Hartleys

MAY.asx
Speculative Buy

Oil & Gas: Explorer

MELBANA ENERGY LTD (MAY)

From Cuba with Love

Melbana Energy Ltd. ("Melbana", "MAY", "Company") has three active farm outs currently running. The key asset is their working interest in Block 9 Cuba. According to MAY it is expected that Block 9 onshore Cuba has exploration potential of over 12.5 billion barrels of oil-in-place and a Prospective Resource of 637m barrels (unrisked Best Estimate, 100%). Farm outs are also underway for the onshore Pukatea Prospect in NZ (MAY 30%) and the offshore Beehive Prospect (MAY 100%) in the Bonaparte Basin.

Block 9 Cuba Farm Out

MAY currently has a 100% stake in Block 9 onshore Cuba (potentially reducing to 60%). A back of the envelope calculation of value based on (limited) known costs in Cuba and likely realised prices indicates an NPV10 (@US$40/bbl) of around A$4.01/bbl of developed reserves and A$8.23/bbl (@US$60/bbl). This would value the 637m barrels and MAY's current 100% between A$2.5-5bn based on a US$40-60/bbl range in oil prices. The Fold and Thrust Belt in Northern Cuba is a proven oil producer and Block 9 looks to be in the likely most prospective fairway. Industry belief or otherwise in there being a light oil trend will likely determine the interest in a farm in and hence the near term see through value for the block.

New Zealand and Australia Farm Outs

MAY also has a 30% interest in the Pukatea prospect onshore Taranaki Basin which the JV plans to drill in early 2018. The Douglas-1 well drilled in 2012 at the edge of Pukatea encountered oil shows and 145m of reservoir interval, the prospect has over 350m of up-dip potential. MAY describes the Beehive Prospect as one of the largest undrilled conventional targets in Australia. The Prospective Resource is estimated by MAY at 558 mmboe best estimate, (100%). The prospect is located in shallow water, suitable for a jack-up. The Company is currently seeking a farm in partner for both prospects.

Upside from Cuba underpins Speculative Buy

Northern Cuba remains a relatively underexplored region, with perceived political risks and a reputation historically as a heavy oil producer. However, all the ingredients for a successful oil play (source, seal, traps etc.) are in place. MAY's thesis on a light oil trend also seems to have merit. The PSC also provides MAY with timing flexibility and few near term commitments. Primarily on the back of their Cuba exposure we rate MAY a Speculative Buy. Our 12-month price target is 2.5c per share, a 50% discount to our risked valuation of 5c. This reflects the potential for the farm-outs (and hence the stock price catalysts) to occur beyond our 12-month horizon.

Key Chart: Net Risked Value (after farm outs)

			Overall Recoverable Resource							
Asset	Country	WI	GCoS	CCoS	CoS	Gross MM boe	Net MM boe	NPV/boe US$/bbl	Net Risked Value US$m	A$/share
Block-9	Cuba	30%	7%	70%	5%	637	191	$5.0	48.1	0.038
Pukatea (PEP51153)	NZ	30%	12%	85%	10%	12.4	3.7	$16.5	6.3	0.005
Beehive (WA-488-P)	Australia	15%	8%	90%	5%	558	84	$2.5	9.5	0.007
Gross Valuation									**63.8**	**0.050**

Source: Harlteys

28 Sep 2017

Share Price:	**$0.009**
Valuation	**$0.050**
12-month target price	**$0.025**

Brief Business Description:
MAY is an oil and gas explorer with projects in Cuba, New Zealand and Australia.

Hartleys Brief Investment Conclusion
At the core of our investment thesis is MAY's Cuban acreage. A farm in and potential drilling in 2018 would be key catalysts. The Pukatea well in NZ offers material nearer term upside.In Australia, MAY has initiated a farm-out process to find a partner to drill the Beehive prospect, offshore the Bonaparte Basin.

Chairman & CEO:

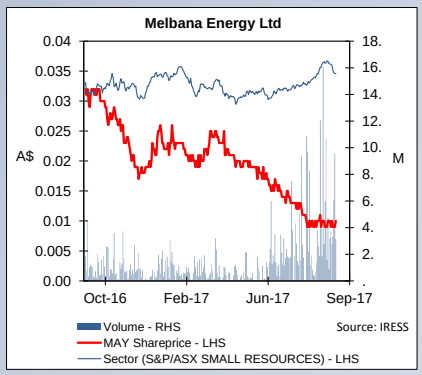
Peter Stickland	MD and CEO
Andrew Purcell	Chairman
Michael Sandy	Non-Executive Director

Major Shareholders:

Leni Gas Cuba Limited	5.73%

Company Address:
Level 15
500 Collins Street
Melbourne
Victoria

Issued Capital:	1,495
- fully diluted	1,687
Market Cap:	$13.5m
- fully diluted	$15.2m
Current Debt	$0.0m
Cash (current)	$6.5m



Source: Hartleys Research

Authors:
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Oil and Gas Analyst
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Hartleys has completed capital raisings in the past 12 months for Melbana Energy Limited ("MAY") for which it has earned fees.
Hartleys has provided corporate advice within the past 12 months and continues to provide corporate advice to May for which it has earned fees.
Hartleys has a beneficial interest in 4 million unlisted options in MAY and is entitled to a further 20 million unlisted options in MAY.

SUMMARY MODEL

Melbana Energy Limited
MAY

September 2017
Speculative Buy

Key Market Information

Share Price		**$0.009**
Market Capitalisation	Ordinary	$13.5m
	Fully Diluted	$15.2m
Issued Capital		1495m
Issued Capital (fully diluted inc. ITM options)		1687m
Options		186.8m
EV	Ordinary	$6.9m
	Fully Diluted	$12.6m
Valuation		$0.050
12-month target price		$0.025

Quarterly Cash Flow

	FY17				12M cum
A$ m	**1Q**	**2Q**	**3Q**	**4Q**	
Sales	0.00	0.00	0.00	0.00	**0.00**
E & P	-0.43	-0.65	-0.53	-0.68	**-2.29**
Development	0.00	0.00	0.00	0.00	**0.00**
Production	0.00	0.00	0.00	0.00	**0.00**
Admin	-0.41	-0.40	-0.25	-0.30	**-1.36**
Other	0.02	0.02	0.01	0.02	**0.07**
Operating Cash Flow	-0.82	-1.02	-0.77	-0.96	**-3.58**
Investing Cash Flow	0.00	0.00	0.00	0.00	
Share Issuance	2.23	0.00	0.00	0.00	
Debt Issuance					
Other	-0.11	-0.02	-0.02	0.00	
Financing Cash Flow	2.13	-0.02	-0.02	0.00	
Cash Beginning	4.14	5.40	4.42	3.56	
Net Cash Flow	1.30	-1.05	-0.79	-0.96	
Cash End	5.40	4.42	3.56	2.61	

Directors

Peter Stickland	MD and CEO
Andrew Purcell	Chairman
Michael Sandy	Non-Executive Director

Company Information

Level 15
500 Collins Street
Melbourne
Victoria

Petroleum Tenements

Country	Asset	MAY %	Work Program
Cuba	Onshore Block 9 PSC	100%*	Farm Out
NZ	PEP 51153	30%	Exploration well
Australia	WA-488-P Beehive objective	100%	Potential 3D seismic and a well farm-out on-going
Australia	Tassie Shoal Project EPB C2000/108	100%	Stakeholder engagement
Australia	AC/P50, 51, 53 Vulcan Sub-Basin	55%	Farm Out

*Before Petro Australis back in for 40% which is subject to Government/Regulatory approval

Timetable of Events

FY18 - Ongoing farm out of Block 9, PEP 51153 and WA-488-P
January 2018 - Potential drilling of Pukatea Prospect in NZ
Mid 2018 - Potential drilling of two Block 9 exploration wells Cuba

Options & other instruments

Year Expires	Number (m)	% ord	Avg Price	$m unpaid
31-Aug-18	173.58	12%	0.02	3.47
03-Nov-19	4.00	0%	0.07	0.26
27-Sep-20	9.25	1%	0.03	0.30
TOTAL	186.83	12%	0.02	4.03

Major Shareholders

	# Shares (m)	% Outstanding
Leni Gas Cuba Limited	85.66	5.7%

Analyst : Aiden Bradley
Phone: +61 8 9268 2876

Last updated *September 28, 2017*

Sources: IRESS, Company Information, Hartleys Research

HIGHLIGHTS

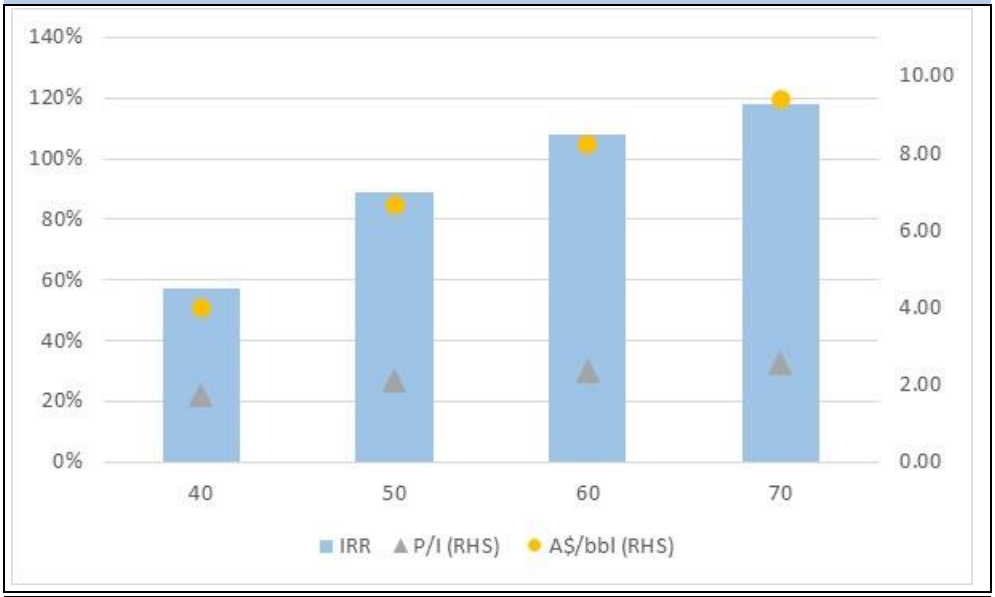
Melbana Energy Ltd. ("Melbana", "MAY", "Company") has three active farm outs currently running. The key asset on the block is their current 100% working interest in Block 9 Cuba (their stake may decrease to 60% if private Company Petro Australis (http://petroaustralis.com) receives regulatory approval to back in for 40%). According to work undertaken by MAY it is expected that Block 9 onshore Cuba has exploration potential of over 12.5 billion barrels of oil-in-place and a Prospective Resource of 637m barrels (unrisked Best Estimate, 100%). Farm outs are also underway for the onshore Pukatea Prospect in NZ (MAY 30%) and the offshore Beehive Prospect (MAY 100%) in the Bonaparte Basin.

Upside from Cuba underpins Speculative Buy

The Fold and Thrust Belt in Northern Cuba is a proven oil producer and Block 9 looks to be in the likely most prospective fairway. Prospective partners belief or otherwise in there being a light oil trend will likely determine the level of interest in a farm in and hence the near term see through value for the block.

Northern Cuba remains a relatively underexplored region, with perceived political risks and a reputation historically as a heavy oil producer. However, all the ingredients for a successful oil play (source, seal, traps etc.) are in place. MAY's thesis on a light oil trend also seems to have merit. The PSC also provides MAY with timing flexibility and few near term commitments.

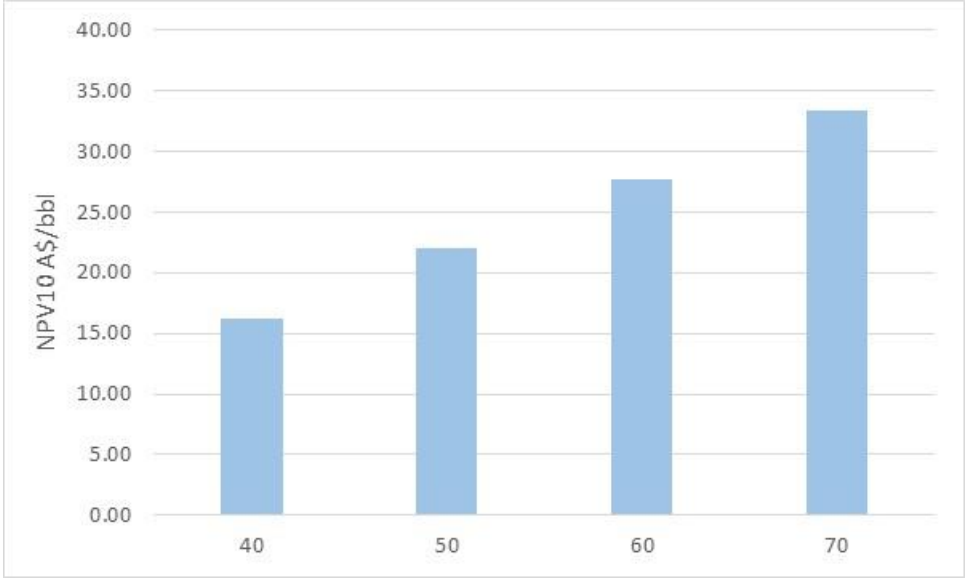
Fig. 1: Cuban Oil Discovery Economics



Source: Hartleys. Based on a 100m barrel light oil discovery in Block 9.

