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## The Wealth of a Nation: Mexico's Efforts to Attract Foreign Investment in the Energy Sector

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# The Wealth of a Nation: Mexico's Efforts to Attract Foreign Investment in the Energy Sector

ALEXANDER COCHRAN\*

## I. Introduction

In December of 2013, a radical development occurred in the history of the Republic of Mexico. This occurrence was the amendment of the Mexican constitution to allow for the participation of foreign entities and investors in the country's energy industry. Such a change was especially startling, given what transpired in the country's not so distant past. In 1938, the Mexican government famously nationalized the oil industry and expropriated the assets of the foreign concerns that had been engaged in the extraction of hydrocarbons from the oil rich areas of the country. The nationalization also resulted in the birth of a state-owned oil company that had the exclusive right to explore for subterranean deposits of fossil fuels, to extract such substances, and to refine them into fuel. The events of 1938 were perceived as an assertion of Mexico's sovereignty and were celebrated with patriotic fervor on March 18th of each year. However, the amendments that once again allowed for the involvement of foreign entities were not a random manifestation, rather it was the recognition that the energy industry had grown stagnant and had failed to modernize. The President, Enrique Pena Nieto, was among reform minded individuals who recognized that change of this magnitude was necessary in order for Mexico to be able to fully utilize its abundant supply of hydrocarbons. This comment will delve into the legal means and mechanisms by which Mexico intends to woo foreign investment to aid in the efforts to modernize the nation's energy industry as well as touch on changes that have already taken effect.

## II. A Brief History of Oil in Mexico

While a true discussion of oil in Mexico would necessarily begin in the eons before dinosaurs roamed the earth, this section will not recount a brief history of geologic time. Instead, it will focus on the events that transpired between the discovery of petroleum in Mexico, and the events that led to the nationalization of Mexico's oil industry and the expropriation of the assets of foreign oil concerns by the Mexican federal government in 1938. Though

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\* Alex Cochran is a 2018 J.D. candidate at SMU Dedman School of Law. I would like to thank my editors for their assistance during this process and dedicate this article to Professors George Martinez and C. Paul Rogers for their wise counsel during my time in law school.

the development of the nascent Mexican oil industry in the 20th Century could arguably be characterized as an example of economic imperialism as practiced by the Europeans and the United States of America, such a characterization would not take into account the practical realities of what occurred during this time period. As discussed herein, the development of energy production in Mexico played a considerable and essential role in the modernization of the Mexican state. Furthermore, the conflict between the foreigner oil producers and the Mexican labor unions that resulted in the nationalization of the Mexican oil industry took place not in a vacuum, but rather was of global significance when it occurred. However, the events of 1938 have left a distinct impression in the collective Mexican psyche. In order to better understand the future possibilities of the energy industry in Mexico, one must first understand the events that transpired in the not so distant past.

#### A. THE ORIGINS OF THE OIL INDUSTRY IN MEXICO

In the early 1900's, during the long presidency of Porfirio Diaz, oil was first discovered in commercial quantities in Mexico.<sup>1</sup> Diaz was a strongman who silenced political opposition, but who also sought to modernize the Mexican state.<sup>2</sup> Since the development of the economy and infrastructure were part of his goals, Diaz sought to induce foreign oil producers to develop an oil industry in Mexico.<sup>3</sup> At that time, the only private companies that possessed the ability to produce oil in commercial quantities were from the United States and Great Britain.<sup>4</sup> To encourage these foreign entities to invest in developing the industry in Mexico, Diaz changed Mexican law, primarily doing away with property and mining law based upon old Spanish law codes.<sup>5</sup> The new laws emulated those of Texas, which afforded a fee simple landowner exclusive ownership of any sub-soil hydrocarbons.<sup>6</sup> Additionally, the tax system was changed to favor foreign investment in the oil industry.<sup>7</sup> Ultimately, Standard Oil of the United States and Mexican Eagle Petroleum, originally a British concern sold to Royal Dutch Shell, would become the dominant oil producers in Mexico during the early 20th Century.<sup>8</sup> These foreign entities built the nation's oil industry from the ground up.<sup>9</sup>

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1. Mitchell Gray, *Mexico's Oil Expropriation: The U.S. Wanted Diaz Gone*, OILPRO, oilpro.com/post/12324/mexico-oil-expropriation-us-wanted-diaz-gone (last visited Aug. 20, 2017).

2. Mitchell Gray, *Mexico's 1938 Oil Expropriation*, OILPRO, oilpro.com/post/12235/mexico-1938-oil-expropriation (last visited Aug. 20, 2017).

3. *Id.*

4. *Id.*

5. Gray, *supra* note 1.

6. *Id.*

7. *Id.*

8. Gray, *supra* note 2.

9. *Id.*

## B. THE EXPROPRIATION OF 1938

In 1938, Mexico became the first nation in the history of the world to nationalize the oil industry within the country.<sup>10</sup> Lazaro Cardenas, the President of Mexico at that time, did not make the decision to nationalize the oil industry and to expropriate the assets of the foreign concerns in a fit of pique.<sup>11</sup> Rather, it was the climatic end to a period of contentious relations between the Mexican Government and the foreign firms.

The end of the Mexican Revolution marked the end of an era in which strongmen dominated the political landscape.<sup>12</sup> In the case of the foreign oil concerns, this development heralded the end of an era in which favorable accommodations or concessions would be made to them by the government.<sup>13</sup> The first indication of this new reality was the enactment of a new constitution by the Mexican government in 1917.<sup>14</sup> In the Constitution of 1917, it expressly stated that the owner of oil and minerals in Mexico was the federal government.<sup>15</sup> Furthermore, the ability of foreigners to own assets within Mexico was restricted.<sup>16</sup> The cessation of the oil companies cordial relationship with the government would prove to be the least of their worries during the 1920s.

During the 1920s, the biggest problem that the foreign oil concerns had to deal with in Mexico was that of the labor unions representing the oil workers. The union representing the oil workers was popular and was not afraid of conflict nor of organizing massive strikes in order to achieve its aims.<sup>17</sup> This oil workers union was the Sindicato de Trabajadores Petroleros de la Republica Mexicana (STPRM).<sup>18</sup> While there had been strikes in 1915-1917 that had been quickly resolved, in 1924 STPRM called for a strike that forced Mexican Eagle Petroleum to concede to an eight hour workday, a wage increase and the signing of the first collective bargaining agreement in industry history in Mexico.<sup>19</sup> The demands of the STPRM and the workers would only increase from there.

In addition to the issues with the government and the union representing the oil workers, the foreign oil companies had to deal with the increasing

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10. David Blackmon, *Mexico's Complex History with Foreign Oil Investments*, FORBES (Apr. 13, 2013 9:44 AM), [www.forbes.com/sites/davidblackmon/2013/08/13/Mexico's-complex-history-with-foreign-oil-investment/#641dee35506](http://www.forbes.com/sites/davidblackmon/2013/08/13/Mexico's-complex-history-with-foreign-oil-investment/#641dee35506).

11. Noel Maurer, *The Empire Struck Back: Sanctions and Compensation in the Mexican Oil Expropriation of 1938* 591 (Harvard Business School BGIE Unit Working Paper No. 10-108, 2010).

12. Gray, *supra* note 2.

13. *Id.*

14. *Id.*

15. *Id.*

16. Gray, *supra* note 2.

17. Maurer, *supra* note 11, at 599.

18. *Id.*

19. *Id.*

unprofitability of their operations in Mexico.<sup>20</sup> During the 1920s, the rate of production of oil in Mexico began to decline steeply, primarily due to the seepage of salt water into the wells.<sup>21</sup> Additionally, the oil companies could not find enough new oil deposits to maintain the production rates.<sup>22</sup> Other issues led to a sharp rise in the increase of production costs, chief among them the cost of extraction, and the need to invest in costly pipeline and export facility construction.<sup>23</sup> Readily available investment capital was scarce due to the falling productions, rates, and consequently, the concerns that were publicly traded suffered a sharp decline in the value of issued shares.<sup>24</sup> Thus, by the time the 1930's began, to own an oil production operation in Mexico was to own a money pit, not a profit center. By then, Mexico was also on its way to becoming a backwater in the oil industry; Venezuela and its considerable oil reserves was the focus of most foreign oil producers in the 1930's.<sup>25</sup>

In 1936, a new dispute broke out between the foreign oil concerns and the STPRM.<sup>26</sup> The union's demands were for a \$2.3 million increase, a massive benefits package including health insurance, and most importantly, control over all hiring decisions in the entire oil industry, with the exception of a mere 110 positions.<sup>27</sup> The oil companies were aghast, for they claimed that these demands would raise annual costs by \$10.7 million and that they could not give up control over the ability to hire and fire workers.<sup>28</sup> The negotiations between the STPRM and the foreign oil concerns became hopelessly deadlocked, and strikes were rampant between 1936-1938.<sup>29</sup> Hoping to defuse the situation, Mexican President Lázaro Cárdenas appointed a special arbitration commission.<sup>30</sup> Instead of quelling the hostilities, the commission decided that the oil companies could indeed afford the compensation package that the STPRM demanded.<sup>31</sup> On March 2, 1938, the Federal Labor Board announced it would grant the STPRM more control over the hiring process and a wage and benefit increase that was worth \$7.3 million.<sup>32</sup> The Mexican Supreme Court upheld the Labor Board's decision, and set a compliance deadline for the foreign oil

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20. *Id.* at 594

21. Gray, *supra* note 2.

22. Maurer, *supra* note 11, at 594.

23. *Id.* at 594-95.

