Q&A Style Fact Sheet

Onshore Conventional Gas in Victoria: Issues and Opportunities

1. *The Victorian Minister for Resources has repeatedly stated that "there are no proved or probable gas reserves onshore in Victoria". This statement seems to conflict with Lakes Oil's position. What is going on?*

In accordance with ASX Listing Rules, Australian oil and gas companies comply strictly with the Petroleum Resource Management System ('PRMS'), which set out specific requirements for classification of petroleum reserves and resources.

Lakes Oil has demonstrated beyond doubt that producible resources of gas exist but, having not been able to carry out any exploration activity since 2012, has not yet achieved a commercial flow rate of gas from an onshore well. This means that Lakes Oil's gas discoveries are presently classified as 'resources' rather than 'reserves'.

The Minister for Resources is playing with semantics. While it is technically true that there are no 'reserves' of gas onshore in Victoria, this does not mean there is no producible gas onshore in Victoria.

The gas flows historically achieved by Lakes Oil from the company's Wombat gas wells substantiate Lakes Oil's assertion that there are abundant reserves of conventional, producible gas onshore in Victoria. The Geological Survey of Victoria supports the view that there are abundant resources of gas onshore in Victoria. The Victorian Government has chosen to ignore all of this.

2. *Why does Lakes Oil believe it can achieve commercial flows of gas?*

Lakes Oil has carried out extensive exploration activity across onshore Victoria with particular focus on the Company's Wombat gas field in Gippsland. Based upon knowledge gained from wells drilled in that field, in 2012 the Company proposed and received Victorian Department of Economic Development, Jobs, Transport and Resources signoff for, drilling of the conventional Wombat-5 gas well, using modern lateral drilling techniques. However, drilling of the Wombat-5 well has been stopped by Victorian Government exploration bans.

Independent expert advice is that the Wombat-5 well should flow gas at a rate of around 10 TJ/d, making it comfortably commercial, and that the Wombat and adjoining Trifon-Gangel gas fields could support production of 20 PJ/a of gas for at least 20 years.

3. *How quickly could Lakes Oil get gas into the Victorian market?*

Lakes Oil has two immediate prospects for quick production of commercial quantities of gas.

The first is the Wombat gas field, information on which is attached. Since the field is onshore in close proximity to existing gas pipelines, it can be brought on line quickly (within around 18 months) and at relatively low cost. The Wombat gas field, together with the adjoining Trifon-Gangel gas field, should be capable of steady gas production of 20 PJ/a (equivalent to 10% of Victorian gas demand).

The second is the Otway-1 gas well, about 400 metres from the Iona gas plant and therefore capable of very quick development. Details of this opportunity are also attached.

These projects are not all that Lakes Oil could produce. The company's tenements offer the opportunity to solve Victoria's gas supply problems. This has been repeatedly pointed out to, but ignored by, the Victorian Government and its Departments.

Lakes Oil is ready to drill both the Wombat-5 and the Otway-1 wells as soon as Ministerial approval is granted. Approval for drilling of the wells was first sought in 2012, at which time all regulatory and access requirements were fully satisfied (as advised in writing by the Victorian Department of Economic Development, Jobs, Transport and Resources).

4. How does the cost of onshore gas compare with the cost of gas from other sources?

The following table provides a comparison of the estimated costs of developing the Wombat gas field with the recently announced costs of developing the offshore Sole gas field.

The capital cost of developing onshore gas production is up to an order of magnitude lower than (that is, approximately one-tenth of) the cost of offshore production. This reflects both the very high costs of offshore and sub-sea infrastructure, and the cost of gas processing. Ongoing operations and maintenance costs will exhibit a similar relativity.

Gas from onshore resources targeted by Lakes Oil meets Australian quality standards. Minimal processing of the gas is required. In contrast, gas from offshore Bass Strait sources requires increasing levels of processing. For example, the ExxonMobil-BHP venture has recently delayed development of the Southeast Remora discovery, as it contains too much carbon dioxide to be processed at Longford.

