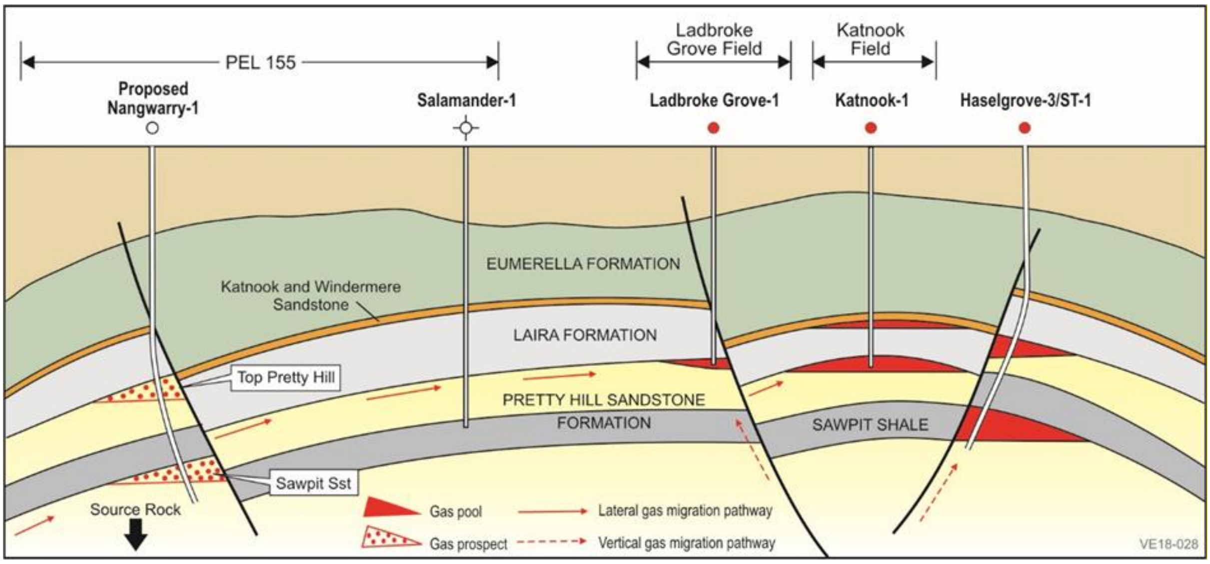
Nangwarry-1 will be a deep well with the top of the Pretty Hill target prognosed at ~3090m and the Sawpit sand at ~4160m with a planned total depth of ~4290m. The well will be located approximately 10km southeast of the Katnook Gas processing facility and will not be fracture stimulated.

Nangwarry-1 is a conventional well targeting a three-way dip fault dependent trap in both the Pretty Hill and Sawpit formations as defined on 3D seismic. The Pretty Hill target is considered analogous to the nearby Beach owned Katnook, Haselgrove and Ladbroke Grove fields, which have produced around 70PJ of gas since discovery.

The cost of the well has been budgeted at a gross cost of approximately $12-14m including a $4.95m Petroleum Accelerated Exploration (**PACE**) grant from the South Australian Government. Lakes Oil will bear its pro-rata share (50%) of the capex for the remainder of costs above the PACE contribution.

Under the terms of the PACE grant, any gas discovery leading to a development will be prioritised for the SA market with best efforts to be producing by end-2020. Success at Nangwarry-1 should be readily developable into the existing pipeline infrastructure connecting into the Adelaide market.

Exhibit 5: Schematic cross section of Nangwarry Prospect as it relates to the Haselgrove-3 discovery



Source: Company data

The Nangwarry prospect is considered to be somewhat of a Haselgrove look-a-like, targeting the same primary plays (Sawpit Sandstone and Pretty Hills Formation) and is estimated to contain a gross, unrisked, prospective resource of 11-160Bcf. It should be noted that pre-drill probability factors are subjective and should be used as a broad indication only of the prospectivity of the exploration well.

From a geological perspective the critical risk is likely to be the top seal to both targets which schematically is dependent on fault-controlled closures and by definition is uncertain. The seismic data is good quality, but resolution of structuring and formation tops is open to interpretation.

Exhibit 6: The prospective potential suggests a good chance of commercial success

	Undiscovered Gas Initially In Place (GIIP – Bcf)				Unrisked Prospective Resources (Bcf)		
	Low	Best	High	POS	1U	2U	3U
Pretty Hill Sandstone	11	52	143	23%	7	35	97
Sawpit Sandstone	7	35	98	19%	4	22	63
TOTAL	**17**	**87**	**241**		**11**	**57**	**160**
Net to LKO (50%)	**9**	**44**	**121**	**38%**	**6**	**29**	**80**

Probabilistic methods have been used, arithmetic sum used
Includes shrinkage but excludes condensate
Certified by RISC Advisory

Source: Company data

We assign a POS for the Nangwarry Prospect as 38% across both target zones, based on the sum of probable success outcomes and supported by appraisal drilling results form Haselgove-4, drilled recently by BPT which we believe came in above expectations (anecdotal).

We also highlight the recent gas discovery at Dombey-1 reported by Cooper Energy and Beach Energy, noting gas at the Pretty Hill level - one of the primary targets of the Nangwarry well. Whilst Dombey is some 20-25km north-west of the Nangwarry site, it shares some common features…a similar structural play and location within the Penola Trough; and regional success always lifts (or supports) the probability of success.

A play trend – can success open up a regional opportunity?

It's worthwhile prefacing the discussion on the Otway assets in Victoria, that all activity in this region is currently suspended as the State has declared a moratorium on all exploration activity (particularly drilling) with a legislated state-wide ban on fracking. The moratorium is due to be lifted on 30 June 2020 but is subject to the result of another enquiry currently being conducted.

The discussions on the prospectivity or other wise of the company's assets located in Victoria should be considered within that framework.

As LKO describe it – a Nangwarry success case has broader Otway significance and in that respect the company does have two opportunities with its Portland Energy Project and the Otway-1 prospect that can loosely be described as extrapolations of a success case.

Exhibit 7: Historical results point to good prospectivity and new gas fields to be found

Licence	Gas Field/Well		Status
PPL 1	North Paaratte Gas Field	Oct-1979	Depleted – now used as gas storage
	Wallaby Creek	Mar-1981	
PPL 2	Iona Gas Field	Mar-1989	Depleted – now used for gas storage
PPL 3	Boggy Creek (CO2)	Jan-1992	In production
PPL 4	Mylor-1	Jun-1994	Depleted
	Fenton Creek-1	Apr-1997	Depleted
PPL 5	Penryn Gas Field	Jan-2000	Depleted
PPL 6	McIntee-1	2001	Depleted
PPL 7	Tregony Gas Field	2001	Depleted
PPL 8	Grumby Gas Field	Mar-1981	Undeveloped – high CO_2
	Dunbar-1	Mar-1994	Depleted
	Langley Gas Field	1994	Undeveloped – high CO_2
	Skull Creek-1	Jun-1996	Depleted
	Wild Dog Rd-1	Dec-1999	Depleted
PPL 9	Lavers-1	May-2001	Undeveloped
PPL 10	Croft-1	Apr-2001	Depleted
PPL 11	Buttress-1 (CO2)	2001	Used for CO2CRC pilot
PPL 12	Seamer Gas Field	Dec-2002	Depleted
PPL 13	Naylor	2001	Depleted – now CO2CRC storage
PEP 168	East Wing-1/ST 1	Jun-2008	Undeveloped – 2P reserves ~2PJ

Source: DEDJTR records; GSV GEDIS data; company data

We are more circumspect with extrapolating any potential success at Nangwarry into the Victorian opportunities, viewing them on an independent basis given the distance of separation and different play concepts being targeted.

Regional NE-SW transform faults (at right angles to the basin trend) compartmentalise the basin making regional correlations, in a prospectivity sense, somewhat fraught in our experience – success in the SA portion of the basin has not been directly mirrored in the Victorian (onshore) portion of the basin.

Exploration of the Victorian Otway Basin (onshore) commenced in scale, in 1956 and to date has seen >300 wells drilled with a significant number of gas discoveries made, the most recent being East Wing-1/ST1. We note though that commercial gas development in the onshore has been restricted to the Port Campbell Embayment, with production dominantly from 1986-2006.

