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**First Meeting of the U.S.-Mexico
High-Level Working Group on Sustainable Energy
April 16, 1999**

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***FIRST MEXICO-U.S. WORKING GROUP ON
SUSTAINABLE ENERGY MEETING***

Mexico City, April 15-16, 1999

Draft Agenda

- 1. Overview of the Working Group on Sustainable Energy**
 - Purpose and goals
 - Terms of Reference
- 3. National Action Plans in aspects related to Sustainable Energy**
 - Mexican Action Plan description
 - U.S. Action Plan description
- 3. Review activities under Energy Cooperation Agreement**
 - Overview discussion
 - Report of the activities under the Energy Cooperation Agreement Annexes
 - Project Annex 1: Cooperation in the Field of Renewable Energy
 - Project Annex 2: Cooperation in the Field of Energy Efficiency
 - Project Annex 3: Environmental Cooperation in the Field of Hydrocarbons
 - Investment opportunities in clean energy and energy efficiency
 - Prioritization of activities
 - Discussion:
 - What is missing?
- New activities / projects
- 4. Regional developments**
 - Overview of clean energy developments in the region
- 526. Final comments**
 - Summary of agreements
 - Report to Binational Commission
 - Next steps

Delegación Mexicana
Primera Reunión del Grupo de Trabajo de Energía Sustentable
15 y 16 de abril de 1999

Dr. Jorge Chávez Presa
Subsecretario de Política y Desarrollo de Energéticos
Secretaría de Energía

Dra. Lourdes Melgar
Directora General de Asuntos Internacionales
Secretaría de Energía

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Director General de Política y Desarrollo de Energéticos
Secretaría de Energía

Lic. Ana María Sánchez
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Secretaría de Energía

Lic. Ramiro Magaña
Director para Asia – Pacífico y Europa
Secretaría de Energía

**United States Delegation
First Meeting of the High-Level Working Group on Sustainable Energy
April 15-16, 1999**

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Department of Energy

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DRAFT

BACKGROUND ON U.S./MEXICO ENERGY ACTIVITIES

Changes in Mexican Energy Structure: After many years of state ownership and control of energy infrastructure and resources, Mexico began moving cautiously and carefully towards a more open energy sector since adoption of the North American Free Trade Agreement (NAFTA) in 1994. Under the Agreement, Mexico allowed the private sector to participate in selected areas, notably, electricity generation, oil and gas services, and petrochemicals. In addition, Mexico in 1995 modified its laws to allow private sector ownership and operation of natural gas transportation, distribution, and storage. More recently (January 1999), Mexico's Administration proposed to its Congress modifications to its Constitution to allow private sector ownership and operation of electricity transmission and distribution, including the sell off of Federally owned generation and distribution facilities.

Still excluded from these new openings are oil and gas exploration and development, refining and delivery of oil products, and basic petrochemicals. The Mexican energy market also provides important opportunities for utilization of advanced technology such as renewable and clean power technologies.

The current Secretary of Energy is Luis Tellez and the Under Secretary is Jorge Chavez. Adrian Lajous is the head of PEMEX, the state oil and gas company, and Alfredo Elias Ayoub is the head of CFE, the state electricity company.

The natural gas openings have proven to be the most successful privatization initiative to date. Mexico's Energy Regulatory Commission (Spanish initials CRE) developed the necessary regulations to regulate both the roles of the private sector and the state oil and gas company, Petroleos Mexicanos (PEMEX), in these newly de-monopolized areas.

To date, the CRE has granted permits to construct and operate gas distribution systems for eight cities including, Mexico City, Mexicali, Chihuahua, Monterrey, and Tamaulipas. CRE also approved two natural gas transportation systems, a cross border pipeline to bring Texas gas to Monterrey, Mexico, and a pipeline to carry gas from the PEMEX fields around the Bay of Campeche to the Merida III powerplant to be built by AES. Many of these bids were won by consortia that included U.S. firms.

On electricity generation, Mexico has issued around six or more contracts to build electric generating plants, but only one of these was to be privately owned and operated; all others were to be built for Comision Federal de Energia (CFE) ownership and operation. The CFE is the Federally owned electricity company.

Mexico's refineries, all owned by PEMEX, need to be upgraded to meet the country's growing demand for high quality gasoline and to comply with new pollution control levels. Contacts have been issued for the upgrading of some but additional work has been delayed because of budget cutbacks.

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Mexico continues to be highly sensitive towards energy issues and any efforts by the Government to expand private sector participation in energy, must overcome the resistance of the unions, the Partido Revolucionario Institucional (PRI) traditionalists, and other nationalist groups. Indeed, the Constitutional changes on electricity are being heavily resisted in the Congress. The nationalization of oil in 1938, is perceived as a major event in the modern history of Mexico. It is an important icon in many institutions, including the PRI, the party that has governed Mexico for over 70 years. Efforts by the U.S. to promote private sector participation have been resisted, especially in the exploration and development of oil and gas.

Mexico's two energy parastatals, PEMEX and the CFE, are heavily overstaffed, resulting in lower wages and inefficient operations. Union resistance to any downsizing or sale of assets is a major problem. This was made evident in early 1996 when PEMEX's attempt to sell off its' non-basic petrochemical plants, were thwarted by the combined resistance of the unions, PRI traditionalists, and local communities who feared loss of jobs.

Mexico's Government continues to be heavily dependent on the income from oil exports. These funds account for around 22-25 percent of the Federal Government's income. The downturn in oil prices that began in 1998, has strained Mexico's ability to fund needed developments. To reduce the budget deficit many programs have been curtailed including Pemex's plans for oil and gas exploration and infrastructure development.

U.S./Mexico Energy Cooperation: In 1981, the U.S. and Mexico initiated a U.S./Mexico Bilateral Energy Consultations to provide a forum where detailed technical discussions could be held on energy issues of interest to both countries, including a review of the international oil market. These consultations were subsumed within the Binational Commission (BNC) in 1996 with the establishment of the Energy Working Group. The BNC is an annual meeting of the Cabinets of the two countries, headed by the Secretary of State of the U.S. and the Foreign Minister of Mexico. There have since been three annual meeting of the BNC in which the Energy Working Group has participated. The next one is tentatively scheduled for June 1999, in Mexico City. The BNC has proven to be a marginally useful vehicle for comprehensive energy discussions and it is planned to restart the Technical consultations at an appropriate time.

The Department of Energy's bilateral activities with Mexico are wide ranging and include cooperation in the fields of policy coordination, renewable energy, energy efficiency, hydrocarbons waste treatment, and electricity trade. All of these activities are covered as annexes under our umbrella Agreement on Energy Cooperation signed in 1997. In addition, we are seeking to develop a new annex on Clean power cooperation. Efforts to develop an annex on oil development have been unsuccessful.

In Renewable Energy DOE and U.S. AID are jointly funding projects to identify and promote renewable energy opportunities in Mexico's rural areas, particularly for those communities not served by the central electricity grid. Cooperation includes, collaboration in the evaluation of renewable energy equipment under varying conditions, the training of technicians to install and maintain renewable energy equipment and perform work related to other renewable energy technologies, as well as programs to encourage the use of renewable energy by the private and

public sector.

In Energy Efficiency, DOE, AID, and the Environmental Protection Agency have projects underway which include cooperative activities such as programs for energy efficient buildings, homes and motors as well as the development of procedures for appliance testing, testing and training of technicians to conduct the above tests and to perform work related to other energy efficiency technologies.

The Hydrocarbon Waste Treatment annex is the newest annex, having been signed in October 1998. It is not yet active due to funding delays by the Mexican Instituto Mexicanos de Petroleos (IMP), a research institute operated by the Mexican national petroleum company (PEMEX).

Under the Mexico City Air Quality Study, the U.S. Department of Energy (DOE), through the Los Alamos National Laboratory, worked jointly with the IMP to support a program to provide additional and more comprehensive information than is currently available to explain the nature and causes of fine particulate concentrations and visibility impairment in and around Mexico City. This project was completed in early 1998. About \$5 million was invested in this project since 1991, with each side providing half. A similar, though smaller scale, study was initiated in 1994 for the Juarez/El Paso metropolitan area, using techniques developed for the Mexico City Air Quality project. This study was completed in 1997.

In 1981 and again in 1989, both countries collaborated in studies on the opportunities for electricity trade. The 1989 study included participation by U.S. border electricity companies, states and Mexico's State Electricity Company, CFE. In December 1998, and in January 1999, DOE and Mexico's Secretariat of Energy met to discuss ways to expand electricity trade between the two countries. Mexico would like to increase the import of electricity from the U.S. but inadequate border interconnections exist to accommodate any significant increase in trade. The core problem has been the inability of U.S. investors to obtain adequate commitments from Mexican authorities to allow investment in expanded border interconnections. Investors are now seeking to obtain these commitments.

Issues of Contention: Mexico continues to retain total control of oil and gas developments, allowing private firms to participate only as service providers not as equity participants. Additionally, it's domestic market for gasoline and other petroleum products remains a monopoly of PEMEX. As previously noted, the Mexican Administration's efforts to revise the Constitution to allow private ownership and marketing of electricity has bogged down. Some observers believe it will not be given serious consideration until after the next presidential election at the end of 2000.

In addition to the above, Mexico's current tariff on natural gas (three percent) has affected the economics of various projects and limited the export of U.S. gas to Mexico. The U.S. Trade Representative sought in April of 1997 to negotiate the accelerated reduction of these tariffs under the auspices of the NAFTA. Mexican gas end users supported our efforts. Unfortunately, Mexican trade officials tied such a move to a concomitant reduction in the U.S. tariff on pterephthalic acid or PTA, a petrochemical. U.S. industry resisted such a move and the issue is dormant. Since the tariff will go to zero by the year 2002, this issue will become less important

over time.

In late 1995, PEMEX attempted to initiate the sale of its secondary petrochemical complexes. These sales were resisted by the unions and local governments. After various policy shifts the Government decided that only 49 percent of the value of the facilities would be sold to private firms. In January 1999, the bidding period for these facilities closed without one bid being received.

Numerous other issues have arisen over the last few years, including issues related to the bidding process for electric generating plants, and oil and gas services.

**PROPOSAL FOR HIGH LEVEL BILATERAL WORKING GROUP ON
SUSTAINABLE ENERGY BETWEEN THE DEPARTMENT OF ENERGY OF
THE UNITED STATES AND THE SECRETARIA DE ENERGIA DE MEXICO**

- The Working Group will focus on issues of sustainable energy. In particular, the Working Group will consider how the production and use of energy affect the local and global environment. The Working Group will draw from the various bilateral energy efficiency, renewable energy, and clean power activities under the existing bilateral energy agreements.
- The Working Group will be led by the U.S. Department of Energy and the Secretaría de Energía de México and report to Secretaries of Energy. Members of the Working Group will be at a high enough level (at the Deputy Assistant Secretary level or higher in the United States) to ensure that political attention is given to the activities of the Group. Results from the Working Group will be reported to the Binational Commission.
- As appropriate, each ministry (DOE-SE) will consult other agencies within their own governments. For the United States, these could include the Departments of State, and Treasury, the Environmental Protection Agency, the Agency for International Development, and the President's Council of Economic Advisers. For Mexico, these could include the Secretaría de Medio Ambiente, Recursos Naturales y Pesca, Secretaría de Comercio y Fomento Industrial, Secretaría de Hacienda y Crédito Público, and Secretaría de Relaciones Exteriores.
- The first meeting of this Working Group will be held in March and will present a progress report to the next Binational Commission meeting.

MÉXICO BACKGROUND: MEANINGFUL PARTICIPATION IN THE CLIMATE CONVENTION THROUGH U.S. CSP & IJI ACTIVITIES

U.S. Country Studies Program:

Since 1993, the U.S. Country Studies Program (CSP) has provided to México \$1.03 million to help the government fulfil its existing commitments under the U.N. Framework Convention on Climate Change. México's climate change country study includes: national inventory of greenhouse gas emissions, mitigation strategies and analysis of vulnerability and adaption strategies. México is also participating in the CSP Support for National Action Plans (SNAP) initiative which provides financial and technical assistance to help México use its country study results to prepare a national action plan for implementing mitigation and adaptation measures. México can use this plan to develop a 'national communication' and meet their existing commitment to report to the U.N. FCCC. México matched U.S. assistance with a roughly \$640,000 contribution (in kind).

The Climate Change Country Study includes three major elements: 1) an inventory of greenhouse gases taking into account both sources and sinks, 2) an assessment of the vulnerability to climate change certain key areas such as urban environments and low lying coast lands, and 3) future scenarios of emissions, adaptive responses, and mitigation opportunities. It was completed in 1997.

The SNAP effort with México effort builds on ongoing financial and technical assistance and includes establishing the National Coordinating Committee, preparing outreach materials on the results of the Country Study, public consultation, technology assessments, review and selection of policy options by the National Coordinating Committee, and preparing the National Communication. The National Coordinating Committee consisting of representatives of several Ministries including the Ministries of Energy and Commerce and is led by the Instituto Nacional de Ecología (INE) in the Ministry of Natural Resources, Environment, and Fishing. Dr. Carlos Gay García of INE coordinated the Country Study and the SNAP work which is expected to be complete in 1999.

