



Mexico's Energy Revolution Series:

A Liberalized
Electricity Sector

APRIL 2015



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ManattJones’ “Mexico Energy Revolution Series” provides an overview of the country’s 2013–14 energy reform, one segment at a time. While every installment offers a general synopsis of the overall process and the significance of the transformation, the division allows the reader to gain specialized insights on policy and business opportunities tailored to a particular sector, without the distraction of other parts of the complex reform process.

The three-part series begins with the emblematic changes to oil and gas exploration and production activities, aimed at significantly increasing Mexico’s oil revenues by opening up opportunities for the private sector.

It is followed by an analysis of the liberalization of the electricity sector, intended to lower electricity rates, increase productivity and serve as the linchpin of the government’s economic growth strategy. Special attention is given to the development of power generation from renewable sources, an area we consider to have tremendous potential.

The series concludes with an overview of the changes introduced to the midstream sector, particularly the ambitious expansion plans for the country’s natural gas pipeline system—a cornerstone for achieving the electricity reform’s objectives.

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Unless otherwise cited, this paper is based on a direct analysis of the relevant legislation and of public documents from the Ministry of Energy and the Federal Electricity Commission.

“It is not an exaggeration to call Mexico’s energy reform revolutionary Over time these changes should translate into cheaper electricity for Mexican consumers and business[es], which could dramatically enhance the productivity of the country’s already ascendant manufacturing base.”¹

—Michael C. Camuñez, President and CEO,
and Pamela K. Starr, Senior Advisor,
ManattJones Global Strategies

Introduction

The scope of Mexico’s 2013–14 energy reform is unprecedented. It touches legal, financial and operational aspects of upstream, midstream and downstream activities for the oil and gas sector. Likewise it significantly overhauls the institutional scaffolding surrounding the operation and regulation of electricity generation, distribution, transmission and retail. As a result, the Mexican energy industry will move from being vertically integrated, commanded through state entities and rather closed to foreign investment, to being governed by principles of competition, where foreign capital will be not only welcomed but encouraged—even if the state, and the state-owned enterprises, continue to play a leading role.

The reform is the culmination of a long and complex legislative process to dramatically modify the policy framework in which the country’s state-owned energy sector has operated for decades. The process began in 2013 with the presentation, discussion and eventual passage of a constitutional amendment to lift most of the restrictions on

private investment as well as introduce new institutions and legal definitions to create an improved regulatory and operational framework for the sector. The amendment was signed into law on Dec. 20, 2013. Subsequently came the implementing (secondary) legislation, a massive set of legislative changes to 21 laws (nine of them new), spelling out the details of the institutional overhaul. These legislative packages were signed into law by President Enrique Peña Nieto on Aug. 11, 2014.

The reform represents an energy rebirth for Mexico, yet it is only the first step. As with all ambitious policy changes, setbacks should be expected throughout the implementation process, so adjustments will be necessary. Moreover, Mexico is notorious for having superb, world-class laws, whose effective application does not always materialize. Therefore, success will depend ultimately on the ability of all players—the regulatory agencies, public system operators, state-owned enterprises and private parties—to provide timely feedback to correct any regulatory or market deficiencies that become apparent only over time.

One thing is certain though: Energy reform has opened up enormous potential for investment and economic development in Mexico and, with it, an opportunity for a stronger North American integration that would make the region more competitive and prosperous.

The opening of oil and gas exploration and production to the private sector (covered in the series’ first paper) is certainly emblematic. Nevertheless, from

a business and economic perspective the reform to the electricity sector is perhaps the linchpin of the energy agenda and the government's overall economic development strategy. This paper is dedicated to its analysis.

Electricity rates in Mexico are, on average, 25 percent higher than those in the United States; 73 percent if subsidies are removed.² While the majority of domestic users are shielded from this burden, the industrial sector and parts of the commercial sector are not. This creates a drag on important segments of the economy, in turn hampering the country's economic growth. By fostering the conditions to obtain a lower-cost and more abundant supply of electricity, the government hopes to increase Mexico's manufacturing competitiveness and, as a result, achieve economic growth.

