Chapter 16

Latin America

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Latin America’s status as a commodity powerhouse is nothing new. What is new is what the Latin American countries are producing and who is producing it. In recent years, Latin American countries—Brazil in particular—have discovered vast new reserves of oil and gas, transforming the region and world energy markets. New energy leaders such as Brazil, Colombia, and Peru have emerged, while traditional pacesetters such as Venezuela, Mexico, and Argentina have struggled with declining production amid rising domestic demand.

Latin America has the second-largest oil reserves in the entire world, and those reserves are among the world’s most promising sources of new production in the decade ahead. This development has profound implications for the region and for the United States. World energy demand is projected to grow by almost half by 2030, and Latin America will have to play an ever-greater role in meeting the energy needs of its own growing middle class and of people around the world.

The United States already imports over one-quarter of its oil from Latin America, and this robust energy trade will likely continue for many decades to come. If you combine Latin America’s capacity to grow its energy exports with massive new shale gas finds in the United States and the expanded development of Canada’s substantial oil sands deposits, you will see a potential that was unthinkable just a few years ago: a *United States that is mostly energy self-sufficient, with the overwhelming majority of our energy imports coming from partners in the Western Hemisphere.*

That is an eventuality that every American should welcome, although perhaps not for the reason that many think. “Energy independence” is an idea with great political salience but much less real-world relevance. After all, whether the United States purchases a barrel of oil from Saudi Arabia, Canada, or Colombia does not really matter, because oil is a fungible global commodity. But there is great value in the United States building stronger trade and investment ties with its neighbors, and no more promising area exists for cooperation than energy. A thriving Latin America is manifestly in the US interest. More opportunities for Latin Americans equal more jobs and trade within and between our nations and more stability for the entire region. And despite all of Latin America’s progress, plenty still needs to be done.

Income inequality in Latin America is among the highest in the world, and 100 million Latin Americans still rely on traditional biomass such as firewood to meet their basic energy needs. Latin America needs substantial investments in its infrastructure, including $3 trillion in investment in the energy sector, over the next five years. That amount is more than Latin American investors and governments alone can provide. But the investment must come from somewhere because Latin America needs more secure and affordable energy to export and to fuel the vehicles, homes, and businesses of its emerging middle class.

The good news for Latin America is that the energy resources are there. Aside from its vast oil and gas reserves underground, Latin America also has immense energy capacity aboveground. Of Latin America’s energy, 28 percent comes from hydropower—more than four times the global average—and the region possesses significant solar and wind energy potential. But having resources is no guarantee that a country will benefit from them. Capitalizing on natural resources requires policies that welcome competition, regional integration, and foreign investment and technical expertise and that resist the temptations of protectionism and overbearing state control. Fortunately, many countries in Latin America have followed the former path for the past few decades.
But implementing policies favorable to foreign investment has always been a delicate balancing act in Latin America for entirely understandable reasons. I have traveled extensively to the region for more than 20 years and have become well acquainted with the deep sensitivities that Latin Americans have about historical imperialism and foreign participation in their energy industries. And in recent years, states such as Argentina, Ecuador, and Bolivia are again asserting more state control over their energy resources. Venezuela, of course, has nationalized key parts of its oil industry and has implemented oil-royalty regimes and rules that are often unappealing to international companies. But Latin America stands a much better chance of capitalizing on its energy abundance in the 21st century if it can move beyond the historical baggage of the 19th and 20th centuries.

Although Latin America does have a fraught history with outsiders, international companies are essential partners in modern energy exploration. Recent studies by Ramón Espinosa at the Inter-American Development Bank reveal that Latin American countries with comparatively open energy sectors, such as Colombia, Peru, and Brazil, have enjoyed substantial increases in energy investment and production in the wake of rising oil prices, whereas those with more state involvement have gone mostly in the opposite direction. It is not hard to see why, because energy exploration is a capital-intensive (operating just one deepwater rig can cost more than $350 million a year) and complicated process that requires the best talent and resources from around the world. Very few countries are capable of conducting energy exploration entirely on their own.