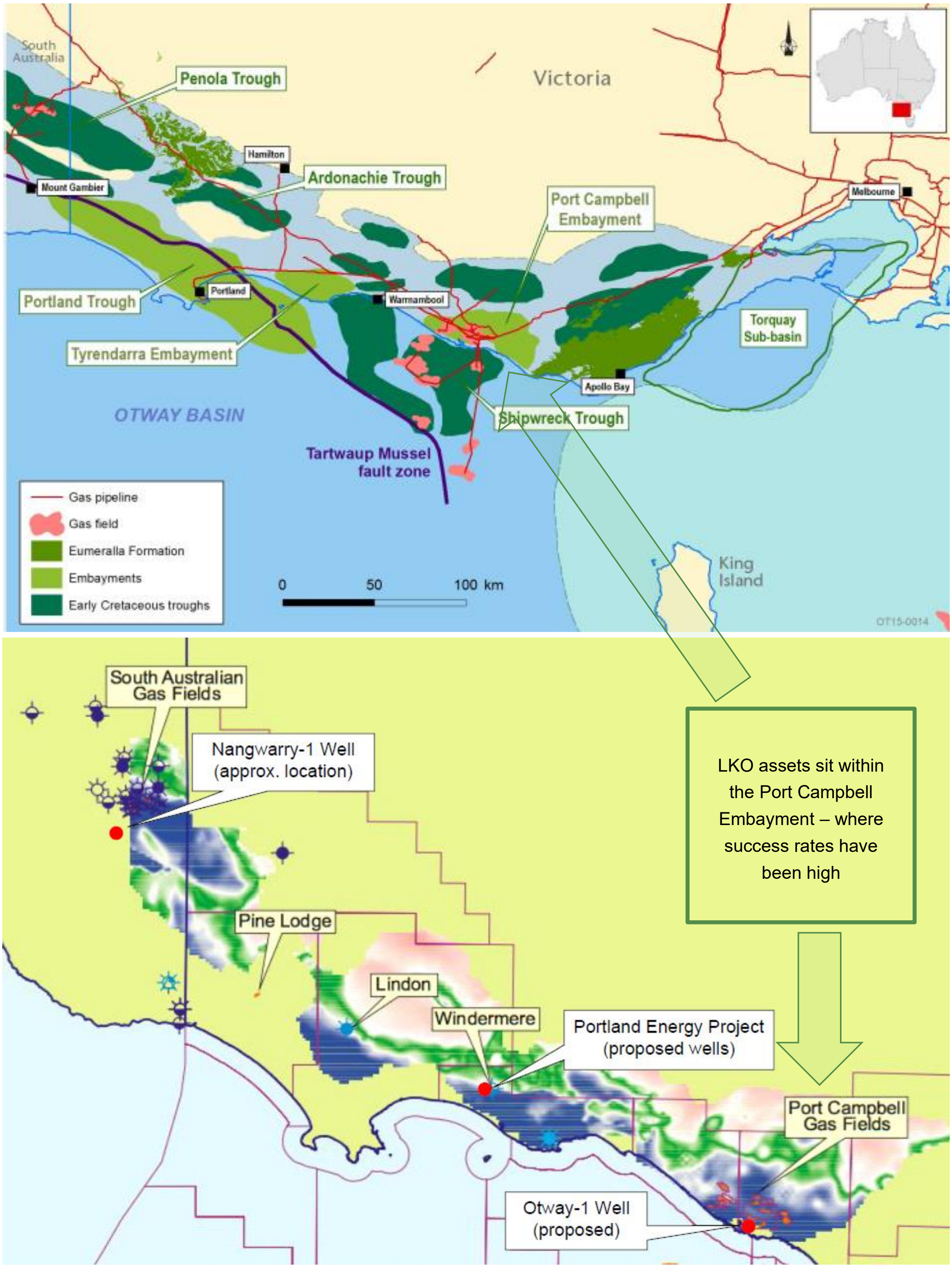
We suggest on exploration history, it is reasonably likely that further conventional gas discoveries will be made in the Port Campbell Embayment within the Waarre Formation, which is the primary target and host of all developed projects in the region. The reservoir is pervasive along the trend from Port Campbell to South Australia and presents an attractive exploration play within the LKO permits.

We cite a report dated Jun-2015 from the Department of Economic Development, Jobs, Transport and Resources - Victoria *("A review of gas prospectivity: Otway region")*:

"The primary target for tight gas is the Eumeralla Formation with some potential in the deeper Pretty Hill Formation which is present across the entire basin and is considered to have prospectivity in the Port Campbell Embayment. Many petroleum wells drilled for conventional gas in the Port Campbell area have also encountered significant gas in the Eumeralla Formation."

Certainly, in our view, the best chance for commercial development remains in and around the Port Campbell Embayment which includes a small but important infrastructure hub with gas processing and transmission pipeline facilities.

Exhibit 8: A structurally complex basin with Victorian success mostly located in the Port Campbell Embayment



Source: DEDJTR (Jun-2015) [top]; Company data [bottom]

Portland Gas Project, PEPs-175, -167 (LKO 100%)

FOCUS AREA

Source: Company data

The Portland Energy Project encompasses PEP-175, -167, acquired in Sep-2014. (from Bass Strait Oil & Gas) The project will initially be centred on a focus area based on existing data and targeting conventional gas prospects in the Eumeralla Formation.

- Two preferred locations have been identified for proof-of-concept wells (Greenslopes-2/Portland Energy-1), which should provide sufficient data to broadly evaluate the commercial potential of the play.
- In May 2015, SRK Consulting estimated the gas resource within the Focus Area could be as high 11.4Tcf (gas-in-place at a 50% confidence level) with perhaps 3Tcf recoverable.
- All 14 wells in the immediate area intersecting the Eumeralla Formation have been shown to contain gas.

RaaS Commentary

- The play has large, open-ended potential…so success has enormous flow through and follow-up opportunities.
- Two proof-of-concept wells may not deliver an economic result, so the gestation time could be significantly longer for this play.
- The capital requirement on success would be relatively high – wells and a pipeline connection to a processing hub, but on a potentially large gas base
- Given the potential resource size (>11Tcf gas-in-place) **definitively successful results from the proof-of-concept wells should make the asset attractive to other parties**.

Otway-1, PEP 169 (LKO 49%, Armour Energy 51%)

Source: Company data

- Conventional well ready to be drilled in close proximity to the Iona Gas Field but in a separate fault block. Being only 400m from existing facilities - can be brought on-line quickly
- The well will target both the Waarre Sandstone and Eumeralla Formation with a prognosed total depth of 1,500m
- The Waarre Sandstone is the primary gas exploration target, hosting adjacent discoveries in the immediate region

  The Waarre Sandstone is very productive, with recorded flow rates of up to 50 TJd in nearby locations. The Waarre Sandstone hosted the gas discovery at Iona and is now being utilised as a gas storage reservoir.
- The Eumeralla Formation is known to contain gas which has flowed on test, but is considered a higher risk, secondary target

  The Eumeralla Formation is known to contain gas and has previously, at the Skull Creek-1 well location (nearby to Otway-1), **flowed gas at a rate of 7.5TJd.**
- Drilling activity and applications have been suspended pending the expiry of the State Government moratorium.

The well was first proposed in 2013, at which time all regulatory and access requirements were fully satisfied (as advised in writing by the Victorian DEDJTR).

…(continued)

- Whilst the gas potential of the play (Eumeralla) has been confirmed from previous exploration, there is no working analogue – and 'firsts' do come with higher risks.

Plainly, the estimates of GIIP and Prospective Resources (refer Exhibit 22) are not realistic outcomes, but should serve to highlight the opportunity set encompassed within the play.

…(continued)

RaaS Commentary

- One off play
- F&D capex will be low so maximising margins
- Lead time will be short and could be producing within 6 months of a drilling success
- Economic discovery size could be as low as 5PJ but more likely around 10PJ – project life will be commensurately short (3-4 years).
- Currently ullage in Iona Plant with potential changes and re-direction of gas to impact plant throughput – positively or negatively remains uncertain.
- Small gas volumes may mean gas sales on an interruptible basis, which are generally agreed at a discount to the prevailing market.

We note the company ascribes a P_{50} Prospective Resource to Otway-1 of 60Bcf (gross), which would make a discovery of this size, the largest in this region.

With a Probability of Success rating of 25%, the Otway-1 well is a prospect that should be drilled – we'd suggest as early as possible post the rescinding of the drilling moratorium.

...but here's the rub

Realisation of value within these assets is directly related to the removal of the Victorian State Government moratorium on onshore exploration due to expire on 30 June 2020, but subject to the results of another review.

Should the moratorium be extended the risk weighting on these assets would remain higher and their intrinsic value be low to zero.

We suggest these assets hold significant intrinsic value from an exploration perspective – the plays are highly prospective and technically valid – but being exploration plays are quite binary in their outcomes.

In another time or in another state, it's likely these prospects would have been drilled and in an operating environment that remains strongly supportive of commercial outcomes, discoveries of even small volumes could be economic.

It's difficult to put a value directly on the opportunities in the current political setting.

We suggest the minimum economic discovery size could be as low as 10PJ – in an $8-10/gj well head market, that would be an $80-100mn revenue opportunity.

Commercial flows (initial production rates of up to 7mmcfd) have already been achieved from the Eumeralla Formation onshore in the Port Campbell area in the past but these were secondary targets, behind the more prolific Waarre Sandstones.

Down the Wombat hole (PRL 2, LKO 100%)

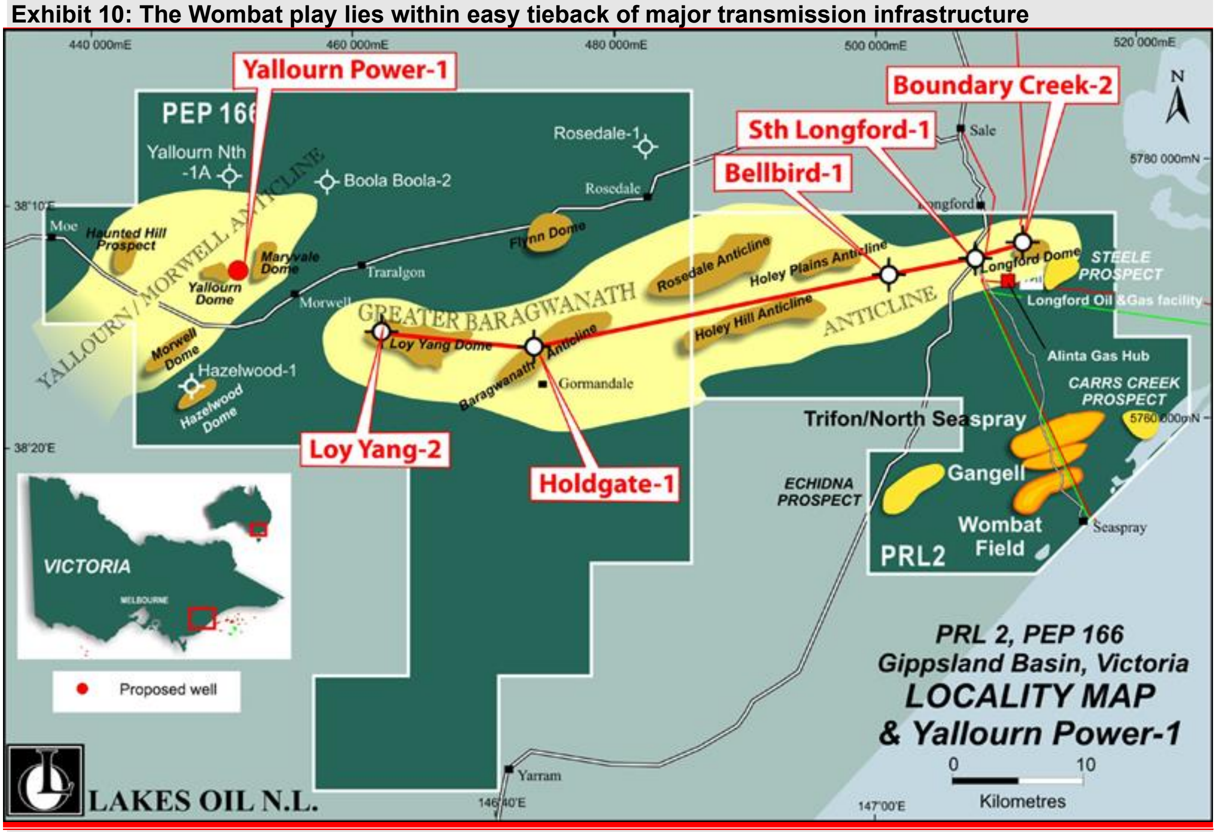
PRL 2 is the only asset within the LKO portfolio with a defined gas resource based on drilling success and measured gas flows. The working interests vary across the permit as indicated. The resource sizes as indicated, particularly on the Wombat and Trifon fields represent significant gas opportunities – as stand-alone projects and in aggregate, ascribing 719Bcf at 2C. In context, Cooper Energy Ltd is completing the development of the offshore Sole Gas Field with 2P volumes of ~250PJ.

