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REVIVING VENEZUELA'S OIL SECTOR

The Role of Western Oil Majors

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Foreword

I am pleased to present "Reviving Venezuela's Oil Sector: The Role of Western Oil Majors" a report by Lisa Viscidi, director, and Nate Graham, associate, of the Energy, Climate Change & Extractive Industries Program at the Inter-American Dialogue.

The crisis that has devastated Venezuela's economy over the last several years is among the most pressing political, economic, and humanitarian issues on the hemispheric agenda. In the last year in particular, all eyes have been on the country as National Assembly leader Juan Guaidó assumed the interim presidency, and crippling sanctions by the United States threatened Nicolás Maduro's ability to hold on to power.

The revival of Venezuela's oil sector will be the cornerstone of its economic recovery when a political transition takes place. And given the decimation of the Venezuelan state oil company, private foreign companies will undoubtedly be the key to resuscitating the oil industry. This report, based on interviews with representatives of major international oil companies, seeks to better understand the challenges perceived by foreign oil companies and the conditions that would be required to attract private investment in Venezuela under a new government. This perspective is extremely valuable for Venezuelan and international observers, including those charting the country's return to prosperity.

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President

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Introduction

After years of economic crisis, new political leadership in Venezuela is needed to pull the country out of the morass. Venezuela is currently locked in a volatile political standoff, with the outlook for an eventual transition uncertain. When a political transition eventually does occur, there is little doubt that the oil and gas industry must be the engine of economic recovery. But with the sector facing near collapse, billions of dollars in investment will be required to stabilize and then begin rebuilding the industry. As Venezuela's state oil company is in disarray, foreign companies will be the key to tapping the country's oil resources. This report identifies the challenges facing Venezuela's oil sector and the conditions needed to ramp up production in today's global competitive landscape.

In what has been called the greatest economic collapse in the history of the Western Hemisphere,[1] Venezuela's GDP plummeted by almost 70% between 2015 and 2018,[2] and external debt swelled to an estimated $156 billion in 2018 (738% of the value of the nation's exports).[3] So far nearly five million citizens[4] have fled what was once Latin America's richest nation. One year has now elapsed since National Assembly leader Juan Guaidó assumed the interim presidency, citing the Venezuelan constitution and the fraudulent nature of President Nicolás Maduro's re-election in 2018. He has been recognized by nearly 60 countries worldwide as Venezuela's legitimate leader. Though a transition of power has not occurred as quickly as many observers had expected, experts working with the Guaidó government, the US government, and other organizations have begun preparing plans for the aftermath of Maduro's eventual departure.

Central to these plans is the recovery of Venezuela's oil and gas industry, historically its most important economic sector and greatest source of foreign exchange by far. Venezuela has the largest proven oil reserves in the world, according to BP's 2019 Statistical Review of World Energy.[5] OPEC reports that oil netted 99% of Venezuela's export revenue, a value equivalent to 35% of GDP, in 2018,[6] though these shares have likely decreased as oil export revenues declined due to sanctions. Given the country's historical dependence on oil revenues and lack of economic diversification, it is likely that the oil sector would provide the main source of legitimate government revenue necessary for humanitarian efforts and restoration of state control over Venezuela's territory. There is widespread agreement that Venezuela should reduce its economic dependence on oil and undergo diversification in the long term, but the country's hyperinflation and extreme indebtedness would make it difficult to jumpstart other sectors of the economy in the short term without the massive inflow of capital that could be provided by exporting the country's oil. In addition, repaying any loan package necessary for short-term growth, such as one from the International Monetary Fund, without a significant contribution from oil extraction, would be a monumental task given the economy's low current level of diversification.

However, at present, the oil industry is only further deteriorating. Production* has declined from roughly 3.3 million barrels per day (b/d) in 1998[7] to about 700,000 b/d in December 2019, according to OPEC secondary sources.**,[8] Far-reaching US sanctions on state oil company Petróleos de Venezuela S.A. (PDVSA) and the Venezuelan government, which have escalated since January 2019, have choked off cash flows to the Maduro regime and accelerated the decline of production from 1.1 million b/d in January 2019[9] to the present figure (see Figure 1). Potential markets for PDVSA crude oil shipments have dwindled as importers comply with the measures or avoid engaging with the state company for fear of violating sanctions. The US, historically the country's main buyer of crude,[10] is no longer importing Venezuelan oil. Russian state oil company Rosneft has been a notable exception, receiving Venezuelan crude as debt repayment, thus skirting sanctions, and then reselling it to Chinese and Indian buyers.[11] With markets for PDVSA's crude scarce, inventories have overwhelmed storage capacity, forcing Venezuela to further cut production.

Even before US sanctions, PDVSA was in a debilitated state, saddled with crippling debt, severely weakened management, and a decimated supply of skilled labor. At the beginning of 2019 PDVSA announced financial debt (including bonds and loans) of $34.6 billion,[12] but its total external debt, including arrears, has been independently estimated at above $60 billion.[13] In late October PDVSA entered into default on one of the only bonds it had kept current when it failed to make a $913 million payment to holders of its 2020 bond.[14] Senior management at the company, once comprised of highly experienced industry professionals, has been replaced with military officials and Chavista loyalists, a trend dating back to the early 2000s. In more recent years, economic desperation has hastened the flight of technically skilled workers into a mass exodus.

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*Excluding natural gas liquids and condensates.

** Include S&P Global Platts, Argus Media, Energy Intelligence Group, IHS-Markit, the US Energy Information Agency (EIA), and the International Energy Agency (IEA).

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PDVSA's crippled condition and the massive scale of investment that will be required makes it clear that the recovery of Venezuela's oil sector must be led by foreign investment. IPD Latin America, a consulting firm, estimates that Venezuela could ramp up production to 2.6 million b/d over 10 years, which would require capital expenditures of $90 billion and operational expenditures of $122 billion, including to drill an additional 13,400 wells. There are currently 47 joint ventures with private companies operating in Venezuela's oil sector, though some are no longer producing any oil. Many Western oil companies still operate in Venezuela, including Italy's ENI, Spain's Repsol, France's Total, Norway's Equinor, Anglo-Dutch Shell and US company Chevron, as well as state oil companies Rosneft (Russia), and the China National Petroleum Corporation (CNPC). However, several foreign companies have either been expropriated or left of their own accord, such as international oil companies ConocoPhillips, ExxonMobil, and BP, while those that remain have reduced investments and generally maintain minimum operations to provide energy supplies for the country and keep control of their assets. Under the current operating conditions, it would be inconceivable for any foreign oil company (other than perhaps Russian (see Figure 2) and Chinese companies that partner with PDVSA in exchange for debt repayment) to increase investment in the country. Moreover, it's clear that conditions will not improve until there is some form of political transition.

