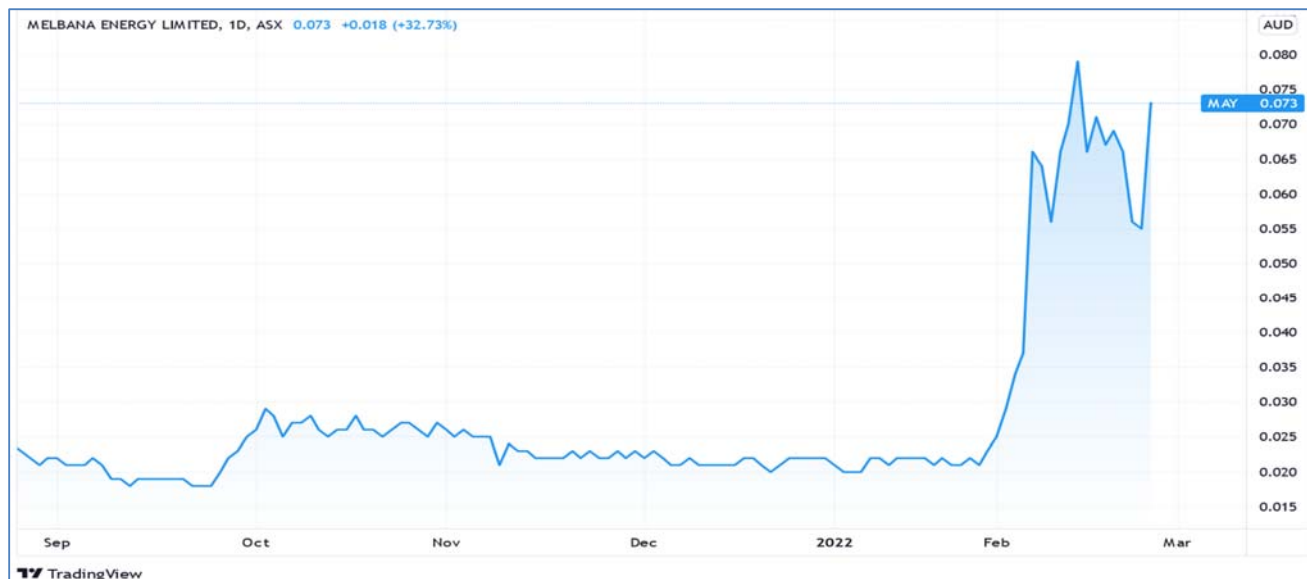


Thursday 24<sup>th</sup> February, 2022

### Portfolio Stock Developments

**Melbana Energy** - (ASX: MAY, Share Price: \$0.073, Market Cap: \$195m, coverage initiated @ \$0.02 in Sep 2021 – current gain of 265%)



### Key Catalyst

***Approximately 100 mMD (88 mTVD) of net hydrocarbon pay in aggregate interpreted on logs across a gross reservoir interval of approximately 560 mMD (495 mTVD) within the N Structure.***

MAY is an upstream oil and gas exploration company, with projects located in both Cuba and Australia. We introduced MAY to our coverage universe during September 2021, based on: a rejuvenation of the company's oil exploration program that has seen the commencement of drilling within the Block 9 PSC, onshore Cuba; and a restructuring of the company's financial position with the raising of \$7.1 million via a right issue that was fully underwritten. Block 9 hosts a large onshore acreage (2.1% of Cuba's total area) located on the north coast of Cuba, 140km east of Havana. The first well in the company's current two-well drilling program is the Alameda-1 well, which commenced drilling on 13 September and will evaluate three separate targets with a combined 'best-estimate' prospective resource of 141 million barrels of oil. MAY benefits from being carried for 85% of the total well drilling program costs but retaining a 30% stake.

## Current Activity

### **Alameda-1 Well Update**

MAY has provided an exploration update regarding the progress of its Alameda-1 well, which is located within PSC Block 9 in onshore Cuba. MAY closed up 32% to \$0.073 on the back of today's report.

### Overview

As advised in our previous coverage back on 7<sup>th</sup> February, the Alameda-1 well had reached a depth of approximately 3,590m Measured Depth (MD) (3420m True Vertical Depth (TVD)), at which point a lithology change was detected, potentially signifying the bottom of the reservoir. As a result, the decision was made to call total depth for the current 8½" section (N structure) to preserve the oil already found in this section.

