Byron Energy Ltd (BYE)

Under the radar, undervalued, lots of upside potential

August 2017

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Recommendation: BUY

Company Information

ASX Code	**BYE**
Share Price (14 August 2017)	A$0.080
Ord Shares	656.4m
Market Cap	**A$52.5m**
Options	23.2m
Market Cap (fully diluted)	**A$52.5m**
Cash (Est post raise)	A$29.3m
Total Debt	A$8m
Enterprise Value	**A$31.2m**

Directors

NED Chairman	Doug Battersby
M.D & CEO	Maynard Smith
Exec.Director & COO	Prent Kallenberger
Exec.Director -Tech	William Sack
Director (Non-Exec)	Charles Sands
Director (Non-Exec)	Paul Young

Significant Shareholders (Pre deal)

Doug Battersby & associates	10.9%
Maynard Smith & associates	6.5%
Cameron Richard Pty Ltd	5.4%

Source: Company

Company Details

Address	Floor4, 480 Collins St Melbourne, Vic, 3000
Phone	+61 (0) 3 8610 6583
Web	www.byronenergy.com.au

Price Chart

Source: Commsec

Key Points

- ***Byron Energy is an oil exploration company specializing in the shallow waters of the Gulf of Mexico, where its Board and Management have a long and successful track record. In only 4 years since listing, it has achieved exploration success through the application of advanced seismic tools. Its first commercial discovery was drilled in 2016 at South Marsh Island block 71 (SMI-71). This is being developed for production starting in early 2018. Re-investment of production cash-flow enables development of additional reserves, and drilling on other highly prospective leases.***
- ***First oil from SMI-71 is expected January 2018. Key operational and financial parameters include:***
  - ***2P oil reserves of 2 mmbbls net to BYE from a 3 well development, which is our base case.***
  - ***Net capex US$17 m (3 wells) and opex <US$4/bbl.***
  - ***Reserves and value upside in the event of 5 wells to exploit 2.6 mmbbls of 3P reserves (the upside case)***
  - ***Oil price deck in line with the current forward curve.***
- ***Breakaway Research financial modeling key results are:***
  - ***Cumulative net cash flows from SMI-71 base case production of US$76m to y/e 2023, and US$98m in the upside case***
  - ***NPV of SMI-71 = US$65m (base), and US$80m(upside).***
  - ***Payback on initial capex = 9 months***
  - ***EBITDAX in first full year of operations =US$24m (A$31m).***
  - ***Company NAV of US$ 102m (A$136m or 21cps) including a conservative value for prospective resources and leases.***
- ***BYE raised A$26.5m via a placement on 14/8/2017 to complete the SMI-71 project and a follow on SPP may raise an additional A$2m. Production cash flows from early 2018 provide funds to enable long term growth from other drill-ready prospects.***
- ***In mid-2017, BYE was awarded GoM leases SMI-74, 59, and 57 which are nearby and geologically analogous to SMI-71. BYE has mapped 15 prospects in these with a combined gross prospective resource of 27.5 mmbbls of oil and 193 Bcf of gas. Exploration success in these leases could lead to substantial capital growth.***

The development of the SMI-71 oil project is the first step forward as the Company transitions to a producer and generates cash flow. The alleviation of capital constraints allows the Company to re-apply its experience and technical skills to exploration on nearby leases, which are highly prospective. Success on these other prospects would lead to substantial capital growth.

*Hence, Breakaway Research has a **BUY** recommendation on Byron Energy Ltd.*

Company Overview & Strategy

Long history in the US GoM …

Byron Energy ("BYE") was ASX listed on May 5, 2013 following a merger with Trojan Equity, to leverage the success of the Board and senior management team in bringing US exploration and development opportunities to the Australian market. BYE's strategy is to acquire exploration leases in mature regions of the USA Gulf of Mexico (GoM) and then apply advanced seismic exploration techniques and in-house expertise and experience to find oil and gas in leases that were not fully developed by previous owners.

Where infrastructure is abundant, development costs low and development lead times are fast

There are many risk-mitigating attractions to this model for Investors. Fiscal and sovereign risks in the USA are low. The service industry has depth and is ultra-competitive. There is abundant infra-structure to move products to market. Development and operating costs are low and cycle times from discovery to first production are fast, sometimes less than a year.

The shallow waters of the US GoM are heavily explored and produced since the 1950's, initially by super-majors and then as the region matured, by smaller independent companies with niche skills. BYE's technical and management team have been operating this "niche" model for +/- 30 years and have established a track record of acquiring, exploring, and producing from mature leases with significant value creation. BYE investor packs document that history in detail.

There is a particular focus on exploring around the edges of "salt domes" which are common in the GoM. Salt domes are sub-surface intrusions in the earth's crust which create traps for oil or gas, in sandstone reservoirs either below or at the sides of these structures. Not surprisingly, exploration wells target oil or gas near the side of salt domes. The pattern of wells on the sides of salt dome that occur in some of BYE's acreage is typical. Figure 1 is a rather busy picture but demonstrates the intensity of drilling around the flanks of this very large salt dome, which happens to "set-up" the exploration success that BYE enjoyed on SMI-71, described later in this report.

Plan view of SMI-71 salt dome shows the intensity of drilling.

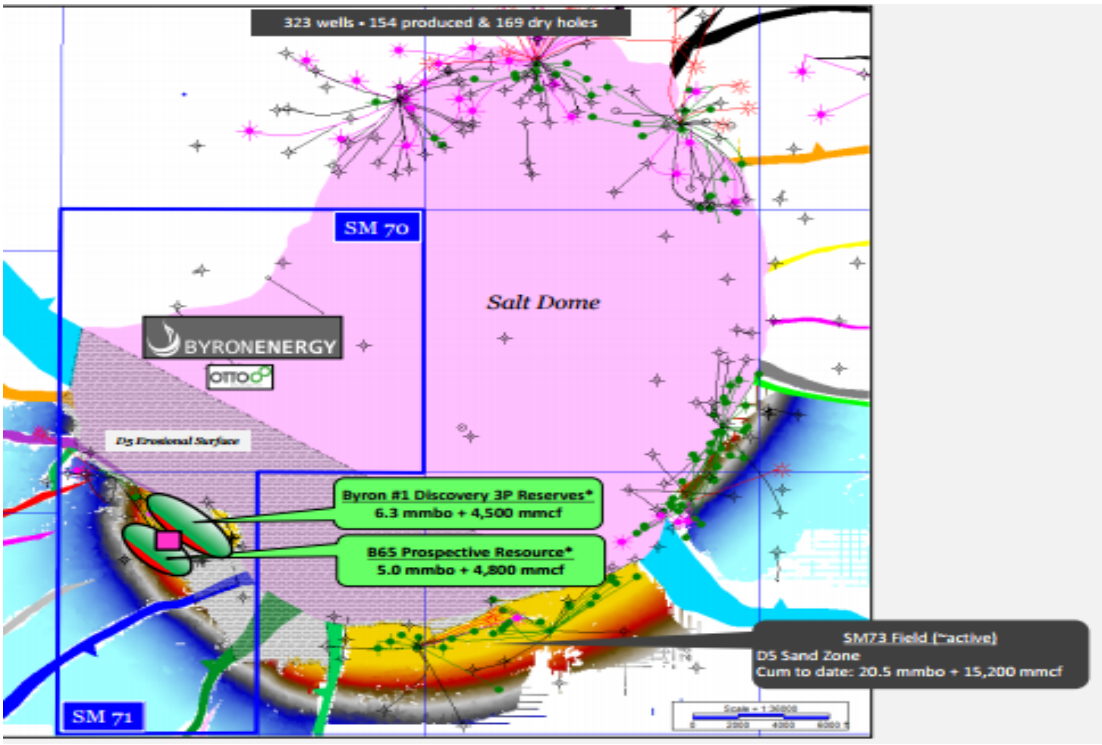

Figure 1. Location map of SMI-71 salt domes and relevance to drilling patterns. Source: Byron Energy Investor presentation

New seismic tools help to see the oil and gas reservoirs near the edge of the salt dome

The salt dome is easy to see on seismic images of the sub-surface but it also reflects and refracts seismic signals making it extremely hard to image oil or gas reservoirs close to the sides or beneath the salt. And lacking this clarity, drilling becomes a costly hit-or-miss exercise. For this reason it is theorised that there is a lot of oil and gas yet to be discovered on the flanks of salt domes. Sophisticated geophysical tools are evolving to improve seismic imaging near the salt, and BYE has acquired these and applied them to its exploration to date, with success. Appendix 1 describes these techniques in a little more detail.

