Real Energy Corporation Ltd (RLE)

Small company delivering gas resources. Commercial phase to drive equity value

February 2020

Oil & Gas Team
Stephen Bartrop, Research Manager

www.breakawayresearch.com

Recommendation: ***BUY***

Company Information

ASX Code	RLE
Share Price (EOT 30/1/20)	$0.029
Ord Shares	353.2
Opts-RLEOB (14c,30/9/20)	$ 0.003
Market Cap (fully diluted)	**A$10.4M**
Cash (30/9/2019)	A$2.1m
Debt	A$0.0m
Enterprise Value	**A$8.3M**

Directors

Chairman	Lan Nguyen
Managing Director	Scott Brown
Director (Non-Exec)	John Wardman
Director (Non-exec)	Peter Mangano

Significant Shareholders

Managing Director	8.80%
Chairman	5.87%
Sino Portfolio International	5.00%

Source: Company

Company Details

Address	Level 3, 32 Walker St, North Sydney NSW
Phone	+61 02 9955 4008
Web	www.realenergy.com.au

Price Chart to January 2020

Source: ASX

Key Points

- ***RLE has advanced its east coast gas strategy with upgraded resource bookings in the Cooper Basin "Windorah Trough" and award of prospective CSG acreage in Qld aka "Project Venus". The resource potential is very large and offers huge leverage given RLE's small market capitalization but ongoing appraisal and development activity is capital constrained. Processes are underway to resolve this and provide funds and to take RLE to a production phase.***
- ***RLE has achieved much in the Windorah Trough:***
  - ***Four wells drilled all encountered gas reservoir and three flowed gas to surface however flow rates over an extended period, from wells T2 &T3 were lower than hoped. Work continues to identify better extraction techniques.***
  - ***Resources have been independently re-assessed after the test results and revised upwards to 330 PJ (2C) from 276 Bcf (2C) and 770 PJ (3C).***
  - ***Regulatory approval has been received for pipeline construction to tie production into the Mt Howitt facility 14 Km south and RLE intend to connect the existing wells.***
  - ***MoU from gas customer for initial supply of 5 PJ of gas over 3 years. This could provide initial small cash flows and provide geological data to inform future development.***
- ***Project Venus is a large gas resource in a great location.***
  - ***Prospective for coal seam gas from the regionally prolific "Walloon" CSG fairway.***
  - ***Awarded in October 2019 by the Qld Government in a 50/50 JV with Strata-X (ASX: SXA)***
  - ***Best estimate of resource gas volume 347 PJ (Net).***
- ***The gas shortage in eastern Australia continues and prices are high despite efforts by the E&P industry to introduce new supply because this all takes time and capital. RLE is key player.***
- ***RLE's valuation impounds uncertainty related to results of a farm-out in return for capital for future development or alternative sources of funds. Even so it's not hard to generate high valuations and RLE is the smallest of peers many of whom face similar challenges.***

RLE has not delivered a "knock-out" at Windorah but the capital invested and knowledge gained advances the project. Qld is a low cost, high -upside option and Cooper Basin oil acreage is a sleeper. Our valuation is 19c with considerable upside if RLE can move to a development phase. Our rating is a speculative buy.

Substantial upside if gas resources can be commercialised

RLE has increased its position in the east coast gas market with the award of highly prospective coal seam gas acreage, in Queensland's Surat Basin "Walloon" fairway, and is called "Project Venus". This report details this latest asset and updates progress at other locations, particularly the "Windorah Trough" gas project. Both projects provide substantial upside from RLE's very low market value, if the resources can be commercialised.

Project Venus could be grow significantly in value as the JV works through an appraisal phase, but RLE face capital constraints. Access to capital will be an important determinant of RLE's ability to move to a production phase and capture the very large upside the resource base offers, at both the Windorah Trough and Project Venus.

"Project Venus" and Qld CSG acreage award.

On October 30, RLE announced it had been awarded in partnership with ASX-listed Strata-X (ASX: SXA), a 153km2 exploration tenement PLR2019-1-11, following a Qld Government gazettal. The location is shown in Figure 1, and is in proximity to other prolific CSG fields supplying the LNG market and other projects which have had recent success such as Central Petroleum's (CTP) "Project Range" and Senex Energy's (SXY) "Project Atlas".

As an analogue the CTP and SXY blocks were awarded by the Qld Government in 2018 and 2017 respectively. In the past year, CTP have defined 270 PJ(2C) resources, at "Project Range" and SXY have defined 144 PJ(2P) at Project Atlas. This demonstrates that lead times from the award of acreage to drilling and then to reserve bookings is short by industry standards and the equity market has assigned value to these equities for these positive outcomes.

Project Venus acreage is surrounded by areas which host over 1200 PJ of gas and have been intensively developed for CSG by APLNG to the north-west and QGC (Shell) to the South East. Gas plants, gathering and transmission pipelines are numerous and there are major gas processing hubs within 50 Km. Project Venus is a very good "address".

Prospective recoverable gas resource estimates have been independently assessed by MHA Petroleum Consultants and are shown in figure 2. The "Best estimate" of recoverable gas resource is 658 Bcf (694 PJ), on 100% basis. RLE's working interest in the Project Venus JV is 50%.

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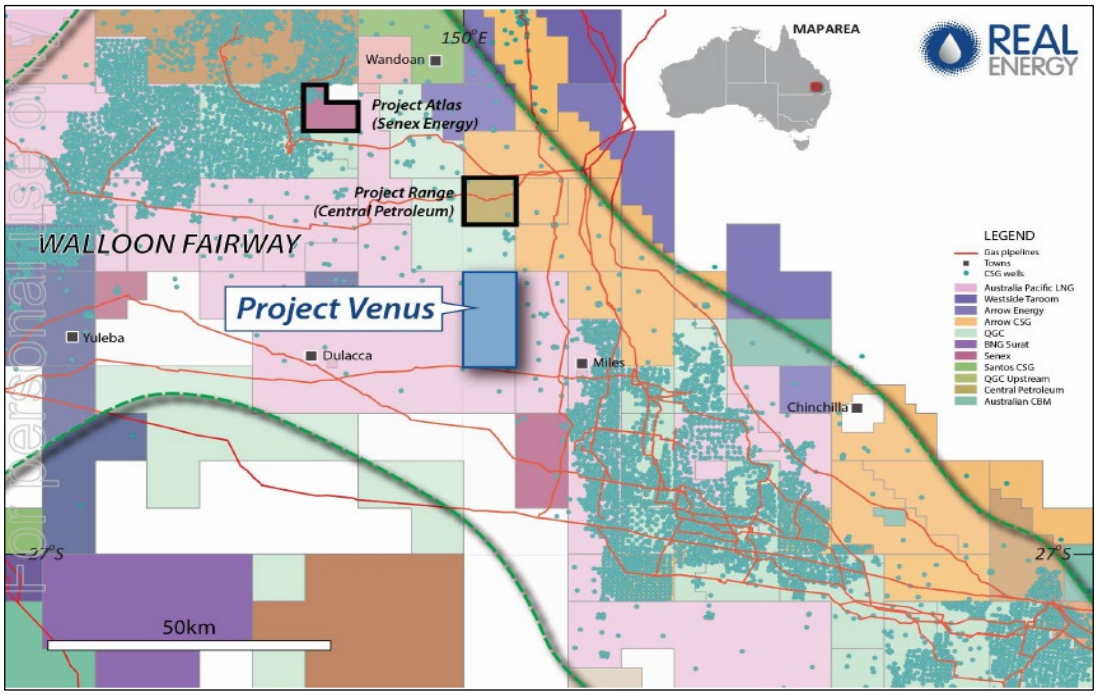

