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The Mexican Energy Sector at the Crossroads

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The Mexican energy sector is at a crossroads. Statutory reforms have opened the way for significant private-sector participation in the oil, gas, electricity, and petrochemical industries, but constitutional reforms are still needed to broaden the opening. Due to Mexico's constitutional reform laws, rules governing private investment in the energy sector will depend on negotiations between President elect Vicente Fox and the opposition. Even if Fox succeeds in winning over the PRI in the national Congress, he will still face the hurdle of the 21 state legislatures, which are dominated by the PRI. In summary, Fox and the PAN certainly have the political will to fully liberalize the energy sector. However, they face a myriad of obstacles and liberalization will not be speedy.

INTRODUCTION

Although it has traditionally controlled the energy sector and nationalist groups oppose liberalization, the Mexican government is incapable of financing the spiraling demand for energy. The outgoing Zedillo administration has intensified efforts to attract private investors, insisting that public funding should be reserved for social programs. New investments will be needed to ensure the quality and efficiency of continuous energy supplies. This paper outlines Mexico's energy policy and its liberalization of the oil, natural gas, electricity, and petrochemical industries. The final section analyzes the energy platform of President elect Vicente Fox and the challenges he faces in Congress, forecasting what the new scenario will mean for private investors.

ENERGY POLICY: FROM STATE CONTROL TO LIBERALISM

Since 1983, Mexico has implemented an economic development model to open the economy to market mechanisms, remove productive activities from the government's purview, encourage Mexican and international private investment, form alliances with the United States and curtail inflation. To adapt the energy sector to the new approach, the government has attempted to integrate it with the energy markets of the United States, promote competition and substitute public capital with private funds, while reserving for the State the most profitable or strategic activities.

Mexico's modernization of the energy sector has been implemented gradually in two stages:

i) Modernization of state control
ii) Liberalism.

Modernization of State Control

Ex-President Salinas (1988-1994) redefined energy policy, prioritizing generation of tax revenues and foreign currency to maximize profits. Indiscriminate subsidies, through which the energy sector had become a tool of industrial and social policy, were abandoned. Energy security was no longer considered synonymous with self-sufficiency and environmental protection was ranked as a national goal.

The following strategies were pursued:

i) Deregulation and liberalization of the electricity and petrochemical industries, in accordance with the North American Free Trade Agreement (NAFTA);

ii) Synchronization of prices and rates with the United States, to reduce the fiscal deficit and increase self-sufficiency of government enterprises;

iii) Replacement of oil with natural gas, especially for generating electricity;[1]/

iv) Oil integration with the United States. (Under NAFTA,[2]/ exports of crude oil will increase, with increased imports of natural gas, petroleum products, and petrochemicals--all fundamental to the domestic supply system);[3]/

v) Restructuring of state-owned *Petróleos Mexicanos* (*Pemex*) and of the Federal Electricity Commission (*Comisión Federal de Electricidad - CFE*),[4]/ along with the creation of *Luz y Fuerza del Centro* (*LFC*);[5]/

vi) Use of non-budgetary, non-inflationary financing mechanisms, emphasizing international capital markets and private savings. BLT (Build-Lease-Transfer) and BOO (Built-Own-Operate) financial arrangements would be employed for such purposes.

Electricity generation and export of electrical energy were opened to Mexican and international private capital under certain conditions,[6]/ as well as importation and transportation for auto-consumption, processing, distribution and foreign trade of all petrochemicals, with the exception of natural hydrocarbons used as inputs in the generation of electricity. While they were implemented without amending the Constitution, these changes necessitated the creation of new institutions, including the Energy Regulating Commission (*Comisión Reguladora de Energía – CRE).*

Liberalism

Mexico's liberalized energy policy was deepened under the current Zedillo administration (1994-2000), especially to generate more tax revenues and to consolidate integration with the United States. To pay off its loans and overcome the financial crisis of 1994-95,[7]/ the government mobilized significant investment resources to obtain foreign currency by increasing crude oil exports in 1995.[8]/ Deregulation in the natural gas industry was extended to liquefied natural gas and included the sale of the *Pemex* and *CFE* distribution networks.

The petrochemical industry was fully liberalized. A bill was submitted to Congress to sell the *Pemex* complexes, but the law that passed only permitted transfer of 49 percent. To facilitate the transaction, seven petrochemical subsidiaries were created. A first complex was put up for sale, but no offers were submitted.

[1] The decision to make the transition to natural gas was based on its economic and environmental advantages, and the abundance of largely untapped, low-cost reserves in proximity to Mexico's major consumption areas and to the main production zone of the United States. In contrast, coal ceased to be considered a strategic product and was therefore no longer reserved for the State, which meant that coal mines could be sold to the private sector.

[2] Currently, more than three out of every four barrels exported is shipped to the United States. The *Pemex* - Shell joint venture at the Deer Park, Texas refinery, is another example of such integration.