MAY also has a 30% interest in the Pukatea prospect onshore Taranaki Basin which the JV plans to drill in early 2018. The Douglas-1 well drilled in 2012 at the edge of Pukatea encountered oil shows and 145m of reservoir interval, the prospect has over 350m of up-dip potential. The Company is currently seeking a farm in partner to assist in funding the well.

Fig. 2: Pukatea NPV10 per barrel at various oil prices



Source: Hartleys

MAY also has a 100% interest in the Beehive Prospect in WA-488-P in the Bonaparte Basin. MAY describes the Beehive Prospect as one of the largest undrilled conventional targets in Australia. The Prospective Resource is estimated by MAY between 97 to 2,033 million barrels (558 mmboe best estimate, 100%). The prospect is located in shallow water, suitable for a jack-up.

Given the size of the resource in Cuba (compared to the current EV) the current share price is factoring in an extremely low probability level of commercial success (see Figure 4). A back of the envelope calculation of value based on (limited) known costs in Cuba and likely realised prices indicates an NPV10 (@US$40/bbl) of around A$4.01/bbl of developed reserves, A$6.66/bbl (@US$50/bbl) and A$8.23/bbl (@US$60/bbl). This would value the 637m barrels and MAY's current 100% between A$2.5-5bn based on a US$40-60/bbl range in oil prices.

Primarily on the back of this Cuban exposure we rate MAY a Speculative Buy.

Fig. 3: Hartleys Valuation - Net Risked Value post farm outs

						Overall Recoverable Resource				
Asset	Country	WI	GCoS	CCoS	CoS	Gross	Net	NPV/boe	Net Risked Value	
						MM boe	MM boe	US$/bbl	US$m	A$/share
Block-9	Cuba	30%	7%	70%	5%	637	191	$5.0	48.1	0.038
Pukatea (PEP51153)	NZ	30%	12%	85%	10%	12.4	3.7	$16.5	6.3	0.005
Beehive (WA-488-P)	Australia	15%	8%	90%	5%	558	84	$2.5	9.5	0.007
Gross Valuation									**63.8**	**0.050**

Source: Harlteys

Fig. 4: Chance of Success implied by the current share price

				Overall Recoverable Resource				
Asset	Country	WI	CoS	Gross	Net	NPV/boe	Net Risked Value	
				MM boe	MM boe	US$/bbl	US$m	A$/share
Block-9	Cuba	30%	1.20%	637	191	$5.0	11.5	0.009
Pukatea (PEP51153)	NZ	15%	1.20%	12.4	1.9	$16.5	0.4	0.000
Beehive (WA-488-P)	Australia	15%	0.05%	558	84	$2.5	0.1	0.000
Gross Valuation							**11.9**	**0.009**

Source: Harlteys

A: CUBA – BLOCK 9

MAY currently has a 100% stake in Block 9 onshore Cuba. A private Perth based company Petro Australis has the option to back in for a 40% stake, which is subject to Cuban Government/Regulatory approval.

MAY was awarded the licence on the 3rd of September 2015. MAY is prequalified as an onshore and shallow water operator in Cuba, which has potential strategic value.

There are 4 different qualification categories;

A: (more than 65 points) – could operate in any onshore and offshore area.

B: (less than 65 and more than 55 points) - could operate in any onshore area and offshore till 100m water depth

C: (less than 55 and more than 40 points) – could operate in any onshore area

D: (less than 40 and more than 20 points) – non-operator.

The Cuba Block 9 Production Sharing Contract ("Block 9 PSC"), covers 2,380km2 onshore on the north coast of Cuba, 140 km east of Havana in a proven hydrocarbon system and along trend with the multibillion-barrel Varadero oil field.

Block 9 has multiple other producing fields within close proximity, including the Majaguillar and San Anton fields immediately adjacent to Block 9 in addition to the Motembo field, the first oil field discovered in Cuba. Block 9 consists largely of low-lying farm land and there are sealed roads that connect Block 9 to Havana. A deep-water port with an oil terminal is within 75km and international airport within circa 40km.

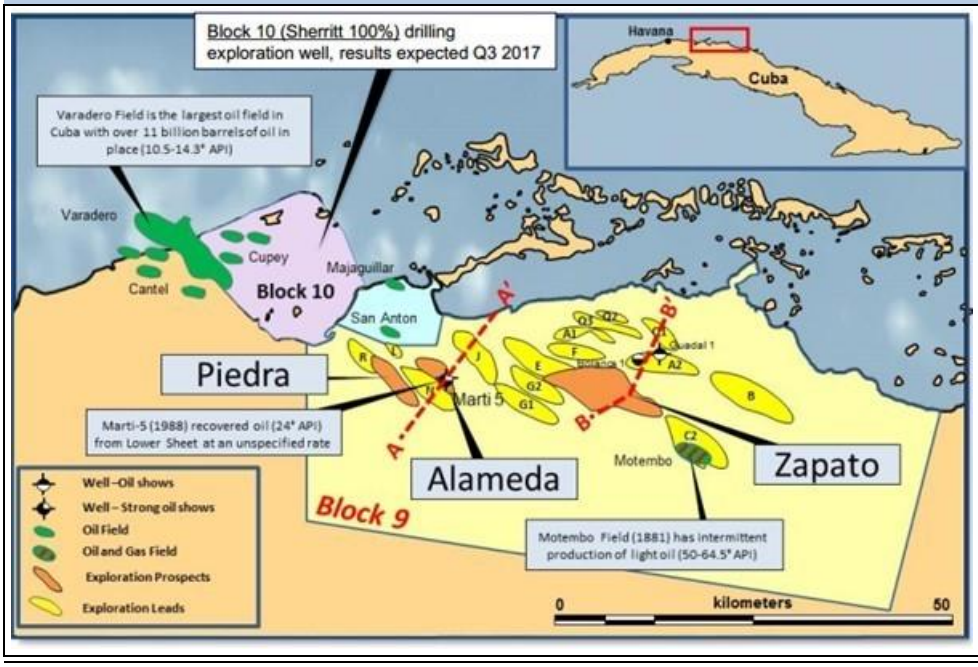
Fig. 5: Structural Oil Trend

Block 9 Exploration Potential	Low	Best	High	Mean
	MMstb	MMstb	MMstb	MMstb
Oil-in-Place (unrisked, 100%)	1,181	12,746	44,151	18,518
Prospective Resources (recoverable, unrisked, 100%)	59	637	2,208	926

Source: MAY

MAY have recently opened a data room to attract a farm in partner to assist in funding a multi-well exploration programme planned for 2018. According to work undertaken by MAY it is expected that Block 9 onshore Cuba has exploration potential of over 12.5 billion barrels of oil-in-place and a Prospective Resource of 637m barrels (unrisked Best Estimate, 100%). MAY has identified 19 individual leads, at depths between 2,000-4,000m.

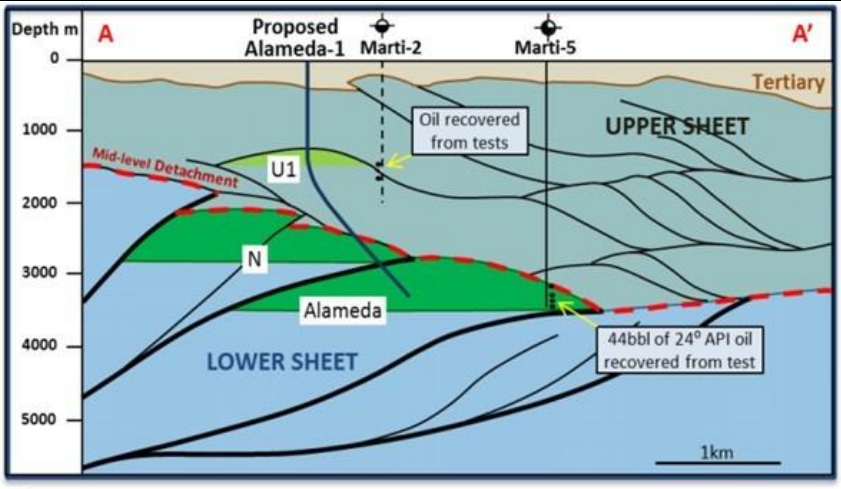
Fig. 6: Block 9 Prospects and Leads



Source: MAY

Priority drill targets are the Alameda, Zapato and Piedra Prospects.

Fig. 7: Alameda Prospect



Alameda Recoverable Prospective Resources (MMstb)

Objective	CoS*	Low	Best	High	Mean
U1	17%	2	25	93	38
N	22%	4	41	129	56
Alameda	32%	3	65	214	91

Source: MAY

MAY is targeting an initial two well programme commencing mid-2018, a farmout process with data room is underway.

Target reservoirs are also relatively shallow (between 3,000-4,000m) so initial well costs are guided to be in the $10-15m range (would decline significantly over time with volume drilling).

We estimate a two well programme may cost between US$25-30m (100%).

Block 9 Economics

A back of the envelope calculation of value based on (limited) known costs in Cuba and likely realised prices indicates an NPV10 (@US$40/bbl) of around A$4.01/bbl of developed reserves, A$6.66/bbl (@US$50/bbl) and A$8.23/bbl (@US$60/bbl). This would value the 637m barrels and MAY's current 100% between A$2.5-5.0bn.

Block 9 was awarded subject to a Cuban PSC. PSCs are awarded as a result of direct negotiations between foreign companies and CUPET. The precise terms of the Block 9 PSC have not been disclosed. However, some normal terms for Cuban PSC may include;

- Output to be sold at parity with International Benchmark prices
- No back in right
- No royalty
- 22% Corporate Tax, subject to 8-year tax holiday
- Cost Oil - determined by negotiation. It is based on annual spending and capped at 60%.
- Profit Oil split variable with output levels – Wood Mackenzie previously published their view on a Cuban Cumulative Production Contractor Share;

<100 mmbbl = 60%

100 to 200 mmbbl = 55%

200 - 300 mmbbl = 50%

300 - 400 mmbbl = 45%

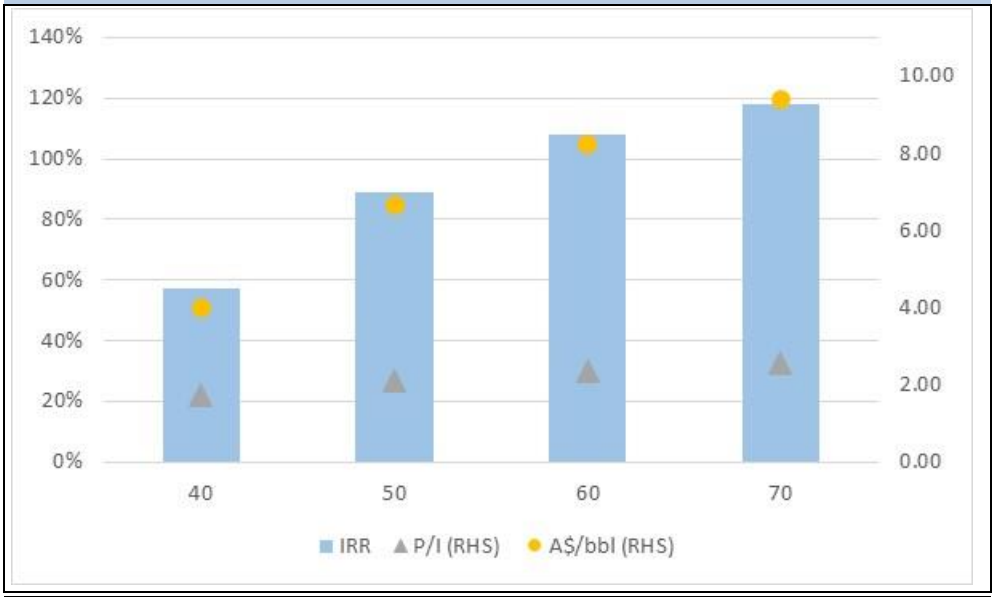
400 - 500 mmbbl = 40%

> 500 mmbbl = 30%

The PSC term is for 25 years with no well commitment until post 2019, providing MAY with significant flexibility in regards to the timing of a potential farm in deal.

Subject to further testing, approvals and funding MAY is hopeful of drilling the first two targets in 2018.