Figure 1. Location of "Project Venus" acreage in the Surat Basin, Qld. Source: Real Energy Investor presentation 13/11 2019

Prospective Resource volume (Net, recoverable)	Low	Best	High
PJ	278	347	417

Figure 2. Source: Real Energy

Geology

The block was first drilled by QGC/BG in May 2008, at Connor#1 and reached a total depth of 850m. The well intersected 31m of net coal pay comprising 18.7m in the Juandah coal, 10.2m in the Taroom coal and 2.3m in the Tangalooma sand. QGC reported at the time that three successful DST's were performed. In total, four core holes (Connor#1-4) were drilled and established coal sequences at depths ranging from 350m in the northeast to 700m in the south west. Seam thickness ranges from 34m in the north, to 22m in the south. Initially the JV plan to focus on the Northern part of the block where the coals are thicker and shallower.

Gas contents are assessed to range from ~7 Bcf/km2 in the north, to ~5 Bcf/km2 in the south. These are similar to gas contents in other fields exploiting the Walloon coals. Figure 3 shows key statistics from similar Walloon CSG fields which we think are indicative of Project Venus potential.

Work program

At this time, the acreage award is that of "preferred tender" and conversion to a formal Authority to Prospect (ATP) is required. The work program needed for grant of the ATP is minimal in financial terms, requiring base-line environmental studies, native title and other. Formal grant is expected in early 2020, after which drilling activity can commence. Current joint venture thinking is to re-enter an existing well and gather data.

Company	Project	Block size Km2	Reserve 2P- PJ	Resource 2C- PJ	Pros. (Best Est)	Status
Senex	Atlas	58	149			Development
Central Pet.	Range	77		270		Appraisal
APLNG	Ironbark					Dev. Ready
Real/ Strata-X	Venus	154			694	Exploration
APLNG	PL216	?	64			Production
Arrow	PL491	?	435			Production

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Figure 3. Key metrics from similar / nearby projects. Data set constrained by limited public information of reserve at the block level>

Valuation and market implications

The JV need to drill pilot wells and flow gas before the market will ascribe value. We observe a lack of market movement on award when other companies such as Central Petroleum (CTP) and Comet Ridge (COI) were awarded acreage, and RLE's joint venture partner, Strata-X low market value of $5M reflects market apathy at this time.

However, investors reward and value reserve bookings post drilling. In the case of CTP, the share price rallied from 14c to 22c in the weeks after Range 2C reserves were published. The change in market value was $52M for CTP's 135 2C (net) for a re-rating of ~$50M (=40c/GJ at the 2C level). Senex's market value rose by $115M in the month after releasing its maiden Atlas reserves of 144PJ (net) 2P, on July 31, 2018. This equates to 81c/GJ at the 2P level. Another transaction data point in recent times was sale of the 129PJ Ironbark project by Origin to APLNG in 2016 for $231M, equating to $1.79/GJ (2P), a much higher figure possibly attributable to a belief that the export LNG price or field economics are better than domestic market.

Our valuation applies a lower enterprise value of 6c/GJ because the resource is not yet proven. A successful appraisal program followed by 2C and 2P reserves should drive a material re-valuation.

Windorah Trough project update

The Windorah Trough gas project acreage ATP927 is located in western Queensland and forms part of the regionally extensive Cooper Basin. It is surrounded by gas fields and gas process infrastructure owned and operated by Santos and others. The location is shown in Figure 4.

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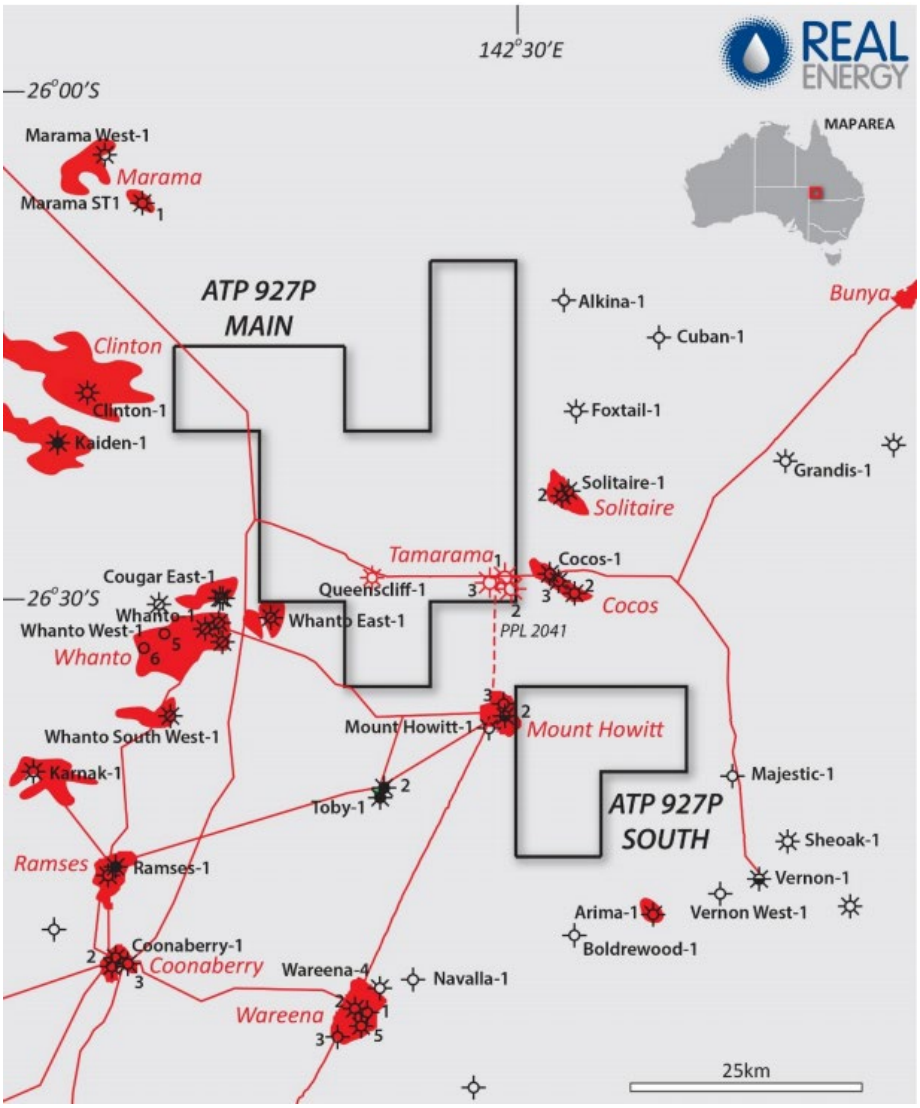

Figure 4. Location of Windorah Trough project. Source: Real Energy Investor presentation February 2019

Since establishing the Windorah Gas project in 2014, RLE have invested ~$31M into understanding what is required to commercialise gas, by drilling 4 wells, confirming the geology, flow-rate testing three wells, and putting in place gas processing and land-owner access agreements and being awarded a pipeline license. Thus, there is a lot of de-risking to date, both geologically and commercially.