U.S. Initiative on Joint Implementation (U.S. IJI):

The Mexican Government considers Joint Implementation (JI) as a way to promote improved forest management, clean energy generation, and improve the industrial and agricultural sectors practices while addressing global climate change. While México has not made any formal commitment to reduce emissions, México has demonstrated clear support for JI and the Clean Development Mechanism, emissions trading, as well as emissions reductions through participation in actual pilot projects.

Currently, four pilot projects have been mutually accepted by México and USJI. These include a renewable energy mini-grid, carbon sequestration through agriculture and forestry projects. Over their respective project lives, these small USJI pilot projects will reduce more than 3-4 million metric tons of CO₂ and bring more than \$ [XXX,XXX] in U.S. private sector investment. In addition, an energy efficiency project between México and Norway has also been accepted.

To facilitate the development and acceptance of JI projects that meet México's sustainable development and clean energy goals, it has formed a JI coordination group from different government offices including : the Energy Ministry, the Environmental, Natural Resources and Fishing Ministry, the National Institute of Ecology, the National Meteorological Service, and the Ministry of Foreign Affairs. According to some of the already defined requirements, project proposals are to demonstrate that they will contribute to the socio-economic and/or material development of the region or country and, that they will represent an

advancement in the technical sufficiency of the country. Dr. Carlos Gay García is also the Coordinator of the Mexican JI program.

Three of the accepted México-U.S. JI projects stemmed from the Commission on Environmental Cooperation (CEC), the environmental arm of NAFTA. The CEC funded pre-feasibility studies (approximately \$25,000 each) these and a forth project in development — a 160 mw wind farm in Oaxaca.

U.S. CSP & IJI Sponsored Activities:

As part of the U.S. long-term commitment to institutional capacity building, the U.S. and México have implemented a series of workshops including an April 1997 forestry workshop in Chiapas, and a "Policy and Institutional Needs Assessment Workshop" in December 1996. In addition, the CSP was a sponsor of a May 1997 Seminar for the Evaluation of National Strategies for Confronting Global Climate Change in Veracruz.

Potential Events:

Currently exploring with CSP/IJI contacts in country possible EERE activities that are consistent with their SNAP priorities and/or could be funded through CDM.

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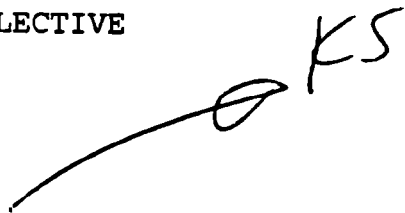
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E.O. 12958: N/A

TAGS: SENV, ECON, PREL, MX

SUBJECT: CLIMATE CHANGE SCENE SETTER FOR
UNDERSECRETARY LOY MEXICO VISIT

SUMMARY & INTRODUCTION

1. The visit of Undersecretary for Global Affairs Loy to Mexico provides us with the opportunity to restate and update political, economic, and sociological factors influencing GOM climate change policy and actions. Mexico

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is changing politically, and public interest groups (especially environmental groups) and opposition parties have growing influence in the system. However, population and economic factors virtually ensure that one of the GOM's highest priorities well into the next century will be job creation. Yet, despite the antagonisms between the need for economic growth and carbon emissions reduction, Mexico takes its climate change responsibilities seriously and is implementing policies and programs that will reduce their CO2 emissions below "business as usual." How far Mexico can and will go in reducing their rate of increasing CO2 emission will depend to a certain extent on international financing and domestic private sector investment in new, greener technologies.

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ENVIRONMENT ORIENTED POLITICAL/ECONOMIC OVERVIEW
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2. (U) Historically Mexico has had a centralized federal political system dominated by the executive. Opposition parties, states, municipalities and public interest groups had little, if any, influence. However, over the last ten years Mexico has begun a transition toward a more fully participatory democracy in which those interests have gained markedly in their ability to influence foreign and domestic policy as well as legislation.

3. (U) Mexico's population will double before it stabilizes near the end of next century, challenging the Mexican government in the areas of job creation, housing, transportation, environmental protection, pensions, and health care. Mexican demographic trends suggest that the country's economically active population will increase by as much as 35 million from 1995 to 2030. Given that growth in population and assuming an increasing rate of job creation demographers fear that there might be a deficit of almost 30 million jobs in the formal sector by 2030.

4. (U) While per capita GDP has essentially returned to levels prior to the 1994-95 recession, the impact of inflation on wages has left the Mexican working class worse off. Fluctuations in the value of the peso due to continuing international financial problems and the recent tumble of international oil prices have caused difficulties for the population and the government. As petroleum sales account for

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one-third of federal revenue the drop in prices forced three major GOM budget cuts in 1998. Thanks to economic growth and diversification, however, petroleum now accounts for only 10 percent of total export earnings.

BACKGROUND ON GOM CLIMATE CHANGE ACTIONS

5. (U) The GOM understands that climate change will have severe negative consequences for Mexico, but the GOM's overriding priority is achieving economic growth. And given Mexico's wealth in fossil fuels, carbon based fuels will necessarily continue to be the foundation of that growth for the foreseeable future.

However, Mexico understands its obligation to reduce its green house gas (GHG) emissions below "business as usual" levels given its status as a "model" developing country, a signatory to the Framework Convention on Climate Change, and a member of the OECD. Fortunately, by attacking air pollution and deforestation, and by pushing for more efficient, globally competitive industries, the GOM can address significant medium term domestic priorities and achieve reductions in Mexico's increasing rate of GHG emissions at the same time.

CLIMATE CHANGE ACTIONS

6. (U) The GOM is committed to improving air quality in a two-pronged strategy of investing \$10 billion to substitute natural gas for petroleum in the generation of electricity, and reducing consumption of gasoline by improving public transportation. Although targeted at reducing air pollution, these GOM efforts will also yield reductions in carbon emissions.

7. (U) Mexico suffers from severe deforestation. It is a national priority to combat forest loss to prevent further damage to biodiversity, improve urban air quality, retard soil erosion, etc. Additionally, there appears to be significant medium-term gains in carbon sequestration through natural forest management, agro-forestry, and reforestation, which could prove very profitable for Mexico (e.g., U.S. utility companies could pay Mexicans to grow trees to offset their continuing carbon emissions). The GOM therefore views afforestation efforts and joint implementation/Clean Development Mechanism programs as a critically important way to raise

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funds and mitigate carbon emissions without reducing their consumption of fossil fuels.

8. (U) While an OECD member, Mexico does not have obligations under the Berlin mandate for specific greenhouse gas reductions. The USG included Mexico in its proposed Annex B (developing countries which will voluntarily undertake legally binding commitments to reduce their rate of increasing carbon emissions) and post 2000 Annex I membership proposals, but the GOM has repeatedly and resolutely rejected the assumption of voluntary obligations within a multilateral context. On the technical level, however, the GOM domestically is carrying out pilot programs for GHG mitigation and developing various national voluntary reduction programs.

GOM ATTITUDE TOWARD USG NEGOTIATORS

9. (U) The last significant contact between GOM and USG climate change negotiators took place in October, 1998 in Mexico city. The meeting was marked by a both a cooperative atmosphere, and the very direct but non-confrontational exchanges. The U.S. Delegation was headed by OES/E DAS Rafe Pomerance and included representatives of DOS, EPA, DOE, USAID and Embassy Mexico. Foreign Affairs Undersecretary Carmen Moreno headed a Mexican delegation comprising foreign relations, environment, trade, and energy officials.

GROWING POLITICAL/ENVIRONMENTAL CONSCIOUSNESS

10. (U) Mexico's climate related disasters of 1998 (e.g., 14,000 wild fires, two destructive hurricanes, devastating floods) have created a constituency for aggressive measures to deal with climate change. However, its influence to drive policy decisions that might conflict with shorter-term social and economic progress is unclear. Additionally, the most recent economic downturn has sapped the GOM's resources to fund their environmental agenda. Yet the already strong and still growing grass-roots Mexican environmental militancy against hazardous waste facilities (both in the U.S. And Mexico, within and beyond the 60 mile border zone) indicates that significant GOM action can be driven by environmental concerns.

GOM POSITION ON CLIMATE CHANGE ACTION

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11. (U) Despite growing public understanding of the climate change issue, the GOM position on accepting binding emissions targets has not changed since the lead-up to Kyoto. The GOM believes Mexico is doing all it can, working conscientiously and intelligently within the limits of its resources and development imperatives. Creating vital employment while bringing electricity to 40,000 rural communities will result in an unavoidable increase in Mexican energy consumption. To take advantage of renewable energy options, Mexico would need outside resources from the Global Environment Facility, Clean Development Mechanism (CDM), etc. Additionally, wide-spread installation of energy efficient and non-polluting technologies will require substantial private sector investment.

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MEANINGFUL PARTICIPATION

12. (U) The GOM is well versed on the "meaningful participation" issue. The GOM believes that policies and programs of a developing country making a strong effort to reduce its CO2 emissions growth rate should be considered meaningful. The GOM also considers evaluation of policies and programs to be as important as voluntary targets in considering a "third way" for Kyoto participation by developing countries.

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CAPS, SINKS, ADDITIONALITY

13. (U) Mexico opposes caps on flexibility mechanisms, as it makes no sense to create mechanisms and then limit their usefulness. The GOM also agrees with the USG that the inclusion of carbon sinks in the CDM was very important, and that decisions on CDM projects must be subject to national approval to insure consistency with national development plans. The GOM warns against excessively strict interpretation of "additionality" as such a position could ruin the Clean Development Mechanism. (Note: There are some "no regrets" projects that, due to financial constraints, the GOM could pursue only with outside financing.)

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ATMOSPHERICS

14. (U) Mexicans are deeply hurt by inferences that they are not doing well on climate change given their enormous economic, social, and

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political constraints. The GOM acknowledges that they have failed to publicize their climate change policies and programs, and consider that the USG has also done a poor job explaining its mitigation actions. The GOM's most serious shortcoming in foreign perception of its climate change efforts is perhaps the fact that it has been unable to publish their national climate change action plan as scheduled last September. Consensus within the GOM has been lacking, and the report has been stalled. (Note: The National Ecology Institute director for climate change told us last week that consensus has been achieved and that the plan will soon be published.) More needs to be done to inform both domestic and foreign populations about the significant climate change activities already underway in Mexico.

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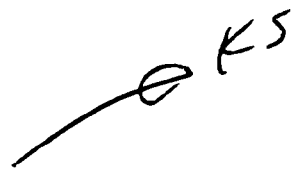
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TAGS: SENV, ECON, PREL, MX

SUBJECT: CLIMATE CHANGE: MEXICO TWICE SHY ON
GLOBAL PARTICIPATION?

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REFTEL: MEXICO 02039

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1. Summary: The GOM tried at Kyoto and Buenos Aires to get multilateral acceptance of its plan for global participation in green house gas emissions mitigation. Unfortunately, according to one GOM climate change player, those efforts earned the GOM rebukes. However, the GOM's presentation to the OECD earlier this month of a global participation plan could signal an inclination to try again. Constructive USG

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engagement with the GOM would be key to getting a plan acceptable to the U.S. and to animate the GOM to risk another multilateral rejection. End Summary.

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PROPOSING A CLIMATE CHANGE CONTACT GROUP MEETING

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2. During a March 11 discussion with Environment Secretariat (SEMARNAP) International Relations Director General Jose Luis Samaniego, we suggested that it would be a good idea to schedule a meeting of the Climate Change Contact Group. We proposed that the agenda include discussion of a GOM proposal for global participation of developing nations in a green house gas (GHG) reduction regime. (Note: our proposal was based on U/S Loy's discussions during his early March trip to Mexico City, as reported in reftel. End note.) Samaniego appeared leery of the idea, and said that the GOM had tried before in Kyoto and Buenos Aires to propose a program in which developing countries would reduce their "business as usual" rate of increase in GHG emissions in exchange for incentives.

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3. Those experiences were not encouraging for the GOM. Samaniego told us that the EU and other delegations had been rough in their rejection of Mexico's overtures, and had even been rude to him personally. Samaniego was clearly personally offended by the treatment he had received, and is still "shell-shocked."

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SALT IN THE WOUND

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4. This may help explain the defensive attitude of SEMARNAP Secretary Carabias during her meeting March 4 with Global Affairs U/S Loy when he broached the subject of targets and suggested Mexico consider developing a plan for developing country participation in mitigation efforts. The inference from Samaniego's response is that Mexico had gone out on a limb and that the U.S. did not help, or help enough. Why then should the GOM risk another rejection? Better for the GOM to go ahead firmly with their own national action plan and leave evangelization of the "third-way" to some other country.

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GOM PLAN FOR GLOBAL PARTICIPATION

5. Interestingly, despite Carabias' cool reaction and Samaniego's aversion to the idea, the GOM proposed an outline for global participation in mitigation efforts at a Paris OECD meeting the week of March 8. Although it includes many contingencies, caveats, and standard north/south rhetoric, it is an idea on the table. It is noteworthy that Samaniego did not know of or did not mention the plan to us at our March 11 meeting. (Note: Post's views of the plan will follow septel.)

GOM to risk another multilateral rejection. End Summary.

