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## THE FUTURE OF OIL IN MEXICO

*El petróleo mexicano pertenece al pueblo mexicano.*<sup>1</sup>

That matters, because throughout the 20th century, Mexico was one of the world's major oil producers—and for much of the time an important exporter as well. The super-giant Cantarell field alone has generated almost a half trillion U.S. dollars in revenue since it began producing in 1978. That field is now nearing exhaustion, but Mexico's geological potential remains highly prospective. Future generations can still hope to obtain great benefit from the vast, complex heavy oil reserves at Chicontepec or from further world-class finds that might be made deep under the Gulf of Mexico. But these prospects are costly and uncertain, and present new challenges for the Mexican government. It will take advanced technology to produce the next tranche of resources that represent the future of oil in Mexico. Given the geologically challenging nature of these resources, the current generation of Mexicans faces at least a decade of struggle to reverse the current steep decline in the country's oil production, which has fallen more than 25% since its 2004 peak.

The Mexican people demand that this precious, but risky, resource be soundly managed on their behalf. They also deserve a much better formula for distributing the benefits of oil wealth so that it reaches the mass of the citizenry, instead of flowing disproportionately to the wealthy, as at present. The case for a much fairer—and more transparent—distribution of Mexico's hydrocarbon rent is not just a moral argument. To build the support for and to stabilize the coalition needed to make a success of resource nationalism in the 21st century requires a broad and solid base of national stakeholders.

The present skewed and non-transparent system generates distrust and zero-sum conflicts that undermine Mexico's capacity to extract and process its energy resources efficiently and rationally.

<sup>1</sup> This translates as "Mexico's oil belongs to Mexico's people."

Historically, Mexico has been one of the largest producers of oil in the world. At one time, its oil production rate was among the highest in the world. Almost all the production of oil in Mexico at the present time comes from the Sureste (southeast) Basin. However, production in the Sureste Basin is declining, which is a source of much concern (Talwani 2011).

Mexico's oil production peaked at approximately 3.9 million barrels per day (b/d) in 2004. Since 2005, Mexico's output has fallen by more than 25%, to 2.98 million b/d in 2010. At the same time, domestic demand for oil has grown from 500,000 b/d in 1971 to roughly 2.15 million b/d in 2010, with some fluctuations along the way reflecting the changing fortunes of the economy. At present, Mexico is a net oil exporter, with total net exports in 2010 running at 842,000 b/d.

Under reasonable, middle-of-the-road assumptions about Mexican economic and population trends, Mexico could become a net importer of oil within the next 10 years if it fails to invest sufficiently in upstream activities utilizing advanced technologies (Medlock and Soligo 2011).

Over the past two decades, the country has pursued economic reforms, including the privatization of many state-owned companies and a general opening of the economy to international markets. The production and export structure of the Mexican economy was restructured to diversify earnings and, thus, is no longer dependent on oil exports for the overwhelming share of export earnings. Still, oil exports are important, accounting for 15% of total export earnings in 2009. Moreover, oil remains a major source of revenue for the government, contributing about one-third of federal government revenues. Thus, a shift toward oil importer status would be a severe burden on the Mexican government and curb its ability to provide important services, both related to social programs

and internal peace and security. The James A. Baker III Institute for Public Policy at Rice University and the Mexican Studies Programme at Nuffield College, Oxford University, have engaged in a two-year investigation of “The Future of Oil in Mexico.” The aim of the study, which includes 14 specialized academic papers written by prominent Mexican, British, and American scholars, is to promote a better understanding of the challenges facing Mexico’s oil sector, as well as to enhance the debate among policymakers, the media, and industry on these important issues.

The study examines three basic questions. What does Mexico want from its oil policies? What are the Mexican oil sector’s medium- to long-run prospects? And how, therefore, can it best manage the foreseeable obstacles to achieving its underlying goals?

## THE GOALS

Article 27 of the 1917 constitution specifies the basic standpoint of the Mexican state on energy matters, and prescribes the organizational structure. It does not stipulate the goals of the nation as such, but codifies the underlying approach to achieving these goals. Mexico appears to have three fundamental, long-term objectives for its oil sector: to retain ownership and control of subsoil resources (“resource nationalism”); to protect the national economy from external shocks and predation (“energy security”); and to distribute any surpluses generated from this national patrimony for the benefit of the Mexican people as a whole. These are very broad goals and, while they may reinforce each other, they can also generate conflict. The instruments and strategies required to promote these goals are only partly constitutional. They also require sound legal supervision and smart and fair political governance.

