

LATIN AMERICAN OIL & GAS: BACK WITH A BANG

GIANT FINDS & IMPROVING ECONOMIES DRIVE GROWING INTEREST

Latin America has gone from being the ‘forgotten child’ of the oil & gas sector to an industry and investor hotspot, driven by giant discoveries combined with economic & political progress. Mexico, Brazil, Argentina, Guyana and Colombia have grabbed oil & gas headlines, offsetting the drag of ‘unruly child’ Venezuela. The region remains under-explored with material opportunities through the drill-bit and on the M&A front. With active drilling plans and upcoming presidential elections in key countries, the next 12-18 months look crucial to shaping Latin America’s oil & gas sector.

POLITICALLY-CHARGED YEAR AHEAD

Historically, political swings have been challenging for the industry in the region. 2018 brings presidential elections in Brazil, Colombia and Mexico with leftist candidates leading the polls and we could see increasing near term. That said, even if these countries were to turn left, we believe it would be difficult to unwind oil industry reforms. First and foremost, LatAm NOCs face dire financing and technical needs. Secondly, the countries need to attract foreign investment. Thirdly, any reform unwinding in Mexico would require constitutional changes that look hard to get support for. The real political unknown in the region is growingly-isolated Venezuela, for which it is difficult to see a solution on the horizon.

THE ROCKS ARE WORKING AND THERE IS MORE TO COME

Latin America accounted for 6 out of the world’s top 10 oil & gas finds in 2017, showcasing the region’s potential. The sheer size of the finds and improved fiscal terms make the region’s latest fields highly cost competitive (eg Zama field’s breakeven is <USD20/bbl). A number of basins remain under-explored with the USGS pegging LatAm’s prospective conventional resources at c.300bn boe. The region also offers attractive shale potential in Argentina’s Vaca Muerta, Colombia’s La Luna & Mexico’s Burgos/Sabinas formations. In 2018/19, we see a number of attractive bidding rounds and potentially transformational wells in Argentina, Mexico, Brazil & Guyana.

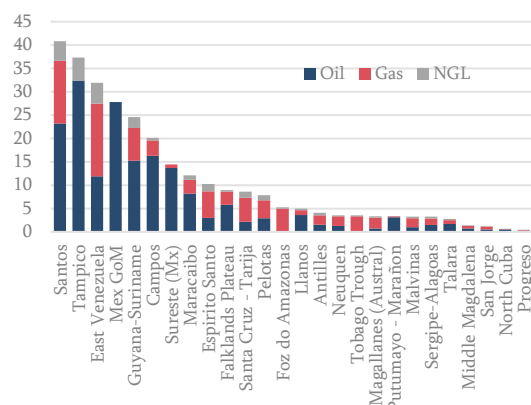
EVOLVING REGIONAL GAS MARKETS

The region offers 3 distinct gas markets: Southern Cone, Mexico & Colombia. Gas is LatAm’s fastest growing fuel (2.3% CAGR to 2040) and, so far, the bulk of increasing demand has been met by costly LNG imports. Some 40% of the region’s wholesale gas volumes are still not competitively priced (i.e. below cost or socially/politically regulated). We see the region’s gradual evolution towards more sustainable gas pricing as critical to grow domestic supply, displace imports and reduce regional fiscal deficits.

OPPORTUNITIES IN CHANGING CORPORATE LANDSCAPE

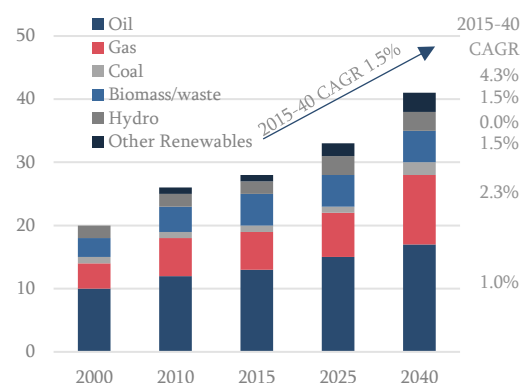
The regional corporate landscape is quickly evolving as Vista Oil’s recent Entre Lomas deal and GeoPark’s JV with ONGC shows. Global majors play an increasing role largely via partnerships with NOCs. Meanwhile, independents – tending to have single-country focus – are expanding. With institutional investors, private equity, companies and traders looking to gain exposure to a fragmented region, we see growing consolidation opportunities. LatAm E&Ps trade at an average 15% discount to international peers. We see an even larger prize for a mid-size player becoming a pan-regional champion, bridging the gap between NOCs/Majors and small E&Ps and reaping scale and diversification benefits.

Figure 1: Estimated Undiscovered Resources by Basin (bn boe)



Source: USGS; CNH.

Figure 2: Latin America Energy Demand Outlook through 2040



Source: ExxonMobil Energy Outlook

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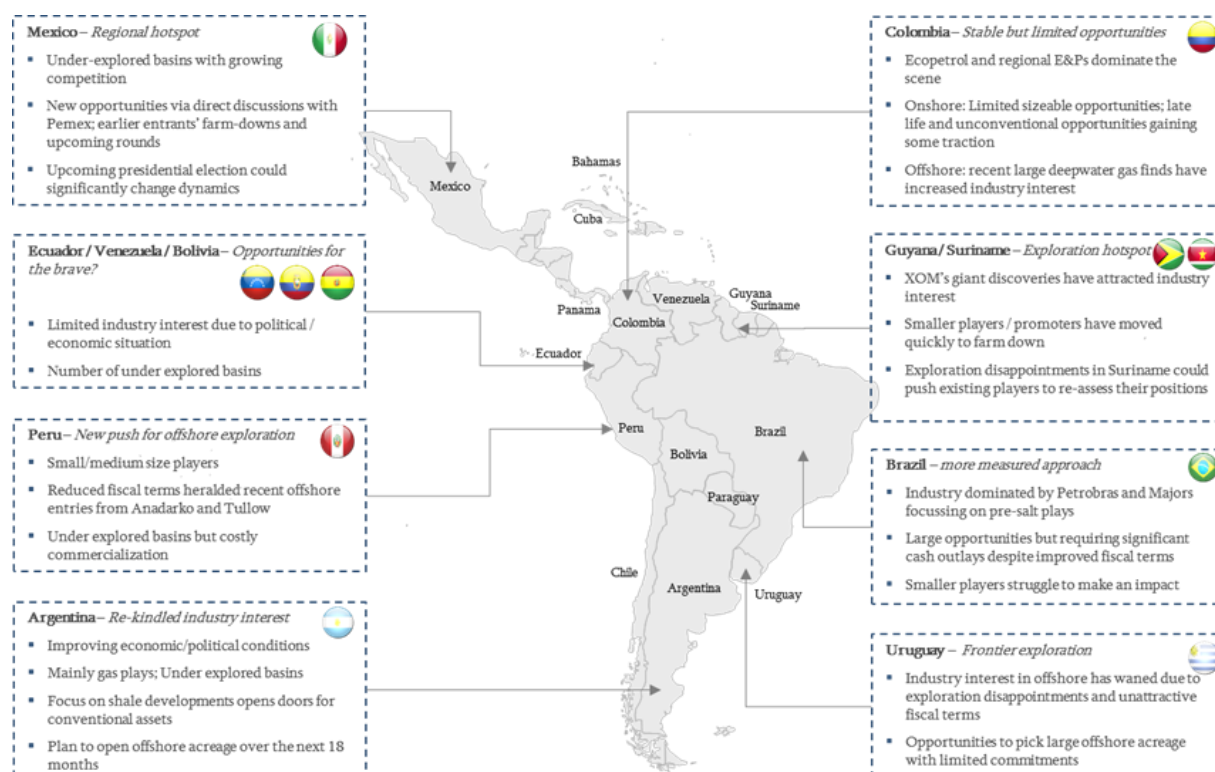
In H&P’s view this material is considered as “acceptable minor non-monetary benefit” under MiFID II (please refer to Disclaimer on page 22)