Fig. 8: Cuban Oil Discovery Economics



Source: Hartleys

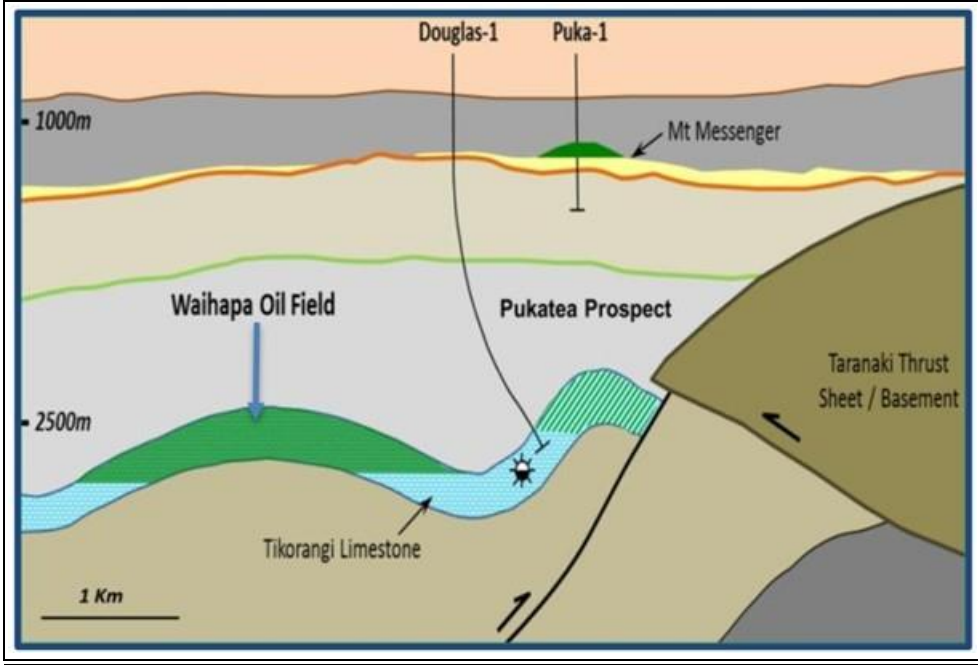
In the nearer term Sherritt International is drilling a well to test the Lower Veloz formation in neighbouring Block 10. Results are expected in the 4th quarter of 2018. An earlier well in 2017 on Block 10 (LT-100 at a cost of $24m) was drilled to a measured depth of 4,232m, of the 5,836m planned, but failed to reach this target Lower Veloz formation because of wellbore instability arising from unexpected geological complexities when a zone of the less stable Vega Alta rock formation repeated itself. By utilizing part of the first well, the capital cost of the second well will be significantly less, estimated at US$8.0 million. The result of this eagerly awaited test could provide a positive catalyst for MAY and exploration in Cuba generally.

B: NEW ZEALAND – PUKATEA PROSPECT

Given the scale of Block 9 in Cuba, it obviously remains the priority project for MAY. However, the Company has two other prospects they are currently in the process of actively trying to farm out.

The first is the Pukatea Prospect in New Zealand where they are partnered with Tag Oil (TAO.tsx, who plan to drill 5 exploration wells in NZ in 2018). The JV expects to spud the Pukatea prospect onshore Taranaki Basin (NZ) in early 2018 (an exploration well is currently required to be drilled prior to 23 February 2018). The Douglas-1 well drilled in 2012 at the edge of Pukatea encountered oil shows and 145m of reservoir interval, the prospect has over 350m of up-dip potential.

Fig. 9: Pukatea Prospect -up dip from Douglas-1



Source: MAY

Prospective resources estimated for Pukatea range from 1.3 to 40 million barrels (Low-High estimates, 100% share). While small relative to Cuba, the dry hole cost is only circa A$2.4m (MAY share, excluding potential testing).

TAG Oil, MAY's partner in Pukatea, currently has a booked 2P reserve base of 4.14mmboe which has an estimated NPV10 value of C$82m or almost A$20/bbl.

Fig. 10: TAG Oil NPV 10 by Asset

Reserves summary by field

Permit	Field	TAG Oil WI	1P		2P		3P	
		%	Total *Mboe*	NPV_{10} *$ mm*	Total *Mboe*	NPV_{10} *$ mm*	Total *Mboe*	NPV_{10} *$ mm*
38156	Cheal A, B, C	100%	1,481	$11.80	3,500	$76.58	6,684	$180.30
54877	Cheal E	70%	176	-$0.13	423	$2.33	699	$10.94
53803	Sidewinder	100%	152	$0.46	221	$3.22	385	$8.60
Total*			**1,809**	**$12.12**	**4,143**	**$82.12**	**7,767**	**$199.84**

Source: TAG Oil

These reserves require a further C$50m to fully develop as outlined in the NPV10 assumptions. This compares to the circa US$30m total development cost we assume for Pukatea (at the 12.4mmboe case).

Fig. 11: TAG Oil NPV 10 with future capital expenditure

		FY2017	FY2016	FY2015
Opening 2P reserves	Mboe	3,619	5,180	5,898
Production	Mboe	(438)	(507)	(677)
2P Reserves net additions	Mboe	962	(1,054)	(41)
Closing 2P reserves	Mboe	4,143	3,619	5,180
2P year end valuation (NPV 10% before tax)	mmCdn$	$82.12	$45.92	$114.70
2P year end valuation (NPV 10% after tax)	mmCdn$	$78.33	$45.92	$108.71
Future capital expenditure included in 2P valuation	mmCdn$	$49.67	$54.63	$65.50

Source: TAG Oil

The assumptions and sensitivities for TAG's NPV10 calculation are outlined below and provide a rough guide for the value of onshore production in the Taranaki Basin.

Fig. 12: TAG Oil Reserves and NPV10 Assumptions

Assumptions for March 31, 2017 fair value calculation

Discount Rate	10%
Brent Crude Prices (2016-2030)	$57 - $91 USD bbl
Exchange rate (USD/NZD) (2016-2030)	$0.7183
Exchange rate (CND/NZ) (2016-2030)	$0.9614
Exchange rate (USD/CND) (2016-2030)	$0.7472

Incremental NPV10 (CAD$000's) Sensitivity to % Changes in Production, Costs and Oil Price

	-20%	-10%	+10%	+20%
Production	(32,958)	(16,943)	13,184	27,134
Costs	17,372	8,169	(11,052)	(18,417)
Oil Price	(35,274)	(17,992)	13,946	28,608

	NPV5	NPV10	NPV15	NPV20
Incremental Discount Impact	17,406	-	13,316	23,622

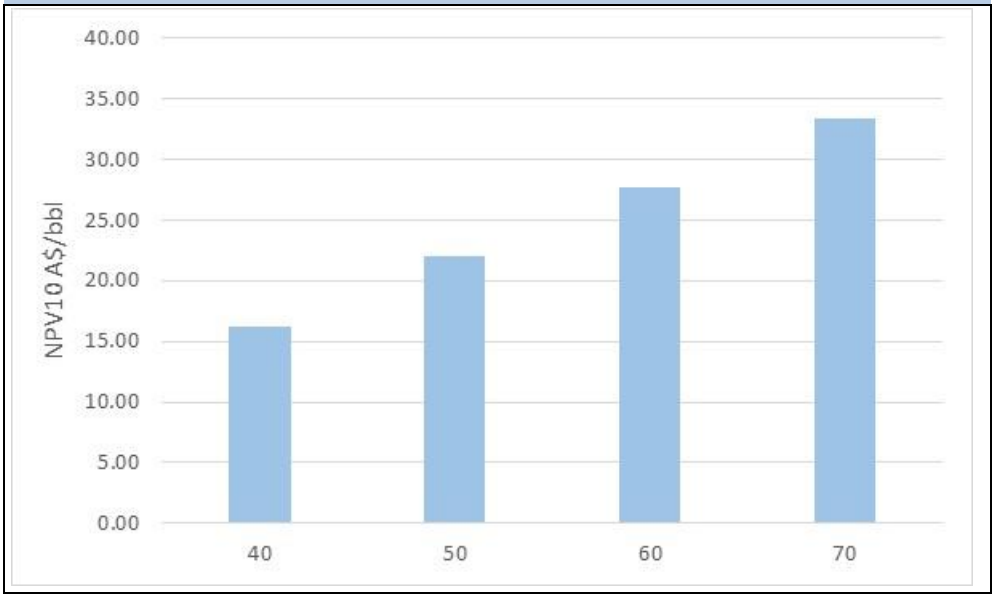
Source: TAG Oil

We expect given the productivity of the Tikorangi Limestone targeted at Pukatea, that success at Pukatea would have a greater developed value per barrel that the existing TAG Oil portfolio.

We assume a 12.4mmboe three well development at a total development cost of just US$30m (gross).

Success at Pukatea assuming the best case prospective resources of 12.4mmboe (MAY 30%, so 3.72mmboe net) would therefore be worth circa A$21.98/bbl based on a flat US$50/bbl realised oil price (or circa A$82m for MAY's current 30% stake).

Fig. 13: Pukatea NPV10 per barrel at various oil prices



Source: Hartleys

C: AUSTRALIAN PORTFOLIO – BEEHIVE PROSPECT

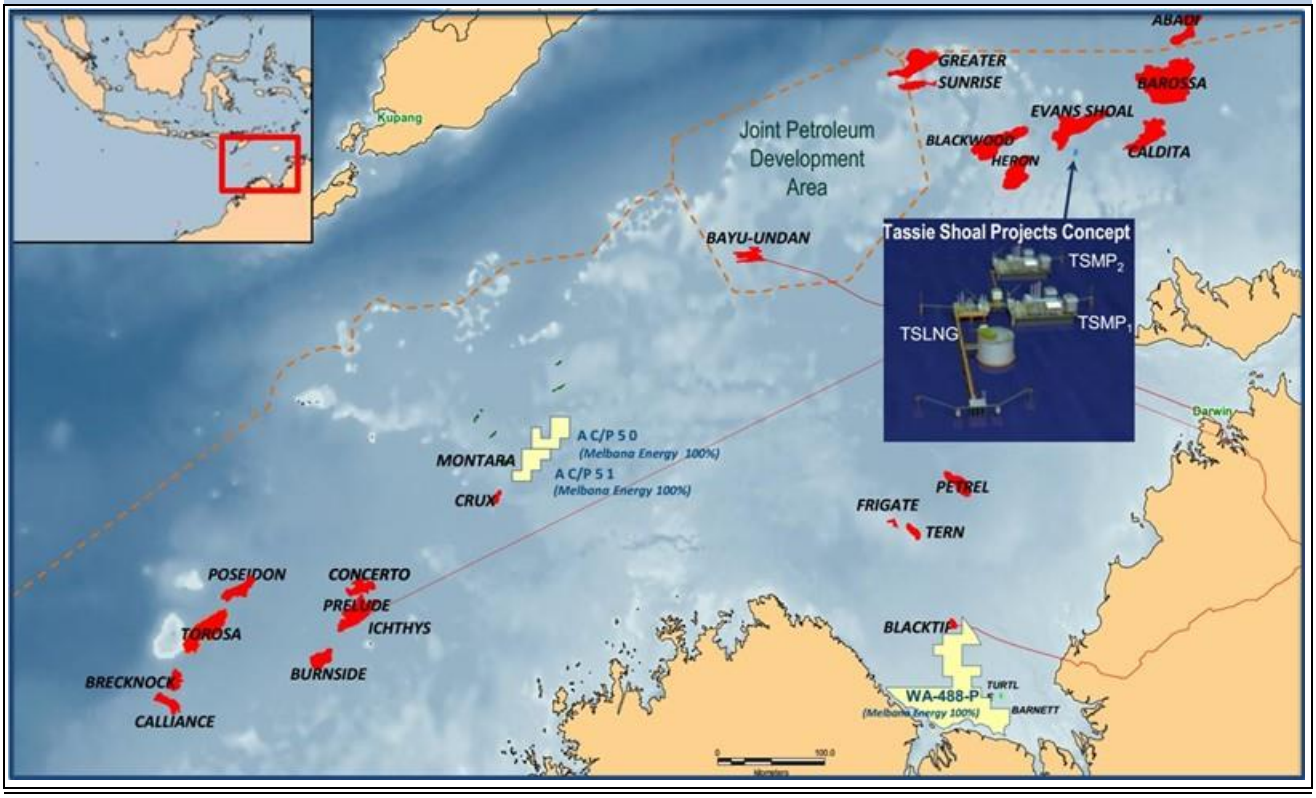
MAY also has retained a legacy offshore Australian portfolio, which it has stated they will not spend a material amount on.

It should also be noted that MAY also had accumulated losses of A$259.5m at year end 2016, mainly from past expenditure in Australia.

The key asset in the Australian portfolio given its size and location is the Beehive Prospect in WA-488-P (MAY 100%) in the Bonaparte Basin.

The Beehive Prospective Resource is estimated by MAY between 97 to 2,033 million barrels (with 558 mmboe best estimate, 100%). The prospect is located in shallow water, suitable for a jack-up, however we believe it is only covered with 2D seismic (which has been recently reprocessed by MAY).