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Using Technology and Experience to Find Oil: Despite Lean Years Post Oil Price Collapse

BYE's first wells on SMI-6 found oil and gas and proved the exploration method

In 2014, BYE undertook drilling of its first exploration well an ASX-listed entity located near a salt dome in lease South Marsh Island-6 (SMI-6). The concept was to find oil and gas in reservoirs beneath a complex salt over-hang and up-dip from zones not accessed by existing wells located away from the salt face. The first SMI-6 well and a second well in 2015 were successful in finding oil and gas not previously produced. Unfortunately rig equipment failure, and difficult downhole drilling conditions resulting in stuck pipe and necessitating un-budgeted side-track wells, depleted the company's finances. It was a costly exercise resulting in over $27m spent and written off in FY2016, but the exploration technology was proved.

During 2015 and 2016, low oil prices impacted the share price and investor appetite in general and made equity finance of ongoing activity very challenging. Management and Board suffered significant cuts to remuneration, and several Directors extended loans to the company to continue with exploration. However, on the back of technical success BYE was able to secure industry participants to share in exploration. Otto Energy Ltd (ASX-listed OEL.AX) farmed-in for a 50% working interest in SMI-71 and Metgasco Ltd (ASX-listed MEL.AX) subscribed to an A$8m Convertible Note loan in return for an option to participate in future drilling opportunities, excluding SM-71. The additional funds and reduction in capex commitments enabled BYE to move forward and drill the SMI-71 well in April 2016, again on the flanks of a salt dome. This was a major success and this discovery is a transformational step for BYE and its partners. The latest equity issue provides capital to complete SMI-71 and move into a cash-flow positive phase for the first time in BYE's corporate life.

The SMI-71 Discovery and Upcoming Project

The SMI-71 lease is located in 40m of water approximately 100km off the Louisiana coast and was acquired in a lease sale by the State in October 2012. BYE acquired 100% of the interest, and subsequent farm-out to Otto Energy resulted in BYE's operated interest falling to 50%.

And BYE's second well was a commercial discovery

This lease had been exploited by other companies and produced 5 mmboe to date before ceasing production in 2010. BYE's application of ARTM seismic imaging tools identified oil and gas zones not produced to date, and which were analogous to productive zones on the adjacent lease, SMI-73 as shown in figure 1. The exploration well SMI-71#1 was spudded on 3 April 2016, and was drilled to a total measured depth of 7477 feet by 2 May. Logs revealed net oil / gas pay of 151 true-vertical feet in total, in 4 distinct reservoirs, the I, J, D5 and D65 sands. A decision was made to suspend the well for production, and development is well advanced with first oil production expected in January 2018.

Key operational and financial elements of the project are:

- Low project capital cost, of US$21 m (gross) for the refurbishment of a pre-owned tripod platform, fully manned to provide operational control. The tripod will have capacity to handle up to 4,500 bopd of oil and 36 mmcfd of gas from wells located on BYE's platform, and with some future modifications, hydrocarbons from other BYE leases could be produced as well. Completion and load-out of the platform to the field is expected in October 2017.
- Mobilisation of a drilling rig to install to completion equipment in the #1 well, and drill and complete a second well (the "#2 well") in the D5 and D65 sands in November 2017. The incremental gross capital costs for the second well is expected to be US$7m (US$3.5m net to BYE).
- BYE's working interest in the project is 50%, and net revenue interest after federal royalties is 40.625%. BYE is the operator.
- Independently certified 2P reserves are 5 mmbbls of oil and 4 Bcf of gas (gross). (Refer to figure 12 for a table of BYE's reserves and contingent resources for all leases). BYE's net share of oil and gas in SMI-71 is 2.0 mmbbls of oil and 1.5 Bcf of gas, or 2.2 mmboe in total.
- Initial oil flow rates from the first well are expected to be >1500 bopd (gross), and similar for the second well. A third well is planned in mid-2018 and is anticipated to add an incremental >1000 bopd gross. The production profile as these wells are drilled and completed is shown in Figure 2 and this is our base case valuation and financial model. The vertical scale is gross production, in thousand barrels per quarter.

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Production envelope shows three wells which is the base case

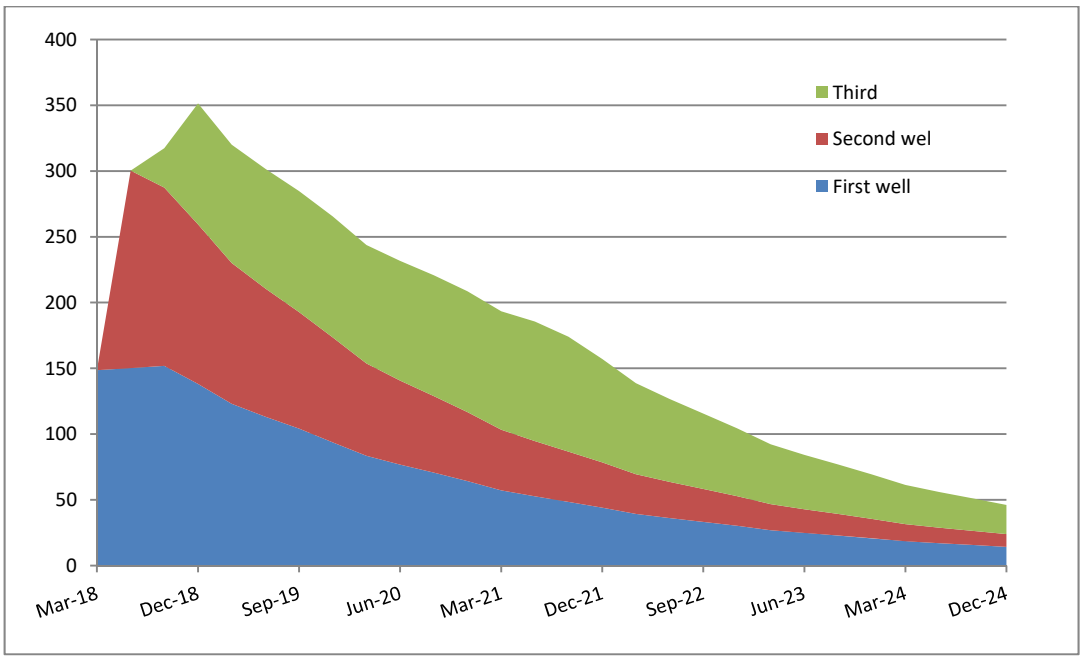

Figure 2. Production profile per well in thousands of barrels, net, per quarter. Source: BR

Financial Modelling and DCF Analysis

A detailed financial summary is presented in this report Key assumptions and estimates are:

- Oil price of US$53.4/ bbl in CY2018 and escalating in nominal terms at 2% p.a. and Henry Hub gas price of US$3.1/mcf in CY2018, US$3.0/mcf in CY2019 and flat in nominal terms there-after. We think these are conservative, and we consider upside scenario analysis in a later section.
- Project life of 6 years. This could be prolonged if the joint venture drills additional wells to access the 3P reserve of 6.3 Mmbbls. We consider that to be an upside scenario and is expanded on in the "Growth" section of this report.
- Capital costs for a third well of US$7m (gross) incurred in mid 2018.
- All production and revenue is modelled and reported on a "net" basis which is after deducting Federal Government revenue royalties of 18.75%. Thus, BYE's economic ownership in SMI-71 for a 50 % "working interest" becomes 40.6% at the revenue line, the so-called "net revenue interest" or NRI. Hence the financial model shows zero for production taxes or royalties as these are already accounted for at the net production & revenue line

Cumulative net cash-flows reach US$76m by year end December 2023.

