Tulsa Journal of Comparative and International Law

Volume 1 | Issue 2 Article 3

3-1-1994

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TULSA JOURNAL OF
COMPARATIVE & INTERNATIONAL LAW

Volume 1, No. 2 Spring 1994

EFFECT OF THE NORTH AMERICAN FREE TRADE AGREEMENT ON TRADE BETWEEN THE UNITED STATES AND MEXICO IN THE ENERGY AND PETROCHEMICAL INDUSTRIES

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I. INTRODUCTION

The governments of the United States, Mexico, and Canada reached consensus on the long-awaited and often controversial North American Free

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This paper was a collective effort. The author extends his gratitude to Mark J. Jarrett of Baker & McKenzie, Melinda M. Sarafa of Stanford Law School, and Robert M. Szymanski of Harvard Law School for their able assistance. Given the nature of the subject matter during the time the paper was prepared, it could not have been produced without the tenacity and dedication of each of these individuals. The author also gratefully acknowledges the Rocky Mountain Mineral Law Foundation for permission to reprint previously published sections of this article.

Trade Agreement (NAFTA or the Agreement) on August 12, 1992.[1] In Mexico, President Salinas executed the Agreement on December 17, 1992, which was subsequently ratified by the Mexican Senate on November 22, 1993. In Canada, the Agreement was ratified by the Senate on June 23, 1993. Supplemental Accords were negotiated and signed by each of the three parties to the Agreement on September 14, 1993. Although liberal President Jean Chretien subsequently called for a renegotiation of NAFTA, Canada did not renege on its commitment. In the United States, the Clinton Administration did not begin to mobilize its forces behind NAFTA until after the signing of the Supplemental Accords. Efforts included a panel of three former U.S. Presidents at a White House press conference to demonstrate their support for the pact, a televised debate between Vice President Al Gore and leading antagonist Ross Perot, and intensive lobbying efforts by President Clinton. The U.S. House of Representatives and Senate approved the Agreement in mid-November 1993. As a result, the Agreement took effect on January 1, 1994, surprisingly on schedule. The text of the Agreement and its associated schedules, comprising more than 2,000 pages, was made public in early September 1992.

The Agreement establishes a "free trade" area between the three signatory countries, affecting everything from textiles to oil field equipment and addressing the entire range of trade issues from tariffs to procurement procedures. Its primary objectives are to break down barriers to trade through the elimination of tariffs on goods originating within the boundaries of the free trade area, to promote fair competition, and to increase investment opportunities across the signatories' borders. These goals are to be achieved through the principles of "national treatment, most-favored nation treatment and procedural 'transparency.'"[2]

This article reviews the potential impact of NAFTA on U.S.-based companies pursuing new opportunities in the Mexican energy sector, focusing primarily on the petroleum industry.[3] The first section reviews the geographical and sociopolitical setting by describing known Mexican resources, existing operations, the domestic market for energy, and the historical role of the Mexican state monopoly in Mexico's energy industry. The second section provides a sector-by-sector analysis of the new opportunities for U.S.-based companies that will be created by NAFTA. The third section focuses on some of the special problems that remain in the fields of labor and the environment, and the statutory and regulatory regime that U.S. domestic companies will face when participating in the Mexican petroleum sector. The concluding section provides some final advice to interested potential U.S. investors in the Mexico petroleum sector.

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1. North American Free Trade Agreement, Dec. 17, 1992, U.S.-Can.-Mex., 32 I.L.M. 605 [hereinafter NAFTA].

2. The Governments of Canada, the United Mexican States, and the United States of America, Description of the Proposed North American Free Trade Agreement 1 (Aug. 12, 1992).

3. This paper does not examine the effect of NAFTA on the mining sector, given the limited application of the Agreement to that area, or on the electricity sector, which is a complete subject unto itself.

II. BACKGROUND: SURVEY OF MEXICAN PETROLEUM SECTOR

A. Mexican Energy Resources

NAFTA raises expectations among American companies in the energy sector because of the wealth of Mexican oil and gas resources. Most of these expectations are well founded.

1. Crude Oil Reserves and Production

Mexico has the eighth largest oil reserves in the world. According to one source, Mexico's proved reserves stand at 51.3 billion barrels.[4] The state energy monopoly, Petroleos Mexicanos (PEMEX), estimates that it could maintain current production rates for another fifty years. Mexico's chief oil-producing regions are the offshore fields in the Gulf of Campeche and the onshore fields in Villahermosa and Poza Rica.[5]

While some oil analysts have accused PEMEX of inflating its proved reserve figures, substantial oil reserves are continually being discovered. Indeed, PEMEX believes that recent finds in the state of Chiapas and the Bay of Campeche will increase Mexico's reserves to as much as 92 billion barrels. But exploiting these finds will require increased foreign investment and expertise. In addition, some of the fields appear to be below 16,500 feet, which exceeds the reach of PEMEX's current technology.[6]

PEMEX currently produces 2.67 million barrels per day (b/d)[7], of which 1.4 million barrels are exported, half of it to the U.S.[8] As Mexico's economy grows, domestic energy needs can be expected to claim an even larger share of output, reducing the supplies available for export. Unless production increases dramatically, Mexico may even become a net oil importer by the turn of the

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4. *Worldwide Production Report*, OIL & GAS J., Dec. 7, 1993, at 45.

5. U.S. GEN. ACCT. OFF., GAO/NSIAD-92-169, MEXICAN OIL: ISSUES AFFECTING POTENTIAL U.S. TRADE AND INVESTMENT 9 (1992) [hereinafter MEXICAN OIL]. PEMEX allocates its oil production activities among three regional divisions based in Ciudad Carmen, Poza Rica, and Villahermosa. The first two account for the greater part of production and reserves. The Ciudad Carmen division oversees offshore operations in the Bay of Campeche, where 1.75 million barrels of oil are produced daily from 10 fields. This is approximately 70% of Mexico's total oil output. A second division based in Poza Rica, Veracruz covers the northern onshore region. Although the nearby Chicontepec field is the second largest after Campeche, individual well output is low — 50 to a 100 b/d, compared with over 10,000 per day from offshore wells — due to high clay and water content in the strata. GARY C. HUFBAUER & JEFFREY J. SCHOTT, NORTH AMERICAN FREE TRADE: ISSUES AND RECOMMENDATIONS 189-90 (1992) [hereinafter HUFBAUER & SCHOTT (1992)].

6. Hufbauer & Schott (1992), *supra* note 5, at 191 n.5, *citing* J. COM. June 17, 1991, at 6B.

7. U.S. GEN. ACCT. OFF., GAO/T-GGD-92-24, MEXICAN OIL: MEXICAN POLICIES AFFECT U.S. TRADE AND INVESTMENT OPPORTUNITIES 3 (1992) (statement of Allan I. Mendelowitz, Director, International Trade and Finance Issues, General Government Division) [hereinafter Mendelowitz Testimony (1992)]. PEMEX's oil production peaked in 1982 at about 2.7 million b/d. Production declined until 1986 and remained at an average of approximately 2.5 million b/d through 1991. Oil exports remained constant as well, averaging about 1.3 million barrels per day from 1986 through 1991. *Id.*

8. Louis Uchitelle, *Pemex: Mexico's Hesitant Oil Giant*, N.Y. TIMES, Mar. 4, 1993, at D1, D6.

century.[9] Growing energy demands and significant environmental concerns will also require Mexico to increase its production of natural gas and to alter its demand mix so that a greater share of domestic consumption can be met by natural gas and electricity. By using more natural gas to meet domestic energy needs, Mexico will free up more oil for export, which will yield revenues that can be used in part to service Mexico's large external debt.[10]

2. Natural Gas Reserves and Production

Although Mexico is the world's sixth largest producer of natural gas, its proved reserves have been steadily declining in recent years. Peaking in 1983 at around 77 trillion cubic feet (Tcf), Mexico's proved gas reserves fell to 72.7 Tcf by 1989.[11] This 9.4% decline has been attributed to Mexico's lack of capital for exploration and development as well as to the overall inefficiency of the PEMEX monopoly.[12] Gas production has followed a similar trend, climbing to 4.25 billion cubic feet per day (Bcf/d) in 1982 and then falling to 3.43 Bcf/d in 1986. This decline stabilized during the later half of the 1980s.[13] In 1991, natural gas production was 3.63 Bcd, a decrease of 0.5% from 3.65 Bcf/d in 1990.[14]

Gas production remains low largely because eighty-five to ninety percent of Mexico's gas is associated gas. The level of associated gas depends on oil output, which in turn depends on efficient maintenance of the reservoir and PEMEX's policy of restricting oil exports. The situation has worsened with PEMEX's emphasis on off-shore exploration, where gas-oil ratios are generally lower.[15]

While Mexico consumes a significant amount of natural gas, expansion of the market has been limited. Most economically recoverable gas reserves are situated in southern Mexico,[16] far from the country's industrial centers. PEMEX has responded by constructing a gas pipeline system which, by the end of 1989, consisted of 101 pipelines covering 13,166 kilometers. Pipeline expansion continues, but at a slow pace.[17] Development of Mexico's natural gas reserves, however, may speed up as a result of a recent agreement between state-owned Gaz de France (GDF) and PEMEX to cooperate in long-term strategies in all areas of natural gas development. These areas include transport,

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9. HUFBAUER & SCHOTT (1992), *supra* note 5, at 185.

10. The Mexican national debt is approximated at $97.4 billion. JOSEPH P. RIVA, JR., EXPLORATION OPPORTUNITIES IN LATIN AMERICA 40-41 (1992).

11. Gary B. Conine, *Natural Gas Transactions Between the United States and Mexico: Political and Legal Impediments to Free Trade*, 27 TEX. INT'L L.J., 577, 614 (1992), [hereinafter Conine, *Natural Gas Transactions*].

12. *Id.* at 614; HUFBAUER & SCHOTT (1992), *supra* note 5, at 200.

13. Conine, *Natural Gas Transactions*, *supra* note 11, at 614-15.

14. *Mexico - Oil and Gas Field Equipment*, MARKET REP. at 2 (Feb. 16, 1993).

15. Conine, *Natural Gas Transactions*, *supra* note 11, at 615.

16. *Id.*

17. *Id.* at 616.

stocking, distribution, marketing, tariff policies, gas utilization, and personnel.[18]

The Mexican government projects that national demand for energy will grow between 4.6% and 5.2% through 1994.[19] An expanding petrochemical industry and greater emphasis on environmental protection is expected to sustain this demand. Under the current five-year plan, existing supplies of natural gas will be directed towards priority uses. These include use as an industrial feedstock and as a means for reducing pollution in critical areas.[20]

Mexico is currently a net importer of natural gas, even though it had previously exported as much as 100 billion cubic feet per year.[21] At present, the United States supplies nearly ninety percent of Mexico's imported gas. Most of this gas is consumed by the border cities of Juarez, Mexicali, and Tijuana, but some of it is also directed to Mexico City in an attempt to curb the city's air pollution. PEMEX has announced that it will continue to increase natural gas imports to meet short-term domestic needs.[22] Growing demand from Mexican industry, especially for petrochemical and independent power production, can be expected to promote increasing Mexican imports of natural gas from the United States, at least during the short term.[23]

3. Refining and Distribution Facilities

Mexico currently has seven refineries in operation with a combined capacity of 1.524 million b/d.[24] The fifty-eight year-old Azcapotzalco refinery in Mexico City, which had produced an average 105,000 b/d, was closed in March 1991.[25] The aging refinery had handled about four percent of domestic production, but was responsible for as much as fifteen percent of Mexico's

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18. *GDF Signs Deal With Pemex Gas*, PLATT'S OILGRAM NEWS, May 19, 1993, at 1.

19. Conine, *Natural Gas Transactions*, *supra* note 11, at 617. Mexico's existing consumption of gas falls into three categories. PEMEX's primary production operations consume about one-third of the gas it produces or imports. PEMEX's petrochemical and gas operations consume another third. The final third goes to the domestic market, with four-fifths of this going to industrial users and the remainder to commercial and residential customers. *Id.* at 616.

20. *Id.* at 617.

21. *NAFTA Approved by Canadian House of Commons; Congressional Research Service Report Sees "Limited" Impact of NAFTA on U.S. Gas Producers*, FOSTER NAT. GAS REP., June 3, 1993, at 21 [hereinafter *NAFTA-Canadian House of Commons*]. Although Mexico once exported gas to the United States, shipments ceased in 1984 when parties to the Border Gas Transaction were unable to agree on a price redetermination. Conine, *Natural Gas Transactions*, *supra* note 11, at 612.

22. HUFBAUER & SCHOTT (1992), *supra* note 5, at 200-01.

23. From the U.S. perspective, its gas exports to Mexico will probably be offset by greater U.S. gas imports from Canada. A report by the Congressional Research Service projects that the United States will triple its net gas imports between 1990 and 2010. The report predicts that 15 years from now, Mexico will again become a net exporter of natural gas to the United States, with net exports reaching 110 billion cubic feet in 2010. *NAFTA-Canadian House of Commons*, *supra* note 21.

