

<b>COMPANY</b>	Melbana Energy Limited (MAY)	22 <sup>nd</sup> May 2024
<b>MCAP</b>	\$171m; Current share price \$0.051/share	
<b>VALUATION</b>	Our risked valuation is \$0.145/share (was \$0.148/share)	
<b>NEWS</b>	Alameda-3 oil drilling in Cuba within weeks of key flow test program. Unit 3 “technical” find – indicative of added potential commercial upside	

Past report links: [RR\\_MAY240418](#) Maiden Resource [RR\\_MAY240326](#) 2024 Program [RR\\_MAY231220](#) [Reasons to own: RR\\_MAY231128](#)

### Key activities – evaluation of deep formations oil indications in Alameda-3; then oil production in DecH’24

- The prize for deep drilling in Alameda-3 is to find better quality crude that will flow at high rates from fracture networks in hotter/higher pressures within the Mid-sheet Alameda and Lower Sheet Marti formations.
- Once completed, MAY’s focus turns to commercial production from the 2023-drilled Alameda-2 well’s Upper Sheet Amistad Unit-1B horizon, perhaps starting at over 500 bbl/day with first sales late calendar 2024.
- A further 7 development wells accelerate output to ~5,000 bbl/day during 2025. Unit-1B alone has 46 million bbl (C2) Contingent Resource with 90m bbl Prospective Resource that underpin an ultimate ~50,000 bbl/day.
- Subject to flow rates, operating costs are expected to be low and proximity to a Super tanker port enables its recently assessed 19.8°API crude with high gasoline/diesel fuel crack to be very marketable.

Additional wells could start to be drilled in DecQ’24, after the Alameda-3 well and once the rig drills a shallow well elsewhere and undergoes maintenance. MAY also has 2025 ambitions to shoot 3D & 2D seismic to optimise exploration and development opportunities within its 656 million bbl Prospective Resource area.

As of 31 Mar 2024 MAY had A\$16.4m cash and is fully funded for its 30% share in the Alameda-3 appraisal program. Cashflow and Resource-backed lending can finance development wells, with seismic the extra cost in 2025.

### Status: Alameda-3 Drilling Update – reported 22 May 2024

- The Mid-sheet Alameda reservoir section was successfully logged. Two heavily fractured sections with elevated gas and oil shows are present. *This is consistent to Alameda-1 wells findings; this well is a twin.*

*This section’s Total Depth (TD) called at 3645 metres MD in 8.5-inch hole as reported on 18<sup>th</sup> April and two cores obtained. A 7-inch liner was set, and a stuck tool has caused delay but has been “fished” to enable next phase.*

- Forward program is to drill deeper in 6-inch hole to the Lower Sheet Marti Reservoir to ~3,835 m MD within ~2 weeks. Then wireline logs will be collected from the open hole before a 4.5-inch slotted liner emplaced and isolate this entire section for a flow test the Lower Sheet Marti, and later flow test the Mid-Sheet Alameda.
- A discovery in the Lower Sheet Marti, and later flow tests in the Mid-sheet Alameda Formations provides shareholders potentially very significant upside, and for Cuba – will greatly enhance its oil prospectivity.

Delays for previous small sidetrack and fish retrieval mean that Alameda-3 well has consumed its budgeted contingency and is now running over budget modestly, though covered by MAY’s cash position.

## Why we see value in MAY – huge in place oil and keen focus on locating & producing target horizons

### 1. Oil indications and flows have been obtained in multiple Reservoir Units.

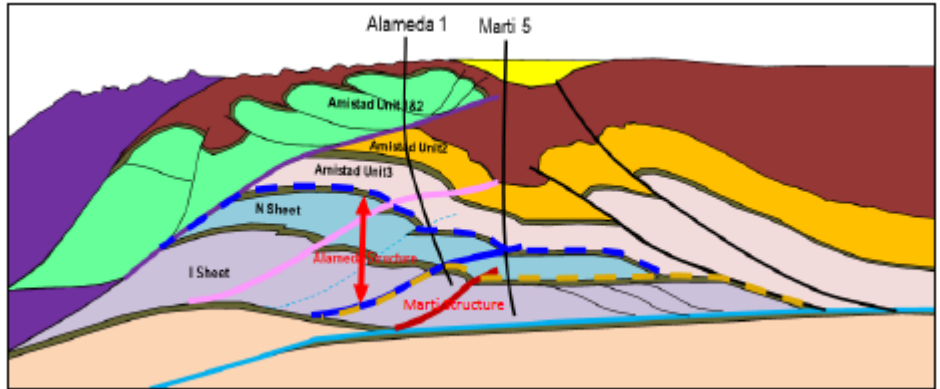
This was shown from Alameda-1 discovery well, and for Upper Sheet formation in the Alameda-2 well's flow test.