The future of oil in Mexico will be governed not only by the constitution, but also by petroleum law, the system of energy regulation, and the heavy fiscal burden imposed on the oil sector by the annual federal budget. Mexico’s choice to have its industry managed by a specialized national corporate administration also raises unique challenges, including the difficulty of driving efficiency and innovation outside of a competitive market framework. Moreover, Mexico’s democracy must weigh in to defend the inescapable need for a considerable degree of managerial autonomy in the oil sector. Here too, therefore, there will be major trade-offs and conflicting choices—between long-

and short-term priorities; between maintenance and new investment; between current service delivery and planning for innovation; etc. Political decision making in the Mexican energy sector, like in many democratic societies, can become highly captive to vested interests, with outcomes that are less than optimal for the stakeholder—in this case, the Mexican people (Domínguez 2011).

The constitutional framework and the basic goals may be a given, but the means of achieving established goals requires active management and periodic reinterpretation. As a consequence, the ground rules for Mexican oil policy are regularly reviewed and revised, most recently with the energy reform law of 2008, which is only coming into full effect this year.

Our study group examined the latest measures from a long run and comparative angle. This approach highlighted the varied formulae that have been used to reconcile resource nationalism, energy security, and public benefit both in other parts of Latin America and in Mexico over time. In the study working paper “Oil Policy Reform in Nationalist Resources States: Lessons for Mexico,” author David Mares defines these three key concepts and shows how they have combined, and sometimes clashed, in a range of Latin American countries.

Resource nationalism plays an important role in the public discussion about the future of oil in Mexico. It is fundamental to Mexican society that all Mexicans share in their national resource wealth. But study analysis shows the net effect of current Mexican energy and fiscal policy is to obfuscate the stakes for the Mexican people in reforming the oil sector and to inadvertently transfer oil entitlements from the bulk of the population to the richest 10% of the population (Segal 2011). Were Mexico to shift to a distribution system that gave each citizen a share of oil revenue in cash, this could undoubtedly do more to directly redress poverty in the country than the current distribution system. Moreover, it would be clearer to the Mexican public what their individual stake is in the preservation of Mexico’s oil output levels, even at the inclusion of policies that might not otherwise have seemed politically compelling.

Mexico’s specific situation currently suggests a need to attract capital, technology, and skill. The examples of other Latin American countries demonstrate that the state can continue to own the resource and that Pemex, the Mexican state oil company, can continue to have a dominant role, even as reforms make the sector attractive and accessible to other state-owned or national oil companies (NOC) and private oil companies (Mares

2011). Brazil and Venezuela offer useful lessons that do not involve abandoning national ownership of subsoil resources. For example, under Venezuelan President Hugo Chavez, the state's share of the oil rent has dramatically increased, but private and foreign investments have not been prohibited. In Brazil, Fernando Henrique Cardoso (1995-2002) came to the presidency with credentials as a leading nationalist intellectual with a personal commitment to economic growth and improved distribution. His administration passed significant constitutional and oil sector investment reforms that paved the way for substantial non-state investment and the benefits of broadening competition in the sector, while at the same time maintaining the privileged position of Petrobras, Brazil's NOC. Subsequently, under the left-wing administration of President "Lula" da Silva, Brazil has continued to pursue a long-term development strategy compatible with the necessary policies to achieve dramatic increases in oil production through new advances in technology in deepwater drilling.

Mexico's balance between resource nationalism and energy security goals has fluctuated periodically over the years but, generally speaking, the country is currently focused on maximizing resource nationalism and is paying only lip service to energy security. Current Mexican President Felipe Calderón's "National Energy Strategy" first introduced the concept of "energy security" into the country's official vernacular because his administration recognized Mexico's worsening oil balance and increased energy vulnerability. Still, President Calderón's National Energy Strategy is limited in its discussion of energy security goals, since it is unclear how the strategy's call for a transition to a more diversified energy mix will be accomplished (Morales 2011b).

Fluctuations due to recessionary pressures notwithstanding, the trend line is that Mexican oil demand has been increasing while its oil production has been declining. Often overlooked is Mexico's role as a major consumer of petroleum, ranking 11th in world oil consumption in 2009. This was well below the world's largest consumers (the United States and, far behind it, China) but about the same as France and ahead of the United Kingdom and Italy (Barnes 2011). While the projected declines in Mexican oil exports are largely attributable to an overall reduction in output, increased domestic consumption also plays an important role. As mentioned above, Mexican domestic demand for oil has grown from 500,000 b/d in 1971 to roughly 2.15 million b/d in 2010. Based

on a medium per capita growth rate of 1.5% and an average long-term oil price of US\$75 per barrel, Mexican oil demand could reach 2.326 million b/d by 2015 and 2.684 million b/d by 2025 (Medlock and Soligo 2011). In particular, Mexico's imports of gasoline are expected to increase in the coming years (Morales 2011a). This rate of growth, when juxtaposed against Mexico's ongoing reserve replacement rates, would imply that Mexico could rapidly become a net *importer* of oil, providing the country with little energy security. On the other hand, if Pemex can increase the rate of reserve replacement in relation to its overall resource base to something like what is seen in the United States' Gulf of Mexico, the export crisis could be avoided for another 30 years. Thus, as Mares concludes in his survey on resource nationalism, it may soon be time for Mexico "to go back to (Mexican President Lázaro) Cardenas' original vision: a balance between resource nationalism and energy security to benefit the nation" (Mares 2011).

