Research Report
Lakes Blue Energy (ASX:LKO)
Production Scenario at Wombat

LKO Price: $0.001 | Valuation: $0.012 | Implied Return: 1200% | Date: 12/10/21

Background

Lakes Blue Energy (ASX:LKO) is Australia's oldest operating petroleum exploration company. LKO was established in 1946, listed on the ASX in April 1955, but delisted in 1959 after being taken over by Woodside (Lakes Entrance) Oil NL, as the latter company acquired a spread of exploration acreage. LKO was relisted in 1985 and, since then, has spent around $100m exploring within both the onshore Gippsland and Otway Basins, easily surpassing the onshore Victorian exploration efforts of any other entity.

Valuing Wombat

LKO is looking to drill Wombat-5 in the first half 2022 which will determine reservoir quality and commercial flow rate. Since 2012, oil and gas companies have not been able to drill onshore in Victoria due to a state government moratorium. However the moratorium has been lifted. The Wombat-5 well is a conventional, lateral well that will target the upper, permeable section of the Strzelecki Formation. The well will cost around $4.5m and it has previously been independently estimated to produce 10 TJ/d which equates to 10,000GJ per day. Combined with the future potential development of the Trifon-Gangell Gas Field, the company is aiming to produce around 20 PJ per annum for 20 years from Wombat. Independently verified gas in place at Wombat equals 329Bcf (Billion cubic feet) at the 2C confidence level. Wombat-5 will test the reservoir quality which is one of the final risk factors outstanding.

If results at Wombat-5 are positive, we expect a significant re-rate of the LKO share price. Should Wombat-5 prove commercial, we would place a **valuation of $0.012 on LKO** on a pre-tax, unrisked basis, and 100% ownership. It is also possible that LKO bring in a partner to share some of the cost. Each well is expected to cost $4.5m and LKO is looking to produce 20PJ/annum from 20 wells. A gas plant and pipeline is expected to cost $60m. LKO also has other near term earnings potential at Nangwarry-1 in South Australia where 25.9 Bcf of recoverable CO_2 has been discovered (50% net to LKO). An MOU has been signed with Supagas Pty Ltd to develop the well and potentially produce 150t/d of carbon dioxide which could net between $1.2m to $2.6m per annum.

Caveat: This is a supplementary paper to our previous research note on LKO published on 2nd August 2021 where we gave LKO a base case valuation of $0.002. The upside valuation gives us a better picture should Wombat-5 test successfully and only applies if Wombat-5 has successful drilling.

Company Data

Recommendation: N/A
Price (Date 12-10): $0.001
ASX Code: LKO
Shares on Issue: 35.5bn
Market capitalization: $45.6m (fully diluted)
Enterprise Value: $44.7m

Board Structure

Richard Ash: Non-Exec Chairman
Roland Sleeman: Executive Director
Nicholas Mather: Non-Exec Director

Major Shareholders

Dark Horse Resources: 29.72%
Timeview Enterprises Pty Ltd: 8.08%
Armour Energy Ltd: 6.31%
Total Top 20: 54.37%

Wombat valuation

$m where applicable	
Victoria Gas Price (AUD/GJ)	7.5
Well cost, est.	4.5
Capex (Plant, Pipeline)	60
Debt	44
Working capital (well cost)	2.50%
Working capital (plant cost)	8.00%
Discount rate	8%
Tax rate	28%
Tax Loss	84.8
Royalty	10%
Decline	10%
Wombat valuation	$0.012

Wombat Gas Field

The Wombat gas field in the Gippsland Basin was discovered by Lakes Blue in January 2004, when the Wombat-1 well was drilled and a gas column was discovered in the interval 1,388m to 1,990m. The field is characterized as a “tight” gas field with gas contained in multiple stacked sands of very low permeability in the Strzelecki Group. After drilling a flow rate testing on a ½ choke reached a maximum rate of 402 mcf/d. Wombat-2 was drilled 2km southwest of the initial discovery well and drill stem testing (DST) showed gas flow at interval 1,464m – 1,497m with a maximum rate of 450mcf/d. The well was re-entered in 2011 and showed a flow rate of 0.8mmscf/d on a 1” choke.