- We assume fixed cash costs largely to man the offshore platform plus provide logistic support ranges US$1-2m / p.a and is very small in context to the forecast revenue profile. All up fixed and variable opex costs equate to < US$4/bbl.
- We do not factor in tax payments. BYE has tax losses sufficient to offset taxable income over the next 6 years under reasonable oil price scenarios.

NPV of cash flows is US$65m from the September quarter 2017

SMI-71 capex is paid-back in 9 months

Revenue and cash flow at the field level tracks the production envelope and peaks in the December quarter 2018, coincident with all three wells producing at optimal rates, and then declines as the wells deplete. Our forecasts show that by the end of CY2018, all historical investment has been recovered, indicating an investment pay-back period of approximately 9 months. We estimate that cumulative net cash-flows reach US$76 m at year end December 2023. Figure 3 charts quarterly net cash flow and cumulative cash flow. The dip in net cash-flow in mid 2018 is coincident with capex for the third production well.

When discounted at 8.3% p.a. after tax, the NPV of this field-level cash flow is US$65m, and this flows through to our full company DCF detailed in Figure 4.

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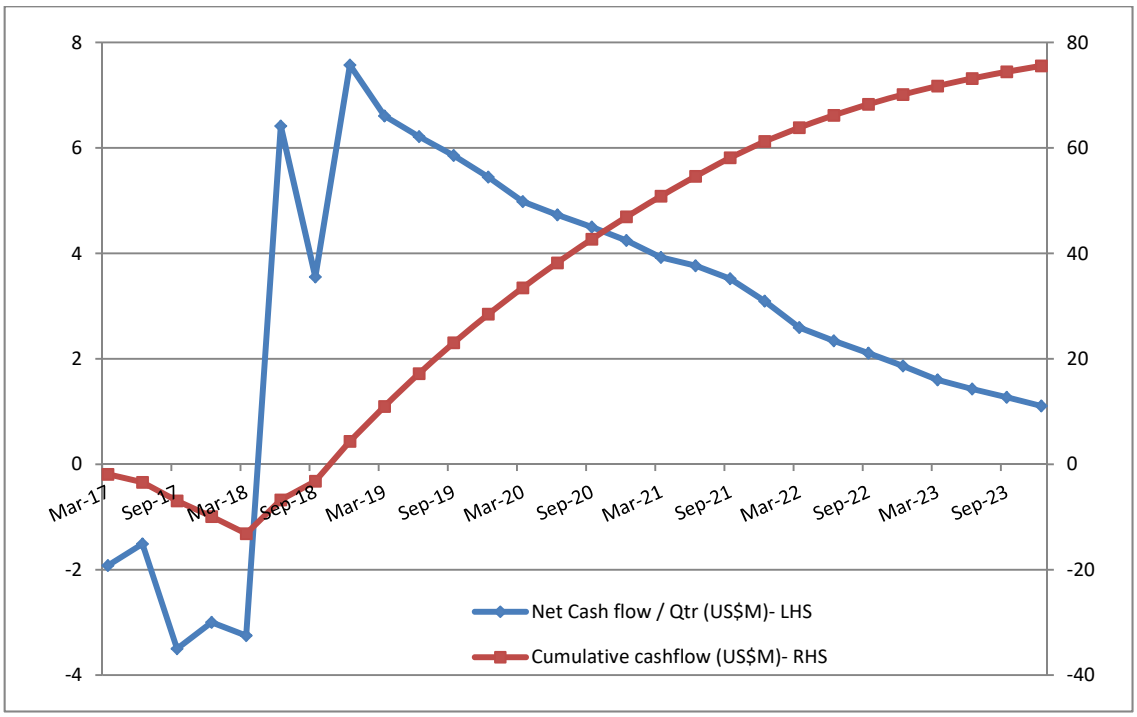

Figure 3. Net cash flow (LHS) per quarter, and cumulative free cash flow (RHS), in US $m. (Source: BR)

We incorporate the field model into a full company financial model shown in Figure 4. At the company level there are additional costs as follows

- We assume that the Metgasco Convertible note is repaid over its term, and interest expense reflects the 14% rate on outstanding balance. See later for more details in the "Funding" section of this report.
- In terms of calculating depreciation for forecasts of statutory profit, we assume US$17m (net) depreciated on a units of production basis equating to US $8 /boe over the life of the field.
- We factor in further opex at the corporate level for ongoing geological studies, and General & Admin approximating US$3m p.a.
- At June 30, BYE had US$3.5m of cash, but requires A$15.1m to complete the SMI-71 structure and drill and complete the second production well. In addition, over the next 6 months, BYE will need additional funds to provide working capital until the first sales receipts are received, abandon SMI-6, pay Convertible note principle and interest, and pay general and overheads. These additional funds are a minimum of $5m
- On August 14, BYE announced a successful capital raising of A$26.5m via a placement priced at 7c, a 22% discount to last close, via the placement of 379m new shares. Our financial models include this issuance. In addition, there is an accompanying Share Purchase Plan (SPP) to raise up to an additional A$2m. Our models do not incorporate the SPP at this time. The placement, including subscription from Directors, is subject to an Extraordinary General Meeting, to be held on or about 18 September 2017. Our forecasts explicitly assume the placement is approved.

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Company Financial Model and DCF

Our company DCF valuation is A$ 21 cps and is anchored by SMI-71

Figure 4 sets out our sum-of-parts asset valuation, after integrating the SMI-71 field model with other assets and financial obligations. Note that Byron reports its financial results in US$. We have converted US$ asset values and earnings per share to A$ at an assumed long term A$-US$ exchange rate of 75c.

At June 30, BYE's cash position was US$3.4m. Subsequent to this, BYE announced an equity issuance to raise A$26.5m before costs, by issuing 378.970 shares at A$ 7c. The capital structure shown in Figure 4 incorporates the expanded capital base and expected cash position, post raising but excludes the follow-on SPP. The SPP may attract up to A$2M and even if so, is not material to our financial forecasts.

We value the Metgasco Convertible Note at face value. In addition to ordinary share capital, there are 23m unlisted options, 19m of which have exercise prices of A$25c and expire in 2019. We do not assume exercise of these options in the capital structure.

Our value for resources is very conservative

BYE has internally identified prospective resources on a gross basis of 57 mbbls of oil (42 mbbls net) and 587 Bcf of gas (450 bcf net) in its leases, and we assume 10% of this prospective resource is converted to future reserves through drilling. This conversion factor represents a general risking of prospective resources, and is not a prospect specific expected success rate. We think this is highly conservative but prudent at this time until funds, joint venture, and regulatory approvals are in hand to execute drilling activity in a timely manner. The essential point is that these newly awarded leases offer some serious growth upside, beyond that of SMI-71.

A single discovery in any of the newly awarded leases would lead to far higher valuation

A single commercial discovery in any of SMI-57, 59 or 74 of similar size to SMI-71 would result in a future value far higher than our value for exploration shown in this table. Conversely, failure to drill for any reason could ultimately result in the leases expiring worthless. Figure 7 details tenure on leases, which extend to 2022 in the case of those which were recently awarded. Figure 4. US$ and A$ sum-of-parts DCF.