24. *Id.* at 595-96.

25. Gray, *supra* note 2.

26. Maurer, *supra* note 11, at 599.

27. *Id.* at 599-600.

28. *Id.* at 600.

29. *Id.*

30. *Id.*

31. Maurer, *supra* note 11, at 599.

32. *Id.*

companies.<sup>33</sup> The deadline was initially set to be March 7, but was later extended to March 14.<sup>34</sup>

The events in Mexico did not occur in a vacuum. Events occurring elsewhere in the world made the outcome of the situation in Mexico critically important to the oil concerns. In 1927, Spain nationalized all oil production.<sup>35</sup> Elsewhere in Latin America, Uruguay changed its laws to favor the state-owned oil company at the expense of foreign producers, and Chile threatened expropriation of foreign oil industry assets in 1932.<sup>36</sup> Similarly, there was increasing tension in oil-rich Venezuela between the government and the oil companies.<sup>37</sup> The foreign oil concerns were determined not to give in to the demands of the Mexican government, for they hoped to set a precedent which would discourage other countries from altering the concession agreements that were in place or threatening expropriation of the assets of the foreign concerns.<sup>38</sup> In the mind of the oil companies, to concede in Mexico would be perceived as weakness in Venezuela, where they had far more profitable operations.<sup>39</sup> In addition to such grave external concerns, the oil companies could not afford the \$7.3 million compensation package.<sup>40</sup> Financial analysis of all foreign owned oil operations in Mexico indicates that the concerns collectively earned \$3.7 million in 1936.<sup>41</sup> If depreciation and other expenses are added back to the \$3.7 million, it is likely that the total net cash flow of the foreign oil concerns was about \$7 million in total, far less than the \$7.3 million compensation package demanded by the Mexicans.<sup>42</sup> On March 15, the individual oil companies informed the Mexican authorities that they would not comply with the Supreme Court's ruling; in response, the Mexican government suspended all contracts with foreign entities.<sup>43</sup>

The foreign oil companies responded to this deadline by closing their wells and moving oil stored in the oil fields to export facilities at various port cities, notably Tampico.<sup>44</sup> Disgruntled Mexican workers began seizing the oil companies' facilities and shut down their pipelines.<sup>45</sup> Shortly thereafter, President Cardenas announced the expropriation of the assets of all foreign oil firms in Mexico.<sup>46</sup> To this date, March 18, the day of Cardenas' announcement, is celebrated as National Oil Expropriation date throughout

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33. *Id.*

34. *Id.* at 600-601.

35. *Id.* at 601.

36. *Id.* at 602.

37. Maurer, *supra* note 11, at 599.

38. *Id.* at 601.

39. *Id.* at 602-603.

40. *Id.* at 601.

41. *Id.*

42. Maurer, *supra* note 11, at 599.

43. *Id.*

44. *Id.* at 600.

45. *Id.* at 601.

46. Gray, *supra* note 2.

the country.<sup>47</sup> Cardenas then created a state-owned oil company, *Petroleos Mexicanos* (*Pemex*) to oversee all production of oil for the Mexican economy.<sup>48</sup> The situation was not resolved until 1941, when the United States imposed a settlement agreement to which the Mexican government agreed.<sup>49</sup> In 1942, the British and American companies received a collective settlement of \$23.9 million.<sup>50</sup> This settlement represented roughly one-third of the total property values which the Mexican government had seized.<sup>51</sup>

### III. Current State of the Mexican Energy Industry

Mexico, like all modern, industrialized nations, has a tremendous need for fossil fuels with which to power its utilities, factories, and transportation networks. The fact that between 1938 and 2013 there was no dramatic implosion of the Mexican energy industry and the beseechment of foreign concerns to return indicates that at the very least, *Pemex* and other state-run entities have proven themselves to be at least competent in the extraction and refinement of hydrocarbons into useable fuel. The following section will discuss recent performance and current state of *Pemex*, as well as touch on untapped or underutilized hydrocarbon resources that are ripe for extraction, production, and distribution.

#### A. PEMEX CURRENTLY

Since its creation in 1938, following the expropriation of foreign assets and the nationalization of the Mexican oil industry, *Pemex* has been more than just a state-owned company; it has been an integral part of the Mexican state.<sup>52</sup> Not only is *Pemex* Mexico's biggest company, but more importantly, it is Mexico's biggest taxpayer.<sup>53</sup> Revenue derived from *Pemex* currently comprises one-third of the budget of the Mexican federal government.<sup>54</sup>

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47. Stephanie McCrummen, *WASHINGTON POST*, *Mexican President Proposes historic changes to State-owned Pemex oil monopoly*, [https://www.washingtonpost.com/world/Mexican-President-Proposes-historic-changes-to-state-owned-pemex-oil-monopoly/2013/08/12/7F848dc-0380-11e3-bfc5-406b928603b2\\_story.html?utm\\_term=.ac3aece6c5fb](https://www.washingtonpost.com/world/Mexican-President-Proposes-historic-changes-to-state-owned-pemex-oil-monopoly/2013/08/12/7F848dc-0380-11e3-bfc5-406b928603b2_story.html?utm_term=.ac3aece6c5fb) (last visited Aug. 12, 2013).

48. Richard H.K. Vietor & Haviland Sheldal-Tomason, *Mexico's Energy Reform 2* (Harvard Business School Case Collection No. 717-027, 2017) (revised Feb. 2017).

49. Maurer, *supra* note 11 at 607.

50. Blackmon, *supra* note 10.

51. Maurer, *supra* note 11 at 591.

52. Adam Williams, *WASHINGTON POST*, *Pemex, Mexico's State oil giant, braces for a [sic] the Country's New energy landscape*, <https://www.washingtonpost.com/business/pemex-mexicos-state-oil-giant-braces-for-a-the-countrys-new-energy-landscape/2014/06/04/07d> (last visited June 7, 2014).

53. *Id.*

54. Christopher Helman, *Mexico's Enrique Pena Nieto is leading an oil revolution worth billions*, *FORBES* (Oct. 30, 2013, 7:45 AM), <https://www.forbes.com/sites/Christopherhelman/2013/10/30/mexicos-enrique-pena-nieto-is-leading-an-oil-revolution-worth-billions/#5d4a35ca2453>.

Despite the importance of Pemex to the Mexican state, the general perception is that the company is riddled with corruption.<sup>55</sup> Contracts awarded by Pemex are awarded primarily to firms associated with powerful political connections.<sup>56</sup> Employment at Pemex is extremely desirable due to the longevity of its employees, so much so that to gain employment, an individual must purchase a job.<sup>57</sup> Consequently, Pemex employs very few engineers or skilled laborers when compared with unskilled workers with guaranteed lifetime employment.<sup>58</sup> The largess of Pemex does not end with retirement, for generous pensions are awarded, which has resulted in the company having unfunded pension liabilities.<sup>59</sup> In essence, Pemex more resembles the prototypical Latin American bureaucracy in which corruption is endemic and efficiency is low, than it does a major player in the global energy industry.<sup>60</sup>

In the short term, Pemex has far more pressing issues to contend with than rooting out corruption. There has been a significant decline in the rate of production in Pemex's oil fields, and in recent years, there have been more losses than gains at the end of the fiscal year.<sup>61</sup> Starting in 2005, production began declining, and in March 2014, the company suffered its lowest monthly production since 1995.<sup>62</sup> In fact, it was disclosed that in 2015, overall production of petroleum was down seven percent, and currently produces, on average, just 2.27 million barrels per day.<sup>63</sup> The downturn in production has exacerbated other issues that Pemex faces.

Pemex also has significant cash flow issues. Company pension liabilities cannot be met, and its total indebtedness to its various suppliers is measured in the billions of dollars.<sup>64</sup> While the losses would be extremely concerning by themselves, the losses are exacerbated by the actions of the Mexican government towards Pemex. For example, in 2013, Pemex suffered a loss of thirteen billion dollars for the entire year.<sup>65</sup> However, in the first fiscal quarter of that very same year, the Mexican government had Pemex pay fifty percent of its gains in that period, approximately sixteen billion dollars, as taxes to the federal treasury.<sup>66</sup> The losses by Pemex have grown increasingly worse in recent years, for example, in the final quarter of 2015, Pemex suffered ten billion dollars in losses.<sup>67</sup> Such a drastic decrease in revenue

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55. McCrummen, *supra* note 47.

56. *Id.*

57. *Id.*

58. Williams, *supra* note 52.

59. Matt Egan, *Mexico forced to rescue drowning oil giant Pemex*, CNN MONEY (Apr. 14, 2016, 3:38 PM), [money.cnn.com/2016/04/14/investing/Mexico-rescue-oil-company-Pemex/](http://money.cnn.com/2016/04/14/investing/Mexico-rescue-oil-company-Pemex/).

60. Vietor, *supra* note 48, at 3.

61. Egan, *supra* note 59.

62. Williams, *supra* note 52.

63. Egan, *supra* note 59.

64. *Id.*

65. Williams, *supra* note 52.

66. *Id.*

67. Egan, *supra* note 59.



forced the Mexican government to give Pemex 4.4 billion dollars in early 2016 in order for the company to be able to meet its various obligations and to continue production operations.<sup>68</sup> To continue such practices would be disastrous, for it is evident that Pemex is no longer the steady, reliable source of income that the Mexican state desperately needs it to be. Currently, the company is more of a liability than an asset.