Barring a collapse in oil prices due to factors beyond Mexico's control, it is likely that the decline in oil revenues that would ensue from Mexico's transition to net import status will be gradual rather than rapid, reducing the chances that a sudden, deep crisis will create the political will to make hard choices or unpopular reforms. While this gives time for the government to undertake an orderly adjustment, it can also generate incentives to postpone or adapt to the fall in government revenues through the least costly, short-run solution, such as cutting public investment, which can, at the same time, generate the greatest adverse effects in the long run (Ros 2011).

## THE PROSPECTS

Nationalists are correct to regard Mexico's subsoil energy reserves as a huge and potentially durable asset for the nation. Both in the early 20th century and again since the 1970s, Mexico's hydrocarbon resources have generated great surpluses for export, in addition to supplying the domestic market. But the prolific offshore discoveries of the 1970s are now either mature or—in the case of the most valuable super-giant field, Cantarell—in rapid decline. At present, Mexico is the world's sixth largest producer of crude oil (ahead of Norway, UK, Venezuela, Iraq, and Brazil). It is one of the three main sources of U.S. oil imports. However, at the present rate of production, the estimated life of Mexico's proven reserves is only about nine years. For the short to medium term, the most crucial determinant of Mexico's energy

prospects will be whether these mature resources can be effectively managed to extend their useful lives, and slow their rate of decline through appropriate secondary recovery strategies. Longer term, Mexico's areas of untapped geology hold great potential and could continue to prove bountiful for generations to come.

Mexico has several options where geological potential could yield a rebound in production. In particular, the Chicontepec Basin, with its large deposits of "in-place heavy oil" is an important target. Exploration in the deep sea with the possibility of large subsalt reservoirs also holds much promise. But the recovery of oil in both cases will take time and will require advanced technology and large capital investment (Talwani 2011).

Recent increases in spending have meant that Pemex has been able to slow the decline rate at the Cantarell field, at least temporarily. Pemex has also increased investments in the Ku-Maloob-Zaap (KMZ) and the onshore Chicontepec fields. Production at KMZ has increased but not in sufficient quantities to offset declines at Cantarell. Chicontepec has, thus far, proven to be a very large disappointment because of its complex geology. Despite spending more than US\$4.9 billion on the field, production is forecast to be only 70,000 b/d in 2011. The complex geological nature of the in-place heavy oil in the Chicontepec reservoir makes it difficult to apply conventional enhanced-oil-recovery (EOR) techniques. Rather, technological breakthroughs of new EOR techniques will be needed, a process that is generally incremental. Thus, recovery rates at Chicontepec are likely to increase very slowly, taking many years.

Likewise, in the deep water of the Gulf of Mexico, new discoveries based on ongoing geophysical surveys will take a minimum of three to five years to lead to new production areas for the country, even with the most optimistic assumptions. Moreover, large investments will be necessary, and risks associated with these efforts will be significant and require advanced technology currently not in the possession of Pemex.

Although Mexico could still have a bright, long-term future as an oil power, that remains quite speculative. The most important assets of the nation appear as "possible" or "probable" but not "proven" Pemex resources. In the meantime, serious issues arise concerning the transition between the run-down, existing mature fields and their possible replacement a generation hence. One medium-term prospect deserving close attention is whether Mexico

might cease to operate as a net oil exporter at some point during the coming decade.

Projections that Mexico could become a net importer of oil within the next 10 years rest on the fate of the supply side of the equation. The experience over the past five years in terms of reserve replacement indicates that exports cannot be sustained. But, of course, the effects of the 2008 reform are only just beginning to appear. If Pemex can increase the rate of reserve replacement in relation to its overall resource base to something like what is seen in the United States, the export crisis could be avoided for many years to come, according to scenario forecasts (Medlock and Soligo 2011). Both scenarios should be taken seriously given the margins of error that attach to the most "reasonable" assumptions (e.g., that Mexican real per capita income grows 1.5% per year and that average oil prices are somewhat lower than today's levels).