Like other issues in the series, this paper begins with a policy overview explaining the main institutional architecture changes introduced by the reform. It is followed by a more in-depth explanation of how the intended structure will impact the different phases of the electricity supply chain. Afterward, the paper provides a special note on renewables, a sector we identify as particularly promising, not only given the Mexican government's commitments, but also due to the privileged geographic position that endows the country with abundant resources, especially solar. Finally, it concludes with an overview of possible business opportunities in the sector.

A Revamped Institutional Architecture

The policy changes to the electricity sector are grounded in amendments to articles 25, 27 and 28 of the Constitution, which narrowed the scope of activities to be defined as a public service, thus ceasing to be the responsibility of the state. While planning and control of the National Electricity System (i.e., the transmission and distribution, or T&D, network) remain under the exclusive purview of the government, hurdles to private generation were removed, fully opening the sector for investment opportunities.

On retailing, the other end of the spectrum sometimes referred to as commercialization (since it involves the direct selling to consumers), private suppliers will be able to compete in the market for "qualified users," defined as those who surpass a consumption threshold established by the Ministry of Energy (SENER).³ Meanwhile, the government, through the Federal Electricity Commission (CFE), retained responsibility for providing the public basic service of transmission and distribution, meaning all those below the consumption threshold or who for other reasons are not classified as qualified users. These include residential consumers as well as many small and midsize firms in the commercial and agricultural segments. CFE will also be able to compete for qualified users, though.

Moreover, similar to oil and gas exploration and production, where the government can enter into contracts with private parties to perform such duties even though ultimate ownership and control of the resources lie with the state, so will the state be able to

offer public tenders in order to grow, operate or maintain parts of the T&D network.

Nevertheless, simply removing constitutional restrictions to allow for private investment does not immediately translate into an effective and efficient market, especially in a country like Mexico where all aspects of the value chain, as well as the operational control over the grid, had been concentrated in CFE. The institutional design prior to the reform was such that there was a perpetual conflict of interest and bureaucratic overlap, not only inside CFE but also between it and other government authorities. Before the reform, regulation of the energy sector was conducted from agencies within SENER, which prevented a clear demarcation between the authority responsible for designing the government's energy policy and the regulatory entities in charge of promoting an efficient and fair operation.

The reform seeks to resolve this by separating and clearly defining the responsibilities for the different players. The Ministry of Energy will assume its unquestionable role as the energy sector's chief architect and ultimate authority, setting and coordinating policy matters for the sector. Meanwhile, the Energy Regulatory Commission (CRE) will become an independent regulator; as such, it will be responsible for granting permits, issuing fee schedules, and authorizing contract models between the generators and the wholesale market participants, among other matters. CRE will coordinate its efforts with SENER, but will not report to it; in other words, there will be checks and balances.⁴ In addition, CFE, although state-owned, will be transformed into just another private company (State

Productive Enterprise), with its generation, transmission and distribution, and retail areas spun off into independent subsidiaries to prevent anticompetitive practices.

Another crucial change, and perhaps the most important, is in regard to the grid operator: the National Energy Control Center (CENACE). Previously the letter of the law allowed private parties to generate electricity through somewhat restrictive legal regimes; in practice, however, the demand was further constrained by CFE's contracting capacity. Hence, the fact that CENACE, the country's sole dispatcher, was also part of CFE exacerbated the situation even more. The reform addressed this conflict of interest by removing CENACE from within CFE, granting it autonomy to serve as an independent and impartial dispatcher, and giving it the mandate to operate the wholesale market being created.