By serving as a veritable cash cow for the Mexican government, Pemex has not had the ability to re-invest its earnings. The result being that Pemex has not developed or purchased the most current technology for either exploration or drilling operations.<sup>69</sup> An additional result of Pemex's lack of possession of advanced exploration or drilling technology is that Pemex engineers and other skilled workers do not have the technical expertise necessary to operate such equipment, nor have they been exposed to such technology.<sup>70</sup> Pemex also lacks the technology for the extraction of shale oil and gas as well as for the exploration and extraction deep water oil fields.<sup>71</sup>

The lack of modern technology and expertise, systemic and endemic corruption, when combined with a precarious financial situation, could not come at a more unfortunate time for Pemex. To date, Pemex has largely been dependent upon shallow water oil fields in the Gulf of Mexico to supply the country's petroleum needs.<sup>72</sup> In fact, much of the oil has been derived from a single field in the shallow waters of the Gulf.<sup>73</sup> In 1971, the Cantarell oil field was discovered in the shallow portion of the Bay of Campeche.<sup>74</sup> The subsequent development of the Cantarell oil field was the event that led to Mexico's emergence as an oil exporter.<sup>75</sup> However, in the Cantarell field alone, production has fallen almost ninety percent between 1979 and 2016.<sup>76</sup> At its peak, the Cantarell field was producing over two million barrels a day, but now produces less than 400,000 barrels a day.<sup>77</sup>

In short, Pemex is an entity that is encumbered by current liabilities and by the fact that it is treated as a quasi-bureaucratic entity, as opposed to a private enterprise. The company, as it currently operates, is not able to reinvest in capital improvements or retain its earnings. Instead, Pemex is treated as a virtual pass-thru entity by the Mexican government. It is not an entity equipped to spearhead the discovery and development of new hydrocarbon deposits within the country due to its many weaknesses.

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68. *Id.*

69. McCrummen, *supra* note 47.

70. *Id.*

71. Helman, *supra* note 54.

72. McCrummen, *supra* note 47.

73. Williams, *supra* note 52.

74. *Id.*

75. Helman, *supra* note 54.

76. Williams, *supra* note 52.

77. McCrummen, *supra* note 47.

## B. RESERVES AND POSSIBILITIES

Despite the dire straits in which Pemex finds itself, there are many reasons for hope for the future of the energy industry in Mexico. Pemex claims that untapped oil reserves in Mexico could potentially total 113 billion barrels, with over twenty-six billion barrels located in deep waters in the Gulf of Mexico.<sup>78</sup> A conservative estimate has valued such reserves to be worth trillions of dollars.<sup>79</sup> Furthermore, it was announced in September 2016 that six new oil deposits had been discovered in the Gulf.<sup>80</sup> The two deep water deposits are particularly important, for between the two, the estimated reserves are between 140-160 million barrels of oil.<sup>81</sup> Additionally, Pemex has estimated that there are over 460 trillion cubic feet of unexploited shale gas within the country.<sup>82</sup>

Significant shale deposits exist in northern Mexico, for part of the Eagle Ford Shale Formation that has been successfully exploited in the United States extends well into the northern Mexican states.<sup>83</sup> The portion of the Eagle Ford that extends into northern Mexico is known as the Burgos Basin, located in the state of Tamaulipas.<sup>84</sup> The Burgos Basin is the most promising prospect among Mexico's yet to be developed shale oil industry. This area is estimated to contain roughly 6.3 billion of the 13.1 billion estimated barrels of technically recoverable shale oil in the country.<sup>85</sup> The bulk of Mexico's shale deposits are in various basins and geological formations along the coastal region adjacent to the Gulf of Mexico.<sup>86</sup> While the coastal basins are thought to contain the majority of the country's shale gas and oil reserves, the geological formations in which the shale rock is located are either too deep within the earth or riddled with faults.<sup>87</sup> Other than drilling a few test wells, Pemex has not made the discovery and production of shale a priority, for it simply lacks the budgetary resources to fund large-scale exploration and extraction activities.<sup>88</sup>

Despite the seeming abundance of shale oil and gas, the extraction of these energy sources perfectly encapsulates the potential of the energy industry in Mexico: resource rich, but woefully deficient in terms of

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78. Williams, *supra* note 52.

79. *Id.*

80. *Pemex Finds six new oil deposits in gulf*, MEXICO NEWS DAILY, <http://www.mexiconewsdaily.com/news/pemex-finds-six-new-oil-deposits-in-gulf/> (last visited Sept. 13, 2016).

81. *Id.*

82. Williams, *supra* note 52.

83. Gray, *supra* note 2.

84. *Technically Recoverable Shale Oil and Shale Gas Resources: Mexico*, U.S. ENERGY INFORMATION AGENCY, II-2. [https://www.eia.gov/analysis/studies/worldshalegas/pdf/Mexico\\_2013.pdf](https://www.eia.gov/analysis/studies/worldshalegas/pdf/Mexico_2013.pdf) (last visited Aug. 8, 2017).

85. *Id.*

86. *Id.* at II-7.

87. *Id.* at II-2-II-7.

88. Kent Harrington, *Mexico's Huge, Untouched Shale-Oil Fields Lure Wildcatters and Criminals*, AICHE, <https://www.aiche.org/chenected/2016/01/Mexicos-huge-untouched-shale-oil-fields-lure-wildcatters-and-criminals> (last visited Aug. 8, 2017).

infrastructure. The lack of an existing infrastructure network has detrimental effects on the potential development of a shale oil industry within the country. For instance, the shale oil formations in the Burgos Basin are known as “technically recoverable reserves,” meaning that oil and gas can be produced with contemporary technology.<sup>89</sup> Just because an energy deposit is technically recoverable does not also mean it is economically recoverable as well, meaning that it could be extracted profitably at the current market price.<sup>90</sup> The extraction process is extremely dependent upon the existence of infrastructure in order to be economically viable.<sup>91</sup> In particular, pipelines to convey oil and gas from field operations, abundant water resources to utilize for the hydraulic fracturing process, and service sector contractors are critical to keeping costs to a minimum for producers of shale oil and gas.<sup>92</sup> Mexico currently lacks developed pipeline networks and roads in close proximity to the country’s shale rich areas.<sup>93</sup> Additionally, there is a complete lack of a shale service sector industry, meaning that there are not contractors that could supply fracturing or other necessities to producers seeking to extract oil and gas from the shale formations.<sup>94</sup> Security is also a matter of grave concern, for in the Burgos Basin, drug related violence and pipeline theft are rampant.<sup>95</sup> With drilling costs estimated between ten and twenty million dollars per individual well, the security related concerns as well as the lack of critical infrastructure must be ameliorated in order for the extraction of shale oil and gas to be perceived as economically viable by the foreign producers or investors that Mexico seeks to attract.<sup>96</sup>

Among the most serious issues in the contemporary energy industry is that of rampant pipeline theft.<sup>97</sup> In fact, Mexico is one of the countries that has been severely impacted by such thefts.<sup>98</sup> On average, 20,000 barrels per day of oil are stolen throughout the entire country, which by comparison, is three times the daily consumption of the city of Washington, D.C.<sup>99</sup> Furthermore, the ongoing reform of the energy industry is likely to make this sphere of criminal endeavor potentially more lucrative than it already is.<sup>100</sup>

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89. *Technically Recoverable Shale Oil and Shale Gas Resources: Mexico*, *supra*, note 84, at 3.

90. *Id.*

91. *Id.*

92. *Id.*

93. Harrington, *supra* note 88.

94. *Technically Recoverable Shale Oil and Shale Gas Resources: Mexico*, *supra* note 84, at II-2.

95. Harrington, *supra* note 88.

96. *Id.*

97. Ricardo Martinez, *Mexico loses millions of dollars daily to fuel theft*, PRI (Oct. 17, 2016, 3:30 PM), <https://www.pri.org/stories/2016-10-17/mexico-loses-millions-dollars-daily-fuel-theft>.

98. *Id.*

99. *Id.*

100. Nacha Cattan & Eric Martin, *Drug Cartels Are Looting Mexican Gas Pipelines*, BLOOMBERG BUSINESSWEEK (Jan. 12, 2017, 4:08 PM), <https://www.bloomberg.com/news/articles/2017-01-12/drug-cartels-are-looting-Mexico-s-gas-stations->.

Pipeline theft has become an increasingly popular illegal activity since the beginning of the second millennium.<sup>101</sup> It is an enterprise with extremely low start-up costs, for the basic equipment to tap into a pipeline can be purchased for less than \$10,000.<sup>102</sup> Also, the risk of being apprehended is extremely low.<sup>103</sup> At first, pipeline theft was conducted by expert criminal organizations, but it has since become a valuable side business for narcotics trafficking organizations.<sup>104</sup> The cartel known as Los Zetas was the first drug trafficking organization to expand into this sphere.<sup>105</sup> Los Zetas are located in the oil rich states of Tamaulipas and Veracruz, and their level of success in siphoning fuel from pipelines encouraged their competitors to enter the industry as well.<sup>106</sup> The cartels are better positioned for success than independent operators, as they have both the financial means and connections to purchase sophisticated equipment and bribe officials.<sup>107</sup> Furthermore, the cartels consider pipeline theft such a lucrative endeavor that they fight each other over dominion of the oil rich areas.<sup>108</sup> By 2013, pipeline theft was so rampant that there was an average of one illegal siphon for every fourteen kilometers of transportation pipelines in existence.<sup>109</sup>

The combined efforts of the federal government, Pemex, and law enforcement have been unable to reduce or prevent the theft of oil from pipelines.<sup>110</sup> The enactment of laws that lengthen the mandatory sentence for pipeline thieves to a minimum of fourteen years have not deterred thieves in the slightest, as the rate detention and prosecution for oil theft is extremely low.<sup>111</sup> Pemex attempted to make theft an unprofitable activity by only shipping unrefined petrochemicals through the pipelines, but this ultimately failed to discourage the thieves.<sup>112</sup> Instead, the criminals changed tactics themselves, and shifted their focus to target refineries or oil storage facilities where it is even more convenient to obtain oil.<sup>113</sup> Shipping the oil by truck has not worked as a countermeasure either, as the hijacking of fuel trucks proved to be no challenge for the organizations involved in oil

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101. Martinez, *supra* note 97.