The Upper Sheet – Amistad; Middle Sheet – Alameda; and Lower Sheet – Marti are similar reservoir segments piled on top of each other.

That is 3x the potential per acre of exploration ground.

All major zones are prospective with a huge interpreted gross oil columns over hundreds of metres, with the possibility that oil quality increases with depth. Billions of barrels of oil have been trapped in the greater Alameda structure Is the starting point.

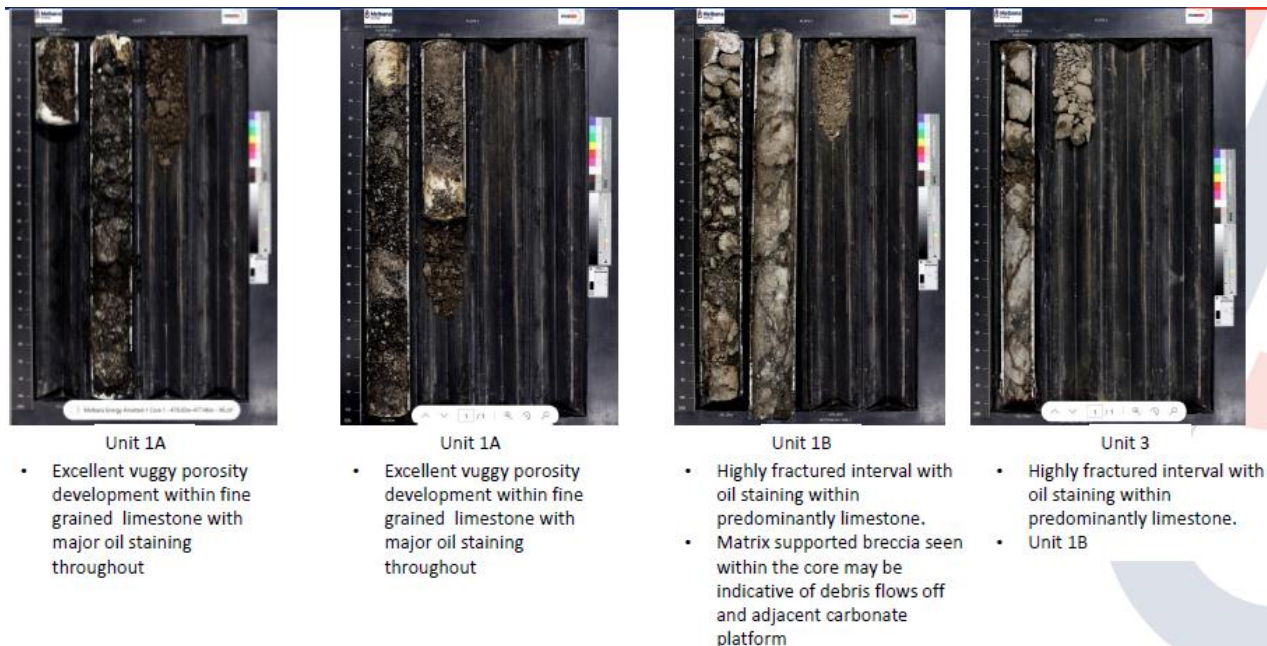
The question now is *what is the recovery factor* to assess its commercial significance?



### 2. Carbonate reservoir units in sections have excellent Fracture and/or Vuggy porosity/permeability.

This is crucial for determining “net pay” and for potential oil recovery factors to lift from <3% to well over 9%.

What we like to see in cores is significant oil staining of light-coloured carbonates and evidence of extensive fracturing and inherent porosity as is amply demonstrated in cores from Alameda-2 well below.



### 3. Commercial oil flows from Amistad Formation Unit-1B – from the Alameda-2 well drilled in 2023

Test #4 flowed oil at an average rate of 1,235 bbl oil/day (36/64" choke) from Unit-1B. Sampled oil was lighter (~19°API) and higher quality than typically produced in Cuban Fields. A big gross column >710m indicated provides confidence to pursue development. This test provides the basis for an initial cashflow generating development that can commence near-term, whilst continuing to appraise deeper and nearby targets.