Exhibit 9: Contingent [C] and Prospective [P] Resources – a significant gas play sits here

						Bcf		POS
					Low	Mid	High	
PRL 2	100%	Wombat Field	Gas	C	258	329	628	50%
	57.5%	Trifon Field	Gas	C	126	390	526	25%
	100%	Barragwanath	Gas	U	187	966	4,327	10%

Source: Company data

Exhibit 10: The Wombat play lies within easy tieback of major transmission infrastructure



Source: Company data

The Wombat and Trifon fields are located in the tight sands of the Strzelecki Group and whilst the discoveries are structurally controlled on seismically defined highs, the Strzelecki Group is not a highly variable reservoir – the upper section is weathered but is expected to be able to produce gas conventionally without the need for reservoir stimulation.

The Wombat Gas Field has been defined by four wells, flowing 3TJd from the Wombat-3 well, prior to mechanical failure of the well-reservoir interface.

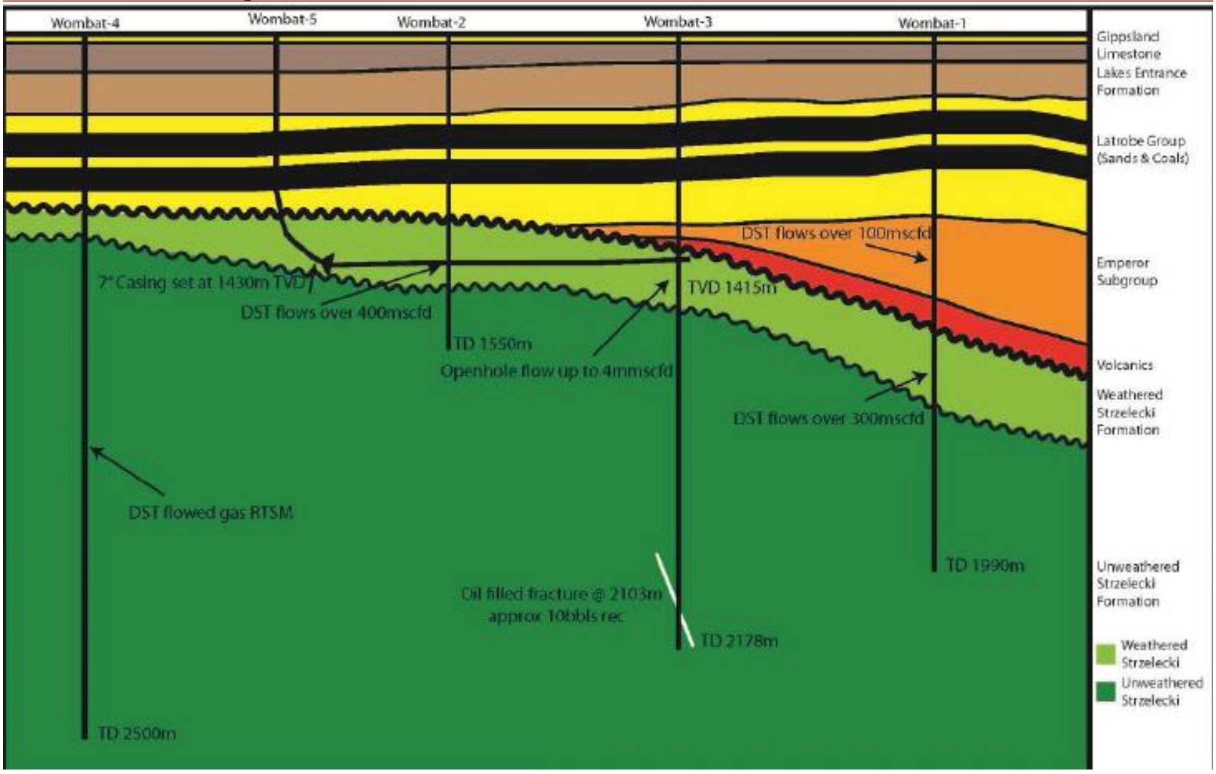
Within the Wombat Field gas has been intersected throughout the formation with some zones representing sweet spots with more favourable reservoir characteristics. This highlights the higher degree of complexity associated with potential development options.

- Can be difficult to define the areal extent of higher permeability zones
- Well productivity will likely need to be enhanced – in this case by lateral drilling to access a greater surface area (fracking is banned)

- Reservoir performance and production rates can be more problematic, particularly with no analogue fields

LKO has indicated gas rates from Wombat-3 at ~4mmcfd whilst an extended production test of Wombat-2 produced average flows of ~0.8mmcfd from one zone in the well, in what is likely to be a multi zone play.

Exhibit 11: Proposed Wombat-5 horizontal well…the simple aim is to open more formation to the well bore without fracking



Source: Company data

Lakes plans to drill the Wombat-5 were first proposed in late-2013 but suspended due to the onshore drilling moratorium introduced in early 2014. The company intends to drill the well as soon as legislation allows and given the application process has largely been completed there should be a reasonably short timeline to being able to drill post the expiry.

Wombat-5 is designed to be a directionally drilled well as per the schematic noted in Exhibit 11, to test this theory and prove that commercial flows could be achieved from the Strzelecki Formation without requiring stimulation. The well is being designed as a 1500m open hole lateral. Studies suggest gas flow rates could be strong and perhaps deliver rates of 5-6mmcfd.

Independent modelling based on reservoir data from the four Wombat wells, suggests:

- cost of the order of $4-5m
- initial gas flows could be up to 15mmcfd with a P50 case of ~10mmcfd;
- production life in excess of 20 years with rates above 1mmcfd in Y20, indicating low decline wells.

A SCENARIO: What could a Wombat development look like?

In broad terms, a success case Wombat development should be readily commercialised based on the initial company analysis and guidance:

- simple gas processing and compression facilities and connection to the Tasmanian Gas Pipeline, which runs to the east of the Wombat field) at a likely cost in the order of $50m.
- construction time of around 18 months.
- Up to 12 additional gas wells (drilled from just three well pads to minimise the development footprint) would also need to be drilled over the life of the project.

- a production scenario peaking and plateauing at 20PJpa (100% basis) for ~ 7 years then declining with a relatively long tail.
- dominantly fixed cash operating costs of <$2/gj and
- a unit NPV margin of around 20-25% (or ~$2.00/gj)

The Wombat opportunity certainly appears to be the opportunity in the portfolio of strongest commercial significance and lowest technical risk notwithstanding the outlook depends on demonstrable commercial successful in the Wombat -5(hz) well.

The Wombat play is attractive enough to have warranted interest from Beach Energy (BPT.ASX), pre-moratorium, when a fracking solution was considered to be an optimal development process. The obvious attraction is the size of the resource potential. The BPT option lapsed post the change in government regulations

We believe partnering discussions could recommence quite soon after the lifting of the moratorium and could be in a staged form with LKO seeking a drilling carry as an initial entry and a more substantial carry through development should drilling be successful

Whilst it's difficult to nominate a specific value to any partnering agreement, based on a modelled development scenario of A$70-75m to first gas and a small promote, an indicative estimate could be along the terms of (say) $50m for 50%

This would equate to a look through value of $100m for PRL 2 compared to our 'mid' point value of $59m.

Research as a Service

Queensland opportunities have intrinsic value

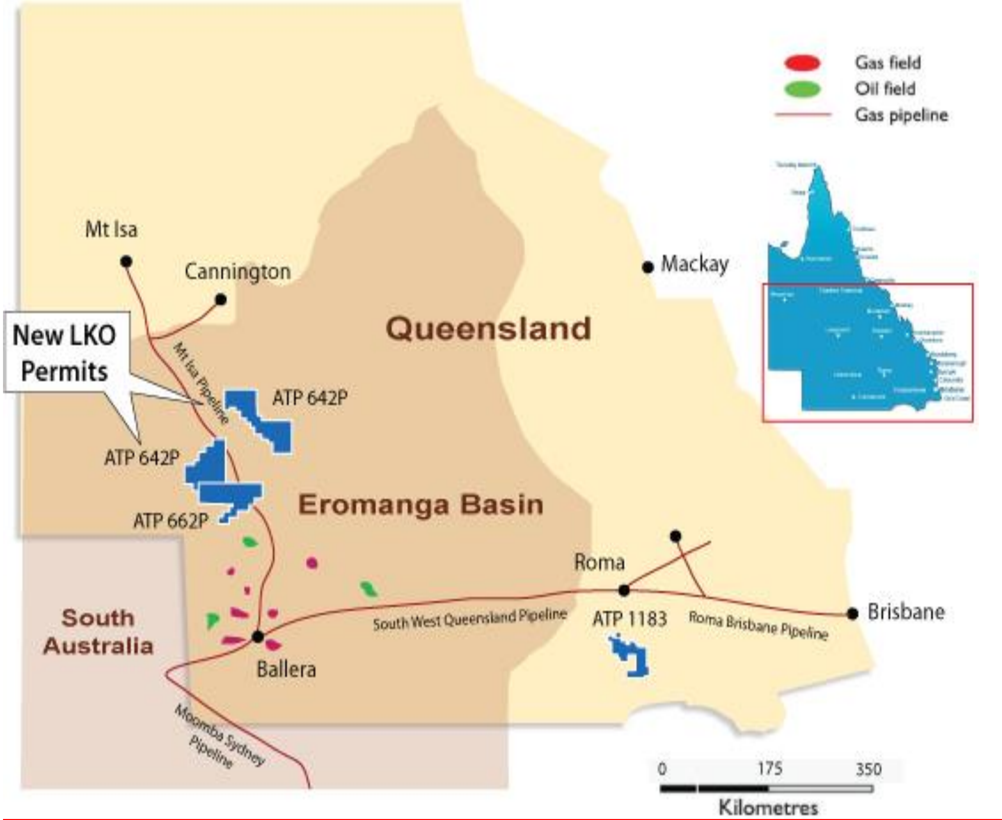
Queensland acreage provides unfettered exploration opportunities and continues to be the focus for many of the issues pertaining to gas investment thematic hosting three large, underutilised, export projects with potential to be black holes for gas supply.