As Latin American countries seek continued opening, the United States can be a constructive partner. It already has deep cultural and commercial ties. The United States has 50 million Hispanics and that population is growing, and its trade with Latin America grew faster than its trade with both Asia and Europe over the past decade. There is immense untapped potential for energy cooperation. US companies have capital and scientific and engineering expertise, which can be an essential complement to Latin America’s energy development, especially as ambitious deepwater exploration pushes technological boundaries.

The US government and US companies must approach these potential partnerships with the utmost respect and humility. Where reformers seek more openness and integration, the United States should support and encourage them. But it is not the role of the United States to give directives to anyone. As President Barack Obama said at his first Summit of the Americas meeting in Trinidad:

We have at times been disengaged, and at times we sought to dictate our terms to Latin America. But I pledge to you that we seek an equal partnership. There is no senior partner and no junior partner in our relations.

Building this new partnership will require American policy-makers to take a more holistic and strategic view of US relations with its southern neighbors. Too much of the discussion in Washington revolves around narrow issues such as narcotrafficking, the machinations of the Castro brothers in Cuba, or battles over bilateral trade deals. These issues are undoubtedly important, but Latin American energy issues should be consuming an ever-greater share of US attention, especially as many critical issues come to the fore in 2013 that will determine whether Latin America continues down the path of energy sector liberalization:

- Brazilian geologists have made the biggest oil discovery in the Western Hemisphere in three decades, but can the oil be reached, how much will foreign companies be allowed to help, and which regions of the country will share the spoils?
- In Mexico, a new president will try to reform the country’s constitution to open its oil sector for the first time since 1938, but can he overcome the vested interests that have stymied reform in the past?
- In Colombia, historic market reforms have led to more energy development and production and enabled the country to punch well above its weight in energy reserves in world markets. Will other countries follow Colombia’s lead, or are recent moves by Argentina and Bolivia to assert more state control over their energy resources evidence that the Venezuelan model is gaining new appeal?
- Latin America has been a global pacesetter in developing renewable resources such as hydropower and ethanol. The region also has immense wind and solar power potential, but can this potential be translated into production?

These questions and others will ultimately be answered by Latin Americans, and I will attempt to provide some clarity on what they might decide and how the United States can play a constructive role.

Brazil

Any discussion of Latin America’s rise as an energy titan must begin with Brazil, the region’s most populous country and the recipient of a recent oil
and gas windfall that has transformed regional and world energy markets virtually overnight. The speed and scale of the change that has occurred is hard to overstate. Brazil has long been a major commodities producer, and it is the world’s biggest exporter of beef, coffee, sugar, and orange juice. But it never produced much oil or gas, with its effect on world energy markets mostly limited to the export of sugarcane ethanol. As recently as 1997, a full two-thirds of Latin American oil imports went to Brazil.

But in 1997, Brazil commenced a historic opening of its energy sector, setting up a concessions system in which the state oil company, Petrobras, would provide competitive bidding opportunities to international companies for exploration and production rights. The energy sector was further liberalized when Brazil deregulated oil and derivative prices in 2002. This opening had two salutary effects. First, it attracted significant amounts of foreign capital and technology to help Brazil discover and develop new energy reserves. And second, it brought a market discipline that enabled Petrobras to become a vastly more efficient and productive company. The results speak for themselves. When Brazil’s oil market was liberalized in 1997, the country was producing about 840,000 barrels of oil per day. In 2011, Brazil produced 2.1 million barrels per day.

But the development that turned Brazil from a significant energy player into a true energy powerhouse occurred in 2007, when Brazilian geologists made the biggest oil find in the Americas since the discovery of Mexico’s Cantarell field in 1976. The presalt oil fields—thus named because they sit under a thick layer of salt deposits in Brazil’s offshore Santos basin—cover an area the size of the state of New York and contain anywhere from 50 billion to 200 billion barrels of oil.