There is no doubt that harnessing Victoria's considerable onshore gas resource would deliver significant economic benefits for the state, its industry and its people.

Project	Wombat	Sole
Location	onshore	offshore
Start-up	2019 is possible	2019
Gas quality	meets standard	high CO_2
Production potential	20 PJ/a steady	25 PJ/a declining
Development capex	$50m to $100m	$605m
Capex per GJ/a of capacity	$2.50 to $5.00	$24.20

Source: Wombat – internal estimates based upon consultant engineering advice
Sole – media releases of Cooper Energy Limited

5. How does the State benefit financially?

Unlike gas that is produced from offshore or interstate fields, a royalty will be payable to the State of Victoria for gas produced from onshore fields. Victoria derives no royalty from gas produced from ExxonMobil-BHP's Bass Strait gas production.

The royalty payable by Lakes Oil will be 10% of the wellhead value of the gas. The following table sets out conservative estimates of the royalty payments that could accrue to Victoria through production of conventional gas from Lakes Oil's tenements.

Scenario	Low Case	Central Case	High Case
Confidence Level	90%	50%	10%
Recoverable Gas	1,134 PJ	2,873 PJ	6,056 PJ
Wellhead Gas Price	$7.00/GJ	$6.00/GJ	$5.00/GJ
Royalty per annum	$31.8m	$69.0m	$121.1m
Total Royalty (25 years)	$0.8B	$1.7B	$3.0B

The income that the Victorian Government could earn from royalties payable for production of gas from conventional, onshore resources is enormous, and should be utilised for the benefit of the State and its communities.

6. What benefits flow to communities from production of onshore gas?

Quite apart from royalties that would be paid to the State under Lakes Oil's gas production programme, onshore gas production activities generate significant income opportunities for communities, including but not limited to:

- all landowners upon whose land gas wells are drilled will be compensated for any inconvenience or loss of revenue. This compensation is a drought-proof complement to landholders' other income;

  Lakes Oil has excellent relationships with, and has received strong support from, landowners upon whose properties the company has operated or is still operating;

- when drilling and, subsequently, gas production activities take place Lakes Oil has used, and will continue to use, local content to the maximum extent possible. Local services range from accommodation, through labour hire to engineering and maintenance support.

Importantly though, **Lakes Oil is publicly committed to the concept of sharing, with the landholders and communities within which it operates, a portion of revenue that is generated from sales of gas**. Lakes Oil is prepared to make a firm commitment to revenue sharing if the Victorian Government allows exploration activity to proceed.

Lakes Oil is aware of emerging suggestions that up to 10% of royalties received by the state should be paid to landowners upon whose land gas production activities are carried out. While Lakes Oil is strongly supportive of such suggestions it is important to emphasise that the commitment offered by Lakes Oil is in addition to royalties paid to Government and is not dependent upon whatever action Government ultimately takes in respect of its royalty income.

7. How big are the gas resources that Lakes Oil has?

The independently estimated conventional prospectivity of Lakes Oil's acreage is set out in the following table.

Project	Estimated Gas Resource (50% probability)	Annual Production Potential
PRL 2: Wombat	250 PJ conventional out of 329 PJ, contingent	20 PJ
PRL 2: Trifon/Gangel	225 PJ conventional out of 390 PJ, contingent	
PEP 175 Focus Area: 'Portland Energy Project'	3,000 PJ conventional out of 11,400 PJ, prospective	150 PJ
PEP 169: Otway-1 well	-	3-5 PJ

Source: The estimated conventional gas potential is derived from independent estimates of the total potential of the respective projects.

By way of comparison, Victoria's annual gas demand is around 200 PJ. Lakes Oil's prospective projects have the potential to not only solve Victoria's acute gas supply shortfall, but to act as a catalyst for development of new manufacturing and processing industries.

8. Why do people keep on talking about 'coal seam gas'?

There is disturbing confusion between coal seam gas and conventional gas. This confusion has been cultivated by parties opposed to any gas production activity. The facts are:

- Coal seam gas is gas (predominantly methane) that is adsorbed within the internal pore spaces of coal, and held there by the hydrostatic pressure of water that is also in the coal. To produce the gas, the water must first be drained from the coal. This is fundamentally different to conventional gas (again predominantly methane), that is trapped under pressure within porous reservoir rocks that are well below groundwater resources that are used by communities. Conventional gas production does not interfere with groundwater resources.