Fig. 14: MAY Australian Portfolio



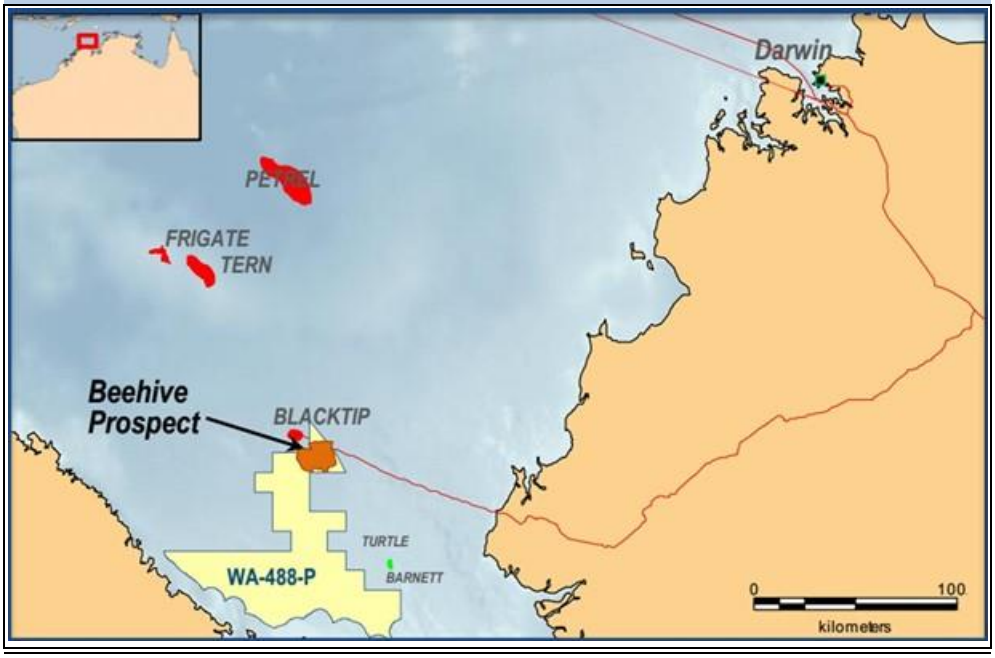
Source: MAY

The Beehive Prospect is located to the North West of the ENI operated 150mmboe Blacktip Gas Field. Blacktip was discovered in 2001 by the Blacktip-1 well in water depth of only 50m. First production from the field was achieved in September 2009 with the gas produced from the field supplied to the Northern Territory-based utility provider Power Water Corporation (PWC) under a 25-year agreement. Given a lack of demand in the Northern Territory, Blacktip gas will be used to underpin the $800m Northern Gas Pipeline project that is proposed to run from Tennant Creek to Mt Isa.

This pipeline development and access to rising gas prices on the East Coast of Australia may add further appeal to the Beehive prospect and a potential farm in partner.

The current existing three-year license runs to March 2019 and there is a commitment well in Year 3. The consequence of not completing the Year 3 program is not financial. The permit would be cancelled and MAY would look to negotiate a "good standing" agreement with the Commonwealth regulators.

Fig. 15: Beehive Prospect



Source: MAY

RECOMMENDATION & RISKS

INVESTMENT THESIS & RECOMMENDATION

Melbana Energy Ltd. has three active farm outs currently running. The key asset on the block is their current 100% working interest in Block 9 Cuba.

Given the size of the resource in Cuba (compared to the current EV) the current share price is factoring in an extremely low probability level of commercial success. A back of the envelope calculation of value based on (limited) known costs in Cuba and likely realised prices indicates an NPV10 (@US$40/bbl) of around A$4.01/bbl of developed reserves, A$6.66/bbl (@US$50/bbl) and A$8.23/bbl (@US$60/bbl). This would value the 637m barrels and MAY's current 100% between A$2.5-5.0bn based on a US$40-60/bbl range in oil prices.

Primarily on the back of this Cuban exposure we rate MAY a Speculative Buy.

RISKS

Investment in the oil and gas sector should be considered high risk. There is no guarantee of exploration success. Further to this, producing assets typically decline without further exploration and development. Specific risks include exploration risk, development risk and production risk.

The key risks for MAY (like most exploration companies) is making an economic discovery and obtaining the funding for ongoing exploration. Other risks include delays, key person risk, country/sovereign risk, weather, JV partner obligations, cost inflation. Investing in explorers is very risky given the value of the company (exploration value) in essence assumes that the market will recognise a portion of potential value before the results of an exploration program are known, conscious that the ultimate chance of success is low (typically 1%-20%) and that failure is much more likely, in most cases.

SIMPLE S.W.O.T. TABLE

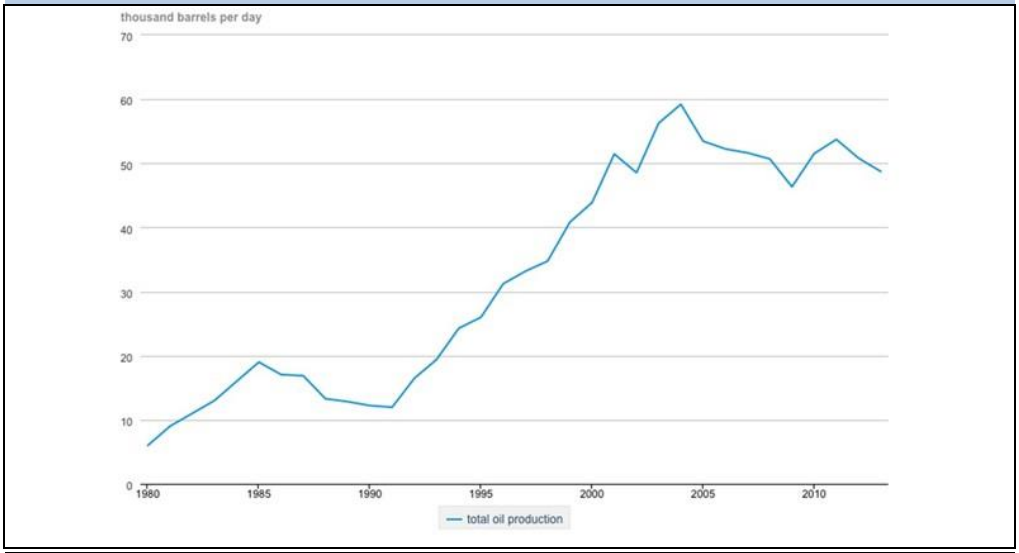
Strengths	Experienced management team. Block 9 has potential for World Class discoveries. First mover into Cuba and potential to add further to their portfolio there. High working interest across entire acreage position.
Weaknesses	Need to find a farm-in partner(s) Capital constrained
Opportunities	A number of drill ready prospects could attract one or more farm in partners. The Northern Gas Pipeline (NGP) could potentially help release value in MAY's offshore NT tenements. Takeover risk.
Threats	Exploration failure – geological risk. License expiry or cancellation. Environmental concerns. Takeover risk.

Source: Hartleys Research

APPENDIX - CUBA

Cuba currently produces approximately 45,000 barrels per day of oil and 3 million cubic metres of gas. Oil production meets 30% of the domestic consumption (circa 170,000bpd according to the EIA), with the balance satisfied by imports, mainly from Venezuela. There are currently 6 modern rigs operating in Cuba (four Chinese and two Canadian). The Cuban Oil Sector is still subject to the US sanctions embargo. Production has been as high as 60,000bpd, with the Varadero Oil field representing circa 2/3 of production.

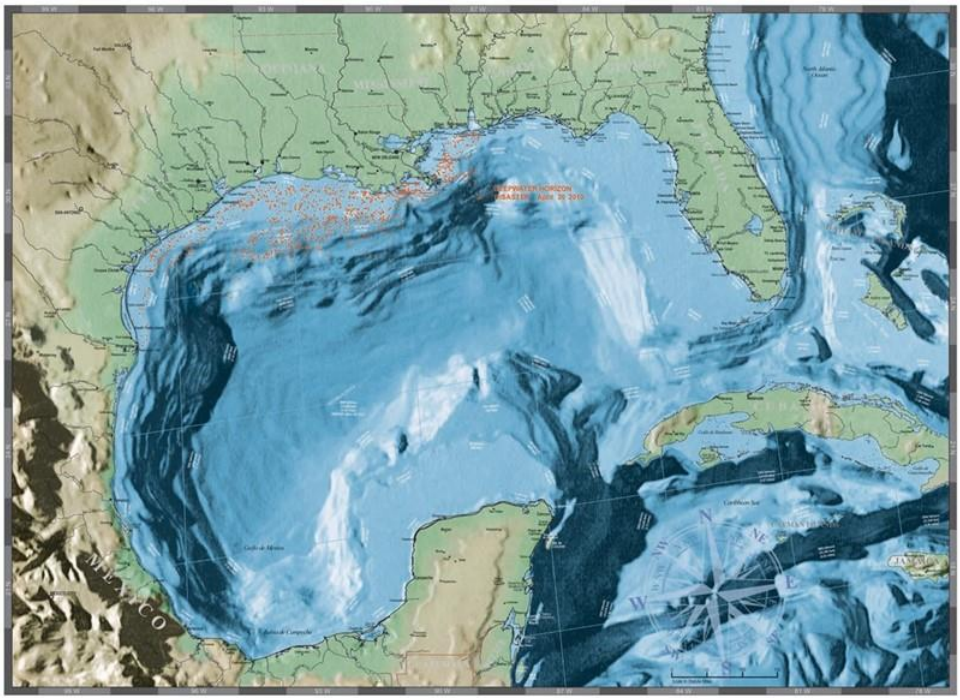
Fig. 16: Cuba Total Oil Production



Source: CUPET

North Cuba is located at the South East portion of the prolific Gulf Mexico Basin.

Fig. 17: Cuba – Gulf of Mexico Sea Floor



Source: USGS

Since Cuba opened the Cuban Exclusive Economic Zone (CEEZ) to foreign investment in 1999, four deepwater wells were drilled in the area between 2003-12 The only other offshore drilling since 2003 was in shallow water off the island of Cayo Coco in central-northern Cuba. None of the offshore wells found commercial hydrocarbons. Three of the wells drilled in recent years had oil shows but lacked effective seals.

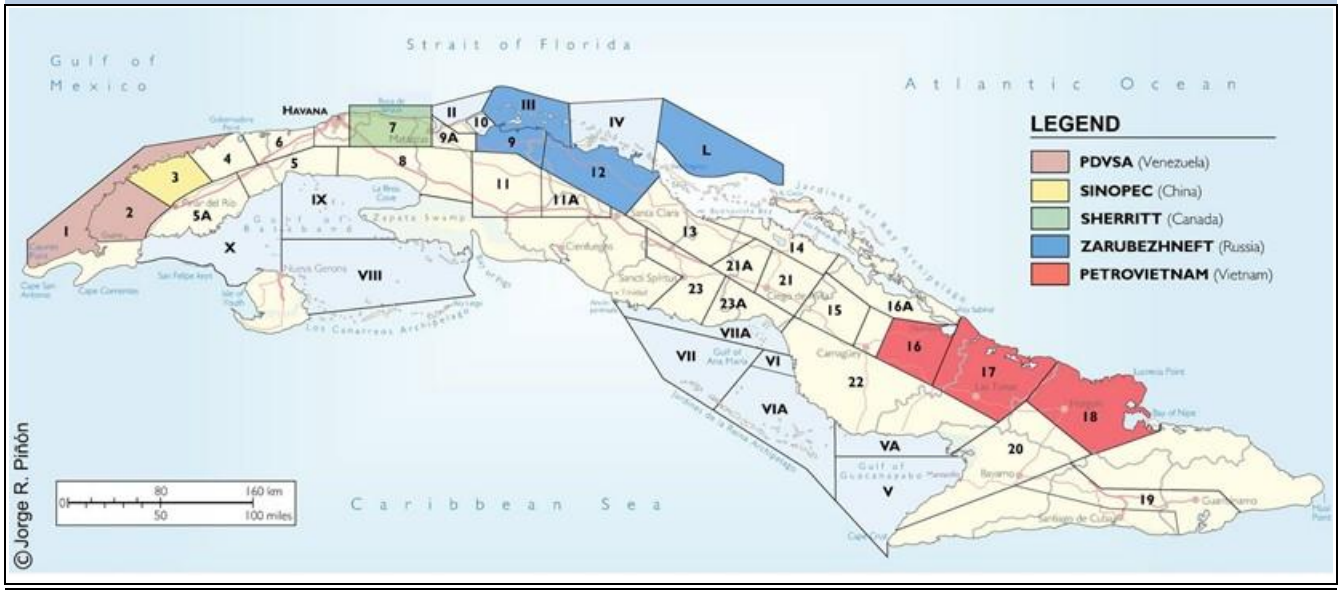
Earlier deepwater assessment of the CEEZ came via the former Deep Sea Drilling Project, which drilled six scientific holes with the Glomar Challenger drillship during 1980-81. Site 535, had shows of live and oxidized oil in Lower Cretaceous pelagic limestone. The hole went to 4,164 m in 3,455.5 m of water. Oil traces in the Site 535, Yamagua, and Jaguey wells correlate chemically with crude produced in the northern heavy oil belt, which accounts for 97% of Cuban production. The oil in those fields is 6.3°-37° gravity with 0.27-9% sulphur, generated from Upper Jurassic pelagic carbonates.

Fig. 18: Deepwater Wells in the Cuban Exclusive Economic Zone

Source: Oil and Gas Journal

Prior to Sherritt's drilling on Block 10, the prior key event was Russian state-owned oil company Zarubezhneft's plans to drill a well in offshore Block L.