This report is based on interviews with eight large Western oil companies, including some that are still operating in Venezuela and others that currently have no operations in the country. Its purpose is to provide an independent, publicly available analysis of the conditions that will determine how rapidly, and to what degree, Western oil companies will resume or ramp up operations in Venezuela in the event of a political transition. The report will analyze the many challenges and barriers to investment that will have to be overcome. It will also consider the international competitive context for Venezuela as an oil producer and examine the difference in investment decision-making processes between companies still operating in Venezuela and those that have left the country. Finally, it will draw conclusions that can be used to inform the work of those planning the recovery of Venezuela's oil sector following a political transition.

FIGURE 1: AVERAGE CRUDE OIL PRODUCTION IN VENEZUELA, 2019 (THOUSAND B/D)

Source: OPEC Monthly Oil Market Reports (PDVSA reporting and secondary sources)

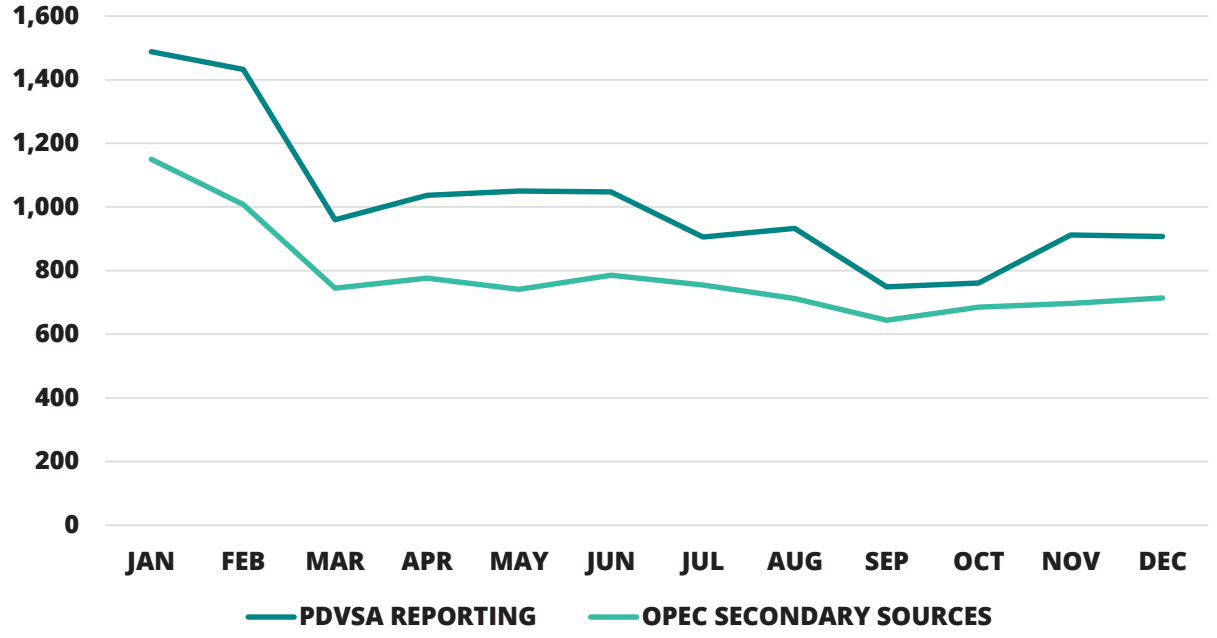
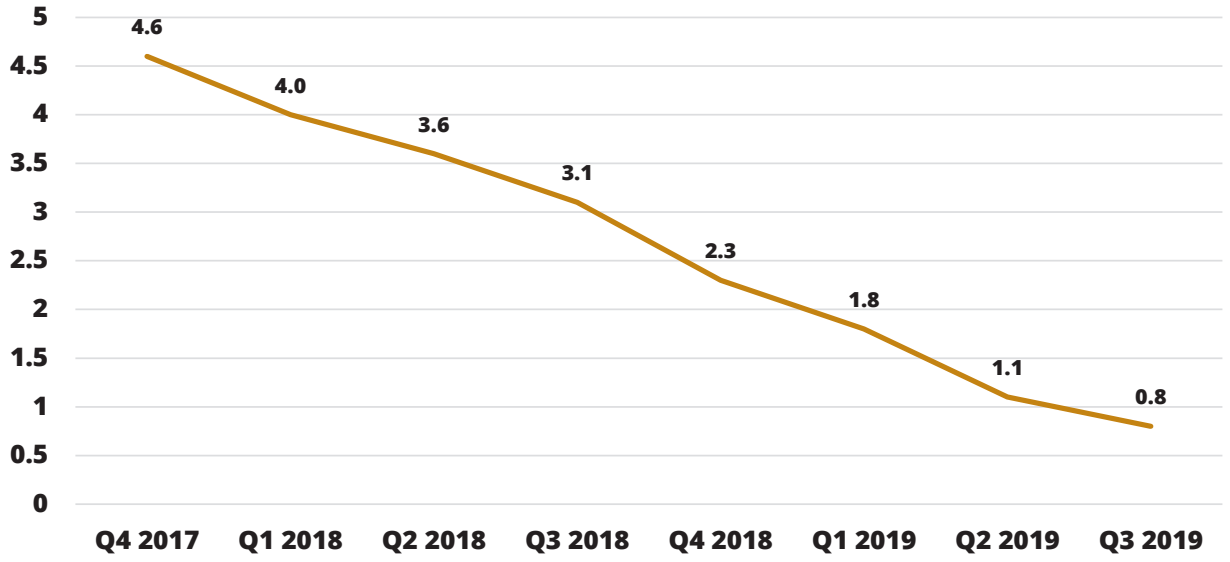


FIGURE 2: OUTSTANDING PDVSA DEBT TO ROSNEFT, BILLION USD

Source: Rosneft financial results for Q3 2019



Investment conditions on the ground

The companies interviewed for this report described a number of critical challenges and laid out various conditions that would have to be met before any decision could be made regarding the resumption or expansion of production in Venezuela following a political transition. They also identified the assessments that would have to be made given the current lack of information about conditions on the ground. The key considerations discussed were the lifting of US sanctions, a favorable regulatory and fiscal framework, projections of political stability, assessments of existing infrastructure, and calculations related to the local human capital stock, the security situation, and safety and environmental hazards and liabilities.