[3] After abandoning the self-sufficiency criterion, the balance-of-trade deficit for petroleum products has continually deteriorated: It went from 38,600 barrels per day (bd) in 1988 to 175,000 bd in 1999. Its price has gone from US$305 million to US$1.675 billion. Mexico has once again become a net importer of natural gas, peaking at 250 million cubic feet per day (ft^3/day) in 1992. As of that time, however, natural gas exports have tended to offset imports. In 2000 the deficit was 110 million ft^3/day.

[4] The restructuring has included rationalizing assets and cutbacks in personnel, financial streamlining and selective investment, the creation of results centers and improvements in products and services, a review of institutional objectives, policies, and practices, and adoption of an expedited, flexible structure.

[5] *LFC* is a vertically integrated company. Its basic activity is electricity distribution in Central Mexico, including Mexico City.

[6] International participants could generate electricity for activities that are not part of the public utility electricity service, i.e., to supply their own needs, to co-generate electricity, for independent production, small scale production or auto consumption.

[7] A 20 billion-dollar loan was obtained from the United States. Its stringent conditions included a moratorium on *Pemex* invoices for exports. The IMF put together a loan of similar magnitude. The total financial recovery package was 40 billion dollars.

[8] As a result, extraction capacity attained its highest level ever at the start of the year 2000--3.3 million barrels per day.

Following that failure, the government decided to suspend the 49-51 percent privatization plan and seek other avenues for private investment, which so far have been unsuccessful.

In the electricity industry, the government requested that Congress amend Articles 27 and 28 of the Constitution and proceed with a competitive split of previously integrated activities. However, congress could not agree on the terms and left this job for the next legislature.

Under Zedillo, private savings were no longer viewed as a mere complement to public investment. In fact, private savings became the majority investment component in some areas, such as electricity generation. New opportunities also emerged in the oil industry in the form of service contracts and financing of gas exploration, production, refining and processing.[9]/

These measures extended beyond Salinas' concept of "modernizing" state control, and broke the taboo against constitutional reforms. Moreover, high-ranking government officials began to publicly propose an idea that is still prohibited under the Mexican Constitution: to allow the private sector to explore marginal oil and natural gas deposits for production. The Zedillo government's qualitative leap may be explained by the following factors:

i) The government shed its ideological inhibitions, favoring market mechanisms and private international capital;
ii) Mexico needed to comply with international financial institutions' conditions on loans provided to overcome the 1994-95 financial crisis, avoiding the possibility of a crisis towards the end of the presidential term ("financial hedging");
iii) The government's precarious financial situation, resulting from falling oil prices in 1997-98 and the rescue from bankruptcy of companies that had invested in expanding the highway network;
iv) Government assumption of the banking system's liabilities after the system went into bankruptcy;[10]/
v) The absence of a comprehensive tax reform.

Despite the changes, privatizing the energy sector faced considerable obstacles after the *Partido Revolucionario Institucional* (*PRI*) lost its majority in the House of Representatives in 1997. Actually, no party dominate Congress, so liberalization of the energy sector will depend, as we shall see below, on negotiations among the parties in congress.

The Private Sector as the Driving Force of Development

Even without full liberalization, the private sector has become the preeminent force in the oil and electricity industries, mobilizing resources that the government either does not have or does not wish to contribute. Private savings financed public works under BLT (Build-Lease-Transfer) arrangements, external energy production arrangements, and comprehensive service contracts. These mechanisms made it possible for Mexican and foreign companies, consortia, and joint ventures to participate in the *Pemex* Business Plan and in the *CFE* Works Program. As a result, they were able to reduce use of their own equity, credit lines and loans from multilateral banks, etc., for financing of infrastructure.

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[9] It should be noted that all activities involving the nuclear industry are completely excluded from liberalization policies. This exclusion applies to exploration, exploitation and processing of radioactive minerals, the nuclear fuel cycle, the generation of nuclear energy, transportation and storage of nuclear waste, the use and reprocessing of nuclear fuel, and the production of heavy water.

[10] *Fondo Bancario para la Protección del Ahorro* (*FOBAPROA*), which later became the *Instituto de Protección para el Ahorro Bancario* (*IPAB*).

Beginning in 1997, the private sector built and financed PIDIREGAS, a series of works representing 27 percent of investments made by and for *Pemex* during the first five years of Zedillo's term.[11]/ Private investment was 36 percent in *Pemex Exploración y Producción* and 11 percent in *Pemex Gas y Petroquímica Básica. Pemex Petroquímica* and *Pemex Corporativo* received no private investment. Accounting will be kept of private investment in refinery upgrades only as of this year.