24. Laura Bell, ed., *Worldwide Refining*, OIL & GAS J., Dec. 20, 1993, at 49. (Figures are current as of Jan. 1, 1994.) The largest of these is the Salina Cruz refinery, with a capacity of 330,000 b/d. *Id.* at 76-77. Mexico's other refineries are located at Tula, Hidalgo (320,000 b/d), Cadereyta (235,000 b/d), Salamanca (235,000 b/d), Minatitlan (200,000 b/d), Ciudad Madero (195,000 b/d), and Reynosa (9,000 b/d). *Id.*

25. *Pemex Charts Future at a Critical Crossroads*, PETROLEUM INTELLIGENCE WKLY., Apr. 1, 1991, at 8 [hereinafter *Pemex Charts Future*].

industrial air pollution.[26] A smaller refinery in Poza Rica (with a 50,000 b/d crude capacity) has also been shut down.[27]

Despite its wealth of oil reserves, Mexico's shortage of refining capacity has turned the country into a net importer of gasoline. Of Mexico's 106,000 b/d of imported products,[28] Mexico imports 50,000 to 100,000 gallons of gasoline per day to close the gap between its refining capacity and growing domestic demand.[29] Following the shutdown of the Azcapotzalco refinery, gasoline imports jumped from 30,605 b/d in 1990 to 68,889 b/d in 1991.[30] PEMEX refineries are currently operating at capacity,[31] and PEMEX officials expect no new capacity to be available until 1996 at the earliest.[32]

PEMEX plans to make significant investments to increase refining capacity. PEMEX capital spending for 1993 is set at $2.93 billion (a reduction of $120 million from 1992), with twenty-eight percent targeted for refining and marketing.[33] PEMEX plans to replace the Azcapotzalco refinery with a new plant that will have a processing capacity of 300,000 b/d.[34] PEMEX is also currently in the process of adding 150,000 b/d capacity to its Salina Cruz refinery, upgrading its Tula refinery,[35] and planning to increase the capacity of its Madero refinery.[36] The uprising in Chiapas and the assassination of PRI candidate Luis Doraldo Colosio, however, may lead to a postponment of PEMEX plans at best until after scheduled elections.

Contributing to PEMEX's need to boost refining capacity is Mexico's growing demand for unleaded gasoline. During the first quarter of 1993, unleaded gasoline sales totalled 141,500 b/d, almost double the sales for the same period of 1992.[37] While unleaded gasoline accounted for just eight percent of total sales in 1991, it is expected to reach forty percent in 1994 as a result of environmental concerns.[38] As discussed below, PEMEX has already begun joining with some foreign companies to increase its refining capacity. PEMEX's recently announced joint venture with Shell Oil Company to acquire fifty percent ownership in a U.S. Shell refinery will help Mexico meet its growing internal demand for unleaded gasoline.

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26. HUFBAUER & SCHOTT (1992), *supra* note 5, at 193.

27. Bell, *supra* note 24, at 52.

28. *High Mexican Prices Take Bite Out of Local Demand*, PETROLEUM INTELLIGENCE WKLY, Dec. 7, 1992, at 5.

29. Wesley R. Smith, *Liberalizing the Mexican Oil Industry*, MEX. TRADE & L. REP., Dec. 1992, at 6.

30. Jane Baird, *Mexico's Oil Revolution*, HOUS. CHRON., Sept. 6, 1992, at B1.

31. *Mexico Gives Pemex Taxes to Match New Corporate Face*, PETROLEUM INTELLIGENCE WKLY, Nov. 16, 1992, at 2 [hereinafter *Taxes*].

32. *Pemex Reshuffles its Parts to Make Stronger Whole*, PETROLEUM INTELLIGENCE WKLY, Feb. 15, 1993, at 4 [hereinafter *Pemex Reshuffles Parts*].

33. *Taxes*, *supra* note 31, at 2.

34. HUFBAUER & SCHOTT (1992), *supra* note 5, at 193.

35. Laura Bell, ed., *Refineries - Worldwide Construction*, OIL & GAS J., Apr. 12, 1993, at 65.

36. *Invitation to Register: Revamping the Madero Refinery*, MEX. TRADE & L. REP., Nov. 1992, at 10.

37. *Pemex Gasoline Sales Rise*, THE OIL DAILY, May 20, 1993, at 5.

38. *Pemex Charts Future*, *supra* note 25, at 9.

4. Petrochemical Facilities

Mexico's petrochemical industry is the fifteenth largest in the world and accounts for just over three percent of the world's production.[39] Mexico has approximately 700 petrochemical plants that produce 585 different products.[40] The country's major petrochemical complexes are located at Pajarito, Morelos, Cangrejaera, and Cosoleacaque, which together produce roughly ninety percent of the country's petrochemicals.[41] Ammonia and ethylene plants account for twenty-two percent of total output.[42] The industry is dominated by PEMEX, which operates all of Mexico's basic petrochemical plants[43] and sixty secondary petrochemical plants.[44]

Petrochemicals constitute a major and growing industry in Mexico. Petrochemicals accounted for 2.5% of Mexican GNP in 1989,[45] and increased utilization of production capacity led to nearly nine percent annual growth between 1985 and 1991.[46] In 1990, Mexico had 20.1 million tons per year of installed capacity, and petrochemical plant utilization reached 90.3%.[47] The industry produced 17.5 million tons and generated $1.3 billion in sales in 1990, accounting for 12.5% of PEMEX's total revenues for that year.[48]

Despite its significant petrochemical industry, Mexico remains a net importer of basic petrochemicals. In 1991, Mexico imported $31 million in basic petrochemicals from the United States, while it exported only $4 million to its northern neighbor.[49] Mexico spent about $5.5 billion to import basic petrochemicals between 1980 and 1988.[50]

Mexican demand for petrochemicals can be expected to increase in tandem with national economic development. Without increased foreign investment in local production capacity, however, growing needs will have to be met through increased imports.[51] The Mexican government has estimated that the petro-

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39. *Pemex: Structure, Petrochemicals Production, International Activities*, MEX. TRADE & L. REP., Jan. 1992, at 25 [hereinafter *Pemex*].

40. U.S. GEN. ACCT. OFF., GAO INSIAD-91-212, U.S.-MEXICO ENERGY: THE U.S. REACTION TO RECENT REFORMS IN MEXICO'S PETROCHEMICAL INDUSTRY 7 (1991) [hereinafter U.S.-MEXICO ENERGY].

41. *Pemex Reshuffles Parts*, *supra* note 32, at 3.

42. *Id.*

43. *See* U.S.-MEXICO ENERGY, supra note 40, at 1 for an explanation of the term "basic petrochemicals." *See also* discussion *infra* part III.D.

44. *OGJ Newsletter*, OIL & GAS J., Feb. 22, 1993, at 4. PEMEX plans to shut down three or four of these plants as part of the restructuring of its petrochemical operations. *Id.*

45. HUFBAUER & SCHOTT (1992), *supra* note 5, at 193.

46. *Pemex Charts Future*, *supra* note 25, at 9.

47. *Id.*

48. *Id.*

49. U.S. Int'l Trade Comm'n, Pub. No. 2596, POTENTIAL IMPACT ON THE U.S. ECONOMY AND SELECTED INDUSTRIES OF THE NORTH AMERICAN FREE-TRADE AGREEMENT 19-1, table 19-1 (1993) [hereinafter U.S. INT'L TRADE COMM'N].

50. U.S.-MEXICO ENERGY, *supra* note 40, at 3.

51. HUFBAUER & SCHOTT (1992), *supra* note 5, at 197.

chemical industry will need $5 to $10 billion in investment by 1995, or Mexico will continue to face significant trade deficits in basic petrochemicals.[52]

B. Unique Role of PEMEX in Mexican Energy Sector

To understand the operation of the oil and gas industry in Mexico, one must first understand Mexico's unique constitutional provisions and the dominant role exercised by PEMEX. By law, Mexico reserves to the State all rights over exploration, development, refining, transportation, storage, distribution and "first hand sales" of oil, natural gas, and their primary products. The state entity in which these rights are vested is PEMEX.[53]

1. Historical Factors Behind the Formation of Petroleos Mexicanos (PEMEX)

The current regime of state ownership of petroleum is actually a relatively recent phenomenon. A quite different system of private ownership for oil and gas reserves was established in Mexico by the Mining Law of 1884.[54] Subsequent discovery of commercial oil reserves in 1901 led to a huge influx of foreign investment for petroleum development. By the 1930s these operations were mostly controlled by major foreign companies, such as Royal Dutch/Shell, Standard Oil of New Jersey, Sinclair, Cities Service, and Gulf Oil. Foreign companies at that time were producing ninety-five percent of Mexico's crude oil.[55]

The Mexican Constitution of 1917 reversed existing Mexican laws on mineral ownership. Article 27 of the new Constitution specifically reserved ownership of valuable minerals, including petroleum, to the state: "In the nation is vested legal ownership . . . of all minerals or substances which in veins, layers, masses or beds constitute deposits whose nature is different from the components of the land, . . . [including] petroleum and all hydrocarbons—solid, liquid or gaseous."[56]

The new Petroleum Law of 1925 implemented these constitutional principles. In particular, the law required special government confirmation of oil production rights granted prior to 1917. Attempts to enforce the law predictably escalated tensions between foreign oil companies and the Mexican government.[57]

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52. U.S.-MEXICO ENERGY, *supra* note 40, at 2.

53. *See* Gary B. Conine, Mexico: *Energy Development and the State Oil Company,* 27 TULSA L.J. 625, 628 n.10 (1992) [hereinafter Conine, *Mexico*].

54. *Id.* at 627 n.2

55. *Id.* at 626. The largest Mexican oil company at that time, Mexican Eagle Oil Company, had been acquired by Royal Dutch/Shell. *Id.*

56. *Id.* at 628 n.9.

57. *Id.* at 628-29; *See also* MERRILL RIPPY, OIL AND THE MEXICAN REVOLUTION 29 (1972).

Relations with oil companies deteriorated still further in the mid-1930s as a result of increasing unrest among Mexican petroleum workers. Following a year of unsuccessful negotiations for a new contract with the petroleum workers union, and a ten-day general strike, the Mexican Federal Board of Mediation and Arbitration ordered the foreign oil companies to provide wage increases, pension and medical plans, sick leave policies, and vacation pay. Although this order was affirmed by the Mexican Supreme Court, major foreign oil producers refused to comply. In response, Mexican President Cardenas issued an expropriation decree on March 18, 1938. The decree eliminated foreign ownership and gave the state exclusive control over Mexican natural resources.[58]

PEMEX was created in June 1938 to take over the assets expropriated from foreign ownership. In addition, all government agencies involved with the petroleum industry were dissolved and their functions assumed by PEMEX. As a result, PEMEX gained broad control over exploration, development, refining, transportation, storage, distribution, and "first hand sales" of oil, natural gas, and their products.[59]

PEMEX was formed as a public institution owned jointly by the federal government and the petroleum workers union. In theory, PEMEX enjoyed autonomy from government control with the ability to conduct commercial activities like any private enterprise. In practice, PEMEX was subject to a number of political and economic constraints that distinguished it from most private enterprises.[60] For instance, management of PEMEX was vested in an eleven-member board with six of its board members appointed by the President of Mexico and the remainder by the petroleum workers union. Daily operations were directed by the Director General and seven subdirectors, all of whom were appointed by the President.[61]

2. Difficulties Faced by PEMEX

As a quasi-public organization, PEMEX had obligations far beyond those of most profit-making enterprises. These included concerns over national employment, income distribution, and regional equity. Because of the close interrelationships between PEMEX management and government officials, PEMEX decisions were often guided by political considerations. These factors led to a series of policies that diminished the capital available for reinvestment.

First, PEMEX was subjected to high taxes as a means of raising government revenue. The company was viewed in part as a source of revenues for social welfare programs. During the 1980s in particular, PEMEX profits funded debt payments to foreign creditors and paid for Mexican domestic programs. PEMEX revenues made up almost half of all government revenues,[62] and the company

58. Conine, *Natural Gas Transactions*, *supra* note 11, at 586; Conine, *Mexico*, *supra* note 53, at 627-29.
59. Conine, *Mexico*, *supra* note 53, at 630 nn. 22, 23.
60. *Id.* at 629.
61. *Id.* at 630-31.
62. Baird, *supra* note 30.

was used as a source of ready employment.[63] Second, a substantial share of the company's revenues was spent on *de facto* price subsidies to provide low prices on petroleum products in an attempt to spur domestic economic development. Third, PEMEX was inefficient because decision-making was afflicted by an over-centralized management system, which lacked incentives to promote efficiency. This can be partly attributed to a lack of competition and to the influence of the petroleum workers union. Finally, existing inefficiencies were heightened by the constant frictions of PEMEX's political, social, and profit-maximizing agendas.[64]

Due to rising world oil prices during the 1970s and the discovery of new oil reserves in southern Mexico, the potentially destructive effects of these policies largely went unrealized during those years.[65] But the depletion of profits and the lack of reinvestment by PEMEX in its own infrastructure from 1982 onwards led to a predictable decline in production and revenues. Mexico did not replace its oil and gas reserves for most of the 1980s.[66] By the end of the decade, its failure to accumulate internal funds because of high taxes and social obligations placed PEMEX in dire need of investment for oil and gas exploration and production.[67]

As a result of inefficiencies and PEMEX's shortage of funds, exploration equipment and pipeline systems have become antiquated. An average well in Mexico, about 12,000 feet deep, takes as long as fifteen weeks to drill (nearly five times as long as a similar well would take to drill in the United States). During 1991, Mexico had an average of 109 rigs working, which drilled 141

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63. A U.S. Embassy official in Mexico City points out that three years ago the Venezuelan oil industry had approximately one-quarter the number of employees as PEMEX to produce similar amounts of oil. An identical point is made by Baird, *supra* note 30. Among some Mexicans, PEMEX was known as a "petroleum cow" for its plentitude of jobs for friends and relatives. *Id.*

64. For a comprehensive discussion of these policies and the problems they have created, *see* Conine, *Natural Gas Transactions*, *supra* note 11, at 592.

65. *See* MEXICAN OIL, *supra* note 5, at 3, 14.

66. Allan Mendelowitz testifying before a congressional subcommittee in April 1991, painted a dismal picture of the severe problems PEMEX was facing from its sharply reduced investment since 1982:

> As a result, Mexico is confronting continuing shortages in both investment funds and feedstock supplies for its petrochemical industry. An adequate future supply of Mexican natural gas, the primary raw material for the petrochemical industry, is in jeopardy because of the lack of investment. Since 1982, Mexican production of natural gas has been slowly declining. The major reason for this decline has been the lack of financial resources for natural gas exploration and development . . . . A number of petrochemical projects that the Mexican government began in the early 1980s are incomplete, due to insufficient investment funds. PEMEX is short approximately $1.7 billion required to complete 21 investment projects planned a decade ago to meet Mexico's demand for petrochemicals . . . . The Mexican trade deficit in basic petrochemicals is expected to grow because of insufficient investment in feedstock plant capacity.