The project advanced considerably during 2018 with the drilling of two more appraisal wells, Tamarama #2 and #3. Flow rates of 2mmcfd and 2.5 mmcfd were achieved in February 2019, after successful fraccing of both. However, rates over an extended period did not reach the levels of those from shorter duration and this triggered an immediate loss of confidence in the market and a sell-off. In the second quarter 2019 activity report, RLE revealed that T2 flowed at 0.4-1.3mmcfd over a 2week period, albeit through small chokes and the results from T3 were lower.

This is neither a technical success nor a commercial failure. RLE postulate a number of mechanical and geological reasons for the lower than hoped for rates, all of which are solvable. Arriving at the best solution requires a better understanding of the problem and then devising a course of action, which may include applying different drilling techniques such as horizontal wells. This will take time and additional capital.

In the very least, RLE has established a very large gas resource. Gas resources have been independently assessed by Aeon Petroleum consultants and announced to the ASX on August 23,

2019, and are shown in figure 5. These figures are higher than previous estimates and reflect the latest flow rate and other geological data following the T2 and T3 test results.

Bcf	1C	2C	3C
Previous Estimates		276	770
Tamarama	48	156	345
Queenscliff	70	174	425
Latest- Total	118	330	770

Figure 5. Contingent gas resources. Source: Real Energy

Next step to commerciality: Farm-out.

Plans to move to a pilot / small scale production phase require additional capital investment that likely exceeds RLE's current funds available. In the December 2019 Quarterly Activities report, RLE indicated it was in discussions with two parties regarding funding the project and that due diligence was underway. Updated technical work informs that horizontal wells may be required to prove up the production potential.

From a valuation perspective we evaluate a pilot phase project in the first instance following a farm-out. Key considerations are:

- The Tamarama#1, #2 and #3 wells have been completed and are ready for production.
- On October 15 2018, RLE signed a binding processing agreement with Santos Cooper Basin JV to process the gas. This is "raw" gas ex-field.
- RLE need to construct a flow-line to tie-in to the Santos-operated Mount Howitt gas line, which is located 14 km to the south. Approvals are in place for this pipeline. From there, gas flows to the Santos plant at Ballera for processing to sales quality and compression to enter high pressure pipelines and then on to the east coast.
- In 2017, RLE entered into aMoU with Weston Energy for 15PJ of gas over 5 years, equating to 3PJ p.a. In its most recent market reports, RLE indicates it has issued Expression of Interest to gas customers for the supply of 5PJ of gas over 3 years.

The results of these assumptions and our valuation outcomes for an initial pilot phase are detailed in the valuation section.

Later phases

If the Phase 1 pilot project succeeds, then RLE can consider a larger scale operation and the good thing about the onshore location is that it can be developed incrementally over time, in contrast to an offshore project where all the capex is upfront in one big lump. In previous market disclosures RLE showed potential other larger developments but these are indicative.

For example, a "Phase 2" to produce 20TJ/d, is likely to require an investment of greater than $100M development from 9-10 wells followed by "Phase 3" delivering over 100 TJ/d. This latter would be a major undertaking and require substantial capex and likely, participation from major domestic E&P companies. Such scale would require that favourable geology is defined over a much greater area of ATP927 and would require additional exploration and appraisal drilling to migrate the large 2C reserves to proven status.

We do not have guidance as to how much working interest RLE's farms-down to and what sort of financial deal can be won, and this makes valuing up-scaled projects highly speculative. We assume that RLE farm-out 40% and retain 60% and operatorship.

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Other assets: Eastern Cooper Basin oil flank

RLE's 1043 Km2 ATP1194 in the Cooper Basin eastern flank, is a "sleeper" asset. Refer to figure 6 for location. There are oil fields to the south, at Bodalla and Kenmore which were discovered forty years ago and have been in production ever since. Exploration in the region in recent years has been minimal. In the September quarter, RLE announced it had made progress in mapping leads and prospects in the block, with a total original-oil-in-place in 5 leads of 7.2MMbbls. RLE own 100% of the permit, and could farm-out for drilling, if the leads and prospects can be matured to drillable status. We assign value to this acreage consistent with equity market valuations of other small companies which are active nearby, such as Key Petroleum (KEY) and Red Sky Energy (ROG). We note ROG, with a market value of $4.5M, recently secured Santos as a farm-in partner to fund a $9M work program at its Innamincka Dome project. KEY (market cap of $10M) also secured a small farm-out for a work program in its acreage in the Cooper Basin and these dals indicate the farm-out market for small prospects in the Cooper Basin is "open".

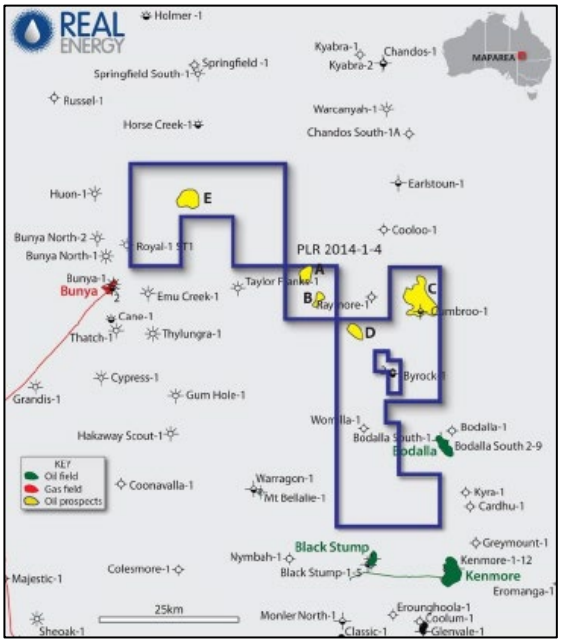

Figure 6. Cooper Basin eastern flank exploration block. Source: Real Energy.

Financials: RLE are capital constrained

RLE have been frugal in spending over the past few years, managing the drilling of four wells and testing and fraccing of 3 in a remote region, as well as paying for all overheads, for a cumulative investment of approximately $31M. Figure 7. All of this was funded from equity. In 2018, RLE raised $3.7M in the December quarter and in March 2019, an additional $5M was raised.

Real Energy financial results (A$M)							
Year to June	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**Cum Total**
Operating cashflow	-0.7	-0.5	5.9	0.5	-1.5	-1.8	2.0
Capex	1.1	-13.3	-3.5	-3.6	-4.3	-7.4	-31.0
Equity issue & other	8.8	4.7	2.4	1.9	2.2	8.5	28.4
Cash at year end	12.7	3.7	8.7	7.5	4.0	3.3	
Total Assets	15.5	24.8	28.2	27.9	30.9	35.5	
Net Assets	14.9	23.6	25.9	27.0	27.8	34.0	

Figure 7: Annual financial statistics, from RLE annual reports.