Data on participation of private finance in government-owned electric utilities are not available to the public,[12]/ although private investment clearly is increasing. For example, of the estimated demand for 10,378 MW for the period of 1996-2006, only 750 MW is being produced with government funding. According to the federal budget for the year 2000, projects financed under the *CFE* investment program are receiving just 62 percent of their funding from government sources. For the period 1999-2008, this figure will be 47 percent, although it will be 92 percent for electricity generation.

The Zedillo government has contracted works with the private sector under a directly financed investment arrangement in the amount of US$46.2 billion,[13]/ to be paid between 1998 and 2023. In the oil industry, the following projects were contracted:

i) Cantarell (oil) and Burgos (natural gas), for US$20.5 billion;
ii) Expansion and modernization of the Cadereyta refinery (US$1.8 billion);
iii) Exploration and production activities in the Grijalva Delta (US$747 million);
iv) Upgrading of the Madero, Salamanca, Tula, and Minatitlán refineries (US$3.7 billion);
v) Construction of the Cryogenics II plant of Ciudad Pemex (US$181 million).

In the electricity industry, 47 projects have been developed, including the construction of 28 generating plants (18 in construction and 10 being tendered this year).[14]/

Pemex is responsible for 79 percent (US$36.5 billion) of the debt contracted, and the *CFE* is responsible for the remaining 21 percent (US$9.7 billion). However, the terms are different. Interest represents 26 percent of the debt for *Pemex*, but 42 percent of the debt for *CFE*. Yet the government is uneasy because it is assuming the risks of the investments, impacting the country's credit rating and limiting its ability to borrow for social programs.

In summary, despite the fact that the oil and electricity industries are still controlled by the government, private capital is underwriting their expansion under the current administration. The downside is that the financing arrangements are undermining Mexico's credit rating. Therefore, the government is seeking new forms of participation for private savings.

OIL: STILL UNDER LOCK AND KEY

Mexico is still one of the countries most closed to private investment in the oil industry, especially in exploration and production activities. *Pemex* maintains a monopoly in:

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[11] The Differential Impact Expense Records Projects (*Proyectos de Impacto Diferido en el Registro del Gasto - PIDIREGAS*)

[12] A separate accounting is kept for projects that are under an External Energy Production arrangement, but the investment as budgeted includes the amortization of principal for BLT projects.

[13] Exchange rate: 9.7 pesos to the dollar.

[14] The current administration will have only paid 2.9 percent of this debt by the time it leaves office. It is up to future administrations to pay the remaining 97.1 percent. Clearly, Ernesto Zedillo expanded the energy sector, but his successors will foot the bill. Some analysts have noted that such a colossal debt could lead to another *FOBAPROA* (US$ 75.0 billion) scenario. This will indeed be the case if the revenues generated by future sales of oil, petroleum products, and electricity fall short, which could occur if the public pricing and rates policy does not sufficiently factor in the payment of the debt.

i) Upstream activities both for oil and natural gas;
ii) Refining, transporting, and distributing of petroleum products;
iii) Exporting and importing of crude oil and derivatives;
iv) Production and international trade in eight natural hydrocarbons defined as basicpetrochemicals (methane, ethane, propane, butane, pentane, hexane, heptane, and naftas) and the raw material for carbon black.

Three types of activities are open to the private sector:

i) Activities that were traditionally private, such as the marketing of some petroleum products and the processing and marketing of lubricants;
ii) Non-core activities that *Pemex* no longer performs, such as the construction of terminals, pipelines, and platforms; transport of persons, equipment and materials; maintenance of installations; construction of water treatment plants; communications, etc.;
iii) Activities formerly reserved for the State that are now being performed by private companies on behalf of *Pemex*--such as exploratory studies, drilling of wells; field development, etc.

Activities previously carried out by *Pemex*--exploration, production, industrial transformation and marketing--are increasingly outsourced to private firms. Pursuant to the Foreign Investment Act, foreign private capital is prohibited from participating in the retailing of gasoline or the distribution of liquefied natural gas, as those activities are reserved for Mexican companies. However, private capital may supply fuel for ships, airplanes, and railroads, and acquire up to 49 percent of petrochemical plants. Private sources may also invest beyond the 49 percent limit to construct pipelines to transport oil and petroleum derivatives and to drill oil and gas wells, although it must have authorization for such activities from the Foreign Investment Commission.

One hundred percent foreign-investment is allowed in activities that are not part of the public utility electricity service (i.e., auto-supply, co-generation, independent production, small scale production, foreign trade for auto consumption), and that are not oil industry functions (transportation, storage, distribution, and marketing of natural gas). However, whenever a foreign-investment stake surpasses 49 percent, approval from the Foreign Investment Commission is required.

Any acquisition of real estate or other real property rights along border zones or in coastal areas must be made through a Mexican company or a trust. Pursuant to NAFTA agreements, U.S. and Canadian companies may cover up to 100 percent of the purchases made by *Pemex* ten years after the treaty goes into effect, that is, as of the year 2005. This represents an estimated annual market of more than US$15 billion.