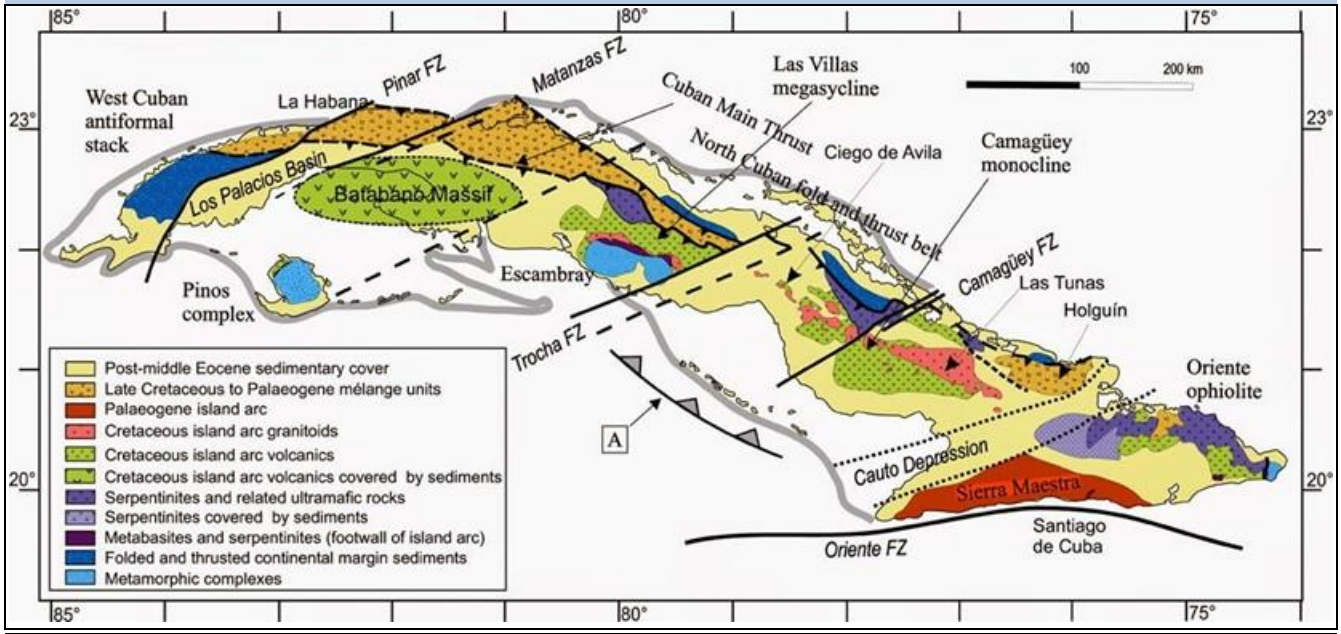
Fig. 19: Cuba Licenses in 2010



Source: Cuba Journal

The Russians' planned to drill a 6,500 meters (21,325 feet) well in 2013 but encountered difficult geology while drilling and difficulties with the rig, the Songa Mercur, which at one point lost its blowout preventer. Plans to re drill the well in 2014 never materialised.

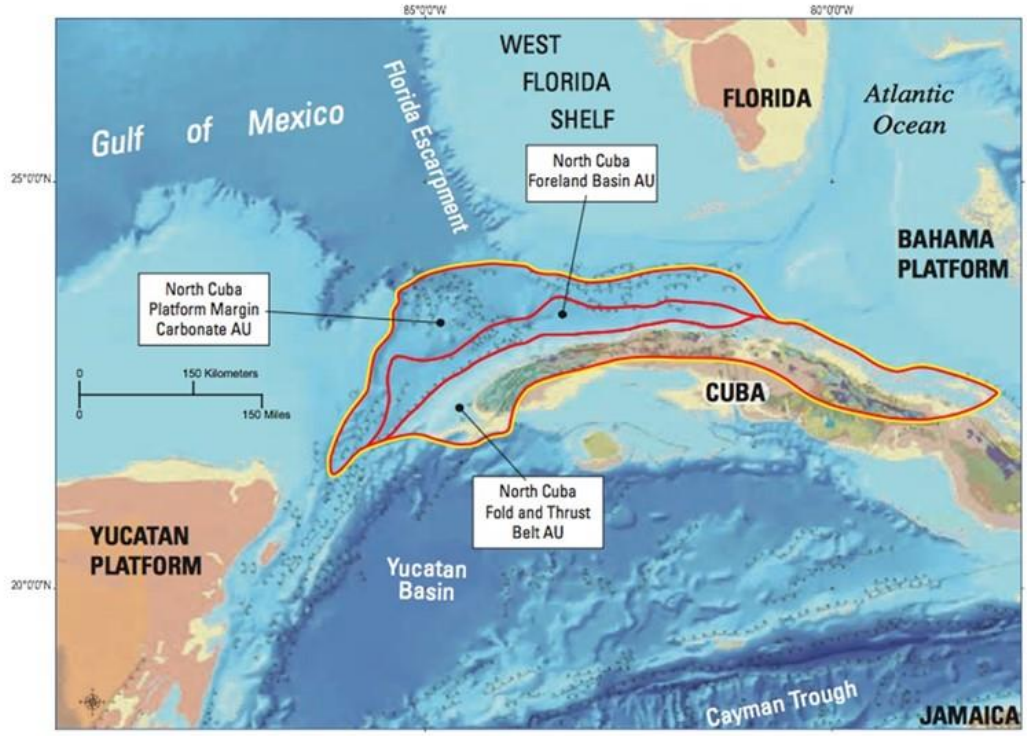
Fig. 20: North Cuba – Key Geologic Features



Source: CUPET

The focus of Zarubezhneft formerly and Sherritt and MAY currently is on the proven North Cuba Fold and Thrust Belt.

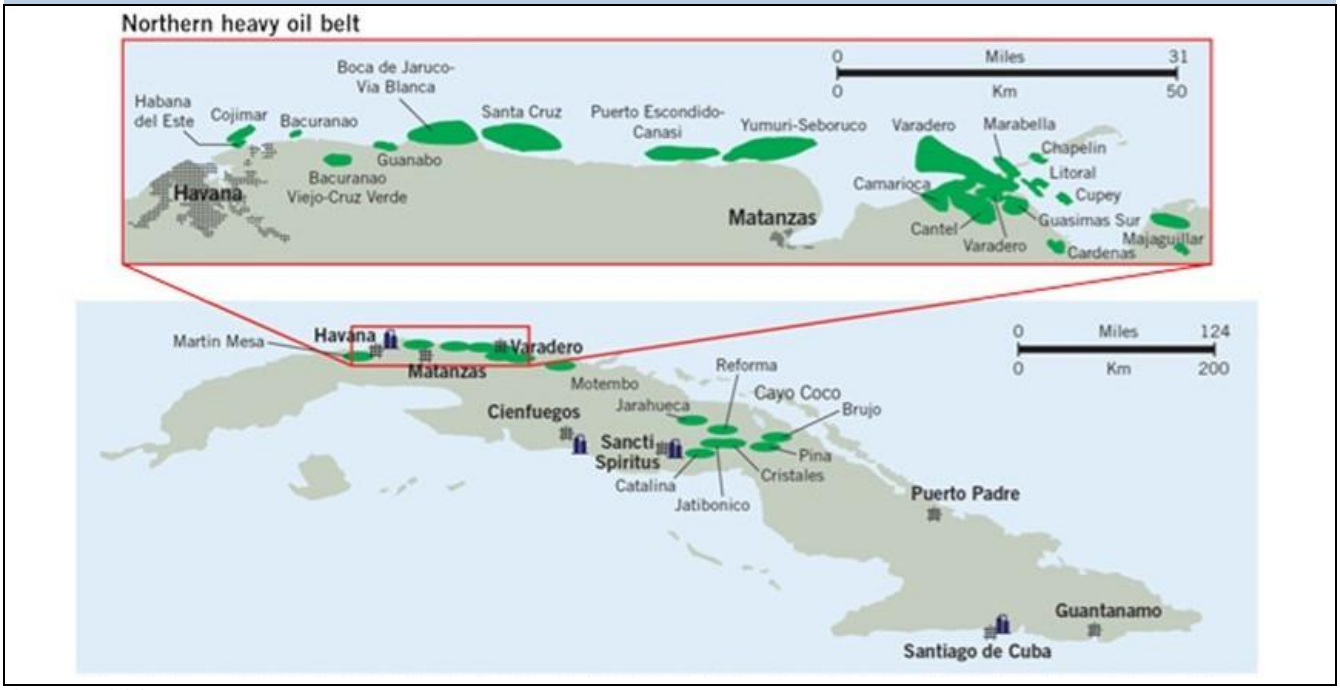
Fig. 21: North Cuba Fold and Thrust Belt



Source: USGS

The North Cuba Fold and Thrust Belt currently accounts for close to 97% of total Cuban production (from shallow heavier oil fields).

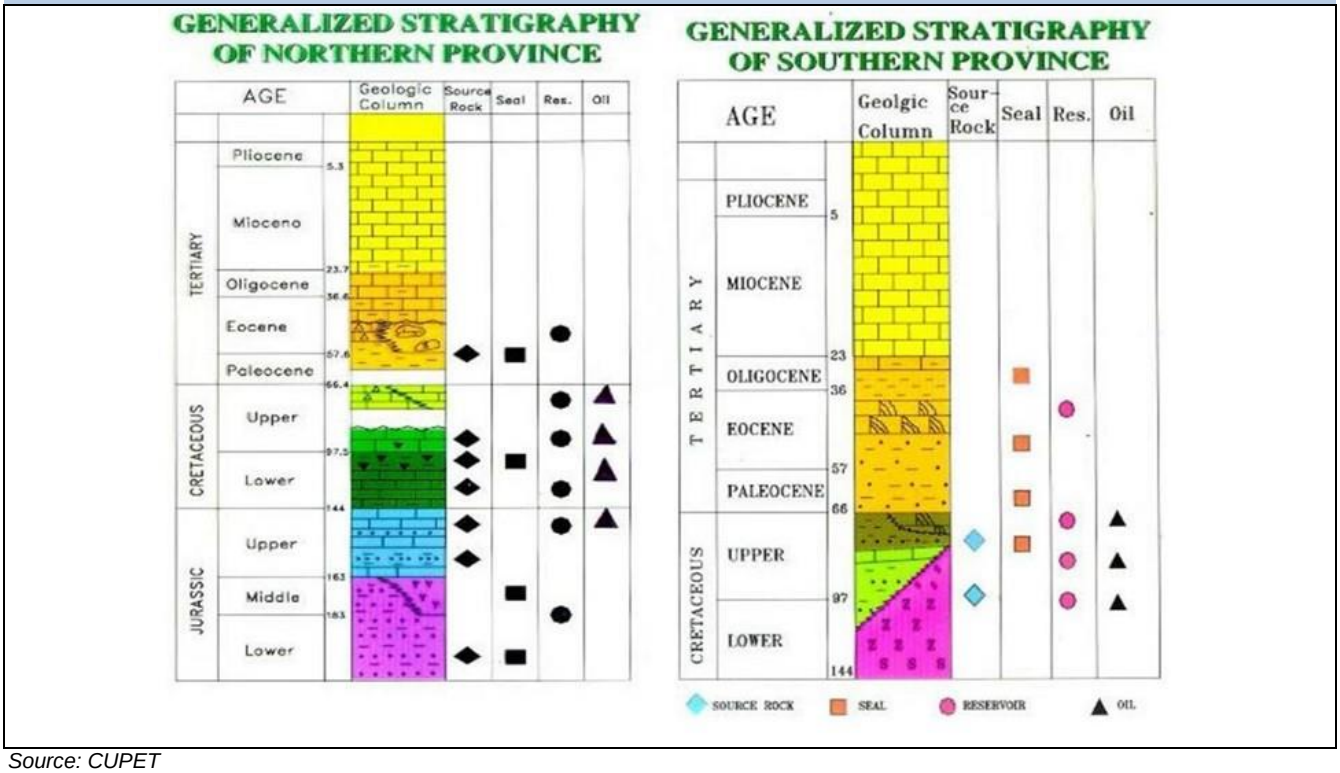
Fig. 22: Overview Cuba's Oil Industry



Source: USGS

All current operational fields produce from Upper Jurassic marine carbonates except for Martin Mesa, Motembo, Cantel and Christales, which produce from Cretaceous marine and mixed clastic rocks. The stratigraphic section of Cuban basins includes a thick marine Jurassic-Cretaceous sediment deposited within the prolific Gulf of Mexico Petroleum Megaprovince.

Fig. 23: Generalized Stratigraphy



Source: CUPET

The North Cuba Fold and Thrust Belt is estimated by the USGS to contain 494mmbo (mean estimate) of undiscovered oil and 592bcf of gas. These estimates are lower than those outlined by MAY, the latter we suspect are taking a more positive view on the lighter oil potential in deeper reservoirs.