RLE's cash position at December 31, 2019 was A$2.1m. This isn't enough to construct the Mt Howitt gas pipeline connection, and install other surface facilities, and begin exploration in Qld. RLE will need additional external funds to move forward. However, expenditure commitments anticipated in the March quarter are minimal at $0.3M.

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Funding options include:

- Conversion of 55M outstanding options (ASX: RLEOB) which are exercisable at 14c before September 30, 2020 which could provide up to $7.7M. However, exercise is unlikely before that time unless between now and then, the share price re-rates significantly.
- Monetisation of its 100% owned assets via a farm-out. This process is underway with a data room open. This is RLE's current preferred option.
- Gas resource / resource pre-payment. Prepayments from major industrial consumers trying to diversify supply are becoming more common.
- Bank debt. Should RLE put in place all the necessary agreements to underwrite the sale of its gas then it's possible that conventional bank debt, or quasi debt from mezzanine providers could become available
- Infra-structure finance may be available to fund the pipeline to Mt. Howitt.
- Additional equity capital, if all other alternatives fail.

Risks to be addressed

There are geological and engineering risks associated with activity at the Windorah Trough which will be better informed following analysis of recent test results and production history.

The reservoirs that RLE are targeting are thick and gassy, but low permeability and interbedded with coals and other fine-grained sediments. Sophisticated drilling, stimulation and production techniques are necessary, and are available but this comes at a cost. There is a flow rate and capex trade off in all of this, and it may require more knowledge, more wells and more time to achieve commercial outcomes

It's possible that flow rates from production wells are lower than expected and / or depletion rates are steep requiring additional wells. This is to be determined.

Water production in tandem with the gas is possible, and this happened at T1. It is theorised that this water is from coal seams, which were unintentionally stimulated. Dealing with the water is either an engineering issue, which is fixable, or a consequence of the geology, which would be harder to address.

An emerging financial risk is potential reversal of previous tax incentives. In respect of 2014, 2015 and 2016, RLE received R&D incentives which total $7.2M. RLE has claims with the ATO in respect of the last three years which total $6.2M. The ATO is pursuing other small companies which received R&D tax benefits in previous years, and some have been successful in retaining the incentives. RLE intends to defend its position but does not have the funds to repay the ATO in the worst case.

Valuation. Our base case is 19c with upside

Our latest valuation considers a narrower set of outcomes, compared to previous reports and are constrained by the company's ability to raise the funds required to participate in future developments.

Farm-out of working interests, or alternatively an equity issue are dilutive and impact valuation. RLE is progressing a farm-out of a portion of its Windorah Trough project. For the purpose of valuation, we assume that RLE retain a 60% participating interest.

Our principle valuation method tool is a DCF of anticipated future production from the Windorah Trough. To this we add value for the exploration acreage, which is much more subjective and based around market and transaction analogues, where available.

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We have developed a financial model for an initial Phase 1 project at the Windorah Trough. Key assumptions are:

- Pilot Stage incremental capex of $6M including ~$4m for the tie-in pipeline and $2M for well preparation and field work. This is not a big undertaking and could be completed within 6 months following plans and approvals. We note RLE already have processing agreements and pipeline license in place. We assume additional funding by way of farm-out or a small equity capital raising.
- Gas production of 3 TJ/d from 3 wells in aggregate in the first year and declining at 15% p.a. in the absence of future workovers, delivering a total of 5 PJ of gas over ~7 years.
- Well-head gas price of $9/GJ.
- Santos tolls and processing charges of $2/GJ. Cash operating costs of $0.5m p.a. to run the field. We expect significant economies of scale in the event of larger developments.

The financial results for a successful Phase 1 are shown in figure 8. Our DCF model returns a valuation of A$21M (100% basis) at a discount rate of 10%, if all that RLE do is connect the three wells and cease all further activity for any reason. Revenues and cash flows are small but provide a useful income stream to support ongoing development.

Pilot phase economics (100% basis)

Year	2020	2021	2022	2023	2024	2025	2026	Total
Flow rate- TJ/d		3	2.6	2.2	1.8	1.6	1.3	
PJ p.a.		1.10	0.93	0.79	0.67	0.57	0.49	5.0
Capex-A$M	-6.0							-6.0
Field gas price-A$/GJ		9.0	9.0	9.0	9.0	9.0	9.0	
Revenue-A$M		9.9	8.4	7.1	6.1	5.1	4.4	44.6
Royalties-A$M		-0.5	-0.4	-0.4	-0.3	-0.3	-0.2	-2.2
Opex & tolls-A$M		-1.1	-0.9	-0.8	-0.7	-0.6	-0.5	-5.4
Pre-tax cash flow	-6.0	8.3	7.0	6.0	5.1	4.3	3.7	37.0
NPV10- A$M	**21.4**							

Figure 8. Indicative project economics for phase 1. Breakaway estimates of costs and revenues

There is intrinsic value in pilot / phase 1 production to gain knowledge on longer term field behaviour to inform future well design and engineering. Pilot cash-flows will probably be re-deployed into drilling more wells as required for later development.

Sum of parts valuation

Our break-up value is shown in figure 9. In addition to a DCF of the pilot phase, other elements are:

1. Valuation of 3C resource at 6c/GJ, which is the peer group average for companies which do not have production and are still in the exploration and appraisal phase.

2. An assumption on our behalf that RLE retain 60% of the Windorah Trough project, with 40% effectively sold off by way of farm-out to offset development costs

3. Oil acreage in the Cooper Basin is given a notional dollar value consistent the equity market valuation of other smaller companies operating nearby, specifically Key Petroleum and Red Sky Energy. These near-by peers exhibit a non-zero equity market valuation for exploration acreage.

4. “Project Venus” is valued by applying a resource multiple of 6c/GJ to the best estimate of recoverable reserves which are 347PJ (net) for a total of $21M. This is large in context to RLE’s current capitalisation but is still considerably lower than the value captured by CTP and SXY at projects exploiting similar coal seams in the past 2 years, as mentioned on page 3.

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5. Cash assets and capital structure as at December 31, 2019.

Valuation	A$	Notes
Cash	2.1	At 31/12/2019
DCF-Phase 1- Windorah Trough	13	Assumed 40% carry
Later Windorah Trough phases	23	6c/GJ for 60% of 3C
Cooper Oil	8	ROG, KEY market analogues
CSG-Qld	21	6c/GJ for 347 PJ
Debt	0	
Base case	67	
Shares on issue	353.2	
Value/share	**0.19**	

Figure 9. SoP Valuation. Breakaway Research.

Valuation and size in context with peers. RLE is the smallest

Figure 10 shows RLE enterprise value compared to other companies which are considered by equity investors as focused or "pure-play" east coast domestic gas market participants. There are many reasons for the large disparity in values and the larger companies, Senex and Cooper Energy have proven gas reserves and production and RLE lacks both at this time. There is a multi-fold upside to be won if RLE can translate its contingent gas resources into production.