The Zedillo administration's evaluation of oil and natural gas reserves using international criteria showed a significant decline over previous assessments.[15] Exploration has been limited and focused on moderate-risk projects. Attention and resources were drawn to the expansion of crude oil exports and natural gas production.[16]/ In contrast, the trade deficit grew for petroleum derivatives, with a growing dependence on the U.S. market. In an attempt to turn around an increasingly delicate situation, owing to the accelerated replacement of fuel oil by natural gas, an intense refinery-upgrading program was begun in 1998.

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[15] According to former criteria, proven petroleum reserves (crude oil, condensed and liquefied natural gas) were 46.6 billion barrels as of January 1, 1999. According to the new methodology, the reserves are only 28.4 billion barrels--39 percent less. In the case of natural gas, the decline is 30.5 percent, with an adjustment in the estimate from 62.2 to 43.2 cubic tera feet (ft^3x10^{12}).

[16] In an attempt to secure markets for the new volumes of crude oil, long-term supply contracts have been signed with the following U.S. refinery companies: Clark Refining and Marketing, Costal, Exxon, and Marathon Ashland Petroleum.

NATURAL GAS: A NEED FOR FURTHER LIBERALIZATION

In 1995, a new policy was issued for developing and modernizing the natural gas industry. The policy had four guidelines: to promote consumption, increase domestic production, liberalize transportation, storage, distribution, and marketing, and integrate the Mexican market with the U.S. market.

Population growth, increasingly stringent environmental standards, and a decision to decrease fuel oil production all favor an increase in demand for natural gas and the government is committed to increasing domestic supply in order to meet growth in demand. The Cantarell, Burgos, and Grijalva Delta projects and the Strategic Gas Program are aimed at maintaining equilibrium in the balance of trade. Nonetheless it remains to be seen whether, in the long-term, Mexico's participation in the U.S. natural gas market will be as a net importer or as a major exporter.[17]/

There is consensus that the liberalization of downstream activities has been successful in overall terms. By the close of 1999, the CRE had granted 78 transportation and distribution permits, which represented new investments amounting to more than US$2 billion.[18]/ In addition, competition among the firms over the permits lowered prices for the system's users. However, one remaining question is whether it will be possible to create conditions for effective competition. Another question is whether natural gas prices should be set using south Texas as a reference.

According to the CRE, the new regulatory framework will encourage an efficient industrial structure by promoting competition while regulating natural and legal monopolies. Even so, *Pemex*'s market power is indisputable, given that it:

- i) Is the sole national producer;
- ii) Operates the principal transportation pipelines;
- iii) Monopolizes first-hand sales;
- iv) Participates in all sales to large users.

The decision to produce quantities large enough to eliminate imports, except marginally, further reinforces *Pemex*'s market power. Five years after the reform, the government-owned company is still the only marketer. Furthermore, *Pemex* decisively influences the price of fuel oil--the number one competitor to natural gas in industry and electricity generation. Effectively, *Pemex* determines how quickly natural gas will replace fuel oil.

[17] The supply policy changed course several times. In mid-1995 the Director of *Pemex* indicated that *Pemex*'s official policy was to maintain equilibrium in the short- and medium-term balance of trade. Imports, he stated, were only being considered as a temporary bridge to alleviate deficits, especially for 1998, when new environmental standards were to go into effect. There were several market risks involved, he stated, if consumption were based on imports. In the long-term, it was officially projected that Mexico might become a net exporter of natural gas, as the country had the necessary resources. With that goal in mind, *Pemex* had structured a portfolio of investment projects for the exploration, production, and processing of natural gas. These projects included the extraction of gas associated with the supergiant Cantarell oil deposit; development of structures for superlight oil discovered off the coast of Tabasco, where there are enormous volumes of associated gas, and the development of the Burgos Basin (dry gas). By mid 1998 the authorities were more inclined towards mass imports, since *Pemex*'s investments would continue to be restricted. Given that domestic production would be increasing at a rate of only 6 percent during the period of 1997- 2006, imports would amount to 2.4 billion ft^3/day in 2007, representing 28 percent of domestic consumption, but at a cost of more than US$3.5 billion (assuming a price of US$2.50 per million BTUs). Towards the close of 1999, the authorities went back to a policy of equilibrium in the balance of trade, authorizing *Pemex*'s "Strategic Gas Program".

[18] Out of these 78 permits, 16 were for public utility transport (with a length of 11.2 km and a pumping capacity of 7.4 billion ft^3/day); 44 were for transport for self-use (573 km and 1.5 billion ft^3/day); and 18 were for distribution (one billion ft^3/day). Most noteworthy was the *Pemex Gas y Petroquímica Básica* permit to operate the National Gas Pipeline System (8,704 km) and the Naco-Hermosillo System, with a combined capacity of 5.4 billion ft^3/day and 9,043 km of pipeline. The 78 permits are for a total of 35,000 km of pipeline, spanning 24 of the 31 states of Mexico and benefiting 10 million inhabitants.