Valuation by area	**US$**	**A$/Sh**	**Reserves**		**Resources**	
Reserve scenario	**2P**		**OIL- 2P**	**Oil-Prosp**	**Gas-2P**	**Gas-Prosp**
WACC- nominal after tax	**8.3%**	**8.2%**	**mm bbls**	**mm bbls**	**Bcf**	**Bcf**
A$	**0.75**					
Development assets						
SM-71	64.9	0.10	2	2	2	1
Sub total-developments	**64.9**	0.10	**2**	**2**	**1**	**3**
Acreage & prospective resources						
Eugene Island	4.4	0.007		7	0	172
SM-59, 57,74	19.5	0.030		22	0	159
Bivouac Peak (pre farm-out)	8.0	0.012		11	0	119
Sub total- Exploration	31.9	0.049		**42**	**0**	**450**
Financial assets						
Corporate costs & overheads	-12.5	-0.02				
Metgasco Convertible note	-6.0	-0.01				
Cash - Est post raise	24.1	0.04				
Abandonment provisions	-0.5	0.00				
Sub total- financial	**5.1**	0.01				
Total equity value	**101.8**	0.16				
Shares on issue	656.5					
Options on issue	23.2					
Value per share-US$	$0.16					
Value per share-AU$		$0.21				

Figure 4. Sop DCF valuation (source BR)

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Figure 5 shows our profit and loss and cash flow forecasts and EPS estimates to 2022. These are June year-end figures and are in US$. Our estimates incorporate the post-raise capital structure. This forecast is a static snapshot of the SMI-71 project and does not assume re-investment success. Thus, capex, revenues and profits beyond 2018 do not assume outcomes from growth initiatives.

Year end June 30		**2018**	**2019**	**2020**	**2021**	**2022**
Oil price- realised	US$/bbl	52.20	52.57	53.26	54.16	55.34
Gas price-realised	US$/mcf	2.90	2.90	2.90	2.90	2.90
Net production						
Oil	Kbbls	182	524	416	328	242
Gas	mmcf	165	471	374	295	101
Revenue						
Oil	US$m	9.5	27.5	22.2	17.8	13.4
Gas	US$m	0.5	1.4	1.1	0.9	0.3
Total field revenue		10.0	28.9	23.3	18.6	13.7
Other income		0.00	0.00	0.00	0.00	0.00
Total income	**US$m**	**10.0**	**28.9**	**23.3**	**18.6**	**13.7**
Field cash costs	US$m	0.5	1.7	2.2	2.2	2.1
Admin		2.7	3.2	3.1	3.3	3.5
EBITDAX		**6.7**	**24.0**	**17.9**	**13.1**	**8.0**
Depreciation		1.4	2.0	1.9	1.4	1.1
Exploration		1.0	0.5	0.5	0.5	0.5
EBIT		4.4	21.5	15.5	11.2	6.4
Interest Expense		0.8	0.3	0.2	0.0	0.0
Pre-tax profit		3.6	21.2	15.3	11.2	6.4
Tax		0.0	0.0	0.0	0.0	0.0
NPAT	**US$M**	**3.6**	**21.2**	**15.3**	**11.2**	**6.4**
Share count		656.4	656.4	656.4	656.4	656.4
EPS	US cents	0.5	3.2	2.3	1.7	1.0
Cash flow/Share	US cents	1.0	3.7	2.7	2.0	1.2
In AUS @75c Exc rate						
EPS	**A cents**	**0.7**	**4.3**	**3.1**	**2.3**	**1.3**
Cash flow / sh	**A cents**	**1.4**	**4.9**	**3.6**	**2.7**	**1.6**
Cash flows inflows (out flows)						
Operating cash inflow	US$ M	4.9	23.6	17.8	13.1	8.0
Capex		**-15.9**	**-4.3**	**-1.0**	**-1.0**	**-1.0**
Borrowings (repayments)		-2.3	-3.0	-0.8	0.0	0.0
Equity finance		20.7	0.0	0.0	0.0	0.0
Change in cash	**US$m**	**7.5**	**16.3**	**16.1**	**12.1**	**7.0**

Figure 5. Financial forecasts for Byron Energy Ltd.(Source: BR)

Funding and Financial management

BYE has managed through the oil price downturn without recourse to debt. Without production reserves, BYE has little chance of accessing conventional bank debt. All its activities to date have been funded by a combination of equity issuance, farm-outs, and a Metgasco convertible note as summarised below.

- Equity. The IPO raised A$13.2m and placements to 2016 have raised an additional A$27m.
- Farm-out of interests in SMI-71, with the farminee Otto Energy (OEL.AX) reimbursing some historical expenditure, and paid an industry standard premium of 133% of Otto's share of initial drilling risk dollars. This also has the beneficial effect of reducing BYE's capital exposure.
- Issuance of an A$8m Convertible Note to Metgasco Ltd (MEL.AX) on July 22, 2016. This has a three year term and interest rate of 12% plus line fee of 2% p.a The note is repayable starting October 2017, and can be converted to equity at a 10% discount to VWAP at any time between 20 July 2018 and 21 July 2019 at Metgasco's election.

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In January 2017, BYE advised it would require additional funds in H2 2017 to complete the SMI-71 project. On August 14, BYE announced an equity issue, to raise A$26.5m by issuing 379m new shares in a placement priced at A$ 7cps. This is enough to meet development expenditures through to first oil production, after which BYE will have access to production revenues for the first time, to re-invest for future growth. The placement is subject to shareholder approval, at an EGM scheduled on or about 18 September, 2017. Our financial forecasts assume this is approved. In addition, a follow on Share purchase plan may attract an additional A$2M. Our financial models do not assume any contribution from an SPP, partly due to immateriality, and partly due to our view that such additional funds are not critical to the delivery of the base case SMI-71 project.

Growth Projects and Upside

BYE has an extensive suite of leases in the GoM. Figure 7 lists BYE's leases and Figure 6 is a locational map

All leases are in shallow water GoM except Bivouac Peak….

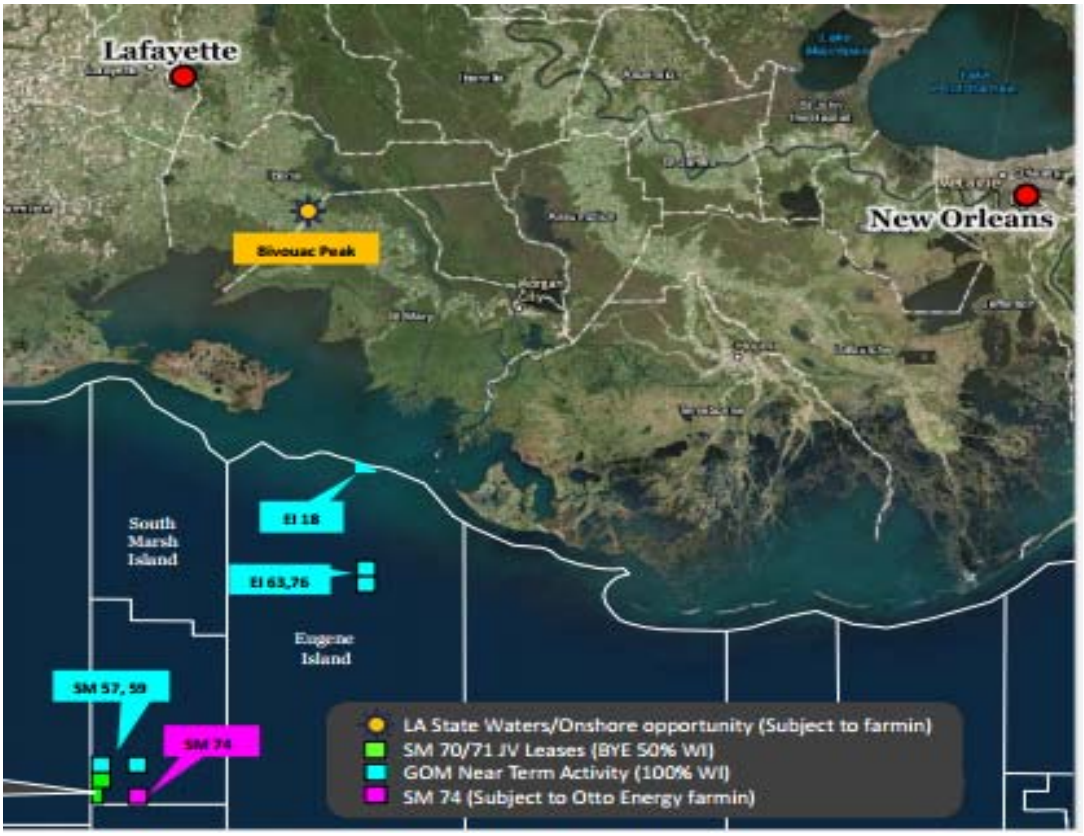

Figure 6: Location of leases offshore Louisiana. Source: Byron Energy.