The continuing gas supply tightness prompted the establishment of Australian Domestic Gas Supply Mechanism (ADGSM) by the Federal Government in Jun-2017 and has led the State Government to open acreage tendering opportunities, specifically mandated for domestic supply.

Within this context, LKO holds a number of permits in the prolific Surat Basin and eastern portion of the Eromanga Basin.

We see ATP 1183 (Roma Shelf Project) as holding the strongest chance of timely commercial outcomes – SW Queensland, Eromanga Basin has historically been shown to have relatively moderate prospectivity. Whilst there has been a number of significant developments, the geology is somewhat less favourable and outcomes are higher risk in our view

Exhibit 12: Two distinct plays in infrastructure fairways



Source: Company data

Surat Basin, Roma Shelf Project (ATP 1183, LKO 100%)

ATP 1183 is prospective for oil, gas and condensate discoveries, and within close proximity to established production facilities and infrastructure. The tenement area itself surrounds the Riverslea Oil Field and Major Gas/Condensate Field.

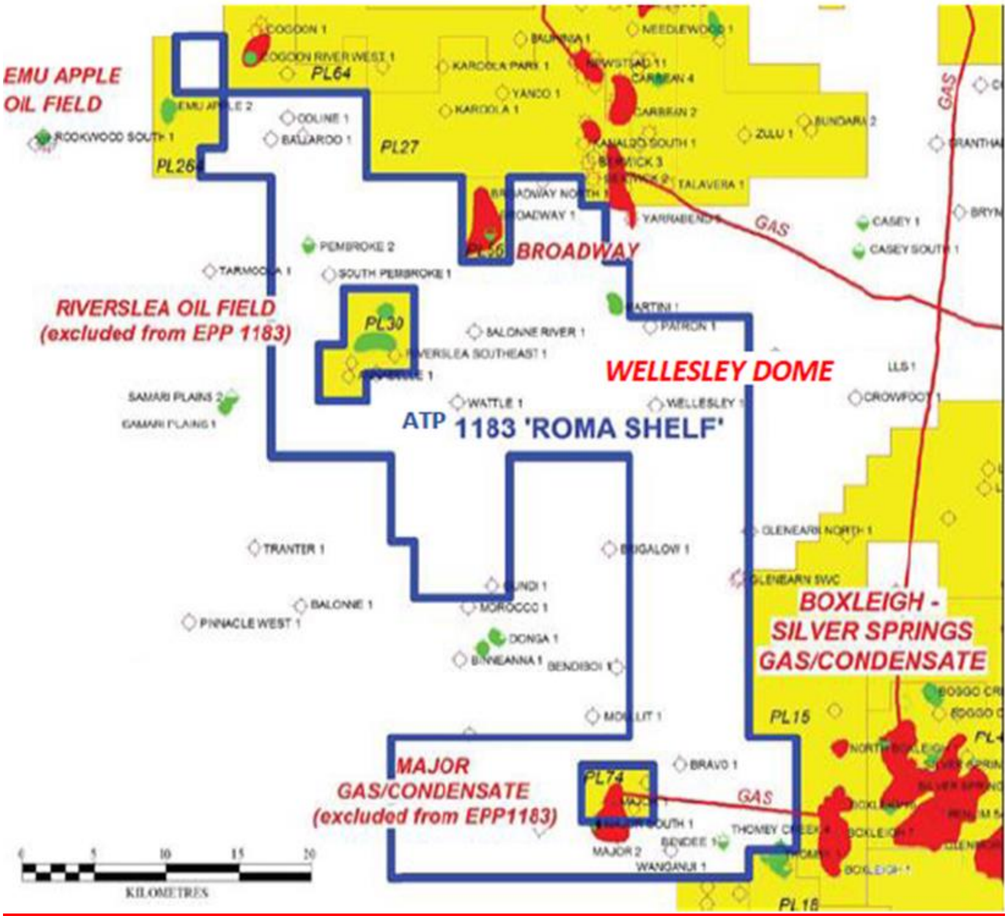
LKO activity has largely been centred on geological studies and reviewing the exploration prospects within the permit area.

In the company's words a *"… number of compelling opportunities have been assessed in detail and the Company aims to carry out an exploration well drilling campaign in the near term."*

Whilst the location of ATP 1183 within an extensive infrastructure hub is advantageous, lowering the economic reserves threshold and making any discoveries readily developable within a short time-frame. We suggest the gas prospects (Wellesley @ 41Bcf and Major East @ 14Bcf) can be readily commercialised on success.

The acreage currently only has Prospective Resources ascribed to it and whilst the oil play is nice to have, the commercial opportunity of significance is gas, where domestic prices are currently tagging between $8.50-9.00/gj at the well head.

Exhibit 13: Gas prospects at Wellesley and Major East should be readily developable on success



Source: Company data

It's worthwhile highlighting that ATP 1183 has been reasonably well drilled with mixed results so future drilling should be viewed within the context of normal exploration risks – LKO ascribe a Probability of Success of 20% to both gas prospects.

RaaS
Research as a Service

Financials – typical of an exploration company

The financials reflect the state of a company in an exploration phase particularly in the early stages although we have noted that the Wombat Project could have a short lead time to production should the Wombat-5 horizontal well (pending) be successful.

We model continuing losses through the forecast period, on a minimum exploration spend. We note that the FY19 result was impacted by a R&D Expense of $1.280m on a change in ATO ruling on what constitutes R&D versus exploration. This ruling is subject to appeal. We don't model further R&D expense in the forecast period.

Exhibit 14: Summary profit/loss results (reporting currency AUD, balance date 30-June) – we anticipate the company to remain in a loss-making position through the forecast period

P&L	FY19a	FY20e	FY21e	In A$000's
Revenue				
Other revenue/income	871	393	306	
Expenses:	(4,221)	(3,480)	(3,623)	FY19 includes $1,280mn of R&D expense
Proforma EBIT	**(3,369)**	**(3,105)**	**(3,323)**	
Tax benefit				
Net Loss	**(3,349)**	**(3,089)**	**(3,317)**	**Expected to remain in loss through forecast period. A Wombat development could impact from FY22**
EPS (cps)	(0.10)	(0.09)	(0.10)	

Source: RaaS analysis

We'd anticipate that capital requirements would accelerate post FY21 assuming a successful result on Wombat-5.

As a company with no current revenue streams, LKO will be dependent on equity markets for financing through the forecast period, however, could secure (through exercise of a partnering option) a significant capex carry for Wombat (and perhaps Cape Vogel Basin (PNG).

Exhibit 15: Summary Balance Sheet – nothing to see yet

BALANCE SHEET	FY19a	FY20e	FY21e	In A$000's
Cash & Equivalents	2,469	3,383	1,579	
PP&E & Development	606	586	566	
Exploration	16,765	18,465	18,465	Assuming no further impairments
Total Assets	**20,860**	**23,396**	**21,273**	
Debt	0	6,030	6,030	
Total Liabilities	**4,575**	**10,179**	**10,234**	
Total Net Assets/Equity	**16.285**	**13,217**	**11,039**	
Net Cash/(Debt)	2,469	(2,647)	(4,451)	

Source: RaaS analysis

Financing through equity and Convertible Notes…success can support other funding options

Interim funding whilst the company is in suspension is being provided by way of a Convertible Note offer under the following terms:

Issuer	Lakes Oil NL ACN 004 247 214
Convertible Note Issue	Convertible Notes to be issued by the Issuer pursuant to the Convertible Note Trust Deed.
Purpose	To finance the drilling of the Nangwarry well, general working capital and costs of the issue.
Issue Price	Face Value of $0.0009 per Convertible Note
Conversion at Holders Election	Each Note is convertible at any time at the holder's election into one ordinary share of the Issuer (ASX: LKO). For clarity, a Noteholder may exercise conversion rights in relation to only some, or all, of their Notes at any time.
Issue size	Up to 6,700,000,000 Convertible Notes (up to $6,030,000). An initial tranche of 600,000,000 Convertible Notes ($540,000) are to be issued upfront. The issue may be conducted in a number of tranches. The Issuer may also issue Convertible Notes in lieu of Interest (at the Issuer's election) pursuant to the terms below.
Term	Approx. 2 years
Maturity Date	31 December 2021
Security	Investors to be granted security over all assets of the Issuer in accordance with the terms of the Note Trust Deed
Security Ranking	The Convertible Notes will have first ranking security
Status	The Notes are direct and secured debt obligations of the Company. Each Note ranks for payment in a Winding Up of the Company: (1) equally and proportionally with each Note; and (2) ahead of all unsecured or subordinated debts of the Issuer and ordinary shareholders.
Issue Date (Indicative)	Tranche 1: 4 December 2019 Tranche 2: 19 December 2019 Tranche 3: 17 January 2020 Subsequent tranches: TBA
Coupon Rate	Interest of 15% p.a, paid half yearly in arrears on the Interest Payment Dates. Interest accrues from the date of issue of any Convertible Note. The first interest period may be a shorter or longer period.
Interest Payment Dates	30 June 2020 31 December 2020 30 June 2021 31 December 2021

As announced on 12-December, an initial tranche of Convertible Notes has been issued to the value of $0.6m to cover costs related to the drilling of Nangwarry-1 and other working capital requirements. We understand a second tranche of notes will be issued as of the date of this report (19-Dec). We highlight highlight as a related party transaction that:

"The Company has retained Bizzell Capital Partners Pty Ltd (BCP) as the lead manager for the Convertible Note issue and it is intended for the balance of the Notes issue to be fully underwritten by BCP. BCP will receive a fee of 6% of capital raised. Samuel Holdings Pty Ltd as trustee for Samuel Discretionary Trust, a related party of Director Nicholas Mather, will provide $3 million in sub-underwriting once the $6.03m is fully underwritten and will receive fees from BCP in this regard. The issue of Notes to Samuel Holdings Pty Ltd and any other director related entity participating in the Note issue will be subject to receipt of necessary shareholder approvals."