A new directive on first-hand sales, approved in January 2000, did not distinguish them from *Pemex*'s sales to end consumers, despite widespread calls for *Pemex* to separate them. The CRE could not break *Pemex*'s vertical integration.

Indexing of domestic prices to the U.S. market, however, has advantages[19] and disadvantages. The U.S. market responds to specific factors, such as seasonal changes, not applicable to Mexico. The tremendous increases in prices for Mexican consumers is therefore difficult to justify. Weather in Mexico is more temperate and the country has sufficient reserves to cover all its domestic needs in a highly competitive manner. Resounding protests of residential and industrial consumers over prices during the winter of 1996-1997 and prices so far this year are the first manifestation of a problem that will worsen over time. As the market expands, price increases will produce inflation, social unrest, and, perhaps, a return to other energy options, even if such options are more costly in the mid to long term. Mechanisms are already being proposed to mitigate the explosiveness of the situation, but the degree to which they will be accepted and truly effective is unknown.

Outlooks for the industry and market are fascinating. The Department of Energy estimates that domestic consumption of gas will grow at a rate of approximately 9.5 percent over the next ten years. The most dynamic sector is expected to be electricity generation, with an annual growth rate ranging from 15.5 to 18.4 percent, followed by the residential, business, and services sector, where the expected increase is between 15.1 and 15.9 percent. The industrial sector is expected to grow at a projected 7.3 to 8.8 percent.[20]/ On the supply side, the objective of the "Strategic Gas Program" is an 800 million ft^3/day increase in production capacity by 2003 and a 3.5 billion ft^3/day increase by the year 2008. Assuming that levels of domestic availability attained in 1999 (4.6 billion ft^3/day) are maintained, the available flow would be 8 billion ft^3/day, to serve a demand for consumption ranging from 8.3 to 9.5 billion ft^3/day. This means that imports would range from 159 million to 1.4 billion ft^3/day, representing 2-15 percent of domestic consumption. Nonetheless, imports could be even greater because *Pemex* is experiencing difficulties in meeting its production goals.

There is no question that an elimination of government funding restrictions on *Pemex* would result in a considerable increase in supply, eliminate the need for imports, and make ample volumes available for export to the United States and Central America. Yet the elimination of these restrictions is dependent upon a comprehensive tax reform. Alternatively, high-ranking government officials are requesting de-monopolization of production. Another alternative suggested would be to liberalize upstream segments in order to lower natural gas prices. In the meantime, foreign firms might be able to import liquefied petroleum gas (LPG). That option would require amendments to the Foreign Investment Act, delayed thus far due to the electoral climate.

ELECTRICITY: PENDING REFORMS

De-monopolization of electricity generation in 1992-93 attracted vast sums of capital. By the close of 1999, several permits had been issued for new self-supply, co-generation, and independent-production projects, representing 6,528 MW and investments of US$3.9 billion. By mid 2000, bidding competitions were underway for ten more projects to generate 4,333 MW with investments of nearly US$4 billion.

Government officials believe that the increase in generating capacity between 1999 and 2008 will be based almost entirely on private savings. This increase is expected to keep pace with the rapid growth in domestic demand for electricity, averaging 6 percent annually. Electricity for public utilities is projected to grow at an

[19] In the context of an open economy, it makes sense to index domestic prices based on those of the south of the United States. This would reflect the cost of opportunity for *Pemex*, as the only national producer, and thus reflect the cost of opportunity for the country. It would also send the market a pricing signal favoring socially efficient consumption.

[20] See: *Secretaría de Energía, "Prospectiva del Mercado de Gas Natural 1998 - 2007*," December 1998.

annual rate of 5.6 percent. The private sector would make 92 percent of the required investment through independent production arrangements.[21]

The government's success has not been limited to attracting investors. Costs have been lowered as well. As a result of public bidding competitions, potential independent producers have offered sales prices for *CFE* purchases of electricity ranging from 2-3 US$ cents per kWh, well under the average price at which *CFE* sells the electricity to end users (US$5.5 cents per kWh in 1999).

Liberalization of foreign trade in electricity has also started to bear fruit. One bidding competition is underway for an independent-production power plant to be installed in Mexico or in the United States, at the discretion of the interested company. Another competition is underway for installation of a plant whose production will be exclusively earmarked for export to California.

Nonetheless, the government is convinced that continued expansion of the public electricity utility based on independent producers is not viable, for two reasons:

i) In the long run, these investments would have to be paid back using government funding that could otherwise be earmarked for social programs.[22]/
ii) The government assumes risks—through contracts that guarantee fuel supplies and purchases of electricity *(power purchase agreements)*—which could well be assumed by the private sector.