Yet the importance of CENACE's independence goes beyond the grid's operation; it will also positively affect the network's future expansion by removing barriers to entry. Previously, with expansion plans being decided from within CFE—naturally favoring its existing infrastructure—and with private generators having to bear the brunt of the costs for unplanned expansion projects, there were no incentives for a significant growth of the T&D network. Now, while CENACE will be in charge of evaluating interconnection requests and carrying out transmission planning studies—based on its technical expertise as an independent dispatcher—SENER will have the ultimate authority for approving the network's expansion plan. Meanwhile, with CRE providing an

opinion from a competition perspective and guaranteeing fair access to the network, the whole interconnection process should become impartial and transparent.⁵

These architectural changes serve to align the interests of the different parties, which in turn should lead to a more competitive market with lower electricity rates and more economic development for the country. Yet from a political perspective it is important to place this in the context of the government's promise to lower electricity rates for the population as a whole, which will present an interesting, if not impossible, challenge. While the reform has the potential to lower electricity costs for major consumers, it will not be noticeable by the population unless any gains from lower production costs are passed on to users instead of being utilized to reduce the amount of subsidies.

The above is the case because 88.6 percent of CFE's users are domestic and, out of these, over 98 percent already enjoy subsidies. On the other hand, industrial clients, which represent less than 1 percent of users but consume 59.6 percent of the country's electricity, as well as large commercial users, who represent 9.8 percent of consumers while utilizing 6.6 percent of the electricity, stand to gain significantly from the reform.⁶ Under the new legal regime, these users will be able to access the wholesale electricity market, allowing them to leave CFE, which currently charges them 5–11 percent above unsubsidized prices.⁷ Therefore, it is here that the lower electricity costs expected from the reform should have a positive impact that could spur economic growth by increasing productivity.

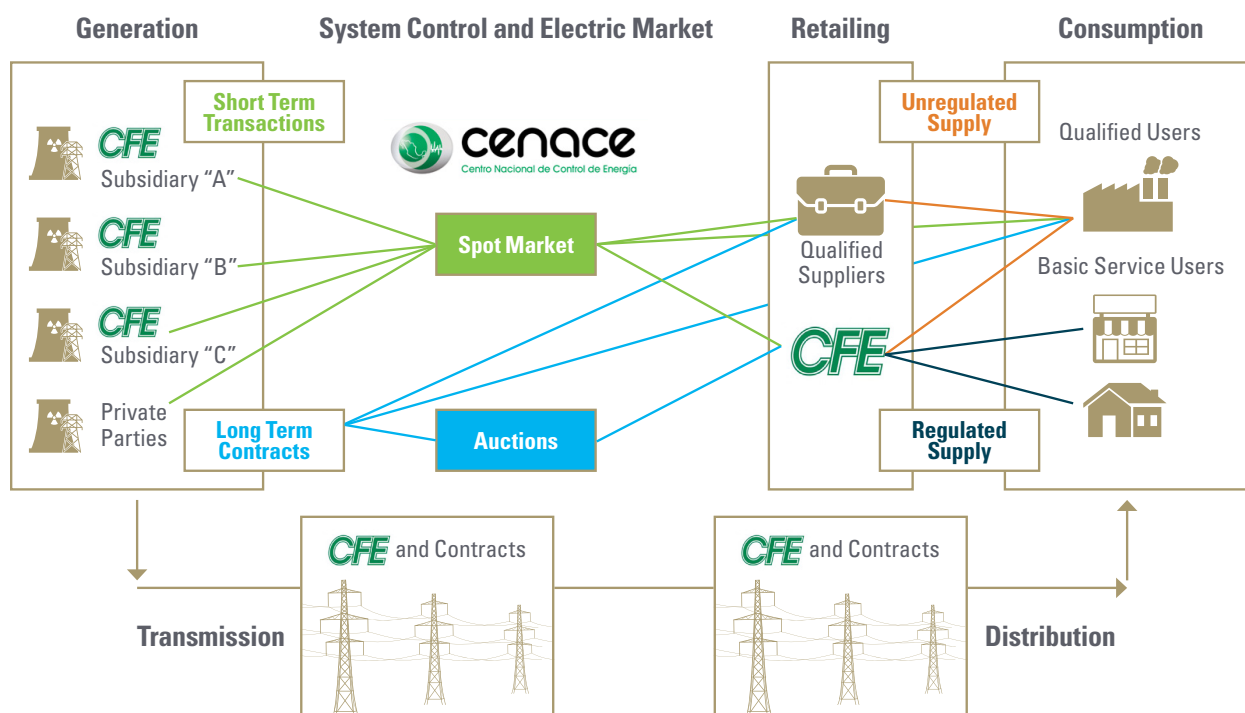
In light of the above, however, it would be remiss not to point out the burden imposed on CFE— or the government's budget—as a result of the reform (despite the fact that CFE will receive a bailout on its pension obligations). While the company is tasked with the responsibility to continue to provide the public basic service of electricity transmission and distribution—which includes subsidized domestic and agricultural users, which together consume approximately 30 percent of the country's electricity—it will no longer be able to rely on the cross-subsidies previously obtained from industrial and commercial users.⁸ Therefore, in order to maintain current rates for basic service users the government will have to spend additional money to keep subsidies at their current levels.