LIFTING OF US SANCTIONS

Though terrorism and drug-related measures against Venezuela date back as far as the mid-2000s, US pressure on the repression and corruption of the Maduro regime has escalated and expanded rapidly in recent years (see Figure 3). During the second administration of President Barack Obama, targeted sanctions were imposed on seven Venezuelans under E.O. 13692, which implemented the Venezuela Defense of Human Rights and Civil Society Act of 2014.[15] In 2019, Congress extended this law through the end of 2023.[16] As of October 2019, the administration of President Donald Trump had added 82 individuals to that list, including supreme court judges, members of the security forces, the director of the central bank, state governors, and Maduro himself.[17]

The Trump administration has also implemented broader economic sanctions, many of which have targeted PDVSA as a primary source of cash flow for the Maduro government. Early measures included the prohibition of PDVSA's access to US financial markets (August 2017) and of financial dealings by US persons or in the United States involving Venezuelan debt (May 2018).[18] Following the swearing-in of Juan Guaidó as interim president in January 2019, the US Treasury declared PDVSA and its affiliates a Specially Designated National (SDN), limiting the ability of US companies to do business with the company.[19] One consequence was that US companies and individuals could make payments for imports from PDVSA only into a blocked account that could be accessed solely by the Guaidó government.[20] This move immediately deprived PDVSA of 75% of its cash flow for crude shipments[21] (in 2018, the United States was the destination for 44% of its production, or almost 600,000 b/d on average[22]). In response, PDVSA quickly stopped shipments to the United States. The measures also expressly banned the export of diluents from the US to Venezuela, critical for blending with PDVSA's heavy oil for transport. Exports of refined products like gasoline and diesel were also banned; prior to the sanctions, 100,000 b/d of those products flowed from the United States to Venezuela.[23] The sanctions also limited US companies' ability to work with PDVSA, making a few exceptions that included Chevron and several service companies. The January measures also effectively barred all transactions with PDVSA in US dollars[24] and

caused most international banks to suspend dealings with PDVSA.[25] In August, the Trump administration prohibited all transactions with the Venezuelan government by US persons (with some exceptions)[26] and authorized Treasury to freeze the US assets of non-US entities deemed to be providing "financial, material, or technological support" to the Maduro regime.[27] While these measures did not amount to secondary sanctions per se,[28] they were interpreted as a threat and generated concern among foreign energy companies doing business with PDVSA.[29]

Under the weight of these measures, PDVSA has become increasingly economically isolated, with its trading partners limited to a few companies, including Russia's Rosneft, which receives oil as debt repayment, making the transactions exempt from sanctions, and India's Reliance, which trades oil for refined products that it says are allowed under the sanctions regime. With the threat of sanctions looming, companies are taking great precautions. Even CNPC stopped shipping Venezuelan oil in August 2019 despite large debts still owed by PDVSA to China.[30] Nor will a lifting of sanctions immediately restore PDVSA's international role—even once sanctions are lifted, it will take time for PDVSA to operate normally in international financial markets.

The lifting of US sanctions was a pre-condition for all of the companies interviewed for this report. One company

FIGURE 3: SELECTED US SANCTIONS ON VENEZUELA

Sources: US Congress, Congressional Research Service, US Department of Treasury, White House

NAME OF MEASURE	DATE	ACTION
Venezuela Defense of Human Rights and Civil Society Act of 2014 (S.2142)	Passed December 2014 (Extended to 2023 in December 2019 in Sec. 183 of H.R. 1865)	Requires the president to impose sanctions against those identified as having committed human rights violations or major acts of violence or repression.
E.O. 13692	March 2015	Implemented S.2142. Seven individuals were correspondingly sanctioned by Treasury under Obama administration, 82 under Trump administration as of October 2019.
E.O. 13808	August 2017	Prohibited access to US financial markets by the Venezuelan government, including PDVSA.
E.O. 13835	May 2018	Prohibited financial dealings by US persons or in the United States involving Venezuelan debt.
E.O. 13850	November 2018	Prohibited certain transactions with persons operating in the gold sector (or any other sector of the economy as determined by the Secretary of the Treasury) or with those responsible for or complicit in transactions involving deceptive practices or corruption and the Venezuelan government.
PDVSA Designated by Treasury under E.O. 13850	January 2019	Prohibited US persons from engaging in transactions with PDVSA and blocked all of PDVSA's property and interests subject to US jurisdiction.
E.O. 13884	August 2019	Prohibited US persons from transactions with the Maduro government. Authorized sanctions on non-US persons that assist or support the Maduro government.
Venezuela Emergency Relief, Democracy Assistance, and Development (VERDAD) Act of 2019	Passed December 2019 as Division J, Title I of H.R. 1865	Sought in draft form to codify E.O. 13808, E.O. 13835, E.O. 13850. Ultimately did not.
National Defense Authorization Act for Fiscal Year 2020 (S.1790)	Passed December 2019	Prohibited Department of Defense from contracting with entities that do business with the Maduro regime in Section 890.
Venezuelan Contracting Restriction Act (S.1151)	Introduced April 2019	Would prohibit executive agencies from contracting with entities that do business with the Maduro regime. Failed to pass in a unanimous consent process.

interviewed for this study stated that it would not take any action until it was fully comfortable that sanctions were lifted and its actions would be fully compliant, and another listed the lifting of US government sanctions as its first priority. Since Venezuelan law requires private companies to partner with PDVSA on oil projects, the sanctions against PDVSA have made operating in Venezuela very difficult, and some major oil projects have ceased production altogether. Two companies interviewed also expressed concern over the possibility of congressional sanctions, which would be more difficult to reverse than the executive sanctions used to date. The Venezuela Emergency Relief, Democracy Assistance, and Development (VERDAD) Act of 2019, introduced by Senator Bob Menendez (D-NJ) in April 2019, sought in part to codify many of the executive sanctions in place, including the executive order under which PDVSA was declared an SDN in January 2019 and earlier measures prohibiting PDVSA use of US financial markets and US persons dealing in Venezuelan debt.[31] However, the version of the bill passed as part of a spending package in December 2019 ultimately did not include these measures.[32] Separately, under the National Defense Authorization Act adopted for the 2020 Fiscal Year, approved in December, the Department of Defense is prohibited from contracting with entities that do business with the Maduro regime.[33] The Venezuelan Contracting Restriction Act—which was introduced in April 2019 by Florida Senator Rick Scott and failed to pass in a unanimous consent process but will likely resurface—would extend this to all executive agencies.[34]

FAVORABLE REGULATORY FRAMEWORK AND FISCAL REGIME

Venezuela has one of the highest government takes for oil extraction in the world—above 90%.[35] Elements of the fiscal regime include a 50% tax on net profits, royalties of 33% of the value of extracted crude, and a windfall tax that raises taxes on oil income when prices are high—to 80% for prices between $80-100 per barrel, and as high as 95% when prices exceed $110.[36] When oil prices are $80 per barrel or lower, but higher than the prices estimated in the government budget, there is also a 20% tax on the difference between the two prices.[37] Venezuela's alternative minimum tax (AMT), colloquially referred to as the "shadow tax," mandates a minimum tax of 50% of gross profits.[38] The majority of Venezuela's proven reserves lie in extra heavy oil fields where most projects are not economical under the current fiscal regime.