- Coal seam gas can often be commercially produced from high-rank (or black) coals. It is however highly unlikely that gas could be produced commercially from low-rank, brown coal. All Victorian coal today is brown coal. The probability that gas might be commercially produced from Victorian coal is negligible.

- Coal seam gas production requires drilling many wells, to drain water and then gas from the coal. Conventional gas production requires only a small number of wells, and little or no water is produced.

- The deeper nature of the conventional gas reservoirs (relative to coal seam gas) can allow multiple wells to be drilled from one surface location, further reducing the environmental footprint of a conventional gas development.

- Anti-gas lobbyists knowingly and purposely seek to use the coal seam gas industry as being representative of all gas production endeavours. Consequently, many people, unfortunately including some media commentators, think that coal seam gas is representative of conventional gas exploration and production, such as that pursued by Lakes Oil onshore in Victoria. It is not.

Conventional drilling activities are demonstrably safe, whether onshore or offshore, and have been carried out around the world, around Australia and within Victoria for scores of years. It is an absurdity that the Victorian Government is refusing to allow onshore conventional exploration whilst still allowing identical drilling activity: for expansion of the Iona storage facility; from onshore to offshore locations; and for investigation of underground carbon dioxide sequestration.

9. Why has the Victorian Government banned conventional exploration activity?

The Victorian Government has given no acceptable rationale, scientific or otherwise, for its banning of conventional onshore gas exploration and development in Victoria, despite it having been accepted and safely carried out around the world and across Victoria for decades.

Neither the Minister for Resources nor the Premier has to date been willing to meet Lakes Oil to discuss the devastating impact of the gas exploration bans have had on the Company, on the state's gas-dependent industry and on the living-costs of Victorian people.

The consequent, self-made energy crisis now enveloping South-Eastern Australia is threatening the economics of Victorian industry and having an adverse impact upon household costs.

10. What about the environment and protection of 'clean green farming'?

The Victorian Government has made the claim that its onshore exploration ban protects 'clean green farming'. This is a nonsense, pandering to vocal activist groups.

The facts are:

- Gas exploration / production activities and farming activities have coexisted without incident for decades. By way of comparison New Zealand, home to some of the world's most pristine environments, is actively encouraging companies (including Lakes Oil) to undertake exploration in the country.

- Farmers actually benefit from gas exploration and production activities. Not only are they fully compensated for any inconvenience or loss of productivity but Lakes Oil has committed to paying a percentage of income from gas sales to landowners and communities. The onshore ban means this income stream is not available to landowners and communities.

The establishment of a gas industry in the Darling Downs region of Queensland has reduced the level of poverty within the region and increased the value of grazing land.

- Farmers are being severely disadvantaged by rising energy costs. Examples abound – wool scouring, food and milk processing, fertilizer costs. As farmers' input and downstream costs rise, but they still have to compete internationally, their net income falls. The Victorian Government is not protecting farmers. It is abandoning them.

- Gas is the ideal fuel for dispatchable, flexible generation of electricity to back up unreliable supplies of electricity from solar and wind sources.

11. Why did the Victorian Government amend the State's Petroleum Legislation?

Although the Victorian Government introduced petroleum exploration bans as early as 2012, it did so without legislative power. Lakes Oil tolerated the Government's action in clear anticipation that it was, as represented by Government, only temporary. No international or Australian studies have found any issue with conventional (or unconventional) exploration or production activities.

Indeed, the Gas Market Taskforce, established by the Victorian Government and chaired by Peter Reith, specifically recommended in October 2013 that the Victorian Government should "proactively support the development of the onshore industry in Victoria to create a safe and efficient onshore gas industry…".