The economic consequences of Mexico's failure to change course are significant but could be managed. Under a "pessimistic scenario" where Mexican oil production continues its current rate of decline, the oil trade balance might turn negative as early as 2013 and could continue to deteriorate until it reached a US\$30 billion deficit by 2020. This would imply a "negative shock" over 10 years equivalent to 11-12% of the 2008 level of total exports. Although this would be serious, it pales by comparison with the shock the Mexican economy experienced from 1985 to 1986, when oil was a far more crucial component of the national economy. Our analysis finds that the Mexican economy is now sufficiently liberated from its previous oil dependence to be capable of absorbing the shock without a major crisis (Ros 2011). There would be important consequences both for the balance of payments and for the fiscal accounts, but these could be managed through appropriate policy responses. For example, the export shock might require a more competitive exchange rate, to stimulate compensatory non-oil exports. The fiscal effects would be more serious, and could prove "potentially catastrophic" if the adjustment came through the slashing of public investment rather than through compensating increases in non-oil public revenues or debt financing. But such declining oil revenues need not be negative for overall economic growth. Everything would depend upon whether the government opted for an orderly adjustment – or resorted to short-term emergency cuts that harmed the long-term competitiveness of the overall economy.

## THE CONSTRAINTS

Mexico has just celebrated the bicentenary of its independence, and Pemex recently registered the 73rd year of the oil nationalization. The state oil monopoly has lasted for more than a third of the time that has elapsed since the creation of the state itself. Many Mexicans have come to regard Pemex as a flagship of their national identity. As globalization and liberalization have reduced the number of symbols of nationality, loyalty to this icon has persisted and perhaps even intensified. After all Pemex is not just a banner; it also embodies a hope for future security and prosperity. In more practical terms, Pemex provides employment, foreign exchange, a vital part of the federal government's tax revenue, and a reliable source of gasoline at every pump throughout the nation. So this is a cherished asset that attracts great defensive loyalty whenever the people of Mexico see it under attack.

But the loyalty that Pemex fosters among the Mexican people, as well as the company's multiple functions and iconic status, all generate liabilities as well. The management of Pemex has to cope with exceptionally heavy responsibilities and can be subject to extreme pressures. Despite the reforms of 2008, which may have somewhat increased managerial room for maneuver, the constraints facing Pemex are still disproportionate to the challenge of reconciling the goals outlined for it. These constraints are multifaceted and include technological, constitutional, fiscal, managerial, and political barriers.

The sum total of these constraints means that Pemex is unable to operate under optimal conditions and the efficiency and productivity of its operations are thereby compromised. The technical efficiency of Pemex's operations—that is, its ability to generate revenue from its reserves, refining assets and other inputs such as labor and capital—was analyzed by comparing Pemex with a sample of 61 other oil and gas firms over the period of 2001–2009. The efficiency analysis revealed that in general partially privatized firms were more efficient than fully government owned NOCs (Hartley and Medlock 2011). In this regard, Pemex is often compared with other large Latin American oil companies, especially Petrobras and PDVSA. While Pemex's ranking in efficiency remained more or less static throughout the decade (at around 35th), Petrobras' ranking for efficiency improved dramatically after privatization took hold, moving from 44th in 2001 to 25th in 2009, which put the Brazilian firm's performance in line with the world's largest international oil companies (IOCs).

A change in Brazilian law in 1997 led to the partial privatization of Petrobras, though it took many years for its effects to be fully realized. The other interesting contrast is PDVSA, which fell from around 40th most efficient at the beginning of the decade to 60th by 2009. The analysis shows that Pemex generates far less revenue from the resources at its disposal than do the most efficient firms, and that changing its mix of inputs and capital might mean that Pemex could generate well over 50% more revenue than it has in recent years. In addition, the analysis shows that Pemex could have produced the same revenue with significantly fewer employees (Hartley and Medlock 2011).

While the benefits of change are widely accepted in Mexico, the reality of the politics of implementation is daunting. Debate about the future of oil in Mexico often revolves around discussion of the existing constitutional and oil investment regulatory framework, which is among the most restrictive in the world—and indeed even more constraining than those written after the 1938 oil expropriation. This is a puzzle that requires careful explanation, since so many other apparently entrenched features of the traditional Mexican political order have proved capable of drastic revision over the past 20 years (Elizondo Mayer-Serra 2011). Indeed, other sectors have been privatized, the vital electricity sector has been widely reformed, and even land reform has taken place.

It can be argued that the conditions attached to Mexico's entry into the North American Free Trade Agreement (NAFTA) in 1994 amounted to the most important energy reform of recent decades—and were more consequential than the domestic reform law of 2008. This last “energy reform” passed by Mexican lawmakers in 2008 made major changes in the corporate governance of Pemex, but did not substantially modify, as NAFTA did, the role of state and firms in the overall sector (Morales 2011b). Indeed, NAFTA became a revolution in Mexico's economic organization and broke with a long tradition of state dirigisme, which had become a sort of *raison d'état* for the Mexican ruling party. The negotiation and implementation of NAFTA accelerated major constitutional reforms in many protected sectors other than energy, such as agriculture, government procurement, and services. The fact that these reforms were anchored in a binding, legal, trilateral agreement with the United States and Canada effectively locked in a state economic reform that transcended presidential administrations. In many ways, Mexico's economy and politics are still adapting to these long-term reforms.