102. Cattan & Martin, *supra* note 100.

103. *Mexico: Fuel Theft to Increase Costs For Foreign Investors*, PGI INTELLIGENCE, <https://pgi-intelligence.com/news/getNewsItem/Mexico-Fuel-theft-to-increase-costs-for-foreign-investors/677> (last updated Oct. 20, 2017).

104. Cattan & Martin, *supra* note 100.

105. James Bargent, *Stealing Fuel From Pipelines Big Business in Mexico*, INSIGHT CRIME, [www.insightcrime.org/news-briefs/stealing-fuel-from-pipelines-big-business-Mexico](http://www.insightcrime.org/news-briefs/stealing-fuel-from-pipelines-big-business-Mexico) (last visited Aug. 8, 2017).

106. *Id.*

107. *Mexico: Fuel Theft to Increase Costs For Foreign Investors*, *supra* note 103.

108. *Why Drug Cartels are Stealing Mexico's Fuel*, STRATFOR, (Oct. 21, 2015, 9:15 AM), <https://www.stratfor.com/analysis/why-drug-cartels-are-stealing-Mexicos-fuel>.

109. Bargent, *supra* note 105.

110. *Mexico: Fuel Theft to Increase Costs For Foreign Investors*, *supra* note 103.

111. *Id.*

112. Martinez, *supra* note 97.

113. *Id.*

theft.<sup>114</sup> Pemex lacks the ability to safeguard the pipelines, refineries, or storage facilities, primarily due to the entity's struggle to create revenue and to hold onto it.<sup>115</sup> Pemex employees are more likely than not either complicit or outright participants in the thefts.<sup>116</sup> Similarly, law enforcement officers are also believed to be involved, for there is no other explanation as to their inability to prevent theft or detain suspects.<sup>117</sup> Only the military has had some success when deployed to protect pipelines, but the utilization of the military in this capacity is extremely expensive and has only occurred due to the fact that Pemex is an appendage of the national government.<sup>118</sup>

The continuance of pipeline theft is inimical to the effort to reform the Mexican energy industry. As highlighted above, endemic corruption and the lack of willingness to enforce the law have had the effect of making the theft of oil a virtually consequence-free criminal enterprise. In fact, theft is so widespread and lucrative that the national black market for fuel is currently estimated to range from two to four billion dollars annually.<sup>119</sup> Fuel, as opposed to other commodities, cannot be easily traced to its point of origin.<sup>120</sup> Due to the complexity of supply chains, companies in the midstream and downstream sectors of the energy industry often unwittingly purchase stolen fuel.<sup>121</sup> Such a reality is dangerous for both domestic entities and foreign ones looking to operate in Mexico. For example, Shell, Marathon, and ConocoPhillips were sued by Pemex in an American court over allegations that the entities had purchased stolen natural gas condensate from narcotics traffickers.<sup>122</sup> Although the lawsuit was dismissed on jurisdictional grounds, the incident demonstrates just how obscure the origin of fuel can be even to sophisticated participants in the energy industry.<sup>123</sup>

This issue may become even more serious as the process of energy reform continues, especially with regards to how the retail sale of fuel is set to evolve. One facet of energy reform is that Pemex will no longer be the only retailer of fuel, nor the only allowed supplier to privately held retail operations.<sup>124</sup> Before privatization efforts began, the Mexican Association of Gas Station Owners estimated that stolen fuel comprised thirty percent of daily gasoline sales.<sup>125</sup> Furthermore, the price of gasoline is set to rise in the near future.<sup>126</sup> In early 2017, the government announced that it would end

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114. *Why Drug Cartels are Stealing Mexico's Fuel*, *supra* note 108.

115. Martinez, *supra* note 97.

116. *Mexico: Fuel Theft to Increase Costs For Foreign Investors*, *supra* note 103.

117. Martinez, *supra* note 97.

118. *Mexico: Fuel Theft to Increase Costs For Foreign Investors*, *supra* note 103.

119. Martinez, *supra* note 97.

120. *Mexico: Fuel Theft to Increase Costs For Foreign Investors*, *supra* note 103.

121. *Id.*

122. *Id.*

123. *Id.*

124. Martinez, *supra* note 97.

125. *Why Drug Cartels are Stealing Mexico's Fuel*, *supra* note 108.

126. Cattan & Martin, *supra* note 100.

subsidizing the sale of gasoline, which it previously had to the tune of nine billion dollars annually.<sup>127</sup> The federal government hopes that the cessation of the massive subsidy will encourage private investment in the retail fuel business, a development which is thought will aid the government's efforts to downsize Pemex.<sup>128</sup> However, the likely end result of the price increase in gasoline will be that the theft of oil from pipelines will increase.<sup>129</sup> Stolen fuel can be sold at relatively cheap wholesale prices, and retailers will be incentivized to purchase discounted fuel even if it is illegal, as they know full well that the consumers are going to be more cost-conscious than ever.<sup>130</sup> Pipeline theft and an established market for illicit petroleum will continue to be a reality unless the federal government is able to effect change in this area.

#### IV. Overall Goals of Energy Reform

As discussed herein, Mexico has the perplexing combination of valuable, untapped oil and natural gas reserves within its borders and international waters, but lacks the capital, technology and expertise necessary to extract such hydrocarbons.<sup>131</sup> The existing model of energy exploration, extraction, production, and distribution has grown stagnant, and in large part, is the exact reason why Mexico faces a conundrum of this magnitude. However, it is expected that the goals of energy reform pertain to much more than just the modernization of the energy industry.<sup>132</sup>

Ultimately, the primary goal of all energy reform measures is to return Mexico, and by extension, Pemex to its former status as a major player in the global energy market.<sup>133</sup> As it currently exists, Pemex is far too degenerate an institution to achieve this ambitious goal. The proponents of reform measures hope that by introducing competition where there previously has been none, primarily by allowing for the involvement of foreign entities and investors, that Pemex will be forced to eradicate internal corruption and revamp its structure in order to become more efficient.<sup>134</sup> Thus, forcing Pemex to function more like a private company and not an inefficient government bureaucracy is crucial to the future of Mexico's energy industry.<sup>135</sup>

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127. *Id.*

128. *Id.*

129. *Id.*

130. *Id.*

131. Garret Hering, *Energy Reform: will Mexico's Newest revolution boost renewables-or just fossil fuels?* THE GUARDIAN, <https://www.theguardian.com/sustainable-business/2015/Jun/02/Mexico-oil-companies-reform-gas-hydrocarbon> (last visited Aug. 20, 2017).

132. *Id.*

133. *Id.*

134. *Id.*

135. *Id.*

A critical secondary goal of the energy reform movement in Mexico is the diversification of the industry within the country.<sup>136</sup> Such a goal is less pertinent to the operations of Pemex than it is to electrical utilities and the Comision Federal de Electricidad (CFE).<sup>137</sup> Where CFE previously possessed a monopoly on the generation and wholesale supply of power, it is hoped that ending the CFE's monopoly will create a wide open, competitive market for electrical utilities.<sup>138</sup> In short, by opening up the ability to both generate and distribute electrical power, this will allow the participation in the market of non-traditional suppliers and producers who utilize more sustainable, non-traditional methods to generate electricity.<sup>139</sup> The most crucial aspect of this will be to ensure that all parties have access to the electric grid and that discrimination does not occur.<sup>140</sup> Within the overall reach of this secondary category is the idea of promoting renewable sources of energy as well as the efficient use of energy by utilizing market incentives to induce potential producers to develop such an industry in Mexico.<sup>141</sup>

Another secondary goal of energy reform is to relieve Pemex of the intense pressure it has to prop up the federal treasury.<sup>142</sup> The removal of such a momentous burden will have obvious benefits for Pemex, but the government must create an adequate replacement. It has been announced that in lieu of Pemex serving as a piggy bank, a national development trust will be created and funded by income from the extraction and production of petroleum.<sup>143</sup> The Banco de Mexico will serve as the administrator of this developmental trust, which will be used to support pensions, investments in infrastructure, and will fund grants for scientific research as well as for scholarships.<sup>144</sup> The model for this is the national oil trust in use by Norway and funded by the operations of the Norwegian state-owned firm, Statoil.<sup>145</sup> With such an alternative funding structure in place, it is hoped that Pemex will be released from the shackles which inhibit its strategic planning and operations.

## V. Initial Legal Changes

The goals of any reform platform are abstract and intangible until they are codified into law. As described above, the express intent of the reformatory efforts is to modernize the energy industry. In order to do so, the legal mechanisms which have allowed for the stagnation of energy production and infrastructure development must be eradicated. This section will briefly

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136. *Id.*

137. Hering, *supra* note 131.

138. *Id.*

139. *Id.*

140. *Id.*

141. *Id.*

142. Hering, *supra* note 131.

143. *Id.*

144. Vietor, *supra* note 48 at 5.

145. Williams, *supra* note 52.

summarize the changes that have already occurred, and explore the intricate details by which the reformists seek to accomplish their underlying goals. Note, however, that the speed at which a system of laws is modified does not occur rapidly. The process is still ongoing. Thus, this section will touch on only those matters that have been enacted in full.