The interval that has just been drilled commenced at approximately 3,077mMD (2970mTVD), suggesting at the time a potential gross reservoir interval of possibly as much as **500mMD (450mTVD)**. MAY in its release today advised that it had interpreted approximately 100 mMD (88 mTVD) of net hydrocarbon pay in aggregate on logs across a gross reservoir interval of approximately **560 mMD (495 mTVD)** within the N Structure – even larger than anticipated.

Logging shows extensive natural fracturing, an important production characteristic for a limestone reservoir of this type - and one that could lead to an upgrade of the net pay estimate as the characteristics of the reservoir become better understood. High down-hole pressures encountered lend confidence to the reservoir being adequately charged to support unassisted oil recovery.

Preparations are now underway to log the section just drilled, which should give a better understanding of the hydrocarbons that have been encountered. Subsequent to the completion of logging of this section, the 7" liner will be set before drilling ahead into the deeper zone with a 6" hole to test the Alameda structure - the second and largest primary target for this exploration well.

The results of flow testing (which is expected to commence about mid-March) will be an important data point for determining the reservoir's production characteristics.

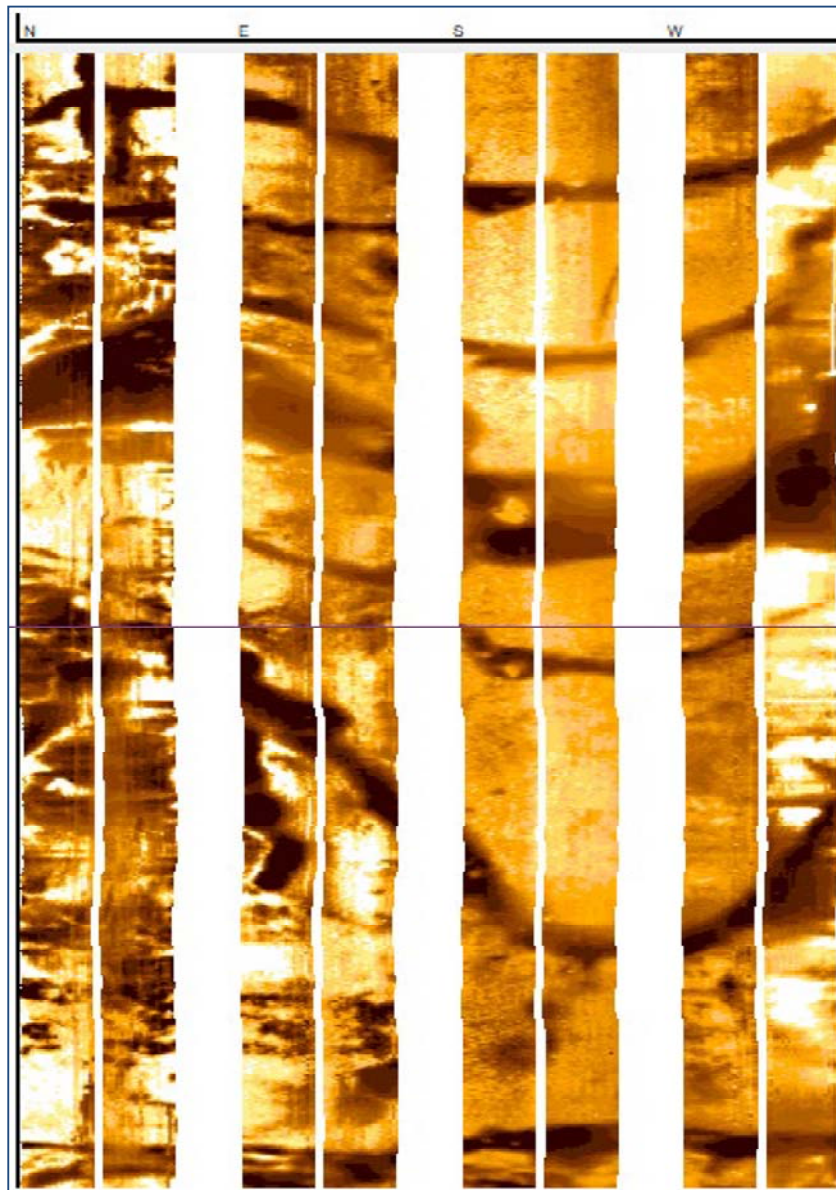
Drilling of the remaining and largest primary target, the Alameda structure, is on track to commence by week's end. The Alameda (I Sheet) limestones were penetrated by the historic Marti-5 well, recording significant oil shows from the interval, along with the recovery of hydrocarbons. This target is interpreted to be separated from the current N Sheet by a thrust fault and another repeat of the Vega Alta seal.