The Convertible Note issue is expensive – a 15% coupon is not cheap – with the capacity for the attributable interest to be paid in additional notes with the same conversion rate.

"The Issuer may elect, at its discretion, to issue Notes (at the Issue Price and on the same terms and conditions as the Placement Notes) in lieu of any Interest due on an Interest Payment Date, and the issue of those Notes will be in full and final satisfaction of the Interest due and payable on that date."

For financial forecasting we assume, interest is paid and the Convertible Notes are repaid on expiry of the term (approximately) 31-Dec-2021.

Our assumptions include further capital raisings for continuation of exploration commitments and or Convertible Note interest commitments, although noting the interest commitments could be managed through the issue of further notes if required. Financing e over the forecast period, will also be dependent the company's capacity to secure farminees (partners) or reschedule activity.

Exhibit 16: Summary cashflow statement noting further equity raisings

CASHFLOW	FY19e	FY20e	FY21e	In A$000's
Operational Cash Flow	**(2,268)**	**(2,195)**	**(2,195)**	
Net Interest	19	18	6	
Net Operating Cashflow	**(2,249)**	**(2,177)**	**(2,189)**	
Exploration	(1,484)	(2,500)	0	Company could move into a development phase from FY22 but highlight Con Note servicing could restrict the capacity to continue exploring
Net Investing Cashflow	**1,191**	**(2,125)**	**300**	
Equity Issues (after costs)	2,241	0	990	We assume all equity contributions will be at 0.1cps. The modelled raise essentially services the Con Note interest
Con Note Issue (after costs)		**5,216**	**(905)**	
Net Financing Cashflow	**2,241**	**6,190**	**990**	
Net Change in Cash	**1,182**	**914**	**(1,804)**	

Source: RaaS analysis; we assume equity issues at a reference share price of 0.1 cent per share

We highlight the Note to Accounts from the FY19 financials with respect to the 24-month forward capital (exploration) commitments:

"The current financial commitment as at June 30 2019 on the work programmes across all tenements for the next 24 months is $20.8m. Approximately $15.2m of this commitment relates to our three Queensland licences…" and "…(If) Lakes' legal challenge to the legislative moratorium is successful, and Lakes is allowed to carry out its work programme commitments, then our commitment across the Victorian permits will increase to $115m."

We have noted previously that the company does have some financing alternatives options, particularly over Wombat where we suggest on success, the gas opportunity is of sufficient scale and margin to be attractive to a significant number of parties interested in an early development entry into the East Coast Gas supply thematic.

LKO could also secure a partner for its Cape Vogel Basin project (offshore PNG, PPL 560, LKO 93%) with offers of interest due in early November, although it's not likely this will trigger significant expenditure through FY20 in our view. We understand that LKO will require an incoming party to fund permit activity through the drilling of a well sometime in permit year-4 (c.2021).

A risk assessment

Normally the most critical factor in determining and delivering any resources project is, in our view the prevailing commodity price. Whilst the east coast gas thematic continues to be strongly supportive of commercial outcomes, LKO is also strongly impacted by political risk issues associated with its Victorian ventures, which significantly constrain commercial considerations and the value that can be ascribed to the asset base.

Until we see a resumption of exploration (drilling) activity in Victoria, the outlook and opportunities for the company will be constrained and strongly impacted.

Rather than a comprehensive assessment of all operating risks, we highlight a few key areas that we consider the most critical for the company and investors over the next 12-24 months.

Gas Prices

We don't intend to enter into a detailed discussion of the east coast gas price dynamics, which continue to be covered in somewhat minute detail by the ACCC gas enquiry. The most recent update (July-2019) runs to over 160p and whilst it concludes the domestic market will be fully supplied in 2020, we note a significant number of caveats with respect to its conclusions.

We also highlight that production (supply) forecasts are based on company plans which include the development of new projects, estimates of the timing and size of bringing on undeveloped reserves and the conversion and upgrading of contingent resources to economic (bankable) volumes.

Our view is that the underlying tightness of the market is significantly higher than alluded to in the ACCC analysis and the only tangible way of providing downward pricing pressure in east coast markets is to increase supply in scale, which entails the exploitation of new gas provinces (Galilee Basin, Narrabri, Beetaloo Basin) or a significant increase in exploration expenditure targeting new gas opportunities.

Increasingly, LNG import terminals are becoming accepted as a necessary mechanism and part of the gas supply model, but that in and of itself will/can add a significant new pricing dynamic into east coast gas pricing – import pricing rather than export netback could set the wholesale price for gas supply at the margin, particularly if as indicated by AGL in a gas conference presentation (April-2019) that east coast gas supply could see (LNG) imports of up to 300PJpa by 2030.

Within that conference commentary, AGL highlighted:

- It sees a gas supply shortfall from 2024 on tightening gas supply **with limited development of 2P volumes** *(emphasis added)*
- Gas storage is part of the equation
- **A LNG facility in VIC is THE ONLY OPTION without major pipeline upgrades**…and it was already actively engaging with LNG suppliers (*emphasis added*)
- Capex for terminal is thought to be in the order of $250m

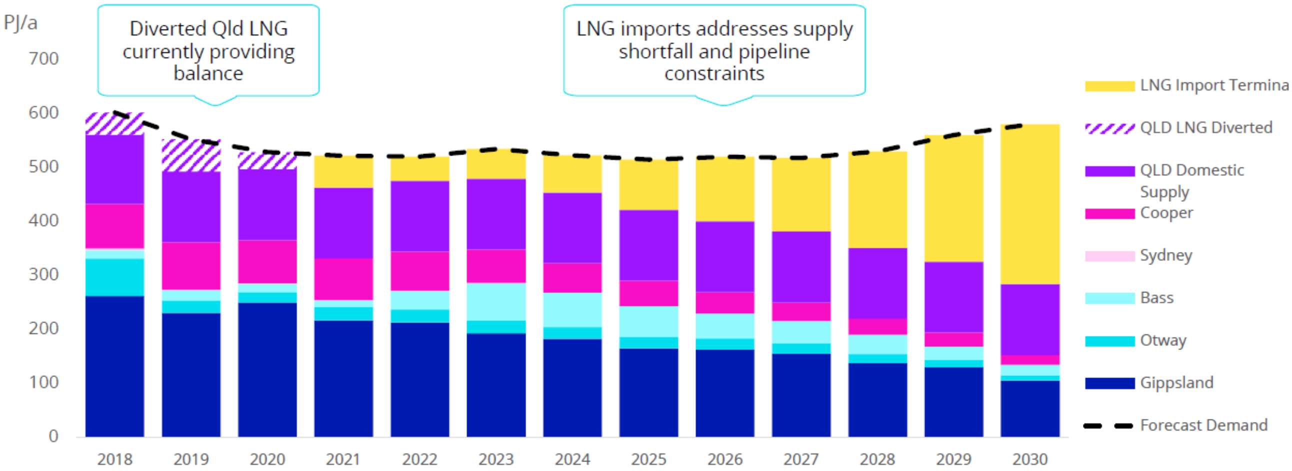
It was AGL's view that it could land gas at its proposed Crib Point terminal with a $1.78/gj cost 'benefit' against the pipeline tariff equivalent and this supply option has the potential to move gas prices lower (perhaps at worst capping Victorian prices).

This ties back to the issues raised by many industry observers and upstream companies as espoused at many conferences and address over the last 12 months in particular, of the need to significantly increase exploration levels (activity and capex) but we suggest this means the need is to drill the elephant prospects that can provide 'quantum discoveries'…multi-Tcf targets and sooner rather than later.

We would also highlight commentary from Esso Australia at the APPEA Conference (May-2019), advocating its need for an LNG import terminal ostensibly as a mechanism for managing its Gippsland Basin operations and the relatively long lead times that come with drilling for and developing 'elephant' discoveries.

Research as a Service

Exhibit 17: AGL gas supply-demand projections pointing to a massive LNG import requirement by 2030



Source: AGL data

Addressing the longer-term concerns in the East Coast Gas Market requires attention at all points in the supply chain. The ACCC has long advocated the need for an increase in supply and diversity of suppliers, particularly in the Southern States,

The supply forecast provided by gas producers and AEMO's domestic demand forecast indicate that there will be sufficient gas produced in the Southern States to meet demand. However, the supply-demand balance in the Southern States for 2020 is tight and can be uncertain because it is subject to:

- the quantity of gas produced in the south, particularly in the Cooper Basin, that will flow into Queensland, and
- realised demand for gas from gas powered generators (GPG), which is difficult to predict.

(Source: ACCC Gas Inquiry 2017-2020 Interim Report, Jul-2019)

For every bear – a bull: an alternate view

It's worthwhile considering the anecdotal evidence and perhaps drawing conclusion that could indicate a tightening of gas supply in a shorter timeframe than industry and government projections suggest.