#### A. A SUMMARY OF THE LEGAL CHANGES

In December 2013, Articles 25, 27, and 28 of the Mexican Constitution were amended to allow for a variety of contracts and investment models in the nation's hydrocarbon resources.<sup>146</sup> While the amendments stipulate that the nation retains legal ownership of the hydrocarbons under the soil, Pemex no longer has the exclusive right to explore the country for oil and gas deposits, as well as their subsequent extraction.<sup>147</sup> By August 2014, the majority of the comprehensive energy reform measures and proposals were enacted into law.<sup>148</sup>

The new laws are intended to serve two important purposes. Firstly, changes have been made to the tax regime and finance laws in order to attract foreign oil producers.<sup>149</sup> Secondly, Pemex's tax liability and other obligations have been reduced in order to allow the state run entity to become more competitive.<sup>150</sup> The new legal measures often serve both purposes simultaneously. For example, royalty payments were not needed when Pemex had exclusive extraction rights for all of Mexico's hydrocarbons.<sup>151</sup> The government simply could tax the revenue accrued by Pemex, and had no need for a more intricate system of raising revenue from the extraction process.<sup>152</sup> Consequently, when royalty measures were codified in 2014, it was stipulated that all royalty payments will be to the Mexican Petroleum Fund alone.<sup>153</sup> Thus, potential investors can work estimated royalty payments into their decision making process, and Pemex will be partially relieved of the need to be the nation's primary source of revenue.<sup>154</sup> Likewise, the cap of cost deductions at a rate of \$6.50/barrel of oil creates certainty for the potential tax obligation of foreign producers and benefits Pemex, as it reduces the entity's tax liability as well.<sup>155</sup>

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146. *Mexico enacts sweeping energy reform affecting the oil and gas industry*, ERNST & YOUNG, [www.ey.com/Publication/vwLUAssets/ey-energy-alert-Mexico-enacts-sweeping-energy-reform-affecting-the-oil-and-gas-industry/\\$file/ey-energy-alert-Mexico-enacts-sweeping-energy-reform-affecting-the-oil-and-gas-industry.pdf](http://www.ey.com/Publication/vwLUAssets/ey-energy-alert-Mexico-enacts-sweeping-energy-reform-affecting-the-oil-and-gas-industry/$file/ey-energy-alert-Mexico-enacts-sweeping-energy-reform-affecting-the-oil-and-gas-industry.pdf) (last visited Aug. 20, 2017).

147. *Id.*

148. Diana Villiers Negroponte, *Mexico's Energy Reforms Become Law*, BROOKINGS, <https://www.brookings.edu/articles/Mexicos-energy-reforms-become-law/> (last visited Aug. 20, 2017).

149. *Id.*

150. *Id.*

151. *Id.*

152. *Id.*

153. *Id.*

154. Diana Villiers Negroponte, *Mexico's Energy Reforms Become Law*, BROOKINGS, <https://www.brookings.edu/articles/Mexicos-energy-reforms-become-law/> (last visited Aug. 20, 2017).

155. *Id.*



When viewed collectively, the measures passed in 2014 are conservative in outlook.<sup>156</sup> The state has not relinquished its total legal ownership of all minerals, including hydrocarbons, beneath Mexico's sovereign soil.<sup>157</sup> Pemex will still be a major player in the national energy industry.<sup>158</sup> Instead of having to bear all costs, Pemex will seek to partner with private entities to develop the oil fields it has retained the rights to extract hydrocarbons from.<sup>159</sup> The ability to allocate risks as well as the capital investments necessary to drill either on land or in the Gulf of Mexico will allow Pemex to reduce its expenditures while benefiting from the advanced technology and skill of foreign oil concerns.<sup>160</sup>

One of the most interesting measures stipulates that ownership of equipment and materials utilized in the extraction of oil and gas must be transferred to the Mexican government without charge upon termination of a license to extract hydrocarbons from the subterranean soil.<sup>161</sup> This would occur only if the entity that owns such equipment is the one that has directly contracted with the government.<sup>162</sup> Any equipment owned by a contractor that is not in privity with the government would be exempt from this provision.<sup>163</sup> Additionally, all entities must also be incorporated under Mexican law and be located within the country for purposes of taxation.<sup>164</sup> The Mexican court system will serve as the forum for adjudication of all disputes.<sup>165</sup> Such provisions are compatible with the government's objective of allowing for foreign investment and participation in the development of the energy industry all while reserving the ability to dictate exactly how such involvement may occur.

## B. THE FIBRA E TAX REGIME

### 1. *Creation + Purpose of the FIBRA E Regime*

As part of the energy reform objectives, the Mexican government has a pressing need to create a means by which foreign concerns and investors would serve as the primary source of investment capital for projects within

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156. *Mexico enacts sweeping energy reform affecting the oil and gas industry*, *supra* note 146.

157. *Id.*

158. Ricardo Garcia-Moreno, *The Changing Future in Mexico's Oil & Gas Industry: Growth and Expansion*, THE OIL AND GAS CONFERENCE 5, [http://www.theoilandgasconference.com/downloads\\_TOGC\\_2016/The-Changing-Future-of-Mexicos-oil.pdf](http://www.theoilandgasconference.com/downloads_TOGC_2016/The-Changing-Future-of-Mexicos-oil.pdf) (last visited Aug. 20, 2017).

159. *Id.*

160. *Id.*

161. *The Oil & Gas Fiscal Regime in Mexico*, DELOITTE ENERGY AND NATURAL RESOURCES GROUP, [https://www2.deloitte.com/content/dam/Deloitte/Mx/Documents/tax/2\\_Oil\\_Gas\\_Fiscal\\_Regime.pdf](https://www2.deloitte.com/content/dam/Deloitte/Mx/Documents/tax/2_Oil_Gas_Fiscal_Regime.pdf) (last visited Aug. 20, 2017).

162. *Id.*

163. *Id.*

164. *Id.*

165. *Id.*

the energy and infrastructure sectors.<sup>166</sup> Ultimately, the budgets of Pemex and the CFE need to be reduced, but the need to fund ongoing operations remains.<sup>167</sup> Thus, there existed a need to create a vehicle through which to channel infusions of capital to domestic entities in the fields of energy, utility service, and infrastructure that would be attractive to foreign investors.<sup>168</sup> This vehicle would have to effectively replace both Pemex and the CFE as the primary source of funding, especially for ongoing electric or energy operations.<sup>169</sup>

Such an investment vehicle was officially created in September 2015, and was slated to go into effect in October of the same year.<sup>170</sup> This vehicle was called the Fidei Comiso de Inversion en Energia e Infraestructura (Fibra-E).<sup>171</sup> The Fibra-E is effectively the tax regime for a Mexican Real Estate Investment Trust, or Fibra, adapted for use in the energy industry, or as some commentators have described it, the Master Limited Partnership structure from the United States adapted to Mexican tax law.<sup>172</sup> Furthermore, the Fibra-E serves as the issuing entity of a security that is capable of being quoted on stock exchanges.<sup>173</sup> What would be securitized are mature assets in oil, gas, energy, or infrastructure.<sup>174</sup> Mature Assets were chosen specifically because these assets already have a track record of production, and thus, a rate of return on a potential investment can be quickly discerned, and subsequently marketed to prospective investors.<sup>175</sup>

## 2. Basic Structure of a Fibra E

All Fibra E's are required to take the form of a trust created in accordance with applicable Mexican law.<sup>176</sup> The entity that serves as the trustee must be a banking institution or authorized brokerage residing in Mexico.<sup>177</sup> Once a Fibra E is created, the trustee is required to issue security certificates, known as Certificados Bursatil Fiduciaros (CBFI), and register the CBFIs with the

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166. Santiago Diaz Rivera & Enrique Perez Grovas, *Positive Amendments to the Mexican Fibra E Tax Regime*, USM COCNE [www.usmcocne.org/newsletter/Summer2016/AmendmentstoFibraERules\(EPG\).pdf](http://www.usmcocne.org/newsletter/Summer2016/AmendmentstoFibraERules(EPG).pdf) (last visited Jan. 16, 2017).

167. *Id.*

168. *Id.*

169. *Id.*

170. *Id.*

171. Carlos Enrique Naime Haddad & Ricardo Rendon Pimental, *Mexico: Mexico FIBRA-E: An Update On The Investment Opportunities* MONDAQ [www.mondaq.com/mexico/x/534640/commodities+derivative+stock+Exchanges/Mexican+FibraE+An+Update+On+The+Investment+Opportunities](http://www.mondaq.com/mexico/x/534640/commodities+derivative+stock+Exchanges/Mexican+FibraE+An+Update+On+The+Investment+Opportunities) (last visited Oct. 12, 2016).

172. Rivera & Grovas, *supra* note 166.

173. Haddad, *supra* note 171.

174. *Id.*

175. *Id.*

176. *Mexico's FIBRA E tax regulations*, ERNST & YOUNG, [www.ey.com/Publication/vwLUAssets/ey-Mexico-fibra-e-tax-regulations/\\$File/ey-Mexicos-fibra-e-tax-regulations.pdf](http://www.ey.com/Publication/vwLUAssets/ey-Mexico-fibra-e-tax-regulations/$File/ey-Mexicos-fibra-e-tax-regulations.pdf) (last visited, Aug. 20, 2017).