Fig. 24: Total Potential Undiscovered Resources

	Total Petroleum Systems (TPS) and Assessment Units (AU)	Field Type	Total Undiscovered Resources: Oil (MMBO) F95	F50	F5	Mean	Gas (BCFG) F95	F50	F5	Mean	NGL (MMBNGL) F95	F50	F5	Mean
	Jurassic-Cretaceous Composite TPS													
Conventional Oil and Gas Resources	North Cuba Fold and Thrust Belt AU	Oil	142.22	464.25	941.03	493.64	159.47	540.32	1,200.27	591.56	8.87	31.53	75.66	35.47
		Gas					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	North Cuba Foreland Basin AU	Oil	781.13	3,014.17	6,374.50	3,218.85	1,464.93	5,863.30	13,421.82	6,451.18	137.43	569.20	1,406.66	644.74
		Gas					141.29	862.16	3,418.47	1,190.46	7.09	44.07	184.63	63.13
	North Cuba Platform Margin Carbonate AU	Oil	131.66	759.73	2,036.87	883.13	221.42	1,330.19	3,841.07	1,588.79	20.71	129.67	399.05	158.90
		Gas					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Undiscovered Oil and Gas Resources		1,055.01	4,238.15	9,352.40	4,595.62	1,987.11	8,595.97	21,881.63	9,821.99	174.10	774.47	2,066.00	902.24

Source: USGS

Close to 100% of current production from the Fold and Thrust Belt is from heavier oil fields, however there have been a number of fields discovered with lighter oil. The most notable of which is the old Motembo field (the first oil field discovered in Cuba in 1881), which is located in Block 9.

Fig. 25: Oil fields of the onshore North Cuba Basin, North Cuba Fold and Thrust Belt Assessment Unit.

[AVG, average; - -, no data.]

Field Name	Discovery Date	Tectonic-Stratigraphic Unit	API* (AVG)	API* (RANGE)	SULFUR (AVG)	SULFUR (RANGE)	Cumulative Production (To 1993) (Barrels x 1,000)	Oil in Place (Barrels x 1,000)
Motembo	1881	Zaza	61	56.2 - 62.3	0.00	- -	5,280	- -
Bacuranao	1914	Zaza	24	15.9 - 25.2	1.04	1.21 - 2.01	- -	- -
Jarahueca	1943	Zaza	38	- -	0.24	- -	1,659	- -
Penas Atlas	1954	Zaza	10	- -	2.94	- -	- -	- -
Santa Maria	1954	Zaza	22	- -	2.54	- -	- -	- -
Guanabo	1956	Zaza	11	- -	2.94	- -	1,767	17,000
Via Blanca	1968	Placetas	20	- -	2.78	- -	- -	-
Boca de Jaruco	1968	Placetas	17	10.0 - 44.3	1.49	0.33 - 9.2	23,188	1,023,000
Varadero	1969	Placetas	22	8.8 - 15.9	7.29	1.67 - 9.29	19,687	957,000
Camarioca	1971	Zaza	32	- -	0.18	- -	1,159	15,710
Chapelin	1971	Camajuani	- -	11.1 - 16.8	- -	5.64 - 7.11	41	6,650
Yumuri	1971	Placetas	16	- -	5.62	- -	117	29,100
Varadero Sur	1974	Placetas	20	- -	3.08	- -	1,280	60,000
Guasima	1974	Placetas	10	- -	4.66	- -	1,959	67,700
Marbella	1975	Zaza, Placetas	- -	- -	- -	- -	- -	- -
Cantel	1978	Camajuani	11	9.3 - 24.7	1.53	- -	7,411	75,000
Marbella Mar	1989	Placetas	30	- -	- -	0.22 - 3.72	- -	- -
Martin Mesa	1989	Placetas	19	9.3 - 36.7	1.49	- -	83	- -
Litoral	1990	Placetas	27	- -	- -	- -	- -	- -
Boca de Jaruco II	1990	- -	- -	- -	- -	- -	- -	- -
Faustino	2002	- -	- -	- -	- -	- -	- -	- -
Majaguiller	- -	- -	- -	- -	- -	- -	- -	- -
Cupey	- -	- -	- -	- -	- -	- -	- -	- -
Rio Del Media I	- -	- -	43	- -	0.09	- -	- -	- -
Puerto Esperanza	- -	- -	30	- -	0.27	- -	- -	- -
Madruga	- -	- -	- -	- -	- -	- -	- -	- -
Cruz Verde	- -	Zaza	- -	- -	- -	- -	- -	- -
Puerto Escondido	- -	- -	- -	- -	- -	- -	- -	- -

Source: CUPET

Due to complexity and cost considerations historical drilling largely has also been focused on shallower targets. Key prospects identified by MAY through their studies to data such as Alameda and Zapato have TD's in the 3,200-3.500m range.

Fig. 26: Onshore Cuban Oil Wells

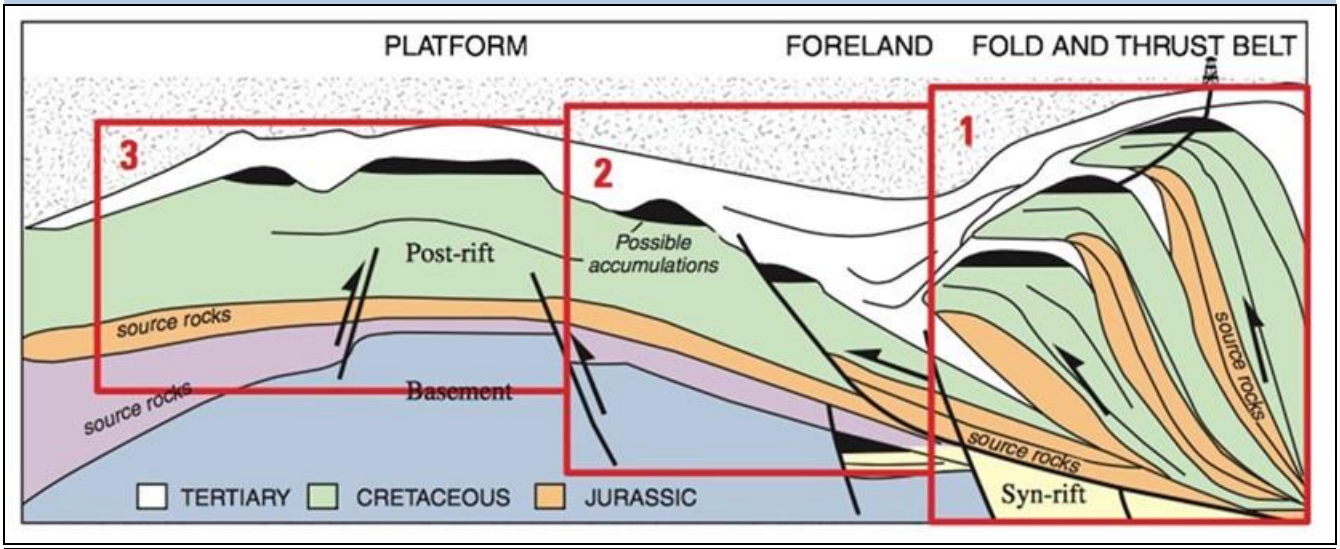
WELL	Depth Top	Depth Bottom	Cord.X UTM	Cord.Y UTM	Geological formation	Age	*API	Sulfur (%)	Nickel (ppm)	Vanadium (ppm)	% ASPH*	% RES*	% ARO*	% SAT*
MARTIN MESA 1	824	807	328377	351639	Manacas	Lower Eocene	23,2	1,38	24	12	6	30.6	25.3	34.1
MARTIN MESA 24	733	773	328377	351639	Manacas	Lower Eocene	18,6	0,69	13	5	1.4	21.5	31.9	40.8
YUMURI 37	1280	1350	380000	368739	Cifuentes	Upper Jurassic	6,3	5,96	70	111	10.9	43.4	25.0	13.3
YUMURI X	2321	3600	380000	368739	Cifuentes	Upper Jurassic	*na*	7,64	54	102	16	45.0	20.2	13.2
YUMURI 31	1487	1467	380000	368739	Ronda	Lower Cretaceous	10,4	4,6	*na*	*na*	24.8	35.9	21.4	10.1
VIA BLANCA 101	1380	1410	390671	372560	Carmita	Lower Cretaceous	33,7	2,9	9	14	2.3	28.1	23.7	38.9
VIA BLANCA 103	1989	2054	390671	372560	Cifuentes	Upper Jurassic	21,1	6,2	30	50	11.3	34.3	22.1	26.4
BOCA JARUCO 359	1826	1857	394448	373227	Cifuentes	Upper Jurassic	*na*	6,76	28	47	9	42.7	23.4	19.3
BOCA JARUCO 370	1306	1356	394448	373227	Carmita	Lower Cretaceous	*na*	3,53	23	23	1.2	31.8	30.1	31.2
MARBELLA MAR 1	2550	2565	474196	367108	Paraiso	Lower Cretaceous	11,0	5,69	45	76	19	38.6	20.6	15.6
MARBELLA MAR 2	1898	1912	474186	367106	Vega	Paleocene	26,6	*na*	*na*	*na*	10.35	45.4	23.8	15.8
VARADERO 103	1690	1720	470647	365772	Cifuentes	Upper Jurassic	9,6	8,9	68	109	19.6	46.8	18.0	11.0
VARADERO 306	1613	1645	470671	366214	Cifuentes	Upper Jurassic	10,4	8,9	66	105	20.2	46.4	17.7	10.7
CANTEL 30	477	683	466078	363988	Serpentinite	Paleocene	12,0	1,17	*na*	*na*	3.7	38.9	27.3	27.4
CANTEL 33	1140	1172	465130	362800	Carmita	Upper Cretaceous	*na*	*na*	*na*	*na*	5	30.1	27.1	34.2
CANTEL 229	424	488	468572	362575	Serpentinite	Paleocene	14,1	*na*	49	41	3.6	38.8	28.1	27.0

%ASPH Asphaltenes.*
%RES Resins.*
%ARO Aromatics.*
%SAT Saturates.*

Source: CUPET

Relatively complex drilling conditions in the Fold and Thrust Belt…

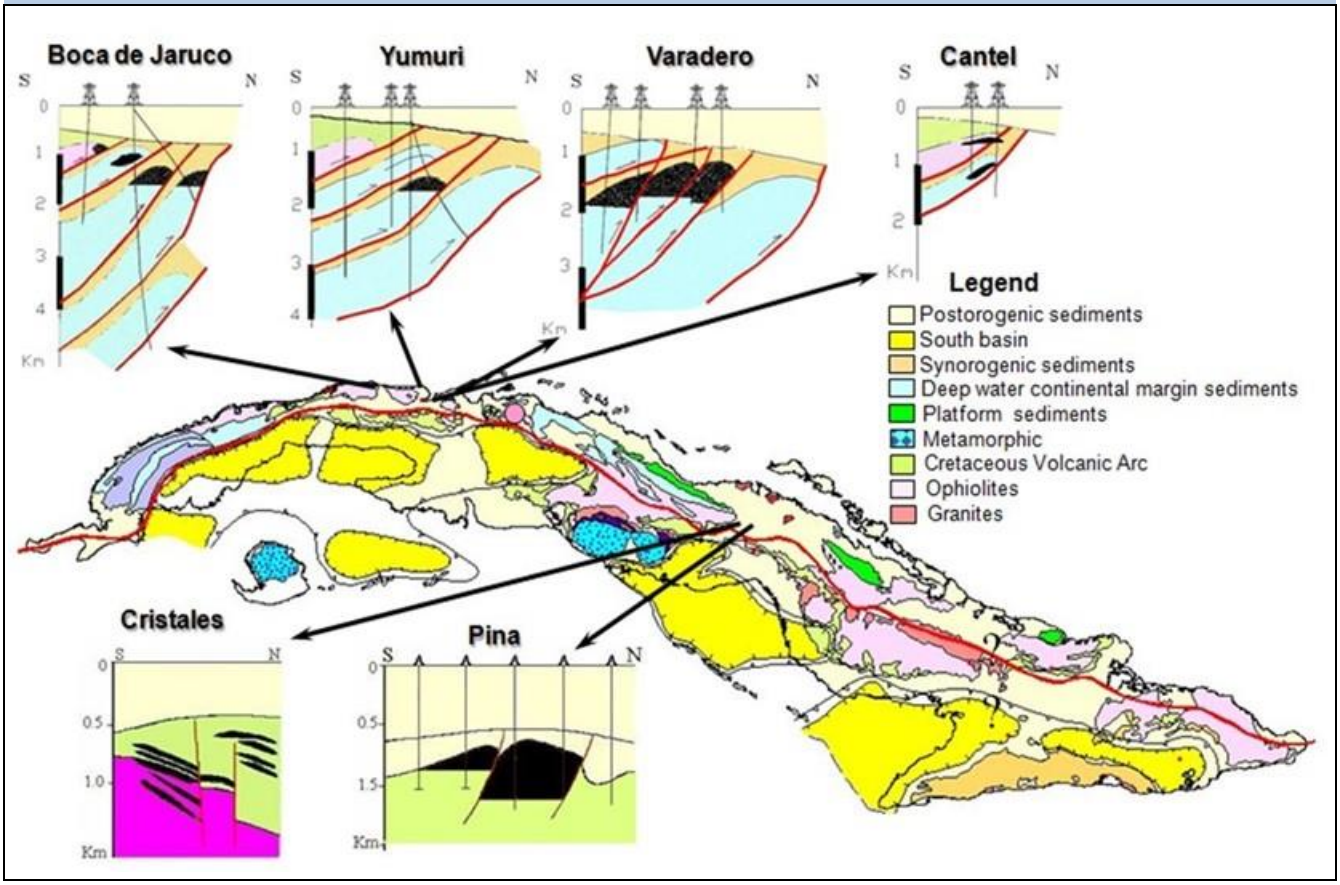
Fig. 27: North Cuba - Northwest to Southeast Cross section



Source: USGS

… has generally limited exploration activity to shallower targets.