U.S. GEN. ACCT. OFF., GAO/T-NSIAD-91-22, REFORMS IN THE MEXICAN PETROCHEMICAL INDUSTRY HAVE NOT INCREASED U.S. INVESTMENT (statement of Allan I. Mendelowitz, Director, Int'l Trade, Energy, and Fin. Issues, Nat'l Security, and Int'l Aff. Div.), 1-3 (1991) [hereinafter Mendelowitz Testimony (1991)].

67. *See* MEXICAN OIL, *supra* note 5, at 3, 14.

wells. In the United States, an average of 860 rigs drilled 30,000 wells in the same period of time.[68]

According to PEMEX Finance Director Ernesto Marcos, PEMEX also under-invested in its refineries during the 1980s, particularly with respect to maintenance.[69] Insufficient maintenance, aging refineries, poor transportation infrastructure, and inefficient management and labor all have slowed production of gasoline by PEMEX.[70]

Lack of reinvestment has also increased environmental and safety hazards. A climax was reached when a leaky PEMEX pipeline caused an explosion in Guadalajara in April 1992, killing over 190 people.[71] In other instances, public inspections of PEMEX-owned gasoline service stations in the vicinity of Mexico City led to the closure of one-quarter of them in May 1992.[72] As noted earlier, the Azcapotzalco refinery, the leading industrial polluter in Mexico City, also was shut down.

3. Restructuring of PEMEX[73]

PEMEX began a long-term reduction in its labor force shortly after the election of President Carlos Salinas de Gortari in 1988. Over the past three years, the number of PEMEX employees has been reduced from 219,000 to 125,000.[74] Salinas took a number of other steps to place economic pressure on PEMEX, opening Mexico to petrochemical imports and bringing in a small number of foreign contractors like Triton International to drill in the Bay of Campeche.[75]

In 1992, in the aftermath of the Guadalajara tragedy, further steps were taken to restructure PEMEX. President Salinas seized the opportunity to dismiss several PEMEX directors and to propose a complete overhauling. Because a decision to privatize PEMEX, or to open it up to foreign investment, would undoubtedly have been politically inexpedient, Salinas announced in June that the company would be made more efficient by dividing it up into its constituent parts: a central holding company and four autonomous subsidiaries.[76] The goal

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68. Dale Jones, *Potential Impact on the U.S. Economy and Selected Industries of the North American Free Trade Agreement* 8 (written testimony presented to the U.S. Int'l Trade Comm'n, Nov. 25, 1992). Mr. Jones is Chairman, Petroleum Equipment and Suppliers Ass'n.

69. Damian Fraser, *Mexican Oil Giant to Invest $4 Billion*, FIN. TIMES, June 13, 1991, at 30.

70. HUFBAUER & SCHOTT (1992), *supra* note 5, at 190.

71. Gray Newman, *Guadalajara Blast Ignites Scrutiny of All Companies*, 1992 BUS. LATIN AM. 137.

72. *Green Watch*, 1992 BUS. LATIN AM. 180.

73. A number of articles by American commentators suggest ways for restructuring PEMEX. *See, e.g.*, Conine, *Mexico*, *supra* note 53, at 636-45; Wesley R. Smith, *Oil and Prosperity: Reforming Mexico's Petroleum Monopoly*, MEX. TRADE & LAW REP., Nov. 1992, at 5 [hereinafter Smith, *Oil and Prosperity*]; and Wesley R. Smith, *Liberalizing the Mexican Oil Industry*, MEX. TRADE & LAW REP., Dec. 1992, at 5 [hereinafter Smith, *Mexican Oil Industry*].

74. The author owes this point to officials at the U.S. Embassy in Mexico City. A large number of dismissed PEMEX workers were "eventuales" on continually-renewed temporary contracts who are now demanding severance pay from PEMEX. *See* Baird, *supra* note 30.

75. *Id.*

76. Smith, *Mexican Oil Industry*, *supra* note 73, at 7; *Management Alert*, 1992 BUS. LATIN AM. 168.

of each new subsidiary is to become self-sufficient. In particular, the new petroleum exploration and production subsidiary will no longer be able to use the profits of other PEMEX operations to finance its own losses.

The Mexican Congress approved this restructuring of PEMEX in July 1992.[77] As a result, PEMEX is now being converted into a new holding company, Petroleos Mexicanos Corporativo, which will remain responsible for overall strategic planning and finance, and four subsidiaries: PEMEX Exploration and Production, PEMEX Refining, PEMEX Gas and Basic Petrochemicals, and PEMEX Secondary Petrochemicals. The Director General of the holding company will preside over the management board of each of the subsidiaries. A separate Director General has already been appointed for each of the subsidiaries. To emphasize the seriousness of the reorganization, the government has announced that headquarters of PEMEX Exploration and Production is to be moved to Campeche, and that the headquarters of PEMEX Secondary Petrochemicals is to be moved to Veracruz, although these steps have encountered some resistance among PEMEX officials.[78]

A key issue remains the ability of the new PEMEX to raise the $20 billion needed to execute its five-year reinvestment plan. While oil production is PEMEX's top investment priority, there is also a need to construct new refineries, gasoline stations, and petrochemical plants. PEMEX is unlikely to be able to raise sufficient capital through its own profits, government help, or even through borrowing on capital markets.[79] Although PEMEX has thus far been reluctant to adopt this course, many experts believe the most likely means for raising sufficient capital would be to open PEMEX to foreign investment.

The restructuring of PEMEX thus may open up significant new opportunities for foreign investors in the very near future. With the adoption of NAFTA, American investors will be in an excellent position to take advantage of new opportunities as they arise. In some respects, the restructuring of PEMEX, in combination with the improved investment climate created by NAFTA, may be the most important aspect of the Agreement for the U.S. petroleum industry.

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77. *Management Alert*, 1992 BUS. LATIN AM. 248.

78. The author owes these observations to officials at the U.S. Embassy in Mexico City.

79. In 1992, PEMEX took on more than $800 million in new debt, driving the monopoly's total foreign indebtedness to $7.2 billion. Capital has also been generated through a Citibank trust which has sold $300 million in bonds. Some financing for new PEMEX projects will also come from a $790 million loan from the Japanese government aimed at ameliorating air pollution in Mexico City. PEMEX will receive $775 million for investment in refineries to produce unleaded gasoline, gasoline additives, and to reduce the sulfur content in diesel fuels. *See Pemex, supra* note 39, at 27. The Export-Import Bank of Japan is also expected to lend $400 million to develop unleaded gasoline refining capacity. HUFBAUER & SCHOTT (1992), *supra* note 5, at 192.

III. SECTOR-BY-SECTOR ANALYSIS OF THE POTENTIAL EFFECTS OF NAFTA

In this next section, we will explore the main areas of the oil and gas industry in which NAFTA is expected to open up opportunities in Mexico for U.S.-based companies.[80] At the outset, we must note that NAFTA is disappointingly narrow in its application to the exploration and production sector since it preserves intact Mexico's monopoly on its oil and gas resources. Ultimately, U.S. negotiators felt that Mexican negotiators would be unable to bargain over these provisions, based on their historical and cultural importance in Mexico. The U.S. Trade Representative and the U.S. negotiating team therefore focused on ways of opening the Mexican energy sector to American investors and contractors, rather than attempting to alter Mexico's constitutional prohibition on foreign ownership of oil and natural gas. As a result, the most profound effects of the Agreement on the petroleum industry will probably be experienced in the petroleum service sector and the petrochemical industry.

Natural gas producers are permitted by NAFTA to engage in direct negotiations between producers and end users of natural gas, without having to go through PEMEX as an intermediary. The downstream-side (refining and marketing) of the industry will experience no noticeable effect on the rights of the Mexican government to regulate investment in refineries and marketing and distribution chains.

In the petrochemical sector, the Agreement provides that fifty percent more basic petrochemicals in Mexico will become available to investors from the United States and Canada. Finally, NAFTA will significantly open up the government procurement process (inclusive of PEMEX) for the provision of services and supplies to the upstream, downstream, and petrochemical sectors, and reduce the tariff levels associated with equipment supplied under these contracts. The remainder of this section will analyze the impact of the Agreement on individual sectors of the oil and gas industry in greater detail.

A. Exploration and Production

While there was early hope that this portion of the energy sector would be opened up through NAFTA, the Agreement merely reaffirms Mexico's constitutional monopoly on the exploration, development, transportation and "first hand sales" of crude oil and natural gas. Article 601(1) of NAFTA

80. The principal NAFTA Chapter affecting the U.S. energy sector is Chapter 6, "Energy and Basic Petrochemicals." Additional chapters that create opportunities for the U.S. energy industry, either for investment or for operation in Mexico, include the chapters on investment (Chapter 11), government procurement (Chapter 10), standards-related measures (Chapter 9), and competition, monopolies, and state enterprises (Chapter 15). NAFTA, *supra* note 1.

provides that "the parties confirm their full respect for their constitutions."[81] Annex 602.3 provides that:

> 1. The Mexican State reserves to itself the following strategic activities and investment in such activities: (a) exploration and exploitation of crude oil and natural gas; refining or processing of crude oil and natural gas; and production of artificial gas, basic petrochemicals and their feedstocks; and pipelines; and (b) foreign trade; transportation, storage and distribution, up to and including first hand sales of the following goods: crude oil; natural and artificial gas; goods covered by this Chapter obtained from the refining or processing of crude oil and natural gas; and basic petrochemicals.[82]

Despite these limitations, the Preamble to the Energy Chapter of NAFTA provides some ray of hope that risk-sharing agreements might be on the horizon. The Preamble states that one of the Agreement's fundamental principles is the "sustained and gradual liberalization " of "trade in energy and basic petrochemical goods."[83] In the long run, these may well be the principles on which future profit-sharing ventures will be predicated.

Although the upstream sector remains to be opened directly, PEMEX has reserved the right to reward contractors for successful oil and gas operations conducted on behalf of PEMEX. In recent times, and following a 1958 Constitutional amendment prohibiting payments to contractors in the form of a percentage of production, PEMEX has issued service contracts, including drilling, for a fixed fee.[84] In Annex 602.3 of Chapter 6, NAFTA provides that

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81. Article 27 of the original Mexican Constitution of 1917, as amended by the decree published in the *Diaro Oficial* of January 20, 1960, provides: "In the nation is vested the direct ownership of all . . . petroleum and all solid, liquid, and gaseous hydrocarbons . . . ."

Regarding Mexico's ability to alienate these resources, the Constitution is no less equivocal: "In the case of petroleum, and solid, liquid, or gaseous hydrocarbons or radioactive minerals, no concessions or contracts will be granted nor may those that have been granted continue, and the Nation shall carry out the exploitation of these products . . . ." *Id.*

82. Notwithstanding Mexico's Constitutional provisions, Mexico has since experimented with foreign participation in the upstream sector of its petroleum industry. In 1949, Mexico permitted extensive foreign oil company involvement in the exploration, exploitation, and production phase of its oil industry. At that time, PEMEX entered into "risk contracts" with 16 foreign companies. The basic petroleum arrangement required the companies to fund and assume the risk for each well. In return, each foreign company was allowed to recover costs of drilling out of 50% of production revenues. Thereafter, the foreign company was compensated for its risk by payment of 15% of the revenues out of the 50% production share (an arrangement not uncommon under some of today's production sharing contracts). PEMEX addressed the constitutional prohibition on foreign ownership of reserves by supervising the drilling and assuming control over the wells once in production. However, the Mexican Constitution was amended in 1958 to prohibit all drilling contracts under which compensation is derived from production. All preexisting "risk contracts" were rescinded. Conine, *Mexico*, *supra* note 53, at 625, 641.

83. NAFTA, *supra* note 1, pmbl.

84. The most celebrated drilling contract is the contract awarded to Triton International to drill an exploratory well in the Bay of Campeche. PEMEX assumed ownership following drilling of the well. The contract is reported to have fetched $20 million for Triton. Triton also was allowed to use its own equipment and technology, as well as its own labor force. *See* HUFBAUER & SCHOTT (1992), *supra* note 5, at 192 n. 8, *citing* J. COM. June 17, 1991, at 6B. The success of the Triton project in the Bay of Campeche may foster a new willingness to make use of more efficient foreign contractors. *See* Baird, *supra* note 30. PEMEX issued

the parties "shall allow state enterprises to negotiate performance clauses in their service contracts."[85] This NAFTA provision allows PEMEX to include in its service contracts bonus or other "success" payments based on levels of performance by the foreign contractor. Under this provision, PEMEX might include in its service contract a bonus if hydrocarbons are discovered and are produced at a predetermined flow rate for a prescribed period of time. While it may be contrary to the Mexican constitution to actually share in a percentage of production, there would appear to be no prohibition on a fixed payment pegged to certain performance criteria.

It is worth emphasizing just how rare the current Mexican regime with regard to exploration and production remains. It is not unusual for a country to prohibit the outright ownership of a resource such as oil and gas to foreigners.[86] Ultimately, it is the manner in which "control" is exercised that determines the balance between economic exigencies and legal constraints. Mexico has chosen to exercise its control directly through PEMEX. Yet, many other nations around the world with similar petroleum potential and similar concerns over foreign ownership of natural resources have successfully developed petroleum arrangements with foreign oil companies. These agreements allow the host government to maximize its natural resource potential without abrogation of control over either the resource or its development.[87]

In many of these other jurisdictions, national law has interposed the presence of a national or state oil company through which all foreign investment in petroleum exploration and production must occur. Under petroleum arrangements in most of these other nations, the foreign company's involvement is highly risky in that the foreign oil company incurs the entire cost of drilling an exploratory well. In the event a successful well is not drilled, the foreign company receives no compensation while, under the terms of the petroleum contract, the national oil company receives valuable information for future exploration. Where a successful well is drilled, the foreign company recovers its investment from a portion of production revenues, after which a system of production sharing, royalties and taxes sets in, leaving the foreign production company with anything between ten percent to fifty percent of the net production from the well, depending on the level of production.[88]

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two other service contracts to U.S. drilling contractors to drill offshore wells in 1991-92. Jones, *supra* note 68, at 7. Various sources in the industry speculate that between 40 and 50 service contracts have been awarded to foreign contractors.