PROPOSING A CLIMATE CHANGE CONTACT GROUP MEETING

2. During a March 11 discussion with Environment Secretariat (SEMARNAP) International Relations Director General Jose Luis Samaniego, we suggested that it would be a good idea to schedule a meeting of the Climate Change Contact Group. We proposed that the agenda include discussion of a GOM proposal for global participation of developing nations in a green house gas (GHG) reduction regime. (Note: our proposal was based on U/S Loy's discussions during his early March trip to Mexico City, as reported in reftel. End note.) Samaniego appeared leery of the idea, and said that the GOM had tried before in Kyoto and Buenos Aires to propose a program in which developing countries would reduce their "business as usual" rate of increase in GHG emissions in exchange for incentives.

COMMENT

6. It is difficult to evaluate the relationship between the almost simultaneous events of our discussion with Samaniego and the GOM's having put forward a global participation plan in Paris. It may be that Samaniego's views are mostly personal and the GOM remains willing to demonstrate leadership on this issue. Department officers involved in the multilateral negotiations may want to look for ways to constructively encourage the Mexicans to

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continue moving ahead on developing nation
participation.

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ENERGY FOR MMAZUR

USAID CNTR FOR ENV, OFFICE OF ERG, ENV, AND TECH

E.O. 12958: N/A

TAGS: SENV, ECON, PREL, MX

SUBJECT: CLIMATE CHANGE: MEXICO PLAN FOR GLOBAL PARTICIPATION

Reftel Mexico 02039

1. Summary: Earlier this month the GOM proposed a plan for global participation in green house gas mitigation efforts. It noted the lack of incentives for developing countries to take on mitigation targets, and warned of serious problems that could result from a stick and carrot approach to inducing voluntary commitments. Although complicated and thick with contingencies, caveats, and standard north/south rhetoric, the plan proposes that developing countries commitment to a process

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that eventually leads to a mitigation target.
End summary.

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GOM PLAN FOR GLOBAL PARTICIPATION

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2. The GOM put forward a plan for global participation in green house gas (GHG) mitigation efforts at an OECD meeting the week of March 8. The presentation pointed out the lack of incentives for developing countries to take on targets, and warned that a stick and carrot policy for inducing voluntary commitments might lead either to sincere commitments that limit required growth (a bad result) or insincere promises that stall needed action. Either scenario runs the risk of a break down in good will between developed and developing nations. The GOM plan proposes a process (the emphasis is on the word process) in which targets for developing countries might be the final stage.

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A COAT OF MANY COLORS

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3. The GOM plan is replete with contingencies and macroeconomic requirements that make the idea difficult to understand. Among them are: the requirement that Annex I countries act first and their success be assessed; the precondition that some economic stabilization of developing countries be achieved to facilitate accurate prediction of energy needs; and the contingency that developing countries be able to accurately measure GHG emissions. Once all of the plan's requirements have been met the GOM envisions a voluntary commitment period before developing countries would formally assume binding commitments.

-
WHAT IS FAIR?

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4. The Mexicans see equity requiring that no nation use global resources (in this case the ability of the atmosphere to absorb GHGs emissions without disrupting global climate) at a greater rate than any other. According to their outline, in the long run equity would demand that all nations have equal per capita GHG emissions. However, the GOM acknowledges that ad hoc differentiation in emissions rates based on technological capacity, socio-economic

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development, and other criteria would be necessary in the near term.

THE LEGAL FRAMEWORK

5. Perhaps the most interesting ideas in the plan concern the legal framework within which responsibilities are delineated. The GOM considers the U.N. Framework Convention on Climate Change (UNFCCC) as a fragile, but extant, instrument. (Note: The GOM in this proposal does not see the Kyoto Protocol as a likely framework.) The UNFCCC requires all countries to do their best to mitigate climate change, and the Mexicans stress that under the Convention no country can claim that it can do nothing. Differentiation under the UNFCCC is applicable to the degree of effort and timing that developed and developing countries undertake to mitigate their GHG emissions. Noteworthy in the GOM plan is the idea that the current binary differentiation (Annex I/Non-Annex I countries) must eventually give way to a three or four tiered differentiation, i.e., a "third way".

A VISION OF THE "THIRD WAY"

6. The following is an outline of the GOM's process in which, as a final stage, developing countries would commit to mitigation targets:

- o Recognition of the UNFCCC as the legal framework for global participation;
- o Establishment of incentives (i.e., participation in flexibility mechanisms) for developing countries;
- o Assessment of initial developed country mitigation efforts;
- o Definition of developing country targets (e.g., emissions per unit of economic output);
- o Development of national capabilities to inventory GHG emissions, identify trends in emissions, establish accurate base lines, and strengthening of institutional capacity to properly deal with emitting industries and sectors;

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- o Adoption of policies and programs to
- mitigate GHG emissions;
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- o Preliminary assessment of those policies and
- programs;
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- o Voluntary adoption of mitigation targets (a
- "dry run"); and
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- o Assumption of formal, binding commitments.
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THE MEDIUM IS THE MESSAGE

7. The GOM plan has structural ideas that could provide a basis for a "third way". First among them is the concept of participation in a process, rather than a single act (e.g., voluntary commitment to targets) as constituting meaningful participation in GHG mitigation. Following is the application of the UNFCCC to the process, thereby providing a global legal framework for participation. Realistically, the GOM plan would require developed countries to provide incentives (in the form of technical assistance, technology transfer, financing, and emissions trading) to induce developing country participation in the process. The notion that there needs to be shared commitments between developed and developing countries makes sense too: developed countries commit to assist developing countries meet their mitigation goals (e.g., provide country studies assistance to inventory GHG emissions).

COMMENT:

8. The GOM plan is difficult to interpret due to the wide variety and large number of contingencies included. But the plan may offer the USG an opportunity to explore a middle ground that moves the GOM towards a leadership role in promoting developing country participation in a global GHG mitigation system.

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<Tags>

TAGS: SENV, ECON, PREL, MX

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SUBJECT: U/S LOY DISCUSSES CLIMATE CHANGE WITH
- MEXICAN OFFICIALS

<Summary>

1. SUMMARY: DURING HIS MARCH 3-5 VISIT TO MEXICO CITY, U/S FRANK LOY CHALLENGED MEXICO TO TAKE A STRONGER LEADERSHIP ROLE ON GLOBAL CLIMATE CHANGE. IN HIS MEETINGS WITH ENERGY SECRETARY LUIS TELLEZ, PRESIDENTIAL ADVISOR CARLOS HURTADO AND FOREIGN SECRETARIAT (SRE)

UNDERSECRETARY JUAN REBOLLEDO, LOY STRESSED THE NEED FOR AN INTERNATIONAL FRAMEWORK TO ADDRESS GLOBAL CLIMATE CHANGE AND PRESSED THE GOM OFFICIALS TO TAKE ON MANDATORY TARGETS. WHILE HURTADO SAID HIS GOVERNMENT WAS DIVIDED ON THE SUBJECT OF TARGETS, REBOLLEDO AND TELLEZ EXPRESSED OPPOSITION TO MANDATORY REDUCTIONS OF

GREENHOUSE GASES (GHG). U/S LOY EMPHASIZED THE NEED FOR NON-ANNEX ONE NATIONS TO COMMIT TO MANDATORY TARGETS, ADDING THAT THESE NEED NOT BE ONEROUS. BOTH TELLEZ AND REBOLLEDO AFFIRMED THEIR COMMITMENT TO THE VOLUNTARY REDUCTION OF GHG'S BUT BALKED AT MANDATORY TARGETS. REBOLLEDO AND HURTADO, HOWEVER, LEFT OPEN THE POSSIBILITY OF FURTHER DISCUSSION. END SUMMARY MEETING WITH PRESIDENTIAL ADVISOR

2. ON MARCH 4 U/S LOY AND THE AMBASSADOR MET WITH PRESIDENTIAL ADVISOR CARLOS HURTADO. HURTADO SAID HE HAD NOT CLOSELY FOLLOWED THE CLIMATE CHANGE ISSUE RECENTLY, BUT NOTED THAT HE WAS GOING TO ATTEND THAT EVENING PRESIDENT ZEDILLO'S MEETING WITH HIS CABINET TO DISCUSS THE NATIONAL CLIMATE CHANGE ACTION PLAN DEVELOPED BY SEMARNAP (ENVIRONMENT) SECRETARY JULIA CARABIAS.

3. U/S LOY TOLD HURTADO THAT MEXICO AND THE U.S. AGREE ON THE SERIOUS COSTS AND PROBLEMS INVOLVED IN GLOBAL CLIMATE CHANGE. MEXICO IS DOING MUCH TO REDUCE GREENHOUSE GASSES, BUT IT IS ESSENTIAL THAT WE ESTABLISH A GLOBAL SYSTEM FOR ADDRESSING THE PROBLEM. THE U.S. HAS ADVOCATED DEVELOPING COUNTRIES TAKING ON TARGETS, BUT INVOLVEMENT IN THE SYSTEM IS MORE IMPORTANT THAN TARGETS PER SE. HURTADO RESPONDED THAT THE GOM IS "SCHIZOPHRENIC" ON CLIMATE CHANGE. THE SECRETARIAT OF FOREIGN RELATIONS, HE SAID, TENDS TO SEE THE DEVIL IN ANY AMERICAN PROPOSAL. THE COMMERCE AND FINANCE SECRETARIAT (SECOFI) DOES NOT LIKE THE IDEA OF MEXICO TAKING ON TARGETS. EVEN THE SEMARNAP, WHERE SOME ARE IN FAVOR OF MEXICO TAKING ON A TARGET, IS SPLIT ON THE ISSUE. HURTADO NOTED THAT PRESSURE FROM OTHER COUNTRIES IN THE OECD FOR MEXICO TO JOIN ANNEX I HAS HURT THE CAUSE. ZEDILLO THINKS IT IS IMPORTANT, AND HAS TALKED ABOUT IT WITH PRESIDENT CLINTON, VP GORE, THE GERMANS AND THE BRITISH.

4. U/S LOY STRESSED IT WAS IN THE INTEREST OF EACH OF THE THREE MAJOR GROUPS IN THE CLIMATE CHANGE NEGOTIATIONS--THE "UMBRELLA GROUP" (INCLUDING THE U.S., JAPAN, AND CANADA), THE EU, AND NON-ANNEX I COUNTRIES--TO ENSURE THAT THE OTHER TWO GROUPS ARE PART OF THE GLOBAL SYSTEM. WE NEED TO GET AWAY FROM THE

"EXPLOITER/EXPLOITED" MENTALITY, AND FROM THE IDEA THAT MAKING OUR OWN EFFORTS TO REDUCE GREENHOUSE GASSES IS SUFFICIENT. WE HAVE TO WORK TOGETHER TO ENSURE THAT THESE EFFORTS DO NOT HAMPER GROWTH, AND WE NEED TO WORK TOGETHER TO RESOLVE ISSUES SURROUNDING THE COMPLEXITY OF ESTABLISHING TARGETS. THE AMBASSADOR STRESSED OUR DESIRE THAT MEXICO TAKE A LEADERSHIP ROLE IN ESTABLISHING A GLOBAL SYSTEM TO DEAL WITH CLIMATE CHANGE. HURTADO SAID HE APPRECIATED BEING INFORMED OF OUR VIEWS, GIVEN ZEDILLO'S INTEREST IN THE SUBJECT.

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5. U/S LOY AND THE AMBASSADOR MET WITH ENERGY SECRETARY TELLEZ ON MARCH 5. TELLEZ BEGAN BY SAYING THAT HE HAD ATTENDED THE CABINET MEETING THE PREVIOUS EVENING, AND THAT ZEDILLO HAD APPROVED RELEASING THE PROPOSED NATIONAL CLIMATE CHANGE PROGRAM FOR COMMENT. HE SAID THE PROGRAM HAS VERY SPECIFIC MEASURES AND THAT THE VARIOUS MINISTRIES, LED BY SECRETARY CARABIAS, WILL BE CHARGED WITH ENSURING THAT THESE MEASURES ARE IMPLEMENTED.

6. TELLEZ ASSERTED THAT MEXICO'S DEMOGRAPHIC

STRUCTURE--MANY YOUNG PEOPLE WHO WILL REQUIRE JOBS--MEANS THAT THE GOM CANNOT TAKE ON A SPECIFIC TARGET. HE NOTED THAT CARABIAS HAD TOLD THE CABINET THAT MEXICO ACCOUNTS FOR A VERY SMALL AMOUNT--1.42 PERCENT--OF GLOBAL GREENHOUSE GAS EMISSIONS, MAKING MEXICO A MINOR PLAYER. THAT SAID THE GOM IS COMMITTED TO REDUCING EMISSIONS, AND HIS MINISTRY WILL BE A MAJOR PLAYER IN THE CLIMATE CHANGE ACTION PLAN. TELLEZ LISTED THE FOLLOWING PLANS IN THE ENERGY SECTOR:

-- THERE WILL BE A MAJOR EFFORT TO GASIFY AND TO INCREASE SUPPLY OF NATURAL GAS TO END-USERS. HE CITED PLANS FOR HEAVY INVESTMENT THROUGH PEMEX IN NORTHERN MEXICO TO KEEP PACE WITH DEMAND FOR NATURAL GAS.