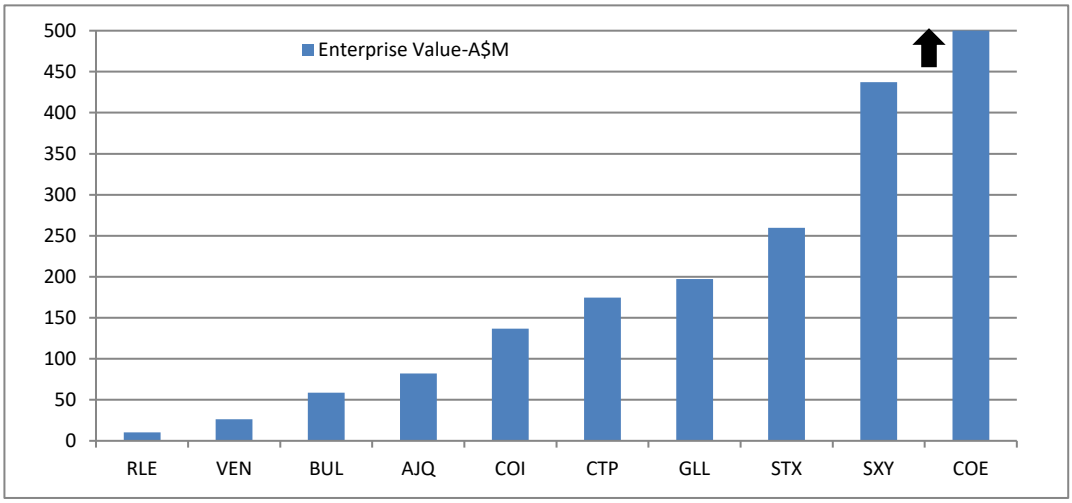

Figure 10: Enterprise values for comparable domestic gas market E&P participants. Based on financial data as of 30/9/2019.

Real Energy does not have proven reserves and its resources are contingent on demonstration that they are commercial. We note that many peers are pursuing gas exploration, appraisal and commercialisation in unconventional geologies, some very remote from infrastructure and even so, attract significant equity market value.

It appears the equity market heavily discounts RLE's BCG geological model, which we attribute to the relative uniqueness of this style of geology in Australia.

We use peer group metrics for valuation purposes, to form a view as to value for the 2C and 3C contingent resources. This is not precise due to the very wide range of point estimates.

Peer Group

Figure 11 shows EV and reserves and resources for companies which we think are relevant peers and has been published in our previous reports if only to re-iterate two points.

1. There is a very wide range of market valuations for companies which are still at an exploration stage and have no production, and where market valuations require judgment and a speculative assessment of key variables.

2. RLE is a low-side outlier in terms of enterprise value for gas resources.

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Reserves (Pje)										
Company / Region	**EV**	**2P**	**3P**	**2C**	**3C**	**EV/2P**	**EV/3P**	**EV/2C**	**EV/3C**	**EV/(2P+2C)**
Comet Ridge (COI)										
total	**96**	106	183	416	3207	**0.91**	**0.52**	**0.23**	**0.030**	**0.18**
Blue Energy (BLU)										
Bowen, Galilee & Waso (NT)	**51**	71	298	1166	4179	**0.72**	**0.17**	**0.04**	**0.01**	**0.04**
Galilee Energy (GLL)										
Galilee Basin- Qld	**133**	0	0	2508	5314			**0.05**	**0.02**	**0.05**
Senex (SXY)										
East Qld CSG, Cooper basin	**379**	666	0	31	0	**0.57**		**12.2**		**0.54**
Central Petroleum (CTP)										
Amadeus Basin, Qld Surat	**157**	174	212	92		**0.90**		**1.71**		**0.59**
Cooper Energy (COE)										
Total	**966**	322	448	165	253	3.00	2.16	5.87	3.82	1.99
Strike Energy (STX)										
Cooper Basin, Perth Basin	**277**			109	159			**2.54**	**1.74**	**2.54**
Real Energy (RLE)										
Qld Cooper basin	**9**			330	770			**0.028**	**0.012**	**0.03**
Armour Energy (AJQ)										
Kincora field, Surat	**80**	143	339			**0.56**	**0.24**			**0.56**
Vintage Energy (VEN)										
Galilee, onshore Otway, NT	**24**	0	0	46	125			**0.516**	**0.190**	**0.52**
Tlou	**30**	43	454	228	3237	**1.85**	**0.18**	**0.132**	**0.009**	**0.11**
Red Sky Energy										
Cooper Basin	**3**	0	0	101.4	125			**0.034**	**0.028**	**0.03**
Key Petroleum										
Cooper Basin	**9**	0	0	0	0					
Strata-X										
Qld, Botswana	**4**	0	0	101.4	125			**0.034**	**0.028**	**0.04**

Figure 11. Australian gas exploration and production companies considered to be peers of Real Energy (Source: Company 3B statements, most recent reserve and resource reports (converted into PJ Gas equivalent at 1.055PJ per Bcf, 6PJ per BOE). Share prices at EOT January 30, 2020.

Market factors have a lot to do with RLE trading below our assessment of fair value. Unfortunately, few peer companies have had commercial success (yet) and investors are understandably frustrated and market sentiment is poor. There are other reasons too, including:

- Narrow asset base with a lot dependent on the success of the Windorah trough project. There are not enough other assets to support valuation, should flow rates be uneconomic. Project Venus being ignored for the time being.
- The BCG geological model is not well understood, perhaps analogous to coal seam gas in its formative days, which initially was shunned the market. If so, it will take time, positive test results and production history to remedy.
- Lack of financial headroom to move into a larger development. RLE will need funds to undertake development until such time as revenues can be established. Investors likely expect that RLE will seek additional equity capital at some point.

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Australian East Coast gas market state-of-play.

East coast gas prices have eased in recent months but industry conditions remain positive for new entrant gas producers including RLE. High prices brought on by LNG exports since early 2015, and depletion of key fields particularly those offshore Victoria, have been well documented in the financial and mainstream media.

There is a strong gas price signal coming from consumers to stimulate new supply. The production industry has responded both to price, and the threat of regulatory interference. Some of the Queensland LNG exporters have diverted volumes to the south, and many smaller participants have raised capital and are undertaking various projects, however what remains to be produced is from geology that is challenging, or in regions which are remote and will require large infrastructure investments. All of this demands more capital, and more time, and involves more risk. Small companies are increasingly active and bearing much of the exploration risk.

Investors providing risk equity, have generally not made money. So in a market that should be providing wind-fall returns, it seems there are few winners. As long as small companies are shouldering the burden of finding more gas in remote places and in difficult geologies, there is no magic bullet.

LNG exports, and maybe imports will lock-in high prices

Before the advent of LNG exports, the domestic gas market was well-supplied and contract gas prices were <$4/GJ. Two years ago, prices were in the $7-9/GJ range and these prices were considered high, in context to where the price had been a year or two prior. Now, prices are routinely $9-11/GJ, (figure 12) and the previously pronounced winter peak has now become a summer peak too, with demand for gas-fired power to back-up intermittent renewable supply.

Rising oil prices pose an additional source of price volatility, with most domestic gas prices now related to LNG netbacks. Proposed LNG import would introduce new supply but at prices which are related to LNG plus the cost of import and regasification. These will be higher again than the next best alternative.