Chapter 6 of the NAFTA treaty “set the principles and conditions for a gradual liberalization of Mexico’s overall energy sector” (Morales 2011b). It prohibits the imposition of quantitative restrictions or the imposition of minimum/maximum prices either for imports or exports, and the “national treatment” clause provides that any further liberalization of the energy sector cannot discriminate against the party of another country. Even though Mexico attached many explicit exceptions to Chapter 6 of NAFTA, the latter became the major framework from which “gradual liberalization” evolved in certain sectors of the energy sector other than oil. This would, and could, be done without necessarily making constitutional reforms by introducing “tactical modifications” in regulatory bills, as in the case of electricity and gas (Morales 2011b). The privatization of electricity production not intended for public service, the opening of foreign trade in electricity and gas, and the further liberalization of downstream natural gas activities (transportation, distribution, storage, and commercialization) reflect this paradigm shift in the public governance of energy resources.

But this energy reform momentum has hardly spread to the oil sector, despite the obvious downside to the political stalemate that blocks constitutional and legislative change. Mexico persists with an essentially unreformed oil sector because the specific benefits, according to a broad coalition of powerful actors, are sufficient to veto anything more than secondary changes (Elizondo Mayer-Serra 2011). This status quo rests on a distinct—and questionable—set of expectations, as well as the narrow advantage of key vested interests. It requires maintenance of the idea that oil production has stabilized, and can even start growing again without far-reaching changes. As we have seen, that idea is not defensible, nor is it secure. In his working paper, “Stuck in the Mud: The Politics of Constitutional Reform in the Oil Sector in Mexico,” author Carlos Elizondo Mayer-Serra argues that one should not “expect the possibility of any significant reform until a crisis is a distinct possibility, Pemex faces a major accident, or, in the context of declining production, the trade union picks an unpopular fight against a popular and capable reform-minded leader.” He adds that “no crisis, no matter how serious it is, will ensure reform. Without a president that can explain why a profound reform is needed, a society that believes him, and some sort of coalition that is capable of including relevant and powerful actors, vested interests can prolong agony for a long time, as even a declining Pemex can be very profitable to all those actors that

extract rents from how the oil industry is organized in Mexico.”

Mexico’s fiscal situation constitutes a second major source of constraint on Pemex. Despite its huge gross revenues, Pemex has been recording annual losses for most of the past decade, and has accumulated foreign debts on a scale comparable to Mexican sovereign debt (Whitehead 2011). Although waste and inefficiency are factors here (Hartley and Medlock 2011), the main explanation is the extremely heavy tax burden borne by the state monopoly, which effectively transfers all its profits to the federal authorities, thereby contributing approximately one-third of the federation’s fiscal income. This hampers the oil company’s ability to finance investment out of retained resources, and means that management accounts become entangled in the annual budget negotiations between the federal executive branch and Congress.

The 2008 energy reform law did make some effort to ease this constraint, freeing up about 2% per year of gross domestic product (GDP) for investment purposes. Accordingly, the 2009 Budget and Fiscal Responsibility Act provided that investments from Pemex would not be included in the definition of a balanced budget. There is also an off-budget accounting procedure to deal with the payments required to the private contractors commissioned by Pemex (under the *pidiregas* system). But the company bears heavy potential pension liabilities for its workforce. And, despite the reforms and high oil prices, the management of Pemex is still unable to plan for and finance the long-term investment projects, both in Chicontepec and deep water, required to secure future success. The company also lacks the full stock of human capital and technology that is needed.

If the current problems facing Pemex mean that the fiscal surplus channeled from Pemex to the federal government will be severely reduced over the coming decade, alternative sources of revenue would presumably have to be sought. Mexico’s tax take is already among the lowest in the Organisation for Economic Co-operation and Development (OECD). But even without this worst case scenario, there is a medium-term need for a more diversified federal budget revenue base, which would facilitate more managerial autonomy and scope for longer-term planning at Pemex (Ros 2011).

Efforts to reform Pemex and improve its “efficiency” as a stop-gap solution have failed to effect the kind of step change needed to achieve Mexico’s goals or even to curtail the slow path to

net importer status. The new broadened system of management and supervision—intended to add more professionalism and less politics to the investment process—is even more complex than before, and can hardly be thought to facilitate clear, quick, and efficient decision making. For example, Congress has responsibility for the National Energy Strategy, which has a 15-year time horizon but lacks a matching financial provision. Budget allocations continue through Congress on a one-year-at-a-time basis. The Energy Ministry has prime responsibility for approving Pemex’s principal exploration projects, but this is also subject to a *seven-stage* vetting process (including the Treasury Ministry), without which no authorization can proceed.