### 4. A sleeper asset – Unit 3 that may be appraised via development drilling in 2025

In recent weeks MAY as operator presented to Sonangol, its joint venture partner and Cuban regulators. Its presentations revealed that Alameda-2's Unit-3 flow test while suffering mechanical difficulties did support the view of a >700 bbl/day flow rate. Importantly, after dehydration the crude rated 17°API and not <10° API.

For us it transforms a technical success to a potentially commercial zone of eminently marketable crude.



To test this view will require appraisal. This may come with engineering a Unit-1B development well to also appraise the deeper Unit 3 and re-test Unit-3, as indicated in the “teal” colour below.

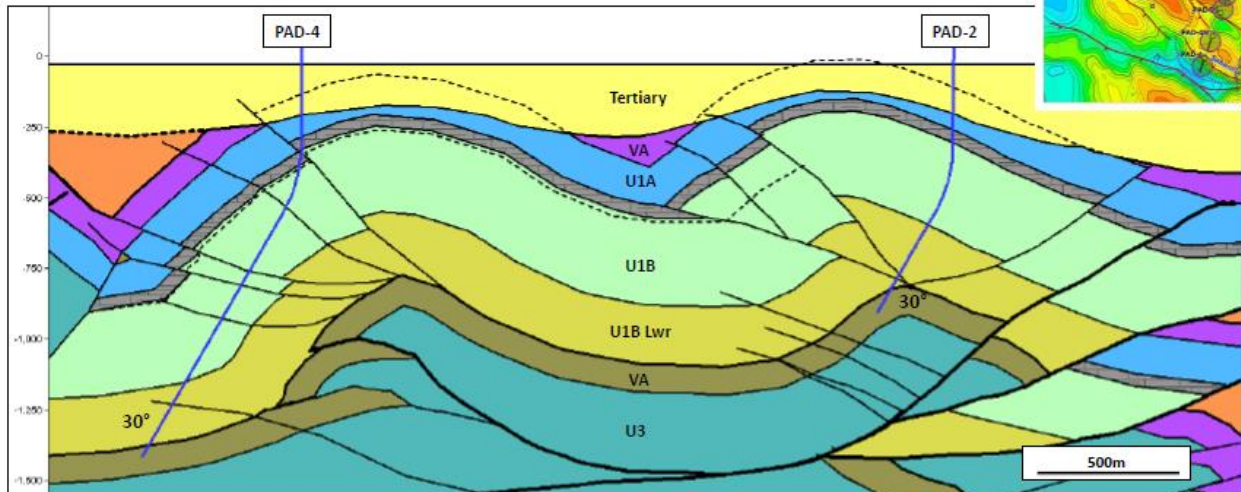
With reasonably shallow depths of ~1,500 metres, relatively cheap drilled wells could be tapping either the Unit-1B and Unit-3 Amistad formation while using existing well pads and production facilities resulting in unit cost savings.

MAY's focus is firmly upon Unit 1B development for cashflow. No decisions have yet been made on appraising Amistad Formation Unit 3.

**Unit-3 is for us indicative of commercial prospectivity of the greater Alameda structure, though requires more work.**

## Phase 1 – New Unit 1B Wells

- Most likely interpretation driven by Unit-1B seismic.
- Structural position impacts productivity (fractures) and section penetrated by each well path.
- Wells to TD in VA.
- Higher deviation wells give greater length in reservoir and greater productivity.



Source: MAY Presentation May 2024

## 5. A successful Alameda-3 Exploration well – the well is intended to be kept for extended testing

MAY aims to case and test the currently drilling Alameda-3 well. Success in either/both the Mid-sheet and/or Lower Sheet Formations will see completing the best of the zones for later extended testing.

As MAY is establishing production facilities, extended well testing provides potential for added cashflow should flows be substantial. Extended testing also provides data to more accurately determine the recoverable resource.

Closeness to Cuba's oil refineries and to the Matanzas Supertanker Port reduce barriers to production.