85. North American Free Trade Agreement, Mar. 1993, U.S.-Can.-Mex., Annex 602.3 para. 4, 32 I.L.M. 289 [hereinafter NAFTA Annex].

86. A United Nations Resolution goes so far as to reflect a view "widely held in the Third World that sovereignty is compromised if control over domestic oil reserves and other minerals is in the hands of foreign corporations." Ernest E. Smith, *Typical World Petroleum Arrangements*, INT'L RESOURCES LAW 9-1, 9-21 (Rocky Mt. Min. L. Fdn., 1991), *citing* G.A. Res. 1803, 17 U.N. GAOR Supp. (No. 17) at 15, U.N. Doc. A/5217; G.A. Res. 3171, 28 U.N. GAOR Supp. (No. 30) at 52, U.N. Doc. A/9400 (1973).

87. Professor Ernest E. Smith of the University of Texas has provided an excellent summary of those types of arrangements. *See id.* at 9-10.

88. WORLD PETROLEUM ARRANGEMENTS 65 (1991).

It is unclear why Mexico insisted on maintaining its monopoly on oil and gas exploration and production. It appears that unless Mexico significantly expands its capacity, both in production and refining, it will become a net importer by the year 2000.[89] While Mexico could delay this fate for several years by eliminating exports, such a step would have drastic internal economic consequences. It also may be futile to do so considering that domestic requirements, growing at the rate of five percent per year, probably will consume all of Mexico's output starting in the year 2004 unless significant additional reserves are discovered.[90]

B. Natural Gas Production

NAFTA adopts two important provisions for natural gas producers in the United States. First, tariff rates on natural gas imported into Mexico from the United States, currently set at ten percent, are to be phased out over a ten-year period. Second, NAFTA contains a provision that allows natural gas producers to negotiate supply contracts directly with end-users.[91] This provision makes it easier for natural gas producers to make sales to end-users by eliminating the need to deal through PEMEX.[92] Conversely, NAFTA preserves the requirement that all agreements, once negotiated, must pass through PEMEX which may choose to block or delay their implementation.[93] Moreover, PEMEX continues to own and operate the pipeline network within Mexico, giving it a great deal of control over U.S. natural gas exports.[94]

Nevertheless, so long as excess demand for natural gas in Mexico continues, PEMEX has little incentive to interfere in the private contracting process. For the past five years, during a time when sales contracts were negotiated directly with PEMEX, U.S. exports of natural gas to Mexico have been rising. This is due largely to the liberalization of the Mexican energy industry and increasing industrialization along the border. Between 1988 and 1989, U.S. natural gas exports to Mexico escalated dramatically when Valero Natural Gas Company

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89. HUFBAUER & SCHOTT (1992), *supra* note 5, at 185.

90. *Id.* at 185 n.1.

91. NAFTA Annex 602.3(3), *supra* note 85.

92. Unlike the United States, Mexico has no specific law governing the import or export of natural gas, although a license is required under its general trade laws. Licensing powers are generally shared between the government and PEMEX, and the issuance of licenses often involves political as well as economic considerations. *See* Conine, *Natural Gas Transactions*, *supra* note 11, at 634. In the United States, the Natural Gas Act of 1938 (NGA) governs both the import and export of natural gas. Approval to export natural gas is ordinarily granted unless the transaction is deemed to be inconsistent with the "public interest." 15 U.S.C. §717b (1993). A number of administrative decisions and guidelines denominate the criteria to be applied by the agency charged with reviewing import/export applications (now, the Office of Fossil Fuels, within the Department of Energy). Conine, *Natural Gas Transactions*, *supra* note 11, at 633. For a full discussion of the history and procedures associated with an application for the export or import of natural gas, *see id.* at 625-33.

93. GARY C. HUFBAUER & JEFFREY J. SCHOTT, NAFTA: AN ASSESSMENT, (1993) [hereinafter HUFBAUER & SCHOTT (1993)].

94. U.S. INT'L TRADE COMM'N, *supra* note 49, at 18-20.

established a new border crossing between Texas and Mexico to supply PEMEX. Valero began operating an additional crossing near Reynosa, Mexico in August 1992,[95] and exports can be expected to continue to rise. Enron Natural Gas and El Paso Natural Gas are also in the process of establishing border crossings. These might well bring cross-border capacity to over one billion cubic feet per day.[96] In addition, the Mexican government has announced plans to convert 450,000 vehicles to natural gas over the next four years, and U.S. natural gas companies are already involved in establishing fueling stations to service this future demand.[97]

In its pursuit of free trade in both directions, NAFTA creates new risks for American natural gas producers by increasing the possibility of future competition with Mexican producers on the American domestic market. If Mexico once again becomes capable of exporting gas into the United States, the U.S. Department of Energy's import criteria probably will not be enforceable to the extent that they conflict with NAFTA. Mexican imports may even threaten to cut the price of natural gas produced in the United States. Mexico is not expected to be in a position to generate surplus gas supplies for sale in the U.S. market in the near future. However, as Mexican production of crude increases and its associated gas-handling capability catches up, its natural gas production could exceed its domestic demand. A long-term effect of NAFTA might therefore be the importation of Mexican natural gas into the United States.

In sum, it would appear that NAFTA's impact on investment and production of natural gas will be minor. Mexican tariffs on natural gas will be eliminated over a ten-year period. However, the potentially positive impact of this tariff reduction will be mitigated by other limitations placed on the natural gas trade, particularly difficulties of transportation.[98]

C. *Refining and Marketing*

Oil refining in Mexico falls under the exclusive control of PEMEX Refining, one of the four subsidiaries created under PEMEX's restructuring plan. While opportunities for foreign firms have expanded somewhat in the petrochemical and drilling areas, refining remains tightly controlled by the Mexican government.

NAFTA specifically reserves the "refining or processing of crude oil and natural gas"[99] in Mexico to the State. This is consistent with the existing legal limitations preventing foreign ownership of Mexico's refineries or other

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95. *Id.*

96. *Id.*; *See also El Paso Charts Additional Transportation Path to Markets in Mexico*, INSIDE F.E.R.C., Mar. 22, 1993, at 4.

97. *Interview With American Gas Association Chairman David R. Jones*, PIPELINE INDUSTRY, May 1993, at 21.

98. *Id.*

99. NAFTA, Annex 602.3, *supra* note 85.

processing facilities.[100] Overall, the Agreement should have minimal effect on the ability of the United States to place investments, or to otherwise obtain ownership interests, in Mexican refineries or product distribution chains.

With respect to distribution, the Agreement permits Mexico to reserve to its own nationals and to Mexican enterprises (excluding foreign-owned) the distribution of liquified petroleum gas (Annex I, Schedule of Mexico). In addition, the Agreement excludes foreigners from the establishment and operation of retail outlets engaged in the resale of gasoline, diesel, lubricants, oils, and additives (Annex I, Schedule of Mexico).

Notwithstanding the explicit provisions of NAFTA, both the spirit of cooperation engendered by NAFTA and the practical urgency of Mexico's need for more and cleaner gasoline has led PEMEX to begin joining with foreign companies to increase refining capacity. In early 1993, PEMEX and Shell Oil Company finalized a joint venture agreement to split ownership of Shell's 215,000 b/d refinery in Deer Park, Texas.[101] As part of the joint ownership agreement, PEMEX will sell the refinery a long-term supply of Mayan crude oil, and Shell will sell PEMEX a long-term supply of unleaded gasoline to meet growing demand in Mexico. PEMEX also joined Shell in a $1 billion construction project to upgrade the refinery to enable it to produce reformulated motor fuels as required by the U.S. Clean Air Act, and to process large volumes of heavy Mayan crude.[102] Shell and PEMEX held groundbreaking ceremonies for the construction venture in July 1993.[103]

Mexico is actively seeking similar ventures, according to Emilio Lozoya Thalmann, Mexico's Minister of Energy and Mines.[104] Conoco has confirmed that its parent company is talking with PEMEX about a joint venture similar to the Deer Park agreement at Conoco's 160,000 b/d refinery in Lake Charles, Louisiana.[105] PEMEX is also reported to be negotiating with Chevron for a similar joint venture at Chevron's Port Arthur, Texas, refinery.[106]

PEMEX has similarly engaged in joint ventures to market and to distribute petroleum products. Mexican private investors recently joined with the Spanish petroleum firm, Repsol, to distribute petroleum products in Mexico and other Latin American countries. This new company is forty percent owned by Repsol and sixty percent owned by Mexican investors.[107] The new investment is expected to help upgrade refinery operations at Tula, Salina Cruz, and Cadereyta.[108]

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100. Conine, *Natural Gas Transactions*, supra note 11, at 628 n.9.

101. *Shell, Pemex Team Up in Refining Venture*, OIL & GAS J., Mar. 8, 1993, at 25.

102. *Id.*

103. *Id.*

104. *Mexico Seeks Foreign Investment in Certain Energy and Mining Areas*, INT'L TRADE REP. (BNA) (Apr. 14, 1993) [hereinafter *Mexico Seeks Foreign Investment*]; *Mexican Minister Says U.S. Has Prospects - But Not to Produce Oil*, PLATT'S OILGRAM NEWS, Apr. 8, 1993, at 6.

105. *OGJ Newsletter*, OIL & GAS J., Feb. 15, 1993, at 2.

106. *Pemex's Refining Chief Says More U.S. Ventures Imminent*, HEROLD'S OIL HEADLINER, Dec. 7, 1992, at 1.

107. HUFBAUER & SCHOTT (1992), *supra* note 5, at 193.

108. *Id.*

Private Mexican investors have also gained access to Mexico's lubricants facilities and retail gasoline outlets.[109] According to one report, "[t]he state company's strategy is to sell off assets that it can effectively control without ownership in order to raise cash for the ones that it wants to keep and expand."[110]

D. Petrochemical Industry

1. Classifications

Mexico classifies its petrochemicals as either "basic," "secondary," or "tertiary."[111] "Basic" petrochemicals are those derived from the first transformation of crude petroleum or natural gas.[112] Under the 1958 Petrochemical Law, PEMEX enjoys the exclusive right to produce basic petrochemicals.[113] The Mexican government, however, has gradually reduced the number of petrochemicals classified as "basic" in order to encourage private investment in the petrochemical industry.[114] The most recent reclassification occurred in August 1992, when the Mexican government reduced the number of basic petrochemicals to eight: ethane, propane, butanes, pentanes, hexanes, heptanes, carbon black feedstock, and naphthas.[115]

Although PEMEX retains exclusive control over basic petrochemical production, Mexico's need for capital investment led to the creation in 1989 of a program where foreign companies could supply capital and technology for plant construction in exchange for petrochemicals produced at the plant.[116] The foreign companies can build the plants under PEMEX supervision, although PEMEX must operate them.[117]

"Secondary" petrochemicals are those derived from further processing of basic petrochemicals.[118] Mexico now classifies sixty-six petrochemicals as

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109. *Pemex Reshuffles Parts*, *supra* note 32, at 3. "Control of the state lubricants operation recently went to a private firm in Guadalajara for over $250 million, with PEMEX retaining a minority holding. Retail gasoline sales have been largely outside the state sector for years, and PEMEX disposed of its last stations in 1992." *Id.*

110. *Id.*

111. U.S.- MEXICO ENERGY, supra note 40, at 1.

112. *Id.*

113. *Id.* at 4.

114. In 1986, Mexico reclassified 36 petrochemicals from basic to secondary, leaving 34 basic petrochemicals. U.S.-MEXICO ENERGY, *supra* note 40, at 4. In 1989, Mexico further reduced the number of basic petrochemicals to 20. *1989 Resolution Reclassifying Specified Petrochemical Products as Basic or Secondary Petrochemicals*, DIARIO OFICIAL (August 15, 1989). This number dropped to 19 in 1991, when Mexico reclassified MTBE as a secondary petrochemical. *Pemex*, *supra* note 39, at 25.

115. This reclassification was published in the *1992 Resolution Reclassifying Specified Petrochemical Products as Basic or Secondary Petrochemicals*, DIARIO OFICIAL (August 15, 1989); U.S. INT'L TRADE COMM'N, *supra* note 49, at 19-1, n.1.

116. U.S.-MEXICO ENERGY, *supra* note 40, at 4.

117. *Id.*

118. *Id.*

secondary, a significant reduction from the over 700 petrochemicals that were listed in 1989.[119] Companies planning to produce any of the sixty-six petrochemicals classified as secondary must obtain a production license from the Petrochemical Commission of the Ministry of Energy, Mines, and Parastatal Industry (SEMIP).[120] Before NAFTA, Mexican law limited foreign investment in the manufacture and distribution of secondary petrochemicals to a forty percent equity share. However, as part of its 1989 reform, Mexico did allow foreign investors to acquire up to 100% ownership of a secondary petrochemical plant if the investor entered into a special trust arrangement with a Mexican credit institution. The trustee retained direct control of the operation while disbursing profits to the foreign investor.[121]

"Tertiary" petrochemicals are those derived from secondary petrochemicals and include all petrochemicals not classified as either basic or secondary.[122] Even before NAFTA, Mexican law already permitted 100% foreign ownership of tertiary petrochemical production facilities.