Most recently Esso has publicly indicated it's looking to divest its 50% stake in the offshore Gippsland Basin fields, which makes its advocation for requiring a gas import terminal (as indicated at the 2019 APPEA Conference) somewhat redundant and indicating to us:

- Lower potential for significant new gas discoveries in the portfolio
- Falling rates of return on new capital expenditure
- Potentially accelerating abandonment liabilities
- Implying capex from this point will be as close to the minimum commitment and stay-in-business level as practicable

We also note indications that the Fairview CSG Field in Queensland is now in inexorable decline. This project has been the best performing and most productive gas supply into the GLNG Project; and whilst declining production is being replaced by new developments, these projects come with higher costs (opex and sustaining capex) lower expected gas recoveries and production rates – this is not like-for-like replacement.

We would not be surprised to see more supply issues emerge beyond 2020 with stronger pricing pressures on higher oil prices impacting LNG netbacks (in the short-term) and gas imports in the longer-term.

Exhibit 18: Expected 2020 wholesale gas prices in the East Coast Market (under GSAs executed between 1-Jan-2018 and 24-Apr-2019

Expected 2020 wholesale gas commodity prices*	Avg price $/GJ	Price range $/GJ
Producers (Vic & SA)	9.72	8.87 - 10.83
Producers (QLD)	8.99	8.55 – 9.81
Retailer (NSW, Vic, SA)	10.74	9.20 – 11.58

Source: Source: ACCC Gas Inquiry 2017-2020 Interim Report, Jul-2019 – with contract information provided to the ACCC from industry

Geology

As an exploration play, the inherent risk is high, even allowing for adjacent discoveries and developments. Whilst the target zones and parameters of any prospect can be outlined with confidence, pre-drill analysis is a probabilistic exercise and drilling even within an existing field cannot be predicted with certainty – geology just doesn't work that way.

There are also higher risks associated with chasing new plays – for example the tight gas in the Eumeralla Formation. The scope of the play is such that it's unlikely to be defined by one well or perhaps even 5 or 6 wells and given the legislated fracking ban in Victoria, the optimal development design (assuming success) may take some time to be finalised.

It should be noted that geology can surprise on the upside – reservoir parameters and flow results can exceed expectations with positive implications for reserves and capital costs but all of this needs to be determined through exploration and appraisal success.

Government Regulations and Legislation

The Victorian State Government enacted the *Resources Amendment Legislation (Fracking Ban) Act 2017* which came into operation on 16 March 2017, effectively imposing a moratorium on any petroleum exploration and petroleum production in the **onshore areas** of Victoria until 30 June 2020.

The Act prevents the Minister from granting an exploration permit, a retention lease or a production licence during the moratorium period. The *Resources Amendment Legislation* also bans hydraulic fracturing and prevents the exploration for and mining of coal seam gas.

The ban is legislatively scheduled to expire at mid-2020, following which conventional exploration activity should again be allowed to proceed, however, the Government through the Department of Jobs, Precincts and Regions is undertaking a new, year-long enquiry into the potential of gas reserves in two onshore basins in Victoria….effectively the Otway Basin running to the South Australian border and the Gippsland Basin.

The new enquiry has indicated aims to *"…identify land that may be suitable for release for exploration as well as any areas* ***that may be withheld from exploration if the moratorium is lifted post June 2020****"* (emphasis added).

It is beyond the scope of this report to debate the merits or otherwise of the current moratorium, however, anecdotal evidence suggests:

- *"…escalating domestic wholesale gas prices have put pressure on customers along Australia's east coast, particularly in the industrial and manufacturing sectors"* and the ACCC has consistently argued that the way to lower prices is to increase gas exploration and develop proved and probable reserves.

Victorian gas prices are high in part, due to the onerous tariffs to transport gas from Queensland compared to tariffs within the state.

The cost of gas transportation in Victoria is just $0.37/gj, compared to $2.16-2.63/gj to pipe gas from Queensland.

Source: Department of Energy and Environment

The operating parameters for the industry in Victoria remain uncertain and LKO is somewhat caught between two end points of political philosophy. Realisation of value on the company's gas assets is strongly tied to the substantive removal of drilling bans, which is difficult to predict with certainty at this time.

Financing

Financing issues will always overhang small resources companies with no existing revenue streams, which ultimately leaves the company with recourse mostly to equity markets for working capital, particularly in an exploration phase. This can also be exacerbated when there are multiple exploration programmes and assets to be worked.

As we have noted, the company has issued Convertible Notes as an interim financing option, with quite high interest commitments, which if paid rather than covered by the issue of further notes could restrict the capacity of the company to effectively work its asset base.

Acreage assets come with work and expenditure permit commitments and given the extensive asset holdings of the company these commitments can be onerous. We note (as outlined in the FY19 Final Report for the period ending 31-Jun-2019), the 24-month forward capital commitments range from $25-140m against a market capitalisation of ~$60m (at 0.15cps).

The capacity to continue leveraging the equity markets is limited we suggest, although 'one' success can change sentiment significantly.

At this stage it's difficult to get a strong read-through on the financing capacity of the company based on its capitalisation – the minimum quote for a company listed on the ASX is 0.1c and trading in increments of 0.05c – so small transaction can impact the capitalisation significantly. Over the last 10 months the stock has traded in a low-high range of 0.1-0.2c –capitalisation has moved through a 100% range.

We would also highlight the retail investor nature of the share register and at some point, the need to transition the register towards long-term, institutional investors with stronger financing capacity, particularly to support appraisal (and development outcomes?) assuming drilling success cases.

The company does have high equity interests which afford financing options through farm-outs – dependent on success outcomes and we have noted previously the capex offset options related to the Wombat and Cape Vogel Basin projects.

Board and management

Lakes Oil has recently restructured its Board of Directors, ostensibly to reduce corporate costs announcing the resignations of Chris Tonkin, Ian Plimer and Kyle Wightman from the Board, with the CEO (Roland Sleeman) assuming the role of Executive Director and Richard Ash as Chairman. The Board will continue to be complemented by Tim O'Brien as Chief Operating Officer (COO).

Richard Ash - Non-Executive Chairman (BComm, CA)

Mr Ash is a Charted Accountant and has a Bachelor of Economics degree with more than 25 years' experience in funds management and finance in Australia and Asia. Prior to forming AAP Capital, Mr Ash was a Managing Director, Head of Asset Finance for Developed Asia and a member of the Australian executive team for Nomura Australia. He has also worked at Westpac, Macquarie Bank and KPMG.

Other current directorships: Rawson Oil & Gas Ltd (ASX: RAW)

Nicholas Mather - Non-Executive Director (BSc (Hons. Geology), MAusIIM)

Mr. Mather has been a Director of the company from February 2012. He has an extensive background in the junior resource sector at all levels for more than 30 years and particularly so in the energy sector as a:

- co-founder and Executive Director of Arrow Energy NL until 2004 (acquired by Royal Dutch Shell Plc and the PetroChina Group, for ~$3.5bn in 2010);
- co-founder and a Non-Executive Director of Bow Energy Ltd (acquired by Arrow Energy NL for $530mn in 2011)

He currently holds board positions at Armour Energy Ltd (AJQ.ASX; Executive Chairman and founder), Managing Director and founder of DGR Global Limited (DGR.ASX), Director (and co-founder) of SolGold Plc (SOLG.LSE [AIM listed]) and; AusTim Mining Ltd (ASX: ANW) and Dark Horse Resources (ASX: DHR)

Member of the Remuneration Committee

Roland Sleeman – CEO/Alternate Director (Qualifications: BEng(Mech), MBA)

Mr Sleeman has over 30 years' experience in oil and gas as well as utilities and infrastructure, serving in various management roles with Eastern Star Gas Limited as Chief Commercial Officer and AGL as General Manager of the Goldfields Gas Pipeline. Mr Sleeman has commercial experience including negotiation of gas sales agreements, commercialisation of new gas and power station opportunities and management of major gas transmission pipeline infrastructure. Mr Sleeman has provided specialist commercial regulatory and project development advice to both the public and private sectors.

Other current directorships: Amour Energy Ltd (ASX: AJQ) and Rawson Oil & Gas Ltd (ASX: RAW)

Exhibit 19: Summary shareholdings - Board and Executives (as at 30-Jun-2019)

		Shareholding		
		Fully Paid Ordinary Shares	Options	Unlisted Performance Rights
Richard Ash	Chairman	51,820,020	Nil	Nil
Nick Mather	NED	108,888,973	Nil	Nil
Roland Sleeman	CEO/ED	186,064,422	Nil	Nil

Source: Company data

We note the retiring directors retain significant shareholdings (and performance rights) in the company as listed:

- Chris Tonkin 85,218,162 shares/3,881,945 Performance Rights
- Ian Plimer 87,468,163 shares/2,256,645 Performance Rights
- Kyle Wightman 100,697,987 shares/5,000,000 Performance Rights

Exhibit 20: Top 20 Shareholders holding >59% of the issued capital (ordinary shares)

	Ordinary shares Number held	% of total shares issued
Dark Horse Resources Limited	10,142,047,344	29.22
Timeview Enterprises Pty Ltd	2,720,821,462	7.84
Armour Energy Ltd	2,125,000,000	6.12
DGR Global Limited	408,065,120	1.18
DGR Global Limited	334,094,250	0.96
Mr Duncan John Hardie	315,595,620	0.91
Mr James Sinton Spence	227,656,080	0.66
Mr Allister Richardson	216,697,895	0.62
Mrs Lynley Hardi	208,521,000	0.60
Mr Peter Ashley Bubendorfer (Pajbubendorfer Family A/C)	199,081,164	0.57
Pacific Atlantic Commerce Pty Ltd (Highfield Super Fund A/C)	180,000,000	0.52
Citicorp Nominees Pty Limited	169,062,845	0.49
HSBC Custody Nominees (Australia) Limited	166,438,053	0.48
Wales Corporation Pty Ltd (John Anthony Nolan S/F)	150,000,000	0.43
Mr Kwok Kim Cho	143,500,000	0.41
Barney Berold	133,153,095	0.38
Mr John McGregor Skinner	124,571,094	0.36
Marew Enterprises Pty Ltd	120,000,000	0.35
Samuel Capital Pty Ltd	106,111,193	0.31
Super Only Pty Ltd (Sypaq Sys Employees S/F)	85,750,000	0.25
	18,276,166,215	52.66