Area	Operator	W.I-%	N.R.I-%	Expiry Date
South Marsh Island (SMI)-57	Byron	100.0	81.3	June 2022
SMI-59	Byron	100.0	81.3	June 2022
SMI-70	Byron	50.0	40.6	July 2017
SMI-71	Byron	50.0	40.6	SOP**
SMI-74	Byron	100.0	81.3	June 2022
Eugene Island Block-18	Byron	100.0	78.8	April 2020
Eugene Island Block-63	Byron	100.0	81.3	May 2018
Eugene Island Block-76	Byron	100.0	81.3	May 2018
Bivouac Peak (*)	Byron	90.0	67.1	Sept 2018
(*): Otto Energy and Metgasco have options to acquire 45% and 10% respectively				
W.I.= Working interest. N.R.I = Net Revenue Interest after royalties				
(**) Application made for "Suspension of Production"				

Figure 7: Details of leases. Source: Byron Energy, as at July 2017.

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We think three areas will be a focus of future activity. These are:

1. Drilling of additional wells on SMI-71. Up to 5 could be accommodated to drain the 3p reserve and the platform can accommodate 6 wells
2. Exploration drilling in the newly awarded leases SMI-57, 59 & 74 leases.
3. Exploration drilling on Bivouac peak, or any other of the existing leases.

SMI-71 Upside Case: Exploiting the 3P Reserve.

There is reserve and resource upside in SMI-71

The production outcomes are a function of how many wells are drilled and individual well performance, and production history from the first 3 wells will inform the partners as to the ultimate recovery, which is theoretically the 3P reserve figure in a best-case outcome. Our base case assumes three wells to drain the 2P reserves of 5 mmbbls (gross). We have developed an upside scenario whereby up to 5 wells are drilled to drain the 3P reserve of 6.3 mmbbls. The 3P figure represents a 26% increase compared to the 2P and is incrementally very valuable, even after allowing for additional well costs.

In the upside case, our field DCF rises from US$65m in the base-case to US$80m and cumulative net cash flow to year end December 2023 rises from US$76m to US$98m, as shown in Figure 8.

In a 5 wells scenario to drain the 3P, cumulative cash flows reach US$98m by Dec. 2023

We assume that the incremental wells cost US$7m (gross) each and are drilled in mid-CY2019 and mid-CY2020 and these can be funded from operating cash flow, as evidenced by the blue line in the figure 8. We assume incremental production from the 4th and 5th wells of 900 bopd and 800 bopd respectively. We believe these assumptions are reasonable, as there needs to be production history before the joint venture makes decision regarding additional drilling.

At this time, the timing of additional wells is not certain and subject to JV approval.

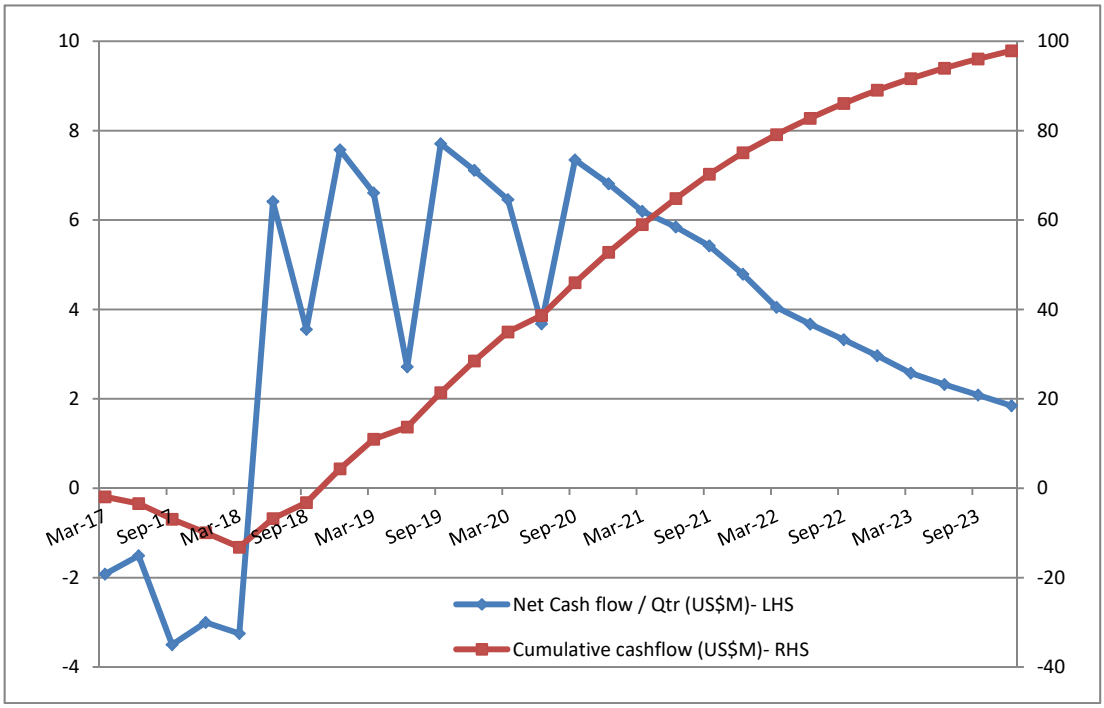

Figure 8. Free cash flow and cumulative cash flow in a 5 well development scenario. (Source: BR)

Drilling on Newly Awarded Leases SMI-57,59, 74 and Vermillion Block 232 (If Awarded)

Newly awarded leases are on the eastern and northern flanks of the same salt dome that sets up SMI-71

On June 2 2017, BYE announced that its bids for acreage offered by the State in a regular lease auction had been accepted for SMI-57, 59 and 74. These three blocks are north and east of SMI-71 and offer exciting drilling analogues to SMI-71. Its offer for Vermillion Block 232 (VR 232) however was not accepted and BYE has applied for a re-consideration. BYE has a 100% working interest in all these blocks, but Otto Energy has an option to acquire 50% of VR-232 if this block is awarded. If it is not awarded to BYE, then Otto has the option to farm-in to SMI-74 on the same terms.