2. NAFTA Provisions Affecting Petrochemicals

Under Annex 602.3 of NAFTA, Mexico reserves to itself investment in and production of basic petrochemicals and their feedstocks.[123] Mexico also reserves to itself all foreign trade, transportation, storage, and distribution of basic petrochemicals. This reflects the existing prohibition of foreign ownership of the feedstock and basic products of the petrochemical industry under Mexican law.

Article 602.2 of NAFTA, however, expands on Mexico's 1992 reclassification of petrochemicals, limiting to five the number of basic petrochemicals that are reserved exclusively to the State.[124] Private investment in ethanes, butanes, pentanes, hexanes, and heptanes remains prohibited. The production and sale of benzene, toluene, xylene, naphthalene, phenols, creosote oils, distillates, kerosene, naphthas, LNG, and certain ethylenes, propylenes, butylene, and butadienes are no longer within the definition of "basic petrochemicals" and consequently should now be available for investment by NAFTA parties. Furthermore, NAFTA also eliminates Mexico's forty percent limit on foreign investment in secondary petrochemicals, thereby permitting 100% ownership for their production.[125] NAFTA does not, however, affect the registration requirements established by the Ministry of Energy, Mines and Parastatal Industry.

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119. *Id.*

120. HUFBAUER & SCHOTT (1992), *supra* note 5, at 196.

121. U.S.-MEXICO ENERGY, *supra* note 40, at 4.

122. *Id.*

123. NAFTA Annex 602.3, *supra* note 85.

124. *See* discussion *supra* note 114.

125. U.S. INT'L TRADE COMM'N, *supra* note 49, at 19-2. Investment in Mexican businesses is subject to Article 138 of NAFTA, which allows Mexico to require government approval for takeovers of existing businesses starting at $25 million and increasing to $150 million over the next 10 years.

For those basic petrochemicals that remain the exclusive province of the state, NAFTA limits export taxes on these fractions. Under NAFTA, Mexico is unable to maintain an export tax on any basic petrochemicals unless an equal duty is levied on products destined for internal consumption. Finally, NAFTA limits the circumstances under which Mexico may place import duties and tariffs on a basic petrochemical. Under NAFTA, Mexico agrees to eliminate its tariffs on primary petrochemicals over a ten-year period.[126]

As the NAFTA provisions suggest, Mexico is actively seeking foreign investment in secondary petrochemicals.[127] PEMEX has reached agreements with several foreign investors who have agreed to invest in completion of petrochemical facilities in return for a guaranteed supply of the petrochemical per year.[128] As an example, Valero Energy Corp. signed agreements with PEMEX in April 1993, for the building of a 13,000 b/d MTBE plant in Veracruz.[129] Valero owns thirty-five percent of *Productos Ecologicos S.A. de C.V.* (Proesa), which entered into two fifteen-year contracts with PEMEX for the supply of the plant's butane feedstock and the sale of MTBE. Valero will operate the plant, which will replicate the MTBE unit at its Corpus Christi refinery.[130] Two Mexican partners, *Grupo Informin* and *Banamex S.A. de C.V.* own fifty-five percent of Proesa, and the Spanish construction firm of *Dragados y Construcciones S.A.* has a ten percent share.[131] The plant is estimated to cost about $350 million and is expected to come into operation during the second half of 1995.[132] Furthermore, PEMEX intends to fully privatize its petrochemical business, although full-scale plans are on hold until conclusion of negotiations on the side agreements to NAFTA.[133] A private firm in Guadalajara recently obtained control of the state lubricants operation for over $250 million, with PEMEX retaining a minority holding.[134] In addition, PEMEX officials have begun talks with British Petroleum for possible sale of PEMEX's ethylene plants.[135]

Despite these liberalizations, passage of NAFTA may not lead to substantial increases in U.S. investment in Mexico's petrochemical industry. The U.S. International Trade Commission points out that the acquisition or construction

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126. *Id.*

127. *Mexico Seeks Foreign Investment*, *supra* note 104.

128. In 1990, Mexico completed two petrochemical facilities under such arrangements. Celanese paid $15 million to PEMEX to complete an acetaldehyde plant at PEMEX's Morelos complex in return for 240,000 metric tons of acetaldehyde per year. Cydsa pre-paid PEMEX nearly $9 million to complete an acrylonitrile plant in return for 72,000 metric tons of the petrochemical per year. Christine MacDonald, *Foreign Companies Sign on with Pemex*, BUS. MEX., Aug. 1991, at 22.

129. *Valero, Pemex Sign Agreements to Build $350 Million MTBE Plant in Veracruz*, THE OIL DAILY, Apr. 27, 1993, at 4 [hereinafter *Valero, Pemex*].

130. Jim Drummond, *Valero Advances Mexican MTBE Plant*, REFINING HORIZONS, Mar. 1993 Issue A, at 19 (Special Pub. of THE OIL DAILY).

131. *Id.*

132. *Valero, Pemex*, *supra* note 129, at 4.

133. *OGJ Newsletter*, OIL & GAS J., May 17, 1993, at 3. For a discussion of the side agreements, *see infra* part IV.B.

134. *Pemex Reshuffles Parts*, *supra* note 32, at 3.

135. *OGJ Newsletter*, *supra* note 133, at 3.

of a petrochemical plant is highly capital-intensive.[136] U.S. investors may be further deterred by the fact that such a plant would have to rely on PEMEX for most of its feedstock, would need to be located near a PEMEX plant producing feedstock, and would have to sell its product either to PEMEX or in competition with PEMEX.[137]

The U.S. General Accounting Office has similarly identified a variety of factors that will discourage increased U.S. investment in the Mexican petrochemical sector, notwithstanding the passage of NAFTA.[138] These include worldwide excess production capacity for basic petrochemicals, insufficient basic petrochemical production in Mexico, fear that government reforms may be reversible, an absence of adequate intellectual property protection, and an absence of sufficient investment protection for U.S. businesses.[139] On the other hand, some factors may encourage investment, especially Mexico's established infrastructure for the manufacture of petrochemicals, abundant raw materials in Mexico, and a favorable location.[140]

E. Petroleum Service and Supply Sector

The most direct impact of NAFTA on the petroleum industry will almost certainly occur in the areas of service and supply. NAFTA significantly expands opportunities for drilling contractors, seismic contractors and subcontractors of basic services and supplies for the oil and gas industry in Mexico.[141]

The Agreement benefits the service and supply sectors in three main ways: (i) by limiting the barriers on competitive bidding through the creation of a tender system which will provide significant opportunities for greater participation by U.S. contractors and suppliers, (ii) by reducing tariffs on equipment, and (iii) by allowing state enterprises to negotiate performance clauses in their drilling contracts.[142]

1. GATT Code on Procurement

The General Agreement on Tariffs and Trade (GATT) is a multilateral agreement for regulating international trade and reducing trade barriers. GATT members afford one another "Most Favored Nation" status, limit their maximum

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136. *Mexico Seeks Foreign Investment, supra* note 104.

137. *Id.*

138. U.S.-MEXICO ENERGY, *supra* note 40, at 5.

139. *Id.*

140. *Id.* at 6.

141. It is not surprising that the Petroleum Equipment Suppliers Association (PESA), pointing to the loss of 450,000 jobs in the U.S. oil and gas industry since 1982, has urged passage of NAFTA. Jones, *supra* note 68, at 1.

142. *See infra* part III.E.4.

import duties, provide for non-discrimination against foreign goods that have cleared customs, limit domestic subsidies, restrict import quotas, and eliminate export restraints.[143] In July 1986, Mexico became a signatory of GATT. A large number of Mexican local laws and regulations were amended to incorporate GATT standards.[144] One result has been that the average Mexican duty on imports has plunged from 100% in 1986 to 11% by 1990.[145] Increased importation of foreign goods also helped to lower inflation, which was 162% in 1987 and only 19% by 1991.[146]

Article III of GATT requires that all national regulations respecting taxation and the sale of products accord "national treatment" to the products of other GATT members. Government purchases, however, are exempt from this requirement.[147] GATT members viewed government procurement as part of the exercise of national sovereignty, and nothing in GATT itself requires a country to open its government contracts to foreign bidders.

By the 1970s, however, leading developed nations were ready to reach an accommodation on government procurement, broadly extending the reach of GATT to the public sector. At the Tokyo Round, a separate code was negotiated known as the Agreement on Government Procurement.[148] The Code on Procurement establishes detailed rules to implement the principle of "national treatment" in the sphere of public contracts, including open-bidding requirements, a procedure for informing foreign bidders why their bids were rejected, and a procedure for appeal and dispute-resolution.[149]

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143. GATT refers to separate schedules that set reciprocal tariff limits and rules for eliminating nontariff barriers. These limits are periodically adjusted in negotiations known as "Rounds," such as the "Tokyo Round" in 1973-79 and the current "Uruguay Round." For an excellent introduction to GATT, *see* JOHN JACKSON, THE WORLD TRADING SYSTEM (1989).

144. These have included, among others, modifications to the Regulations Against Unfair Trade Practices, the Anti-dumping Code, the Code of Import Licenses, and the Code of Customs Valuations.

145. Eduardo T. Siqueiros, *Legal Framework for the Sale of Goods into Mexico*, 12 HOUS. J. OF INT'L L. 291, 292, 294 (1990).

146. Aureliano Gonzalez-Baz, *A Mexican Perspective on the North American Free Trade Agreement and the Environment*, 18 CAN.-U.S. L.J. 235, 236 (1992). "Mexico joined GATT, and in literally an overnight period, Mexican manufacturers were faced with the fact that foreign products, which in the past had averaged at a rate of 100 to 110%, suddenly had a maximum of 20% and an average of 9.8% duty. Also, 98% of all products no longer required an import license." *Id.*

147. General Agreement on Tariffs and Trade, Oct. 30, 1947, 61 Stat. A3, 55 U.N.T.S. 187 [hereinafter GATT]. "The provisions of this Article shall not apply to laws, regulations or requirements governing the procurement by governmental agencies of products purchased for governmental purposes . . . ." Because Article I also makes reference to Article III, it is arguable that government procurement policies are also exempt from the "Most Favored Nation" rules. *Id.* Art. III, ¶ 8(a)

148. Article II, ¶ 1 of GATT provides as follows: "With respect to all laws, regulations, procedures and practices regarding government procurement . . . the Parties shall provide . . . treatment no less favorable than: (a) that accorded to domestic products and suppliers; and (b) that accorded to products and suppliers of any other Party."

149. The main signatories to the GATT Agreement on Government Procurement are the developed countries, for example the United States, the European Union, and Japan. Mexico is not a signatory of the Code on Procurement, and therefore, PEMEX policies in awarding contracts have not afforded American bidders equal treatment with Mexican competitors. The adoption of Chapter 10 of NAFTA, therefore, marks a significant departure from current practices. Chapter 10 of NAFTA creates the equivalent of the GATT Code

2. NAFTA Procurement Provisions

Under NAFTA, PEMEX must open up half its procurement to bids from foreign companies within the first year of the Agreement, and must gradually open up all its procurement to foreign bidders within ten years.[150] All contracts over specified amounts proposed for award by PEMEX are subject to these provisions of the Agreement.[151]

The procurement provisions of Chapter 10, although lengthy, are relatively straightforward. Like the GATT Code on Procurement, they require each NAFTA party to accord goods, services, or suppliers from any other NAFTA Party treatment "no less favorable" than that accorded to goods, services or suppliers from any of the other NAFTA parties, including those from that country itself. In this way, Article 1003 effectively combines both "most favored" and "national treatment" into a single category.[152] The provisions of Article 1003 also prohibit the use of technical specifications to the advantage of domestic contractors. NAFTA's procurement provisions include the creation of an extensive "tender" or bid process that addresses the qualifications of suppliers, the contents of the invitation to bid, deadlines, tender documentation, awards, bid challenges, and exceptions to the tender process. "Rules of Origin"[153] also are promulgated, which determine the application of any associated tariffs.

3. "Most Favored Nation" Status; "National Treatment"

In Article 1003, NAFTA requires that, for all matters covered by the procurement provisions, each party must accord "Most Favored Nation" status to the goods, services, and suppliers of the other parties. Thus, each party must treat the goods, services, and suppliers of the other party no less favorably than the goods, services, and suppliers of its most favored providers, including national entities. Therefore, in awarding government contracts, no party may

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on Government Procurement, but only among the three nations of Canada, Mexico and the United States.

150. NAFTA, *supra* note 1, art. 1002, Annexes 1002.3 (Schedule of Mexico), 1002.6, and 1002.7.

151. The thresholds are set as follows: (1) U.S. $250,000 for "goods contracts;" (2) U.S. $250,000 for "services contracts" (which excludes construction services contracts); (3) U.S. $8.0 million for construction services contracts.

The determination of contract value is covered in NAFTA, art. 1002.3, which requires that the contract value must take into account "all forms of remuneration, including premiums, fees, commissions and interest." *Id.* art. 1002.(3). It attempts to avoid manipulation of the spirit of the provision by setting rigid standards for the valuation of awards that result in more than one contract or contracts that are awarded in separate parts. *Id.* Annex 1002.3(4). NAFTA, art. 1002.3(b) subjects entities listed in Annex 1002.3 (Schedule of Mexico) to these thresholds. PEMEX is listed in Annex 1002.3 among the entities subject to this schedule. It is noted that this schedule does not apply to the procurement of "fuels and gas" by PEMEX.