Although the presalt areas are responsible for only about 6 percent of Brazil’s current oil production, their immense potential has led some experts to predict that Brazil could be producing more oil than Venezuela by the end of the decade, even though Venezuela has the biggest oil reserves in the world. But getting to these reserves will be a significant challenge. The presalt deposits sit under 18,000 feet of water, salt, sand, and rock, with many deposits so far out to sea that platforms need to be built midway between the coastline and the drill rig to house workers. This situation is akin to building a base camp before scaling a mountain peak, and it is just one reason that one commentator called the presalt development “by far the biggest industrial undertaking in Brazil’s history.”

Presalt development will ultimately be a test case for Brazil’s commitment to openness in its energy sector. Brazil’s recent discoveries were spurred in part by liberalization that brought in more foreign companies to explore. But Brazil has exerted tighter state control ever since the presalt discovery, creating a state-owned enterprise, Petrosal, to contract out the exploration and production of the fields. Brazil is also requiring the state oil company, Petrobras, to maintain a 30 percent ownership stake in every contract and is mandating the purchase of at least 65 percent of its inputs—such as tankers and drilling rigs—within Brazil.

Petrobras is undoubtedly a world-class company with considerable expertise in deepwater drilling. It is active in 23 countries and fresh off a $70 billion initial public offering, the largest in history. Moreover, the company is putting ample capital behind this and other exploration projects, having recently unveiled a five-year, $225 billion investment plan. But concern is growing that Petrobras may be stretched too thin, with early reports emerging of difficulties finding sufficient suppliers of infrastructure such as drilling rigs and pipelines within Brazil.

Finding sufficient technology, capital, and scale to develop the presalt fields is not the only challenge. Brazil still has not resolved a contentious debate over dividing royalties from presalt oil production—with states like São Paulo, Rio de Janeiro, and Espírito Santo angling to keep most royalties in the area where they are produced, and other regions fighting for the royalties to be paid into a national fund. As a result, oil concession auctions that were initially scheduled for 2011 have been pushed back to 2013.

Energy exploration has become a high-stakes enterprise for Brazil, and that situation has unfortunately resulted in resurgence nationalism and hostility to foreign energy companies in some quarters. Private companies and some members of the Brazilian government alike were taken aback by the politicization of the November 2011 Frade incident, in which some 3,700 barrels of crude oil seeped into Brazil’s offshore waters.

The Frade oil spill was, by almost any measure, a minor one that resulted in virtually no damage to fish, wildlife, people, or property (for comparison, the spring 2011 Macondo oil spill in the Gulf of Mexico released 4.9 million barrels of crude oil). Yet Brazilian authorities took drastic action against the international energy companies involved in the spill by impounding passports, suspending operating rights, and pursuing multibillion-dollar civil fines and criminal charges. This overreaction has led some to wonder whether international companies will take the risk of exploring Brazil’s presalt oil fields if the reward is limited by a more activist Brazilian government and the threat of severe punishment for mishaps.
Despite the unfortunate Frade incident, I believe Brazilian leadership understands the essential role that international companies have in developing the country’s reserves for the benefit of the Brazilian people. And the presalt oil fields remain a promising opportunity for companies with the capital, technology, and long-term time horizon to stay the course. To date, Brazil has effectively struck a middle path with its energy sector, maintaining state control over key resources while still keeping a regulatory framework that allows reasonable competition and providing major state enterprises such as Petrobras the independence to make largely market-based investment decisions. The coming months will provide fuller clarity on whether Brazil intends to stick with this middle course—a course that has served it well over the past decade—or whether it will move to assert fuller state control over its energy assets.

Mexico

While Brazil continues to debate how much to open its oil and gas sector, Mexico is in the middle of a historic debate over whether to open its oil sector at all. Since 1938, foreign oil firms have been constitutionally prohibited from ownership of any oil that they produce, which has severely curtailed foreign participation in Mexico’s energy sector.