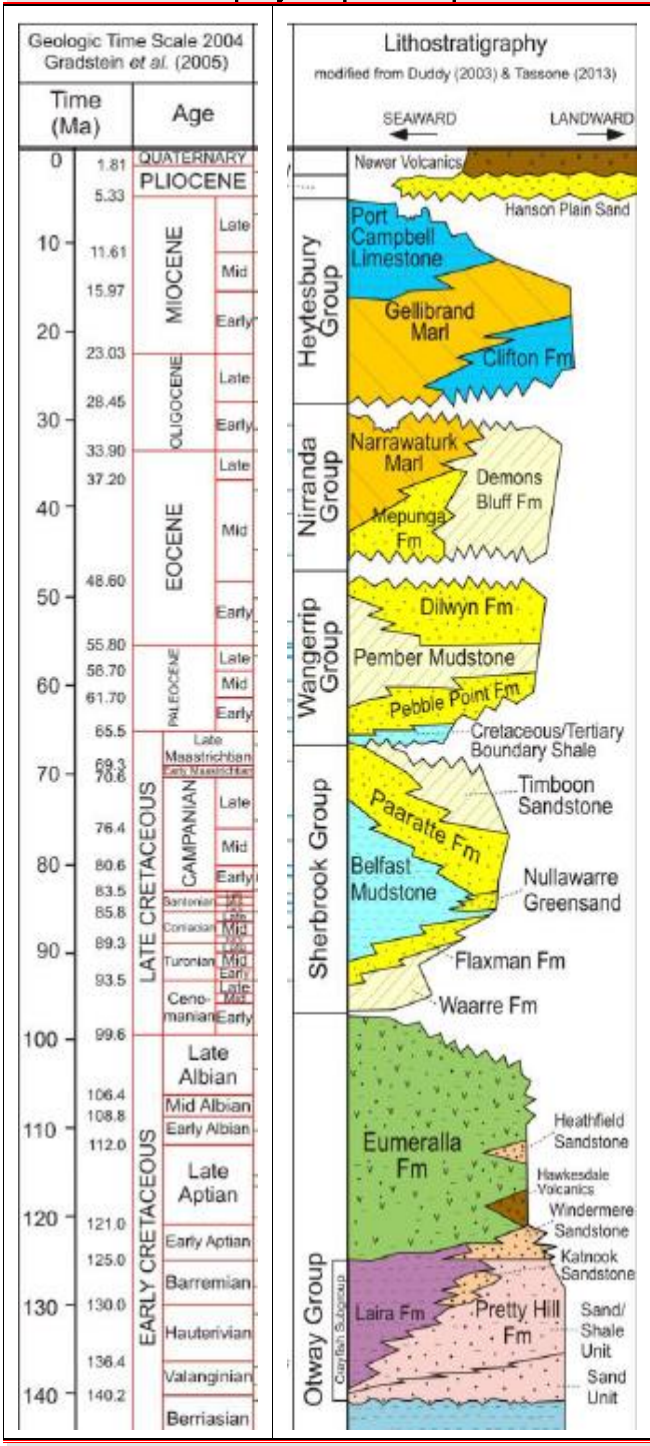
Source: Company data

Research as a Service

Appendix 1 – Otway Basin geological section

The section highlights the zones of significance noting the thickness of the Eumeralla Formation as a 'new' play. It's likely over the acreage area, the Eumeralla could contain multiple zones of interest - a successful well in the Focus Area would underpin a transformational new play.

Exhibit 21: Otway Basin geological section denoting the primary zones and targets of interest for LKO – context for the company's exploration plans over the next 24 months



Warre Formation production from offshore fields where it remains the primary target Also primary target in Victorian onshore portion of the basin.

Eumeralla designated as a strong potential candiate for 'tight' gas accumualtions through onshore Victoria

[PEPs 175 and – 167 'Focus Area']

Pretty Hill Formation (and Sawpit Sandstone) discoveries are characteristic of the onshore SA (Katnook group of fields)

[Primary Targets for the Nangwarry-1 well]

Source: Geoscience Australia

Appendix 2 – Resources' potential

The acreage portfolio consists mostly of early stage exploration opportunities and is dominantly defined by Prospective Resources and in-place estimates, awaiting evaluation through drilling activities.

Note the absolute transformative potential of the plays contained in PEP 175 (Victorian Otway Basin) and in PNG assets – the portfolio does contain 'elephants' but with high associated risks.

Exhibit 22: Contingent and Prospective Resources estimates (Gas estimates in Bcf, Oil estimates in Mb) on a gross (100%) basis

Contingent and Prospective Resources estimates (Gas estimates in Bcf, Oil estimates in Mb)									
Location	**Licence**	**%**	**Prospect**		**Type**	**Low**	**Best**	**High**	**POS**
Gippsland Basin - VIC									
2.	**PRL 2**	**100%**	**Wombat Field**	**Gas**	**C**	**258**	**329**	**628**	**50%**
2.		**57.5%**	**Trifon Field**	**Gas**	**C**	**126**	**390**	**526**	**25%**
2.		**100%**	**Barragwanath**	**Gas**	**U**	**187**	**966**	**4,327**	**10%**
3.	PRL 2	100%	Lakes Entrance Field	Oil	U	0.1	0.6	6	20%
4.	PEP 166	75%		Gas	GIIP	329	1,704	26,258	<5%
Otway Basin – VIC									
	PEP 163	100%		Gas	GIIP				
5.	PEP 167	100%		Gas	GIIP		156		10%
4.	**PEP 169**	**49%**	**Otway-1**	**Gas**	**U**	**25**	**60**	**140**	**25%**
5.	**PEP 175**	**100%**	**Focus Area**	**Gas**	**GIIP**	**30,143**	**40,999**	**78,350**	**15%**
					U	**3,943**	**11,469**	**25,477**	
Otway Basin – SA									
6.	PEP 154	100%	Benara	Gas	U	12	25	54	12.5%
6.			Benara East	Gas	U	6	15	31	10%
6., 7.	**PEP 155**	**50%**	**Nangwarry**	**Gas**	**U**	**11**	**57**	**160**	**21%**
6.			Sth Salamander	Gas	U	7	19	44	25%
Surat Basin – QLD									
5.	ATP 1183	100%	Wellesley	Gas	U		41		20%
5.			Bendee	Oil	U		1		30%
5.			Major East	Gas	U		14		20%
5.			Emu Apple	Oil	U		3.4		20%
Eromanga Basin – QLD									
8.	ATP 642	100%		Gas	GIIP		3		<5%
				Oil	OIIP		0.05		
8.	ATP 662	100%		Gas	GIIP		0.3		<5%
				Oil	OIIP		0.5		
Cape Vogel Basin – PNG									
9.	PPL 560	93%	Buna	Gas	U	1,848	3,316	5,532	<5%
9.			Buna West	Gas	U	105	203	371	<5%
9.			Kumasi North	Gas	U	143	274	489	<5%
9.			Kumasi South	Gas	U	91	193	353	<5%
North New Guinea Basin – PNG									
4.	PPL 391/ APPL 622	93%	Matapau	Oil	U	1	4.4	20	5%

Source: Company data (C=Contingent Resource, U=Prospective Resource; GIIP=gas-initially in place; OIIP= oil initially in place
2. Gaffney, Cline & Associates in accordance with SPE-PRMS guidelines
3. Internal LKO estimate derived from Victorian government study
4. Internal LKO estimate
5. SRK Consulting (Australiasia) Pty Ltd in accordance with SPE-PRMS guidelines
6. Exploration and production consultants (Australia) Pty Ltd (EPL) in accordance with SPE-PRMS guidelines
7. RISC independent evaluation in accordance with SPE-PRMS guidelines
8. AWT International in accordance with SPE-PRMS guidelines
9. Modified from Fekete Associates 2010 report in accordance with SPE-PRMS guidelines

RaaS Research as a Service

Exhibit 23: Financial Summary

LAKES OIL NL		LKO		
YEAR END		June		
NAV	A$mn	$115		
SHARE PRICE	Acps	0.15	currently suspended	17-Dec
MARKET CAP	A$mn	50		
ORDINARY SHARES	M	33,343		
OPTIONS	M	0		

nm = not meaningful
na = not applicable

COMMODITY ASSUMPTIONS		FY18A	FY19A	FY20E	FY21E
Realised oil price	US$/b				
Realised gas price	US$/mcf				
Exchange Rate	A$:US$				

RATIO ANALYSIS		FY18A	FY19A	FY20E	FY21E
Shares Outstanding	M	28,776	33,343	33,481	34,620
EPS (pre sig items)	Acps	(0.07)	(0.10)	(0.09)	(0.10)
EPS (post sig items)	Acps				
PER (pre sig items)	x	na	na	na	na
OCFPS	Acps	(0.08)	(0.07)	(0.07)	(0.06)
CFR	x	na	na	na	na
DPS	Acps				
Dividend Yield	%				
BVPS	Acps		0.5	0.4	0.3
Price/Book	x		30.7x	38.0x	47.0x
ROE	%	-15%	-21%	-23%	-30%
ROA	%	-15%	-16%	-13%	-16%
(Trailing) Debt/Cash	x				
Interest Cover	x				
Gross Profit/share	Acps				
EBITDAX	A$M	(2.0)	(3.3)	(3.1)	(3.3)
EBITDAX Ratio	%				

EARNINGS	A$000s	FY18A	FY19A	FY20E	FY21E
Revenue		12	19	18	6
Cost of sales		0	0	0	0
Gross Profit		**12**	**19**	**18**	**6**
Other revenue					
Other income		8	852	375	300
Exploration written off		0	0	0	0
Finance costs				(854)	(945)
Impairment					
Other expenses		(2,060)	(4,221)	(3,480)	(3,623)
EBIT		(2,052)	(3,369)	(3,105)	(3,323)
Profit before tax		**(2,040)**	**(3,349)**	**(3,087)**	**(3,317)**
Taxes		0	0	0	0
NPAT Reported		**(2,040)**	**(3,349)**	**(3,087)**	**(3,317)**
Underlying Adjustments					
NPAT Underlying					