The operating environment for foreign oil companies in Venezuela is also restrictive. Currently, most can only

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participate in mixed companies (often referred to as joint ventures (JVs)) in which PDVSA is the operator and holds at least 60% of the equity.[39]

All of the companies surveyed listed favorable fiscal terms as a priority. Some said fiscal terms must be more flexible, as the government currently applies taxes and royalties equally to oil projects regardless of their profitability (despite some legal leeway to reduce royalties). One interviewed company stressed that other changes to the fiscal regime will be ineffectual if the AMT is not lowered or eliminated. Companies also said the elimination of foreign exchange controls and customs duties and tax exemptions to equipment, services, and personnel would be important investment conditions. Some pointed out that even if a new government recognizes the uncompetitive nature of the current fiscal terms by global standards, it may struggle to balance the needs of the government for economic recovery with establishing competitive fiscal terms for oil companies. Ultimately, though, for Western oil companies to return or expand their presence in Venezuela at all, it is clear that fiscal considerations will be a major factor.

Many interviewees cited specific aspects of the regulatory framework they considered critical. One company said production-sharing or concession contracts rather than service contracts would be a precondition, whereas another said service agreements might be a lower-risk transition model for foreign companies because of the lack of equity. Three companies indicated the need for a strong, independent regulatory agency with the authority to administer areas and negotiate terms. Such an agency should be technically capable, economically savvy, effective, and depoliticized, they said. There are many examples of such agencies internationally and they are considered a global industry standard.

Three companies also stressed that investor-state dispute settlement (ISDS) mechanisms, like that offered

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by the World Bank's International Centre for Settlement of Investment Disputes (ICSID), or bilateral investment treaties should be part of a new legal framework for oil and gas in Venezuela. Two companies said that investor protection should also be incorporated into the contracts themselves. One company suggested that commercial arbitration and tax stabilization clauses would boost investor confidence. A history of expropriation of foreign oil companies by the Venezuelan government looms large over political risk assessments in the country and may not be totally dissipated if the Chavistas depart from power (see political stability section below). Moreover, the current breakdown in rule of law and judicial independence furthers the need for supranational dispute resolution mechanisms.

Finally, nearly all of the companies interviewed expressed deep concern about the relationship of foreign companies vis-à-vis Venezuela's troubled state oil company. Though no company voiced satisfaction with the status quo, their positions varied on the depth of the changes required in their relationship with PDVSA. Some companies expressed reluctance to partner with Venezuela's state oil giant at all. Two companies voiced concern over the depleted state of PDVSA's human resources and preferred not to work with them. One brought up the issue of corruption at the company, which evidence has shown to be widespread, and the potential hazard of running afoul of the US Foreign Corrupt Practices Act, a federal law relating to the bribing of foreign officials.[40] Several companies said international companies should have majority control over and operatorship of projects (including the ability to fill key management roles) or the option to partner with other foreign companies. Although in practice an ever-weaker PDVSA has been gradually transferring operational control of oilfields to minority JV partners for years, officially allowing private companies operational control and majority stakes would require legislative action. The Venezuelan Organic Hydrocarbons Law requires that PDVSA hold a stake of greater than 50% in all joint ventures, and the terms of all joint ventures are subject to National Assembly approval, which in practice has led to the requirement of PDVSA operatorship in almost all cases.[41]

Other companies, however, said that more modest changes would allow them to partner with PDVSA on new projects. One said that joint ventures with PDVSA would be acceptable as long as the state firm did not undermine or delay operations and could muster the financial resources to fund its equity share in projects. A different company wanted to see a more professional, depoliticized PDVSA along the lines of Brazil's Petrobras, and said that the state company could be worked around if necessary. Others wanted the ability to market their own crude (as opposed to current rules that require PDVSA to sell all crude on international markets on behalf of its partners) and to have control over procuring equipment and services. Thus, responses on PDVSA varied from concern over its professionalism to a desire for major changes to operating arrangements. But there was agreement that defining the role of PDVSA will be a central challenge in recalibrating Venezuela's oil sector.

POLITICAL STABILITY

Though the transfer of the levers of power to Juan Guaidó and the subsequent organization of free and fair elections is the preferred form of political transition by most Venezuelan people as well as the United States and many other Western democracies, it is by no means the only possibility. Many analysts believe that the next leader of Venezuela could be another Chavista or member of the military or that there could be a power-sharing agreement between Chavistas and members of Guaidó's government. Thus, political instability will be an ongoing concern for companies operating in Venezuela.

What's more, Venezuela has a long history of resource nationalism and expropriation in the oil sector,[42] and this ideology could remain popular among swathes of the population even after a political transition. The assertion that Venezuela's natural resources are the property of the people and that the state should exercise a high degree of control over them is one of the pillars of Chavismo and served as justification for the expropriation of some foreign oil companies' projects under President Hugo Chávez. Even if the Chavistas vacate the Miraflores presidential palace after more than 20 years in power, their coalition still holds just under one third of the seats in the National Assembly[43] and will not evaporate as a national political movement. This leaves the oil sector vulnerable to politicization

and may constrict a new government's ability to ensure favorable fiscal and regulatory terms in the long term. It is impossible to guarantee that the government that immediately follows Maduro will keep the same policies in place as the next one, or the one after that. Even in the event of a government transition, Venezuela's turbulent recent political history will infuse the future with uncertainty.

The companies interviewed for this report noted that once a suitable legal and regulatory regime has been established, they need to be reassured that it will be consistent over time. Several companies pointed out that oil investments have a decades-long time horizon. Three companies pointed to the risk that resource nationalism will remain an important phenomenon in national politics, as described above.

Interviewees also discussed how a transition to a military regime would change their calculations about investing in Venezuela. Six mentioned how such a regime would increase political risk or create uncertainty. The majority of companies stated that they would not make political judgments. Avoiding political positions is necessary to facilitate the long-term investments inherent to the sector, and political stability is more important than the type of government in power, some said. Three companies indicated that the acceptance of the international community would be more important than the government or regime itself and specifically mentioned the risk of sanctions. One company suggested that its leadership might be skeptical about operating in an undemocratic environment, especially if the firms are not already operating in the country. In sum, Western oil companies see Venezuela's political future as highly uncertain, and a non-democratic transition would raise many questions for companies and likely complicate their evaluation of the market.

INFRASTRUCTURE

Venezuela's economic meltdown has devastated many forms of infrastructure critical to the operation of the oil industry, from crude oil upgraders to transmission lines. The degraded state of oilfields, equipment, and Venezuela's power and transport infrastructure in general will create operational bottlenecks to ramping up oil production, lengthening the amount of time needed for output to increase. It will also increase costs for companies considering re-entry or production increases and necessitate thorough assessments of the state of infrastructure before any investment decision can be made.