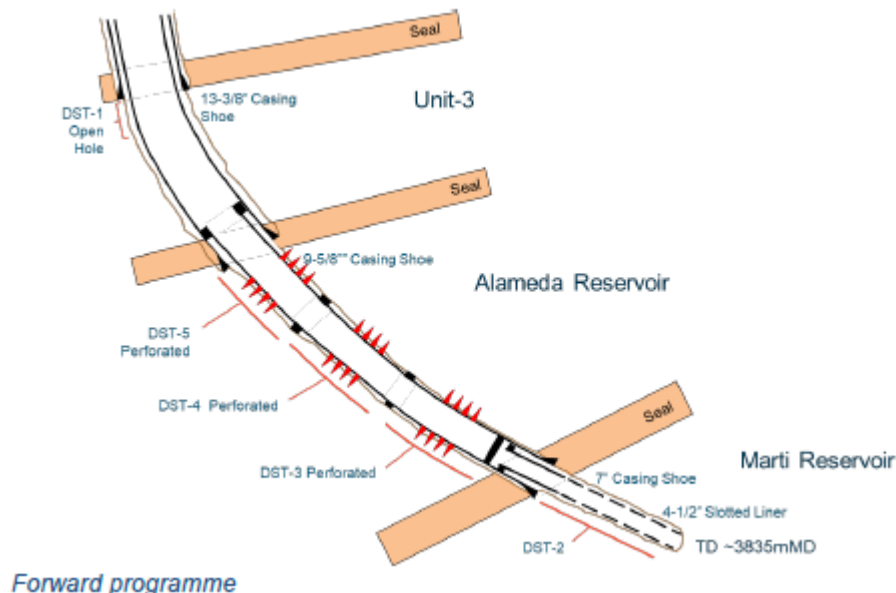
Figure 7 - Multiple delivery routes for Block 9 oil

## Forward plan: Flow tests to come

To now drill lower to Primary objectives of the Alameda-3 well are to log and flow test the previously discovered:

- Marti reservoir – in the deepest section of the intended well path. *MAY are hoping for good flow rates with better quality oil of ~20 degree API versus <12 degree API typical of Cuba's production.*
- Move back up to the Middle Sheet Alameda formation and conduct up to 3 flow tests. *Flow rates and quality are similarly sought to determine commercial prospects.*

Note that previously MAY has released these formations have been independently estimated to contain a **combined 179 million barrels of Prospective (recoverable) Resource\*** (Unrisked Gross Best Estimate).



### Activity for the next 6-months 2024

**Late May/June** – oil shows on penetrating the Lower Sheet Marti Formation.

**June** – **DST-2** a combined drilled section flow test of all the open hole section of the Marti. *This method increases the likelihood that fractures will be intercepted. Installing and testing through a slotted liner in the Marti Formation helps ensure MAY obtains vital data and a representative oil flow rate.*

**June-July** – **DST 3, 4 and 5** progressively higher through the Middle Sheet Alameda Formation. *This is conducted through a previously set 7-inch casing and could allow conversion to future production.*

**June-July** – Announcement of the Dech'2024 program of production wells plans. More announcements on logistics and with receipt of production licence with access to cashflow.

**DecQ 2024** – Startup of production and sales of crude oil from Alameda-2 well completed in the Unit 1B upon production licence award. Start of the Development drilling program.

### Maiden Contingent Resource – Amistad Unit 1B Earlier announced recalibrated our valuation

**A Contingent 2C (50% probability) oil Resource of 46 million bbl** for Eastern portion of the upper formation (Amistad) Unit 1B, declared by McDaniel and Associates (*McDaniel's*). In addition they delineated:

**A Prospective 2U oil Resource of 90 million bbl** for Western portion of the upper formation (Amistad) Unit 1B. *This came with an uplift from 56% to 70% chance of exploration success. Both the 2C and 2U Resource are given 80% chance of development in McDaniel's risk matrix.*

The combined **2C and 2U Resource of 136mm bbl** is a **significant upgrade of volume and confidence of McDaniel's earlier estimate of 30 mm bbl Prospective** for Units 1A and 1B.

*Note, the Resource will likely rise when McDaniel's assessment of Unit 1A that flowed oil to surface in Alameda-2.*

- Using P50 case **MAY's Unrisked net 41mm bbl** at current Enterprise Value assigns a value of just A\$4.09/bbl.
- Using P50 case **MAY's Risked net 26mm bbl** at current Enterprise Value assigns a value of just A\$6.38/bbl.

We think the oil's value is closer to A\$10/bbl (US\$7/bbl) meaning Risked Unit 1B is worth A\$262m or \$0.078/share.

### Drilling deeper to boost oil quantity, quality and valuation

In addition Alameda-3 well is currently drilling to test two deeper formations – called the Alameda and Marti.

- Risked we see this exploration at the P50 level as perhaps finding net to MAY 21 mm bbl worth ~A\$215m or an additional \$0.064/share.
- Our combined risk factor is 40%. Unrisked this value would rise to \$0.16/share.