### Technical Significance

MAY continues to generate highly encouraging results from the Alameda-1 well, which is reflected in its strong share price performance. After reviewing the recently acquired logging data across the N interval - commencing at a depth of 2,878 mMD (2,791 mTVD) - the preliminary assessment is that this interval

contains net hydrocarbon pay of about 100 mMD (88 mTVD) in aggregate across a gross reservoir interval of about 560 mMD (495 mTVD). This is in addition to the previously reported interpreted net pay within the shallower Amistad structure.

The recovery characteristics of this reservoir interval will be better understood once initial flow-testing work is complete. This is planned to take place immediately following the completion of drilling at Alameda-1, expected to be in about two weeks' time (depending upon drilling conditions).



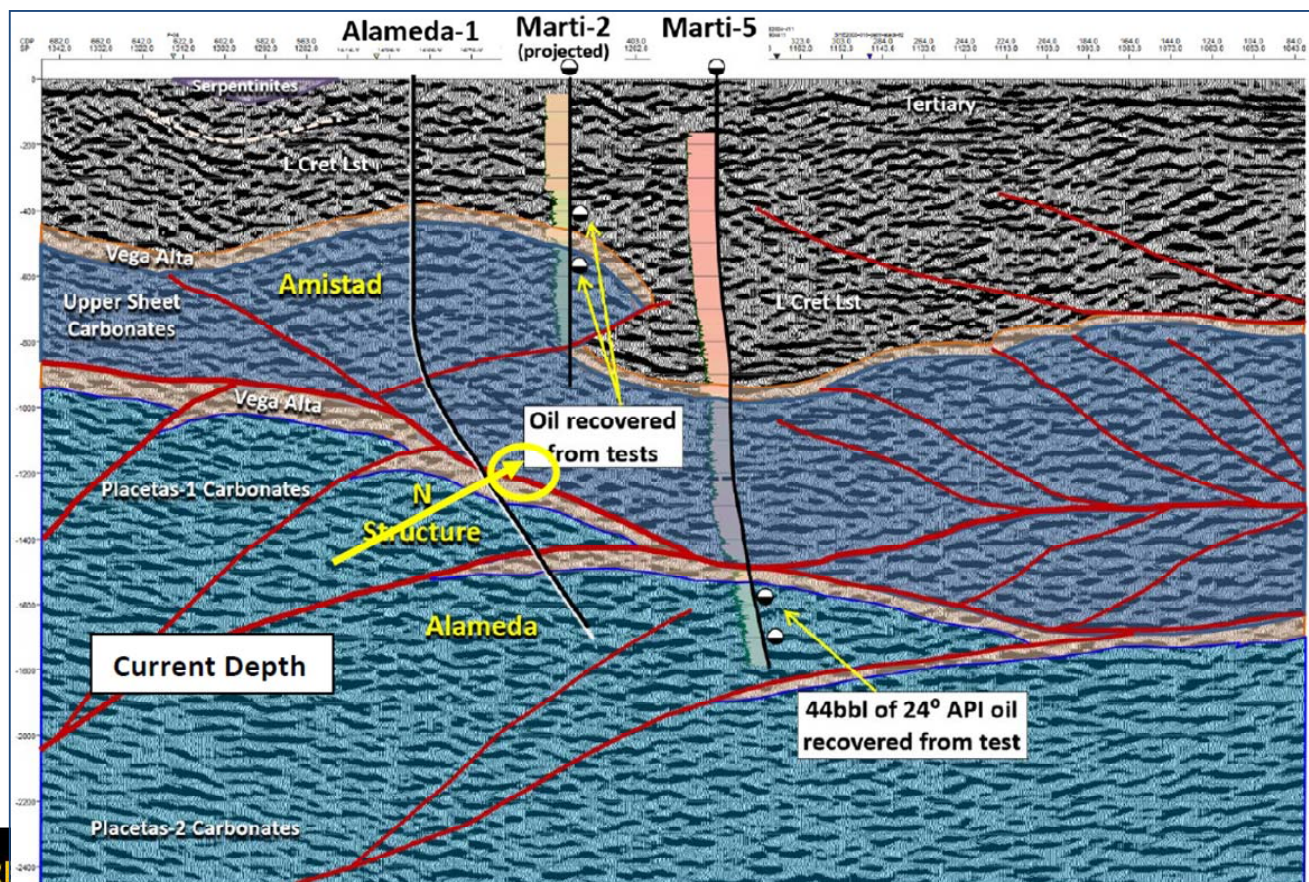
**Figure 1:** Natural fractures in the reservoir, represented by the black lines.