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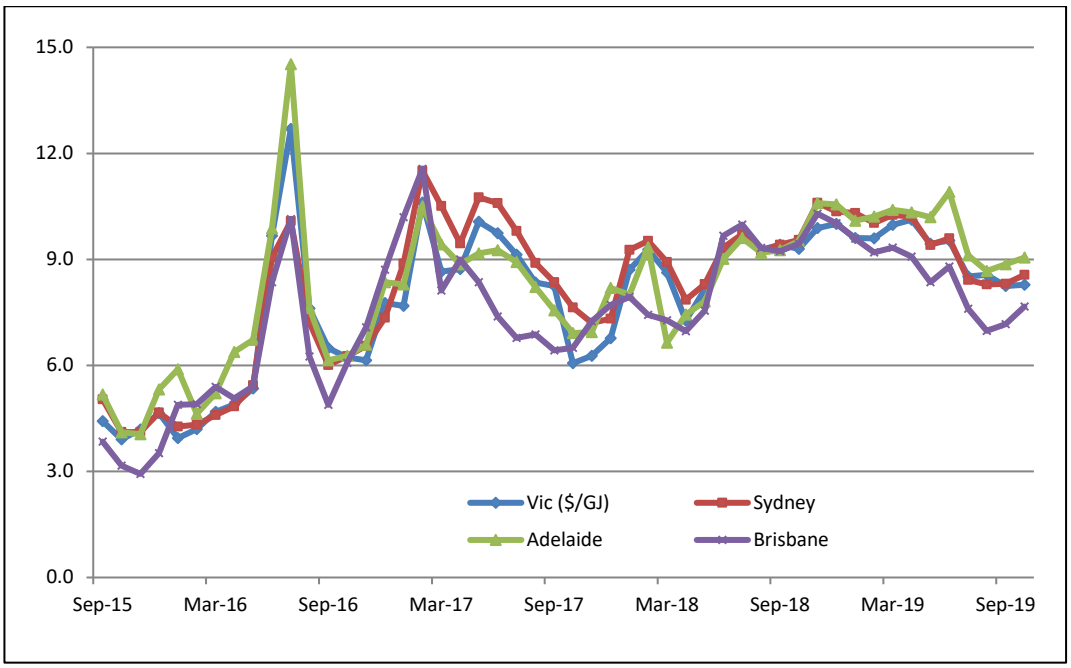

Figure 12. Monthly average gas price, in A$/GJ, delivered to "City gates" (i.e before entering low pressure distribution networks

Geological backdrop: Basin Centred Gas (BCG)

RLE's key asset, the "Windorah Trough" is an unconventional gas play and as such, has associated geological and engineering risks which are not well understood as there are no successful examples in Australia.

What is Basin Centred Gas (BCG)?

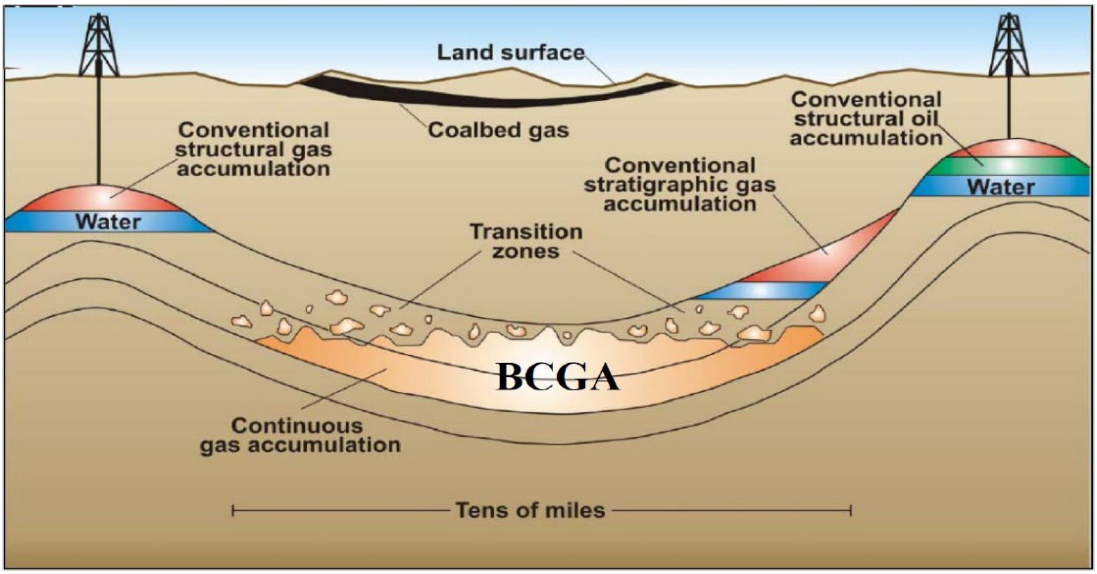

Figure 13. Schematic representation of basin centred gas (Source: RLE investor presentation)

BCG geology can be laterally extensive and can hold vast resources. Figure 14 shows a schematic. In RLE's ATP927 permit, independent reservoir engineers Aeon Associates assign a 2C contingent gas resources of 330 Bcf (2C) and 770 Bcf (3C), capturing data from the recent test wells T2 and T3 and a significant upgrade on previous figures assigned by DeGolyer & McNaughton

Basin-centred gas is unconventional in the sense that the gas is trapped stratigraphically in tight sandstones. It requires over-pressure to drive out the gas, and commonly, artificial stimulation is required to enhance permeability and aid commercial flow rates.

Basin centred gas is just another form of unconventional geology that was once considered too hard to exploit commercially, but Increasingly around the world and in particular the USA, production companies are successfully developing geologies that were once considered “too hard”. Production from low permeability sandstones and shales has been successful in the USA.

Attempts to migrate this success to Australia in the Cooper basin from 2011-2014 made some pioneering advances but high costs due to remote location, and a collapsing oil price stalled the activity after 2014. More recently in the NT, with the removal of the fraccing moratorium, key players Santos and Origin Energy have moved quickly to explore what is believed to be large shale gas oil and gas potential. These are unconventional gas plays in remote region and highlight the extent to which the industry as having to go to locate new sources of gas.

For RLE, the results to date partially validate the BCG model. There is a very large gas-in-place but achieving commercial rates is an engineering challenge.