In other words, the way the reform was structured makes these generalized subsidies unsustainable in the long term. Eventually, the added pressure on the government's coffers might lead to the substitution of generalized subsidies for more focalized support programs. This elimination was actually discussed during congressional markup; however, given the controversy it aroused, it was later eliminated from the text. Instead, the final reform continues to give the Executive Branch the authority to determine any necessary subsidies, while only mandating the creation of a smaller support program to further assist rural communities and marginalized urban areas. In the meantime it will be hard to uphold the promise of lower electricity rates for the average individual.

New Makeup of the Electricity Supply Chain

The generation and supply of electricity is typically depicted as consisting of three stages: 1) power generation, 2) dispatch through the T&D network and 3) the retail service to supply the consumer. While this visualization is useful, it does not fully help capture the complexity of the Mexican reform, where planning and control of the grid, as well as public basic service retailing, remain in the hands of the state—both coexisting alongside a wholesale electricity market.

Therefore, particularly when discussing the T&D network, it is helpful to separate the development and ownership of the infrastructure itself, whose expansion will be the responsibility of the government, from the actual operation of the grid and the administration of the market. The following diagram provides a good illustration of the different stages of the supply chain, including the conceptual operation of the new market, as envisioned by the reform:⁹



Source: "The Future for Renewable Energy in Mexico," presentation by Dr. César Hernández, undersecretary for electricity, Mexico's Ministry of Energy, Institute of the Americas' webinar, Jan. 23, 2015.

Using the diagram as a general reference, this section provides a before-and-after comparison of the reform for each of the three segments mentioned above, subdividing each category when necessary.¹⁰

Generation

Prior to the reform, cogeneration and self-supply, along with exports, were the principal mechanisms available to the private sector to sell electricity to clients other than CFE. However, once the largest users satisfied their needs, the model reached its limit very fast. Now all generators will have the right to sell unlimited energy without establishing self-supply societies with the final users, as they had to do in the past. Generators will now be able to enter into bilateral long-term contracts with qualified users and qualified suppliers (i.e., the new private retail companies), as well as with CFE-Retail to power the public basic service—although in the latter case through an auction process. At the same time, all of the above users will be able to obtain electricity in the spot market, which means there are virtually no limits for private generators.

In addition, only generation plants over a 0.5 MW capacity will require a permit by CRE. This opens up interesting opportunities for the residential and small commercial segments, which might benefit from the use of distributed generation technologies, especially those that utilize renewable sources such as solar.

Yet despite the opening, some critics argue that achieving competition will be difficult in the short term, given that CFE owns or controls 85 percent of all generation capacity

in the country.¹¹ While CRE has the power to implement asymmetric regulation to bring competition to the market, it will take time to achieve the desired results.

T&D Network

As mentioned at the beginning of this section, Mexican energy reform visualized three components to the T&D network: the development of the infrastructure, the operation of the grid, and the administration and regulation of the wholesale electricity market.

In terms of infrastructure, it has become clear that Mexico's T&D network has not kept up with demand, that the inefficiencies are extensive and that more lines are needed to interconnect new projects, especially those from clean energy sources. While the reform still keeps this part of the value chain as an activity under the control of the state, through CFE, the government will be able to enter into contracts with the private sector to expand, modernize, finance and/or operate its transmission and distribution networks. This represents a degree of opening for collaboration with the private sector that did not exist before.

