Mexican Energy Revolution: But is it a Solution?

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*by Katrina Tomecek*

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**Introduction**

Mexico’s recent energy reform has received much praise for the economic benefits it promises to bring, but one piece of the puzzle most politicians seem to overlook is the environmental impact that will result and the issues with postponing the inevitable: the need to look to alternative resources. With its ample sun and wind resources, Mexico would be an ideal candidate for transitioning to greener energy. However, without strategic planning the country’s energy reform will threaten to un-do recent progress towards the transition to renewable resources.

**Overview of the Reform**

For the past 76 years PEMEX has enjoyed a monopoly over Mexico’s oil. As a result of recent constitutional reforms, that trend will not continue and Mexico’s oil will open up to foreign investment. Twenty-one laws were passed over the summer to help ensure the constitutional reforms become law. As a result of this reform, economists hypothesize that Mexico will see a two percent increase in GDP in the next ten years and an addition of two million jobs. There has also been excitement surrounding the idea of partnering with Canada and the United States to create a “North American energy superpower” in order to mutually benefit all three countries’ economies and bring down costs of energy.

**Problems with the Planning**

Though this plan sounds promising, there are two major environmental issues that the country must take into consideration during this reform: 1) the potential for pollution and environmental destruction from increased harvesting of fossil fuels; and 2) distraction from the need to continue to rely on renewable sources.

Among the direct environmental impacts of this reform are the concerns of pollution from exporting, destruction to sensitive ecosystems, and contamination of vital farmlands. Much of the remaining oil in Mexico is located in deep-sea oil reserves, and a significant amount of remaining shale sources are trapped in areas of geologic complexity. Thus, recovery would involve invasive techniques (such as fracking) in order to reach them. Fracking brings with it a number of concerns including the contamination of soil and water supplies and the exhaustion of Mexico’s already stressed water reserves for use during the injection process. Further, it should not be forgotten that the BP oil spill in 2010 is not in Mexico’s too distant past. With continued stretching of technology to drill deeper and deeper under the ocean, it is not unlikely that such an event will repeat itself at least on a small scale.

On the front of renewable energy resources, Mexico has the potential to be a leader. The country has shown an interest in making this transition in the adoption of the 2012 Climate Change Act, but concern has been raised about whether its newest energy reform will hinder that progress. Statistical studies predict that both crude oil and natural gas will be depleted in Mexico in less than 10 years and thus it is imperative that renewables remain a priority. Ignoring the need for this transition will continue to increase CO2 levels and will be progressively more costly. Further, though Mexico adopted legislation that would seem to encourage simultaneous development of renewables, it made it clear that it is primarily concerned with financially investing in continued development of pipeline infrastructure for natural gas. New fees levied on power firms by Mexico’s new energy council (Cenace) also make it clear that the intent of the reform is not to make solar energy a priority.

**Future Focus**

Though it is not realistic to expect Mexico to undo its recent legislation, it should approach this reform with very specific regulations and plans to create future benefits that are both economic and sustainable. Careful regulations need to be considered and strictly adhered to for extracting Mexico’s oil. In-depth scientific research should be done before permitting any extracting to determine whether the surrounding ecosystem or community will be harmed and to what degree. It should also be acknowledged that shifting to green energy would serve as a strength and not a hindrance. Making this transition will create more jobs, save money from expensive fuel extraction, allow for more profiting from exporting unused fuel sources, and it will eliminate wasting money on spills and contamination.

Mexico also needs to ensure it forms uniform CO2 emission standards with the rest of North America if an energy partnership is created. It has made simultaneous promises regarding renewables, but actions speak louder than words and it appears that renewables are on the back burner in this equation. In order to fully benefit from this reform and to create lasting growth, Mexico needs to focus on creating a symbiotic relationship between the continued development of hydrocarbons and transitioning to greener energy in which a certain percentage of profits from the reform are designated to be invested in development of renewable infrastructure. Finally, Mexico needs to make sure it is not getting caught up in the anticipated gold-rush and allowing it’s environment to be permanently damaged in the process.