The following factors raise expectations for the commercial recovery of the oil encountered in the N Structure to date:

- Alameda-1 is on trend with the nearby Varadero oil field, reported to contain 11 billion barrels of oil in place and responsible for tens of millions of barrels of oil production since its discovery in the 1970s.
- Biostratigraphic analysis of samples taken in the N interval indicate a reservoir of similar age to the most productive sections of the Varadero field.
- Formation pressures encountered whilst drilling the N interval are significantly higher than that which exists in Varadero.
- Logs of the N interval have revealed pervasive natural fracturing, an important characteristic in carbonate reservoirs for assisting the natural flow of oil into the well bore. As an example, Figure 1 shows a resistivity image of the well bore (generated by the FMI logging) covering a small but representative part of the prospective N objective which demonstrates the presence of conductive fractures.

The N Structure is significantly larger, and is interpreted to have more net pay, than what the company initially prognosed - and with many of the characteristics one would expect to see in a productive reservoir. What is now required is flow-testing of this section over the next few weeks in order to get more data on how to optimally produce from this reservoir.

Encountering an interval as significant as that within the N Structure, particularly a fair way down-dip from the top of the structure, is very encouraging with respect to the resource potential. An updated resource assessment will be undertaken and released once the current operations, including testing, are completed.



**Figure 2:** Pre-drill geological interpretation for the Alameda-1 well.

The drilling indicates a potential gross reservoir interval of possibly as much as 500mMD (450mTVD) within the N structure, which is significant and points to a potentially sizeable oil/gas discovery. Bear in mind too that this the N structure is just the first of the primary targets within the well, with the next zone, the I sheet, set to be drilled next as the well gets progressively deeper.

Results generated from the well to this point are hugely encouraging, as they have generated oil shows over two significant intervals, with this latest area also having significant gas influx - which is a good sign that any reservoir may be well charged. Subsequent logs and studies will provide more detail in terms of the significance of what's so far been encountered, however given the size of these structures it allows for the possibility of a material accumulation of oil.

### Next Steps

Preparations continue to flow-test sections of this reservoir interval immediately following the drilling and logging of the remaining deeper Alameda primary objective (which may also be part of the testing program, depending on what the drill-bit encounters there).

Field operations have now successfully installed the packers isolating the zones of the N Structure that will be flow-tested and drilling ahead through the cement plug is expected to take place by week's end subject to satisfactory results from pressure testing the liner top.

### **Project Overview**

Block 9 is a large onshore PSC acreage covering 2,344 sq km (2.1% of Cuba's total area) located on the northern coast of Cuba, 140km east of Havana. Block 9 has an already-proven hydrocarbon system, with previous historic exploration wells indicating the presence of hydrocarbons. The block is also supported by being along the trend line from the multi-billion barrel Varadero oil field, located just 35km away. A key feature of the Varadero field is the major fold and thrust belt structures that fracture and fold carbonate units, which is interpreted to extend into Block 9.

MAY is prequalified as an onshore and shallow water operator in Cuba, and was awarded a 100% participating interest in the Block 9 PSC on 3rd September, 2015. During May 2020, MAY agreed to transfer a 70% interest in Block 9 to Sonangol (the National Oil Company of Angola) in consideration for it funding 85% of two exploration wells.

Block 9 has been independently assessed by Independent Expert McDaniel & Associates Consultants Competent Persons Report (30 June 2018) to house 15.7 billion barrels of oil (nearly a trillion dollars' worth), with prospective resources of 718 million barrels. These estimates are based upon pre-existing seismic, gravity, magnetic and surface data sets. There is the potential for MAY to expand its resource

estimates as the company is expected to shoot new seismic lines on the additional 19 structural leads identified.