The Victorian Government chose to ignore the Gas Market Taskforce report, and all other reputable studies, when in August 2016 it announced it would extend the ban on all onshore exploration. Since Government did this without legislative power, Lakes Oil initiated legal action to protect its interests, its shareholders' interests and the interests of all Victorians.

Recognising it did not have legislative power to ban onshore exploration, the Victorian Government hurriedly passed legislation to amend the *Petroleum Act 1998.* The effects of the amendments were to:

- permanently ban hydraulic stimulation of petroleum reservoirs;

- give Government the power to refuse to allow onshore exploration during a moratorium period that runs until mid-2020; and

- retrospectively provide that Government is not liable for any damages as a result of its refusal to allow exploration permit holders to carry out exploration activity.

There are two important things to be noted regarding the legislative changes introduced by the Andrews Labor Government:

First, it is draconian for any Australian state Government to introduce retrospective legislation. It is a sign of arrogance that it has taken such measures with no regard for the damage it has caused, particularly to Lakes Oil as the state's preeminent onshore explorer. An Australian Government that has acted illegally and caused material damage should abide by its own laws, not enact legislation to avoid liability.

Second, although the legislative changes allowed exploration operations to be refused during the Moratorium period, Government clearly and specifically provided that existing commitments are not subject to the moratorium. All of the work that Lakes Oil seeks to carry out is in fulfillment of commitments. Given the intent of the legislation it is unclear why Government continues to refuse to allow Lakes Oil to undertake exploration activity that it is obliged to carry out under the terms of the company's exploration tenements. In this regard, since enactment of the amendments to the *Petroleum Act 1998*, the Minister for Resources, through the Victorian Department of Economic Development, Jobs, Transport and Resources, has sought to unilaterally, and without good intent, change the terms of Lakes Oil's exploration tenements.

12. Why does Lakes Oil believe it can undertake exploration activity?

Modifications made by the Victorian Government to the *Petroleum Act 1998* in March this year specifically provided that Companies' existing obligations and commitments under their granted petroleum exploration tenements are not subject to the moratorium on exploration activity. This is clearly set out in section 17(A)2 of the Act.

The Victorian Government is now attempting to ignore its own legislation.

13. How has the Government's ban impacted upon the state and upon Lakes Oil?

The Victorian Government's ban upon conventional gas exploration has been instrumental in creating the gas supply crisis that is presently threatening not only Victoria but also the whole southeastern corner of Australia. The Australian Energy Market Operator has made the extent of this threat patently clear in its reports.

One often overlooked consequence of the declining availability of gas is the need that has arisen for significant capital expenditure to upgrade Victoria's gas network so that peaks of gas demand can continue to be met. Just two specific examples of this are:

- Lochard Energy's expansion of capacity to inject and withdraw gas from the Iona gas storage facility. Lochard Energy has stated that this is being achieved through workover of existing wells and addition of one or two new wells.

- APA Group's expansion of the capacity of its South West Pipeline so that gas can be transferred to and from Iona. The cost of this project is reported to be around $150m.

All of these system expansion costs will ultimately be funded by Victorian gas users, adding to the burden of wholesale gas price rises that are resulting from tight gas supply circumstances.

Had the exploration ban not been in place, Lakes Oil could have carried out drilling activities up to five years ago. The new sources of onshore gas supply that Lakes Oil could have been able to bring on line would have been sufficient to completely solve the Victorian gas crisis.

Lakes Oil is Australia's oldest publicly listed onshore petroleum exploration company, with over 11,000 shareholders, the majority of whom are Victorian. With the company's focus being onshore Victoria, the onshore exploration ban has literally brought the company to its knees. Costs have continued to be incurred but the company's ability to

raise funds has been compromised. The company's survival has been dependent upon shareholder support, particularly that of companies associated with DGR Global Limited.

Costs that have continued to be incurred include payment to Government of fees for exploration licences and for extensions of time to fulfill obligations that, but for the exploration ban, would have been fulfilled.

14. Won't the gas crisis be resolved by restricting exports of LNG from Queensland?

While the consequences of the gas crisis (rising prices and probable industry shut downs) are particularly disturbing, Lakes Oil considers it would be imprudent in the extreme to restrict gas exports in order to save a state Government that has created the problem it now faces.