177. *Id.*

National Securities Register.<sup>178</sup> It is also important to note that the Fibra E is an equity instrument; as such, it is not required under applicable law to have a credit rating.<sup>179</sup> The trustee will be required to distribute a dividend to CBFi holders at least once a year.<sup>180</sup> The dividends distributed must comprise at a minimum, ninety-five percent of the Fibra E's taxable income for that fiscal year.<sup>181</sup> The distribution requirement is specifically designed to make the Fibra E an attractive investment vehicle.<sup>182</sup> A Fibra E must have an extensive trust agreement that governs how it will operate.<sup>183</sup> As stated above, ninety-five percent of the Fibra E's taxable income must be distributed, however, this amount does not include certain expenses.<sup>184</sup> A Fibra E must pay fees to the trustee, commissions to managers, and retain a certain threshold amount that allows the trust to continue to function properly.<sup>185</sup> Such a prudent reserve would vary and would depend upon both the total size of the corpus of the trust and the provisions of the trust agreement.<sup>186</sup> A Fibra E trust may also repurchase CBFIs it has issued, provided that the funds utilized to do so are derived from the reserve it maintains to keep the fund operating.<sup>187</sup>

A Fibra E does not own any assets outright.<sup>188</sup> Instead, legal entities known as a "Promoted Companies" will own any assets, while the Fibra-E is as a shareholder of the promoted companies.<sup>189</sup> In addition to owning the assets, the Promoted Companies are treated as a pass-thru tax entity by Mexican tax law, so it will not be taxed at the corporate level.<sup>190</sup> For all intents and purposes, Promoted Companies are business trusts.<sup>191</sup> A Promoted Company is tied into the Fibra-E structure by the requirement that all of its shareholders be legal entities that have their tax situs in Mexico.<sup>192</sup> Similarly, a Fibra E is required to invest seventy percent of its funds in shares of Promoted Companies.<sup>193</sup> It is also important to note that any Pemex owned subsidiary will not qualify as a Promoted Company.<sup>194</sup> Also, any entity that has directly contracted with the National

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178. *Id.* at 3.

179. *New Fibra-E investment Structure for the Energy Industry in Mexico*, PRICEWATERHOUSECOOPERS, <https://www.pwc.com/mx/es/impuestos/archivo/2015001-T15-boletin-nueva-fibra-e-en.pdf> (last visited, Aug. 20, 2017).

180. *Mexico's FIBRA E tax regulations*, *supra* note 176, at 3.

181. *New Fibra-E investment Structure for the Energy Industry in Mexico*, *supra* note 179.

182. *Id.*

183. *Mexico's FIBRA E tax regulations*, *supra* note 176, at 3.

184. *Id.*

185. *Id.*

186. *Id.*

187. Rivera & Grovas, *supra* note 166.

188. *Id.*

189. *Id.*

190. *Id.*

191. *Mexico's FIBRA E tax regulations*, *supra* note 176, at 3.

192. *Id.*

193. *Id.* at 3.

194. *Id.*

Hydrocarbons Commission cannot be a Promoted Company.<sup>195</sup> In theory, an entity under contract with the National Hydrocarbons Commission will be engaged in a Pemex related project.<sup>196</sup>

A Promoted Company is required to generate at least ninety percent of its income from a specified category of business endeavors that are known as “exclusive activities.”<sup>197</sup> The first category of exclusive activities relates to the refining, treatment, transportation, and storage of both petroleum and natural gas.<sup>198</sup> The second category involves the generation, transmission, and distribution of electricity.<sup>199</sup> The third category involves infrastructure projects that are designed to ultimately benefit the public sector.<sup>200</sup> While the third category of exclusive activities does not appear to be related to the energy industry, the category encompasses such things as highways, railroads, port facilities, and airfields that from an operational view, are critical to the energy industry as a whole.<sup>201</sup> It is further mandated that a project that fits the definition of the third category must be both operational and have seven years of remaining useful class life under the applicable Mexican tax regime.<sup>202</sup> With regards to the third category of exclusive activities, it is apparent that this particular category was included because the government wishes to modernize the entire energy industry, not just the facets that involve exploration, extraction or the production of petroleum or natural gas products.<sup>203</sup> Furthermore, the projects within the third category are likely in need of the infusion of capital.<sup>204</sup>

The tax treatment of the Fibra E necessarily begins with the Promoted Companies it owns shares in, since such companies are pass thru entities.<sup>205</sup> In the event that a Promoted Company was to incur a net tax loss in a fiscal year, it would not be able to apportion the loss among the Fibra E's that are its shareholders.<sup>206</sup> Instead, the Promoted Company that incurred the loss would have to use the loss to offset tax liability resulting from any future gains.<sup>207</sup> The Fibra E itself will not be taxed on the income it receives from the Promoted Companies it owns shares in; only the holders of CBFIs in the Fibra E are required to pay taxes.<sup>208</sup> A holder of a CBFIs will owe taxes to

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195. *Id.*

196. *Id.*

197. *Mexico's FIBRA E tax regulations*, ERNST & YOUNG, [www.ey.com/Publication/vwLUAsets/ey-Mexico-fibra-e-tax-regulations/\\$File/ey-Mexicos-fibra-e-tax-regulations.pdf](http://www.ey.com/Publication/vwLUAsets/ey-Mexico-fibra-e-tax-regulations/$File/ey-Mexicos-fibra-e-tax-regulations.pdf) (last updated Sept. 30, 2015).

198. *Id.*

199. *Id.*

200. *Id.*

201. *Id.*

202. *New Fibra-E investment Structure for the Energy Industry in Mexico*, *supra* note 179.

203. *Id.*

204. *Id.*

205. *Mexico's FIBRA E tax regulations*, *supra* note 176 at 5.

206. *Id.*

207. *Id.*

208. Haddad, *supra* note 171.

the government based upon the amount of the dividend distributed to them by the Fibra E.<sup>209</sup> Additionally, tax will be owed by a CBFi holder upon sale, since a CBFi issued by a Fibra E is alienable.<sup>210</sup> However, there is a special provision in the applicable tax regime for foreign investors.<sup>211</sup> If a foreign investor sells the CBFi he possesses to other investors in an established marketplace, he will be exempt from paying income tax to the Mexican government on the amount realized from the sale.<sup>212</sup> With regards to the last statement, it is not yet apparent what the tax authorities regard as an appropriate marketplace, but it is likely that such a sale should be conducted within Mexico.<sup>213</sup>

Since the Fibra E was officially created in September of 2015, there is little information out there on the evolution of this instrument or if any problems have arisen since its inception.<sup>214</sup> The subsection below will serve as a substitute for examining how a similar investment vehicle has been received by investors.

### C. FIBRA

The Fibra E will not be the first instance in which Mexico has utilized a pass-thru, trust like structure for the purpose of utilizing foreign and private capital sources.<sup>215</sup> A brief examination of a similar tax regime specifically structured for the real estate industry may shed some light on the potential issues and expected outcomes the Fibra E vehicle may face in the near future.<sup>216</sup> In 2011, the Mexican government created the FIBRA (Fibra), which is a real-estate investment trust (REIT), a popular investment vehicle in real property in the United States adapted for the local tax regime.<sup>217</sup> A REIT bundles various and sundry real estate portfolios for sale on the stock market and pays out dividends to investors, which are derived from the rents collected on the leases of the property.<sup>218</sup> This investment vehicle was specifically created to give real estate developers access to the public equity market as well as enable individual investors to buy investments in

209. Rivera & Grovas, *supra* note 166.

210. Haddad, *supra* note 171.

211. *Id.*

212. *Id.*

213. *Id.*

214. Rivera & Grovas, *supra* note 166.

215. Kris Hudson, *Respect Still Eludes Mexican REIT's*, WALL STREET J., <https://www.wsj.com/articles/SB1000142405270233643304> (last visited Aug. 20, 2017).

216. *Id.*

217. Louis F. Moreno Trevino, *The Infrastructure and Real Estate Trust in Mexico (FIBRA)*, <http://www.haynesboone.com/alerts/2010/12/07/the-infrastructure-and-real-estate-trust-in-mexico-fibra> (last updated Dec. 7, 2010).

218. Nacha Cattán, *Analysts Got It Wrong With Mexico REIT Rally That Never Occurred*, BLOOMBERG (Sept. 8, 2015, 3:56 PM), <https://www.bloomberg.com/news/articles/2015-09-08/analysts-got-it-wrong-with-mexico-reit-rally-that-never-occured>.

commercial property.<sup>219</sup> A Fibra would not be assessed a corporate income tax under the domestic tax regime as long as all income was distributed directly to the investors as dividends.<sup>220</sup>

However, in the initial two years after the Fibra was created, the signs were not encouraging.<sup>221</sup> In the years 2011-2013, only six Fibras were created in total; of a national real estate market valued at \$370 billion, the Fibras only possessed an estimated \$8.3 billion slice of the overall market.<sup>222</sup> The failure of the Fibra to have a successful launch as hoped for has been attributed to investor reluctance.<sup>223</sup> Among the major investor concerns is the fact that the Fibra's do not possess governance or management internal governance provisions that are favorable to investors.<sup>224</sup> Many of the Fibras were founded by wealthy and influential individuals who also owned the majority of the companies charged with the management of the Fibra.<sup>225</sup> Since such external management entities charge fees based on the valuation of assets and acquisitions made by the Fibra, investors are wary of self-dealing or outright fraud.<sup>226</sup> Ultimately, in order to be a more attractive investment option, individual Fibra's must demonstrate utter transparency and a management structure answerable to investors only.<sup>227</sup>

## VI. Cross Border Pipelines: A Case Study

Up until the end of the second millennium, Mexico was self-sufficient in terms of supplying natural gas to all internal consumers.<sup>228</sup> However, by the end of the year 2000, demand far outstripped the available supply.<sup>229</sup> The inability to react to the change in the market was a result of Pemex's decision to refrain from both investing in exploring for deposits and extracting substantial quantities of natural gas.<sup>230</sup> Since then, Mexico has become a net importer, and currently imports forty percent of the natural gas it consumes from the United States.<sup>231</sup> Additionally, due to the increasing popularity of natural gas for the generation of electricity and for industrial uses, Mexico is expected to import up to ten percent of total U.S. natural gas produced in

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219. *What is a Fibra?* FibraMacquarie.com, <http://www.fibramacquerie.com/about-fibramq/what-is-a-fibra> (last visited Aug. 22, 2017).