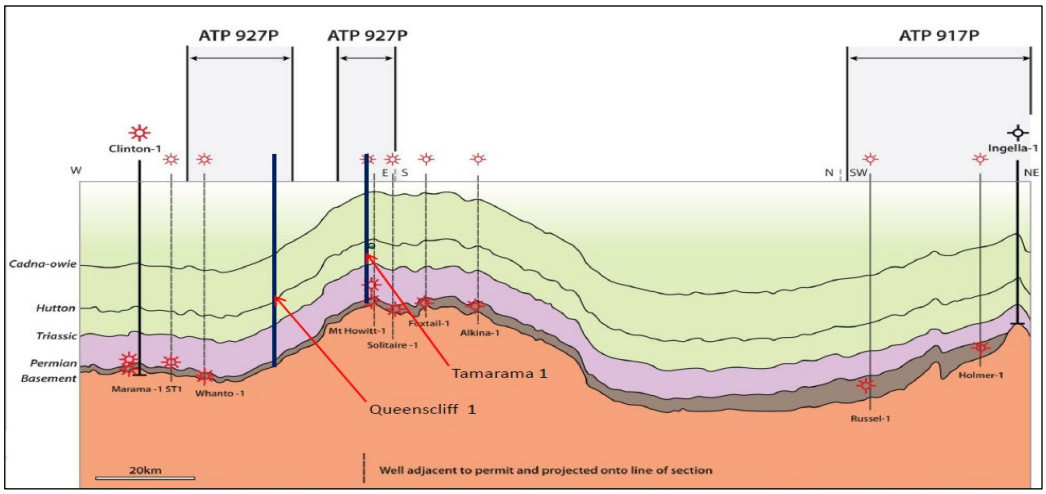

Figure 14: Real Energy permits and wells relative to other wells in region (Source: RLE investor presentation)

Geology of the Windorah trough

The Windorah trough contains several thick Jurassic, Cretaceous, Permian and Triassic sandstones, interbedded by gas-rich coals, finer grain sediments and sealing shales. These sequences are well known in the Cooper Basin, with over 3000 well penetrations. In RLE’s permit, the target objectives are the Patchawarra and Toolachee sandstones which are 3,000m deep in the centre of the trough, and around 2,000m deep on the basin edge.

Figure 15 shows the stratigraphic sequence from west to east. Commercial gas discoveries are in conventional structural traps, at Wareena, Whanto, Cocos, Solitaire and Mount Howitt. These wells produced gas at commercial rates from sands in the Toolachee and Permian, from conventional 4-way dip closed or fault dependent traps.

Reservoir quality is variable with porosities typically 10-15% evidencing good reservoir. The highest flow rate recorded from the Toolachee is 11.4 mmcfd from Wareena #1, 25km to the south. Several other wells have recorded rates in the 3-7 mmcfd range. There are numerous coal seams and finer grained sediments which are water bearing and are sources of water influx if not avoided during the completion and fraccing processes. CO_2 levels are moderate, ranging 10-12%.

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Whanto-1	Queenscliff-1	Tamarama 3	Tamarama 1	Tamarama 2	Mt. Howitt 2

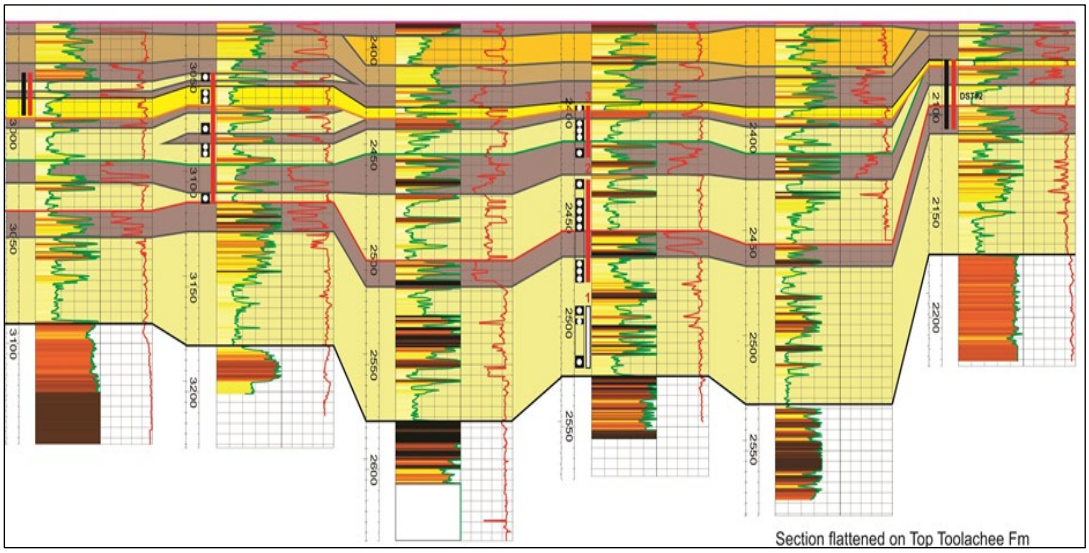

Figure 15: Well sections in the Windorah Trough (Source: RLE investor material)

Recap of exploration results: Queenscliff & Tamarama #1 open the paly

Tamarama#1 was the first well drilled outside of any seismically defined closure, to test the basin centred gas concept, targeting the Permian aged Toolachee and Patchawarra sandstone reservoirs.

Tamarama#1 was drilled in September 2014 to a total depth of 2574m and encountered 87m of net pay in total, 21m in the Toolachee and 66m in the Permian. Based on this result, the well was cased and suspended for future testing and the company proceeded with drilling of the second well.

Queenscliff#1 was completed in the fourth quarter of 2014 and reached a total depth of 3129m. The well is 688m down-dip from Tamarama 1. It encountered 36m of gas bearing reservoir in the Permian-aged Toolache objective, and 37m in the Patchawarra. The schematic shows the structural setting of Queenscliff, outside of structural highs. A 27m interval of lower Toolachee-upper Patchawarra formation was perforated, and on test achieved a flow of 0.2 mmcfd to surface, through a small, 16/64-inch choke. While this rate is not high enough to be commercial, the result is significant in that the reservoirs were not stimulated. Following this result the test equipment was mobilised to Tamarama1 for flow rate testing.

Testing commenced in early 2015. Initially a 30m interval of the upper Patchawarra was perforated, and flowed gas to surface through a 12/64-inch choke at 0.3 mmcfd. A test of the lower Patchawarra did not flow, and it was theorised the reservoir was tight and would need stimulation. In the Toolachee, 16m was perforated and flowed at 0.46 mmcfd on test, through a 16/64- inch choke. Gas samples were analysed for Co2 and ranged 7-9%.

Based on the encouraging flow of gas to surface it was decided to proceed with a fracture stimulation program. In 2016 Halliburton services were engaged and a 5-stage fracture stimulation was carried out in late 2016. Flow testing the various zones took place during the first half of 2017 and delivered gas flow rates which were variable and peaked at 2 mmcfd. The rates were accompanied by water production which was not expected. From post-test analysis of the water and re-assessment of the completion and stimulation design, RLE theorises that the

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accompanying water is most likely coming from coal seams which were unintentionally stimulated.

Key learnings from drilling Tamarama # 2 & 3.

Following the encouragement from Queenscliff and Tamarama 1, RLE committed to drilling at two more wells in close proximity to T1 in 2018. Tamarama 2&3 were designed to be deviated wells to intersect more reservoir and apply learnings from T1.

T2 was drilled 700m south east of T1 and was completed with a three stage frac. T3 was drilled 800m west of T1 and was completed with a 4 stage frac. Initial flow rates from T2 were 2mmcfd and from T3, 2.5mmcfd. The latter rate was higher due to more fraccs and more exposure to reservoir rocks.

Water production is not desirable and avoidable with careful design and execution of the stimulation program, and in particular, limiting the fracture pattern to the sandstone reservoirs and staying well clear of the coal seams. It appears that water production in T1 ultimately killed the flow. It appears the fraccs in both T2 and T3 were optimally placed and water production has not been reported in results to date.