Subsequently, Wombat-3 was drilled 1km west-south-west of Wombat-1 and about 1km in a north-east direction from Wombat-2. Gas flows at an interval of 1,408m – 1,448m showed a maximum flow of 4mmcf/d. However, the well also showed production of oil which LKO have yet to fully explore. A second proposed development will involve insertion of a pump into the existing Wombat-3 well to test that well’s potential for production of oil.

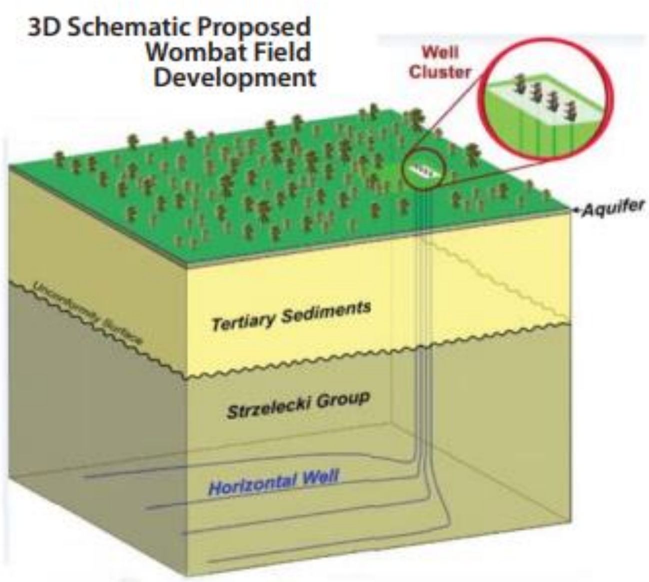
Wombat-4 was drilled in December 2009 to a depth of 2,500m and petrophysical analysis indicates a gas wide column at 2,500m and DST has shown proven gas down to 1,800m. Wombat-4 is more geological challenging then the other wells and LKO initially planned to fracture stimulate however the Victoria Government ban on onshore fracking has delayed those plans indefinitely. Independent assessment of Wombat estimated contingent gas in place at the 2C confident level of 329 BCF.

An updated controlled flow test on Wombat-1 was conducted in 2013 for a total of nine days across a ten day period. LKO aimed to ascertain the production rates achievable across the test interval 1,489m – 1,550m since it was important to determine the current production potential and evaluate future plans for the well. The tests showed that the well produced at a higher rate from the top of the weathered zone than what was shown in previous tests prior to the sealing off of the lower water/condensate producing zone. A minimal amount of water was encountered in the formation fluid which was determined to be the remaining amount of residual water in the wellbore from when the plug was set in 2005 and the water producing zone suspected to be at the bottom of the original test interval has been satisfactorily sealed off.

Overall:

- The total gas produced was 1.697mmscf
- The total condensate produced was 1.32bbls
- The total formation water produced was 32.71bbls
- The average gas flow rate was 0.190mmscf/d
- The average fluid flow rate was 3.807bbls/d