Thus, in February 1999 President Zedillo proposed that Congress reform the Constitution to fully liberalize the electricity sector, reserving nuclear and geothermal generation for the State, along with transmission grid operations and load dispatching. The bill never made it through Congress.[23]/ Zedillo thought it would be easier to convince *PAN* legislators, who together with the *PRI* held an absolute majority in both houses. The bill could have passed if they had joined forces, just as had happened with the *FOBAPROA* legislation. In fact, the opposite occurred. As 1999 progressed, tension mounted between the *PRI* and the *PAN*, to the point where the opposition block (*PAN*, *PRD*, *PT*, and *PVEM*) solidified in December 1999 and amended the executive branch's proposed legislation. Early this year, leaders of the *PAN* stated that their party would never pass such a reform, unless the federal government first designed and adopted a comprehensive, complete, earnest energy policy in an atmosphere of respectful dialogue.

In short, the reform failed the congressional test. What is most disheartening is that efforts to pave the way for privatization created a delicate but manageable situation for the national electricity system. The current administration has always intended to reduce public investment in the electricity industry and transfer responsibility to the private sector. Thus, on the one hand, the government promoted the idea of replacing public funding with private savings. On the other hand, the government decided to operate the electricity system with a smaller reserve margin (6 percent), aiming to postpone investment and reduce pressure on the federal budget.[24]/ For the same reason, it delayed bidding competitions for the construction of new power plants.[25]/ Unfortunately,

[21] *Secretaría de Energía, "Prospectiva del sector eléctrico* 1999 - 2008", December 1999.
[22] The government does not distinguish between revenues generated by electricity sales and tax collections. In fact, the Department of the Treasury and Public Credit combines all public-sector revenues into a single fund, on the basis of which it determines the federal funding disbursements for the following year, including those of the *CFE* and *LFC*.
[23] The full session of the House of Representatives created commissions to investigate the financial situation of *CFE* and *LFC*. Congressional representatives never arrived at a consensus opinion.
[24] Public funds earmarked for the electricity sector during the first five years of the current administration have averaged US$1.6 billion, 35 percent less than the average earmarked in the final years of the Carlos Salinas administration (US$2.5 billion). Furthermore, investments financed by private savings were lower than projected in the annual Federal Disbursements Budget. The degree to which projections were met went from 98 percent in 1997 to 84 percent in 1998 and to only 38 percent in 1999.
[25] In 1997 eight bidding competitions were planned, but only two were carried out. The other six were postponed to 1998. Similarly, in 1999 eleven bidding competitions were planned, but not one was carried out. In the period of 1996-2000 plans were made for an additional 15,882 MW, but only 10,378 MW have been bid upon, falling 35 percent short of projections.

supply problems have persisted. At the end of the presidential term, generating capacity is estimated to have grown by 5,306 MW, 26.5 percent less than planned. As a result, the reserve margin is now at its lowest point in history (4 percent of operating levels) and cutbacks in supply have been scheduled for both 2000 and 2001, especially in the northwest zone that includes the states of Sonora and Sinaloa.

To prevent blackouts, in March 2000, the *CFE* Governing Board approved a Contingency Plan, which includes the installation of two gas turbine plants, an advanced start up of three power plants and their respective transmission networks, implementation of savings programs, rational use of electrical energy, an upgrading of the transmission grid, and a call for independent producers to speed up power plant construction. [26]/

According to recent estimates released by the Department of Energy for the period 1999-2008, it will be necessary to increase generating capacity by 22,248 MW and to invest more than US$51 billion, or slightly more than US$5 billion per year. These figures should be viewed with caution, however, since other analysts believe that the figures have been exaggerated to justify the need for further liberalization.[27]/ Still other analysts, joining this battle of the statisticians, indicate that if Congress passes the proposed reforms, private investment in the electricity sector will reach US$7-8 billion per year over the next 25 years.[28]

PETROCHEMICALS: IN STAGNATION

In the mid 1980's, the government decided to withdraw from the petrochemical business. With that aim, it reduced the schedule of products reserved for the State. The schedule reduction took the form of administrative reclassifications that did not require congressional approval. Such a "light" strategy sidestepped a head-on collision with nationalist sectors. The Salinas Administration continued the reclassification process and decided to sell *Pemex* complexes but postponed the sales due to unfavorable conditions on the international market.

In April 1995, the Zedillo administration placed the Cosoleacaque complex up for sale, but legal snarls caused the bidding to be canceled a year later. In March 1996, under pressure from agreements signed with the IMF, a new legal framework was established and *Pemex* Petrochemicals was to be split into several subsidiaries to facilitate the process.[29]/ However, the government was unable to muster a consensus and Congress approved a sale not exceeding 49 percent of the assets. Given the reserves clauses of the NAFTA agreement, foreign capital could only obtain 24 percent. In 1998 the Morelos complex was put up for sale, but at the last minute the interested companies deserted.