In the first half of 2019, both T2 and T3 wells were shut-in for pressure build up tests and then flow tested in June and July for a number of weeks.

Results were less than expected, with T2 returning the better result of rates ranging between 0.4mmcfd and 1.3MMcfd. These rates were through very small choke sizes, of $6/64^{th}$ and $10/64^{th}$ of an inch. RLE theorise that “fines” or small particles of the reservoir impeded the flow and if so then there are solutions available but implantation would require additional well intervention and additional investment.

Work is ongoing to re-asses well design which may require horizontal wells in the future. All wells are suspended and are ready for production once the pipeline to Mt. Howitt is built.

Figure 16: Gas flare from testing of Tamarama1.

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Figure 17: Gas Flare from testing of Tamarama 2

Board and Management

The board and management team previously worked together at Mosaic Oil (MOS:ASX) which was taken over by AGL in 2011, following success in discovering and commercializing oil and gas discoveries in the Surat Basin, Qld. The Mosaic team included Lan Nguyen, Scott Brown & Terry Russell. More recently in its Windorah Trough project, RLE has sourced technical input from USA BCG experts and locally, the University Of Qld Chemical Engineering faculty.

Director and Executive Backgrounds

The board and senior management team have been with RLE since its inception, and in 2018 and 2019 was bolstered with the appointment of additional non-executive directors with particular skills in corporate finance and capital markets.

Lan Nguyen - Non-Executive Chairman

Mr Lan Nguyen holds a Bachelor of Science (mining engineer-geologist) degree majoring in petroleum exploration from the Institute of Oil and Chemistry, Baku, Azerbaijan, and a Master of Science degree in petroleum geology from the University of New England, Australia. He is a member of the Petroleum Exploration Society of Australia (PESA), the American Association of Petroleum Geologists (AAPG) and the Society of Petroleum Engineers (SPE).

Lan is a professional petroleum geologist and engineer with over 25 years of experience in petroleum exploration, development and production in Australia and internationally including 15 years at Mosaic Oil N.L. ('Mosaic'), an ASX listed petroleum exploration and production company, where he played a leading role, initially in technical and middle management positions and in the last 4 years, as Managing Director, in transforming Mosaic from a speculative petroleum explorer to a successful petroleum exploration and production company with growing production revenues, petroleum reserves/resources and profitability. Lan is credited with the discovery and development

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of many oil and gas fields in the Surat-Bowen Basins through his innovative introduction of various exploration, drilling and completion technologies to Australia.

Lan is currently a principal/director of Tanvinh Resources Pty Ltd and Latradanick Holdings Pty Ltd, which provide services to energy and resources companies in Australia and Asia-Pacific region.

Scott Brown – Managing Director

Mr Scott Brown holds a Bachelor of Business and a Master of Commerce and is a member of the Institute of Chartered Accountants and the Petroleum Exploration Society of Australia (PESA).

Scott is the Chief Executive Officer and co-founder of Real Energy Corporation Limited. Prior to this, he was the Chief Financial Officer of Mosaic Oil NL (ASX: MOS), a listed petroleum production and exploration company with an extensive range of oil and gas production and exploration permits in Queensland, New Zealand and offshore WA. He is also a non-executive director of Shine Metals Limited (ASX: SHI)

During his time with Mosaic, he was involved in the acquisition of production properties and the growth of its business and profitability. He was instrumental in putting together a Scheme of Arrangement with AGL Energy Ltd to acquire Mosaic for consideration of $142 Million.

Scott has an extensive background in finance and management of public companies including guidance through the listing process. Prior to Mosaic Oil NL, Scott was Finance Director of Objective Corporation Limited ('Objective'), an enterprise content management (ECM) software company that established itself as one of the leaders in the ECM market.

Scott was also formerly the Chief Financial Officer and Company Secretary with a number of public companies including Turnbull & Partners Limited, Allegiance Mining NL, FTR Holdings Limited and Garratt's Limited. Scott also worked at accounting firms, Ernst Young and KPMG

John Wardman, Non-executive Director

Mr Wardman holds a Bachelor of Economics (Macquarie University, Sydney) and is a Fellow of the Australian Institute of Company Directors (FAICD). He is highly regarded and respected in the Australian stockbroking and wealth management sector and has 35 years of experience working in the small resources and energy sectors

He currently is a Senior investment Advisor in the wealth management industry having previously spent 13 years with Macquarie Private Wealth, and prior to that Hartleys Ltd. John is also Chairman of the ASX-listed Shine Metals Ltd. His contacts and network.

Peter Mangano, Non-executive Director

Peter joined the Board in 2019 and brings particular skills in corporate finance, having previously spent 6 years at Colonial First State as a fund manager and Resource Analyst, and previous to that, 12 years at Citigroup where he was Managing Director and Deputy Head of US Equity Research, in New York. Peter has a B.Com(University of Tasmania) and B.Sc (University of Western Australia) and is a Certified Practising Accountant.

Terry Russell, Consulting Exploration Manager

Terry Russell is a geologist with over 26 years of experience working in the oil and gas industry. He has a B.Sc. (Hons) from Victoria University of Wellington, and a PhD from University of New England. Terry was formerly the Exploration Manager of Mosaic Oil NL, with responsibility for the planning and execution of the company's exploration and development program. Prior to this, he was most recently employed as Manager Geoscience for Swift Energy New Zealand Ltd. As well as

having extensive experience in onshore and offshore Australian basins, he has also worked on a range of international projects, principally in New Zealand, the United States, Argentina and Tunisia. He is a member of PESA and AAPG.

James Dingle, Drilling Supervisor

James has practical experience in both field operations and engineering design in a broad range of drilling, completion and production operations across conventional and unconventional (CBM/CSG & tight gas/oil reservoirs). He has extensive experience with coal seam gas drilling, completion & production operations, conventional & underbalanced drilling & completion operations, horizontal/multi-lateral drilling & completion operations and high pressure-high temperature drilling operations in many countries including Australia, Indonesia, UK, Ukraine, Turkmenistan, Russia, and Romania.

Dr Ray Johnson, Reservoir Stimulation consultant

Dr Ray Johnson, Jr., Principal at Unconventional Reservoir Solutions (www.unconreservoirs.com.au), has been involved with design, execution, and evaluation of reservoir stimulation treatments since 1980 and has a PhD in Mining Engineering relating to pre-drainage of fluids (gas and water) for coal mining. Prior to moving to Australia in 1998, Ray had 17 years' experience in engineering and management positions throughout the USA involving fracture stimulation design, execution and evaluation of coals, shales and other naturally fractured reservoirs in areas encompassing most currently producing US unconventional basins. Ray holds an MSc in Petroleum Engineering from the University of Texas at Austin. Ray is an Adjunct Associate Professor at the ASP, University of Adelaide and Professor of Well Engineering & Production Technology at the University of Queensland, School of Chemical Engineering.

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Analyst Verification

I, **Stephen Bartrop** as the Research Analyst, hereby certify that the views expressed in this research accurately reflect our personal views about the subject securities or issuers and no part of analyst compensation is directly or indirectly related to the inclusion of specific recommendations or views in this research.

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We acknowledge that Senior Research analyst, Stuart Baker, holds no shares in Real Energy Corporation Ltd.

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