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The award of these leases is very significant for BYE as they bring multiple new drilling locations, several of which are drill-ready now from a technical perspective and only requires permits and capital to move forward. BYE has already applied ARTM seismic technology to identify 15 prospects, with an in-house gross prospective resource of 27.5 mmbbls of oil and 193 Bcf of gas. Collectively these prospects are substantially larger than the SMI-71 discovery, and importantly these prospects are with-in tie-back distance to the SMI-71 production platform. Thus, any discoveries can leverage the existing BYE-operated production infrastructure. (Refer to the Appendix for discussion of ARTM and related technologies)

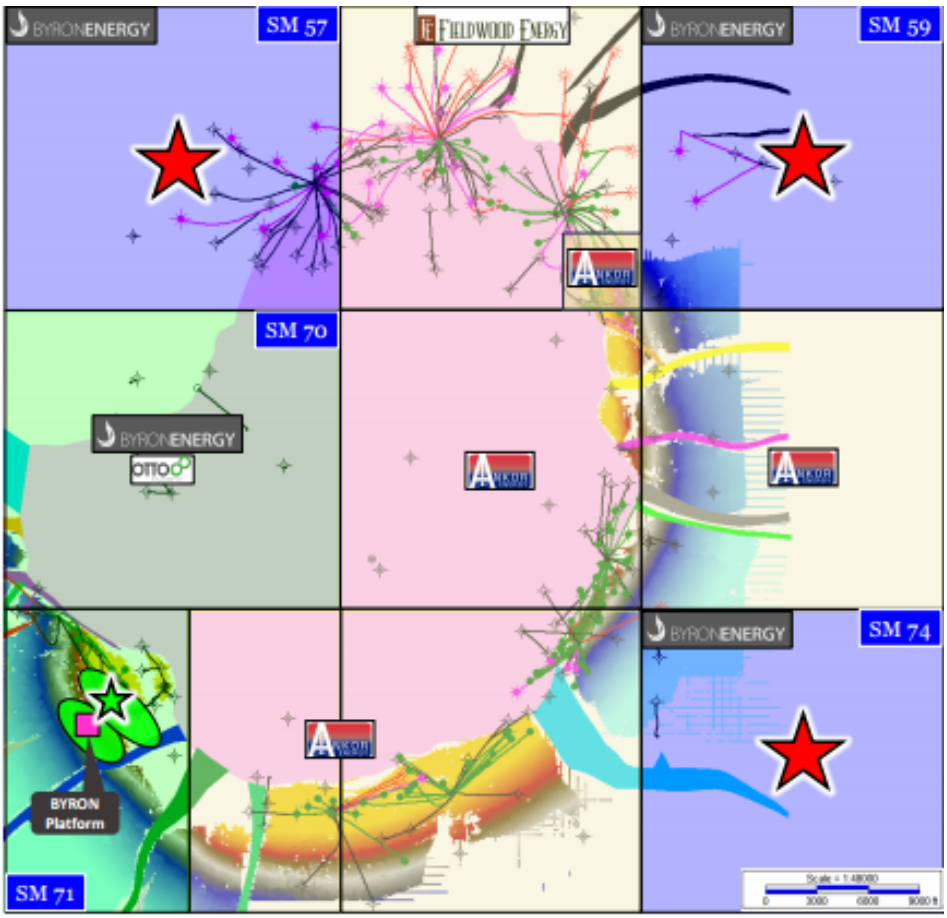

Figure 9. Location of newly awarded leases relative to SMI-71. Source: Byron Energy July 2017 Investor Presentation

Bivouac Peak

Bivouac Peak has a large prospective Resource but wells are deep and expensive

The Bivouac Peak leases were acquired from private land-owners in November 2015 and cover 9.7 km2 along the southern Louisiana gulf coast. BYE has a 90% working interest (67.05 % NRI) and a private company holds the balance. During 2017, Otto Energy and Metgasco acquired options to farm-in for 45% and 10% respectively. Should these companies exercise their options then BYE's working interest will reduce to 35%, and net revenue interest 26.1%.

Two prospects have been identified with advanced seismic techniques and could contain 15.9 mmbbls of oil and 178 Bcf of gas, in the success case, however these prospects are relatively deep between 18,000 and 20,000 feet and may be expensive wells to drill, in the order of US$8-9m per well.

Bivouac Peak prospects are drill-ready but we think drilling activity will be delayed until there are sufficient funds in place, with capital at this time prioritized to SMI-71.

Oil and Gas Price Inputs and Valuation Scenarios at Various Oil Prices

Our oil and Henry Hub gas price inputs are in line with the NYMEX futures prices as at August 1, 2017, with realised prices adjusted for specific crude premiums and transportation costs for gas. The oil price deck approximates US$53.4/bbl in CY2018 and is escalated in nominal terms at 2% p.a. We assume a Henry Hub gas price of US$3.1/mcf in CY2018, and US$3.0/mcf from 2019 onwards and flat it nominal

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terms, consistent with consensus views of plentiful US gas supply. Refer to figure 10. We think our oil price input is conservative compared to consensus forecasts which are higher and reflect a tightening oil price environment.

We think our oil price input is very conservative.

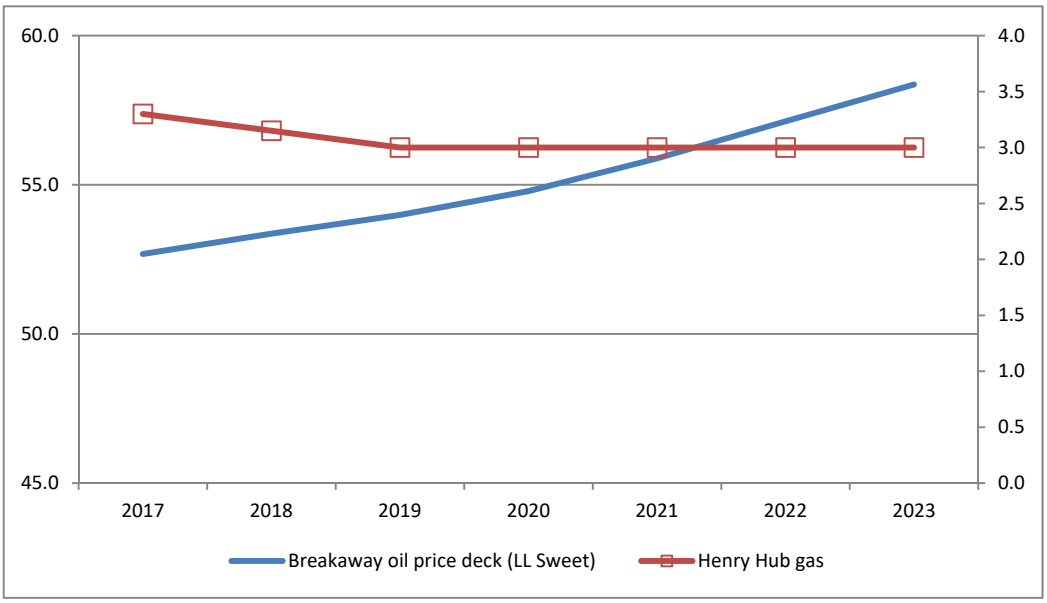

Figure 10: BR oil and gas price assumptions (US$). Source: BR

It's possible that oil prices rise over the next few years if the global oil market continues to re-balance, and as a pure oil producer, BYE is sensitive to oil prices. With operating costs < US$4/bbl, BYE will be cash-flow positive even at very low oil prices. Every US$10/bbl increase in oil prices over our base case adds an approximate 4 cps to our DCF valuation.

Figure 11 show company and SMI-71 asset value as a function of oil price. The blue line is SMI-71 project cash-flow valuation in US$m (RHS), and company NAV in A$ cps, the red line (LHS), at various oil prices in US$/bbl (X-axis).