For a country with an economy based around export of mineral, energy and agricultural resources, a restriction upon export of LNG leading, potentially, to contract defaults would be disastrous for Australia's trade reputation.

Victoria has the ability to solve its gas supply problems and should not be presented with an easy way out that simply turns Victoria's mistakes into a problem for the entire eastern seaboard. That the Victorian Government is seeking this outcome shows contempt for the rest of Australia.

15. What is the purpose of the litigation proceedings that are underway?

Although the *Petroleum Act 1998* specifically provides that companies' existing exploration obligations and commitments are not subject to the moratorium on exploration activity, the Minister for Energy is seeking to prevent these existing commitments and obligations from being fulfilled. The Minister has neither the right nor the power to do this.

Lakes Oil is taking legal action to enforce the Minister for Energy to properly apply the *Petroleum Act 1998.* This action is to protect the Company's rights and, in turn, the interests not only of the Company's 11,000 shareholders but also of the Victorian and more generally the Australian population.

While it is anticipated the legal proceedings will be successful, Lakes Oil may be willing to discuss a basis for settlement if the Victorian Government looks after the interests of Victorian people and industry by allowing exploration activity to proceed.

Information Regarding Units for Measurement of Gas Quantities

The following table provides a comparison of metric and imperial measures of gas quantities and flow rates. Metric measures are based the energy content / flow rate of gas while imperial measures are based upon volumes of gas at specified (standard) pressure and temperature condition. Despite this difference, the measures set out in the following table are roughly equivalent for typical natural gases, and have been treated as such for the purpose of this document. Strictly, the relativity between the respective measures is dependent upon the energy content of the gas in question.

Equivalent Measures	
Quantity	
Metric	Imperial
Gigajoule, GJ	Thousand cubic feet, Mcf
Terajoule, TJ	Million cubic feet, MMcf
Petajoule, PJ	Billion cubic feet, Bcf
Exajoule, EJ	Trillion cubic feet, Tcf
Flow Rate	
As above, per unit of time. For example:	
Terajoules per day, TJ/d	Million cubic feet per day, MMcfd

By way of further explanation:

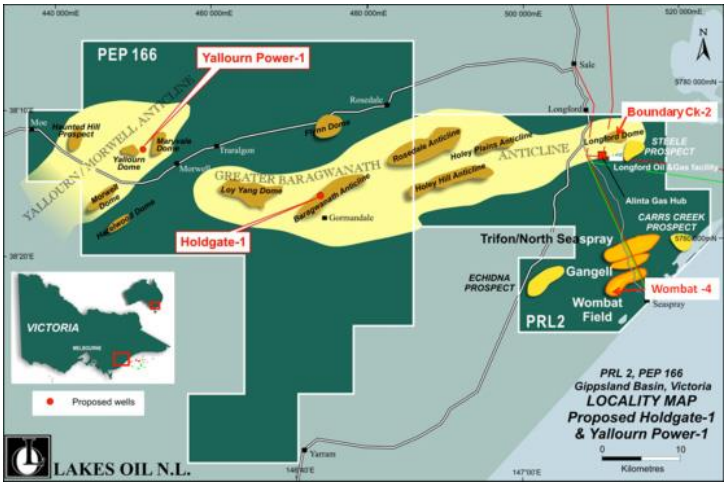
- One Gigajoule of gas is approximately equivalent to the energy contained within 30 litres of petrol.

- One Terajoule of gas is approximately equivalent to 30,000 litres of petrol.

- An average Victorian household, with space-heating, uses around 50 GJ of gas per year.

Attachment 1
Lakes Oil NL
Wombat Gasfield

Background



The Wombat Gasfield is located within PRL 2, onshore in Gippsland area. It is Lakes Oil's most progressed development, with four wells completed prior to introduction of the onshore exploration moratorium.

The Wombat project targets the massive Strzelecki Formation, the upper section of which is weathered and can produce gas conventionally.