220. Hudson, *supra* note 215.

221. *Id.*

222. *Id.*

223. *Id.*

224. *Id.*

225. *Id.*

226. Hudson, *supra* note 215.

227. *Id.*

228. Claudia May Del Pozo, *Building the Future Mexican Natural Gas Industry*, OIL AND GAS MEXICO [www.oilandgasmexico.com/2015/08/17/building-the-future-mexican-natural-gas-industry/](http://www.oilandgasmexico.com/2015/08/17/building-the-future-mexican-natural-gas-industry/) (last visited Aug. 20, 2017).

229. *Id.*

230. *Id.*

231. *Id.*

the near future.<sup>232</sup> What has occurred in recent years regarding the partnership of Mexican entities with foreign investors offers a glimpse into how positive international partnerships in the energy sector can be as well as the potential such collaborations have for investors.

The surge in demand for American natural gas has exposed a weakness in Mexico's energy infrastructure and transportation networks.<sup>233</sup> With projections indicating that total U.S. natural gas exports to Mexico are likely to reach 3.8 billion cubic feet per day by 2018, Mexico would require extensive natural gas pipeline networks in order to both transport and store the natural gas.<sup>234</sup> However, Mexico's network of natural gas pipelines is dramatically eclipsed by the pipelines in Texas alone.<sup>235</sup> This presents a daunting obstacle that unless ameliorated, would serve to bar rather than facilitate the importation of natural gas.

While not widely known, Mexico actually opened up the midstream sector, or pipeline operation and construction, to both private and foreign investors in 1997.<sup>236</sup> However, this development was not met with enthusiasm by the private sector nor by investors abroad.<sup>237</sup> This was due to the fact that Pemex had complete control of the natural gas industry at that time as well as the fact that the Mexican tax regime offered little or no incentives to foreign investors looking to possibly be involved in energy related projects.<sup>238</sup> What developments have occurred since then with regards to natural gas pipelines offers a glimpse of what can occur when the Mexicans desire to collaborate with private firms and investors towards mutually beneficial ends.

The incarnation that such a mutually beneficial project has taken is that of a joint venture.<sup>239</sup> A current example would be a joint venture between Pemex, and U.S. firms, BlackRock and First Reserve, for the purpose of constructing a pipeline by which to export natural gas produced in Texas down into Mexico.<sup>240</sup> BlackRock, which is an asset manager, and First Reserve, a private equity firm, have taken a joint stake worth \$900 million in the second phase of the Los Ramones project.<sup>241</sup> The position taken by the Americans comprises about forty-five percent of the construction costs

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232. *Id.*

233. *Mexico's Emerging Infrastructure Opportunity*, ERNST & YOUNG [www.ey.com/Publication/vwLUAssets/EY-Mexico-emerging-infrastructure-opportunity/\\$File/EY-Mexico's-emerging-infrastructure-opportunity.pdf](http://www.ey.com/Publication/vwLUAssets/EY-Mexico-emerging-infrastructure-opportunity/$File/EY-Mexico's-emerging-infrastructure-opportunity.pdf) (last visited Aug. 20, 2017).

234. *Id.*

235. *Id.*

236. *Id.*

237. *Id.*

238. *Id.*

239. Hering, *supra* note 131.

240. *Id.*

241. *Update 1: BlackRock and First Reserve take \$900 million stake in Mexico Pipeline Project*, REUTERS [www.reuters.com/article/blackrock-Mexico-pipeline-idUSL2N0WS2Q420150326](http://www.reuters.com/article/blackrock-Mexico-pipeline-idUSL2N0WS2Q420150326) (last visited Aug. 8, 2017).

according to Pemex.<sup>242</sup> The Los Ramones project will be utilized to transport gas from Mexico's northern border to the central region of the country.<sup>243</sup>

The Los Ramones project serves to indicate how quickly the critical development of necessary infrastructure can be accomplished when identified as a priority. Additionally, the Los Ramones project is a good case study of a project that has commenced after the enactment of energy reforms began.<sup>244</sup> In the forty years prior to 2012, there had been no development of a natural gas pipeline project within Mexico.<sup>245</sup> Pemex projected annual growth in the domestic supply of natural gas being produced to be eclipsed by the projected increase in natural gas usage.<sup>246</sup> One of the primary reasons for this was the fact that many power plants were converting from utilizing oil to using natural gas as their primary fuel source.<sup>247</sup> Thus, Pemex conceived a project that would transport American natural gas first into the northern states of Tamaulipas and Chihuahua, with the second phase of the project transporting the natural gas down into the centrally located Mexican states.<sup>248</sup>

Overall, Pemex sought to develop four pipelines that would have a combined length of over 1,000 kilometers.<sup>249</sup> To this end, four special purpose entities were created and a bidding process was opened up to both private and foreign entities in July 2012.<sup>250</sup> Though bidding entities had to meet certain pre qualifications involving demonstrated expertise in pipeline construction in order to be eligible to participate in the bidding, what was offered in return was particularly intriguing.<sup>251</sup> The winning entity would receive a special discounted rate on the importation tariff of natural gas.<sup>252</sup> While the winning bidder would have to provide all investment funding, in return it would obtain ninety percent ownership of the special purpose entity created by Pemex for the pipeline project.<sup>253</sup> Pemex, or in the case of one segment of the Los Ramones project, its subsidiary, would retain ten percent

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242. *Id.*

243. *Id.*

244. *Presentation on Los Ramones Phase II*, PEMEX, [www.gas.pemex.com/NR/rdonlyres/014D49D7-5E7A-4103-A8CA-2C5F2B11871D/0/PresentationLosRamonesPhaseII2May2013.pdf](http://www.gas.pemex.com/NR/rdonlyres/014D49D7-5E7A-4103-A8CA-2C5F2B11871D/0/PresentationLosRamonesPhaseII2May2013.pdf) (last visited Aug. 8, 2017).

245. *Id.*

246. *Id.*

247. Christine Burrma, *One Gas Line is About to Boost U.S.-Mexico Exports by 20%* BLOOMBERG (May 2, 2016, 4:01PM), <https://www.bloomberg.com/news/articles/2016-05-02/this-project-is-about-to-boost-U-S-Mexico-gas-exports-by-20>.

248. Pemex, *supra* note 244.

249. *Id.*

250. *Id.*

251. *Id.*

252. *Id.*

253. *Id.*



ownership due to the fact that Pemex would be enlisted to maintain and operate the pipeline.<sup>254</sup>

The Los Ramones project has the potential to be a rather lucrative undertaking, especially for the foreign investors. All told, the natural gas pipeline will run from an export hub in Agua Dulce, Texas all the way down to Guanajuato in central Mexico.<sup>255</sup> This particular pipeline is expected to supply roughly twenty percent of Mexico's total demand natural gas in the near future.<sup>256</sup> The total project is projected to have cost \$2.3 billion overall and is one of the largest investments in Mexican infrastructure.<sup>257</sup> The demand for natural gas in Mexico will not be a passing phase either. As previously stated herein, many power plants are converting to the use of natural gas as the primary fuel source with which to generate electricity.<sup>258</sup> Furthermore, manufacturers are also expected to increase their consumption of natural gas as a fuel source.<sup>259</sup> Once the Los Ramones pipeline is operating at full capacity, it is projected that it alone will boost total exports of U.S. natural gas by seventeen to twenty-two percent.<sup>260</sup> This will be attractive to American producers of oil and gas, for the extraction of oil from shale formations has left them with excess supplies of natural gas in need of a home.<sup>261</sup>

However, the Los Ramones project would simply not have been conceivable prior to the commencement of the energy reform process.<sup>262</sup> Though demand for natural gas by both industrial concerns and household consumers was increasing, the demand exceeded what domestic supply could be produced.<sup>263</sup> A neighboring nation has an abundant, readily available supply of natural gas.<sup>264</sup> However, Mexico lacked the infrastructure necessary to transfer the product directly to consumers.<sup>265</sup> Previous attempts to solicit investments have failed due to the dominance of Pemex in the market and an unfavorable tax regime.<sup>266</sup> However, the reforming of the Mexican energy industry means that what was once inconceivable is now achievable. The deregulation of Mexico's energy market and the steps

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254. *Presentation on Los Ramones Phase II*, PEMEX, [www.gas.pemex.com/NR/rdonlyres/014D49D7-5E7A-4103-A8CA-2C5F2B11871D/0/PresentationLosRamonesPhaseII2May2013.pdf](http://www.gas.pemex.com/NR/rdonlyres/014D49D7-5E7A-4103-A8CA-2C5F2B11871D/0/PresentationLosRamonesPhaseII2May2013.pdf) (last visited Aug. 8, 2017).