As a pure oil producer with low opex, BYE is very leveraged to higher oil prices

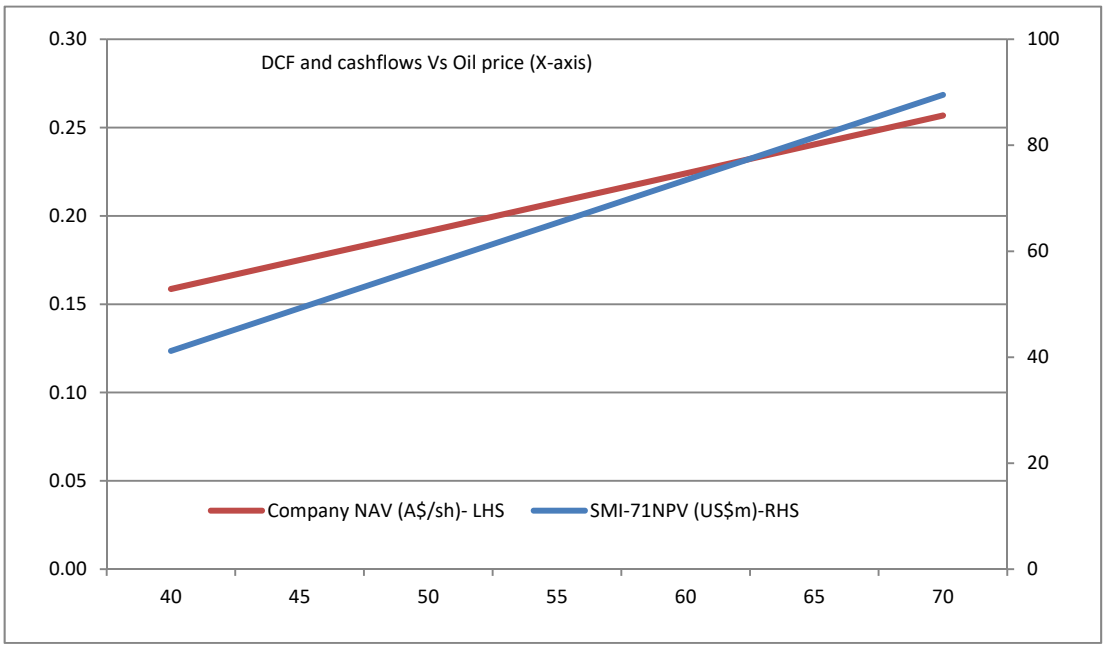

Figure 11: Company NAV (A$ cps), and SMI-71 value (US$M) vs oil price. Source: BR.

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Oil and Gas Reserves and Prospective Resources

BYE reserves and resources are shown in Figure 11, on a net revenue basis, i.e after deduction of Federal and / or state royalties. The SMI-71 1P-2P-3P figures have been independently audited by Collarini & Associates in July 2016. These reserve and resource estimates are displayed in BYE's July 2017 Investor presentation. Prospective Resources at SMI-71 may be upgraded following additional RTM seismic mapping. The prospective resource figures for Bivouac Peak and SMI-74 are on a pre-farm-out basis, and are subject to a reduction should any of the farm-in partners (Otto Energy and Metgasco) elect to exercise options to enter these leases. In such an event, BYE's prospective resource would fall, as would it investment costs and potential future returns.

Reserves & Resources (net to BYE)

SMI-71 and EI 63/76	Oil (mmbbl)	Gas (Bcf)	Total (mmboe)
1P	0.6	0.4	0.6
2P	2.4	2.1	2.8
3p	3.3	3.2	3.8
Other Leases-Prospective Resources (net to BYE)			
SMI-57,59,74	22.4	157	48.5
Bivouac Peak	10.7	119	30.6
Eugene Island 63 / 76	7.1	172	35.7
SMI-71 -upside	2.0	2	2.3
Total Resources	42.2	450	117.1

Figure 12. Source: Byron Energy Investor Presentation August , 2017.

Byron Energy Director and Executive Backgrounds

The Board includes members with over thirty years of technical and managerial capability focused on the US Gulf of Mexico

Non-Executive Chairman, appointed March 18, 2013
Doug Battersby

Doug is a petroleum geologist with over 41 years technical and managerial experience in the Australian and international oil and gas industry. Doug co-founded two ASX-listed companies, Eastern Star Gas (acquired by Santos in 2011) and SAPEX Ltd (acquired by Linc Energy in 2008) and two private companies Darcy Energy and Byron Energy (Australia). Darcy was acquired by Daiwa Corporation in 2005. Doug was executive Chairman of Byron until its merger with Trojan Equity Ltd in 2013 to create Byron Energy Ltd. Between 1990 and 1999, Doug was technical director of ASX-listed Petsec Energy Ltd, which at its peak in 1997 produced 9000 bopd and 100 mmcfd of gas. Doug holds a Master of Science degree in Petroleum Geology and Geophysics from the University of Melbourne.

Executive Director and Chief Executive Officer, appointed March 18, 2013
Maynard Smith

Maynard is a geophysicist with over 30 years technical and managerial experience specialising in the US Gulf of Mexico. Maynard co-founded Darcy Energy and Byron Energy and has been CEO of Byron since 2013. Prior to that, Maynard was Chief Operating Officer with Petsec Energy Ltd from 1989 to 2000. In the late 1970's and early 1980's Maynard had senior exploration positions with Tenneco Oil Company, based in Bakersfield, California. Maynard holds a Bachelor of Science degree from California State University at San Diego, USA.

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Executive Director and Chief Operating Officer, appointed March 18 2013
Prent Kallenberger

Prent is a geoscientist with over 30 years' experience in the oil and gas industry and extensive experience in GoM, generating prospects and drilling over 125 wells in the GoM and California. Between 2000 and 2006, Prent was Vice President of Petsec Energy Inc, where he and his team were responsible for 10 successful wells out of 12 attempts in the shallow GoM waters. Between 1992 and 1998 Prent was Geophysical Manager at Petsec Energy Inc. He holds a Bachelor of Science degree in Geology from Boise State University, and Master of Science Degree in Geophysics from Colorado School of Mines.

Non- Executive Director, appointed March 18, 2013
Charles Sand

Charles has over 30 years' broad-based business and managerial experience in the USA and brings to the Board, advice on business conditions and the USA operating environment. He is President of the A. Santini Storage Company of New Jersey Inc. Charles was a non-executive Director of Byron Energy when Byron merged with Trojan, and prior to that was a director of Darcy Energy Ltd, and is a member of the Audit and Risk Management committee. He holds a Bachelor of Science degree from Monmouth University.

Non- Executive Director, appointed March 18, 2013
Paul Young

Paul is the co-founder and an executive Director of Baron Partners Ltd, a well-established Australia corporate advisory business. Paul has extensive experience in the provision of corporate advice to a wide range of listed and unlisted companies including restructurings, initial public offerings, mergers and acquisitions. Paul is an honours graduate in Economics from Cambridge University, and has an Advanced Diploma in Corporate Finance. He is an Associate of the Institute of Chartered Accountants in England and Wales and a Fellow of the Australian Institute of Company Directors. Paul is currently Chairman of the Audit and Risk Management Committee.

Executive Director, appointed October 4 , 2014
William Sack

Bill is an explorationist with 29 years' technical and managerial experience in the GoM. He was a co-founder and managing Partner of Aurora Exploration LLC, a private company specialising in generating and drilling over 80 prospects in the GoM, with an 80% success rate. Under Bill's leadership, these were monetised through multiple asset sales at the corporate level. Bill commenced his career with Shell Offshore Inc in 1988, based in the GoM, and served as Vice President Exploration and Joint Ventures with Petsec Energy from 1995 to 2000. He has a Bachelor of Science in Earth Sciences & Physics from Saint Cloud University, Master of Science in Geology from Michigan State University and MBA from Tulane University.

Chief Financial Officer & Company Secretary
Nick Filipovic

Nick is a qualified accountant (FCPA) with over thirty years' experience in finance, strategy and M&A in both the financial services and natural resources industries, including oil and gas. Prior to joining Byron in 201 as CFO, he held a range of senior positions with AXA, National Mutual, Costain and CRA (now Rio Tinto). He holds a Diploma of Business (Accounting), Bachelor of Business (Marketing) and a Graduate Diploma of Applied Finance.

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Breakaway's View

Byron Energy is a relatively unknown company in the Australian listed energy sector, despite the long and successful track record of its Board and management team. It public debut in 2013 was perhaps subsequently over-shadowed by the oil price collapse a year later, which -drove investors away from the industry. That Byron has managed through this period ready to emerge as a producer, is remarkable in context, as many of its exploration peers in Australia and globally have not survived the downturn.