Lakes has achieved gas flows of 3 TJ/d from the Wombat-3 well, prior to subsurface mechanical failure of the well-reservoir interface. Oil has also been produced.

Lakes proposes to drill the Wombat-5 well as soon as approval can be secured. Wombat-5 is to be a conventional, directionally drilled well (similar to the onshore well recently drilled by Origin Energy) with an expected cost of around $4m. This conventional method of drilling is different to previous exploratory attempts at Wombat, and Lakes is confident that significant gas flow rates will be achieved.

Potential

The resource potential of the Wombat Gasfield has been independently assessed by Gafney Cline and Associates (**GCA**), a global consulting group. GCA estimates the Wombat gasfield contains a contingent recoverable gas resource of 329 PJ at the 50% probability level, of which around 250 PJ is recoverable by conventional means. The Trifon and Gangell Gasfields (north of Wombat) have further, conventional potential of around 280 PJ (based upon GCA estimate).

GCA's modelling of the Wombat-5 well indicates the well may produce around 10 TJ/d. Prior to the Victorian exploration ban, Lakes had provisional gas supply agreements in place with Simplot and Dow Chemicals for Wombat gas.

Timing

Planning (including signoff of the Victorian Department of Economic Development, Jobs, Transport and Resources) for the Wombat-5 well was completed prior to introduction of the onshore gas exploration moratorium. The well can be drilled at short notice.

Once the production potential of the Strzelecki Formation is confirmed, gas processing and compression facilities would need to be installed to deliver gas to market (via the Tasmanian Gas Pipeline, which runs to the east of the Wombat field). Infrastructure establishment would take around 18 months, at a cost of around $50m.

Attachment 2
Lakes Oil NL
Otway Gasfield

Background

The Otway Gasfield is located within PEP169, onshore in the Otway Basin near Port Campbell.

Lakes was ready to drill the Otway-1 well in 2013, before the Victorian onshore exploration moratorium was introduced.

The Otway-1 well will target conventional gas production from both the Waarre Sandstone (from which gas has historically been produced) and the underlying, but to date less-explored, Eumeralla Formation.

Potential

The Waarre Sandstone is very productive, with gas flow rates up to 50 TJ/d having previously been achieved at other nearby locations.

The Eumeralla Formation typically contains gas and has previously, at the Skull Creek-1 well location (nearby to Otway-1), flowed gas at a rate of 9 TJ/d.

Drilling of the Otway-1 well can be expedited. Since the well is just 400 metres north of the existing Iona Gasfield (Victoria's largest onshore Gasfield to date, now used for storage of gas), production of gas from the well can be quickly and easily brought on line.

Timing

Planning for the Otway-1 well (including signoff of the Victorian Department of Economic Development, Jobs, Transport and Resources) was largely completed prior to introduction of the Victorian onshore exploration ban. The Otway-1 well can be drilled at short notice.

Attachment 3
Lakes Oil NL
Portland Energy Project

Background

Lakes Oil's western Victorian acreage, PEP's 167 and 175, has potential to be a major source of energy for the State.

14 wells have been drilled in the region, some dating back to the 1960's. Although all of these wells intersected the Eumeralla Formation, the significant potential of that Formation was not historically recognised since exploration effort was, at that time, focused on oil.

Potential

LKO has identified a 'Focus Area' in the southwestern corner of PEP175 where there is potential for production of gas by conventional means.

An indication of the significant potential of the Focus Area can be gleaned from work undertaken by SRK Consulting on behalf of Lakes Oil. In May 2015 SRK used available information (essentially historic well logs and seismic data) to estimate the recoverable resources of gas within the Focus Area. SRK concluded (at a 50% confidence level) there may be 8.3 Tcf of gas recoverable from the Eumeralla Formation and 3.2 Tcf recoverable from deeper Formations. This is equivalent to the entire recoverable gas resource of the Bass Strait!

Timing

Through review of historic data, Lakes Oil has selected locations for two 'proof-of-concept' wells, namely, Greenslopes-2 and Portland Energy-1. The proof-of-concept wells will be of conventional design, drilled to a depth of around 1,500 metres.