Regarding the grid's operation, the main contribution of energy reform is undoubtedly the new independence given to CENACE, which will conduct interconnections under clear and fair rules (established by CRE) and dispatch electricity in an impartial manner (based on economic merit criteria). This stands in contrast to the environment prior to the reform, where interconnection of private generators was frequently delayed in favor of CFE. These changes create opportunities

for firms that have experience serving public utility companies, since CENACE will now be able to partner with and subcontract to private parties that offer support services, in order to carry out its duties.

Finally, the introduction of a new wholesale electricity market is the catalyst intended to trigger more competition and lead to the generation of additional electricity. Prior to the reform there was no wholesale market and the sale of excess generation was restricted, which affected the optimization and growth of the grid. Moreover, since self-supply plants did not participate in the centralized dispatch, generating excess power was a risky endeavor because prices were determined after the fact. By removing hurdles to the generation segment of the value chain, the reform aims to trigger an equivalent development of the T&D network.

Retailing

Just as the reform removed the barriers for generators, it also introduced opportunities for the entry of new retail companies, known as qualified suppliers, which will be able to compete with CFE for the service of qualified users. As explained earlier, qualified users are those who meet a specific consumption threshold, yet the law also established that those holding permits for self-supply, cogeneration or import, at the time that the law came into effect and regardless of their consumption, would be considered qualified users as well.

On the other hand, basic service users will continue to receive their electricity from CFE (CFE-Retail, from now on), with the Ministry of Finance determining the final rates for this

service, including subsidies. However, as this classification shrinks, the realm of qualified users will increase and the wholesale market will grow.

A Note on Renewables

From a policy perspective, Mexico is ahead of many developed countries in terms of its commitment to addressing climate change, particularly through the use of clean energy. In 2012 Mexico approved a climate change law, which established an ambitious goal of generating at least 35 percent of the country's electricity from clean energy (non-fossil fuel) sources by 2024. A year later, in its fiscal reform, it added a small carbon tax to the country's clean energy policy mix. This 3 percent tax on the value of carbon-based fuels went into effect at the beginning of 2014 and, although likely too small to have a significant impact on consumption behavior, it is a clear signal of where Mexico's energy profile is headed.

The main challenge so far has been the high cost involved in the transmission and distribution of electricity generated from renewable sources. This is illustrated by the fact that while renewables represent 25 percent of the country's installed generation capacity, they account for only 14 percent of actual generation. In other words, even though Mexico's installed capacity is not too far from the government's declared goal, actual generation still has a long way to go if the target of 35 percent by 2024 is to be reached.

Yet it would be a mistake to conclude that simply addressing the challenge of transmission and distribution would suffice,

since this does not capture the current state of the market, its growth potential or the country's needs. In fact, if one breaks down the composition of Mexico's clean energy portfolio, one finds that major hydroelectric plants, a mature energy sector that offers only limited opportunities for expansion (and whose designation as clean is controversial), accounts for three-quarters of the country's clean energy production and 11 percent

of total production.¹² By contrast, wind, geothermal, solar and mini-hydro combined currently satisfy only 4 percent of Mexico's energy needs.¹³

However, it is precisely in these sectors that the opportunities for expansion lie. As the following table illustrates, Mexico's renewable energy potential—especially when one considers proven, probable and possible resources—is enormous:¹⁴

	Installed Capacity 2° semester 2014 (MW)	Renewable Energy Potential			
		Actual Generation Year 2013 (% of total GWh)	Actual Generation + Proven Resources	Actual Generation + Proven Resources + Probable Resources	Actual Generation + Proven Resources + Probable Resources + Possible Resources
Wind	1,900	1.38%	5.30%	5.30%	34.80%
Geothermal	823	2.04%	2.22%	34.80%	40.03%
Solar	64	0.01%	0.65%	0.65%	2,189.40%
Mini Hydro	419	0.54%	1.72%	9.48%	24.35%
Total	3,206	3.97%	9.89%	37.95%	2,288.59%

Source: "The Future for Renewable Energy in Mexico," presentation by Dr. César Hernández, undersecretary for electricity, Mexico's Ministry of Energy, Institute of the Americas' webinar, Jan. 23, 2015.