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LATIN AMERICA – OPPORTUNITIES AND CHALLENGES

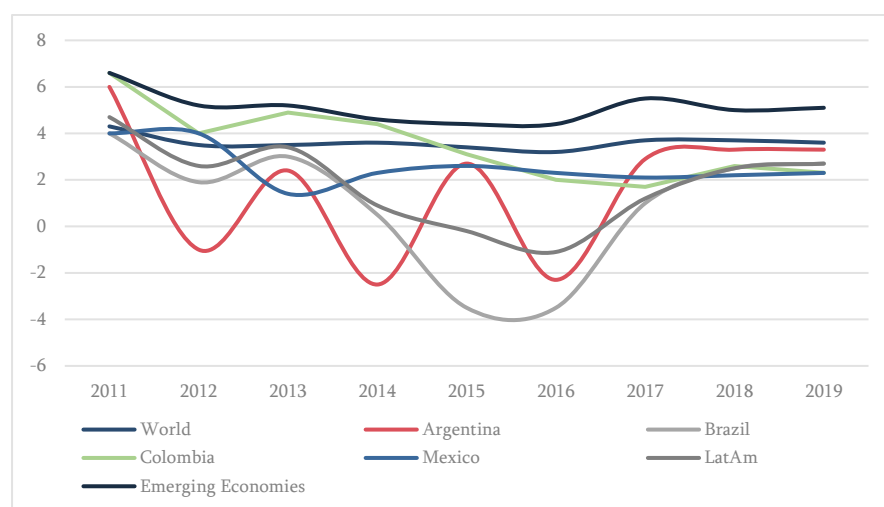
Figure 1



GIANT FINDS AND IMPROVING ECONOMIC ENVIRONMENT DRIVE GROWING INTEREST

For years Latin America has been almost the forgotten child of the oil industry, as most of the investment dollars flowed into other regions. Latin America was perceived as too politically unstable with high risk. The expropriation of YPF in 2012 or the corruption issues faced in Brazil's oil sector exacerbated this. However, the improving economic and political climate seen over the last couple of years (e.g., opening of Mexico's oil industry, Argentina's more market friendly environment and easing of operating conditions in Brazil) has prompted a gradual change in perception from both investors and the oil industry. This together with giant discoveries in Guyana and Mexico and massive unconventional resources in Argentina has led to rekindled interest in the region.

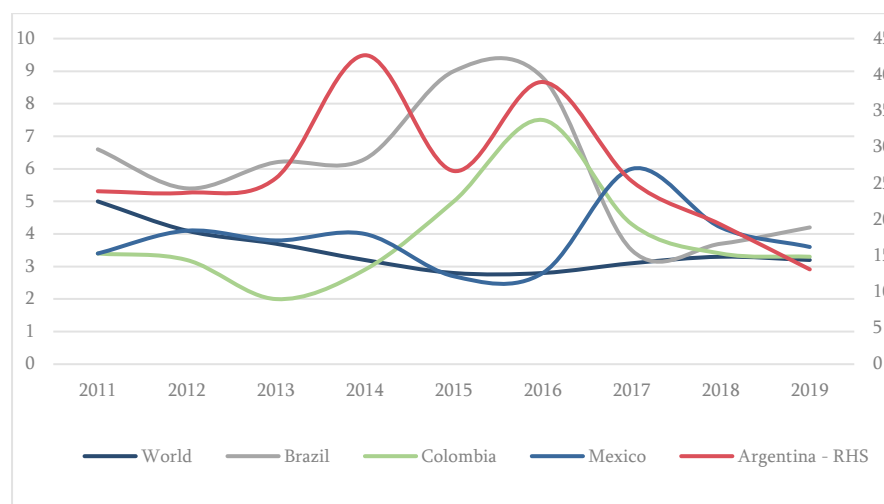
Figure 2: Improving economic growth in Latin America's main markets (real GDP growth YoY, %)



Source: Bloomberg. Data as of 23 Feb 2018

Economic indicators in the region are significantly improving and Latin America as a whole is set to show solid GDP growth over the next couple of years, driven by a recovery in Argentina and Brazil.

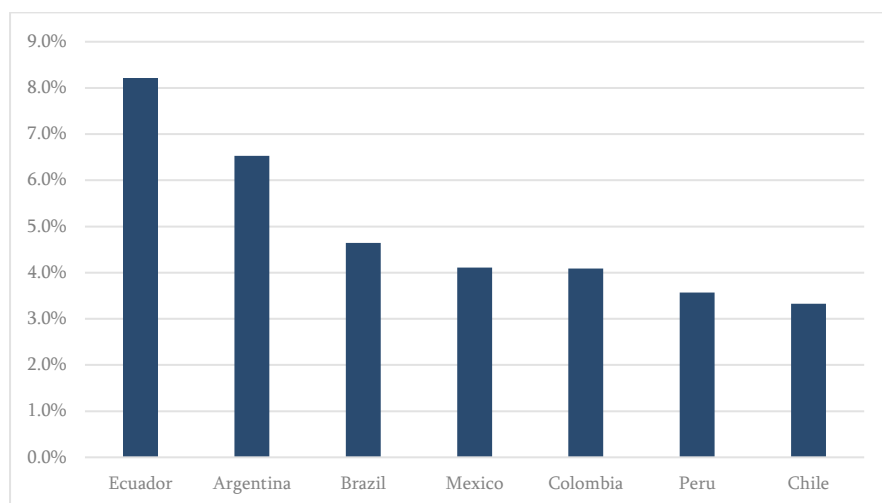
Figure 3: Inflation is starting to recede across the region (%)



Source: Bloomberg. Data as of 23 Feb 2018

This has also been reflected in the shrinking cost of debt across Latin America as measured by the yields of the regional sovereign bonds. Mexico, Brazil, Argentina, Guyana and Colombia have grabbed headlines, offsetting the drag of 'unruly child' Venezuela.

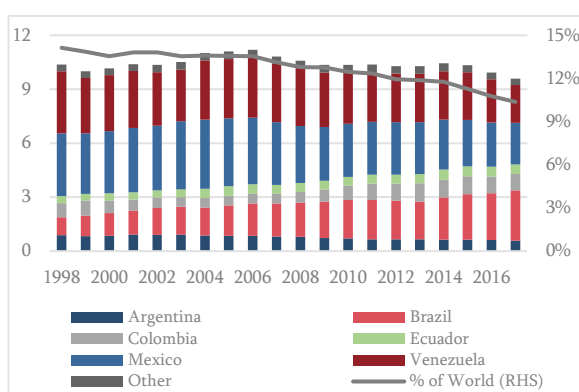
Figure 4: Selected Latin American countries' 10-year sovereign bond yields



Source: Bloomberg. Data as of 23 Feb 2018

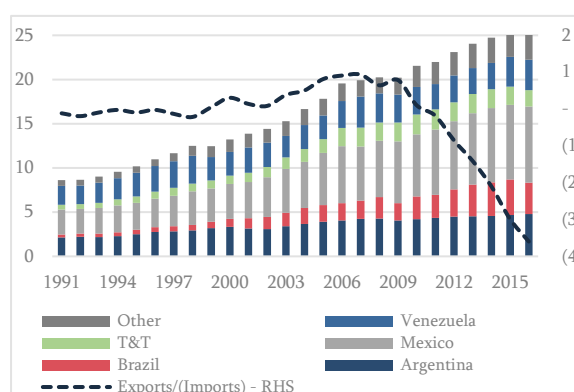
While the economic signals have been turning positive, decades of heavy political intervention have taken a toll on oil & gas production across the region. Oil production has been falling in all countries but Brazil. Meanwhile, costly LNG imports have supplemented indigenous gas production to meet growing demand requirements.