Fig. 28: North Cuba Oil discoveries



Source: CUPET

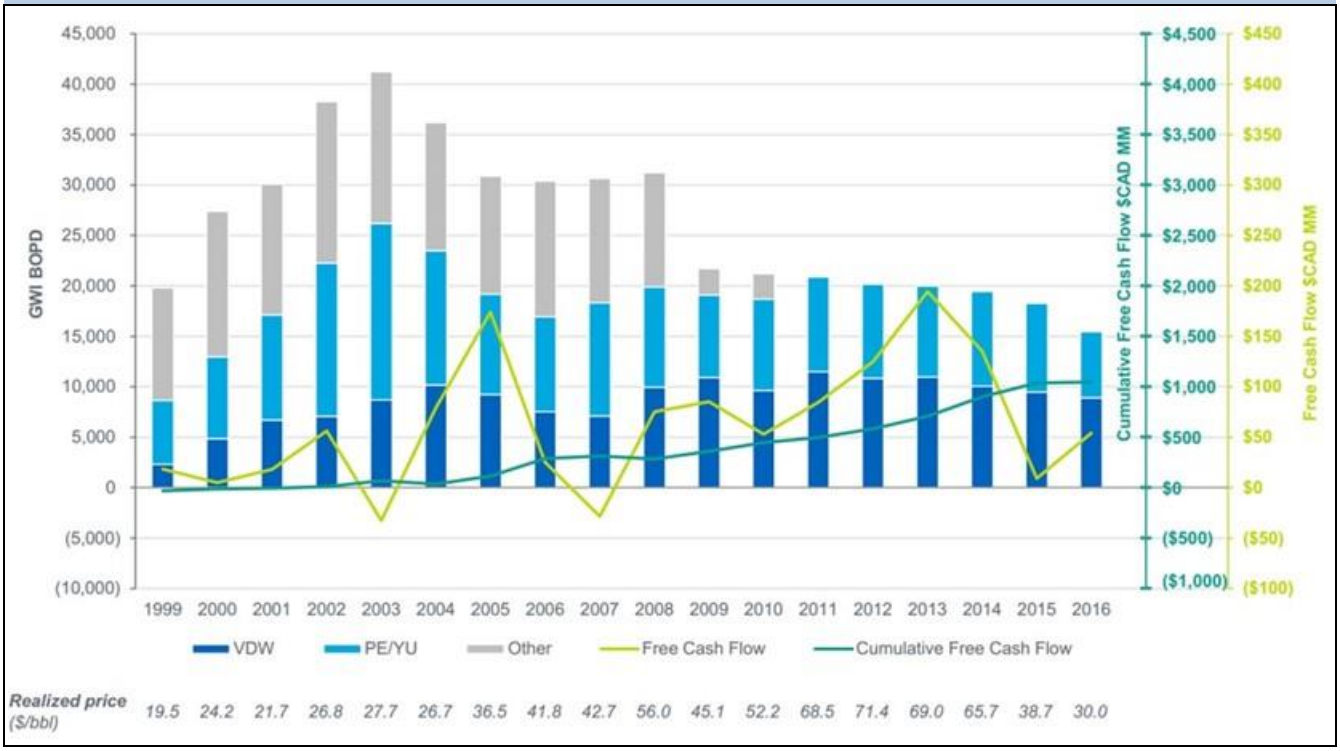
The majority of production (from the Varadero Field) is currently operated by the national oil company, CUPET. There is currently only one western company, Sherritt International from Canada, currently producing oil in Cuba.

Sherritt (primarily a Nickel Miner) has been operating successfully in Cuba for over 20 years. They have drilled over 200 wells since 1992, with circa 86% finding oil and have

produced over 200m barrels to date. Q1 2017 production was 8,163 bopd (NWI) from 46 wells still producing, mainly from PSCs expiring 2017-2018.

Despite the heavy nature of the oil, it is sold domestically at international benchmark prices (recent realising a price at a 12% discount to WTI). Operating costs are also low with guidance in the C$11-12/boe range.

Fig. 29: Sherritt International Cuban Oil & Gas Free Cash Flow



Source: Sherritt International

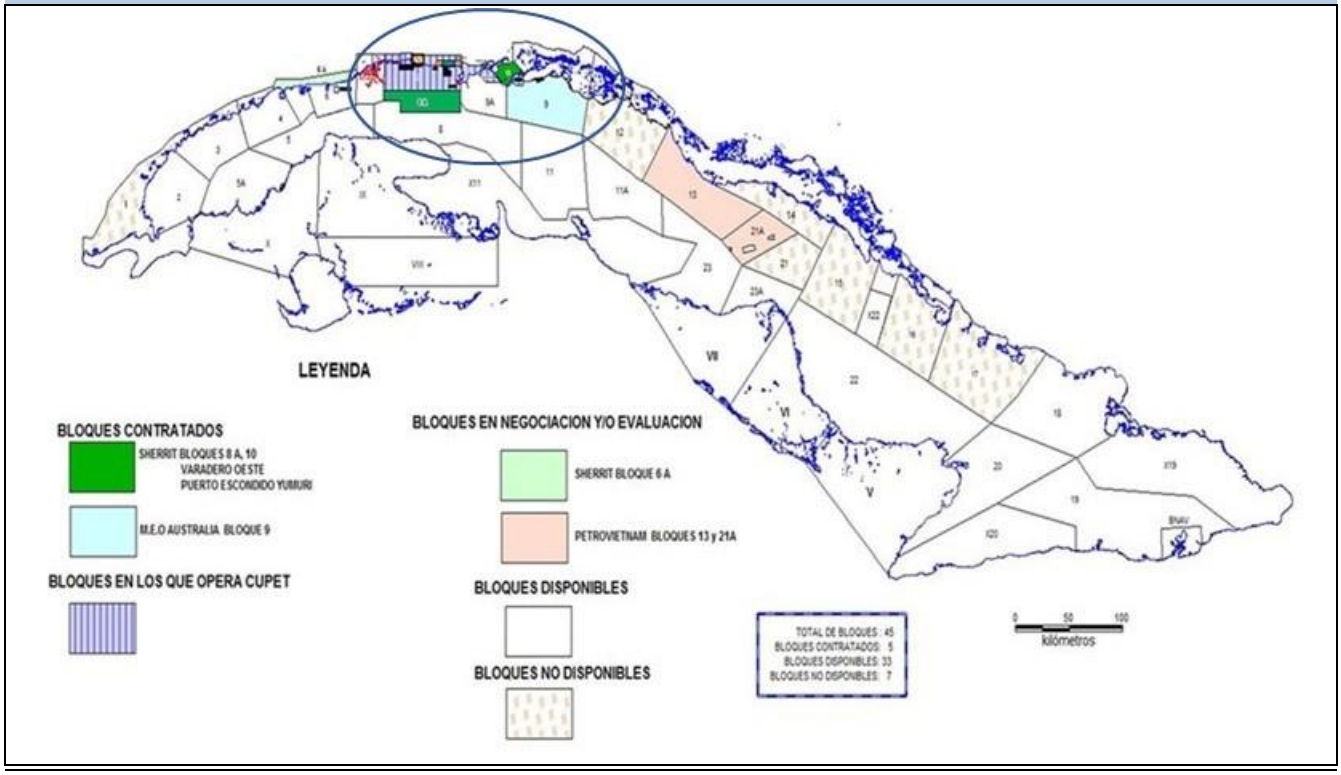
Given the decline in existing production and expiring PSC's the current focus for Sherritt is on extending this production history through the discovery of additional resources, with Block 10 (directly to the North West of MAY's Block 9) the key target.

The Company this year drilled a deviated well from land targeting an offshore prospect in the Lower Veloz Formation. The Litoral-100 well in the Bay of Cardenas failed to reach target depth because of wellbore instability caused by "unexpected geological complexities when a zone of the less stable Vega Alta rock formation repeated itself".

"LT-100 was drilled to a measured depth of 4,232m, of the 5,836m planned, and failed to reach the target Lower Veloz formation. Sherritt did drill a sidetrack well from the existing wellbore to better define the Upper Veloz, and good oil shows were encountered. However, the trajectory of the sidetrack was not high enough in the Upper Veloz structure. The sidetrack well was tested and produced oil but not at commercial rates. The capital cost associated with drilling the well was approximately $24.1 million.

The Company has announced they plan to redrill the well this year again targeting the Lower Veloz. The capital cost estimated to drill this second well is approximately US$8 million, as the well will utilize part of the first well drilled. The result of this well will again be a potential positive catalyst for MAY and Cuban exploration generally.

Fig. 30: Exploration Blocks – Sherritt and MAY



Source: CUPET

Cuban Oil and Gas Prospectivity;

As outlined above, Cuba remains relatively lightly explored. Above surface issues such as US sanctions since 1961 have been a significant part of this (rather than the geology or limited prospectivity).

Data on the industry is therefore also relatively limited. However, a number of studies undertaken by CUPET themselves and 3rd parties such as the USGS and Echarte and Moran clearly suggest that only a very small fraction of the recoverable oil potential in Cuba (including the Fold and Thrust Belt) has been produced.

The accessible work done to date does indicate clearly that Cuba with adequate investment could become a very substantial oil producer. MAY's early entry therefore places them in a strategically valuable position.

The prevalent petroleum system onshore northwest Cuba consists of Upper Jurassic/Cretaceous carbonate-dominated source rocks and reservoirs.

The main parameters for exploration all seem positive. The Cuban Fold and Thrust Belt in addition to the high-quality source rocks of Jurassic and Cretaceous age seems to have favourable timing of hydrocarbon generation and entrapment.

To date the majority of oil produced has been heavier in nature and are mainly immature (rather than degraded) in origin. However, a number of wells in the central strip of the island, in the North-Western part of the island and at depth are lighter. The ability to successfully drill deeper targets in Block 9 will likely be key to unlocking the lighter higher quality crude.

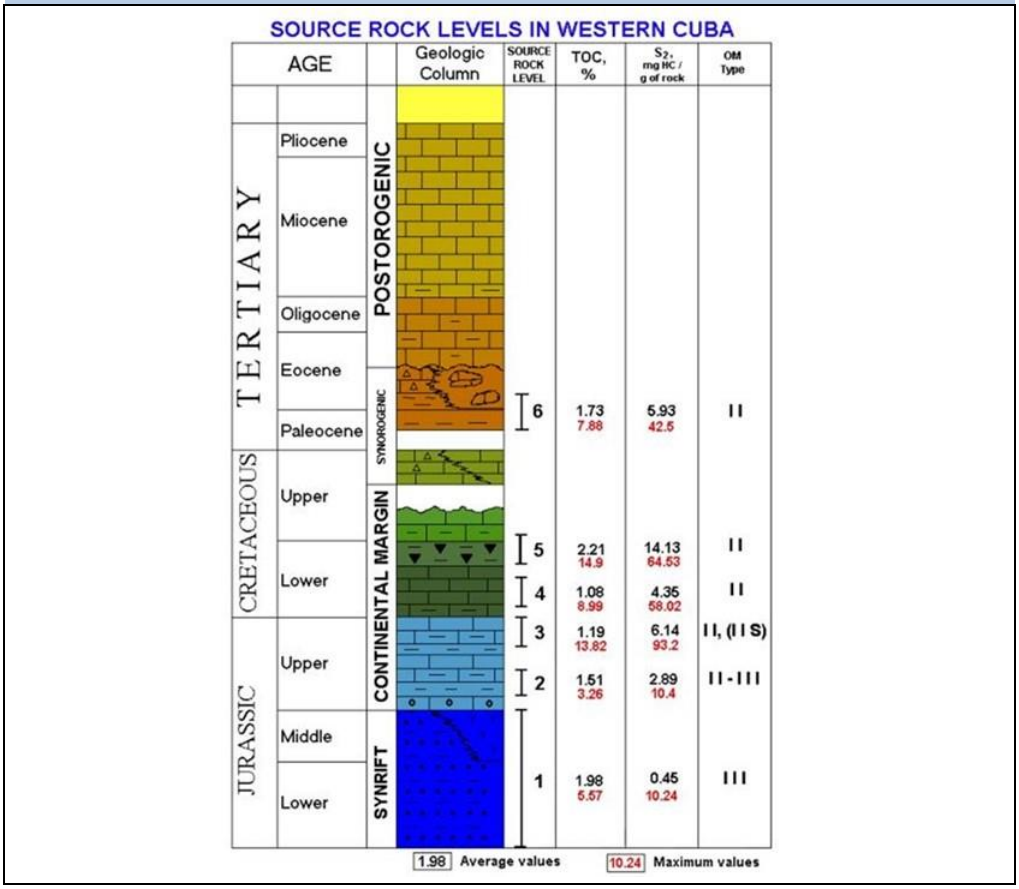
Fig. 31: North Cuba Exploration Parameters

Effective porosities	10-18%
Permeabilities	In cores: 10 – 100mD In fields: 300mD – 1-2 Darcies
Temperature	45-70 °C, depending on depth (geothermal gradient of 23-27 °C/km), however biodegradation is not common.
Vertical Depth (from sea bottom)	1200 – 2400m
Saturated thickness	300 – 600m
Net / Gross	55 – 75 %
Oil saturation	60 – 80 %
Oil densities	8-15° API, immature oils. Locally some values of 20-35° API have been recorded, in deeper and more mature oils.
Secondary processes which create porosity (porosity enhanced diagenesis)	Fractures, dissolution & karstification, dolomitization (could also be negative), stylolitization, colapse breccias, microporosity.
Secondary processes which obliterate porosity (porosity reducing diagenesis)	Mechanical compaction, cementation, crystal overgrowths or recrystallization, chemical compaction.