### Our Valuation – \$0.145/share (small amendment from \$0.148/share)

Our valuation includes both the P 50% Amistad Unit-1B combined Contingent and Prospective Resource and a previous Prospective Resource for the lower targets being drilled – i.e. the Alameda and Marti Formations.

We add a small valuation for exploration acreage as well as cash position.

At \$0.145/share this valuation is slightly lower than our March 2024 estimate of \$0.148/share as we updated for the Mar Qtr cash position and estimate additional outgoings to complete the Alameda-3 well.

We do await McDaniels report for remaining shallow Amistad Unit-1A heavy oil find and potentially more on a review of Unit-3's commercial potential. We expect that these would add some value as *tail production* to Unit-1B that has superior flow and oil quality characteristics. Co-production of Unit-1A and/or Unit-3 would be even more valuable.

### Valuation Detail – \$0.145/share with more on full assessment of Upper Sheet Amistad Formation

Melbana Energy Ltd		Equity	Resource	Resource	Net of Risk	Valuation	Risk Valn	Riskd	Recovery
		Melbana	P50 Best	Best	Valuation		Melbana	Valn/share	Factor
Price	\$0.051		Unrisked	Riskd					
Shares No	3,370	%	mm bbl	mm bbl	%	A\$/boe	A\$m	A\$/share	%
<i>Following McDaniels Resource Update</i>									
Amistad Unit 1B East - Develop't penc		30.0%	14	11	80.0%	\$10.00	110	\$0.033	13.9%
Amistad Unit 1B West - Prospective		30.0%	27	15	56.0%	\$10.00	151	\$0.045	13.7%
<b>Amistan Unit 1B total</b>			<b>41</b>	<b>26</b>			<b>262</b>	<b>\$0.078</b>	<b>13.8%</b>
<i>Other Amistad - awaiting McDaniel U</i>		30.0%	0	0	0.0%	\$10.00	0	\$0.000	0.0%
<i>Prospective Formations - Alameda-3 drilling in progress</i>									
Alameda Formation - Prospective		30.0%	33	13	40.0%	\$10.00	131	\$0.039	5.8%
Marti Formation - Prospective		30.0%	21	8	40.0%	\$10.00	84	\$0.025	5.7%
<b>Total Lower Formations</b>			<b>54</b>	<b>21</b>			<b>215</b>	<b>\$0.064</b>	<b>5.8%</b>
<b>Total Alameda Field Valuation</b>			<b>95</b>	<b>48</b>	<b>50.4%</b>		<b>476</b>	<b>\$0.141</b>	<b>7.7%</b>
Acreage Valuation: 5% of base valuation							24	\$0.007	5.0%
Cash @ 31 Mar 24							16	\$0.005	
Other Net Current items @ 31 Dec23							2		
Option and capital raised							0		
Jun Q expenditure est.							-13		
Net Cash							5	\$0.002	
Corporate costs							-15	-\$0.005	
<b>Total Valuation</b>							<b>490</b>	<b>\$0.145</b>	

PAC Partners Estimates

### COMPANY BACKGROUND

**Melbana Energy Limited (ASX – MAY)** is an ASX-listed oil & gas explorer and developer in Cuba and Australia. Formerly known as MEO, Melbana has built-up and successfully traded a portfolio of assets in hydrocarbon rich basins. It has done this with technical excellence, value-adding and prudent risk-taking. More drilling, production testing and deal execution can add to valuation.

### Key Risks of Investment

Melbana Energy has risks of early-stage oil & gas exploration/development companies, but are not limited to:

- Exploration and appraisal well operations are inherently risky as wells may experience operational problems as well as encounter unexpected results or failures to delineate commercial hydrocarbons.
- MAY's Block 9 asset has **complex geology**, that makes interpreting 2D seismic difficult. While MAY has made great strides in complimenting seismic with other predictive processes, there remains high exploration risk. *3D-seismic is being considered to aid well siting and resource/reserve estimation.*
- Risks also applies to laterally set appraisal wells, as reservoir quality can change markedly over short distances.
- MAY is moving from a pure exploration company to a combined production and explorer-developer company. This transition will at least initially require elements of external funding. MAY could find difficulties in obtaining debt and equity funding to permit output expansion.
- While MAY have experienced timely licence and operations signoffs to date, there may be changes to or practical difficulties in obtaining regulatory permissions to moving to full field development.