Figure 5: Latin America Oil Production Under Pressure (mb/d)



Source: BP Statistical Review and OPEC

Figure 6: Growing Gas Demand but Production Fails to keep Pace and out-of-region Imports bridge the Gap (bcf/d)



Source: BP Statistical Review and OPEC

The region remains under-explored and we see material opportunities through the drill-bit and on the M&A front. With active drilling plans and upcoming presidential elections across the region, the next 12-18 months look key to determining the future shape of Latin America's oil & gas sector.

POLITICALLY CHARGED YEAR AHEAD

Political swings have been historically challenging for the industry in the region and 2018 brings presidential elections in Brazil, Colombia and Mexico. Given in all 3 countries the leftist candidates are leading the polls, we expect noise levels to increase.

Table 1: Leftist candidates lead polls in presidential elections

	Colombia*	Mexico**	Brazil***
Election date	27th May 2018 (round 1)	1st July 2018	7th October 2018
Presidential term	4 years	6 years	4 years
Opinion Polls (vote intention %)			
Leading candidate	Gustavo Petro (PDA Party; 22%)	Andres Lopez Obrador (JHH coalition, 40%)	Lula Da Silva (Workers' Party; 35%)
2nd candidate	Sergio Fajardo (Coalicion Colombia; 16%)	Ricardo Anaya (PAN Party, 31%)	Jair Bolsonaro (Progressive Party; 16%)
3rd candidate	Ivan Duque (CD Party; 15%)	Jose Meade (PRI Party, 20%)	Marina Silva (REDE Party, 8%)

Source: * Business Insider Feb-18; **Fox News as of 19/2/18; *** EuroNews 1/2/18

That said, we believe that, even if these countries were to turn left, it would be difficult to unwind the oil industry reforms. First and foremost, LatAm NOCs (YPF; Pemex; Petrobras and, to a lesser extent, Ecopetrol) are in dire financing and technical needs. Secondly, the countries need to continue to attract foreign investment. Thirdly, any reform unwinding in Mexico would require constitutional changes that would be hard to get support for.

In the case of Mexico, after months of speculation whether presidential candidate Lopez Obrador would review oil contracts awarded to private companies if elected, last week his top business advisor reportedly indicated that the review of the contracts was no longer on the table as Mr Lopez Obrador regarded the awards as beneficial to Mexico.

From a political perspective, the real unknown remains Venezuela, which appears growingly isolated from its regional peers. With the government entrenched, having firm control of the country and not at enough powerful opposition, it is difficult for us to see a solution in the horizon to the Venezuelan crisis.

THE ROCKS ARE WORKING...

Latin America accounted for 6 out of the world's 10 largest oil & gas finds in 2017 - a case in point of the region's potential. This include the Payara, Turbot and Snoek discoveries made by ExxonMobil in Guyana, which with over 3bn boe of discovered resources has quickly become one of the most successful deepwater basins of the decade. We also highlight the resounding exploration success in Mexico. We also highlight the resounding exploration success in Mexico. The shallow water Zama (Talos, Sierra Oil and Premier Oil) discovery boasts over 0.5bn boe of estimated resources. Meanwhile the Ixachi onshore discovery has been deemed by Pemex and the Mexican government the largest onshore find in the country in decades.

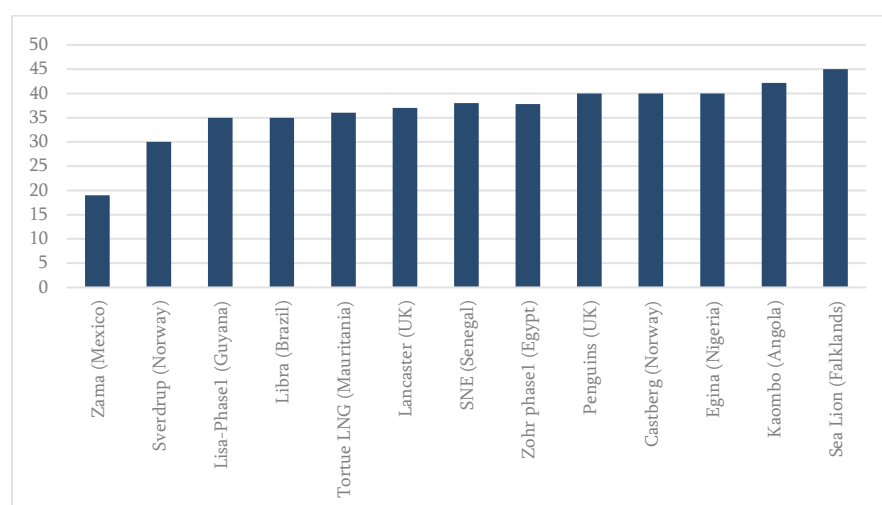
Table 2: World's Largest Oil & Gas Discoveries of 2017 – Latin America accounts for 6 out of 10

Country	Basin	Discovery	Operator	Type	Content	Size
Senegal	MSGBC	Yakaaar	Kosmos/BP	Deepwater	Gas	>1bn boe
Mexico	Salina	Zama	Talos	Shelf	Oil	0.5-1.0bn boe
Guyana	Guyana-Suriname	Payara	XOM	Deepwater	Oil	0.1-0.5bn boe
USA	Colville	Horseshoe	Armstrong	Onshore	Oil	0.1-0.5bn boe
Guyana	Guyana-Suriname	Turbot	XOM	Deepwater	Oil	0.1-0.5bn boe
Indonesia	Tarakan	Parang	Pertamina	Shelf	Oil/Gas	0.1-0.5bn boe
Mexico	Veracruz	Ixachi	Pemex	Onshore	Oil/Gas/Cond	0.35bn boe
Myanmar	Rakhine	Pyi Thit	MPRL	Deepwater	Gas	0.1-0.5bn boe
Guyana	Guyana-Suriname	Snoek	XOM	Deepwater	Oil	0.1-0.5bn boe
Trinidad	Trinidad	Savannah	bpTT	Shelf	Gas	0.1-0.5bn boe

Source: DrillingInfo; company data

Importantly, the sheer size of the finds and improved fiscal terms put the region's latest fields among the most cost competitive in the industry. For instance, Sierra Oil puts the breakeven of its Zama field at <USD20/bbl while Hess (XOM's partner in Guyana) indicates that the breakeven of the first development phase of the Lisa field at some USD35/bbl.

Figure 7: Estimated breakeven oil price of selected projects (USD/boe)



Source: Company data. Oil: Gas conversion factor: 6

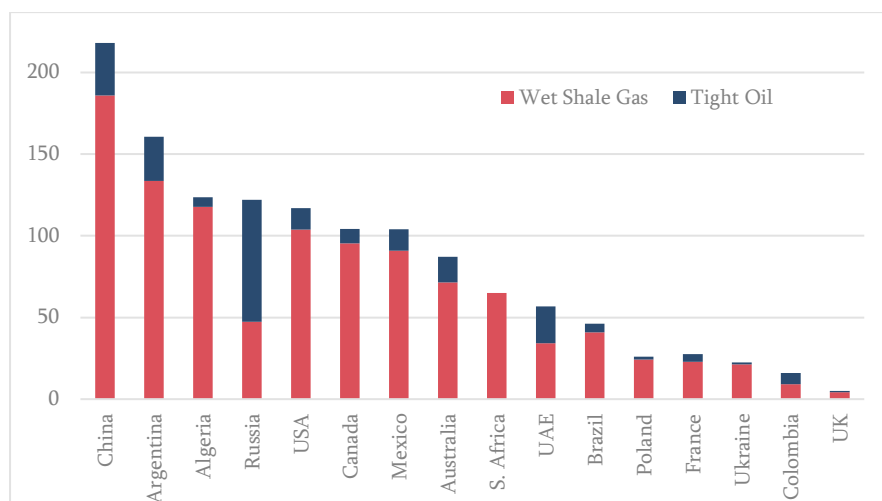
...AND THERE IS MORE TO COME

A number of prospective basins remain unexplored. The US Geological Survey (USGS) and Mexico's CNH have assessed the potential for undiscovered hydrocarbon resources across a number of regional basins and Latin America's aggregated prospective conventional resources reaches c.300bn boe (PMean basis). To put this into perspective, according to BP Statistical Review currently Latin America boasts 200bn boe of proved conventional reserves and another 200bn boe of undeveloped oil sands reserves in Venezuela's Orinoco Belt.