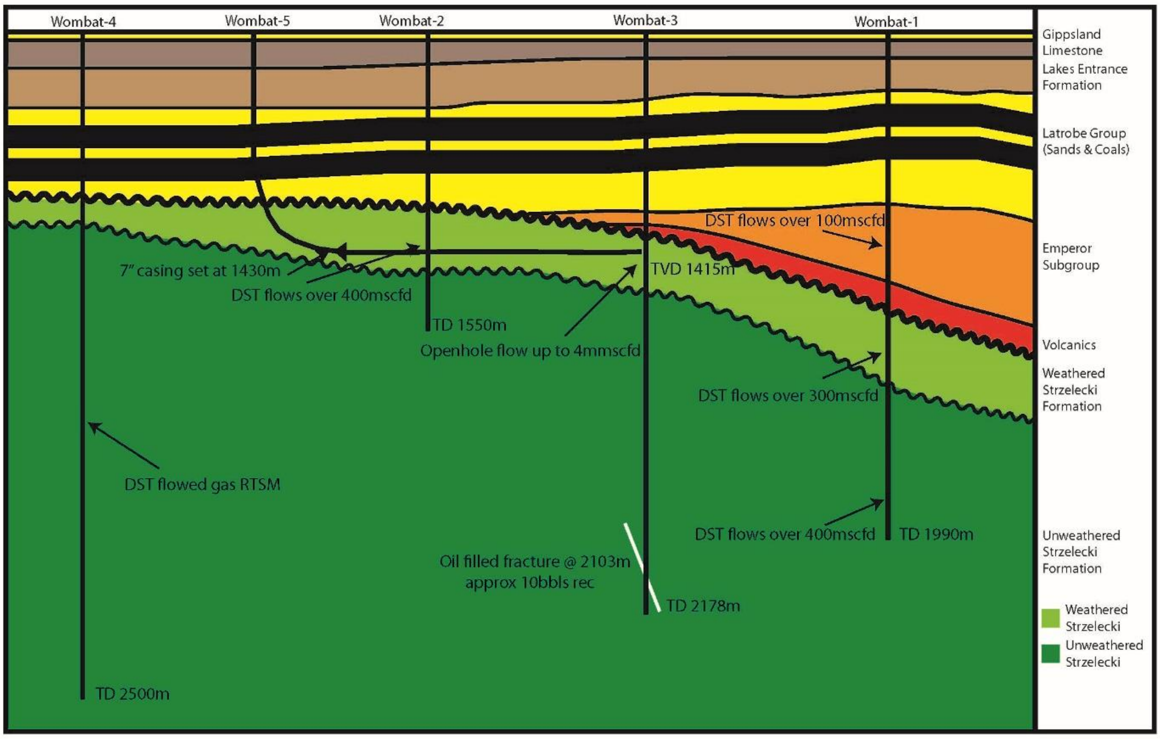
At Wombat-2 a similar test was conducted in 2010 which showed a max recorded flow rate of 2.4mmscfd with an average rate of approx. 830mscfd over a 12 day test from interval 1,469m to 1,476m.



Potential development scenario. Source: LKO

The Wombat gas field is located close to existing pipeline infrastructure and LKO is confident it can be brought online quickly and at a low cost. LKO is aiming to produce around 20 PJ/annum which at current high gas prices could net a cash flow of over $100m per annum.

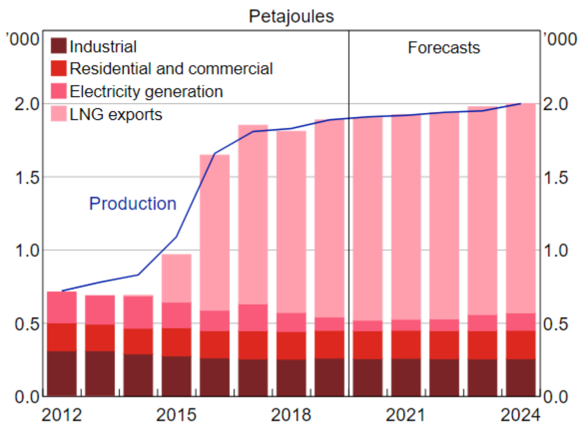
Lakes Oil had planned to drill Wombat-5 as a conventional well in the first quarter of 2014. However, these plans have been stalled until the State Government bans are lifted and all approvals are given. The well will be drilled as a directional, conventional well through the "weathered zone" at the top of the Strzelecki Formation. It will be drilled on the company's own land, off to the northeast towards Wombat-1 to intersect as many known gas sands in the weathered zone as possible, targeting producing zones which have flowed on DST at up to 430,000 cubic feet per day and even higher rates were achieved at Wombat-3. The well is expected to give commercial flow rates without the need to be fracture stimulated. Based upon independent modelling LKO is optimistic that the Wombat-5 well will flow gas a rate of around 10 TJ/d, rendering both the well and the Wombat gas field commercial. Post Wombat-5 drilling, LKO will be in a position to make a decision on commercialization.