-- THE ELECTRICITY SECTOR PRIVATIZATION INCLUDES PLANS FOR CONVERTING PLANTS TO NATURAL GAS BUT PRIVATIZATION IS NOT A POLITICAL WINNER. THE PRI AND PAN SEEM TO BE GOING ALONG, BUT THEY ARE TAKING A BEATING IN THE PRESS. THE ELECTRICIANS UNION IS CAUSING PROBLEMS (HE ASSERTED THAT THE GOM IS PAYING ABOUT \$1 BILLION PER YEAR IN SUBSIDIES TO THE UNION).

-- PEMEX IS PLANNING TO IMPROVE THE QUALITY OF GASOLINE. TWO PLANTS ARE ALREADY BEING REVAMPED AND THE GOM IS SEEKING BIDS FOR UPGRADING PLANTS IN TULA AND SALAMANCA.

-- PEMEX IS ALREADY WORKING TO REDUCE THE AMOUNT OF NATURAL GAS BURNED OFF IN THE REFINING PROCESS. BY 2001, MEXICO WILL RECOVER ALL NATURAL GAS FROM ITS REFINERIES.

7. TELLEZ STRESSED THAT ZEDILLO'S POSITION IS THAT MEXICO IS COMMITTED TO REDUCING GREENHOUSE GAS EMISSIONS. AFTER CONSULTATIONS ON THE PLAN ARE COMPLETED, MEXICO WILL SHOW THE WORLD--INCLUDING THE U.S. CONGRESS--WHAT IT PLANS TO DO. WHAT MEXICO CANNOT DO, TELLEZ REITERATED, IS TAKE ON A SPECIFIC TARGET. GIVEN THE NEED FOR GROWTH AND MEXICO'S SMALL PERCENTAGE OF GLOBAL EMISSIONS, EVERY CABINET MEMBER WAS OPPOSED TO ESTABLISHING A TARGET WITHIN THE UNCLAS SECTION 03 OF 04 MEXICO 002986

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3. U/S LOY SAID HE HOPED THE GOM WOULD REVISIT THAT POLICY. HE NOTED THAT THE TARGET CAN BE A GROWTH NUMBER--ONE WHICH REDUCES EMISSIONS FROM A "BUSINESS-AS-USUAL" LEVEL--BUT THE NEED FOR A GLOBAL ARCHITECTURE IS PARAMOUNT. WE WILL ALL BE HURT, HE SAID, IF LARGE EMITTERS ARE NOT BROUGHT INTO A GLOBAL SYSTEM. LOY ADDED THAT IF IMPLEMENTED, THE GLOBAL SYSTEM WILL INCLUDE EMISSIONS TRADING THAT SHOULD ENCOURAGE INVESTMENT IN CARBON SINKS--A PROSPECT THAT SHOULD BE ATTRACTIVE TO MEXICO GIVEN ITS INTEREST IN PROMOTING REFORESTATION.

9. TELLEZ CONCLUDED BY SAYING IT HIS PERSONAL POSITION IS THAT IT WOULD BE DIFFICULT FOR MEXICO TO TAKE ON A TARGET. AS AN ECONOMIST, HE BELIEVES THE PRIMARY DIFFICULTY LIES IN ACCURATELY PREDICTING MEXICO'S GROWTH CURVE, AND THUS SETTING A REASONABLE TARGET. NONETHELESS, HE SAID HE UNDERSTOOD THE U.S. POSITION AND WOULD TAKE IT UP WITH CARABIAS. FOREIGN SECRETARIAT: VOLUNTARY REDUCTIONS

10. THE TONE FOR LATER MEETINGS WITH JULIA CARABIAS OF SEMARNAP (SEPTTEL) AND HURTADO AND TELLEZ ABOVE WAS SET DURING U/S LOY'S MARCH 4 MEETING WITH U/S OF FOREIGN RELATIONS JUAN REBOLLEDO. U/S LOY LAMENTED THAT THE WORLD IS STUCK IN ITS EFFORTS TO PROMOTE AN INTERNATIONAL CLIMATE REGIME. THE U.S. CANNOT ACT WITHOUT A GLOBAL SOLUTION, AND KEY COUNTRIES LIKE MEXICO ARE SAYING THAT THE U.S. MUST START IMPLEMENTING COMMITMENTS BEFORE THEY WILL CONSIDER IT. THE APPROACH OF "YOU GO FIRST, US SECOND" IS DEATH TO THE SYSTEM. BECAUSE MEXICO IS A LEADER, ITS POSITION IS TROUBLING. REBOLLEDO AGREED FULLY WITH THE PROPOSITIONS THAT THERE CAN BE NO SOLUTION

WITHOUT GLOBAL ACTION, AND THAT ACTION IS NEEDED TO BREAK THE CATCH-22. THE QUESTION IS, "WHAT SORT OF ACTION" IS NEEDED.

11. REBOLLEDO EMPHASIZED THAT MEXICO IS TAKING ON SPECIFIC COMMITMENTS THROUGH ITS NATIONAL ACTION PLAN, WHICH WILL BE FINALIZED IN A FEW MONTHS. U/S LOY INDICATED THE US IS CONFIDENT MEXICO IS IMPLEMENTING ITS OBLIGATIONS UNDER KYOTO IN A SERIOUS AND EFFECTIVE WAY BUT THE PROBLEM IS NOT MEXICO AS MEXICO, BUT MEXICO AS A LEADER, E.G., AS AN INFLUENTIAL OBSERVER IN THE G-77. THE RESPONSE OF "YOU CREATED THE PROBLEM, YOU FIX IT," IS A RECIPE FOR INACTION. WE ARE HOPING FOR A BREAKTHROUGH. THE CONCEPT OF TARGETS AND RESPONSIBILITIES CAN CERTAINLY BE DIFFERENTIATED BASED ON A COUNTRY'S ECONOMIC NEEDS. REBOLLEDO OFFERED THAT MEXICO HOPES TO PLAY A CONSTRUCTIVE ROLE, ITS COMMITMENT IS FIRM, BUT INSISTED THAT MEXICO WANTS TO SEE PROGRESS IN DEVELOPING AN INTERNATIONAL TRADING SYSTEM FOR EMISSIONS AND CARBON SEQUESTRATION

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COMMENT

12. DESPITE U/S LOY'S VIGOROUS ADVOCACY, THE

GOM OFFICIALS HELD THE LINE AGAINST MANDATORY TARGETS, APPARENTLY REFLECTING A GOVERNMENT-WIDE CONSENSUS. THE NATIONAL CLIMATE ACTION PLAN, WHICH WAS PRESENTED TO THE CABINET DURING THE VISIT, CAME ABOUT AFTER A LONG, TOUGH BATTLE BETWEEN ADVOCATES IN SEMARNAP AND POLITICALLY POWERFUL OPPOSITION IN COMMERCIAL AND ENERGY SECTORS. OUR ALLIES ON CLIMATE CHANGE WITHIN THE GOM HAVE SPENT MUCH OF THEIR POLITICAL CAPITAL. BEFORE IT CAN EMBRACE A STRONGER COMMITMENT TO AN INTERNATIONAL FRAMEWORK, THE GOM MUST FIRST: A) PUT CLIMATE CHANGE ON THE NATIONAL AGENDA, THROUGH PUBLIC CONSULTATION ON THE PLAN AND, B) BEGIN TO IMPLEMENT THE PLAN, WITH COOPERATIVE ASSISTANCE FROM USG WHEREVER POSSIBLE.

13. (COMMENT CONT.) NEVERTHELESS, UNDER SECRETARY REBOLLEDO'S INDICATION THAT MEXICO HOPES TO PLAY A CONSTRUCTIVE ROLE AS WELL AS HURTADO'S CHARACTERIZATION OF ZEDILLO'S INTEREST ARE TWO INTERESTING DEVELOPMENTS. THERE HAS BEEN A GRADUAL SHIFT OF AWARENESS WITHIN GOM ABOUT THE IMPORTANCE OF CLIMATE CHANGE. REBOLLEDO'S RECOGNITION THAT "PROGRESS ON ESTABLISHING FLEXIBILITY AND EMISSIONS TRADING MECHANISMS ARE IMPORTANT FOR MEXICO" HOLDS PROMISE FOR FUTURE DISCUSSION.

14. THIS CABLE WAS CLEARED BY UNDER SECRETARY LOY.

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United States Department of Energy and Mexican Secretariat of Energy Agreement for Energy Cooperation

Background

During the bilateral energy meeting held in May of 1994 between the Department and the Mexican Secretariat (the Ministry of Energy, Mines and State Industries) it was decided to develop a more formal arrangement on regulatory reform matters, and for cooperation in energy efficiency and renewable energy. The Department received authority from the Department of State to negotiate an agreement for energy cooperation in October of 1994. A draft agreement was sent to Mexican Secretariat of Energy in October 1994. For a number of reasons, including the translation of Mexican comments used by DOE was of poor quality, delays occurred during negotiations.

In April of 1995, then Deputy Secretary White and the Mexican Ministry of Energy Under Secretary Navarrete signed a statement of intent which emphasized the mutual desire to complete development of a written arrangement for cooperative energy related activities. In May of 1996, at the first energy working group meeting of the US/Mexico Binational Commission, the agreement in energy cooperation was signed by then Deputy Secretary Charles Curtis and Mexican Secretariat of Energy.

Current Activities

The objectives of the agreement are to conduct collaborative activities in the fields of research, development and commercialization, to promote improved use of renewable energy and energy efficiency and fossil energy exchange, to develop, and analyze energy strategies and regulatory criteria, and to encourage the promotion of energy trade opportunities. Three annexes in specific technology areas have been concluded.

Annex 1- Cooperation in the Field of Renewable Energy

Signed during the 1998 US/Mexico Binational Committee (BNC) closing plenary, this annex's objective is to promote the appropriate and sustainable use of renewable energy technologies. The impetus of the annex was to create a mechanism to expand existing collaboration between US and Mexico in the area of renewable energy. Sandia National Laboratories, complementing their role as coordinator of the DOE/USAID- Mexico renewable energy program, and National Commission for Energy Savings (CONAE) have been developing projects under this annex. Proposed actions include: joint projects in energy systems; assessment of alternative renewable energy resources; training in renewable technologies; and development of programs to encourage the use of renewable energy by the public and private sector.

Annex 2 - Cooperation in the Field of Energy Efficiency

This annex was also signed during the 1998 BNC. The objective is to promote the development, deployment and use of energy efficient technologies. Recognizing the wide range of existing

programs between agencies in both countries, this annex aims for participation in activities from USAID and EPA in addition to the Department.

Annex 3 - Environmental Cooperation in the Field of Hydrocarbons

This annex was signed by Secretary Richardson on October 21, 1998. In coordination with the Office of Environmental Management, the Oak Ridge Operations Office and the Hazardous Waste Remedial Actions Program (HAZWRAP) are seeking to work the Mexican Petroleum Institute (IMP) to address the technology needs for environmental characterization and remediation of PEMEX contaminated sites. IMP and HAZWRAP are finalizing a "work-for-others" arrangement under which much of the program will be conducted.

prepared by Patricia Breed, PO-82, 4/9/99



MEXICO/US EERE Areas of Cooperation

- Renewable Energy
- Energy Efficiency
- Information/Technical Exchange
- Financing Activities
- Joint Implementation/CDM



MEXICO/US

Renewable Energy Goals

- To institutionalize the use of renewable energy through project implementation process
- To strengthen the supply and maintenance infrastructure necessary for sustainable projects and to build the foundation for their replication
- To increase the sustainable use of renewable energy technologies in partnership with Mexican industry
- To increase the use of renewable energy technologies as a mechanism for combating global climate change, especially greenhouse gas emissions