The leading prospective basins in the region appear to be mostly offshore with Brazil's Santos basin (home to a string of giant oil & gas discoveries such as the Lula field since 2006) taking top honours at c.40bn boe of undiscovered resources. Another four basins offer over 20bn boe each of undiscovered resources: Mexico's Tampico and Gulf of Mexico; Guyana-Suriname and East Venezuela.

In addition, the region offers attractive shale potential with Argentina and Mexico having been identified by the EIA as among the top largest shale resource holders in the world. In the case of Mexico, its main shale basins are, by and large, extensions of formations already exploited on the US side of the border. So they appear to have been already technically de-risked.

Figure 8: Estimated Technically Recoverable Shale Oil and Shale Gas Resources (bn boe)



Source: EIA

Argentina's Vaca Muerta has gained significant traction and the industry has already committed close to USD8bn in investment to it (see Appendix). We would also highlight the potential and quality of Colombia's La Luna and Mexico's Burgos/Sabina shale formations. The table below offers a comparison of the key characteristics of Latin America's main shale basins vis-à-vis US shale basins and shows that on most metrics Latin American shales are technically at least as good as their US counterparts.

That said, the shale revolution in the region is still in its infancy and there are still significant technical and above ground challenges that need to be surmounted before some of Latin America's shale potential could be commercially viable.

Table 3: Comparison of Latin America's selected shale basins vs US basins

Formation	Type	Depth (ft)	Thickness (ft)	TOC (wt%)*	Ro (%)**
Vaca Muerta (Argentina)	(Oil/ Gas)	6,000-11,000	200-1,700	2-9	0.6-3.00
La Luna (Colombia)	(Oil /Gas)	40,000-17,000	200-1,400	3-10	0.5-3.00
Burgos (Mexico)	(Oil / Gas)	40,000-16,400	160-210	3-5	0.85-1.60
Sabinas (Mexico)	(Oil / Gas)	50,000-12,500	240-400	2-4	1.50-2.50
Eagleford (US)	(Oil /Gas)	4,000-13,000	50-200	2-5	0.55-1.45
Woodford (US)	(Oil / Gas)	6,000-14,000	100-200	10-15	0.53-3.00
Haynesville (US)	(Gas)	10,000-13,500	60-200	3-15	1.00-1.12
Bakken (US)	(Oil / Gas)	4,000-11,000	22-190	2-6	0.45-0.80
Marcellus (US)	(Gas)	4,000-12,000	50-250	2-8	1.00-3.00

Source: Canacol; CNH

* Total organic carbon by weight percent; ** Reflectance Index – Thermal maturity

ATTRACTIVE BIDDING ROUNDS...

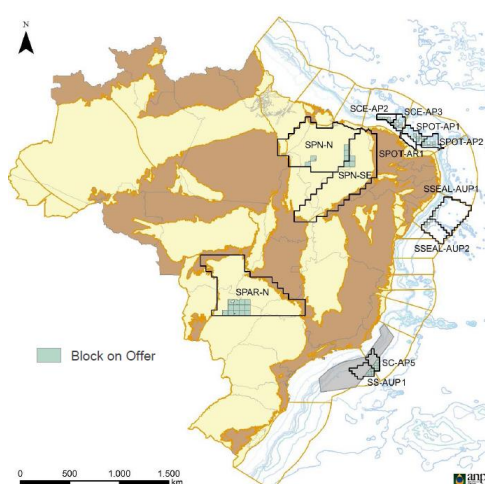
During 2018/19 we see a number of attractive bidding rounds (Argentina offshore; Mexico; Colombia, Brazil, and even Ecuador) that should open up new acreage for the industry.

Table 4: Announced bidding rounds in Latin America

Country	Round	Type	Expected date	Key aspects
Mexico	Ronda 3.1	Shallow water	Mar-18	35 blocks in Burgos; Sureste and Tampico basins
Colombia	SSJ	Onshore	May-18	15 blocks in Sinu San Jacinto basin
Brazil	15 th Round	On/offshore	2Q18	8 basins; 70 blocks
Ecuador	IntraCampos	Onshore	3Q18	13 small blocks in main Oriente basin
Brazil	4 th Pre-salt	4,000-13,000	3Q18	5 Blocks in Santos basin
Argentina	Ronda 1	Offshore	end-18/2019	Austral/West Malvinas basins - Blocks TBC
Argentina	Ronda 2	Offshore	2019	North Slope Shelf - Blocks TBC
Ecuador	SurOriente	Onshore	mid-19	16 blocks (in 70s & 80s area) in SurOriente basin
Brazil	16 th Round	On/offshore	3Q19	Blocks TBC
Brazil	5 th Pre-salt	Offshore	3Q19	Blocks TBC

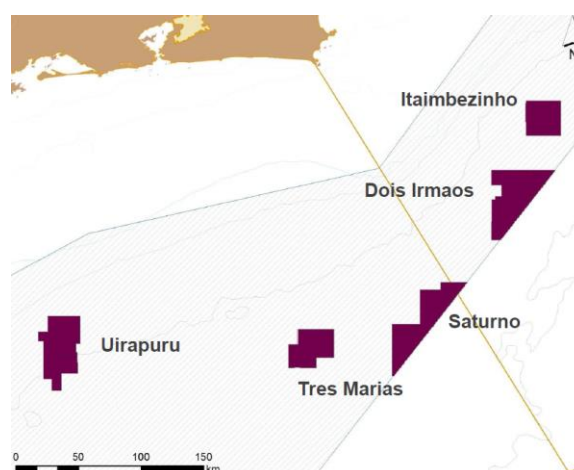
Source: Various sources; H&P

Brazil - 15th Bidding Round – 8 basins; 70 blocks on offer

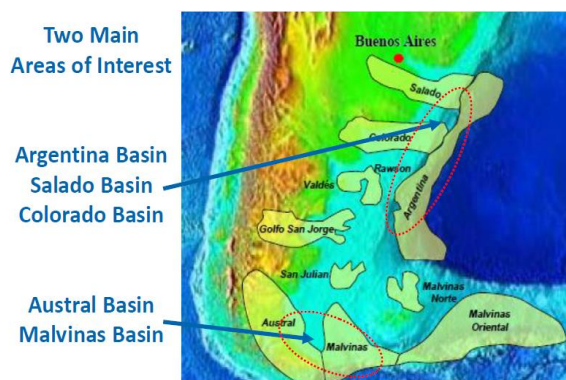


Source: ANP

4th Pre-Salt Round: 5 Blocks on Offer; estimated 17bn boe of unrisks oil in place