Wombat-5 drill scenario. Source: LKO

Gas Market

Since 2015 wholesale gas prices on the east coast have become linked to LNG export prices. Local gas producers have been able to sell into the international markets through Queensland's 3 LNG export terminals. Export demand accounts for about three-quarters of total demand for gas on the east coast.



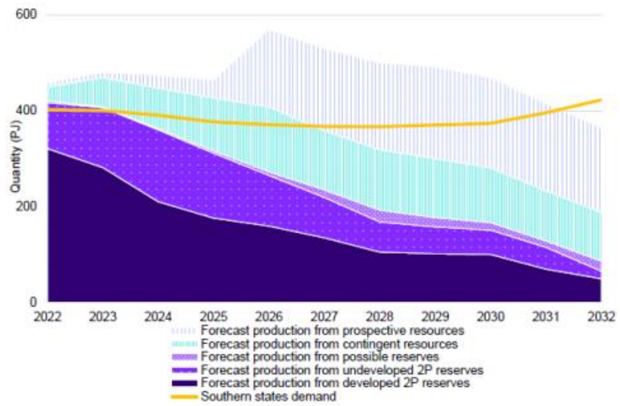
Demand segments moving forward. Source: RBA

The wholesale gas market and gas prices have improved significantly since 2018. The Australian Government is backing a gas-led recovery of the economy, which will include more investments in gas infrastructure, including:

- Two gas storage projects at Golden Beach and Iona in Victoria
- The expansion of the South West Victorian pipeline
- An import terminal project, with the Port Kembla project considered the most advanced.
- A 600MW gas fired power station at Kurri Kurri

East Coast forward LNG prices have firmed after briefly disconnecting from the forward JKM index (Platts Japan Korea Marker LNG Price Assessment) over the winter period, as domestic markets were temporarily over supplied and international markets tightened amid an extreme Northern Hemisphere winter. As previously mentioned, market supply contracts are being linked to oil and JKM indices. The outlook for oil has become increasingly positive and east coast gas prices should reflect this as well. As legacy contracts expired new longer-term contract prices also increased strongly. Domestic gas contracts can range from 1–10 years in length, with terms at the shorter end of this range becoming more prevalent recently as prices have risen. Increased gas from coal-seam gas (CSG), which has a higher cost of production, and restrictions in NSW, Victoria and Tasmania which has resulted in supply issues have also influenced higher gas prices. A recent ACCC report predicted LNG netback prices, which is the price an exporter can expect to receive subtracting the costs incurred for converting the gas to LNG and shipping costs, to appreciate till end of next year before tapering off.

The ACCC predicts a shortage of gas from mid-2023. Contingent and prospective resources being developed would require far more funding being channeled to the industry, especially to small and mid-tier companies who are mainly dependent on external funding to develop assets. Given the potential supply shortage their gas price prediction may prove to be conservative.