The 49-51 percent arrangement failed for two reasons. First, industrialists refuse to invest under such conditions because they cannot control operations. To leave operational control in the hands of a government-run company is too risky. Indeed, investments dependent on government funding would be subject to strict regulations, influenced by the politics of the day, with macroeconomic equilibrium taking priority and subject to debt caps negotiated with international financial institutions.

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[26] This was the second emergency plan of the presidential term. The first was the Immediate Action Plan (five gas turbine power plants producing 150 MW each) implemented in 1997 to mitigate errors in assumed growth rates.

[27] In particular, new investment (US$45 billion) was mixed with payment of prior debts (US$5.3 billion), and an exceptionally high cost per installed kW was presumed (in the case of the combined-cycle power plants, where 18,692 MW are to be installed, the cost was stipulated as US$730/kW).

[28] See: Allison Wright, "Desacuerdos políticos enturbian las posibilidades de privatizar la electricidad mexicana," *Oil & Gas Journal Latinoamérica*, Vol. 6. No. 1, January - February, 2000.

[29] In December of 1997, the *Pemex* Board of Directors authorized the creation of ten subsidiaries, one for every production center, of which seven were eventually established. Two of the remaining subsidiaries were merged, while the assets of another were incorporated into one of the subsidiary companies.

Second, the government refused to meet its financial obligations under such an arrangement (i.e., to contribute its 51 percent). In fact, the government held that it should not be involved in any petrochemical industry business and that Congress should privatize one hundred percent of the assets. Repeatedly, government spokespersons stated that the government should not invest in petrochemicals, as those resources could be used instead for education, health, and strategic areas such as oil. Under these conditions, there is clearly no point in holding another bidding competition for the complexes under a 49-51 percent arrangement.

Since then, the government and industrialists have studied the viability of creating joint ventures to raise the production capacity of some *Pemex* plants--to invest in profitable "streamlining" operations. For their part, the industrialists would want to share ownership of the installations, rent them, or receive long-term guarantees of reduced-price supplies. The attempts have not been fruitful. Officials have been reluctant to accept options that might involve a change in the ownership system for the plants; direct debt for *Pemex*; contingent liabilities for the federal government (as would occur with a "take or pay" contract for products); government funding; changes in *Pemex*'s tax status or discounted prices for raw materials supplied by *Pemex*. To make things worse, the media has emphasized *Pemex*'s reluctance to engage in joint ventures with the private sector.

Some industrialists believe that joint ventures could not prosper unless industrialists were guaranteed a timely, sufficient supply of petrochemical precursors through supply contracts with a minimum 15 year term, below market prices. Others feel that until the private sector has direct access to natural resources —oil, natural gas, liquefied gas, and condensed gas— the sector will not receive adequate capitalization. In other words, the detonator of development in the Mexican chemical industry would be the potential for private investors to vertically integrate, from the production of hydrocarbons through the processing of complex petrochemicals. This would place them at the level of their global competitors.

After the failed attempt to sell the Morelos complex, the government promised to offer within 90 days a new plan for incorporating the private sector. As of July 2000, seventeen months had elapsed without results, and it is not likely that a solution will be reached during this presidential term. For now, the official position is that *Pemex* will not be building new plants, as that is an activity left to the private sector. Negotiations will continue with industrialists to allow for modernization of the *Pemex* complexes. Meanwhile, *Pemex* will continue investing in its complexes to maintain the installations and streamline their activities. However, this construction works program has been severely criticized by industrialists and private sector organizations.

The petrochemical industry is developing at far below its potential and is in great need of investment. According to the National Chamber of the Construction Industry, the investment needed to meet demand in the domestic market and compete on the international market will be US$222 million per year for the next ten years. If participation in the international market is to expand, more than US$444 million per year would be required. For the present, the lack of investment is reflected in high trade deficits and loss of jobs.[30]/

A FAVORABLE OUTLOOK FOR PRIVATE CAPITAL

After 71 years in power, the *PRI* lost the presidency of the republic in July 2000. The winning candidate was Vicente Fox Quezada, from the *PAN* (a center-right political party). The energy sector should prosper under the Fox administration, assuming office on December second.

[30] In 1998 chemical and petrochemical imports amounted to US$7.2 billion, resulting in a negative balance of US$4 billion dollars, equivalent to 55 percent of the balance-of-trade deficit. The price of those imports surpassed the revenues for that year's crude oil exports. In 1982 *Pemex* produced 13.8 Mt of petrochemicals, but in 2000 produced 9 Mt.