152. NAFTA, *supra* note 1, art. 1003.

153. NAFTA, *supra* note 1, art. 1004. *See also* discussion *infra* parts F.1., F.2. on tariff reductions under NAFTA.

discriminate against any local entities on the basis of foreign affiliation or ownership by persons or entities located in another NAFTA party.[154]

4. Use of Technical Specifications as Non-Tariff Trade Barriers

Article 1007 prohibits each party from developing technical specifications with the purpose or effect of creating "unnecessary obstacles" to trade. These obstacles might arise from specified requirements governing "quality, performance, safety and dimensions, symbols, terminology, packaging, marking [or] labelling . . . ." Production processes and methods may also come within the scope of this prohibition.[155] To this end, each party is required to ensure that the technical specifications called for by its entities in awarding contracts are stated in terms of "performance criteria" instead of "design or descriptive characteristics." Reference to "international standards, national technical regulations, recognized national standards or building codes" is required, where appropriate.[156] Under NAFTA, specific trademark and other peculiar references are prohibited except where there is no other way to describe the requirements, and in these instances, the relevant procurement regulations must specify that goods, services, or suppliers meeting "equivalent" standards are also acceptable.[157]

5. Tender Process

NAFTA requires that public entities adopt transparent tender processes designed to maximize competition and to eliminate discrimination and local preference.[158] The procurement provisions establish three types of tender processes: "open," "selective," and "limited." The open process allows participation by all qualified parties; the selective process involves suppliers invited to bid by procuring entity; and the limited process allows an entity to forego the open process if the contract calls for the supply of unique materials, additional supplies of previously supplied materials, or where the goods or services desired could not be obtained in time under the open process.

a) Qualifications of Suppliers. A basic premise of NAFTA's qualifications provisions is that no supplier should be disqualified from bidding for a contract from a government entity in one North American country merely because it is

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154. NAFTA, *supra* note 1, art. 1003(2). An exception exists where the laws or policies of the denying party would prohibit such a transaction. *See* NAFTA, *supra* note 1, art. 1113(1)(b).

155. NAFTA, *supra* note 1, art. 1007(1).

156. NAFTA, *supra* note 1, art. 1007(2).

157. NAFTA, *supra* note 1, art. 1007(3).

158. *See generally* NAFTA, *supra* note 1, art. 1008. Article 1008 provides that "each Party shall ensure that its entities: (a) do not provide to any supplier information with regard to a specific procurement in a manner that would have the effect of precluding competition; and (b) provide all suppliers equal access to information with respect to a procurement during the period prior to the issuance of any notice or tender documentation."

a supplier from another North American country. In developing this premise, Article 1009 sets out an extensive list of considerations to which public and quasi-public entities of each party must adhere in developing their procurement procedures. Collectively, these provisions are intended to ensure that all interested suppliers from any of the three NAFTA countries have an equal opportunity to qualify for a particular award.[159] They do, however, allow for disqualification on the basis of "bankruptcy"[160] or "false declarations."

Article 1009 strives for parity and seeks to establish open and predictable processes for qualification. It should be noted, however, that in determining the "financial, commercial and technical capacity of a supplier," a party entity may consider the qualifying party's track record, not only globally, but specifically in the territory of that party.[161] Thus, in theory, PEMEX could legitimately award a contract to one U.S. company seeking to provide oilfield equipment to PEMEX over another on the basis of its prior activities in Mexico. This provision could conceivably serve as a loophole permitting continued favoritism on behalf of local companies in the awarding of contracts.

b) Invitation to Participate; Open Tender. Under Chapter 10 of NAFTA, each tender process (except for "limited tenders" discussed *infra*) begins with the publication of an "Invitation to Participate."[162] The contents of the invitation must include the following: whether the tender process is open or selective; a description of the goods or services solicited; relevant dates for bidding and performance;[163] relevant response information; relevant terms and conditions of the contract; and a statement of the technical and economic requirements of the bidder.[164] A short form of the invitation, known as "notice of planned procurement," may be utilized by state entities such as PEMEX, though NAFTA requires it must contain most of the information required in the general invitation.[165] Finally, an invitation must advise interested bidders whether the procuring entity intends to "negotiate" the final terms of the award.[166] Such negotiations are held primarily to narrow the list of suppliers under the bid

159. NAFTA, *supra* note 1, art. 1009(2).

160. Article 1009 does not indicate whether current or previous bankruptcy provides a basis for disqualification.

161. NAFTA, *supra* note 1, art. 1009(2)(c).

162. NAFTA, *supra* note 1, art. 1010.

163. In addition, NAFTA, art. 1015 addresses the procedures and criteria to be utilized by procuring entities for the "submission, receipt and opening of tenders and the awarding of contracts . . . ."

164. Required tender documentation is addressed in NAFTA, art. 1013, which provides in explicit detail all of the information that must be included to suppliers. It supplements the information required in the invitation to participate.

165. NAFTA, *supra* note 1, art. 1010(3). In addition, entities like PEMEX may utilize as an invitation to participate a "notice regarding a qualification system," which gives potential suppliers an opportunity to assess their interest. Again, that notice must strive to include as much of the basic information described above as possible. *Id.* art. 1010(5).

166. *See* NAFTA, *supra* note 1, art. 1014(1). A "negotiated" tender is allowed where the negotiation is advised in the invitation and where it appears from the tenders submitted that no one tender is superior on the basis of the tender criteria.

criteria and ultimately to revise the criteria for incorporation into new tenders.[167]

c) Selective and limited tender processes. As an alternative to the "open" tender process, the "selective" tender process allows PEMEX to maintain a list of qualified suppliers to which it can turn in issuing invitations "consistent with the efficient operation of the procurement system."[168] It is designed to forego the open process when that process does not produce a satisfactory result under the circumstances facing the procuring entity. Where a selective tendering process is involved, the procuring entity must publish, in an approved publication, a notice of the various supplier lists it maintains and the corresponding goods and services for which it qualifies.[169] The publication provides an opportunity for other interested parties to seek inclusion on the list or to contest the inclusion of others. Nonetheless, suppliers not on the list will be able to submit a bid, so long as they meet the qualifications requirements of Article 1009(2). However, the entity awarding the contract may limit the number of such additional suppliers in the interest of "the efficient operation of the procurement system," though they must then explain their reasons for refusing to admit the supplier to tender.[170]

NAFTA also permits a "limited" tender process to be utilized for, among other things, additional deliveries of a previously tendered contract for purchases under "exceptionally advantageous conditions," such as unusual disposals, liquidations, receiverships, or for situations of "extreme urgency brought about by [unforeseeable] events."[171] The limited tender process is intended to be utilized sparingly. The procuring entity is required to report the details of each limited tender process and to include within each report its justification for the use of the limited process.

d) Awards. NAFTA requires government entities to award contracts to suppliers who are determined by the procuring entity to be fully capable of undertaking the contract and whose bid is either the lowest or the "most advantageous," based on the tender documentation.[172] Notice of each award, including the major elements of the contract, must be published no later than seventy-two days from the award. While an award cannot be conditioned on work experience in Mexico, under the terms of NAFTA, a Mexican entity like PEMEX can take into account a bidder's prior "business activity" in Mexico in its determination of the "financial, commercial, and technical capacity of a supplier."

e) Bid challenge. Like the GATT Code on Procurement, NAFTA provides a bid challenge procedure to redress any aspect of the procurement process, including the award.[173] Much of the information required to be published by

167. NAFTA, *supra* note 1, art. 1014(4).
168. NAFTA, *supra* note 1, art. 1011(1).
169. NAFTA, *supra* note 1, art. 1010(6).
170. NAFTA, *supra* note 1, arts. 1011(3) and 1011(4).
171. NAFTA, *supra* note 1, art. 1016.
172. NAFTA, *supra* note 1, art. 1015(4).
173. NAFTA, *supra* note 1, art. 1017.

the procuring entity is intended to provide sufficient information to give dissatisfied bidders an opportunity to evaluate whether a bid challenge is warranted. An overall outline of the bid challenge procedure is provided in Article 1017. Consistent with the overall intent of NAFTA, the particular details of bid challenging procedures, such as specification of the reviewing authority, time limits for raising a challenge, and most importantly, review standards have been delegated to the individual parties to develop and implement.

f) Other procurement provisions. The remaining provisions of the procurement chapter of NAFTA address the following topics: national security and public policy exceptions to the general provisions;[174] the provision of information requested by other NAFTA countries or by their suppliers regarding the procurement process or specific procurement procedures and awards;[175] technical cooperation in maximizing access to government procurement opportunities;[176] the establishment of joint programs for small businesses;[177] the divestiture of procurement entities;[178] and provisions for further negotiations towards "substantial liberalization" of each party's procurement markets.[179]

g) Conclusion. Though some provisions of NAFTA allow exceptions to the general principle of non-discrimination in the award of government contracts, and though open-bidding requirements will only be fully adopted by PEMEX over the next ten years, this chapter of the Agreement promises significant benefits in terms of opening up future PEMEX contracts to U.S. bidders.

F. Tariffs

1. Gradual Reduction of Tariff Rates

In addition to the tariff reductions already occasioned when Mexico became a signatory of GATT in 1986, part two of NAFTA ("Trade in Goods," comprising Chapters 3 to 8) heralds further tariff reductions between Mexico and the United States. The Agreement provides for a gradual elimination of customs duties which apply to almost every conceivable piece of equipment and manufactured good subject to duty, including oilfield service equipment. NAFTA Article 301 provides for "national treatment" in terms of internal taxation and regulation to be afforded to goods produced in the territory of another party to the Agreement, similar to Article III of GATT. NAFTA Article 302(3) further states

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174. NAFTA, *supra* note 1, art. 1018 (Exceptions) provides that a Party may be excepted from the requirements of Chapter 10 where it is necessary for the protection of "essential security interests." A party also may adopt additional measures it considers necessary for the protection of certain public purposes, such as public morals, protection of intellectual property, or protection of life.

175. NAFTA, *supra* note 1, art. 1019: Provision of Information.

176. NAFTA, *supra* note 1, art. 1020: Technical Cooperation.

177. NAFTA, *supra* note 1, art. 1021: Joint Programs for Small Businesses.

178. NAFTA, *supra* note 1, art. 1023: Divesture of Entities.

179. NAFTA, *supra* note 1, art. 1024: Further Negotiations.

that the parties agree not to increase any existing tariff or customs duties, and each party further agrees to "progressively eliminate its customs duties in originating goods" in accordance with schedules that are attached to the Agreement. The schedules reduce tariffs on various goods at different rates over varied periods of time. Tariffs on some goods will be completely eliminated upon implementation of the Agreement; most others will be eliminated in five, ten, or fifteen equal annual stages over the next fifteen years.[180]

The rules of NAFTA governing tariff reductions defy meaningful summarization. Current tariff rates on oilfield equipment exported to Mexico are generally in the twenty percent rate category. Most of those tariffs are reduced to sixteen percent the first year NAFTA is effective, and will be phased out over an eight-year period thereafter. In general, tariffs on all oilfield equipment will be eliminated within five to ten years, with a large number of tariffs being eliminated immediately.[181] With respect to import controls, Annex 301.3, section B of NAFTA also permits Mexico, for the next ten years, to require special permits for the importation of used goods, including, *inter alia*, pumps, concrete pumps for liquids, mobile lifting frames, cranes, derricks, bull-dozers, sinking or boring machinery, mobile, and other drilling derricks.

2. Significance of Rules of Origin

Not all goods shipped from the United States into Mexico necessarily benefit from these lower tariff schedules. Only so-called North American "originating" goods are eligible for tariff reductions under NAFTA. Goods are considered as "originating" only when they qualify as such under the complex rules of origin set forth in Chapter Four of the Agreement.

A good is naturally considered as "originating" in one of the NAFTA countries when it is "wholly obtained or when it is produced in the territory of one or more of the parties . . . ," or produced entirely in the territory of one of the parties out of "originating materials."[182] However, in our economically interdependent world, many goods assembled or produced in the United States, Canada, or Mexico are made out of non-originating materials or parts. Many of these products will also qualify under NAFTA as "originating goods," and thereby obtain lower tariff rates.

Under NAFTA, for example, a good may often be considered as "originating" in a NAFTA country if some or all of the non-originating materials used in the production of the good undergo changes in their tariff classification as

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180. *See* NAFTA, *supra* note 1, Annex 302.2, "Tariff Elimination." On the other U.S. side, *see* the North American Free Trade Agreement Implementation Act, Pub. L. No. 103-182, 107 Stat. 2057 (1993).

181. *Id.*; *See* U.S. INT'L TRADE COMM'N, *supra* note 49, at 18-20. According to this assessment, approximately 96.8% of the U.S. energy imports from Mexico, mainly crude oil, will gradually have their duties removed over the next 10 years. About 84.7% of Mexican imports from the U.S. in the energy sector are already duty-free, and another 11.6% of Mexican imports from the U.S. will have their duties phased out over 10 years. *Id.* at F-2.

182. NAFTA, *supra* note 1, art. 401(a), (c); *see also* the seperate rules for country-of-origin marking in Annex 311 and the new U.S. rules regarding country-of-origin marking at 19 C.F.R. § 102.11 (issued in 59 Fed. Reg. 110-140 (Jan. 3, 1994)).

specified in NAFTA, as a result of the production occurring entirely in that NAFTA country.[183] For instance, Korean steel is imported into the United States under a tariff classification for steel. It is then processed into steel alloy drill pipe with a different tariff classification. The drill pipe might now qualify as "originating" in the United States and therefore be imported into Mexico under the lower tariff rates established by NAFTA and implemented by Mexico in its new tariff schedule.[184]

The NAFTA rules of origin are obviously too complicated to allow any more elaborate discussion here. As one indication of their complexity, the rules of origin in the U.S.-Canada Free Trade Agreement[185] are less than one page long,[186] whereas the same rules are seventy-three pages long in NAFTA.[187] The rules were made much more specific in order to accommodate industry concerns about specific products. The general principle, however, is clear. These rules will have to be consulted carefully by suppliers and others engaged in cross-border transactions in order to determine which equipment and goods will qualify for the reduced tariffs established by NAFTA.

IV. ENVIRONMENTAL AND LABOR PROVISIONS OF NAFTA

The environmental and labor provisions are two important areas of NAFTA which have caused widespread concern. American businesses that hope to conduct future operations in Mexico will have to familiarize themselves not only with the provisions of the Agreement itself, but with its side agreements on the environment and labor, and with Mexican environmental and labor laws and regulations. The next section of this article briefly surveys this field.