As explained above, one of the main challenges for the development of renewables has been the high cost of T&D, which has been driven in part by the poor connectivity of the remote areas where some of these projects are usually located and by the fact that generators were forced to absorb the interconnection costs, which made their rates uncompetitive. Previous government efforts to promote clean energy addressed this problem by creating subsidized wheeling charges for wind energy projects, which helped this specific sector but placed other technologies at a disadvantage, ultimately hampering the overall development of renewables.

In contrast, the latest energy reform addresses these issues by creating favorable conditions for T&D expansion and by spreading these costs more evenly across all

network generators and users. This is done through two mechanisms:

1. When making recommendations for the expansion of the T&D network, CENACE will have to take into account all generation projects equally. Under the former rules CFE was criticized for only considering, or favoring, its own generation needs. With better and impartial network planning private producers of renewable energy will enjoy easier interconnection access.
2. There is now a mandate for qualified users and suppliers to acquire Clean Energy Certificates (CECs), thus translating national commitments into individual obligations and distributing the cost of clean energy among all industry participants, making renewables more competitive.

Regarding the wind projects mentioned above, while the subsidies in contracts signed before the energy reform will be honored to their expiration, the rates for wheeling subsidies (if any) on contract renewals and on future projects will be set by CRE, with an eye toward encouraging reliance on market mechanisms to promote development of the least expensive sources of clean energy. This should serve to level the playing field.

In terms of CECs, the regulatory process to define their operation is still underway. SENER has released a draft of the respective market guidelines (currently awaiting public comments), which will form the basis for more detailed regulations to be issued by CRE; in turn, CENACE will administer the newly created market based on CRE's regulations. In general strokes, however, the CEC market will function as follows: CRE will award CECs to generators for each MW of clean energy they produce. At the same time, each year SENER will establish the amount of clean energy that suppliers and users will be required to incorporate into their mix, thus creating a market. These requirements will be set for a minimum of three years out to ease planning, but this could be extended at the discretion of SENER. This means that the market for CECs will begin operating no earlier than 2018.

A final issue to take into account relates to land access challenges, which have represented a hurdle for projects requiring significant land acreage (e.g., wind and solar farms). As a result of the energy reform, the law has been amended to facilitate mutual agreements between landowners and energy producers; however, if an agreement is not reached, the

government now has the ability to claim the land through temporary voluntary servitude—this is akin to eminent domain but is applied in a limited and temporary fashion exclusively to energy-related development. This stands in contrast to the expropriation law, a legal mechanism rarely used due to the fact that it commonly takes the government up to six years to gain access to land in this fashion due to lengthy legal proceedings.

Investment Opportunities

In contrast to oil and gas exploration and production opportunities, which are very significant but completely dependent on a public tendering process determined by the government, the possibilities for doing business in Mexico's electricity sector abound. Using the new makeup of the value chain as a guide we can identify four general areas of opportunity: 1) generation, 2) expansion of the T&D infrastructure, 3) consulting opportunities to advise CENACE on the different aspects of grid operation and/or to offer it products and technologies for better management, and 4) retail service to reach the final consumer.

Considering that the main goal of the electricity reform is precisely to generate more energy at more competitive prices, and that companies interested in generation have virtually an open field, the objective of this section is to provide the reader with a general overview of the business possibilities in the various types of electricity generation.

Natural Gas

Important investment opportunities lie in modernizing or replacing some of CFE's

generation plants, especially those located in key points of the grid. A favorite substitute is obviously the removal of power plants running on fuel oil and diesel and the incorporation of natural gas-powered plants, especially those using combined cycle technologies. Following the government's strategy, illustrated in the National Infrastructure Program 2014–18, CFE has been issuing—and will continue to issue—public tenders, seeking to improve its generation capacity as the sector opens up.