Perhaps the most well-known aspect of the collapse of Venezuela's infrastructure is the disrepair of the country's electricity sector. For years, corruption, mismanagement, and underinvestment at the vertically-integrated state power monopoly have made blackouts increasingly frequent. Venezuela made global headlines in March 2019 when a massive blackout affected all 23 states, lasting more than five days in most of the country. PDVSA is largely dependent on the power grid for its operations and ports for oil exports need electricity to operate.[44] According to *Bloomberg* sources, oil production averaged below 600,000 b/d[45] during the outage. An official government statement and independent analysts also reported a significant drop in output during the period.[46] Output was slow to recover as problems related to the outage were resolved. Some pipelines and tanks were clogged by heavy oil after heating systems lost power,[47] and heavy crude upgraders, which are used to process Venezuela's oil before it can flow through pipelines, were shut down by the blackouts and experienced problems or damage when they were restarted.[48]

As Venezuela's oil production has declined, damage has been inflicted on reservoirs themselves as their production is halted. Some hydrocarbon reservoirs have been permanently damaged because the water and gas injection necessary to maintain pressure has ceased, meaning their natural declination has not been mitigated and some resources can no longer be recovered. As the country's light oil reserves from mature fields have declined, in order to boost heavy oil production, operators would either have to make massive capital investments to overhaul or build upgraders or blend extra heavy oil with imported light crude, generating large additional capital costs.

The debilitation of Venezuela's transport infrastructure is also well-documented and dates back to well before the country entered full economic freefall. An oil services company interviewed for background estimated that ports and transportation would take at least 12-18 months to normalize. Fuel shortages have prevented workers from

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The emigration rate of oil workers has been greater than that of the population at large.

getting to work and PDVSA from operating its vehicles. All of these factors would conspire to limit the movement of equipment, fuel, and personnel, delaying operations.

Finally, PDVSA's dire economic straits have led to widespread nonpayment to suppliers and an erosion of the local oil services industry. This has accelerated the deterioration of PDVSA's infrastructure maintenance and resource management and may make it more difficult for Venezuela's oil industry to quickly bounce back in the event of a political transition. Local suppliers have mostly stopped operating in the country and the majority of inputs come from foreign suppliers, whose presence is also dwindling due to nonpayment. The share of PDVSA's debt from promissory notes and arrears has been estimated at $20 billion.[49] Suppliers have taken to the courts and in March 2019 blocked access to tankers over unpaid bills.[50] A CNPC affiliate, the main Chinese contractor in Venezuela, terminated its contracts with local firms in October 2019 because of nonpayment by PDVSA and asked that to avoid sanctions they open Chinese accounts to take payment in yuan. This measure was viewed as "impractical and costly." According to *Bloomberg* sources, the firms are owed more than $30 million.[51] PDVSA itself has also offered to make payments to suppliers in yuan,[52] reflecting how difficult US sanctions and loss of access to the US financial system have made doing business with PDVSA. Since all oil business in Venezuela involves PDVSA, its financial ruin has in turn weakened the local oil services ecosystem.

The majority of companies surveyed articulated concern over the state of infrastructure in Venezuela. Three firms stressed that it would be important to assess the state of infrastructure and/or resources, as companies don't know the extent of the damage. Two companies said it may be easier to boost production from existing assets or adjoining ventures rather than expanding to new ones, with one suggesting that certain facilities could be repaired. Two companies discussed the operational bottlenecks created by Venezuela's power infrastructure. One suggested that the challenging electricity situation could be worked around with dedicated generating capacity. Some noted that over the course of 2019, US sanctions have probably accelerated infrastructure destruction by choking off most of PDVSA's access to cash. In any case, it is clear that infrastructure-related bottlenecks and additional costs will slow the rate of re-entry or production ramp-up by companies operating in Venezuela and that the longer current conditions persist, the more difficult it will be to repair infrastructure.

HUMAN CAPITAL

Venezuela's economic catastrophe has spurred the migration of almost one in six Venezuelans since 2015 in one of the largest-scale refugee crises in modern history.[53] The emigration rate of oil workers has been even greater than that of the population at large—the main union of Venezuelan oil workers has stated that less than 10% of trained personnel remains in the country.[54] They have fled wages that in some cases barely covered their daily bus fare,[55] hunger that has fueled widespread reports of workers fainting on the job,[56] workplace robbery,[57] accidents, and other dangerous working conditions, like a lack of company-issued hardhats, boots, or gloves.[58]

All companies interviewed were concerned about the tremendous loss of human capital in the oil sector. Companies varied greatly in their responses about whether many of these workers would return, with two expressing optimism that many would return, and the rest professing varying degrees of uncertainty, ranging to extreme skepticism. Companies also varied in their level of concern about human capital, with some viewing it as a major problem and others saying it was not an insurmountable barrier. One company said service companies would be responsible for providing a large share of the labor, meaning it was less of a concern for exploration and production companies. Nearly all the companies noted that local labor is preferred to imported labor. Three companies said importing skilled workers implies much higher costs, with one estimating that an expat family can cost up to one million dollars annually. Some companies also noted that the global oil industry is in the midst of a tight international market for oil workers. At the same time, they flagged the positive impact that large local labor forces have on communities. Overall, the precise impact that Venezuela's decimated labor force will have on foreign oil investment after a transition is highly uncertain, but it's clear that this issue presents a challenge and will likely raise the cost of operating in the country.

SECURITY

Venezuela's economic crisis and weak rule of law have led to a highly unstable security situation in the country. The

oil industry has not been spared. For years, rampant theft has been reported at oil facilities in Venezuela.[59] Copper cables, motors, valves, many other types of equipment and machinery, and oil itself have frequently been stolen from facilities.[60] So has the property of workers, who have had their cars stolen from parking lots,[61] and been robbed or even kidnapped on the job.[62] "Pirates" on Lake Maracaibo have been reported raiding platforms five to six times a month and union leaders have reported daily break-ins at the Amuay refinery, Venezuela's largest, sometimes by as many as 20-30 people.[63]

A number of armed groups currently operate in Venezuela's vast tracts of sparsely populated land. They include local drug trafficking and illegal mining syndicates, the National Liberation Army (ELN, a Colombian guerilla group), and former members of the Revolutionary Armed Forces of Colombia (FARC).[64] The involvement of a group of high-level military officials, known as the "Cartel of the Suns" in drug trafficking is also well-documented.[65] Venezuela has the highest murder rate in the world, according to some estimates.[66]

Nearly all the companies surveyed emphasized that Venezuela's security situation would be problematic, with three adding it would be a very large issue or a top priority. Companies said it will take time to thoroughly assess the security situation before they can factor it into investment decisions. Several companies cited the risk of protracted armed conflict in Venezuela following a transition, with one suggesting that it might actually escalate once military members no longer benefit from organized crime networks. Several companies also alluded to the possibility of continued resistance by the colectivos—civilian Chavista militias frequently invoked by Maduro for repressive purposes—which have been estimated to number 100,000 members.[67] One company pointed out that Maduro's reliance on oil revenues has kept these organizations from attacking oil installations—restraint which might not continue under a new government.