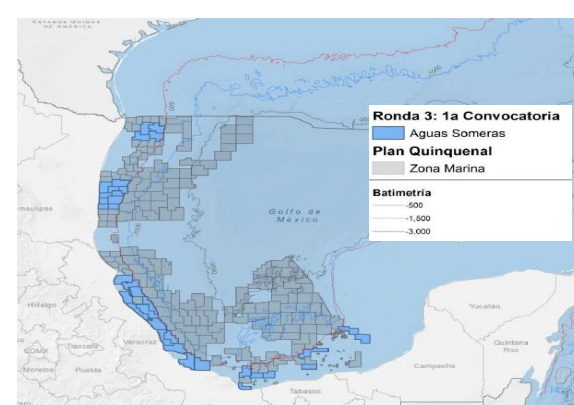


Argentina's offshore rounds



Source: Argentina's Ministry of Energy; Mexico's SENER

Mexico's Ronda 3 to focus on shallow water acreage



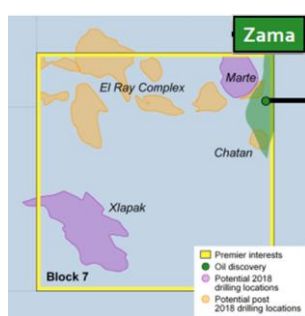
...AND ACTIVE EXPLORATION

In addition, there are a number of upcoming and potentially transformational wells across the region. We would highlight:

Mexico:

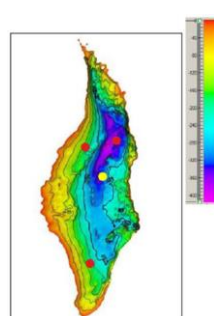
- Asab (Pemex) / Zama (Sierra; Talos; PMO) appraisals: The appraisal of the Zama discovery is key to drive the unitisation of the field. Pemex (operator of the adjacent block) is set to drill the first appraisal (called Asab) to determine the extension of the find outside of Block 7. Subsequently, Sierra and its partners in the block plan a number of appraisals in the block in an attempt to capture the upside the discovery offers.
- Yaaxtaab well: Pemex has been authorised to drill the first pre-salt well in the country (called Yaaxtaab) in the Sureste basin. The well is set to be drilled in about 50 metres of water depth, but with the target located some 8,000 metres below the drill floor.

Figure 9: Block 7 offers much more than the Zama find



Source: Company data

Figure 10: Zama field's planned appraisal locations



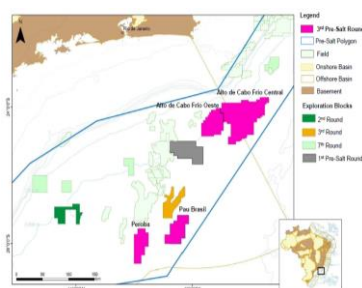
Source: Company data

Brazil:

The push to develop discovered resources in Brazil's offshore have somewhat overshadowed wildcat exploration in the country. We believe that there are three very high profile offshore wells that investors and the industry should keep an eye on:

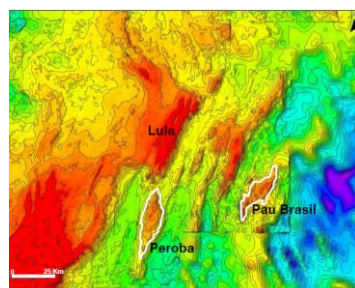
- Peroba (Santos basin; BP) is the largest undrilled structure in the pre-salt Santos basin and is located just south of the giant Lula (formerly Tupi) field. According to the regulator ANP, Peroba offers a 130sq km four-way closure structure with estimated in-place volumes over 5bn boe. BP and CNOOC won the block in last year's round.

Figure 11: BP's Peroba block – South of Lula Field...



Source: ANP

Figure 12: ...and largest undrilled structure in pre-salt Santos basin



Source: ANP

- Tucano/Mutum (Foz do Amazonas basin; Total) are set to test the extension of the French Guiana play and the broader cinto Northern Brazil. The drilling of these wells has been delayed by environmental concerns from the authorities. We expect them to be drilled in 2018/19.

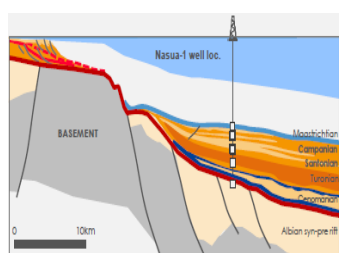
Guyanas:

The Guyanas are set to continue witnessing a strong exploration push. ExxonMobil and partner Hess have been by all means enormously successful in the area with 6 back to back discoveries since 2015 (Lisa, Lisa Deep, Payara, Turbot, Snoek, and, more recently,

Ranger which opened a new play concept in carbonates). However, they have been the only ones to have a commercial find. Now the real push is to prove that the Lisa and Ranger play concepts extend beyond XOM/Hess' block and we believe that the following wells will be critical to this end.

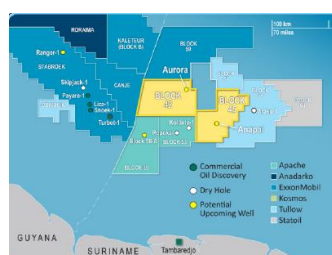
- Pacora & Sorubin (Guyana; XOM) to be drilled in 1H18,
- Nasua (French Guiana; Total) to be drilled in 2019. The well is set to test stacked targets and should be important following Tullow's disappointing results in the country in 2011-13;
- Aurora & Anapai (Suriname; Kosmos Energy) to be drilled in 2Q/3Q18. Following high profile disappointments by Apache/CEPSA (Popokai well) and Tullow (Araku well) in the country, the drilling of the Aurora and Anapai prospects are key to understand the potential of the broader basin.

Figure 13: Total's French Guiana Nasua prospect targets multiple objectives



Source: Company reports

Figure 14: KOS' Aurora & Anapai in Suriname to test Lisa play extension



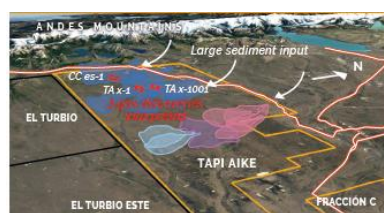
Source: Company reports

Argentina:

In recent years the rush of the industry to develop Vaca Muerta and the difficult operating and political/economic conditions in the country have left a number of prospective basins completely overlooked, in our view. The Austral basin in the south of the country and in particular the Tapi Aike block are clear examples of this. Over the past couple of decades, activity in the basin has focused on the offshore area such as Total's Aries/Carina and Vega Pleyade gas developments, while leaving virtually untouched large onshore tracts. We believe that the renewed exploration efforts by CGC and Echo Energy could finally start to unlock the potential of large onshore parts of the basin.

- Tapi Aike (Austral basin; Echo Energy / CGC) is one of Argentina's largest onshore blocks. Early discoveries in the block in the 70s and 90s, which could not be tested properly due to technical limitations showed the promising potential of the foldthrust belt. However, there was negligible activity in it for almost three decades. Echo Energy and its partner CGC have identified up to 22TCF of in-place prospective gas resources in 41 leads. The plan is to shoot 3D seismic to mature the leads and drill at least 3 wells (work commitment) over the next 3-4 years.

Figure 15: Tapi Aike – one of Argentina's largest onshore blocks...