*continued on page 56*

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26 See J. F. Gabitto & C. Tsouris, PHYSICAL PROPERTIES OF GAS HYDRATES: A
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Zhang et al., supra note 15, at 934.

27 Much of the oil and gas industry utilizes Imperial Units instead of metric
measures. One m3 of natural gas is generally deemed equivalent to thirty-five
ft3 for commercial exchanges. See Dawe & Thomas, supra note 15, at 221. The
BP Statistical Reviews lists the exchange ratio as 1 m3:35.3 ft3. See BP STATISTI-
CAL REVIEW of World Energy, in 44 (June 2013), http://www.bp.com/content/
[hereinafter BP Statistical Review].


29 MORIDES ET AL., supra note 4, at 3.

30 Englezos & Lee, supra note 9, at 674.

31 BP Statistical Review, supra note 27, at 20-22. Also, these numbers can be
contrasted against the annual energy demand budget for the U.S.A., which is
one Tcm annually. See MORIDES ET AL., supra note 4, at 3.

32 See infra Table 1 (Comparing the U.S. estimate for methane hydrates
against the BP estimate for booked natural gas reserves).

33 See Walsh, supra note 7, at 815.

34 Englezos & Lee, supra note 9, at 673.

35 Id.

36 Zhang et al., supra note 15, at 934; MORIDES ET AL., supra note 4, at 2.

37 Englezos & Lee, supra note 9, at 674.

38 Estimate was stated as 6.4 Trillion tons of methane. Demirbas, supra note
6, at 1551.

39 Marcelle-De Silva & Dawe, supra note 2, at 221.

40 Referred to as the standard estimate, partially due to their age. MacDon-
ald’s numbers date from 1990. Id. at 219.

41 This number is actually a statutory statement regarding the U.S.’s internal
estimate of its own domestic supplies, which it estimates at a quarter of the
world’s supplies of methane hydrates. It provides an estimate of the domestic
volumes at 200,000 Tcf. 800,000 Tcf converts to 24,000 Tcm. See 30 U.S.C. §

42 Referred to as the most up-to-date model and likely the most accurate.
Marcelle-De Silva & Dawe, supra note 2, at 219.

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44 Gabitto & Tsouris, supra note 26, at 2.

45 Dawe & Thomas, supra note 15, at 219.

46 Id.

47 The United Nation’s Convention on the Law of the Sea, sec. 2, art. 3,
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49 MORIDES ET AL., supra note 4, at 3.

50 Id., at 23. See also Koh, supra note 17.

51 MORIDES ET AL., supra note 4, at 3. See also discussion on Japanese efforts
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53 Lee & Holder, supra note 18, at 185; Marcelle-De Silva & Dawe, supra
note 2, at 227. This method found practice at the Siberian field of Messoyhaka
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54 Walsh et al., supra note 7; MORIDES ET AL., supra note 4, at 2, 12-17;
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55 Dawe & Thomas, supra note 15, at 223; Koh, supra note 17, at 165-166;
Walsh et al., supra note 7; M. J. Castaldi et al., DOWN-HOLE COMBUSTION
Method for Gas Production from Methane Hydrates, 56 J. PETROLEUM SCI. & ENGI-
NEERING 175, 177 (2007); Englezos & Lee, supra note 9. Endothermic reactions
require energy to be added for the reaction to occur. Exothermic reactions
release energy as they occur. Fifty kJ/mol of energy is required to separate
methane from the hydrate formation. Larger molecules require more energy;
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56 M. KURIHARA, ET AL., GAS PRODUCTION FROM METHANE HYDRATE RESERVOIRS,
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(2011); Marcelle-De Silva & Dawe, supra note 2, at 227.

ENDNOTES: MEXICAN ENERGY REVOLUTION: BUT IS IT A SOLUTION?
ENDNOTES: AVOIDING EPIMETHEUS: PLANNING AHEAD FOR THE COMMERCIAL DEVELOPMENT OF OFFSHORE METHANE HYDRATES

56 SUSTAINABLE DEVELOPMENT LAW & POLICY