In order to mitigate security risks, companies could contract corporate security or expect the Venezuelan armed forces to guard installations. One company warned that the former might cost too much for projects to be economical. The armed forces would likely be dedicated to oil fields given their importance as a revenue source, but having military or ex-military members guarding equipment, whether as corporate contractors or in their capacity as members of the armed forces, could expose firms to questions about human rights violations, companies said. How security factors in to investment decisions is in part a function of a company's level of risk tolerance, but Venezuela will no doubt continue to be a dangerous country for oil operations.

SAFETY AND ENVIRONMENTAL LIABILITIES

The safety and environmental management of PDVSA facilities has deteriorated in parallel with the firm's infrastructure and labor force. PDVSA has been called "the most accident-prone oil company in the world"[68] by one union leader. A lack of supervisors has led to refinery fires,[69] two storage tanks exploded at an upgrading project in March 2019,[70] and a tanker collided with a dock at Venezuela's main oil terminal in August 2018,[71] to name a few examples. Moreover, frequent oil spills as PDVSA's infrastructure deteriorates are reportedly causing immense damage, though the extent of the devastation is not well documented. PDVSA stopped publishing data about spills in 2016, but by that point, the yearly number of incidents had already more than quadrupled since 1999.[72] Locals in the Lake Maracaibo area, home to about 160,000 b/d of production, say the water is covered by a "permanent black tide" that has made the fish that they harvest from its waters unsafe to eat.[73] In early 2018, a water purification plant in Monagas state was closed down for over a month after an oil leak contaminated the Guarapiche River.[74] The cost of cleaning up over 12,000 PDVSA oil-waste pits (a decade-old number that has undoubtedly risen) has been estimated at $2.2 billion.[75] Thus, it is evident that severe environmental and safety hazards accompany existing PDVSA assets.

Safety risks for workers and the considerable need for environmental remediation at oil project sites presented concerns for the companies interviewed. One company worried that buying or taking control of assets in Venezuela, particularly those formerly utilized by PDVSA, could pose safety concerns and create environmental liabilities, and three others also voiced concern about the state of

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current installations, including liability or reputational risks for accidents that could take place due to prior mismanagement. Companies may need to seek legal protections from liabilities from prior damage, or as one company suggested, ring-fence past activities to protect new ones. Addressing these problems could add to project costs. Overall, most companies raised concerns over the lack of information about the current safety and environmental conditions and therefore stressed the need to make a comprehensive assessment that would delay final investment decisions.

Venezuela in a competitive global environment

The pre-conditions of relief from sanctions, a favorable legal and fiscal framework, a sense of political stability, and understanding of the labor, security, safety and environmental constraints are not the only relevant variables that will affect the investment decisions of Western oil companies in Venezuela following a political transition. Companies explained that those challenges will also interplay with factors exogenous to Venezuela, including a competitive global supply outlook, emissions reduction targets, and access to markets for Venezuelan oil.

COMPETITIVE GLOBAL SUPPLY DYNAMICS

Global oil markets are currently well-supplied, a dynamic which has curbed price spikes despite geopolitical risks around the world and contributed to a highly competitive environment for capital investments. According to the International Energy Agency (IEA), non-OPEC countries will add a net 2.3 million b/d of new supply in 2020, driven by the United States, Brazil, Canada, Norway, and Guyana.[76] This supply boom coincides with flagging global economic growth and oil demand, which has been further exacerbated by the uncertainty generated by trade tensions between the United States and China.[77] The IEA projects global oil demand to increase by just 1.2 million b/d in 2020,[78] meaning non-OPEC supply growth would more than outpace demand. This additional supply will flood the market despite low-price conditions that have already led OPEC, Russia, and their allies to limit production since 2017.[79] The price of the Brent international crude oil benchmark has only surpassed $80/barrel for about one month total since 2015[80] (see Figure 4) as technological developments have unlocked shale resources in the US, Brazil's deepwater pre-salt reservoirs, and other sources of supply.

Many companies use a conservative internal breakeven price of $50-$60/barrel. At the same time, due to short-term concerns about oversupply, long-term concerns about demand, and poor returns during the low prices of the mid-2010s, shareholders of major oil firms are pressuring companies to rein in capital expenditure spending and increase dividends rather than spending on oil reserves growth.

The majority of the companies surveyed agreed that Venezuela today would vie for investment in a highly competitive global landscape, with many upstream opportunities around the world (much more than in the 1990s when Venezuela reached its production peak). Under these circumstances, as companies shape their portfolios for the future and allocate capital around the world, Venezuela will compete with many other sources of low-cost supply and be evaluated based on both its lifting cost (the strict technical cost of extracting oil), and "above-ground" factors (political, fiscal, labor, or environmental) that may raise its breakeven price. Though there is much debate over the future of oil prices, some oil companies interviewed said they were in the "lower for longer" camp, meaning they expect lower prices for an extended period of time. Another company pointed out that pitching high-cost projects to investors in a low-price environment can be very challenging, even though investments are made with a long-term view. Although the country has very low lifting costs by global standards (around $10/barrel), in a recovering Venezuela, extra costs would be incurred by a number of potential factors already discussed, including building and repairing infrastructure, contracting security, importing labor, and mitigating environmental damage. A complex new country entry assessment process and additional costs of entering Venezuela without any presence on the ground (addressed below) would also factor in for companies no longer operating in the country. Finally, lingering political risk would continue to put Venezuela at a disadvantage compared to some other markets.

EMISSIONS REDUCTION TARGETS

The emissions profile of Venezuelan oil could produce an additional hindrance to its competitiveness. The country's heavy (dense and viscous) oil is among the most carbon-intensive to extract[81] and also requires more energy to transport and refine than lighter oils.[82] A 2018 Stanford University paper that analyzed the upstream oil production process (until the point oil reached the refinery) at a national level in various countries found Venezuela's oil production to have the second greatest average greenhouse gas intensity of any country (after Algeria), almost twice the global average.[83] Other experts note, however, that in the heavy-oil Orinoco Belt, reservoir conditions allow oil to flow to the surface without external temperature aid, meaning less electricity is required to produce Venezuela's extra heavy oil than Canada's, which is also among the most carbon-intensive in the world. When refined, heavy oil can also yield higher shares of byproducts like petroleum coke, which add end-use emissions if they are sold.[84] International oil companies are increasingly under pressure from investors to set internal emissions targets, establish climate goals, or disclose risks posed to their business by climate regulation.[85]

The majority of those interviewed for this study said that emissions reduction targets were affecting their investment decisions to some degree. The companies said they had greenhouse gas emissions reduction targets that limit the number of high-carbon oil projects they can include in their portfolios. Two cited the sale of assets in the Canadian oil sands as evidence that they are selling high-carbon assets, and one stated that climate change is driving the company's agenda to a considerable extent.