Source: Company reports

Figure 16: ...offers material prospective resources in 3 distinct play types

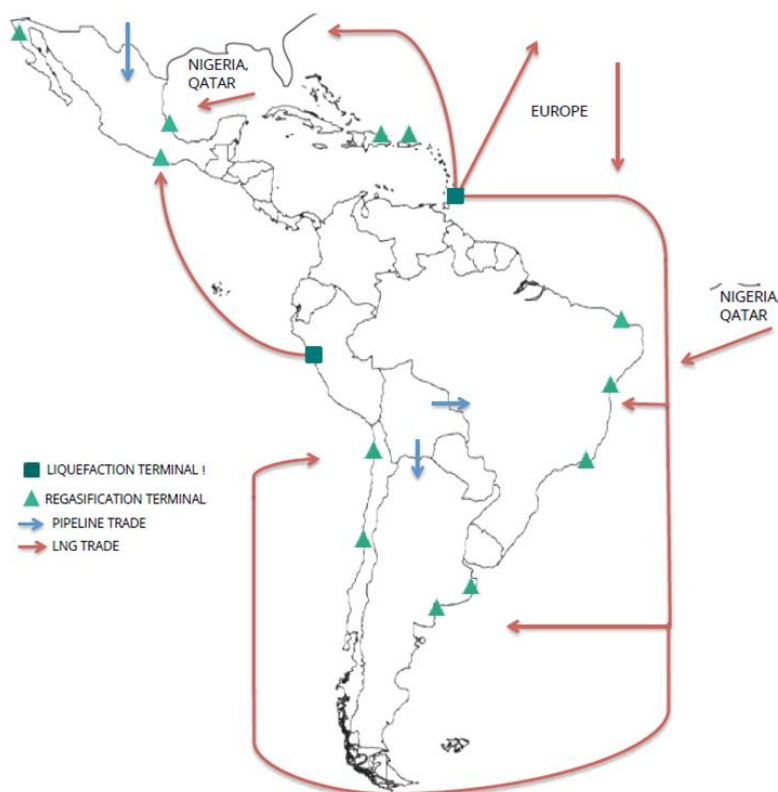
Tcf	LOW	MID	HIGH
Gross prospective GIIP 41 Leads	2.7	7.7	22.5

Source: Company reports

EVOLVING REGIONAL GAS MARKETS

Latin America boasts three distinct, fully-fledged gas markets (Southern Cone, Mexico and Colombia) with well-developed infrastructure.

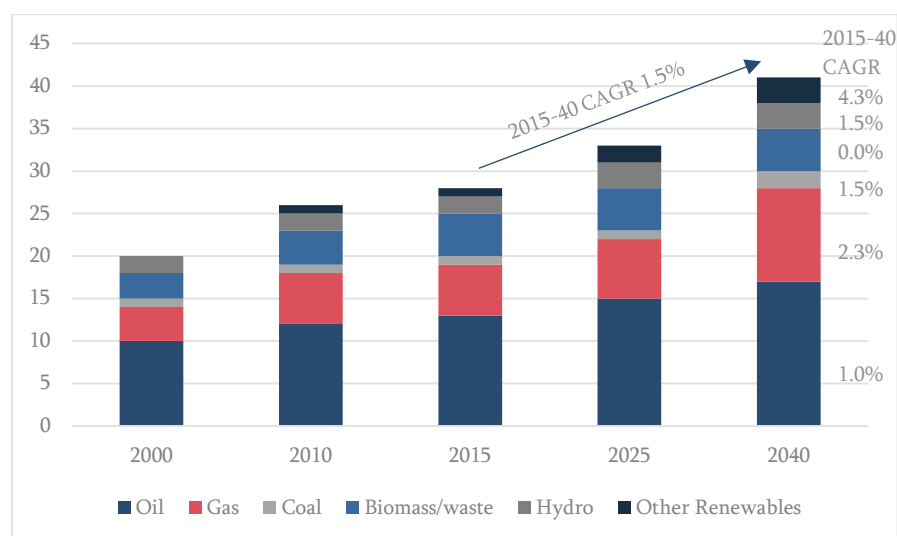
Figure 17: Latin America's Regional Gas Infrastructure & Flows



Source: Inter-American Development Bank

In line with other regions, natural gas is Latin America's fastest growing hydrocarbon fuel (2.3% CAGR to 2040) in the energy mix, driven by expanding gas-to-power use across the continent.

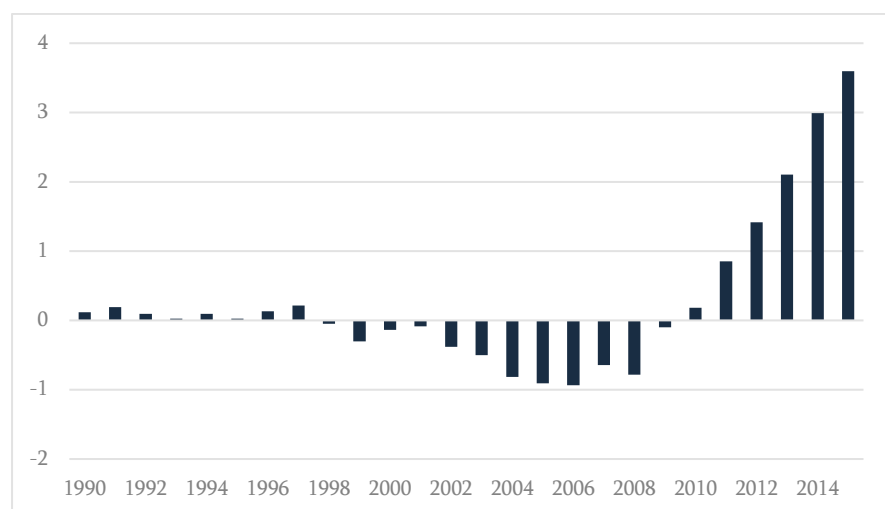
Figure 18: Latin America Net Gas Import / (Export) Position (bcf/d)



Source: ExxonMobil Energy Outlook

While gas demand has been steadily growing, indigenous production has failed to keep pace, mainly due to negative pricing signals. As such, the region was forced to turn to costly LNG imports, in many cases sourced outside of the region, to meet demand requirements and keep the lights on.

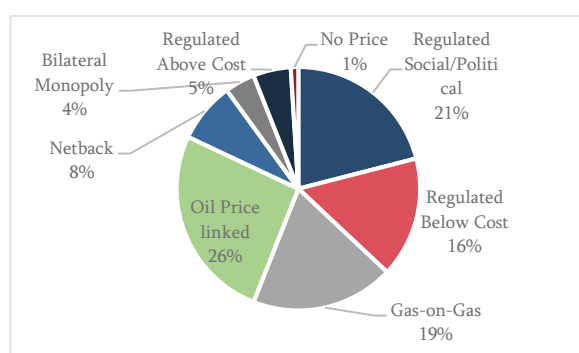
Figure 19: Latin America Net Gas Import / (Export) Position (bcf/d)



Source: BP Statistical Review

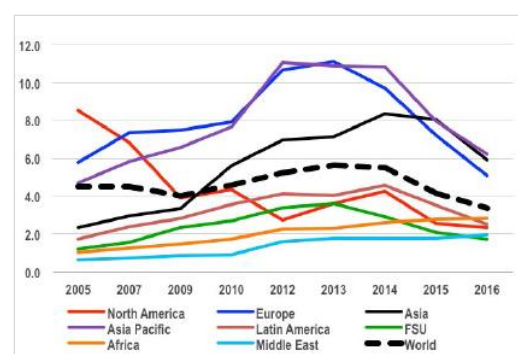
Based on the latest Global Wholesale Gas Price Survey produced by the International Gas Union, almost 40% of the region's wholesale gas volumes are uncompetitively priced (either Regulated below cost or Regulated for Social/Political reasons or directly with no price). Historically, Latin America's gas prices have remained stubbornly below global average.

Figure 20: Latin America – Wholesale Gas price formation mechanisms



Source: International Gas Union

Figure 21: Latin America Wholesale gas prices remain below global average



Source: International Gas Union

Over the past couple of years, Argentina has started to remove energy subsidies distorting the market and we would expect other countries to follow over the medium term. Growing domestic supply is key to displace imports. As such, we see the gradual evolution towards more sustainable gas pricing signals as critical to the successful further development of Latin American energy markets.