Based on our economic analysis of SM-71 alone, BYE is undervalued relative to our DCF of A$ 21 cps. Harvesting the initial production cash-flows in order to accelerate the business model, by drilling additional SM-71 production wells, and drilling the recently acquired leases SMI-57, 59 &74 provides considerable upside through 2018 and 2019. It should be apparent that the lack of access to capital since 2014 has been a constraining factor on the value-additive exploration phase. The most recent equity issue funds BYE through to first oil production after which there access to cash-flow. Thus we think access to capital is not as much of a constraint going forward as it was in the past 2 years.

There are factors which may lead to an increase in the share price over the next few months and these include:

- Improving oil prices. We think oil prices troughed in early Q2 and are poised for a gradual recovery as the oil market re-balances over the next 2 years.
- Delivery of production start-up in early 2018 will remove operational risk concerns
- Resolution of funding constraints and alignment with partners on the timing of additional SM-71 production wells
- Reporting of initial revenues and cash flows may result in a change of investor perception, from an exploration company dependent on external funding, to one that offers organically driven production and revenue growth

The share price is at a significant discount to our NPV which we attribute to market concerns over funding, and general lack of awareness of Byron's emergence as a producer.

Hence Breakaway's recommendation for Byron Energy is a ***Buy***.

Appendix 1.

The importance of applying advanced seismic technology

For the purposes of supporting the investment conclusion, a discussion of the seismic techniques that BYE is using is set out there. In its presentational material and ASX reports dating from 2013, BYE refers to its early adoption, for shallow waters of the US GoM, of ARTM seismic or "Anisotropic Reverse Time Migration". ARTM is an advanced seismic imaging method that allows more accurate mapping of steeply dipping stratigraphic beds that typically abut salt domes, which are common in the GoM. The ability to map sand bodies within these complex structural environments is the key to exploring for overlooked hydrocarbons in areas previously drilled. For optimal results, the process requires 3D seismic data, and log data from offset wells.

BYE reported in August 2013 that it intended to acquire ARTM 3D seismic data over all its leases within the following 18-24 months. RTM was conducted over SMI-6 in 2013 with Fairfield. In October 2014, BYE entered into agreement with WesternGeco to undertake ARTM processing over the Eugene Island (EI)-63 salt dome, and perform waveform inversion analysis on 3D ARTM data over the SMI-70/71 salt dome. WesternGeco is a subsidiary of Schlumberger Inc, and is the world's largest provider of geophysical acquisition and data processing services.

These advanced seismic techniques were developed to resolve imaging around complex geology around salt formations, in deep-water regions where well costs are extremely high, such as offshore Brazil, and in

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deep waters of the US GoM. Super-major companies apply these tools in these high cost exploration frontiers to minimise exploration risk. These geophysical tools are expensive and time-consuming. A typical large scale 3D seismic survey can cost tens of millions of dollars to initially acquire the raw data. Processing and re-processing the data, applying different mathematical algorithms each time to generate useable images could cost +/- U$1m, per run, and take 6-8 months to complete. For super-major companies contemplating wells costing >US$200m to drill in frontiers hoping to find billions of barrels of oil, the investment in geophysics is considered essential. However, for small companies operating in mature regions such as the shallow waters of the GoM, where targets are small and well costs are comparatively low, it's a tough decision. Many choose to minimise the investment in geophysics, for reasons of cost and time, plus investors in small companies just don't understand the science and preferentially invest in companies actively drilling. BYE owes its solid historical drilling success to the use of high-tech geophysics and as such, was an early adopter, relative to peers, of advanced seismic technology having committed to this strategy in mid-2013. Fortuitously since the 2014 oil price collapse, costs and availability for this technology have become more competitive. Both prospects in SMI-6 and SMI-71 were identified using this technology, and it's significant that all the wells sited with this technology discovered hydrocarbons zones that had not been produced from previously.

Figure 12 is the real life example of how well data from SM73, which is adjacent to SMI-71, plus ARTM identified the exploration targets in SMI-71 leases. The blue and purple shading represents new hydrocarbon zones in steeply dipping beds very close to a salt face. These targets would not have been so obvious with older technologies, and hence were overlooked by previous lease holders.

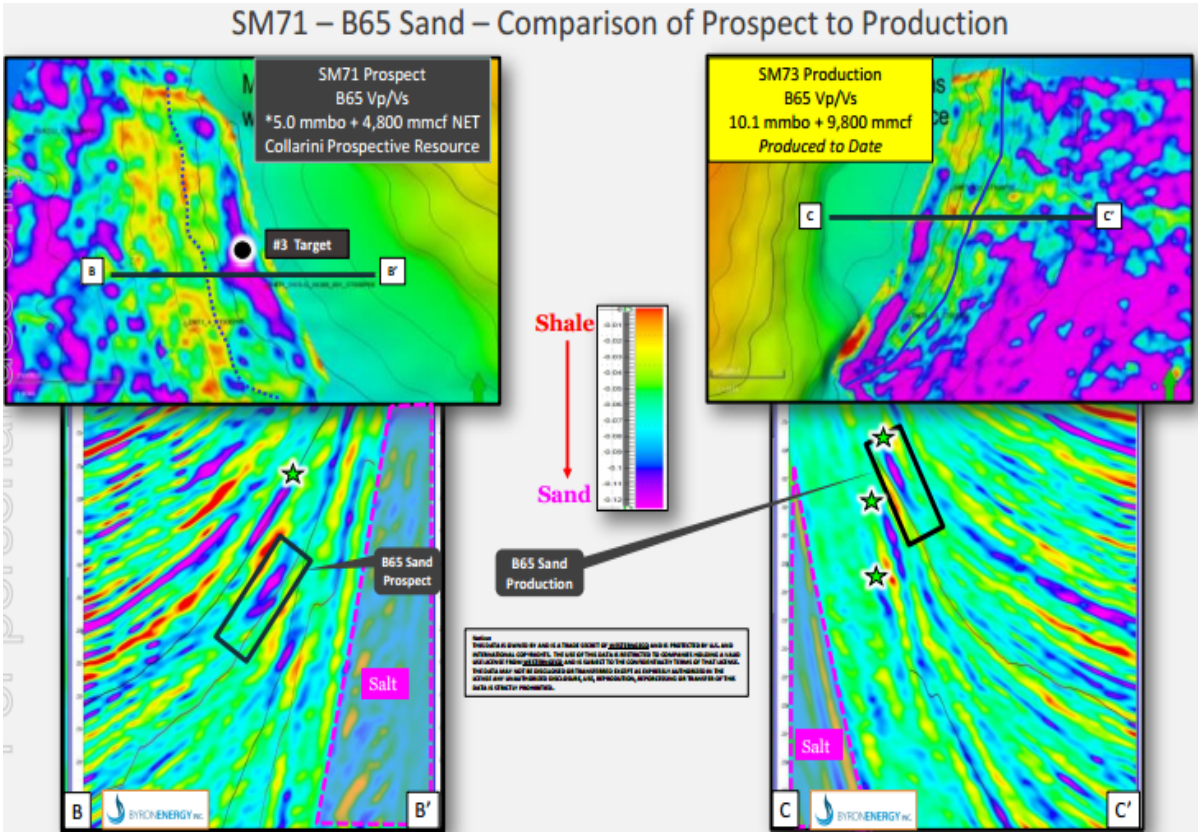

Figure 13. SMI-71 prospect and nearby analogue, as shown in the Byron Energy Investor Presentation, 19 July 2017.

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Analyst Verification

I, Stuart Baker and Stephen Bartrop, as the Research Analysts, 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.

Disclosure

Breakaway Research Pty Ltd and the Breakaway Investment Group (AFSL 290093) may receive corporate advisory fees, consultancy fees and commissions on sale and purchase of the shares of Byron Energy Ltd and may hold direct and indirect shares in the company. It has also received a commission on the preparation of this research note.

We acknowledge that Senior Resource Analyst, Stuart Baker, holds shares in the Joint Venture Partner, Otto Energy.

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