But that could soon change as Mexico and its state oil company, Petróleos Mexicanos (PEMEX), face significant declines in production and in revenue. Since 2004, PEMEX’s oil production has dropped from 3.2 million to 2.5 million barrels per day, and the company lost $7.4 billion in 2011, its fifth consecutive annual loss. Because PEMEX is responsible for 32 percent of Mexican government revenues, this situation is untenable for the Mexican leadership. It has obvious implications for the United States, as well, because Mexico is the second-largest source of US oil imports.

PEMEX’s production is not falling because of declining reserves—quite the contrary. Mexico’s former energy minister has estimated that the country has 50 billion barrels of potential oil reserves in the Gulf of Mexico—more than twice its current reserves. Mexico also has the world’s fourth-largest shale gas reserves. Unfortunately, PEMEX is suffering from years of insufficient capital investment and limited offshore drilling expertise. PEMEX, like many state-run oil companies, has to serve two masters—the state and the market—which often have diametrically opposed priorities.

PEMEX’s budget is set by Mexico’s congress, and its revenues are used to fund everything from education and infrastructure to the combating of narcotics trafficking. They are also used to employ 140,000 politically powerful union members. The upshot is less money for energy investment and exploration.

But change is afoot. In 2011, Mexico opened licensing for performance-based oil contracts to foreign oil companies. And in early 2012, Mexico and the United States signed the Transboundary Agreement, approved by the US Congress in 2013, which, when implemented, will enable them to share communications, training, personnel, equipment, and technology expertise in exploring the 1 million-acre-plus international maritime boundary between the two countries in the Gulf of Mexico.

Mexico’s new president, Enrique Peña Nieto, has pledged to go even further. Before he was elected in 2012, he said that PEMEX “can achieve more, grow more, and do more through alliances with the private sector.” He called for abandoning an ideology that has “stopped us from taking a much more audacious step in the greater opening up of the energy sector.” Because Peña Nieto is the leader of the Institutional Revolutionary Party (Partido Revolucionario Institucional, or PRI)—the party that initially nationalized Mexico’s oil industry—he may have the credibility for a “Nixon to China” moment, especially with the opposition National Action Party (Partido Acción Nacional, or PAN) also expressing some openness to energy sector reform. Indeed, the PRI took a promising step forward in March 2013 when it agreed to drop its longstanding opposition to the constitutional energy sector reforms being sought by Peña Nieto.

But this energy sector opening will still not be easy, because Mexico’s oil industry is the locus of significant nationalist fervor. The March day in 1938 when President Lázaro Cárdenas kicked out foreign oil companies is still celebrated as a national civic holiday. Moreover, any change to the Mexican constitution requires a two-thirds majority in the Mexican Congress, and Peña Nieto cannot get that vote without significant cooperation from the PAN or the Party of the Democratic Revolution (Partido de la Revolución Democrática, or PRD). Mexico’s trade unions are a powerful force that has often been resistant to changes in the energy sector and will have a lot to say about any future reform. Still, if Peña Nieto can push reform through, a good possibility exists for constructive partnership between PEMEX and international companies. PEMEX has joint oil ventures with international companies—just not in Mexico. In fact, PEMEX is a
co-owner with Royal Dutch Shell of a refinery in Deer Park, Texas, that processes 340,000 barrels of Mexican oil a day.40

Time is of the essence. Absent reform, Mexico could become a net oil importer by 2020—an almost unthinkable prospect just a few years ago. And new production in the Gulf of Mexico could take 10 to 15 years to come online.42 Mexico’s political leaders have made a bold pledge for reform. I believe they will ultimately prevail in their efforts because a growing majority of Mexico’s leadership realizes that the current oil sector arrangement is simply unable to meet the current and future needs of the Mexican people. Now, the world will have to see if Peña Nieto can follow through.