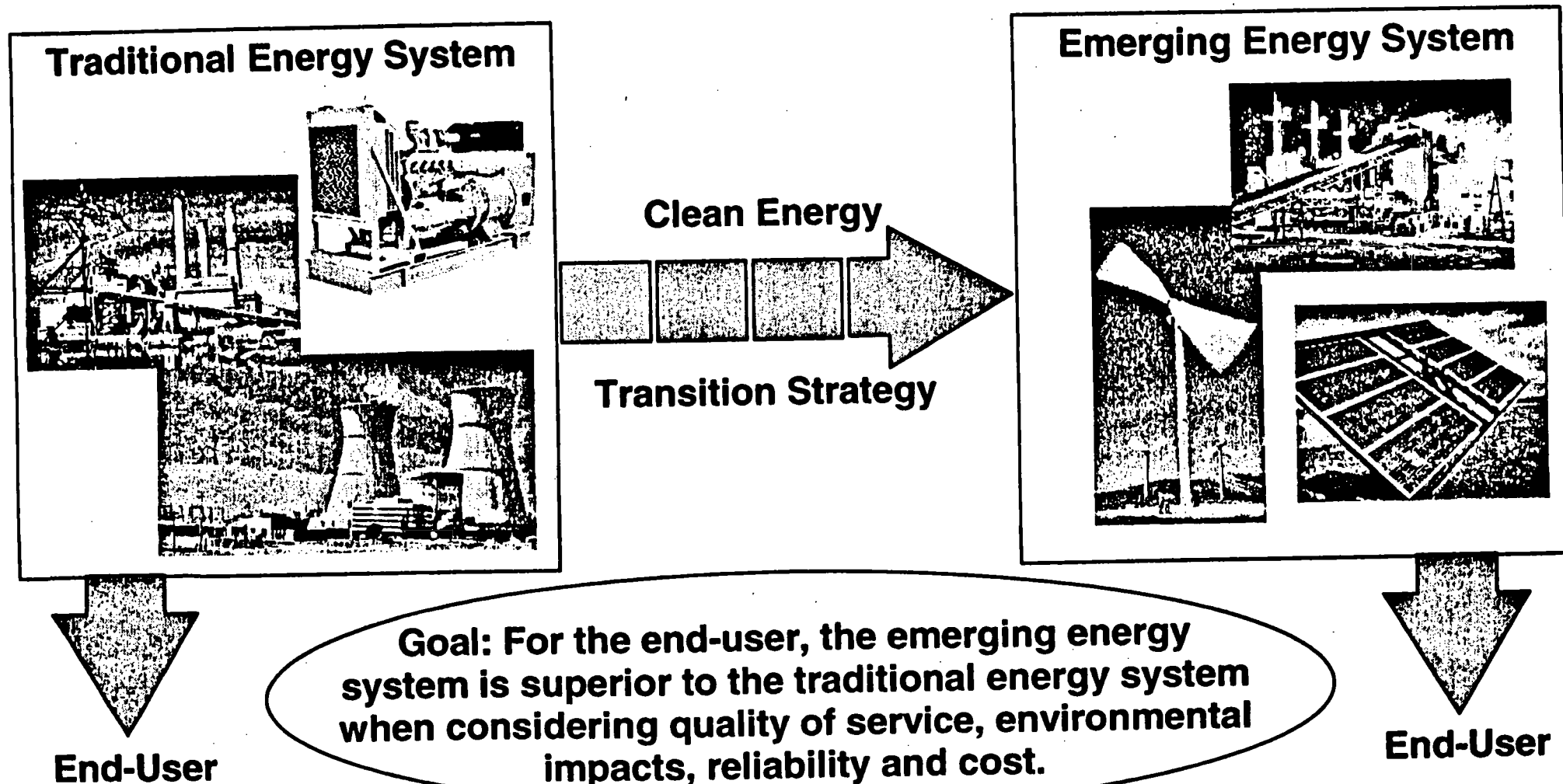
MEXICO/US

Renewable Energy Activities

- **Signed Project Annex 1 on Cooperation in the Field of Renewable Energy**
- **DOE/USAID program that works with established Mexican organizations and provides training and technical assistance in technologies, applications and project implementation**
- **Other cross-cutting activities that include solar and wind resource assessment; technical and economic analyses; project monitoring and evaluation; and environmental assessments**



MEXICO/US Renewable Energy Transition





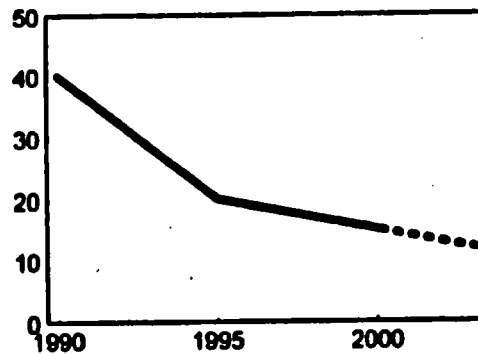
MEXICO/US

Renewable Energy Costs

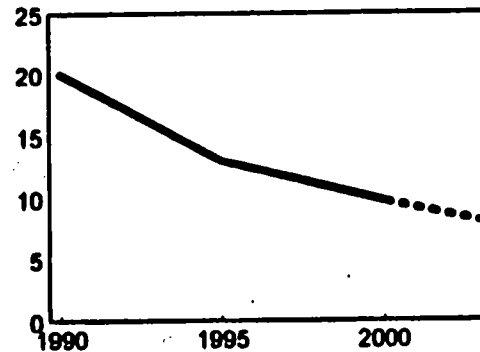
Cost of Electricity

(levelized cents/kWh in constant 1995\$)

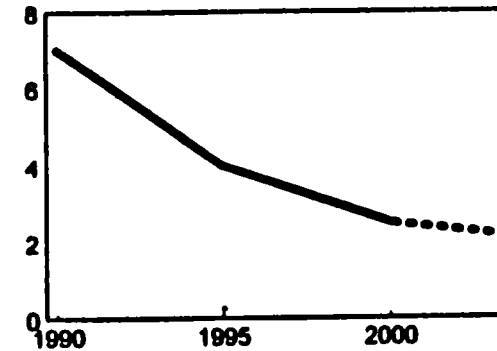
Photovoltaics



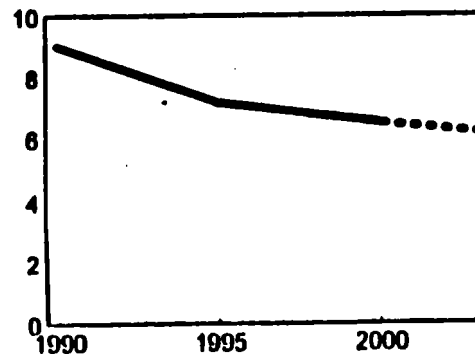
Solar Thermal



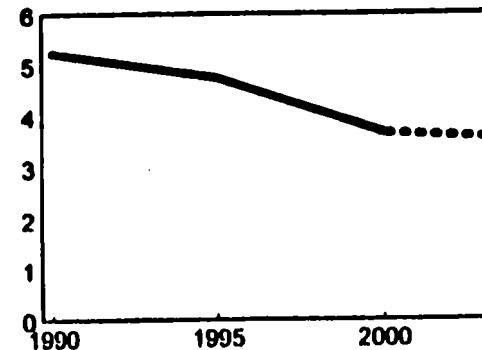
Wind



Biomass



Geothermal

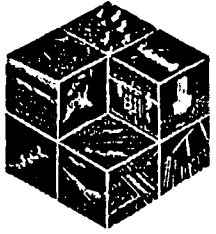




MEXICO/US

Energy Efficiency Goals

- To increase the sustainable use of energy efficiency technologies in partnership with Mexican industry
- To promote energy activities that support Global Climate Change by reducing greenhouse gas emissions from energy production and use
- To promote energy activities that support pollution reduction by supporting activities that increase clean energy usage in Mexico



MEXICO/US

Energy Efficiency Activities

- Signed Project Annex 2 on Cooperation in the Field of Energy Efficiency
- DOE and other US Government Institutions are collaborating with Industry through the Committee on Energy Efficiency Commerce and Trade (COEECT) to provide Mexico with energy Efficiency technology and know how



MEXICO/US

Energy Efficiency -Annex 2

- Collaboration in the design and development of government programs, aimed at voluntary participation of the private sector
- Collaboration in the design and development of programs for government procurement of energy efficiency technologies
- Collaboration in the development, implementation and harmonization of test procedures for appliances, motors and other equipment
- Collaboration in the training in energy efficiency technologies and delivery mechanisms
- Collaboration in the benchmarking of energy efficiency in energy intensive industrial sectors and buildings



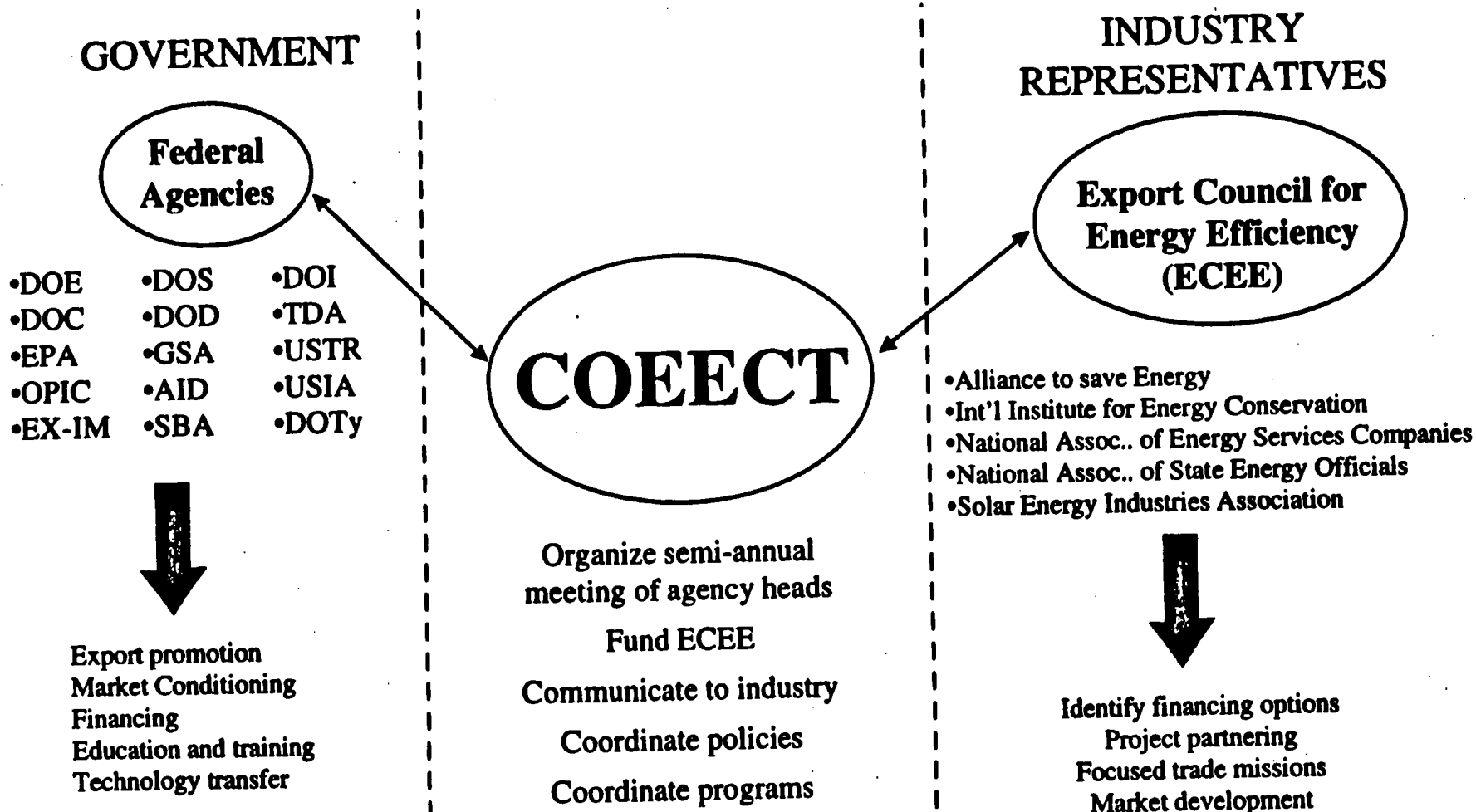
MEXICO/US (cont)

Energy Efficiency -Annex 2

- Cooperation in the development of financing packages for energy efficiency projects
- Cooperation in the development of energy services companies and the promotion of their activities
- Cooperation in the development of web sites, seminars and work shops, and sharing of information on energy efficiency
- Collaboration in the development of monitoring, evaluation and verification of energy efficiency projects and programs
- Collaboration in promoting energy efficiency in the U.S./Mexico border region



MEXICO/US COEECT Coordination



DOE (202) 586-1491

ECEE (202) 371-2779

MEXICO / US

Energy Efficiency Partnership Opportunities

Electric Motors - Pilot EE Programs; FIDE and Hagler-Bailly

Appliance Standards – Pilot program and joint conferences
CONAE, IIE, FIDE and others with LBNL

Building Standards – Pilot program and joint conferences
CONAE, IIE, FIDE and others with LBNL

Steam Generation – Pilot Steam Generation & Distribution Project; CONAE
and Hagler-Bailly

ESCO – Finance Project
Empresas ESM and EEAF

Lighting Efficiency – Residential Lighting Project
FIDE – Hagler-Bailly

Sustainable Cities – Monterey Pilot

MEXICO / US

Renewable Energy Efficiency Partnership Opportunities

Bioenergy – Bi-lateral Joint Implementation projects (UNFCCC AIJ pilot)

Photovoltaic – CONAE (COFER) Projects with SNL/NREL

Wind – CONAE/NREL Wind Mapping

Hybrid Systems – CFE/San Juanico Project with NREL, SNL

Off-Grid Application – FIRCO Agricultural Water Pumping with SNL



ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY

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MEMORANDUM

February 23, 1999

TO: USAID/G/ENV/EET Staff

FROM: Stephen Wiel 

SUBJECT: Bilateral Agreement for Energy Cooperation between the Department of Energy of the United States of America and the Secretariat of Energy of the United Mexican States — Activities under Project Annex 2 (Cooperation in the Field of Energy Efficiency)

On June 10, 1998 Secretary Pena and Secretary Tellez signed the Project Annex 2 on Cooperation in the Field of Energy Efficiency under the Bilateral Agreement for Energy Cooperation between the Department of Energy of the United States of America and the Secretariat of Energy of the United Mexican States. (A copy of the Annex is provided in Attachment A.)

USAID and EPA, while not signatories to the Bilateral Agreement, are already participants, with DOE, in activities covered by it. (The U.S. Mexico Technical Energy Consultations conducted under the agreement include broad participation of other agencies from both countries.) Under the new Annex, USAID and EPA implicitly join DOE as partners in its execution. The Export Council for Energy Efficiency (ECEE), in its role as a coordinator of the COEECT program, also becomes involved. COEECT currently finds activities in five organizations: ASE, IIEC, NAESCO, NASEO and SEIA, four of which are potentially involved in the new Annex.