## Contact Information and Disclaimers

CORPORATE FINANCE	RESEARCH	DEALING
<b>CRAIG STRANGER</b> MD / Head of Corporate Finance <a href="mailto:cstranger@pacpartners.com.au">cstranger@pacpartners.com.au</a> 03 9114 7405	<b>SHANE BANNAN</b> Senior Research Analyst <a href="mailto:sbannan@pacpartners.com.au">sbannan@pacpartners.com.au</a> 0422 588 635	<b>JAMES WILSON</b> Institutional Sales <a href="mailto:jwilson@pacpartners.com.au">jwilson@pacpartners.com.au</a> 02 9134 9111
<b>BROOKE PICKEN</b> Chief Operating Officer / ECM <a href="mailto:bpicken@pacpartners.com.au">bpicken@pacpartners.com.au</a> 03 9114 7402	<b>PHIL CARTER</b> Senior Analyst <a href="mailto:pcarter@pacpartners.com.au">pcarter@pacpartners.com.au</a> 0400 252 465	<b>ANDREW MANCHEE</b> Institutional Sales <a href="mailto:amanchee@pacpartners.com.au">amanchee@pacpartners.com.au</a> 02 9134 9155
<b>SEAN KENNEDY</b> Corporate Finance <a href="mailto:skennedy@pacpartners.com.au">skennedy@pacpartners.com.au</a> 03 9114 7403	<b>LAWRENCE GRECH</b> Senior Equities Analyst <a href="mailto:lgrech@pacpartners.com.au">lgrech@pacpartners.com.au</a> 0404 052 913	<b>JAMES NICOLAOU</b> Institutional Sales <a href="mailto:jnicolaou@pacpartners.com.au">jnicolaou@pacpartners.com.au</a> 0412 585 081
<b>WILL CROSS</b> Corporate Finance <a href="mailto:wcross@pacpartners.com.au">wcross@pacpartners.com.au</a> 0447 699 950	<b>CALEB WENG</b> Analyst <a href="mailto:cweng@pacpartners.com.au">cweng@pacpartners.com.au</a> 0416 861 165	<b>MARK PASHLEY</b> Sales Trading <a href="mailto:mpashley@pacpartners.com.au">mpashley@pacpartners.com.au</a> 02 9134 9177
<b>ANDREW SHEARER</b> Technical Consultant <a href="mailto:ashearer@pacpartners.com.au">ashearer@pacpartners.com.au</a> 0411 720 516	<b>MAX ANDREWS</b> Analyst <a href="mailto:mandrews@pacpartners.com.au">mandrews@pacpartners.com.au</a> 0402 817 911	<b>MOISHE AMZALAK</b> Advisor <a href="mailto:mamzelak@pacpartners.com.au">mamzelak@pacpartners.com.au</a> 0433 116 286
<b>PETER WARD</b> Corporate Broking <a href="mailto:pward@pacpartners.com.au">pward@pacpartners.com.au</a> 03 9114 7409		<b>RYAN GALE</b> Advisor <a href="mailto:rgale@pacpartners.com.au">rgale@pacpartners.com.au</a> 03 9114 7404
<b>JOSH GORDON</b> Corporate Finance <a href="mailto:jgordon@pacpartners.com.au">jgordon@pacpartners.com.au</a> 0430 191 640		<b>PATRICK GIBSON</b> Equity Sales / Broking Operations <a href="mailto:pgibson@pacpartners.com.au">pgibson@pacpartners.com.au</a> 03 9114 7401
<b>JAMES GURRY</b> Corporate Finance <a href="mailto:jgurry@pacpartners.com.au">jgurry@pacpartners.com.au</a> 0451 349 688		<b>JAMES HOLYMAN</b> Equity Sales/ Operations Manager <a href="mailto:jholyman@pacpartners.com.au">jholyman@pacpartners.com.au</a> 0437 456 407
<b>DANIEL GADALLA</b> Equity Sales & Operations Manager <a href="mailto:dgadalla@pacpartners.com.au">dgadalla@pacpartners.com.au</a> 0402 244 106		
<b>SYDNEY</b> Level 26, Governor Phillip Tower, 1 Farrer Place, Sydney <b>+61 2 9134 9133</b>	<b>MELBOURNE (Head Office)</b> Level 29, 360 Collins Street, Melbourne <b>+61 3 9114 7400</b>	<b>PERTH</b> Suite 2.1, 9 Havelock Street, West Perth <b>+61 8 6372 7900</b>

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Speculative Buy
>20%

Buy	Hold	Sell
>20%	20% – 5%	<5%

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