Colombia Showing the Way Forward, and Venezuela, Argentina, Bolivia, and Ecuador Sliding Back

Fortunately, Latin American countries that want to open their energy sectors can find excellent case studies among their neighbors. Peru has gradually opened up its mining, oil, and gas sectors since the 1990s and achieved spectacular results.42 Peru now has more than 50 foreign oil companies engaged in exploration, which has helped add approximately 50 million barrels of proven reserves in each of the past two years. Its natural gas production has also been rising rapidly since 2004.43 Although Chile is one of the most energy-poor countries in South America, it has one of the region’s richest economies, thanks in part to its openness to trade and investment, particularly in its thriving mining sector, which has helped Chile become the largest exporter of copper in the world.44 But Colombia is the country that stands out as a true exemplar of forward-thinking energy reform. It has the largest coal reserves in South America and is the largest source of US coal imports. But unlike its neighbors Brazil, Ecuador, Venezuela, and Peru, Colombia is relatively oil and gas poor, with only 1.9 billion barrels of proven crude reserves.45

Nonetheless, Colombia has added as much new crude oil production as Brazil over the past five years, increasing its output by 450,000 barrels a day to almost a million barrels daily.46 This production spurt has coincided with the most significant energy sector opening in Colombian history. Although the state oil company, Ecopetrol, is the largest oil producer in Colombia, it competes and partners on a relatively level playing field with 70 other international energy companies.47

Under former president Álvaro Uribe, Colombia took a series of steps to become more attractive to international investment in its energy sector, offering tax breaks and attractive royalty terms and allowing foreign companies to own 100 percent stakes in oil ventures. The result has been a drastic increase in foreign direct investment in Colombia’s oil sector, rising from $278 million in 2002 to $4.3 billion in 2011.48 Colombia also authorized Ecopetrol to sell shares in public markets, which has helped increase the company’s capital spending by a factor of four.49 These investments have bought new technology, opened new frontiers for exploration, and created optimism that Colombia can add significantly to its current reserves in the future.

If Colombia is pointing a constructive path forward for the region on energy, Venezuela has unfortunately moved in the other direction since the late Hugo Chávez assumed power in 1999. Venezuela certainly has the resources to be a preeminent energy producer, with oil reserves even larger than Saudi Arabia and the second-largest natural gas reserves in the Western Hemisphere behind the United States.50 But Venezuela’s petroleum exports have dropped 50 percent since 1997, in large part because of its hostility to foreign companies and chronic mismanagement and mislocation of resources at the state energy company, Petróleos de Venezuela (PdVSA).51

After taking office, President Chávez nationalized key parts of the Venezuelan energy sector and chased out much private capital and expertise with unattractive tax, royalty, and regulatory policies. In 2007, Chávez made a public show of having the Venezuelan army seize the massive oil fields at Faja, saying at the time that the move represented the “true nationalization of our natural resources.”52

PdVSA has assumed a more central role in the Venezuelan energy sector but has been unable to effectively explore for new reserves or increase existing production. In 2002, President Chávez fired 18,000 PdVSA employees for political disloyalty—many of them talented engineers and managers—and the company and the country have never quite recovered.53

PdVSA is a direct extension of the Venezuelan government. Its revenues have been used to fund everything from agricultural and food programs to generous energy subsidies that account for 8.3 percent of Venezuelan gross domestic product.54 Despite these assistance programs, the Venezuelan people have seen dubious benefits and often face fuel shortages. Many Venezuelans are justifiably angry that the country is forced to import vast quantities of refined petroleum and natural gas despite sitting on some
of the most ample energy reserves in the world. President Chávez also used PdVSA to buy political influence throughout the region, sending hundreds of thousands of barrels of discounted oil a day to Central American and Caribbean countries, including, notably, Cuba.

All this spending leaves precious little for badly needed investment. Whereas Brazil’s Petrobras is investing $45 billion a year in new technology and infrastructure, PdVSA is investing less than one-quarter of that amount. This underinvestment has led to a precipitous decline in safety protections for Venezuelan oil workers, as evidenced by the explosion at Venezuela’s largest oil refinery in August 2012 that killed 42 people. Despite the denials of Venezuelan government officials, independent analysts maintain that mismanagement and deferred maintenance at the refinery are the primary culprits for the accident. Venezuela’s underinvestment in its energy sector has also led to a predictable drop in Venezuela’s oil production, decreasing from 3.15 million barrels of crude per day in 2000 to just 2.15 million barrels per day a decade later.77