A case study on the process for approval of the oil sector’s first greenfield refinery project in 30 years gives no cause for optimism. A major initiative was launched to address Mexico’s heavy reliance on imports to satisfy its growing domestic demand for gasoline. A proposal was put forward to build an US\$8 billion refinery at Tula, Hidalgo. The comparative exercise undertaken by Pemex became restricted to answering the question of where to locate a new refinery—not how best to meet the domestic demand for oil products or how best to meet the domestic demand for energy in general. Thus, focused on the narrow issue of where to develop a greenfield project, decision makers opened the door for competition between state governments bidding to attract the multibillion-dollar investment (Domínguez 2011).

Although detailed engineering studies are currently under way, doubts still surround the project, and it is uncertain whether the Tula refinery will ever get built. The case study highlights the increasingly complex interaction between politicians and technical experts, a process that has become open-ended and unpredictable as political power is redistributed in Mexico (Domínguez 2011).

The main potential advantage of an integrated oil enterprise is that it diversifies risk between the different segments, but that requires the careful project appraisal and implementation that was lacking in the determination of the refinery location at Tula. Instead, the pressures imposed by local political and business interests in a federal, democratized setting were a major influence in the promotion and selection of the refinery site—but not a strong enough force to ensure the project’s implementation. Moreover, the location and value of a domestic refinery depend in part on the achievement of upstream reserve replacement, which itself is questionable.

A closer look at the 2008 reforms and the creation of the new agency, the Comisión Nacional de Hidrocarburos (CNH), also uncovers another problem with adding new layers of top-down leadership. By dividing authority, it made it difficult for decentralized leadership to assert itself over a “powerful mid-level bureaucracy that see in the reformers a threat to its power” (Ballinas Valdés 2011). Moreover, the seemingly sensible reform of adding four “professional governors” to the board of Pemex could have constituted a real advance, but not the fact that they are nominated through a process of inter-party horsetrading in the Congress—since that limits their independence and their scope to serve the best interests of the enterprise as a whole. Other members of the 15-strong board are also subject to various inherent conflicts of interest (including the fact that five are nominees of the *sindicato de petroleros* [the oil workers union]), which are aggravated by the rigid rules of the public sector remuneration system. In sum, the existence of so many unsuccessful reforms across various administrations and party leaderships “suggests a systematic problem, yet to be solved” (Ballinas Valdés 2011). So while the intention of the 2008 reform might have been to create a more autonomous and entrepreneurial governance structure, the positive steps taken in that direction have not yet borne fruit. In the context of Mexico’s ongoing (and still contentious) process of democratization, the policy process is relatively more open in comparison to previous decades, when technocrats made more unilateral choices without having to defend them to the public. But even with more public debate—or perhaps as a result of it—political decision making is captive to vested interests that prevent the system from putting the right questions on the table (Domínguez 2011). As political power in Mexico has become more decentralized and more pluralist, effective government can no longer be provided by diktat, but requires multi-actor negotiations, and the backing of stronger and more autonomous institutions. The revolutionary nationalist rhetoric that used to provide cover for forcefully one-sided policy decisions is no longer a unifying discourse (Whitehead 2011).

Many administrations, starting with the presidency of Carlos Salinas, have recognized that the creation of stronger regulatory agencies would be a key to successful reform, and eventually privatization, of Mexico’s energy sector. But despite the formation of “autonomous” agencies such as the Energy Regulatory Commission (Comisión Reguladora de Energía, CRE) and later the CNH, this regulatory

reform failed to significantly change the political structure of the oil sector or limit the political power of state industry. Instead, ineffective regulators have been created, adding a new layer to the struggle for political control of the energy industry, leaving commentators to conclude that so far there has not been a real intention to regulate Pemex. The new CNH is expected to work as a regulator inside Pemex. Powers of the CRE are exercised together with the supervising Energy Ministry, and this has resulted in a large number of difficulties, lack of coordination, and overlapping tasks (Ballinas Valdés 2011).

This post-transition political environment creates both risks and opportunities for Mexican energy sector reform. In one sense, it politically weakens Pemex, which had been the bearer, as well as the funder, of Mexican statist aspirations. But it also raises the specter of deadlock and policy paralysis. On the other hand—at least in principle—more pluralist and negotiated forms of political decision making could help Pemex cope with coming adversities. It all depends on the quality of enterprise and government relations resulting from legislative reforms.

#### **IMPLICATIONS FOR U.S. -MEXICO RELATIONS**

Historically, Mexican energy policy—like many aspects of Mexican policy—is heavily conditioned by the proximity of the United States, and the resulting intense matrix of asymmetrical exchanges. Mexico’s energy goals must therefore be understood in the context of the U.S. -Mexico relationship. Following the upheaval of oil nationalization in 1938, Washington soon established a modus vivendi that gave the Mexican state considerable leeway to pursue a strategy of resource nationalism (including an inward-looking developmental model) in exchange for tacit assurances that U.S. national security interests would be respected. Thus, during the Cold War, Mexico served as a “buffer,” stabilizing U.S. security needs on its southern border. But after the fall of the Berlin Wall, this bargain was renegotiated. Mexico became a pivotal state to the United States—that is, a “pivot” strategic to the American interests. Mexico’s geopolitical positioning, political and economic evolution, and regional and international policies could potentially reinforce—or jeopardize—the pursuit of Washington’s various priorities. Energy relations have emerged as a major element in the geostrategic relationship of the two countries over the last few decades, but are expected to wane as an issue of importance in the coming years (Morales 2011b).