NAFTA affirms the right of each country to adopt its own labor and environmental standards, while forbidding the lowering of these standards for

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183. NAFTA, *supra* note 1, art. 401(b).

184. In many cases, not only changes in tariff classification but also special rules regarding "regional value content" will have to be considered to determine whether a product qualifies as originating. The regional value content can be calculated in several ways. One method is by calculating the difference between the transaction value of the good and the value of the non-originating parts used in producing the good, divided by the transaction value of the good. This equation purportedly yields the percentage of value that was added to the good by the assembly or production that took place on the territory of a NAFTA party. In the case of some goods, both a change in tariff classification must occur and special "regional value content" rules must be satisfied. The complicated regional value content rules are explained in art. 402(2) of the Agreement.

185. The United States-Canada Free Trade Agreement was implemented by the United States-Canada Free-Trade Agreement Implementation Act of 1988, Pub. L. No. 100-449, 102 Stat. 1851 (codified at 19 U.S.C. §§ 1516a & 1677f(d)(1988)), as amended by the Customs and Trade Act of 1990, Pub. L. No. 101-382, § 134, 104 Stat. 629 (codified at 19 U.S.C. §§ 1516a & 1677f (Supp. IV 1992)), and by the regulations of the Int'l Trade Admin., 19 C.F.R. pt. 356, and of the Int'l Trade Commn., 19 C.F.R. pt. 207 subpt. G.

186. Section XVI of the Harmonized Tariff, dealing with machinery, mechanical appliances, and electrical equipment.

187. NAFTA, Annex 401.1, *supra* note 1.

purposes of attracting investment. Although the preamble to the Agreement resolves to "improve working conditions" and to "strengthen the development and enforcement of environmental laws and regulations," NAFTA does not impose any specific regulatory measures for protection of workers or the environment.[188] Therefore, NAFTA is not likely to have a direct impact on the substance of Mexico's environmental or labor regulations.

In contrast, NAFTA may have significant indirect effects that could strengthen enforcement of Mexican laws on labor and the environment. Companies planning to operate in Mexico may, therefore, need to comply with elaborate protection for workers and the environment under existing Mexican law.

A. Specific NAFTA Provisions

Chapter 9 of NAFTA sets out the basic rights and obligations of NAFTA parties with respect to environmental and labor standards.[189] Article 904(2) provides that "each party may, in pursuing its legitimate objective of safety or the protection of human, animal or plant life or health, the environment, or consumers, establish the levels of protection that it considers appropriate in accordance with Article 907(3)."[190] Such measures must, however, accord non-discriminatory "national treatment" and "most favored nation" status to the goods and service providers of other NAFTA parties.[191]

The right to adopt environmental and labor standards-related measures include the right to ban imports of nonconforming goods or services.[192] No party, however, may adopt such a measure with the intent or effect of creating an "unnecessary obstacle to trade" between NAFTA parties.[193] Under Article 905, each country agrees to use international standards as the basis for its own standards-related measures, "except where such standards would be an ineffective or inappropriate means to fulfill its legitimate objectives."[194] Although this Article allows each party to adopt standards that result in a higher level of protection than international standards, it leaves significant discretion with each party to determine its "appropriate" level of protection.

With respect to the environment, NAFTA also provides that obligations of a NAFTA party in specified international agreements regarding endangered species, ozone depletion, hazardous waste disposal, and protection of the border

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188. NAFTA, *supra* note 1, pmbl.

189. NAFTA, Chapter 9 applies to all standards-related measures except sanitary and phytosanitary measures, which are addressed in Chapter 7B.

190. NAFTA, art. 907(3) contains provisions against arbitrary and unjustifiable distinctions in the level of protection between similar goods and services.

191. NAFTA, *supra* note 1, art. 904(3).

192. NAFTA, *supra* note 1, art. 904(1).

193. NAFTA, *supra* note 1, art. 904(4).

194. NAFTA, *supra* note 1, art. 905.

environment will prevail over any other inconsistent NAFTA provisions, subject to a requirement to minimize the inconsistency with NAFTA.[195]

Despite its provisions taking into account environmental concerns, NAFTA has been widely criticized by environmental groups for its failure to provide enforcement mechanisms with teeth. NAFTA labor standards have similarly been criticized for their absence of enforcement provisions. NAFTA explicitly states that the parties will work together to enhance the level of protection of health, safety, and the environment,[196] as well as to strive to make standards compatible to all three parties.[197] Nevertheless, provisions addressing compliance with the Agreement are notably weak. Article 902 makes each party responsible for ensuring compliance with standards-related provisions through its own provincial or state governments. As a consequence, the NAFTA-created committee on standards-related measures lacks any direct authority to take enforcement actions.[198] Moreover, while NAFTA recognizes the inappropriateness of relaxing environmental standards in order to encourage investment under NAFTA itself, a party concerned about lax environmental enforcement in another party would have no remedies available to it other than consultations with the other party.[199]

B. NAFTA Side Agreements

At the insistence of the Clinton Administration, negotiations were conducted among the NAFTA parties for "side agreements" on the environment, labor, and import surges.[200] These new side agreements on the enforcement of national environmental and labor laws will mean that companies operating in Mexico will have to comply with stricter standards in both of these areas. President Clinton needed these side agreements to persuade the Democratic majority in Congress to support NAFTA and to placate special interests such as the sugar, citrus, and wheat lobbies.[201]

A key issue in the negotiation of the side agreements was the proposed creation of tri-national commissions designed to administer the agreements, to improve the enforcement of national labor and environmental laws, to resolve disputes, and to serve as fora for improving standards and cooperation on labor and environmental issues.[202] Canadian and Mexican negotiators initially opposed U.S. proposals entrusting the proposed commissions with powers of

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195. NAFTA, *supra* note 1, art. 104.

196. NAFTA, *supra* note 1, art. 906(1).

197. NAFTA, *supra* note 1, art. 906(2).

198. NAFTA, *supra* note 1, art. 913.

199. NAFTA, *supra* note 1, art. 1114.

200. *See* Testimony of Ambassador Mickey Kantor, U.S. Trade Representative, Before the Committee on Commerce, Science & Transportation (1993), [hereinafter Kantor Testimony] (provided by the Office of the U.S. Trade Representative).

201. Sidney Weintraub & Rogelio Ramirez De La O, *Personal View: Where Mexico Should Draw the Line*, FIN. TIMES, June 15, 1993; *Western Governors' Group Hears Discussion of NAFTA*, DAILY REP. FOR EXECUTIVES (BNA), June 22, 1993.

202. *Id.*

dispute resolution, particularly the use of trade sanctions to enforce compliance.[203] Canadian negotiators opposed the U.S. proposal to create an independent secretariat with powers to override the national sovereignty of the NAFTA parties. Mexican negotiators likewise stressed that mechanisms used to ensure compliance must have "absolute respect" for national laws,[204] and they adamantly opposed the creation of any structures and procedures that might be employed as protectionist tools for preventing Mexican imports from crossing into the United States.[205] U.S. negotiators, on the other hand, maintained that the creation of an institutional dispute resolution mechanism was indispensable for resolving any future "persistent problems."[206] Consequently, they urged the establishment of commissions with high degrees of autonomy and sufficient powers to enforce common standards.[207]

In the end, the dispute settlement panels were agreed to, although their powers were limited. The Supplemental Agreements were signed by each of the three national leaders on September 14, 1993.[208] The new labor and environmental commissions will be composed of the top labor ministers and environmental officials of each country.[209] A compromise has been worked out for Canada, whereby dispute settlement panel judgments will be directly enforceable in Canadian courts, obviating the need for trade sanctions against Canada.[210]

In addition to the conclusion of the side agreements, NAFTA may also lead to strengthened environmental standards in Mexico through more indirect means. The negotiations over NAFTA have already spurred increased cooperation between the United States and Mexico in environmental enforcement.[211] Economic growth stimulated by NAFTA may not only generate additional wealth to be invested in environmental projects, but may also heighten the public demand for a cleaner environment. NAFTA is also likely to lead to a greater number of joint ventures between U.S. and Mexican companies, which could

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203. *NAFTA Negotiators Hit Roadblock Over Dispute Settlement Procedures*, INT'L ENV'L REP. (BNA), June 2, 1993 [hereinafter *NAFTA Negotiators*].

204. *Id.*

205. *Mexican Official Sees No Job Loss Under NAFTA*, DAILY LABOR REP. (BNA), June 16, 1993.

206. *NAFTA Negotiators, supra* note 203.

207. Id.

208. Gwen Ifill, *Clinton Recruits 3 Presidents to Promote Trade Pact*, N.Y. TIMES, Sept. 15, 1993, at B-1.

209. For the full text of these agreements, see 10 INT'L TRADE REP. (BNA) 1536-58 (1993).

210. *See Summary Descriptions of NAFTA Supplemental Accords Issued by U.S. Trade Representative Mickey Kantor*, 10 INT'L TRADE REP. (BNA), at 1385-92 (1993).

211. *See, e.g.*, Bruce Zagaris, *The Transformation of Environmental Enforcement Cooperation Between Mexico and the United States in the Wake of NAFTA*, 18 N.C. J. INT'L L. & COM. REG. 59 (1992); *New Methods Needed to Keep Pace with More Stringent Environmental Rules*, INT'L ENV'L REP. (BNA), Apr. 7, 1993, at 260. In February 1992, EPA and its Mexican counterpart, the Secretariat of Social Development, completed a comprehensive plan for addressing air, soil, water, and hazardous waste problems in the border area. Agreement has been reached on measures to implement the first stage of the plan covering the period 1992 - 1994. *The North American Free Trade Agreement Fact Sheet*, 5 U.S. OFFICE OF THE PRESS SECRETARY, Aug. 12, 1992, WESTLAW, Int'l Law, NAFTA.

lead Mexican companies to adopt the higher environmental standards of their U.S. joint venture partners.[212]

C. *Mexican Environmental Laws and Enforcement*

In addition to the provisions of NAFTA itself and the possible efforts of the commissions established by the NAFTA side agreements, American businesses operating or investing in Mexico will need to be aware of domestic environmental legislation and regulations. Mexico already has a solid statutory and regulatory structure in place for the protection of its environment. Mexico enacted the General Law of Ecological Equilibrium and Environmental Protection (General Ecology Law or Law) in 1988, laying the cornerstone for all future environmental regulation. The General Ecology Law outlines general ecological policy with respect to environmental impact evaluation, hazardous waste, air and water pollution, resource conservation, and enforcement, and places the development of this policy within federal jurisdiction.[213]

The Mexican federal agency enforcing the General Ecology Law is the Secretariat of Social Development (SEDESOL).[214] Two separate agencies under SEDESOL were established in June 1992 to handle the drafting and enforcement of environmental regulations. The National Ecology Institute (INEC) formulates and evaluates ecological policy and reviews environmental impact statements. The Attorney General's Office for Environmental Protection (PFPA) enforces the General Ecology Law and its regulations.

The Mexican government has enacted three major environmental regulations pursuant to the General Ecology Law addressing environmental impact, air pollution, and hazardous waste. Federal regulations that predate the Law concerning water contamination and importation and exportation of hazardous waste, also remain in force. In addition, all but two of Mexico's thirty-one states, Campeche and Tlaxcala, have enacted local environmental laws.

President Salinas has made environmental issues an active priority, vowing that "Mexico will not become a haven for companies seeking to evade other nations' environmental laws."[215] The Salinas Administration has dramatically increased Mexico's federal environmental budget from $6.6 million in 1989 to

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212. Wesley R. Smith, *Protecting the Environment in North America with Free Trade*, HERITAGE FDN. REP., Apr. 2, 1992; and Stephen Zamora, *The Americanization of Mexican Law: Non-Trade Issues in the North American Free Trade Agreement*, 24 LAW & POL'Y INT'L BUS. 391, 417-34 (1993).

213. United States Trade Representative Mickey Kantor thus notes that "Mexico's environmental laws, regulations, and standards are in many respects similar to those in the United States. Its comprehensive General Ecology Law embodies principles similar to ours, and the regulations and technical standards implementing this law take an approach comparable to ours." Kantor Testimony, *supra* note 200.

214. SEDESOL was established in 1992 and undertakes all responsibilities previously handled by the former Secretariat of Ecology and Urban Development (SEDUE), which was established in 1983. Zamora, *supra* note 212, at 421.

215. Kathleen Griffith, *NAFTA, Sustainable Development, and the Environment: Mexico's Approach*, 2 J. OF ENV'T. & DEV. 193, 194 (1993).

over $77 million in 1992.[216] Salinas has pledged to spend $4.6 billion to control air pollution in Mexico City, mostly to increase the use of unleaded gas and to install catalytic converters in automobiles.[217] The Mexican government has made $100 million available in credits for Mexican industries to purchase and install anti-pollution equipment. Also a $1.6 billion revolving credit fund was established in 1992 to help industries in Mexico City modernize and meet stricter environmental standards.[218]

Mexico has stepped up enforcement actions against industrial polluters, including closing numerous plants and facilities.[219] The most dramatic action was the 1991 order shutting down PEMEX's Azcapotzalco refinery in Mexico City. Other actions include the 1992 "ecology pact" between government and industry, which names 220 of the worst polluters in the Mexico City metropolitan area and requires them to clean up or leave the city.[220] The Mexican government also has begun environmental audits of companies that SEDESOL names as failing to comply with environmental regulations.[221]

D. Effects of Environmental Enforcement on the Petroleum Industry

Strengthened enforcement of environmental laws in Mexico could have significant implications for the petroleum industry. First, the shutdown of poorly maintained refineries has already exacerbated Mexico's shortage of refining capacity. Combined with Mexico's current push for the use of unleaded gasoline in automobiles, this could lead to new opportunities for U.S. companies to join with PEMEX in augmenting and expanding refining capacity.