Demand/Supply curve. Source: ACCC

LODGE PARTNERS

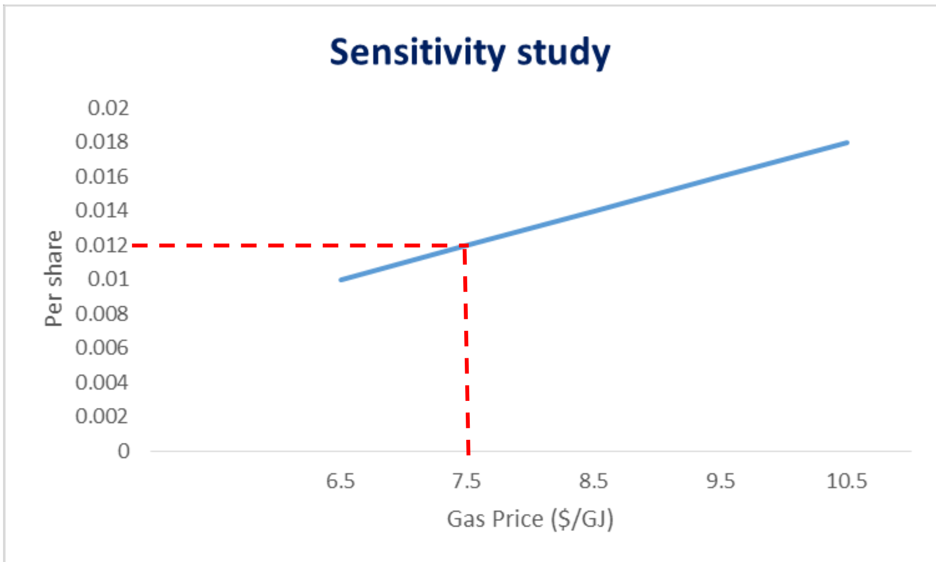
Valuation scenario at Wombat

			Wombat																
Financial Year	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**
Mine Rate (PJ/annum)					11.0	20.1	20.1	20.1	20.1	20.1	18.1	16.3	14.6	13.2	11.9	10.7	9.6	8.6	7.8
Mine Rate (TJ/day)					30	55	55	55	55	55	50	45	40	36	32	29	26	24	21
Mine Rate (GJ/day)					30000	55000	55000	55000	55000	55000	49500	44550	40095	36086	32477	29229	26306	23676	21308
Revenue ($/day)					225000	412500	412500	412500	412500	412500	371250	334125	300713	270641	243577	219219	197297	177568	159811
Revenue ($m/annum)					82.1	150.6	150.6	150.6	150.6	150.6	135.5	122.0	109.8	98.8	88.9	80.0	72.0	64.8	58.3
Opex $m (well cost)					0.11	0.45	0.68	0.68	1.01	1.01	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Opex $m (plant cost)					4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
Admin, etc					2	2.2	2.42	2.662	2.93	3.22	3.32	3.42	3.52	3.63	3.73	3.85	3.96	4.08	4.20
EBITDA, $m					75	143	143	142	142	142	126	112	100	89	79	70	62	55	48
D&A, $m					3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
EBIT, $m					72	140	140	139	139	139	123	109	97	86	76	67	59	52	45
Royalty					7.2	14.0	14.0	13.9	13.9	13.9	12.3	10.9	9.7	8.6	7.6	6.7	5.9	5.2	4.5
NPAT, $m					65.0	126.1	125.7	125.5	124.9	124.7	110.7	98.4	87.4	77.4	68.4	60.3	53.0	46.4	40.5
Additional wells, $m					13.5	9.0		13.5		13.5									
Capex & sustaining capex, $m			64.5		13.5	9.0		13.5		13.5									
Overriding Royalty, $m					7.2														
Finance Cost, $m					4.4	3.96	3.56	3.21	2.89	2.60	2.34	2.10	1.89	1.70	1.53	1.38	1.24	1.12	10.01
Cashflow, $m			-64.5		29.37	107.14	125.14	98.28	125.05	98.08	111.40	99.35	88.49	78.70	69.89	61.94	54.77	48.31	33.47

NPV ($M)	$624
IRR	107%
Shares on issue (diluted, millions)	44893
$/share (pre-capex)	$0.01
Cash raised toward capex ($AUm)	64.5
Shares post capex (millions)	51343
NPV minus year 0 debt	573
Value/Share Wombat	$0.012

Once commercialised, LKO is looking to produce from the top layer of the field which has an estimated 255 BCF of gas and at its peak is expected to produce 20 PJ/annum from 20 wells. At $7.5/GJ, we expect peakcash flows of $125m per annum supplying 10% of all Victorian gas demand. LKO has committed to sell gas into the local market and thus we have not taken into account pipelines tariffs, however LKO can enter into swaps to free up northern gas for export rather than send it into southern states.

Well costs are estimated at $4.5m per well and we expecteda gas plant and pipeline to cost around $60m. We have modelled a debt/equty ratio of 80/20 to fund the project and have not taken into account potential partering. Our pre-tax, unrisked valuation with Wombat producing at a discount rate of 8% is $0.012/share. We are comfortable with the petrophysical modelling at Wombat with the main risk remaining being reservoir quality quantity of gas. Proposed drilling at Wombat-5 will test reservoir quality and determine if flow rate can match proposed production scenario. We have used a gas price of $7.5/GJ. Our valuation varies +/- $0.002 for every $1/GJ movement in the gas price.



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