OPPORTUNITIES IN A CHANGING CORPORATE LANDSCAPE

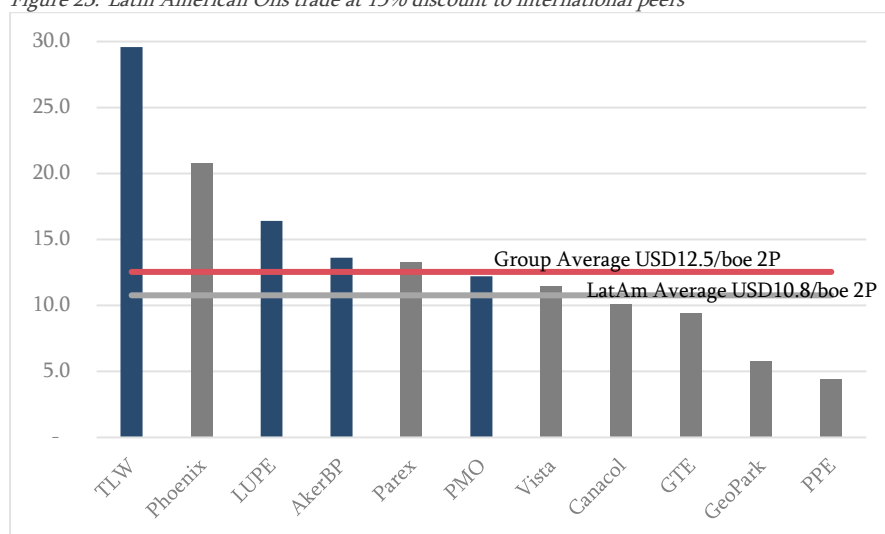
The regional corporate landscape is quickly evolving. Global majors play an increasing role (albeit focused on narrow geographies and geologies) via partnerships with NOCs. Meanwhile, divestments from NOCs and local, family-owned players are allowing the expansion of independents, who tend to have single-country focus. The recent acquisition of Petrolera Entre Lomas by Vista Oil provides a good example of the transformation of the corporate landscape.

Figure 22: Latin American Oils – Corporate Landscape Summary



With institutional investors, private equity and traders looking to gain exposure to a fragmented region, we see growing consolidation opportunities. We see a larger prize for a mid-size player becoming a pan-regional champion, bridging the gap between NOCs/Majors and small E&Ps and reaping scale / diversification benefits.

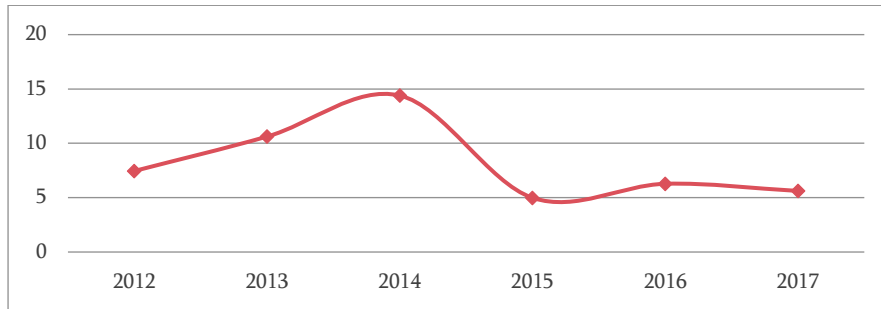
Figure 23: Latin American Oils trade at 15% discount to international peers



Source: Bloomberg and company data

We note that in certain basins (e.g., Mexico's Sureste or deepwater Guyana) there is already very limited open acreage so for companies looking to build a position in the area, M&A may be the only real alternative, in our view.

Figure 24: Latin America Median Implied Reserves Value (2P basis)



Source: IHS Markit

VALUATION SUMMARY OF LATIN AMERICAN FOCUSED E&Ps

Table 5

Company	Region	Listing	Price (local)	Currency	Mkt cap (\$mm)	Cash (\$mm)	Debt (\$mm)	EV (\$mm)	1-wk change	1-mo change
LatAm										
Amerisur Resources	Colombia	AIM/DB	16.00	(GBp)	266	24	-	241	(1%)	(20%)
Baron Oil	Peru, Colombia	AIM	0.45	(GBp)	9	6	-	3	73%	38%
Canacol Energy	Colombia, Ecuador	TSX/BVC/BMV/DB	4.31	(CAD)	608	39	294	864	(0%)	(3%)
CGX Energy	Guyana	TSXV/EUR	0.19	(CAD)	17	0	-	16	6%	(34%)
Clontarf Energy	Bolivia, Peru	AIM	0.33	(GBp)	3	1	-	2	(3%)	(7%)
Crown Point Energy	Argentina	TSXV/DB	0.57	(CAD)	15	4	2	13	54%	12%
Echo Energy	Bolivia, Argentina	AIM	13.00	(GBp)	75	33	13	55	2%	(6%)
Eco (Atlantic) Oil & Gas	Guyana, Namibia	TSXV/NMSE	0.69	(CAD)	85	4	-	81	8%	21%
Frontera Energy	Colombia, Peru	TSX	43.05	(CAD)	1,699	501	270	1,574	(2%)	(6%)
Geopark	Argentina, Brazil, Chile, Colombia, Peru	NYSE/DB	9.90	(USD)	596	141	420	911	(1%)	(6%)
Gran Tierra Energy	Colombia, Peru	AMEX/TSX/DB	3.35	(USD)	1,054	15	229	1,268	2%	(3%)
Interoil E&P	Colombia	OB	2.60	(NOK)	21	8	41	54	(3%)	(26%)
Madalena Energy	Argentina	TSXV/DB	0.23	(CAD)	99	2	1	98	-	(4%)
Parex Resources	Colombia	TSX/DB	18.65	(CAD)	2,278	196	11	2,093	4%	(3%)
Petro Rio	Brazil	BOVESPA/TSXV	77.71	(BRL)	316	216	39	139	(5%)	(10%)
Phoenix Global Resources	Argentina, Colombia,	AIM/BASE	32.90	(GBp)	1,200	8	82	1,273	6%	(10%)
President Energy	Argentina, USA, Paraguay	AIM	9.87	(GBp)	146	5	11	152	(4%)	(14%)
Range Resources Limited	Trinidad & Tobago	AIM/ ASX	0.20	(GBp)	21	17	21	25	14%	-
Touchstone Exploration	Trinidad & Tobago	TSX/BST	0.21	(CAD)	21	4	12	29	-	(22%)
Trinity Exploration & Production	Trinidad & Tobago	AIM	15.75	(GBp)	62	12	3	53	(5%)	2%
Colombus Energy Resources	Trinidad & Tobago	AIM/DB	5.10	(GBp)	46	2	2	46	(6%)	(9%)

Source: Bloomberg; Capital IQ

INVESTMENT RISKS

The companies mentioned in this report face risks common to oil & gas companies such as resource, construction / development, production, commodity price, geo-political, environmental and cost risks. In addition, we see some key company specific risks such:

- **Commercialisation risk:** Commercialisation of potential production could be largely dependent on accessing third party infrastructure. As such, any restriction in accessing this infrastructure could constrain the companies' revenue / cashflow generation as well as impact the value of the assets.
- **Partners' risk:** As it is common in the industry, most of the projects are developed and run in partnerships and joint ventures. As such, the companies do not have the right to make unilateral decisions with respect to the development and/or operation of the assets as such governance at the asset level is key. Financial weakness of the partners (for instance failure to meet cash calls on the assets) or overspending on the assets could materially impact the companies' finances.
- **Financing risk:** Some of the companies mentioned are relatively small players with limited financing capacity.
- **Key personnel risk:** Some of the companies mentioned rely on a small senior leadership team. The exit of members of this management team could put the company at risk, in our view.
- **Asset concentration risk:** Some of the companies mentioned have a high asset concentration. As a result, material changes in the geo-political situation in the country of operation could significantly impact the earnings and value of the company.
- **Geo-political risk:** Operating in Latin America comes with inherent risks, with respect to meeting onerous state requirements on permitting and licensing.