Most companies said that emissions reduction targets were affecting their investment decisions to some degree.

On the other hand, some companies pointed out that many Western oil companies are aiming to transition their portfolios toward a larger share of lower-emissions natural gas development, and that in 2018 Venezuela had the world's sixth-largest proven gas reserves (6.3 trillion cubic meters).[86] This includes both large non-associated gas fields and a large amount of gas associated with oil production, much of which is flared (combusted into the

FIGURE 4: MONTHLY AVERAGE BRENT CRUDE PRICE ($/BARREL), 2008-2019

Source: US Energy Information Administration (EIA)

Three companies speculated that over time, Venezuela's former crude oil buyers could gradually find other permanent sources.

air rather than captured and marketed) due to PDVSA's constraints. In 2018, Venezuela flared 8.2 billion cubic meters of gas, a 17% increase on 2017 and a 5.6% share of the global total.[87] This is both a significant source of greenhouse gas emissions and a lost commercial opportunity that new operators could reverse.

MARKET ACCESS FOR VENEZUELAN CRUDE

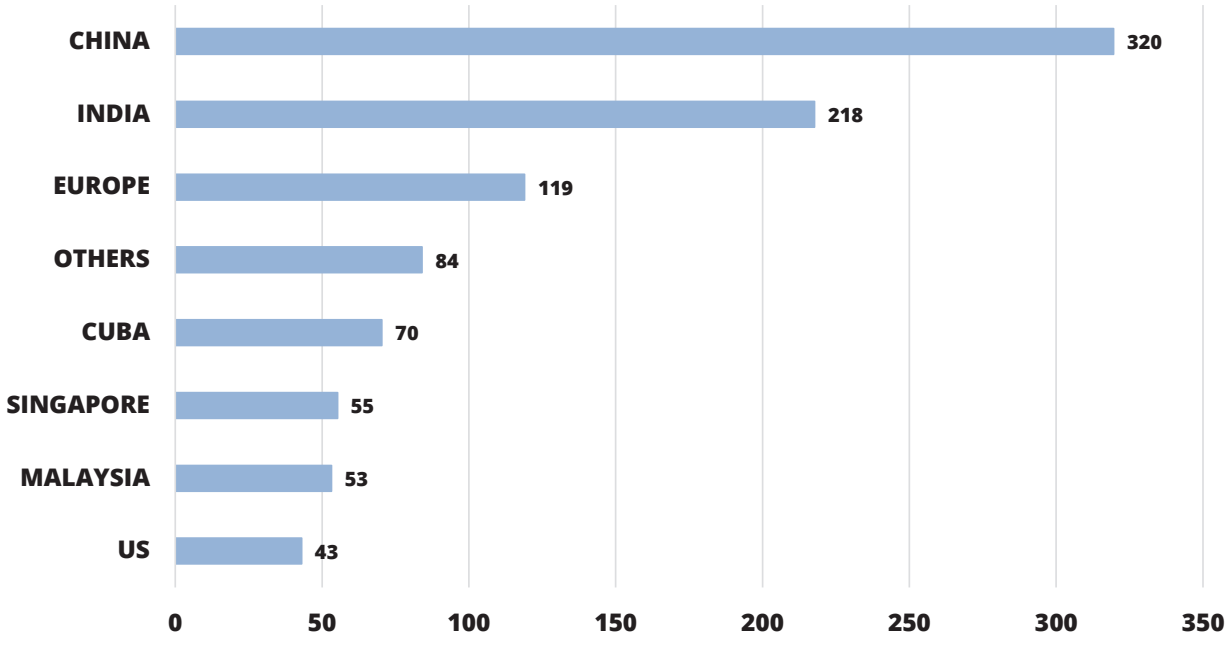
Finding markets for Venezuelan heavy crude could pose a challenge even once sanctions are lifted. Before the sanctions were imposed in January 2019, US refineries bought close to 600,000 b/d of crude from Venezuela, with the biggest customers being Citgo (a subsidiary of PDVSA), Valero, and Chevron.[88] Venezuela exported mainly heavy, sour (high sulfur) crude to complex refineries on the Gulf Coast that are configured to process this type of oil, and the United States provided Venezuela's largest source of cash flow.

However, since the sanctions took effect, both buyers and sellers have had to shift their approach. Previous buyers of Venezuelan crude in the United States have turned to shipments from Colombia, Iraq, Saudi Arabia, Canada, Mexico, and Russia, as well as to domestic grades,[89] but they have had to pay a premium that reduces their margins for processing heavy oil. Meanwhile, Venezuela has increased exports to China and India, including through sales from Rosneft (see Figure 5). Aside from the United States, China and India are home to some of the few heavy crude refineries in the world. PDVSA has also been blending its heavy oil with lighter grades to produce a medium grade crude that can be more easily sold in Asia even though its own light oil supplies are so limited that it must rely on imports.

Three companies in this study speculated that over time, Venezuela's former buyers could gradually find other permanent sources. For example, Canada is seeking to build pipelines from Alberta to ship its heavy, sour crude—which would directly compete with Venezuelan

FIGURE 5: TOP EXPORT DESTINATIONS FOR VENEZUELAN OIL, 2019 (AVERAGE THOUSAND B/D)

Source: Reuters/Refinitiv Eikon/PDVSA reports



oil if sanctions were lifted—to Gulf Coast refineries, one interviewee noted. Over longer periods, according to two companies, refineries could even be reconfigured to process different types of crude. US refiners have for years invested in increasing capacity to process light oil from shale formations, and the higher premiums that complex refineries are paying today on purchases from Venezuela's competitors may in the long run encourage them to invest in retooling plants to process lighter grades. Venezuela has significant domestic refining capacity, but since its own refineries are running at just 15% due to lack of investment, producers of Venezuelan crude will be mainly dependent on foreign refiners until its processing capacity can be resurrected, which would likely take several years. The longer it takes for Venezuelan production to return, explained one company, the more likely it is that potential Venezuelan crude buyers in the United States will disappear. This means Venezuela will have to sell heavy crude to Asian buyers, which will require a discount to compensate for higher shipping costs, or use light oil to sell its blended crude. One of the companies interviewed also projected that climate change would be a factor making Venezuelan crude less attractive to refiners because of its high emissions profile.

Investment ramp-up versus new entry

Nearly all of the companies surveyed agreed that there would be a higher standard for taking a decision to invest in Venezuela as a new country entry compared to selecting to increase investment if the company is already operating in the country.