This Annex was an outgrowth of ongoing efforts under the Bilateral Agreement. The purpose of Annex 2 is to:

- (a) help CONAE coordinate partnerships with Mexico agencies;
- (b) link DOE, USAID, and EPA together as funding partners;
- (c) link LBNL, ASE, IIEC, NASEO, NAESCO, IIE, and ICF together as technical support providers; and

(d) build on the following activities that were already under way when the Annex was signed.

1. CONAE had been defining projects for possible U.S. funding support. In December 1997, CONAE sent a delegation of three people to the U.S. for two days to explore avenues of worthwhile collaboration. At a meeting in Washington DC in February 1998, CONAE presented to USAID/Mexico suggestions for support to CONAE for energy efficiency projects with LBNL. In March 1998, CONAE sent a delegation of five people to DC for a week to explore avenues of further worthwhile collaboration, mostly with EPA.
2. Hagler Bailly had been providing extensive technical assistance to several agencies in Mexico since 1992 under the sponsorship of USAID.
3. For several years, LBNL had been providing support for CONAE's development of appliance and building energy performance standards under the sponsorship of USAID.
4. In April 1998, LBNL had conducted a weeklong DSM training workshop for 38 CFE employees (and twelve people from three other Mexican agencies) in Torreon, Mexico under funding support to CONAE from DOE.
5. The Alliance to Save Energy had participated in the Monterrey Sustainable Cities Program in 1995 and since then had held ten educational energy efficiency seminars and trade missions in cooperation with CONAE and FIDE under the sponsorship of DOE's COEECT program. ASE's COEECT activities in FY 99 were intended to continue this effort at some level.
6. IIEC had provided support to CONAE under sponsorship of USAID, DOE's COEECT program, EPA, and private foundations and was looking to continue such efforts.
7. Some NASEO state members had collaborative projects ongoing in Mexico, and NASEO had expressed an interest in devoting COEECT funds to projects in Mexico.
8. ICF Kaiser had recently completed a project with CONAE identifying opportunities for voluntary government programs in Mexico under the sponsorship of EPA.
9. IIE had been conducting training in energy efficiency in Mexico and for Mexicans in the U.S. since 1993 under sponsorship of USAID.

Since Annex 2 was signed, the technical support providers identified above and others have been sharing information about the projects they have recently completed, have underway, or plan/hope to conduct in the near future in Mexico. (A list of those people directly involved and some people having peripheral interest in the activity is provided as Attachment B.) The technical support providers have prepared a spreadsheet listing the various activities that they believe qualify under the Annex. (The spreadsheet is provided here as Attachment

C.) The technical support providers have also prepared one-page summaries of each project. (These summaries are provided here as Attachment D.)

DOE has the lead responsibility for coordinating the Activities under the Bilateral Agreement. I have been helping DOE coordinate the energy efficiency activities that fall under Annex 2 by preparing Attachments B-D and otherwise facilitating communications among the participants. USAID has funded this support. This effort mirrors the activity under Project Annex 1 of the Bilateral Agreement on Cooperation in the Field of Renewable Energy, in which Charlie Hanley is supported by USAID to provide similar coordination services.

PROJECT ANNEX 2

COOPERATION IN THE FIELD OF ENERGY EFFICIENCY

The Department of Energy of the United States of America (DOE) and the Secretariat of Energy of the United Mexican States (SE), hereinafter referred to as "the Parties";

TAKING INTO ACCOUNT the provisions of the Agreement between the Department of Energy of the United States of America and the Secretariat of Energy of the United Mexican States for Energy Cooperation to facilitate the development, application, and sustainable and improved use of renewable energy and energy efficiency technologies and fossil energy technologies signed on May 7, 1996, hereinafter referred to as "the Agreement";

RECOGNIZING the contribution of energy efficiency technologies and programs that promote their use to enhance environmental protection, energy security, and expand opportunities for international trade; and

MINDFUL that they will mutually benefit by working together to accelerate the development and use of energy efficiency technologies, in accordance with Article 5 of the Agreement;

Have agreed as follows:

ARTICLE 1

OBJECTIVES

The objectives of this Annex are to promote the deployment and use of energy efficiency technologies in Mexico with the support of the U.S. energy efficiency industry and to demonstrate the technical and economic feasibility of energy efficiency technologies to the Mexican citizens.

ARTICLE 2

SCOPE

The Parties agree that the scope for cooperation may include, but is not limited to, developing and implementation of projects relating to:

1. Collaboration in the design and development of government programs, aimed at the voluntary participation of the private sector, to promote the use of energy efficiency technologies.
2. Collaboration in the design and development of programs for government procurement programs that promote the use of energy efficiency technologies.
3. Collaboration in the development, implementation and harmonization of test procedures for appliances, motors and other equipment; sharing of lessons learned in regard to establishing labels and energy efficiency standards for those products; sharing of lessons learned in the development and implementation of building energy-codes; and investigation into the possibility of harmonizing energy efficiency standards and building codes with consideration given to internationally developed building energy codes such as the International Code Council.
4. Collaboration in the training in energy efficiency technologies and delivery mechanisms of researchers, engineers, architects, builders, managers, and technicians in the government, academic, manufacturing, utility and construction sectors.
5. Collaboration in the benchmarking of energy efficiency in energy intensive industrial sectors and buildings.
6. Cooperation in the development of energy services companies and the promotion of their activities.
7. Cooperation in the development of financing packages for energy efficiency projects.
8. Cooperation in the development of web sites, conduct of seminars and workshops, and sharing of information in all formats on all aspects of development of energy efficient technologies, design of energy efficiency policies, transformation of markets toward greater energy efficiency, and promotion of energy efficiency in general.
9. Collaboration in the development of monitoring, evaluation and verification of energy efficiency projects and programs.

10. Collaboration in promoting energy efficiency in the U.S./Mexico border region.

ARTICLE 3

MANAGEMENT

The collaboration under this Annex will be managed by the Principal Coordinators pursuant to Article 4 of the Agreement and will be subject to the provisions of the Agreement. The United States Agency for International Development (USAID), the United States Environmental Protection Agency (USEPA), the Comisión Nacional para el Ahorro de Energía (CONAE) and Instituto de Investigaciones Eléctricas (IIE) will participate and (or) lead cooperative activities under this Annex. The participation of these organizations will be coordinated with the Principal Coordinators pursuant to Article 4 of the Agreement and will be subject to the provisions of the Agreement. These participating organizations may name technical representatives, as appropriate, to coordinate and implement specific projects under this Annex.

Technical representatives will report the progress of activities as necessary to the Principal Coordinators. A detailed work plan will be developed for each specific project. Workplans will include schedules, cost estimates, cost sharing, personnel assignments, access to facilities, use and exchange of equipment, and other matters as required by the specific nature of the project.

ARTICLE 4

INTELLECTUAL PROPERTY, CONFIDENTIAL INFORMATION AND BUSINESS-CONFIDENTIAL INFORMATION

Protection and allocation of intellectual property is subject to the Agreement Annex on Intellectual Property. Provisions for the treatment of confidential and business-confidential information are set forth in Article 6 of the Agreement.

Any scientific and technical information transmitted by one Party to another Party under this Annex shall be accurate to the best knowledge and belief of the transmitting Party, but the transmitting Party does not warrant the suitability of the scientific and technological information transmitted for any particular use or application by the receiving Party or any third party.

GENERAL

Except when otherwise agreed in writing, all costs resulting from cooperation under this Annex will be borne by the Party that incurs them. It is understood that the ability of each Party and the other participating organizations to carry out their obligations under this Annex is subject to the availability of appropriated funds and personnel and to the respective applicable laws and regulations of the countries of the Parties.

ARTICLE 6

ENTRY INTO FORCE AND TERMINATION

This Annex shall enter into force upon signature and shall remain in force for three years, unless the Agreement is terminated.

This Annex may be amended or extended by mutual consent of the Parties. Such amendments shall be in writing and shall specify the date on which they enter into force.

This Annex may be terminated at any time by either Party upon six months written notice to the other Party.

Signed in duplicate, at Washington, this 10th day of June 1998, in the English and Spanish languages.

FOR THE DEPARTMENT OF
ENERGY OF THE
UNITED STATES OF AMERICA:



FEDERICO PEÑA
SECRETARY OF ENERGY

FOR THE SECRETARIAT OF ENERGY
OF THE
UNITED MEXICAN STATES:



LUIS TELLEZ KUENZLER
SECRETARY OF ENERGY

MEXICO / US BILATERAL AGREEMENT ROSTER

Rev. 2/18/99

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	Kathy Deutsch	(202) 586-6163	(202) 586-6148	kathleen.deutsch@hq.doe.gov
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	Patty Breed	(202) 586-2510	(202) 586-1180	particia.breed@hq.doe.gov
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USAID/ENV	Jeff Seabright	(202) 712-1750	(202) 216-3230	jseabright@usaid.gov
	Carl Duisberg	(202) 712-1733	(202) 216-3230	cduisberg@usaid.gov
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EPA/OWHBA	Patricia Coshel	(202) 564-6411		
	Sarah Sowell	(202) 564-0145		sarah.sowell@epa.gov
EPA/APPD	Tracy Narel	(202) 564-9145	(202) 233-9578	narel.tracy@epa.gov
EPA/CPDP	Jane Leggett	(202) 260-8634		
ECEE	Laura Gubisch	(202) 371-2779	(202) 842-1565	laura@ecee.org
ASE	Joe Loper	(202) 857-0666	(202) 331-9588	jloper@ase.org
IIEC	Kelly Gordon	(202) 842-3388 x508	(202) 842-1565	kopheim@iiec.org
NAESCO	Terry Singer	(202) 822-0950	(202) 822-0955	tes@dwmpdc.com
NASEO	David Terry	(703) 299-8800	(703) 299-6208	dsterry@erols.com
SELA				
CONAE	Odon de Buen	525-448-6310	525-448-6328	conaest@rtm.net.mx
EEAF	Mary Ann Olger	(703) 522-5928		eeaf@igc.opc.org
EEC	John Mizrok	(202) 466-6933		
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CEC	Tim Olson	(514) 350-4300		
HAGLER BAILLY	Mark Oven	(703) 351-0300 x362	(703) 351-0360	moven@habaco.com
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IIE	Ahmad Ghamarian	(202) 326-7706, x7796		
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?	Savitha Pathi	(202) 260-6923		
PETE	Paul Dickinson	(925) 225-0669	(925) 225-0679	natipete@worldnet.att.net
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TEXAS LAND OFFICE	Soll Sussman	512-463-5039	512-463-5233	soll.sussman@glo.state.tx.us

US/Mexico Bilateral Commission - Energy Efficiency Project Summary List

ARTICLE 2 ITEM #	PROJECT TITLE	IMPLEMENTING INSTITUTION	PROJECT CONTACT	MEXICAN PARTNERS/ CLIENTS	DATES OF ACTIVITY	FUNDING LEVEL
US AID SPONSORED PROJECT ACTIVITIES						
5,8	Pilot Project to Substitute High Efficiency Electric Motors	Hagler-Bailly	Mark Oven	FIDE	1993 -1997	\$700,000
5,4	Energy Efficiency Motor Rewind Project	Hagler-Bailly	Mark Oven	FIDE	1996 -1998	\$150,000
9	Energy Savings Persistence & End-Use Saturation Survey	Hagler-Bailly	Mark Oven	FIDE	1997 -1998	\$50,000
3	Energy Efficient Appliance and Building Standards	LBNL	Steve Wiel	CONAE, IIE, FIDE, CFE, FECIC	1993 -	\$200,000
4	ATPAE Conference Support	Hagler-Bailly	Mark Oven	ATPAE	1994 -1998	\$30,000/year
7,8	CONAE Energy Efficiency Financing Support	Hagler-Bailly	Mark Oven	CONAE	1997 -1998	\$40,000
5,8	Sustainable Cities Initiative in Monterrey	Hagler-Bailly	Mark Oven			\$200,000
1,2,4	Mexico Public Sector Energy Efficiency Project	Hagler Bailly, CEC, NASEO	David Terry			
4	The Mexico-U.S. Energy Training Partnership (MUSETP)	IIE	Richard Krasnow	various	1993 - 1997	\$1,500,000
3,4,8	Energy Efficiency in Steam Generation and Distribution Systems Pilot Project	Hagler-Bailly	Mark Oven	CONAE	1995 - 1998	\$600,000
5,6,8	Targeted Technical Assistance Support to FIDE	Hagler-Bailly	Mark Oven	FIDE	1998	\$100,000
1,3,5,8	Electronic Methodologies for Energy Efficiency Analysis	Hagler-Bailly	Mark Oven	FIDE	1998	\$160,000
3,8	Residential Lighting Program Evaluation Support	Hagler-Bailly	Mark Oven	FIDE	1998 - 1999	\$150,000
3,5	Audit Implementation Support	Hagler-Bailly	Mark Oven	IPA	1998	\$50,000
7,8	Municipal Energy Efficiency Potential	Hagler-Bailly	Mark Oven	CONAE	1998	\$50,000
5	Energy Efficiency Component of Cleaner Production Audits	Hagler-Bailly	Mark Oven	CMPL	1998	\$40,000
6	Performance Contract Financing	EEAF	Mary Ann Alger	Empresas ESM	1998-2003	\$120,000
6	ESCO Installation Financing	EEAF	Mary Ann Alger		1998-2004	\$150,000
US EPA SPONSORED PROJECT ACTIVITIES						
1,8	CONAE/EPA Voluntary Program Information Exchange	ICF Kaiser	Dave Antonioli	CONAE	1997-1998	\$110,000
1,8	Technology Transfer and Capacity Building	TNRCC	Pierre Lichaa	SEMARNAP, INE, PROFEPA	1996-1998	\$107,000
1,8	Texas/Mexico Border Pollution Prevention Initiative	TNRCC	Pierre Lichaa	SEMARNAP, INE, PROFEPA	1998-2000	\$190,000
US DOE SPONSORED PROJECT ACTIVITIES						
1,4	Trade and Investment Program*	ASE	Joe Loper	various	1998 - 1999	\$50,000
8	US / Mexico Border Energy Forum	Texas General Land Office	Soll Sussman	various	1994-	\$15,000/year