Geothermal

Mexico has significant geothermal potential due to high tectonic and volcanic activity concentrated in its “Volcanic Belt,” which runs roughly from Veracruz to Jalisco and into Baja California Sur. It is currently the world's fourth largest producer of geothermal energy, with an installed capacity of nearly 1,000 MW. According to SENER estimates, geothermal reserves may be as high as 10,644 MW. In a 2013 report Frost & Sullivan predicted that investment in geothermal will reach \$200 million in 2017 and that the market presents “robust investment opportunities.”¹⁵

Wind

Wind power potential in Mexico is estimated at 40,268 MW, considering production factors between 20 and 25 percent.¹⁶ In light of this the government has projected that new wind generation capacity will grow 8,300 MW by 2018 and 10,585 MW by 2027.¹⁷ The country's northern states are natural locations for development, given their wind resources and proximity to both Mexico's “manufacturing heartland” and to utility markets in the United States, particularly in California. In addition,

Mexico's southeast states on the Tehuantepec isthmus continue to offer great wind resource capacity. Therefore, there are opportunities for greenfield wind development, although major international operators are already well established.

Solar

The development of electricity generation projects from solar resources is relatively new in Mexico, but there are several large power-purchasing agreement (PPA) projects that use solar. For instance, there is a four-phase project (approximately 20 MW each, for a total of 80 MW) being developed by the Sonora 80M Consortium. Sonora 80M has signed energy sales contracts with 25-year purchase agreements with seven municipalities in the state. It is also selling power to Ford Motor Company, but terms and contract duration are not public knowledge. Separately, at the beginning of 2014 Hanwha and Mexican retailer Soriana announced a 20-year 31 MW PPA.

Geographic areas with some of the highest solar potential—northwest states such as Baja California, Baja California Sur, Sonora and Chihuahua—also have some of the highest projected growth for energy demand. Solar is a natural way to meet this demand and, as the table on page 10 illustrates, its long-term potential is enormous, especially if one considers all proven + probable + possible resources. Yet even if one takes a conservative approach and only takes into account those opportunities to develop the country's proven potential, defined as the potential for which there are technical and economic feasibility studies according to the National Inventory of Renewable Energy,

this means the generation of 542 GWh/year.¹⁸ Another way of looking at solar potential in Mexico is to consider that the country has an average solar radiation above 5 kWh per square meter per day, which ranks it as one of the highest solar radiation regions in the world. As a result it is estimated that the potential of solar energy projects connected to the grid will be 24,300 MW by 2030.¹⁹

Conclusion

Enormous business opportunities are opening up in Mexico's electricity sector, particularly in generation. In contrast to previous reform efforts, which allowed private participation only in a very limited way, the revamped regulatory framework, anchored in strong constitutional changes, provides the necessary legal certainty for investors to take a leap and enter the country. Likewise, the processes for engaging in the sector are well defined and the relevant players are clearly identified, delivering further assurances.

Yet it is important to highlight that given the scope of Mexico's energy revolution and the fact that the regulatory framework being put into place is completely new, setbacks should still be expected. After all, the country is migrating from a centralized system, where the whole value chain for the production and delivery of electricity, including rate setting, was concentrated in a single state entity, to a system that for the most part will be governed by a free market. This is a radical change that will bring benefits to private investors and is intended to spark the anemic economic growth of the past decade.

Nevertheless, successful change will take time and effort. In practical terms this means that all investors, whether they have had a long presence in the country or are newcomers, will be confronted with a nascent, and untested, regulatory environment. Nonetheless, with appropriate due diligence and strategic planning investors should be able to experience significant returns.

¹ Pamela K. Starr, Michael C. Camuñez, "A Second Mexican Revolution?" *Foreign Affairs*, Aug. 17, 2014, accessed Sept. 1, 2014. <http://www.foreignaffairs.com/articles/141887/pamela-k-starr-and-michael-c-camunez/a-second-mexican-revolution>.

² "Explicación ampliada de la reforma energética," accessed Sept. 10, 2014. <http://www.reformas.gob.mx> (government website dedicated to major legislative reforms).