If Venezuela were to open its energy sector, it would likely significantly expand its production in relatively short order. International oil companies do continue to operate in Venezuela, and they have the local knowledge and the scale to restore robust exploration and production. Venezuela did have a brief opening in the 1990s before President Chávez took over. But reforms in Venezuela’s energy sector are unlikely in the near term. Although Chávez passed away in March 2013, his handpicked heir, Nicolás Maduro, is a committed chavista and has given no indication of planning to rethink seriously the country’s approach to energy development. The people of Venezuela and the world will have to wait for either a recount or a future election—and likely a new leader—for the country potentially to change course.

Despite Venezuela’s precipitous decline in energy production in the wake of nationalization, other countries in the region have recently shown troubling signs of following in its footsteps. In Argentina—South America’s largest natural gas producer and a significant producer of oil—President Cristina Fernández de Kirchner seized in 2012 a majority stake in the state energy company, Yacimientos Petrolíferos Fiscales (YPF), from the Spanish company Repsol.79

Argentina is seeking to reverse a precipitous reversal that has seen oil output drop by 27 percent from 1998 to 2010 and gas production drop 10 percent since 2004.80 But the YPF seizure is unlikely to work, especially if Argentina maintains its counterproductive policies. Heavy energy sub-

sides have made natural gas and electricity over 70 percent cheaper in Argentina than in its neighbors, causing a predictable spike in demand that often leads to energy rationing in winter months.81

Argentina’s energy sector needs significant investment, but the country has largely been shut out of international debt markets since its economic crisis in 2001. And it is important to note that even before the YPF seizure, international investment had begun to chill in Argentina in response to a series of protectionist policies. For example, Argentina instituted a heavy-handed effort to balance its trade by forcing companies to match their imports with exports, leading in one case to automotive importers having to export soya and wine.82 Absent a reevaluation of policy, Argentina will likely find attracting the necessary foreign technology and investment to take full advantage of its ample energy reserves very difficult.

In Bolivia—which has the second-largest natural gas reserves in Latin America—President Evo Morales expropriated in 2012 the country’s electricity distribution company from a Spanish company.83 This incident followed the nationalization of Bolivia’s oil and gas sector in 2006.84

And in Ecuador—which holds Latin America’s third-largest oil reserves behind Brazil and Venezuela—the government recently passed a new hydrocarbons law allowing only fixed-rate service agreements for foreign oil companies. Such agreements are much less appealing to prospective investors.85

Unfortunately, Latin American countries that choose the path of stronger state control tend to achieve disappointing results. Too much money gets diverted from investment into politically motivated spending, which ultimately leads to less production, less energy for citizens, and a less dynamic economy. The United States can only hope that more of these countries will reconsider their course of action and look toward the positive examples of countries such as Colombia, Peru, Chile, and even Brazil, which, despite some missteps, is generally headed in the right direction.

Renewables: Can Potential Translate into Production?

Although significant hydrocarbon finds justifiably dominate the energy headlines in Latin America, the region is not without substantial renewable resources. The challenge is for countries to develop a policy and investment climate to help emerging sectors such as wind and solar achieve scale.
Latin America’s most dominant renewable resource is hydropower, which provides 65 percent of the region’s electricity. Although hydro-energy produces no carbon emissions, it can have serious drawbacks, including deforestation, negative effects on fish and wildlife, and displacement of indigenous people. These problems help explain why numerous proposed dam projects—including the $13 billion Belo Monte Dam in Brazil65 and a $4 billion dam on the Inambari River in Peru66—have recently been delayed by courts, regulators, and activists.

Ethanol continues to be a significant transportation fuel in Latin America, although the main producer, Brazil, has slowed its output in recent years as resources and attention have been diverted to oil and gas exploration.67

As for solar and wind, the potential is undoubtedly there. The Atacama Desert in Chile has strong and sustained sunlight, making it an ideal location for solar power,68 and the Patagonia region of Argentina is a promising wind corridor.69 But these sources are still more expensive than traditional sources of energy and are often situated far from population centers.