Block 9 consists largely of low-lying farmland with sealed roads that connect Block 9 all the way to Havana. Extensive oil and gas infrastructure surrounds Block 9, with a deep-water port housing an oil terminal located 75km away and the second largest international airport within 40km.

## Block 9 Agreements

During 2019, MAY entered into a farm-out agreement with Sonangol, Africa’s second-largest oil producer, for Sonangol to acquire a 70% interest in Block 9. Based on the agreement, Sonangol will fund 85% of the two-well drilling programs, with MAY funding 15% of the well costs and remaining the operator until the completion of both drills.

MAY has additionally signed an offtake agreement with CUPET, Cuba’s national oil company, that allows CUPET to purchase discovered oil at international prices. The agreement also allows MAY to sell the oil on the international markets. Cuba has multiple modern land drilling rigs currently operating in Cuba and MAY has selected Sherritt International as the drilling contractor.

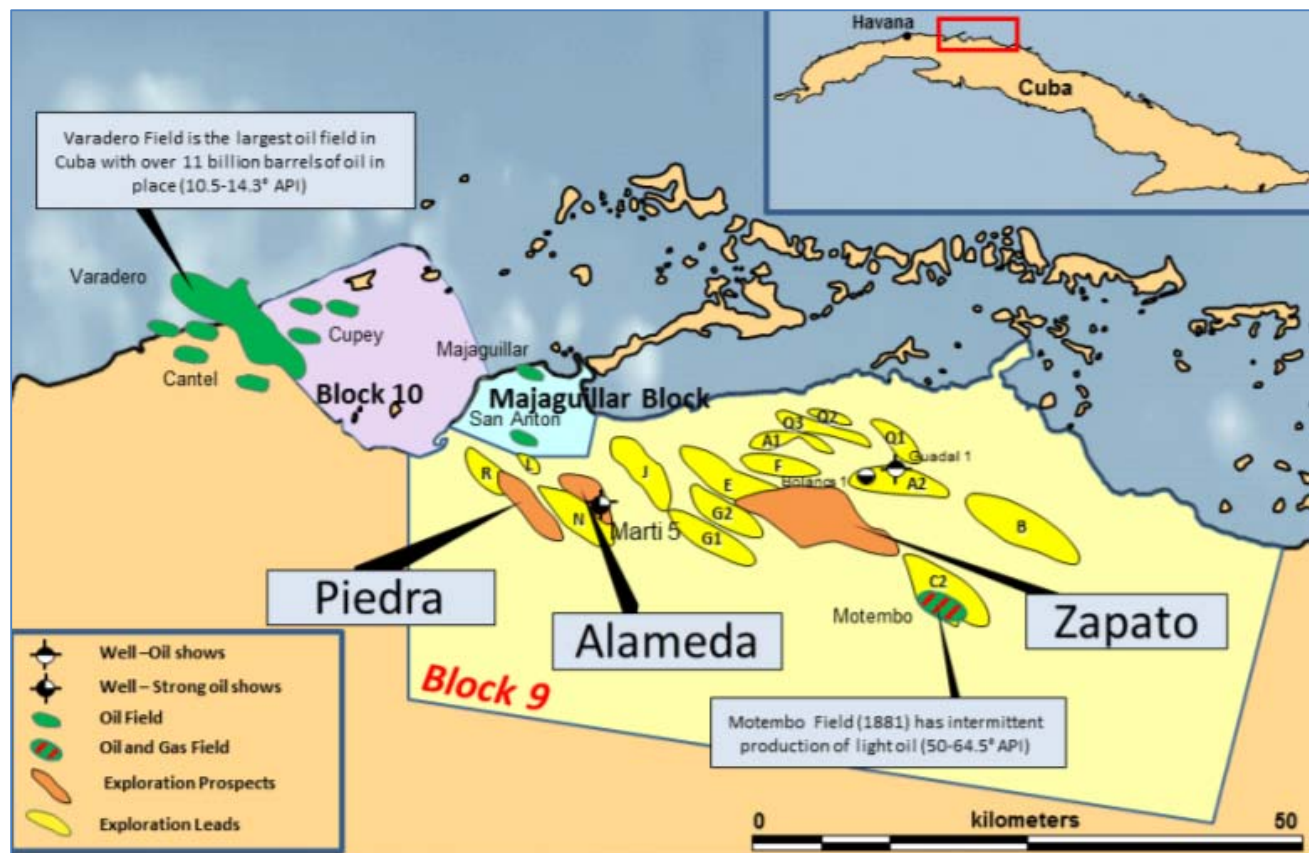


Figure 3: Location of MAY’s drilling prospects within PSC Block 9, Cuba

## Alameda Prospect

The Alameda Prospect that's currently being drill-tested contains three targets, U1, N and Amistad, which can all be tapped from just one slightly deviated well. The most exciting prospect is the lower sheet target, Alameda, which is in a similar structural setting as the Veradero fields.