Source: Echarte and Moran

Source: The source rocks are most likely the shale and clayey limestone from the Late Kimmeridgian and Tithonian.

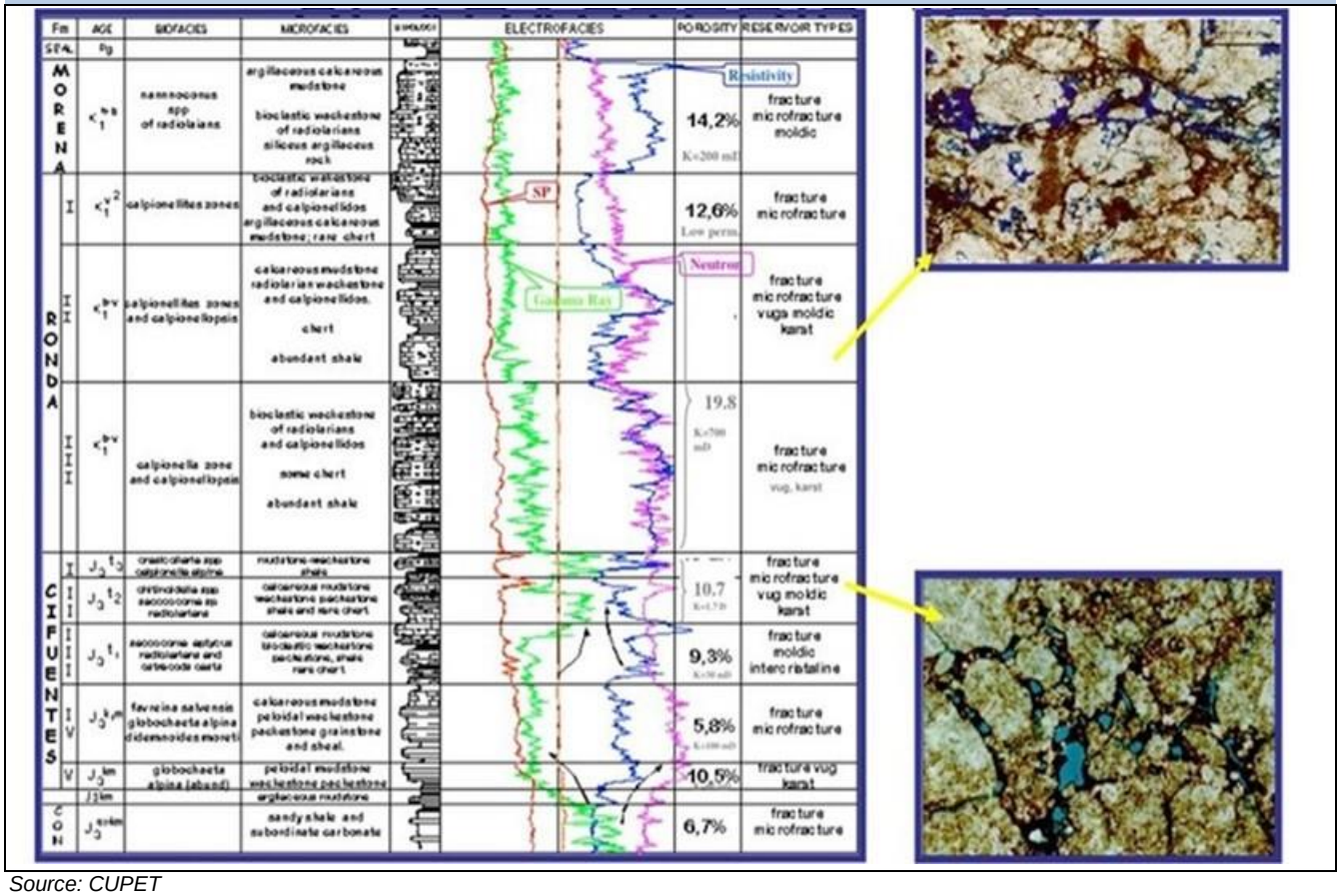
Fig. 32: Six Source Rock Levels



Source: CUPET

Reservoir: The reservoir rock consists of fractured, dissolved and karstified from the Late Jurassic- Early Cretaceous carbonates.

Fig. 33: Reservoir Characteristics

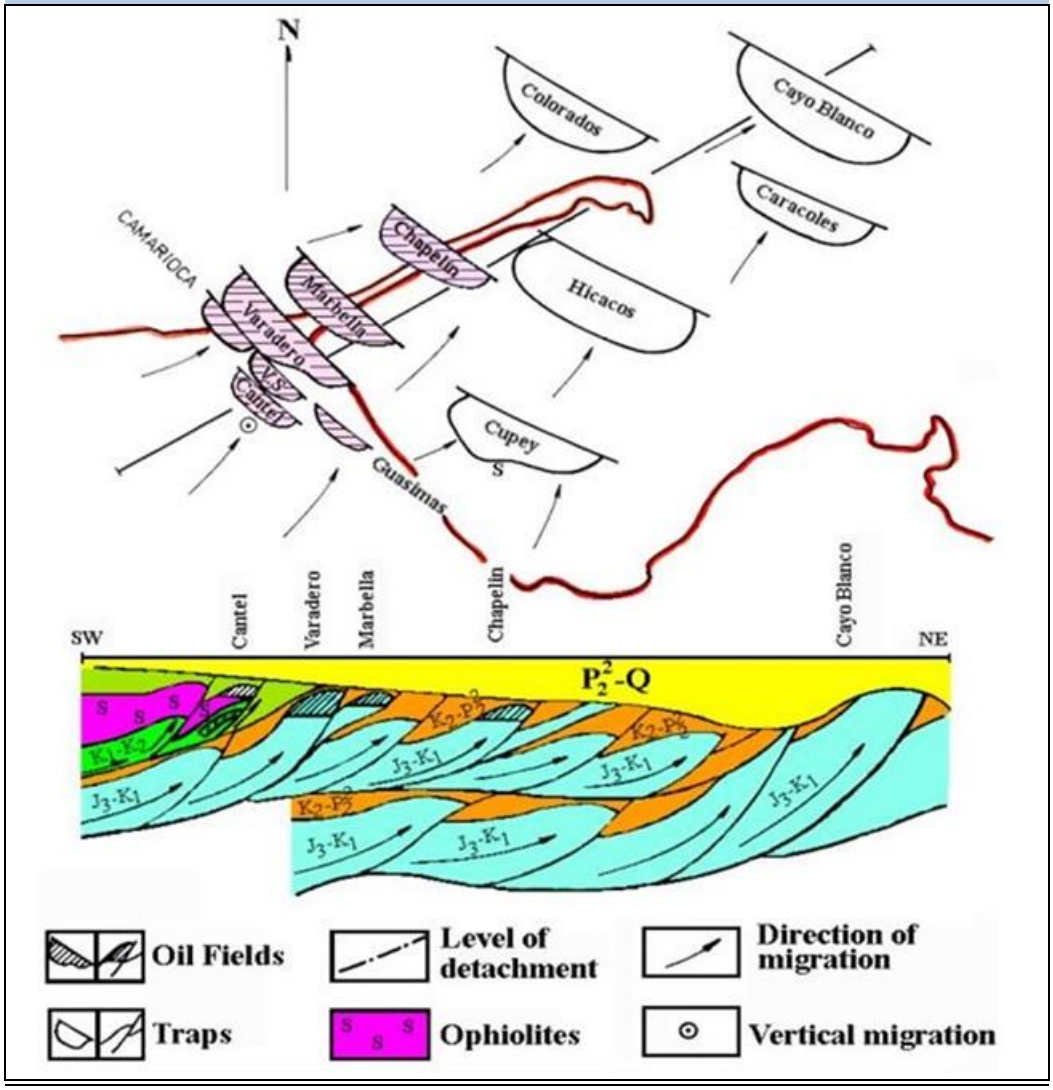


Source: CUPET

Seal: The seal rock consists of clayish and calcareous-clayish sediments from the Palocene-Lower Eocene.

Traps: The traps are likely structures associated with duplexes or thrust sheets, the dimensions of which are variable.

Fig. 34: Migration and Entrapment – for Varadero – Cardenas Bay area



Source: CUPET

Charge: The immature heavier oils likely have been the result of shallower burial and the relatively modest Tertiary overlay onshore. The charge process for the lighter oils will likely be the result of the maturity of source rocks in deeper sections of the stacked units.

It is this lighter oil potential which will likely be the key for MAY in attempting to unlock material value in Block 9.

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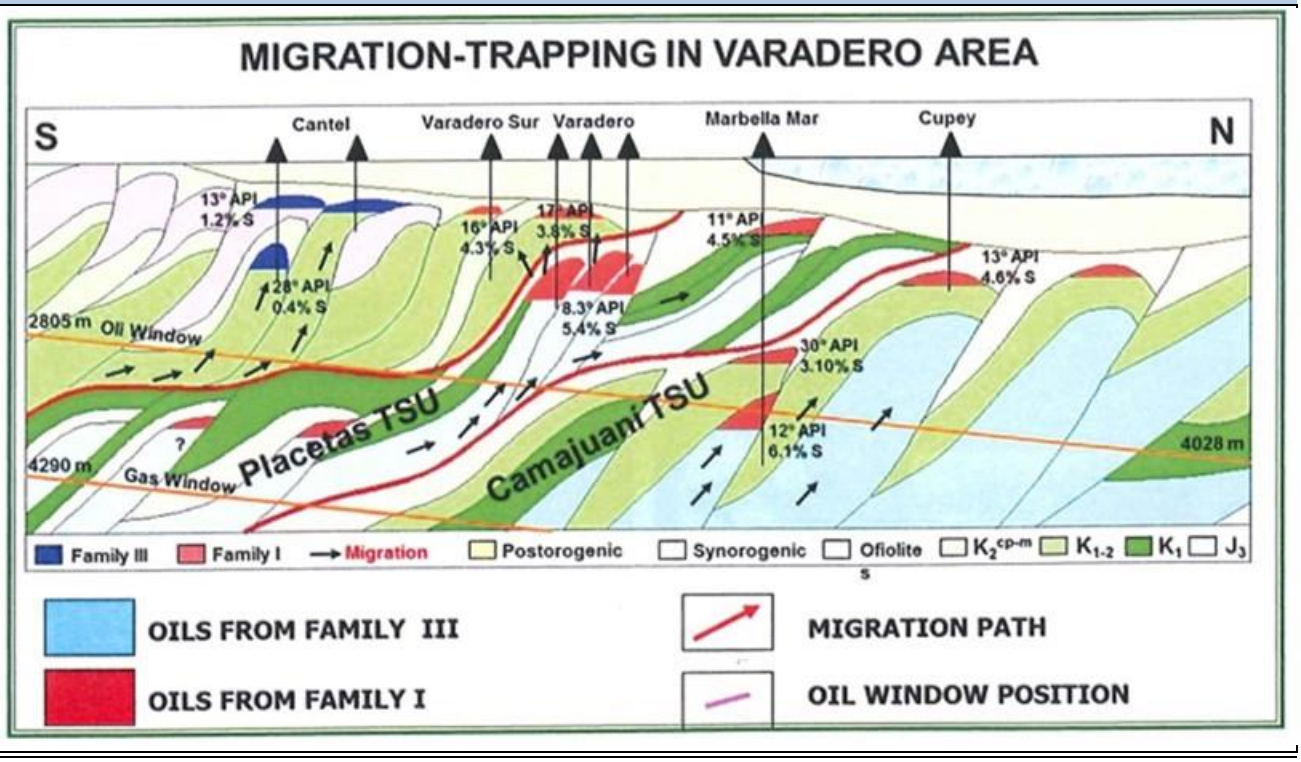
Fig. 35: Varadero-type play for the Cuban Folded and Thrust belt



Source: CUPET

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Buy	Share price appreciation anticipated.
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Neutral	Take no action. Upside & downside risk/reward is evenly balanced.
Reduce / Take profits	It is anticipated to be unlikely that there will be gains over the investment time horizon but there is a possibility of some price weakness over that period.
Sell	Significant price depreciation anticipated.
No Rating	No recommendation.
Speculative Buy	Share price could be volatile. While it is anticipated that, on a risk/reward basis, an investment is attractive, there is at least one identifiable risk that has a meaningful possibility of occurring, which, if it did occur, could lead to significant share price reduction. Consequently, the investment is considered high risk.

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