³ Initially the category of qualified users will encompass those consumers whose load centers report a demand equal to or greater than 3 MW at the time of the law's enactment, to be reduced to 2 MW by the end of the first year, 1 MW by the end of the second year and reduced further in ensuing years at SENER's discretion. Hence, there is a clear intention to gradually expand the size of the market.

⁴ "Explicación ampliada de la reforma energética," accessed Sept. 10, 2014. <http://www.reformas.gob.mx> (government website dedicated to major legislative reforms).

⁵ "The Future for Renewable Energy in Mexico," presentation by Dr. César Hernández, undersecretary for electricity, Mexico's Ministry of Energy, Institute of the Americas' webinar, Jan. 23, 2015.

⁶ "Reportan mayor número de usuarios que reciben electricidad," *Notimex*, Sept. 2, 2014, accessed Sept. 10, 2014. <http://www.obrasweb.mx/soluciones/2014/09/02/reportan-mayor-numero-de-usuarios-que-reciben-electricidad>.

⁷ Edgar Sigler, "¿Quién pagará tu subsidio eléctrico?" *CNN Expansión*, July 22, 2014, accessed Sept. 10, 2014. <http://www.cnnexpansion.com/negocios/2014/07/21/quien-pagara-el-subsidio-a-tu-luz>.

⁸ *Ibid.*

⁹ "The Future for Renewable Energy in Mexico," presentation by Dr. César Hernández, undersecretary for electricity, Mexico's Ministry of Energy, Institute of the Americas' webinar, Jan. 23, 2015.

¹⁰ The before-and-after comparisons in this section are based on the presentation titled "Energy Reform in Mexico—Perspectives From SENER," given by Dr. César Hernández, undersecretary for electricity, Mexico's Ministry of Energy, at the XXIII La Jolla Energy Conference on May 2014.

¹¹ "Mexico's Energy Reform: What's Next for Gas and Electricity?," presentation by Bates White consultant Nicolas Puga, Inter-American Dialogue, June 6, 2014.

¹² "Mexico Country Profile," U.S. Energy Information Administration, April 24, 2014, accessed Jan. 26, 2015. <http://www.eia.gov/countries/analysisbriefs/Mexico/mexico.pdf>.

¹³ "The Future for Renewable Energy in Mexico," presentation by Dr. César Hernández, undersecretary for electricity, Mexico's Ministry of Energy, Institute of the Americas' webinar, Jan. 23, 2015.

¹⁴ *Ibid.*

¹⁵ "Regulatory Changes Vital to Attract Private Investments to Mexican Geothermal Power Generation," press release, *Frost & Sullivan*, June 10, 2013, accessed Jan. 15, 2015. <http://www.frost.com/prod/servlet/press-release.pag?docid=279653841>.

¹⁶ *Prospectiva de Energías Renovables 2013–27*, Secretaría de Energía, México 2013, p. 28.

¹⁷ *Ibid.*, p. 67. The figures are the result of adding projected growth for the public service sector as well as for self-supply, which are the legal regimes that existed prior to the passage of the energy reform.

¹⁸ *Ibid.* p. 25.

¹⁹ *Renewable Energy Industry Report*, Business Intelligence Unit, ProMéxico, Ministry of Economy, accessed Jan. 27, 2015. <http://www.promexico.gob.mx/en/mx/energias-renovables-inversion>.

About ManattJones Global Strategies, LLC

ManattJones provides strategic business advice and advocacy to companies operating in, investing in, or exporting to Mexico and Latin America. The firm helps clients identify and take advantage of opportunities and address strategic, political, and market access challenges. With many years of experience, we offer unmatched market knowledge, extensive regional experience, and a deep network of relationships with senior business, government and civic leaders. The firm has assisted both large and midsize companies to do business in and with Mexico across a wide range of sectors.

ManattJones is a consulting subsidiary of Manatt, Phelps & Phillips, LLP, a leading United States-based law firm, and has offices in Washington, D.C., Los Angeles, Mexico City and Monterrey.

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