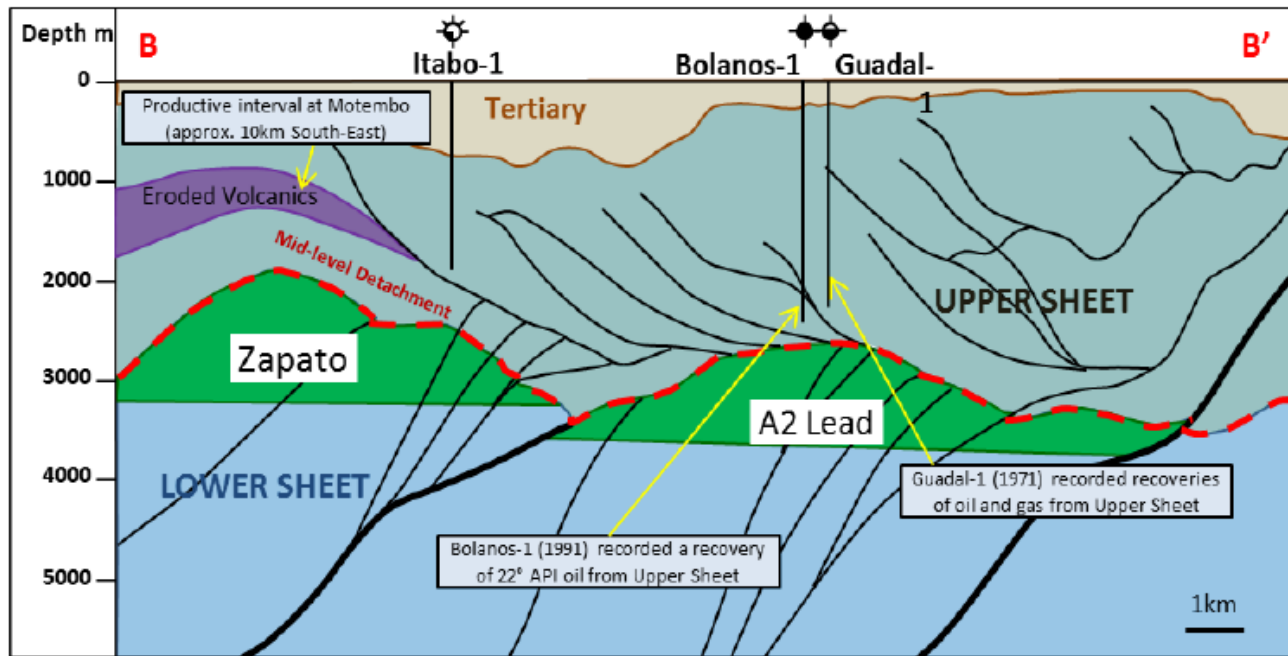


Figure 4: Schematic cross-section of the Alameda-1 well

The three targets are independently assessed to contain a prospective resource of 141 million barrels of oil. The chance of success for the three prospects is estimated to be 32% (which is high by industry standards) due to the supportive data from the previous exploration wells, Marti-2 and Marti-5. The Marti-5 well, drilled nearly 30 years ago, recovered 44bbl of 24° API oil (high value light oil) and had numerous oil shows extending over a 850m Lower Sheet section (where the Alameda prospect is located). The U1 target is the structure that has been identified as the up-dip of the tested oil recoveries in the Marti-2 well.

Alameda Prospective Resources (100%, MMstb)**					
Objective	CoS*	Low	Best	High	Mean
U1	15%	24	60	132	71
N	23%	4	9	20	11
Alameda	32%	39	72	128	79

### Zapato Prospect

The Zapato prospect is being drilled immediately after the Alameda prospect, with construction of the well-pad currently underway and drilling commencement likely by mid-March. The prospect is independently assessed to contain 95 million barrels of oil and the chance of success is estimated at 23%. The Zapato

field is believed to be the source of the highly-productive Motembo oil field, which historically produced high-quality light oil. Studies have indicated there is a strong gravity and magnetic alignment of the structure, which is further supported by seismic and surface data. Carbonate duplex structures such as Zapato are typical of the region. The Zapato structural feature is a major structural high. The Zapato-1 well is currently in production and will take about 55 days to reach full production.