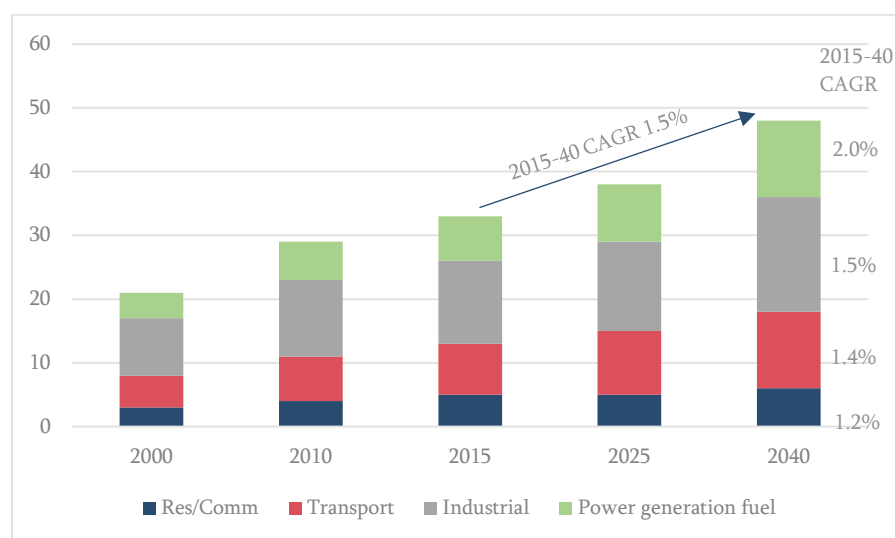
APPENDIX

Table 6: Argentina – Vaca Muerta shale investment commitments by area since 2014

Announced date	Asset	Partners	Commitment (USD mn)	Type	2017E Prod (kboe/d)	# wells	Main Production
Nov-14	La Ceniza / La Escalonada	Total, Shell, GyPN	300	Pilot	2.7	11	Condensate
Dec-14	Amarga Chica	YPF - Petronas	550		4.3	15	Oil
Aug-15	Sierras Blancas, Cruz de Lorena	Shell, GyPN, Medanito	500		2.0	12	Oil
Dec-15	El Orejano	YPF, Dow	500	Development	20.5	45	Gas
Dec-15	Bajo del Choique / Invernada	XOM, GyPN	225	Pilot	0.2	3	Condensate
Feb-17	Bajada de Anelo	YPY, Shell	447	Pilot	0.2	4	Condensate
Mar-17	Fortin de Piedra	Tecpetrol	2,300	Development	5.2	4	Gas
Apr-17	Bandurria Sur	YPF, SLB	390	Pilot	1.0	8	Condensate
Jul-17	Aguada Pichana Oeste	PAE, YPF, Total	475	Pilot	0.0	0	Gas
Sep-17	Aguada Pichana Este	Total, PAE, YPF, Wintershall	675	Development	8.8	12	Gas
Oct-17	Los Toldos Sur	XOM, Tecpetrol, GyPN	200	Pilot	0.0	1	Gas
Nov-17	Loma Campana	YPF, CVX	500	Pilot	39.7	525	Condensate
	Sierra Chata	Pampa, XOM	520	Pilot	0.0	1	Gas
	Loma del Molle Norte	CVX, GyPN	19	Pilot	0.0	0	Gas
	Bajo del Toro Este	Statoil, GyPN	15	Pilot	0.0	0	Oil
	Las Tacanas Norte	Pampa, GyPN	207	Pilot	0.0	0	Gas
	Parva Negra Oeste	Retama, GyPN	76	Pilot	0.0	0	Gas
Total			7,899		84.5	641	

Source: Company data and H&P estimates

Figure 25: Latin America Energy Demand by Sector out to 2040



Source: ExxonMobil Energy Outlook

SUMMARY OF LATIN AMERICAN M&A TRANSACTIONS

Table 4

Announced Date	Buyers	Sellers	Key Assets	Transaction Value (US\$mm)	2P Reserves (mmboe)	2P Implied Value (US\$/boe)	Daily Production (boepd)	Implied Value Per Daily Boe Produced (US\$/boe)
2018-02-19	Vista Oil	Pampa / Pluspetrol	Petrolera Entre Lomas; Vaca Muerta shale assets	550.0	75.5	7.1	27,472	19,582.0
2017-12-19	Tecpetrol International SA	Canacol Energy Ltd	Ecuador oil producing assets	36.4	4.7	7.6	1,373.0	24,879.1
2017-12-18	GeoPark Limited	Pluspetrol	Aguada Baguales, Porvenir & Puesto Touquet blocks in Neuquen Basin in Argentina	52.0	13.0	4.0	2,700.0	19,259.3
2017-11-22	Oilstone Energia SA	YPF S.A.	100% interest in Cerro Bandera block (Argentina)	14.0			1,197.1	11,694.7
2017-11-22	Crown Point Energy Inc.	Apco Oil and Gas International	Argentina Austral Basin gas weighted assets	28.4	3.9	7.1	1,250.0	21,613.3
2017-11-01	Echo Energy Plc	Compania General de Combustibles	Argentina Austral Basin gas weighted assets	24.5	1.9	7.2	933.3	13,962.8
2017-09-21	President Energy PLC	Chevron Corporation	Arg - Puesto Flores & Estancia Vieja blocks (Neuquen)	22.4	5.5	4.1	1,200.0	16,341.7
2017-07-24	Andes Energia PLC	Mercuria Energy Group Ltd.	Argentina conventional oil prod; Vaca Muerta	1,215.0	45.4	26.3	8,811.0	133,417.0
2017-05-29	Royal Dutch Shell plc	Chevron Corporation	Trinidad LNG assets	250.0			12,333.3	20,270.3
2017-02-06	Maha Energy AB	Gran Tierra Energy Inc.	Brazil business unit	35.0	9.7	3.4	961.0	28,539.7
2017-01-25	PentaNova Energy Corp.	PentaNova Energy Corp.	Colombia exploratory acreage	56.6	15.1	3.6		
2016-12-09	Perenco S.A.	Repsol S.A.	Trinidad and Tobago - Teak, Samaan & Poui Block	125.0			9,800.0	12,755.1
2016-11-30	Royal Dutch Shell plc	Centrica plc	17.3% in producing NCMA-1 block; interests in undeveloped NCMA-4 (80%) & Block 22 (90%)	30.0	8.7	3.3	583.3	48,857.1
2016-07-01	Gran Tierra Energy Inc.	PetroLatina Energy Limited	Colombia Middle Magdalena basin	525.0	53.0	9.3	5,400.0	82,083.3
2016-06-29	CT Energy Holding SRL	Harvest Natural Resources, Inc.	20.4% stake in Petrodelta; heavy oil assets	126.2	55.7	1.9	8,875.0	8,819.2

Announced Date	Buyers	Sellers	Key Assets	Transaction Value (US\$mm)	2P Reserves (mmboe)	2P Implied Value (US\$/boe)	Daily Production (boepd)	Implied Value Per Daily Boe Produced (US\$/boe)
2016-05-13	YPF S.A.	Pampa Energia SA	33.33% interest in the Rio Neuquen block and an 80% interest in the Aguada de la Arena block	140.0			17,656.7	7,929.0
2016-05-04	Pampa Energia SA ¹	Petrobras Argentina S.A	Petrobras's entire stake in Petrobras Argentina	1,082.4	123.0	5.4	48,150.8	13,689.0
2016-01-14	Gran Tierra Energy Inc.	PetroGranada Ltd.	50% in Colombia Putumayo-7 Block	19.0	1.9	10.0		
					Average	7.2		30,940.7
					Median	5.4		19,259.3

Source: IHS; Company data; H&P estimates

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