Second, it is estimated that PEMEX will need to spend four to five billion dollars for safety and environmental purposes alone, given the outcry to raise environmental standards following the Guadalajara catastrophe.[222] PEMEX will need substantial foreign investment and equipment to meet new, tougher environmental standards. By one estimate, the Mexican energy market will need $300 million worth of air and water pollution equipment by 1995.[223] American companies may well become the suppliers of much of this equipment.

Third, service stations in Mexico will also undergo extensive equipment upgrading in response to environmental concerns. The Mexico Association of Service Station Suppliers (Ampes) estimates that most of the equipment in Mexico's approximately 3000 service stations is over ten years old and

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216. *Id.* at 197.

217. *Mexico Environmentalism: President Salinas Takes Unprecedented Action*, SAN DIEGO UNION-TRIBUNE, June 13, 1993, at G-2.

218. Griffith, *supra* note 215, at 197.

219. *Id.* at 198.

220. Gray Newman, *'Ecology Pact' May Force Firms Out of Mexico City*, 1992 BUS. LATIN AM. 97.

221. *Industry Said to Face Many Problems in Conducting Environmental Audits of Units*, INT'L ENV'L. REP. (BNA), Mar. 24, 1993, at 225, 226.

222. Baird, *supra* note 30.

223. *NAFTA's Energy Provisions Pave Way for U.S. Environmental, Energy Products*, INT'L TRADE REP. (BNA), June 16, 1993, at 988-89.

desperately needs renovation.[224] The President of Ampes, Eduardo Celorio, has estimated that at least thirty percent of the storage tanks are leaking gasoline.[225] Most stations will need to be refitted with double walled storage tanks and vapor recovery systems, which will cost over two billion dollars.[226] PEMEX and Ampes have set up a credit union to provide station owners with long term loans for refitting.[227] American companies may find opportunities in this area as well.

Fourth, U.S. companies planning to operate in Mexico will have to comply with strong environmental laws and regulations. The most significant areas of regulation are discussed below.

1. Environmental Impact Evaluation

Section V of The General Ecology Law provides specific requirements for environmental impact evaluation, which apply to all activities that may affect Mexico's ecological balance, including petrochemical production, activity on oil and gas pipelines, and exploration, extraction, treatment, and refining of oil and gas. All companies planning to engage in such activities must now apply for federal authorization through SEDESOL by filing an environmental impact statement.

2. Hazardous Waste

Under the 1988 hazardous waste regulations,[228] any company that generates waste must determine whether it is hazardous by applying the appropriate ecological technical standards issued by SEDESOL.[229] Ecological technical standard NTE-CRP-001/88, published June 6, 1988, established the criteria for determining hazardous wastes and lists numerous wastes deemed to be hazardous. Included on this list are exploration drilling muds, sediments from the production of specified petrochemicals, and oily muds from crude oil refining. A company that generates hazardous waste in its production processes must register itself with the Registry of Hazardous Waste Generators, maintain a monthly log of hazardous wastes generated, and handle all such waste in accordance with the applicable regulations. Moreover, any hazardous wastes

224. *OGJ Newsletter*, OIL & GAS J., June 21, 1993, at 4.

225. *Id.*

226. *Id.*

227. *Id.*

228. Published in the Mexican Federal DIARIO OFICIAL (Nov. 25, 1988)(eff. Nov. 26, 1988).

229. The General Ecology Law defined ecological technical standards (NTEs) as those scientific or technological rules issued by SEDESOL which established the requirements, specifications, conditions, procedures, parameters, and permissible levels which must be observed in the engaging of activities or in the use and destination of goods, which may cause ecological imbalances or harm to the environment. SEDESOL has published several such standards related to hazardous waste, air pollution, and water contamination.

generated from imported raw materials must be exported back to the country of origin.[230]

The importation and exportation of hazardous materials is regulated by the Hazardous Materials Decree, in force since January 20, 1987. Hazardous materials include pesticides and chemicals which either by themselves, in combination with other substances, or as a result of improper handling, could produce violent exothermic reactions or emit hazardous substances. Under the Decree, a material may also be deemed to be hazardous based on its corrosive, reactive, explosive, flammable, or toxic characteristics.

SEDESOL has not yet published a list of hazardous materials, so an importer or exporter must determine whether the materials in question are subject to regulation based on a list of characteristics outlined in a November 9, 1988 decree published by the Ministry of Commerce and Industrial Development. Ecological waybills are required for the import or export of any such hazardous material.

3. Air Pollution Prevention and Control

Any activity undertaken within Mexico or that affects the Mexican environment is subject to Mexico's 1988 air pollution regulations.[231] Under these regulations, any company that emits odors, gases, and solid and liquid particles from fixed or mobile sources is obligated to use air emissions equipment and systems that ensure compliance with the applicable ecological technical standards. If operating from a fixed source, the company must measure and record its air polluting emissions and send this data to SEDESOL when requested. Chapters Two and Three of the regulations provide additional detailed provisions regarding air pollution control.

4. Water Pollution

The General Ecology Law provides that all water used in production processes must receive proper treatment prior to discharge.[232] In order to discharge such water, the producers must first file a Manifest for Water Discharges with the Secretariat of Agriculture and Water Resources (SARH). The Manifest should outline both the chemical components and/or organic compounds contained in the water prior to its being treated, and the methods used for treatment. Filing of the Manifest is mandatory even if the discharged water is simply an incidental by-product of the actual production process.

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230. In order to proceed with the exportation, the exporter must apply for an ecological waybill (guía ecológica) from SEDESOL. Ecological waybills authorize all importation, exportation, transport, and handling of hazardous materials or waste, and must be obtained for every shipment.

231. Published in the Mexican Federal DIARIO OFICIAL, *supra* note 228.

232. In addition to the General Ecology Law, water resources are protected by the Regulations for the Prevention and Control of Water Contamination, in full force since May 30, 1973.

E. Mexican Labor Laws

Employment and labor in Mexico are governed by the Mexican Constitution and by the Federal Labor Law (FLL), both of which are generally protective of employee rights. The ratification of NAFTA with a strong side agreement on the enforcement of labor standards would further enhance existing requirements with which employers in Mexico would have to comply. As a first step, American companies considering becoming employers in Mexico should familiarize themselves with the basic protections afforded to workers under Mexican law.

1. Limitations on Hiring of Foreign Nationals

The FLL requires that at least ninety percent of an enterprise's workers be Mexican nationals, with the exception of its directors, administrators, and general managers. An employer may temporarily hire up to ten percent foreign technicians and professionals if no similarly qualified Mexican nationals are available.

Under a 1989 law, however, PEMEX is not subject to the traditional requirement to use Mexican labor.[233] Triton International became the first operator to act on these relaxed labor requirements when it signed a 1991 contract with PEMEX to drill an exploratory well in the Gulf of Campeche.[234] Although Triton's written contract with PEMEX was silent on the issue, PEMEX indicated in a technical briefing to bidders that the successful bidder would have full discretion with respect to the content of Mexican goods, services, and personnel used under the contract, consistent with the 1989 law.[235] Subsequent drilling contracts between PEMEX and private companies (Mexican as well as foreign) have also been free of the traditional requirement to hire Mexican nationals.[236]

2. Severance Obligations

American employers will need to exercise particular caution in entering into employment relationships with Mexican nationals. The FLL presumes a permanent employment relationship if someone performs a job for another party in consideration for payment, regardless of whether or not a written contract exists. A temporary employment relationship must be spelled out in writing, and is permitted only when the nature of the work so requires or when the purpose of the employment is the temporary replacement of another worker. Under these principles, an employer may ordinarily terminate an employment relationship only for just cause as enumerated in the FLL, or by paying legal indemnities of

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233. Tim Golden, *Mexico Pries Open Its Oil Industry*, N.Y. TIMES, Sept. 25, 1991, at D1.

234. *Id.*

235. This observation is based on July 14, 1993 telephone conversations with a Triton International representative who participated in the bidding process and contract negotiations for the 1991 contract.

236. *Id.*

three months' salary plus an additional twenty days of salary for each year of services rendered.

3. Minimum Entitlements

The FLL establishes that an employee shall earn at least the minimum wage set by the National Minimum Wage Commission.[237] The maximum permitted work schedule is eight hours per day, six days per week. For each six days of work, employees are entitled to one day of rest with full pay. A statutory overtime rate of 200% applies for the first nine hours worked over the forty-eight-hour maximum, and a statutory rate of 300% applies for all overtime in excess of nine hours. Employees also receive a twenty-four percent premium for work on Sundays.

The FLL grants seven paid holidays each year, plus one for Inauguration Day every sixth year. Employees are also entitled to vacation days according to a fixed schedule based on seniority. An annual Christmas bonus of at least fifteen days' salary is obligatory and must be paid by December 20 of each year. The FLL also mandates profit-sharing under which employers must distribute ten percent of their pretax profits to their employees.

4. Health and Safety

Employees are entitled to a safe and sanitary workplace. The Ministry of Labor and Social Welfare has issued several instructives regulating occupational health and safety covering a wide variety of workplace situations. These include the handling of flammable and combustible substances;[238] storing, transporting, and handling corrosive, irritant, and toxic substances;[239] and regulation of workplaces where chemical substances are produced, stored, or handled.[240]

5. Social Security

The Social Security Law requires both employers and employees to register with the Mexican Social Security Institute. Registration relieves the employer of liability for job-related illnesses or accidents, and provides benefits to employees and their dependents, including medical and hospitalization insurance, insurance for disability, old age, unemployment and death, and child care.

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237. The National Minimum Wage Commission sets wages for each of three different economic zones in Mexico. The current minimum wage in Zone A, which includes Mexico City, is N $14.27 per day, or U.S. $4.65 per day. It would be misleading, however, to use this figure as an estimate of employee compensation costs. A 1992 survey of subsidiaries of foreign manufacturing companies by BUS. LATIN AM. found average worker compensation to be as much as five times the minimum wage. Gray Newman & Vicky Cowal, *Low Wage Rates in Mexico Mask Hidden Costs in Labor Compensation*, 1992 BUS. LATIN AM. 134. In addition, benefits can add another 40-80% to labor costs, and the mandatory profit-sharing program will add at least another 10%. *Id.*

238. Instructive No. 5 (Mar. 28, 1993).

239. Instructive No. 9 (Mar. 28, 1993).

240. Instructive No. 10 (May 28, 1984).

6. Right to Unionize and Strike

The Mexican Constitution guarantees employees the right to form unions and protects them from anti-union discrimination by employers. The right to strike is also constitutionally protected.

V. CONCLUSION: NEXT STEPS FOR U.S. COMPANIES

For the petroleum industry, NAFTA undoubtedly constitutes a momentary disappointment. Mexico's staunch support of its Constitution and refusal to develop creative ways to honor its legal system while giving its petroleum sector (and accordingly, its general economy) a much needed boost is viewed by some as short-sighted and short-term. Whether the Mexican petroleum sector can step into the future on the basis of its past performance and current direction without the benefit of the knowledge, capability, and technology of the foreign petroleum industry remains an open question. The reaction of the U.S. petroleum industry to Mexico's insistence on PEMEX's general monopoly will depend, in part, on the opportunities that are available to the U.S. industry in other parts of the world and on its willingness to be patient while Mexico feels its way through an Agreement that is likely to change the way it does business in every sector of its economy.

In the meantime, NAFTA has opened the door to Mexico's petroleum industry at least a crack, which will allow U.S. business interests to become involved in this industry to varying degrees, depending on the willingness of U.S. industry leaders to settle for less now, with the promise of more later. For the service and supply sector, the opportunities are the most promising and current. For exploration and production companies, a more wait-and-see approach is required, although some integrated U.S. companies are already becoming involved in the downstream sector in an effort to position themselves for opportunities that will soon become available upstream. Natural gas producers seeking to export are well positioned to increase sales to Mexico, particularly along the border areas, at least so long as Mexico's demand continues to outstrip its domestic production and delivery capability. Opportunities in marketing and refining remain blocked, although these sectors may also become open to limited participation by U.S. entities.

In addition, the over-arching effects of a more environmentally conscious population will have a wide-ranging effect on all aspects of the petroleum industry. The most obvious manifestations include already apparent needs for cleaner gasolines for domestic consumption, new requirements for natural gas for industrial use, the prospect of joint ventures between PEMEX and U.S. petroleum companies in order to provide refined products to the Mexican market, a demand for sophisticated pollution cleanup technology, and the basic upgrading of service stations that U.S. operators have seen in recent years. The changes inspired in other sectors of the economy by American business interests will

influence Mexico's willingness to reconsider its position with respect to its grip on the petroleum industry.

Interested U.S. energy companies can take a number of steps to position themselves to take advantage of NAFTA's immediate benefits and those likely to evolve in the future. In particular, the following courses of action are recommended:

1. Evaluate the Impacts.

Any company that has an interest in expanding its markets into Mexico should evaluate the Agreement to assess its probable impact on the company's business. For instance, oilfield equipment companies should analyze the tariff schedules to assess the time frame over which tariffs on their equipment is being reduced. These companies should also evaluate the origin of their equipment to determine whether the equipment will qualify for unrestricted trade under the rules of origin established by the Agreement.

2. Become Familiar With The Procurement Process.

It is in the best interests of every U.S. oil and gas company to begin a dialogue with PEMEX, formal or informal, since PEMEX remains at the center of the Mexican petroleum industry, even after NAFTA. In particular, it would be beneficial for any company intending to bid in future government procurement to understand the specifications normally utilized by PEMEX, with an eye to determining whether their supplies or services meet those specifications, or to suggest the development of more appropriate specifications. PEMEX requirements are often very exacting in terms of documentation, and the bidder is frequently required to notarize and legalize a large number of attachments. In some cases, it may also be useful to review previous bids and associated specifications to obtain a better understanding of the process and requirements.

3. Become Involved in Local Business Activity.

Since prior business activity in the Mexican energy industry will remain a legitimate consideration in the qualification process, companies interested in enhancing their chances for the award of tendered contracts should seek out opportunities to establish a track record in Mexico.