Zapato Prospective Resource (100%, MMstb) **					
	CoS*	Low	Best	High	Mean
Zapato	23%	38	95	214	114

### Cuba Overview

Cuba is located within the Southern region of the Gulf of Mexico, which is currently one of the world's largest under-explored petroleum mega provinces. Cuba has been lightly explored with modern-day exploration technologies however the country does have a rich exploration history. The principal zone of exploration has occurred along the narrow belt in the north coast (where Block 9 sits) and in the regions immediately offshore where tectonically thickened Jurassic-Cretaceous carbonate sources and reservoir sections have formed a supercharged hydrocarbon system.

Current US trade embargoes are only imposed on American citizens, which limits their US engagements and operations in Cuba. Non-US international companies have been operating in Cuba with the most prominent being the Canadian company, Sherritt International, which has a rich 30-year oil and gas exploration and production history in Cuba, with blocks including the Varadero oil fields that is located next door to MAY's Block 9.

During 2019, Cuba produced just 45,000 barrels of oil equivalent per day, which only covered 50% of the nation's demand. This significant deficit has led Cuba to import most of its oil supply from Venezuela. Yet due to the economic and political instability in Venezuela over recent years, importation amounts have slowly been declining, placing a greater strain on the Cuban economy.

To attract more foreign investment into the country, the Cuban government during 2014 passed the Foreign Investment Act, which reduced tax rates and provided tax holidays for the first eight years of operations. As one of the first movers after the Act in 2015, MAY gained numerous advantages by securing the most attractive exploration blocks as well as establishing highly supportive relationships with the Cuban government and CUPET.

### Oil Price Overview



We know that markets hate uncertainty, and markets especially hate uncertainty with respect to the oil sector, given that it remains the lifeblood of the world economy. Which is why crude oil is trading close to \$100 a barrel at present, as the situation in Ukraine deteriorates. However, the risk premium that's currently factored into crude oil prices, perhaps \$5 to \$10 a barrel, represents just a small component of oil's overall price gains over the past two years. Indeed, the seeds for oil's current price surge were planted back in the early days of covid, when prices plunged in early 2020 and investment in the sector stagnated. What's happened in terms of the drop-off of US shale investment is symptomatic of the sector more broadly – and it's meant that the supply side has been unable to recover as it once would have, despite escalating prices.

We see this with OPEC members nations who are unable to pump in line with their quotas, and we see it with US shale producers that are more content to maximise returns to shareholders and pump less barrels but more efficiently. Shale output is still below its 2019 peak. When you combine this with a strong demand environment, it is plain that oil will remain well supported.

The impact of the Ukraine situation oil prices will depend on what the West does in terms of sanctions. The worst-case scenario could see western sanctions imposed on Russian oil exports, taking output from the world's third-biggest producer off the market. This would almost certainly see oil surge through the \$100 a barrel mark and potentially beyond \$120.

On the other hand, the West might well be reticent to act, as financial markets are already spooked by inflation at 40-year highs in the US, so a further surge in crude prices would worry politicians around the globe, as we head into the worst of the northern hemisphere winter. The West therefore has to weigh up the risk-reward scenario of implementing potential sanctions on Russian oil production, versus the impact those sanctions will have on world oil prices, inflation and the global economy.



Figure 5: 12-month Brent crude and WTI crude prices.

### **Summary**

***We initiated coverage of MAY based on the prospectivity of its current two-well oil drilling program in Block 9, Cuba. Block 9 has been demonstrated to have an already-proven hydrocarbon system, with previous historic exploration wells indicating the presence of hydrocarbons. Importantly, the results so far from the company’s Alameda-1 well are highly encouraging, which is reflected in the company’s strong share price performance.***

***We will continue to follow the progress of the company’s drilling program closely, especially as it drills through its next primary target within the well, then commences flow-testing. Subject to further strong results, the drilling program could potentially be expanded to three wells. MAY remains firmly within our coverage Portfolio.***

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