While U.S. -Mexico relations have been shaped by the fundamental asymmetry of power between the two countries, it should be stressed that the asymmetry does not imply that the United States can impose its will on Mexico. The energy sector, the subject of this study, is an illustrative case in point. In two important instances—the Mexican nationalization of the oil industry in 1938 and the negotiations leading to NAFTA—the United States ultimately yielded easily and unequivocally to the Mexican position (Barnes 2011). Moreover, the fundamental imbalance between the two countries exists within the context of increasing interdependence. Economically, the United States and Mexico have never been so closely intertwined. Trade across the 2,000-mile border is huge and much in Mexico’s favor. In 2009, a year of poor economic performance in both countries, Mexico’s exports to the United States were US\$177 billion; U.S. exports to Mexico were US\$129 billion. The United States has run a trade deficit with Mexico every year since 1994 (Barnes 2011).

Besides sustaining Mexico’s fiscal well-being, Mexican oil exports serve U.S. energy-security interests. All things being equal, sustained Mexican production enhances both the quantity and diversity of world supply. Moreover, since U.S. -Mexico relations are friendly, there is no risk, as with the case of increased oil production in “countries of concern,” for instance, that enhanced Mexican oil revenues will be put to purposes injurious to other U.S. interests (Barnes 2011). But as beneficial as Mexico’s oil exports to the United States have been, it is important to put the consequences of the projected decline in Mexican oil production into perspective. Mexico may be an important producer, but its petroleum output represents less than 5% of the world total. In terms of the Western Hemisphere, any decline in its production over the next 25 years is likely to be offset by increased production elsewhere in the region, notably in Brazil and Canada (Barnes 2011).

By way of yet another comparison: The projected decline in Mexican production is significantly less than the decline in North Sea production between 1999 and 2007. This is not to downplay the importance for the United States of volume and diversity of supply to world oil markets. It does suggest, however, that the slow decline of Mexican production over the next decade is unlikely to precipitate a crisis in international oil markets or for the United States in general (Barnes 2011).

There is, however, one set of circumstances in which this decline captures Washington’s attention. That is the extent to which it contributes to significant

instability in Mexico. In Mexico, petroleum production is only one sector of an economy that has failed to deliver broad-based, sustained growth. The importance of oil is, to a large degree, a manifestation of Mexico's inability to develop an adequate taxation regime; and, thus, the reforms that could be encouraged might go beyond the oil sector.

Consequently, while energy is no longer a major focus between the two countries, it remains strategic in the bilateral relationship by virtue of its importance inside Mexico and to Mexico's future. Critically at stake for the United States is Mexico's capability to consolidate its political, economic, and public safety reforms, as well as to achieve a new understanding through which U.S. strategic and security interests are preserved, and Mexican interests are understood and simultaneously respected.

### IMPLICATIONS FOR MEXICO'S FUTURE

The model of current politics appears dysfunctional, and would seemingly require a major crisis to break the deadlock. Mexico's policymakers will need to realign incentives to create a broader-based alliance focused on the sustained delivery of Mexico's underlying policy goals. In a more democratic setting, it could be the citizens of Mexico, rather than the state (acting on their behalf), providing the driving force for a long-run oil policy. If citizens were more directly connected to the benefits derived from these hydrocarbon resources, they might unite around policies designed to administer Pemex effectively. But to achieve this, the public must be better informed about the distributive outcomes of oil revenues under different policy scenarios. Rather than focus on the rhetoric of resource nationalism, a clearer debate is needed on the economic and social consequences of the status quo versus the harnessing of resource wealth that can be achieved under alternative distributional strategies.

The crisis alternative is only a possibility, rather than an inevitable outcome. One cannot discount that a crisis could arise as a consequence of world market turbulence, or disappointing returns from upstream investments, or from catastrophic losses that remain an inescapable risk for all segments of the oil industry. But there are standard strategies of risk management and mitigation available to help well-managed, modern corporations limit the damage from such contingencies. Pemex has made some progress in these areas, but the potential for such crises requires further work, and even

the best of practices will not guarantee immunity. Pemex is also vulnerable on other fronts that are more specific to its circumstances. There are risks of political destabilization and mismanagement, risks of corruption, or capture by vested interests. There is also the peril of gridlock arising from dysfunctional internal procedures. But in the absence of a call to arms, the logic of inertia can be expected to prevail, since the opponents of substantive innovation are so well entrenched. Moreover, there can be no assurance that a crisis would elicit a constructive response. To turn a crisis into an opportunity requires preparatory work to create a coherent reform strategy, together with some strong and effective leadership. The current Mexican political system generates such spaces quite infrequently, so a "good" crisis would have to occur in the right circumstances and at an opportune moment in the political calendar.