Vicente Fox's position on energy issues changed during the course of his campaign. At first, his tone favored liberalization and privatization, especially during his conferences in the United States. Later, in a written campaign ad, he made a solemn promise that he would "not privatize *Pemex* or *CFE*, but would design alternative financing to acquire resources for their modernization, so that their services would benefit Mexicans to a greater degree." In a recent interview, he stated that during the first year of his government, he would not further privatize the oil and electricity industries. These statements and promises did not discourage Mexican and foreign groups, who began pressuring for liberalization in the fields of hydrocarbons and electricity. However, broadening and deepening the reforms will require constitutional amendments, as almost all steps available through statutory change have already been taken. (Aware of this, Zedillo had proposed that Articles 27 and 28 of the Constitution be amended to enable reforms of the electricity sector to continue.)

Constitutional reforms, however, require a qualified majority in the Congress (two-thirds of the votes) and a simple majority (51 percent) in the 32 state legislatures. A simple majority is needed in the Congress to create or amend laws, but is insufficient to amend the Constitution. In 2000-2003 no political force will dominate the Congress, and thus legislative progress will focus on negotiations among the parties in both the House of Representatives and in the Senate.

Even if Fox succeeds in uniting all of the *PAN* legislators behind him, he will still face a House of Representatives adverse to him for at least his first three years in office. Thus, together with the *PAN*, he will have to negotiate with the *PRI* or the *PRD* in order to amend the Constitution or make any statutory change. He will also have to negotiate with the opposition in the Senate for the next six years. In short, Fox will have to lobby all the parties, especially the *PRI*, if his high expectations are to become a reality.

What will be the *PAN's* response to Fox's initiatives? Analysts expect that *PAN* representatives and senators will maintain discipline and promote Fox's initiatives. On energy issues, the *PAN* will clearly seek to open the way for the private sector. *PAN* doctrine affirms that private enterprise is the most vital source of social betterment, and that government should promote and ensure its best and most orderly development. Private property is viewed as the most suitable means to ensure production in the country, and where private enterprise is impossible or insufficient, government should promote the organization of activities in society without destroying, impeding, or displacing private enterprise. For the *PAN*, government should have authority over but not ownership in the national economy. *PAN* is fighting for a state that is as lean as possible, with minimal or no participation in the economy. The proposed sales of either *Pemex* or of the *CFE* were inconsistent with these principles.

PAN leadership has always believed that both hydrocarbons and electricity should be in private hands. At most, it might consider continued state control exclusively in the areas of exploration and primary exploitation of oil. Yet the party believes that state control of those activities could also be eliminated if they were subject to stringent taxation, as occurs in many regions of the world. The *PAN* platform explains why it was not enthusiastic about the unsuccessful sale of petrochemical plants or the first attempt to reform the electricity industry by amending Articles 27 and 28 of the Constitution. In both cases, the *PAN* considered the administration's actions to be halfhearted. In discussions of electricity reforms, *PAN* legislators were waiting for better times to promote constitutional amendments under which a much more radical reform would be implemented throughout the energy sector. These times may soon be upon us.

Of paramount concern is the direction that the *PRI* will be taking. Will it move to the right, as occurred during the Zedillo administration, or will it move to left, join forces with the *PRD*, and oppose proposals for liberalization and privatization? In the case of the electricity industry, the *PRI'*s position might well determine whether competitive players will assume previous lines of vertical integration or whether the sole purchaser scenario will be preserved.

The *PRI*'s severe domestic crisis after July 2000 suggests several potential scenarios for its congressional activities, two of which deserve our attention. Under the first scenario, the *PRI* would opt to maintain a rigid party discipline and oppose bills submitted by president Fox. This would be a *PRI* that returns to the principles of revolutionary nationalism, in opposition to deregulation, liberalization, and privatization of strategic areas reserved for the State. Under the second scenario, *PRI* legislators would be fragmented into clearly differentiated groups: the technocrats would vote in favor of neo-liberal proposals, the nationalists would oppose them, and the remainder would act on the basis of whatever personally suits them.

Even if Fox succeeds in winning over the *PRI* in the national Congress, he will still face the hurdle of the 21 state legislatures, which are dominated by the *PRI*. Winning over the state legislators will be no easy task. A result of the *PRI*'s disintegration is that state legislatures will be increasingly influenced by local *PRI caciques* ("chiefs") and less by the distant leaders of the Executive National Committee. A steadfast resistance could be predicted from the Congresses of Campeche, Tabasco, Veracruz and Tamaulipas to any reform involving hydrocarbons, unless those states are directly benefited, as they are the heartland of the oil industry.

Finally, the thorny issue regarding ownership of the lands on which the *CFE* and *Pemex* installations are located is yet to be resolved. The legal status of most of those lands is uncertain and it will take at least ten years to provide future owners of the installations with legal certainty.

In summary, Fox and the *PAN* certainly have the political will to fully liberalize the energy sector. However, they face a myriad of obstacles and liberalization will not be speedy. Privatization is likely to continue at the gradual pace of the previous administration.