CASHFLOW	A$000s	FY18A	FY19A	FY20E	FY21E
Operational Cash Flow		**(2,202)**	**(2,268)**	**(2,195)**	**(2,195)**
Net Interest		12	19	18	6
Taxes Paid					
Other					
Net Operating Cashflow		**(2,189)**	**(2,249)**	**(2,177)**	**(2,189)**
Exploration		(216)	(1,484)	(2,500)	0
PP&E		0	0	0	0
Petroleum Assets		0	0	0	0
Net Asset Sales/other		0	(155)	375	300
Net Investing Cashflow		**171**	**1,191**	**(2,125)**	**300**
Dividends Paid					
Net Debt Drawdown		(1,000)	0	0	0
Equity Issues/(Buyback)		3,783	2,241	0	990
Other (Convertible Notes)				5,216	(905)
Net Financing Cashflow		**2,712**	**2,241**	**5,216**	**86**
Net Change in Cash		**693**	**1,182**	**914**	**(1,804)**

BALANCE SHEET	A$000s	FY18A	FY19A	FY20E	FY21E
Cash & Equivalents		1,287	2,469	3,383	1,579
PP&E & Development		988	606	586	566
Exploration		11,195	16,765	18,465	18,465
Total Assets		**14,064**	**20,860**	**23,396**	**21,273**
Debt		0	0	6,030	6,030
Total Liabilities		**859**	**4,575**	**10,179**	**10,234**
Total Net Assets/Equity		**13,205**	**16,285**	**13,217**	**11,039**
Net Cash/(Debt)		1,287	2,469	(2,647)	(4,451)
Gearing dn/(dn+e)				17%	29%

PRODUCTION		FY18A	FY19A	FY20E	FY21E
Crude Oil	kboe				
Nat Gas	mmcf				
TOTAL	**kboe**				
Sales Volumes	**kboe**				
Product Revenue	A$mn				
Cash Costs	A$mn				
Ave Price Realised	A$/boe				
Cash Costs	A$/boe				
Cash Margin					

RESOURCES	Net to LKO		Contingent 2C	Prospective 2U	(G/O)IIP Best
Gippsland Basin - VIC					
Wombat Field	PRL 2	Gas (Bcf)	329		
Trifon Field	PRL 2	Gas (Bcf)	224		
Barragwanath	PRL 2	Gas (Bcf)		966	
Lakes Entrance	PRL 2	Oil (Mb)		0.6	
	PEP 166	Gas (Bcf)			1,704
Otway Basin – VIC					
	PEP 163			Nil Ascribed	
	PEP 167	Gas (Bcf)			156
Otway-1	PEP 169	Gas (Bcf)		60	
Focus Area	PEP 175	Gas (Bcf)		11,469	40,999
Otway Basin – SA					
Benara	PEP 154	Gas (Bcf)		25	
Benara East	PEP 154	Gas (Bcf)		15	
Nangwarry	PEP 155	Gas (Bcf)		29	
Sth Salamander	PEP 155	Gas (Bcf)		10	
Surat Basin – QLD					
Wellesley	ATP 1183	Gas (Bcf)		41	
Bendee	ATP 1183	Oil (Mb)			1.0
Major East	ATP 1183	Gas (Bcf)		14	
Emu Apple	ATP 1183	Oil (Mb)			3.4
Eromanga Basin – QLD					
	ATP 642	Oil (Mb)			0.05
	ATP 662	Oil (Mb)			0.5
Cape Vogel Basin – PNG					
Buna	PPL 560	Gas (Bcf)		3,084	
Buna West	PPL 560	Gas (Bcf)		189	
Kumasi North	PPL 560	Gas (Bcf)		255	
Kumasi South	PPL 560	Gas (Bcf)		179	
North New Guinea Basin – PNG					
Matapau	PPL 391/ APPL 622	Oil (Mb)			4.1

EQUITY VALUATION		Interest	Pr	A$mn	
Wombat/Trifon		Various		58	
Other Gippsland		100%		6	
PEP 169	inc Otway-1	49%		2	
PEP 175	inc 'Focus Area'	100%		11	
Other Otway (VIC)		100%		2	
PEP 155	inc Nangwarry	50%		8	
PEP 154		100%		2	
ATP 1183		100%		14	
Other Queensland		100%		2	
PNG		93%		8	
				114	
Net Cash/(debt)				2	
Corporate costs				(2)	P/NAV
TOTAL				**115**	0.00
				0.3	cps

Source: RaaS Advisory (Priced as of suspension date)

Research as a Service

FINANCIAL SERVICES GUIDE

RaaS Advisory Pty Ltd

ABN 99 614 783 363

Corporate Authorised Representative, number 1248415

of

BR SECURITIES AUSTRALIA PTY LTD

ABN 92 168 734 530

AFSL 456663

Effective Date: 26th November 2018

About Us

BR Securities Australia Pty Ltd (BR) is the holder of Australian Financial Services License ("AFSL") number 456663. RaaS Advisory Pty Ltd (RaaS) is an Authorised Representative (number 1248415) of BR.
This Financial Service Guide (FSG) is designed to assist you in deciding whether to use RaaS's services and includes such things as

- who we are
- our services
- how we transact with you
- how we are paid, and
- complaint processes

Contact Details, BR and RaaS
BR Head Office: Level 14, 344 Queen Street, Brisbane, QLD, 4000
RaaS: 20 Halls Road Arcadia, NSW 2159
P: +61 414 354712
E: finola.burke@raasgroup.com

RaaS is the entity providing the authorised AFSL services to you as a retail or wholesale client.

What Financial Services are we authorised to provide? RaaS is authorised to

- provide general advice to retail and wholesale clients in relation to
  - Securities
- deal on behalf of retail and wholesale clients in relation to
  - Securities

The distribution of this FSG by RaaS is authorized by BR.

Our general advice service

Please note that any advice given by RaaS is general advice, as the information or advice given will not take into account your particular objectives, financial situation or needs. You should, before acting on the advice, consider the appropriateness of the advice, having regard to your objectives, financial situation and needs. If our advice relates to the acquisition, or possible acquisition, of a particular financial product you should read any relevant Prospectus, Product Disclosure Statement or like instrument. As we only provide general advice we will not be providing a Statement of Advice. We will provide you with recommendations on securities

Our dealing service

RaaS can arrange for you to invest in securities issued under a prospectus by firstly sending you the offer document and then assisting you fill out the application form if needed.

How are we paid?

RaaS earns fees for producing research reports. Sometimes these fees are from companies for producing research reports and/or a financial model. When the fee is derived from a company, this is clearly highlighted on the front page of the report and in the disclaimers and disclosures section of the report.
We may also receive a fee for our dealing service, from the company issuing the securities.

Associations and Relationships

BR, RaaS, its directors and related parties have no associations or relationships with any product issuers other than when advising retail clients to invest in managed funds when the managers of these funds may also be clients of BR. RaaS's representatives may from time to time deal in or otherwise have a financial interest in financial products recommended to you but any material ownership will be disclosed to you when relevant advice is provided.

Complaints

If you have a complaint about our service you should contact your representative and tell them about your complaint. The representative will follow BR's internal dispute resolution policy, which includes sending you a copy of the policy when required to. If you aren't satisfied with an outcome, you may contact AFCA, see below.
BR is a member of the Australian Financial Complaints Authority (AFCA). AFCA provide fair and independent financial services complaint resolution that is free to consumers.
Website: www.afca.org.au; Email: info@afca.org.au; Telephone: 1800931678 (free call)
In writing to: Australian Financial Complaints Authority, GPO Box 3, Melbourne, VIC, 3001.

Professional Indemnity Insurance

BR has in place Professional Indemnity Insurance which satisfies the requirements for compensation under s912B of the Corporations Act and that covers our authorized representatives.

DISCLAIMERS and DISCLOSURES

This report has been commissioned by Lakes Oil NL and prepared and issued by RaaS Advisory Pty Ltd. RaaS Advisory has been paid a fee to prepare this report. RaaS Advisory's principals, employees and associates may hold shares in companies that are covered and, if so, this will be clearly stated on the front page of each report. This research is issued in Australia by RaaS Advisory and any access to it should be read in conjunction with the Financial Services Guide on the preceding two pages. All information used in the publication of this report has been compiled from publicly available sources that are believed to be reliable. Opinions contained in this report represent those of the principals of RaaS Advisory at the time of publication. RaaS Advisory provides this financial advice as an honest and reasonable opinion held at a point in time about an investment's risk profile and merit and the information is provided by the RaaS Advisory in good faith. The views of the adviser(s) do not necessarily reflect the views of the AFS Licensee. RaaS Advisory has no obligation to update the opinion unless RaaS Advisory is currently contracted to provide such an updated opinion. RaaS Advisory does not warrant the accuracy of any information it sources from others. All statements as to future matters are not guaranteed to be accurate and any statements as to past performance do not represent future performance.

Assessment of risk can be subjective. Portfolios of equity investments need to be well diversified and the risk appropriate for the investor. Equity investments in listed or unlisted companies yet to achieve a profit or with an equity value less than $50 million should collectively be a small component of a balanced portfolio, with smaller individual investment sizes than otherwise. Investors are responsible for their own investment decisions, unless a contract stipulates otherwise. RaaS Advisory does not stand behind the capital value or performance of any investment. Subject to any terms implied by law and which cannot be excluded, RaaS Advisory shall not be liable for any errors, omissions, defects or misrepresentations in the information (including by reasons of negligence, negligent misstatement or otherwise) or for any loss or damage (whether direct or indirect) suffered by persons who use or rely on the information. If any law prohibits the exclusion of such liability, RaaS Advisory limits its liability to the re-supply of the Information, provided that such limitation is permitted by law and is fair and reasonable.