Project Title: Pilot Project to Substitute High Efficiency Electric Motors

Applicable Annex Article 2 Item Number(s): 5, 8

Sponsor: USAID/G/ENV/EET

Implementing Institution: Hagler-Bailly

Contact Person: Mark Oven (703-351-0300)

Approximate Project Funding Level: \$700,000

Starting Year and Ending Year (or Proposed Starting Year): 1993-1997

Mexican Partners or Clients: Fideicomiso de Apoyo al Programa de Ahorro del Sector Electrico (FIDE)

Short Paragraph Describing the Work:

This pilot program collaboration between USAID and FIDE focused on substituting high efficiency electric motors for standard motors. This program, covering 20 medium sized industries, was developed as the first industrial demand side management project in Mexico. Through the program, local consultants carried out motors systems audits in industry. Motor manufacturers and distributors signed on to participate in the program as trade allies. Fide worked to secure favorable financing for the implementation of the energy efficient options identified in the audits. Promotional efforts led by the program's Mexican partners make available current information about the advantages of replacing standard motors with energy efficient motors. The program developed a methodology for motor evaluation now used in audits throughout Mexico. In addition, case studies were developed and disseminated to demonstrate the economic advantages of energy efficient motors to new industries. The ultimate objective of the pilot project, to design a large-scale national motors program, was fulfilled in early 1998 when FIDE, CFE and IDB agreed to fund a \$46.8 million DSM program based on incentives, market transformation and ESCO promotion activities. Rebates for high efficiency motors are one of the key elements of this program.

Project Title: Energy Efficiency Motor Rewind Project

Applicable Annex Article 2 Item Number(s): 5, 4

Sponsor: USAID/G/ENV/EET

Implementing Institution: Hagler-Bailly

Contact Person: Mark Oven (703-351-0300)

Approximate Project Funding Level: \$150,000

Starting Year and Ending Year (or Proposed Starting Year): 1996-1998

Mexican Partners or Clients: Fideicomiso de Apoyo al Programa de Ahorro del Sector Electrico (FIDE)

Short Paragraph Describing the Work:

USAID is conducted a pilot study to complement the high efficiency motor pilot project (see previous project summary). The long term goal of the project is to reduce motor efficiency degradation during the rewind process. This project had 2 major components:

1. to provide real data on effects of typical rewind practices on motor efficiency, and
2. to create a training program for rewind shops and develop and disseminate guidelines for better motor rewind practices.

The project included the following components:

- survey of 100 industrial plants in the Mexico City area to determine their practices regarding motor repair and new motor purchase, and their knowledge of motor rewinding
- survey of approximately 40 rewind shops in the Mexico City area to determine their rewinding equipment and practices
- tests on different motors before and after different types of rewinds
- development of proper rewinding guidelines for rewind shops, as well as for industries to demand from their rewind shops
- demonstration of proper rewinding techniques at various shops
- development of a training course and a 20-minute video showing proper rewind practices

The program projected potential national level savings from improved rewinds, and results are in the process of being discussed and evaluated for further activities.

Project Title: Energy Savings Persistence and End-Use Saturation Survey

Applicable Annex Article 2 Item Number(s): 9

Sponsor: USAID/G/ENV/EET

Implementing Institution: Hagler-Bailly

Contact Person: Mark Oven (703-351-0300)

Approximate Project Funding Level: \$50,000

Starting Year and Ending Year (or Proposed Starting Year): 1997-1998

Mexican Partners or Clients: Fideicomiso de Apoyo al Programa de Ahorro del Sector Electrico (FIDE)

Short Paragraph Describing the Work:

USAID is assisting FIDE in the development and implementation of survey research in the areas of persistence of energy savings from prior energy efficiency program efforts and development of estimates of end-use saturation for commercial and industrial facilities. Persistence of savings is a crucial determinant of the long-term effectiveness of programs to foster energy efficiency implementation. FIDE has tried to indirectly estimate persistence of savings in previous surveys but they have not designed an explicit approach to target this issue.

Project Title: Energy Efficient Appliance and Building Standards

Applicable Annex Article 2 Item Number(s): 3

Sponsor: USAID/G/ENV/EET

Implementing Institution: Lawrence Berkeley National Laboratory (LBNL)

Contact Person: Steve Wiel (510-486-5396)

Approximate Project Funding Level: \$200,000

Starting Year and Ending Year (or Proposed Starting Year): 1993-1998

Mexican Partners or Clients: Comision Nacional para el Ahorro de Energia (CONAE), Fideicomiso de Apoyo al Programa de Ahorro del Sector Electrico (FIDE), Comision Federal de Electricidad (CFE), Federacion de Colegios de Ingenieros Civiles (FECIC), and Instituto de Investigaciones Electricas (IIE).

Short Paragraph Describing the Work:

USAID work with the Government of Mexico and the following institutions: CONAE, FIDE, CFE, IIE, FESIC has supported the development and implementation of energy efficiency standards for consumer appliances and commercial buildings. Mexico is developing these standards to meet legislatively-mandated deadlines. USAID, through LBNL, is providing technical assistance in formulating and implementing standards. Specifically, USAID brings experience in assessing and improving methodologies for designing standards, and evaluating the impact of standards once they are in place.

In the case of the commercial building standards, support was provided to the Mexicans when the standard was first being drafted in 1993. An analysis was performed to help determine the energy and cost benefits of various energy efficiency options specific to Mexican commercial buildings and those results were delivered to CONAE. In addition, once the standards were published in Mexico, a public comment period ensued and the USAID team continued to provide comment and technical support in the revisions to the standard that ensued until its approval March of 1995. Since then, support has been provided to assist with the implementation of the new standard.

Project Title: Association of Energy Conservation Technicians and Professionals (ATPAE) Conference Support

Applicable Annex Article 2 Item Number(s): 4

Sponsor: USAID/G/ENV/EET, USAID/Mexico

Implementing Institution: Hagler-Bailly

Contact Person: Mark Oven (703-351-0300)

Approximate Project Funding Level: \$30,000/year

Starting Year and Ending Year (or Proposed Starting Year): 1994-1998

Mexican Partners or Clients: Association of Energy Conservation Technicians and Professionals (ATPAE)

Short Paragraph Describing the Work:

ATPAE is the premier energy efficiency NGO in Mexico. It operates as a professional association, offering information, training courses, and an annual conference. For several years USAID has supported the ATPAE annual conference, providing speakers, video conferencing and travel for experts from other Latin American countries to participate. In conjunction with the conference, USAID has also offered 1-day training courses on steam systems efficiency and electric power quality, DSM and distributed generation.

Project Title: Comision Nacional para el Ahorro de Energia (CONAE) Energy Efficiency Financing Support

Applicable Annex Article 2 Item Number(s): 7, 8

Sponsor: USAID/Meico

Implementing Institution: Hagler-Bailly

Contact Person: Mark Oven (703-351-0300)

Approximate Project Funding Level: \$40,000

Starting Year and Ending Year (or Proposed Starting Year): 1997-1998

Mexican Partners or Clients: Comision Nacional para el Ahorro de Energia (CONAE)

Short Paragraph Describing the Work:

USAID, in collaboration with CONAE, is developing and making available on the Internet, high value information on energy efficiency financing. This activity also includes the development of a spreadsheet tool for the financial cash flow analysis of energy efficiency projects based on actual operating and financing conditions in Mexico. The tool account for all the variations in lending conditions and criteria depending on the size, financial condition, and type of production of the company seeking financing. It includes rules of thumb for projects size ranges that can be attended by different financing mechanisms. The goal of this activity is to strengthen CONAE's ability to play a more important role as a broker of energy efficiency project implementation in Mexico by providing them with a universally applicable tool for evaluating the financial viability of energy efficiency projects.

Project Title: Sustainable Cities Initiative in Monterrey

Applicable Annex Article 2 Item Number(s): 5, 8

Sponsor: USAID/G/ENV/EET, USAID/Mexico

Implementing Institution: Hagler-Bailly

Contact Person: Mark Oven (703-351-0300)

Approximate Project Funding Level: \$200,000

Starting Year and Ending Year (or Proposed Starting Year):

Mexican Partners or Clients:

Short Paragraph Describing the Work:

The Sustainable Cities Initiative is designed to bring sustainable energy services and technologies on a city-wide scale to pilot cities on a demonstration basis. First stages of this initiative included the formulation of a group of 20 energy efficiency and clean energy production companies assembled into the Business Coalition for Sustainable Cities.

In Monterrey, one of Mexico's most industrialized cities, the project provides technical support in selected industries as the basis to foster partnerships between the public and private sectors in carrying out a broader energy and environmental effort. It creates demand for combined energy efficiency and pollution prevention technologies and services, linking its activities to other on-going programs in Monterrey related to energy and environment. The project also integrates the technical efforts in industrial audits with broader training, study tour and technology demonstration activities, as well as public policy and local government support for information dissemination.

Project Title: Mexico Public Sector Energy Efficiency Project

Applicable Annex Article 2 Item Number(s): 1,2,4

Sponsor: USAID/G/ENV/EET, USAID/Mexico

Implementing Institution: The National Association of State Energy Officials (NASEO) and the California Energy Commission (CEC) as contracted by Hagler-Bailly.

Contact Person: David Terry, NASEO [dsterry@erols.com]

Approximate Project Funding Level:

Starting Year and Ending Year (or Proposed Starting Year):

Mexican Partners or Clients:

Short Paragraph Describing the Work:

The purpose of the Mexico Public Sector Energy Efficiency Project is to identify potential roles for U.S. AID and other foreign agencies in the support of energy efficiency improvements in Mexico's public sector. The project would:

1. Review U.S. experience from one or more U.S. states and the federal government in the improvement of energy efficiency in government services, particularly public lighting, water and sewage pumping and public buildings.
2. Participate in the international cogeneration conference (IV Congreso Internacional de Cogeneración) in Mexico City, July 15-17, 1998. Organized by CONAE, this is the definitive technical meeting on cogeneration in Mexico.
 - a) Provide one or more technical speakers to discuss experiences in US and in particular US states with cogeneration projects, project development, industry evolution, policy initiatives, lessons learned, and operating experience with innovative cogeneration projects.
 - b) Publicize the equipment and services exhibit to interested companies.
 - c) Provide a one-day training course, including speaker(s) and materials on one or more cogeneration topics to be discussed and finalized with CONAE. English language presentation and materials would be acceptable.
3. Participate in a study tour, organized by Hagler Bailly, for Mexican professionals from energy efficiency agencies and electric utilities to understand the activities comprising program evaluation, and to hear US experiences in this area.
4. Review information and research results obtained by the project.
5. Participate in one or more one-week missions to Mexico City led by Hagler-Bailly to discuss approaches to public sector energy efficiency improvement with USAID, CONAE, FIDE and Banobras.

Project Title: Trade and Investment (T&I) Program

Applicable Annex Article 2 Item Number(s): 1, 4

Sponsor(s): Export Council for Energy Efficiency, USDOE

Implementing Institution: Alliance to Save Energy (ASE)

Contact Person: Joe Loper, (202) 530-2223

Approximate Project Funding Level: \$50,000

Starting Year and Ending Year (or Proposed Starting Year): 1998 - 1999

Mexican Partners or Clients: There are three types of Mexican partners and clients that ASE works with to conduct education and marketing seminars:

1) U.S. and international energy-efficiency companies serve as educators in the seminars and identify energy-saving opportunities for the specific audiences. For example:

Air-conditioning – Carrier, FADIN, Lennox/Frigus Bohn, Termo Tecnica Quin, TRANE, York

Controls – ASI Controls, Johnson Controls, Honeywell

Cogeneration – AGC/Seisa, Trigen, Ultra Energia

Energy services and maintenance – CES/Transcom, Energy Saving de Mexico, Energy Solutions International, Enviro Management Resources, LightMedia Corp., Target Technologies, World Energy Solutions

Monitoring and metering equipment: E-mon/O'Larr

Motors and drives – Baldor, Danfoss, Magnetek, Rockwell/Allen Bradley

Sensors, lighting and occupancy – The Watt Stopper, MYTECH, SensorSwitch

Solar water heating – Celsol

Boilers/Steam – Aerco International/Fritech Inc., Fulton Boilers/LORSA Co., Armstrong International, Spirax Sarco

2) Energy managers from large, energy-using companies attend the seminars while trade associations co-host the events. Audience members learn about the environmental and economic benefits of energy efficiency and meet with suppliers of technology and services. Examples of such associations include CAINTRA, COPARMEX, the Maquiladora Association, Hospital Associations, and different regional Hotel Associations.