255. *Id.*

256. *Emerson awarded contract for Pemex Los Ramones Pipeline System*, PIPELINES INTERNATIONAL <https://www.pipelinesinternational.com/2016/02/23/emerson-awarded-contract-for-pemex-los-ramones-pipeline-system/> (last visited Feb. 23, 2016).

257. *Id.*

258. *Mexico's Emerging Infrastructure Opportunity*, *supra* note 233.

259. Burrma, *supra* note 247.

260. *Id.*

261. *Id.*

262. *Id.*

263. Pemex, *supra* note 254.

264. Burrma, *supra* note 247.

265. EY, *supra* note 176.

266. *Id.*

undertaken to dismantle the state-owned energy monopolies has meant that it is both easier and attractive for private or foreign investors to develop pipeline projects.<sup>267</sup> Thus, if the demand of consumers for natural gas meets or exceeds the projections of analysts, there will be a rush by other investors to follow the lead of BlackRock and First Reserve. The ability to own ninety percent of a crucial fuel conduit would be a sound, long-term investment.<sup>268</sup> The Los Ramones project and other pipeline endeavors represent what is achievable when Mexico, and by extension, Pemex, are willing to partner with private or foreign entities on energy development.

## VII. Conclusion

Mexico was at an important crossroads in the second decade of the twenty-first century. Since 1938, Mexico, and Mexico alone, had been in complete control over the extraction of hydrocarbons and production of energy within its borders. However, energy policy and practices have been far too shortsighted in nature, and there was a serious lack of long term planning. The state-owned oil company, Pemex, was treated as a lucrative source of cash by the Mexican government, as substantial profits accrued by the company were deposited directly into the federal treasury. Unlike a private entity of a similar size, profits were not retained nor reinvested into the company. Thus, when similarly sized private competitors might utilize retained earnings to develop new extraction or exploration technologies, train their workforce or simply reserve the cash for future investments, Pemex relinquished the funds. The entity was effectively a cash cow for the federal government, employees with guaranteed lifetime employment and union leaders. Everything was fine until the wheels began to fall off the train, and the proverbial chickens came home to roost. As current producing oil fields began to experience declines in the rate of production, it soon became apparent that Pemex had failed to explore, identify, and prepare to extract from new reservoirs or deposits of fossil fuels. While Mexico's northern neighbor, the United States experienced an oil boom in the extraction of hydrocarbons from shale formations, Pemex lacked the capability, expertise, and technology to do the same.<sup>269</sup> Instead, Pemex drilled a few test wells in Mexico's portion of the Eagle Ford Formation and did little beyond that.<sup>270</sup> Furthermore, the dependence of the government upon the state-owned entity to subsidize government spending effectively meant that it would be difficult for Pemex to issue debt as a means of funding the exploitation of new hydrocarbon fields. Indeed, when the government estimates that an estimated \$350 billion is the amount needed to modernize the energy industry in Mexico, it became apparent that the assumption of debt or the issuance of debt would not be able to raise this

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267. Burrma, *supra* note 247

268. *Id.*

269. *Technically Recoverable Shale Oil and Shale Gas Resources: Mexico, supra* note 84.

270. *Id.*

amount of capital.<sup>271</sup> The solicitation of capital from foreign investors was the only manner by which to accomplish the modernization of Mexican energy related industry and infrastructure without effectively mortgaging the entire country.

However, to allow for the participation of foreigners in the energy industry would be politically risky, for the oil expropriation of 1938 is ingrained in the collective Mexican psyche as an assertion of national sovereignty, and was feted as a patriotic holiday each March 18th.<sup>272</sup> In 2008, for example, the mere attempt to introduce rudimentary reforms in the energy industry led to massive protests in the streets of Mexico City.<sup>273</sup> Thus, the much needed energy reforms that were proposed in 2012 delicately balanced internal political sentiments with the stark reality of the situation of the energy industry in Mexico.<sup>274</sup> Consequently, the reforms were not as radical in scope as they arguably should have been, but rather reflected a compromise.<sup>275</sup> Pemex and CFE would not be sold off nor privatized; nor would the proposed constitutional changes relinquish the state's ownership of its mineral resources.<sup>276</sup> Instead, the goal was to create vehicles by which foreign investors and Pemex would partner to share both the risk and profits from oil exploration and extraction projects.<sup>277</sup> Thus, neither investors nor Pemex would be forced to bear all the risks associated with the difficulties of extraction of hydrocarbons in the deep-water oil fields of the Gulf of Mexico, nor would more tantalizing, safer, and more profitable projects like the extraction of oil and natural gas from shale formations be reserved exclusively by Pemex.<sup>278</sup>

Certain projects have already proven to be popular or at the very least perceived to be viable risks by foreign investors. For example, the substantial investment by American entities BlackRock and First Reserve in the Los Ramones natural gas pipelines is a clear indicator that investments in Mexican energy are seen as worthwhile and potentially lucrative.<sup>279</sup> Indeed, the Los Ramones pipeline project best exemplifies the possibilities for investors to profit off the supply of capital for energy infrastructure projects within Mexico.<sup>280</sup> The ending of the state monopoly on the energy industry overall and the deregulation of the energy market within the country have made possible what previously had been either prohibited by law or not attractive.<sup>281</sup>

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271. *Mexico's FIBRA E tax regulations*, *supra* note 176.

272. McCrummens, *supra* note 47.

273. *Id.*

274. *Id.*

275. *Id.*

276. *Id.*

277. *Id.*

278. McCrummen, *supra* note 47.

279. *Update 1: BlackRock and First Reserve take \$900 million stake in Mexico Pipeline Project*, *supra* note 241.

280. Burrma, *supra* note 247.

281. Burrma, *supra* note 247; *Mexico's FIBRA E tax regulations*, *supra* note 176.

On the other hand, however, the vast potential of projects like the Los Ramones pipeline could ultimately go unrealized. The theft of hydrocarbons from pipelines occurs in every Mexican state, and the rate of theft has increased dramatically since narcotics trafficking organizations realized just how lucrative such a venture could be.<sup>282</sup> With the exception of a few isolated instances in which the military has protected pipelines, the government, Pemex, and law enforcement have demonstrated ineptitude and incompetence in their efforts to deter the illegal siphoning of hydrocarbons from pipelines.<sup>283</sup> While the hijacking of fuel trucks or stealing oil from storage tanks may require little in the way of technical expertise, the tapping of pressurized pipelines by contrast, certainly does.<sup>284</sup> Such a fact indicates that Pemex employees are moonlighting by stealing the oil from their employer during daylight hours.<sup>285</sup> Similarly, the failure of law enforcement to prevent theft or even to investigate illegal pipeline taps evinces the complicity of the police.<sup>286</sup> Law enforcement in Mexico already has the reputation of being an entrepreneurial activity, and with the illicit fuel sales rumored to be a multi-billion dollar industry, it appears that this is but another revenue stream for the police as well.<sup>287</sup> An integral part of wooing investors and foreign capital is inspiring confidence that such investments will be protected by the rule of law and by law enforcement. Mexico simply cannot achieve its energy reform oriented goals if its most apt comparison is a kleptocracy, and not a country with a stable government.

Mexico's issues with attracting foreign investment do not end with stability related concerns. The reform measures it has enacted so far are too conservative in nature in order to achieve the goal of creating a modern energy industry in the country. Measures such as requiring licensees to relinquish their used equipment to the state upon expiration of a license are highly questionable and evoke images of expropriation in the mind's eye. Furthermore, a lot of the laws intended to reform the energy industry seem to favor Pemex. Far too many opportunities that involve a possible partnership with Pemex seem to favor the state owned company as opposed to the entity with which it would be engaged in a venture with.

The investment vehicles also do not inspire much confidence. While the structure of the Fibra E seems to offer transparency and certain advantages to a potential investor, concerns abound. While the Fibra E has only been around since 2015, a prudent investor conducting his due diligence need only examine the performance of the Fibra E's predecessor, the Fibra and see that there are matters of serious concern that must be addressed. While a trust aspect of a Fibra E is both transparent and regulated, the potential for abuse arises with the Promoted Companies. Like the external managers of a

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282. *Mexico: Fuel Theft to Increase Costs For Foreign Investors*, *supra* note 103.

283. *Id.*

284. *Why Drug Cartels are Stealing Mexico's Fuel*, *supra* note 108.

285. *Mexico: Fuel Theft to Increase Costs For Foreign Investors*, *supra* note 103.

286. Martinez, *supra* note 97.

287. *Id.*

Fibra, a Promoted Company could engage in the overvaluation of its assets or other deceptive acts that will be inimical to the interests of the investors and have a significant impact on the dividend payments investors are owed. The selection of managers for the Fibra E itself is perhaps the most critical portion of creating such a fund. Competent and scrupulous managers would likely be able to avoid risky investments and attract investors. The investment process is still in its infancy, so much will have to transpire before a definitive answer can be reached.

In conclusion, whether or not the energy industry in Mexico can ultimately be modernized is entirely within control of its government. Many of the reforms that have already been enacted are far too conservative to achieve the goal of attracting foreign investors and infusing capital into the energy industry. Mexico's natural resources are abundant and there likely are deposits that have not yet been discovered. The government would do well not to have the reforms seemingly serve to benefit Pemex while passing the risk along to potential partners. Instead, the government should focus on eradicating corruption and policing its citizens in order to make investment in business within the country a venture that is less risk-prone. Ultimately, the impetus is upon Mexico's leaders to be bold in their efforts, for only the full measure of devotion to energy reform will yield the results desired.