Half of the companies interviewed (not all of which have left Venezuela) highlighted the lengthy new entry assessment process and additional costs of going into a new country as a significant barrier for companies that are not operating in the country, which at the very least would delay their entry, and at most would cause them to eschew Venezuela in favor of other markets.

To enter a new country, the investment decision generally has to be approved at high levels within the company, in some cases by the board and C-level executives, while a decision to ramp up investment in a country where oil firms have existing operations can be made by other senior-level executives. The new country assessment process may involve revising political risk analyses, assessing resource quality and the state of infrastructure and human capital, and making other calculations that are much more difficult for companies without a physical presence in the country. As this report has illustrated, there are serious considerations in all of these areas that may harm Venezuela's competitiveness relative to other global oil producers. One company did note, though, that for those with a long prior history in Venezuela, there may still be some residual knowledge of geology, access to local talent, and relationships with stakeholders in the country.

In addition to having a better understanding of the lay of the land, companies already operating in Venezuela would have operational advantages once they decided to ramp up investment. Several companies gave examples such as organizational efficiencies already in place and a better understanding of geology and above-ground risks that improve operations. Correspondingly, the existence of these advantages in other markets also reduces the relative attractiveness of Venezuela for companies not operating there. Moreover, though companies not in Venezuela may face barriers to re-entry, those that are in the country may have incentives to stay and attempt to ramp up production in order to take advantage of existing assets. One company cautioned, however, that knowledge of local conditions such as the security situation may actually prompt companies still present in Venezuela to take fewer risks.

On a positive note, three companies expressed optimism that production at existing operations could ramp up fairly quickly under the right conditions. Another company (without current operations in Venezuela) suggested that the best way for the cash-strapped new government to get funds fast would be to work with the companies already there right away.

The new country assessment process may involve calculations that are much more difficult for companies without a physical presence in the country.

CONCLUSION

This paper has described the key variables that Western oil companies will consider when deciding whether to re-enter or ramp up production in Venezuela following a political transition. These factors vary in importance and interact in complex ways, and lead to the following high-level takeaways.

1

Despite its resource abundance, Venezuela faces a highly competitive global supply environment. Ultimately, profitability will be the top driving factor in most companies' investment decisions. Therefore, the fiscal regime designed by a new government will have to reduce the breakeven price of extracting oil in the country in order to compensate for a number of costs and risks not present in other producing regions.

The efforts of OPEC and its allies to raise stubbornly low oil prices have been thwarted for some time as technological developments allow non-OPEC supply to flood the market and demand growth languishes. In a context of great uncertainty over if or when oil prices will spike, Venezuela will compete with many low-cost oil producers around the world in the event of a political transition. Its heavy oil may be placed at a disadvantage due to emissions reduction targets, and the risk of losing potential customers to other exporters or to gradual refinery reconfigurations increases the longer that Venezuelan crude is out of the market.

On top of this competitive environment, the country's oil outlook is also hamstrung by some of the most onerous fiscal and regulatory terms in the world (including mandatory partnership with the incapacitated state company), a level of above-ground risk with few contemporary parallels, and a number of costs incurred by its economic crisis, the magnitudes of which remain largely unknown. These costs include repairing infrastructure, contracting security, restoring the labor supply, and mitigating environmental and safety liability. For companies that no longer operate in the country, a stringent and lengthy new entry process that encompasses numerous assessments and the re-establishment of organizational capacity on the ground if a positive investment decision is made will pose additional barriers.

The level of investment that various projections estimate as necessary to revitalize Venezuela's oil industry indicates that a new government will have to induce companies to return while also catalyzing more production from those that remain. The companies that have already left may envision a higher breakeven price, whereas those already present may be eager to stay and recover their investment. The differences in their positions and perspectives are something to consider as fiscal terms are devised. When international oil companies decide whether to invest in Venezuela, they will compare the breakeven price to that of other oil producing countries, including ones where they are already present. A new government will thus have to ensure that its fiscal terms are attractive enough to compensate for Venezuela's additional baggage. The terms should also be more flexible than the current structure to link the level of taxation to the profitability of various oil and gas projects. However, the government also has to balance the desire to attract investment with the need to raise oil revenue to address the dire needs of the population. If the government is seen as too generous with fiscal terms for oil companies at a time when Venezuela is recovering from the worst economic and humanitarian crisis its history, this could merely lead to discontent and instability in the long term.

2

Suitable fiscal terms for oil extraction in Venezuela will have to be accompanied by an impression of political stability and long-term regulatory certainty.

Any new government in Venezuela will inherit a legacy of resource nationalism, most recently in the form of two decades of Chavismo, and previously in the 1970s. The eventual departure of the Chavistas from the presidential palace will not erase from Venezuelan politics the conviction among some members of the population and political class that the state should lead natural resource development. A history of expropriation looms large in recent memory, and several companies stressed the importance of access to international investment protection mechanisms. And while problems like labor shortages, security threats, and infrastructure damage add to expenses, these costs are minimal compared to the potential costs of an overhauled fiscal and regulatory framework. It will be challenging for a new government to provide long-term certainty that their fiscal, legal, and regulatory frameworks will remain in place, and that contracts will be honored. This is an obstacle in the oil industry, where the time horizons of projects span decades.

A non-democratic, military-led transition would complicate things even further. It would have to earn the approval of the international community, particularly by warranting relief from US sanctions, and in any event may would certainly muddy the outlook for long-term stability even further.

3

There are numerous challenges to recovering Venezuela's oil sector and it will take months or even years for substantial amounts of investment to flow in. A new government in Venezuela will therefore confront the difficult task of managing the population's expectations and developing a multifaceted economic recovery plan.

Most Venezuelans remember a more prosperous past, and many recall the 1990s, when oil production soared above 3 million b/d. Since then, the nation's former wealth has been destroyed to an astonishing degree. Gathering the perspective of Western oil companies on modern Venezuela has made it clear that it will be years before the nation is restored to its former oil production levels, even if a new government makes all the right moves. Two companies estimated that simply assessing the situation on the ground would take at least a year. One company noted that firms will want to see signs of stability such as elections and an improvement in the security situation before making final investment decisions. Most companies said they would consider entering Venezuela but only gradually as conditions on the ground evolve. Competitive licensing processes to award exploration and production blocks take months, one noted. Most would be willing to upgrade existing projects but, in any case, would be reluctant to take on new acreage. All companies said it would take months or even years to ramp up investment. And no company expected firms to rush back to Venezuela as they once might have.

Thus, given the centrality of oil production to Venezuela's near-term economic prospects, a new government will face the challenge of communicating to its citizens the length of Venezuela's road to recovery without projecting pessimism. They will have to hold up the country's restoration to prosperity as a long-term goal rather than as an immediate reality while also pursuing economic diversification. Their success as a government, and the continued stability of Venezuela, will rely on whether the results expected of them are within what they can reasonably deliver.

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