Renewable energy in Latin America also has its own unique hurdles, including a lack of available capital and robust supply chains and prohibitive import barriers. As a consequence, Latin America attracted only 5 percent of the world’s new investment in clean energy projects in 2011.70

Renewables could assume a greater share of Latin America’s energy output in the near future if the region’s governments made more public investments and took more steps toward regulatory reforms to attract private capital. But for the foreseeable future, oil and gas development will likely be the focus of governments across the region.

Continuing on the Path to Openness

A survey of Latin America’s energy landscape reveals that the debate in the years ahead will center on how to harness most effectively the region’s significant new finds of oil and gas. Recent years have given us compelling evidence that embracing openness, competition, and integration in the energy sector offers the best chance for Latin American countries to meet the energy needs of their people and to grow their economies. But this finding hardly guarantees that Latin American nations will embrace this path, because the region’s energy sector continues to be influenced by historical, political, and nationalistic considerations just as much as economic ones.

The United States needs to strongly support countries and reformers in Latin America that embrace openness, and it needs to reciprocate with continued liberalization of its own. The recent free trade agreements with Panama and Colombia and the elimination of tariffs on Brazilian ethanol are great examples, and the United States should keep moving in that direction. The United States is already playing a constructive role in Latin America, most notably through foreign direct investment. The United States invests more in the region than does any other country. And although the region has seen increased investment flows from other countries, such as Russia and China, the United States remains far ahead. To cite just one example, the United States has invested $105 billion in Brazil as of 2010, 13 times as much as China has invested.71

US policy-makers should make every effort to deepen our energy relationship with the region, up to and including the pursuit of a comprehensive Energy Compact of the Americas, which would feature more formalized cooperation, investment, and research and technology sharing in the energy arena. A similar idea was proposed in 2010 by then-Senator Richard Lugar,72 and it remains a laudable goal even if the backsliding by major players in the region such as Venezuela and Argentina make it a more distant one.

The United States should continue to do the hard diplomatic work of creating a framework for hemispheric energy cooperation, with the hope of attracting new energy partners whenever they are ready to open themselves to the world. Latin America’s energy abundance has the potential to deliver more security, stability, and prosperity to the entire Western Hemisphere, and the United States must do everything it can to help Latin America turn that potential into reality.

Notes

17. Millard and Orithuela, “Petrobras Looks Past Lula for Next Big Find.”
24. “It’s Only Natural.”
26. “It’s Only Natural.”
34. Krauss and Malkin, “Mexico Oil Politics Keeps Riches Just out of Reach.”
36. Krauss and Malkin, “Mexico Oil Politics Keeps Riches Just out of Reach.”
40. Krauss and Malkin, “Mexico Oil Politics Keeps Riches Just out of Reach.”
41. Krauss and Malkin, “Mexico Oil Politics Keeps Riches Just out of Reach.”
44. Kelly Cregg and Randy Woods, “Top Copper Producer Chile Sees Prices Staying High as China Economy Cools,” Bloomberg, May 25, 2011.
48. “Gushers and Guns.”
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50. EIA, “Venezuela.”
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55. Allen, “Report from 29th Annual Journalists and Editors Workshop on Latin America and the Caribbean.”
63. Cala, “Brazil Tested by Latin America Energy Populism.”
Since the 2005 edition of this book, and given the intervening years of obvious instability in governments, markets, and business conditions, one can point to a number of things that have not changed. These variables will dominate outcomes in the years ahead and considerably affect the energy security conversation.

- Continental drift did not accelerate. The geological and geographic distribution of continental margins and sedimentary basins around the world remains the same even though major, traumatic natural events have caused enormous disruptions in energy markets.
- The richness of major sedimentary basins also remains the same. Nothing has happened to reduce or alter the presence of hydrocarbons and other energy resources in the Earth’s crust or our understanding about the occurrence and distribution of energy resources worldwide. We keep demonstrating through resource assessments and research that fossil fuels in various forms are abundant, and we keep finding cleaner and more