If Mexico is to continue to muddle through with strategies aimed at "coping with adversity" through incremental adaptations and strategic adjustments, the oil industry will continue to be reactive and defensive. Perhaps in this way, Pemex could, over the coming decade, succeed in maintaining stability, including some prospect of long-run recovery. However, the geological, economic, managerial, and security constraints make this a hazardous proposition. Even if all the big dangers were avoided, this would involve considerable under-performance when compared to the underlying goals of Pemex's ultimate owners, the Mexican public. It would leave the enterprise severely vulnerable to a wide variety of chronic adversities, including insurance risk, the losses that can arise from organized crime, inefficient oil sector cross-subsidies, unfunded pension liabilities, and the rent-seeking pressures from politicians (including state governors) and unions, as well as consumer demands for energy subsidies (Whitehead 2011). All of these can hold back the company from fulfilling its potential without necessarily bringing it down.

Coping strategies could include upgrading the existing institutional structure (perhaps by enhancing management autonomy along the lines successfully applied to the state-run Banco de México or the Instituto Federal Electoral, Mexico's election authority), while still holding the state enterprise politically accountable. Another critical area concerns budgetary control, whereby the budget law could be modified so that the federal authorities receive a dividend from the enterprise, instead of including the sales of Pemex under the rubric of "public sector revenues." This has been a strategy tried successfully

in Brazil (Whitehead 2011). There is also scope for further professionalizing and incentivizing Pemex management, for improving the transparency of its internal accounts, for upgrading its dilapidated infrastructure, for enhancing its attention to environmental sustainability (e.g. by curbing the “flaring of gas”), and for more systematic risk management. Finally, of course, the public security side of its operations may need reinforcement. These are all significant and potentially productive reforms and innovations, but they are partial and patchy reforms, rather than a radical overhaul.

But it is also possible that more clarity about alternative distributional strategies would engage the population more proactively with the reform of the oil sector, even before a crisis is apparent. To this end, greater analysis and transparency are needed on two fundamental issues: the current distribution of Mexico’s oil rent and how might it be better allocated. Drawing on his current work on resource dividends—and making use of some existing experiences, for example in Alaska, Bolivia, and Norway—Oxford University economist Paul Segal studied the regressive structure of Mexico’s current system of oil revenue allocation and compared it to the pattern that would prevail if every Mexican received a direct and equal share of the proceeds from his or her country’s oil receipts. The results of this theoretically grounded, but carefully measured, exercise are both surprising and thought provoking. If revenue shares were distributed directly to citizens as a resource dividend in cash rather than indirectly via government services, one result would be to completely eliminate the extreme poverty that still afflicted 16.5% of the Mexican population in 2008 (Segal 2011). Or the same rents could be distributed through universal entitlements to government services and social security, with similar effects. Overall income inequality as measured by the Gini coefficient, a commonly used measure of inequality of income or wealth, would decline by the substantial figure of 19%. Such findings are striking, and demonstrate that, in principle, the underlying aims of Mexico’s oil strategy might come closer to realization, were revenues allocated in a different fashion. While it is clear that practical issues stand in the way of Mexico choosing to simply distribute oil revenues as a one-time annual pay to citizens as is currently done in the state of Alaska, understanding the current division of these rents under the existing system is informative. An alternative vision does offer a powerful incentive for the voters of Mexico to rally around good stewardship of their shared subsoil resources. Segal’s

analysis shows that the net effect of the fiscal system in 2006 was to transfer entitlements to the wealthiest 10% of the population, rather than those who were more in need of assistance. A different system that distributed the benefits of oil-financed public services in a manner that reached a greater segment of the population might leave the country’s voters less tolerant of the role that vested interests play in preventing more productive strategies. Moreover, the possible costs of a continued political stalemate on oil reform for average Mexican citizens could be quite large—an argument again that the average man on the street in Mexico should be less indifferent to the inefficiency and lack of competitiveness in the sector. Were Pemex able to fully exploit its oil potential in line with international standards and technology, Mexican citizens would have the benefit of US\$1,055 per capita per year by 2020—instead of US\$546 per capita per year in 2020 under conditions where current oil field exploitation policies and inefficiencies were to remain in place.

Under democratic conditions, understanding and quantifying the costs could help to legitimize beneficial but otherwise unattainable reforms. There is great strength in reaffirming the powerful collective aspiration: *El petróleo mexicano pertenece al pueblo mexicano*.

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