3) Host-country, energy-saving government agencies share information about their institutional program opportunities to end-user and energy efficiency companies at the seminars. Multiple representatives from the government energy conservation offices, Comission Nacional para el Ahorro de Energia (CONAE) and Fideicomiso

para el Ahorro de Energia Electrica (FIDE) continue to participate in the T&I seminars.

Short Paragraph Describing of the Work:

The Alliance to Save Energy's Trade and Investment (T&I) Program was born out of involvement in the USAID Monterrey, Mexico Sustainable Cities Program in 1995. To date the T&I program has:

- held ten educational energy efficiency seminars and trade missions in six different Mexican cities (Cancun, Guadalajara, Mexico City, Monterrey, Reynosa, and Villahermosa).
- involved over 40 different U.S. and Mexican energy efficiency companies that have participated 56 times with their own funds,
- reached over 400 Mexican energy managers and other representatives from over 200 industrial, commercial building, hotel, and hospital facilities,
- had multiple representatives from CONAE and FIDE inform audience members of their efficiency programs.

Three goals of the T & I Program in Mexico are:

1. To raise the level of awareness and understanding about how saving energy both saves money and protects the environment.
2. To provide Mexican energy end-users access to energy-saving technologies and services and sources of financing.
3. To develop the Mexican capacity to deliver energy efficiency products and services by helping Mexican engineering and manufacturing firms partner with U.S. efficiency companies.

Project Title: The Mexico-U.S. Energy Training Partnership (MUSETP)

Applicable Annex Article 2 Item Number(s): 4

Sponsor(s): USAID/G/ENV/EET, USAID/Mexico

Implementing Institution: The Energy Group, Institute of International Education (IIE/EG)

Contact Person: Richard Krasnow; tel: 202.326.7808; fax: 202.326.7694; email: rkrasnow@iie.org

Approximate Project Funding Level: \$1,500,000

Starting Year and Ending Year (or Proposed Starting Year): 1993-1997

Mexican Partners or Clients:

These technical workshops trained a total of 1300 professionals.

Instruction was jointly provided by U.S. and Mexican experts. In-country institutional partners included:

- * CONAE
- * FIDE
- * Asociacion Nacional de Energia Solar
- * Chihuahua Rural Development Agency
- * CANACINTRA
- * FIRCO (Sonora, Chihuahua, Oaxaca)
- * Quintano Roo Secretaria de Infraestructura, Medio Ambiente y Pesca
- * State of Baja California Sur Economic Development Agency (DGFICM)
- * AmCham (Guadalajara)
- * Mexicana de Cobre
- * Universidad of Chihuahua
- * Universidad of Quintano Roo
- * Universidad Autonoma of Baja California Sur
- * Instituto Mexicano del Petroleo
- * ITSEM (Monterrey Tech)
- * International Institute for Environmental Technology & Management

Short Paragraph Describing of the Work:

The Project's initial activity was a needs assessment workshop in Mexico City in June 1993, in which three priority areas were identified as central to promoting GHG emission reductions as well as yielding other environmental and economic benefits:

- * renewable energy;
- * energy efficiency; and

* environmental management.

MUSETP subsequently developed and delivered 21 technical training workshops in Mexico, which trained 1300 professionals. Instruction was jointly provided by U.S. and Mexican experts.

As part of MUSETP, IIE/EG developed a satellite-based training program (SBT) to provide distance learning training workshops on Energy Efficiency in Industrial Plants. This innovative SBT component was utilized to train 495 participants in several downlink sites throughout the country, and it was made possible through a collaboration between IIE/EG, FIDE and CANACINTRA – the latter two being leading Mexican organizations on energy efficiency and satellite-networking for industry, respectively.

Also to be noted is the positive synergy that was developed and existed between the training activities provided under MUSETP implemented by IIE/EG and the technical assistance provided under the Renewable Energy for Productive Activities project coordinated by Sandia National Laboratories. The fact that the TA project had an early start and continued beyond the training allows us to see some early results and to be confident of a successful contribution to renewable energy project development in Mexico. As such, this component carries a strong potential for long-term impacts towards the reduction of GHG in Mexico. Energy efficiency in building and in the transportation sector were implemented in the last phase of MUSETP; the aggregate impact in those sectors are likely to take a longer time to become apparent.

MUSETP was implemented under the USAID Energy Training Program, which was completed in September 1997. The successor to USAID/ETP is the Energy & Environment Training Program (EETP), which was awarded by USAID in August 1998.

Project Title: Energy Efficiency in Steam Generation and Distribution Systems Pilot Project

Applicable Annex Article 2 Item Number(s): 3, 4, 8

Sponsor(s): USAID/G/ENV/EET, USAID/Mexico

Implementing Institution: Hagler Bailly

Contact Person: Mark Oven; tel: 703-351-0300; email: MOVEN@HaglerBailly.com

Approximate Project Funding Level: \$600,000

Starting Year and Ending Year (or Proposed Starting Year): 1995-1998

Mexican Partners or Clients: CONAE

Short Paragraph Describing of the Work:

With CONAE and through Mexican consultants, an audit methodology for industrial steam generation and distribution systems was developed. Six Mexican consulting firms were selected to carry out the audits, and were trained in the methodology. A total of 37 plants were selected to be representative of the industrial sector, and audits were carried out. A two-day training course on steam systems efficiency was developed and made available to staff of each of the audited companies. Contacts with equipment vendors resulted in equipment and price information which was made available to the audited plants. A data base of plant information and audit results has been compiled, and results are being analyzed to project savings and investment potential in the whole industrial sector. Process and impact evaluations of the pilot project are being completed. A final report summarizing the project and recommending policies for improvement in steam systems efficiency in Mexican industry will be finalized.

Project Title: Targeted Technical Assistance Support to FIDE

Applicable Annex Article 2 Item Number(s): 5, 6, 8

Sponsor(s): USAID/G/ENV/EET, USAID/Mexico

Implementing Institution: Hagler Bailly

Contact Person: Mark Oven; tel: 703-351-0300; email: MOVEN@HaglerBailly.com

Approximate Project Funding Level: \$100,000

Starting Year and Ending Year (or Proposed Starting Year): 1998

Mexican Partners or Clients: FIDE

Short Paragraph Describing of the Work:

To maximize the effectiveness of FIDE implementation of the CFE-IDB incentive program for electricity efficiency improvement, USAID/Mexico is providing a number of targeted support activities. These have included the following: input to overall program design; transfer of US experiences and technical information on subjects such as energy financing, program evaluation, market transformation; design of a one-week study tour in the US on financing energy efficiency projects; co-sponsorship of an international ESCO workshop in Mexico City; and supporting an expert seminar on the development of commercial lighting programs.

Project Title: Electronic Methodologies for Energy Efficiency Analysis

Applicable Annex Article 2 Item Number(s): 1, 3, 5, 8

Sponsor(s): USAID/G/ENV/EET, USAID/Mexico

Implementing Institution: Hagler Bailly

Contact Person: Mark Oven; tel: 703-351-0300; email: MOVEN@HaglerBailly.com

Approximate Project Funding Level: \$160,000

Starting Year and Ending Year (or Proposed Starting Year): 1998

Mexican Partners or Clients: FIDE

Short Paragraph Describing of the Work:

Working primarily through local consultants, USAID is helping FIDE develop 3 software programs to support energy efficiency analysis and decision-making for end-users and energy consultants: motor system efficiency; pumping system efficiency; and compressed air system efficiency. The motor and pumping system software programs are being created in Mexico, using the experience of similar software as models. For the compressed air program, discussions are being finalized with USDOE to translate and adapt a version of the AirMaster software which is part of the Motor Challenge program. FIDE and CONAE will eventually distribute these software programs among users, and provide technical support.

Project Title: Residential Lighting Program Evaluation Support

Applicable Annex Article 2 Item Number(s): 3, 8

Sponsor(s): USAID/G/ENV/EET, USAID/Mexico

Implementing Institution: Hagler Bailly

Contact Person: Mark Oven; tel: 703-351-0300; email: MOVEN@HaglerBailly.com

Approximate Project Funding Level: \$150,000

Starting Year and Ending Year (or Proposed Starting Year): 1998

Mexican Partners or Clients: FIDE

Short Paragraph Describing of the Work:

USAID/Mexico, through US and Mexican consultants, is working to support FIDE in the evaluation of residential lighting programs in 3 cities: Valladolid, a CFE-PAESE program from 1992; Aguascalientes, a FIDE program from 1995-96; and Ciudad Juarez, a FIDE program from 1997. Process and impact evaluations are being designed under overall FIDE supervision, and will provide an interesting study of 3 different programs from different periods targeted at the residential lighting market. The evaluations will provide input to the design of current residential lighting programs, and will measure both specific effects of the programs and an estimate of progress in the transformation of the residential lighting equipment market in Mexico. Under this activity, USAID/Mexico has also designed a one-week study tour on program evaluation for a group of Mexican experts from FIDE, CONAE, CMPL and IIE.

Project Title: Audit Implementation Support

Applicable Annex Article 2 Item Number(s): 3, 5

Sponsor(s): USAID/G/ENV/EET, USAID/Mexico

Implementing Institution: Hagler Bailly

Contact Person: Mark Oven; tel: 703-351-0300; email: MOVEN@HaglerBailly.com

Approximate Project Funding Level: \$50,000

Starting Year and Ending Year (or Proposed Starting Year): 1998

Mexican Partners or Clients: Instituto de Protección Ambiental (IPA)

Short Paragraph Describing of the Work:

This task provides follow-up to six integrated pollution prevention and energy efficiency audits carried out in collaboration between USAID and IPA in the Monterrey area in 1997. For each audited plant, a local consulting firm will carry out monthly visits and meetings over a six-month period, provide technical support as necessary (preparation or review of technical specifications, development or review of price quotations, additional measurement, etc.), and document progress in implementation of the measures identified.

Project Title: Municipal Energy Efficiency Potential

Applicable Annex Article 2 Item Number(s): 7, 8

Sponsor(s): USAID/G/ENV/EET, USAID/Mexico

Implementing Institution: Hagler Bailly

Contact Person: Mark Oven; tel: 703-351-0300; email: MOVEN@HaglerBailly.com

Approximate Project Funding Level: \$50,000

Starting Year and Ending Year (or Proposed Starting Year): 1998

Mexican Partners or Clients: CONAE

Short Paragraph Describing of the Work:

USAID/Mexico is carrying out an assessment of the energy efficiency potential in the municipal sector, focusing on public lighting and water pumping. While various agencies have carried out pilot projects in these areas, an overall assessment of energy saving potential has never been done. USAID consultants are coordinating with CONAE, CFE, FIDE, Banobras and others to evaluate results of activities to date, as well as to obtain and compile basic data on the municipalities. The results of the study will provide a basis to develop plans for energy efficiency activities in the municipal sector, and evaluate the possibilities for participation of USAID and international agencies such as the World Bank and the GEF in municipal projects in Mexico.

Project Title: Energy Efficiency Component of Cleaner Production Audits

Applicable Annex Article 2 Item Number(s): 5

Sponsor(s): USAID/G/ENV/EET, USAID/Mexico

Implementing Institution: Hagler Bailly

Contact Person: Mark Oven; tel: 703-351-0300; email: MOVEN@HaglerBailly.com

Approximate Project Funding Level: \$40,000

Starting Year and Ending Year (or Proposed Starting Year): 1998

Mexican Partners or Clients: CMPL (Mexican Cleaner Production Center)

Short Paragraph Describing of the Work:

In addition to providing funding for some of the cleaner production activities of this Center in Mexico City, USAID/Mexico is also providing support to complement four cleaner production audits in the chemical sector with energy efficiency-related measurements and analysis. Based on successful activities in the electroplating and foundry sectors in previous years, an energy expert has been integrated into the cleaner production audit team, and energy audit steps have been incorporated into the overall methodology.

Project Title: CONAE/EPA Voluntary Program Information Exchange

Applicable Annex Article 2 Item Number(s): 1, 8

Sponsor(s): U.S. Environmental Protection Agency

Implementing Institution: ICF Kaiser

Contact Person: David Antonioli; tel: 202-862-1149; email: dantonioli@icfkaiser.com

Approximate Project Funding Level: \$110,000

Starting Year and Ending Year (or Proposed Starting Year): 1997-1998

Mexican Partners or Clients:

National Commission for Energy Conservation (CONAE)

Short Paragraph Describing of the Work:

EPA developed a week-long information exchange workshop for representatives of CONAE on the various aspects of the design, implementation, and evaluation of a voluntary program to promote energy efficiency in commercial buildings. As part of this effort, EPA led a mission to Mexico to gather information about both the energy efficiency sector and CONAE's needs. During the mission, EPA facilitated a series of sessions with various CONAE staff to identify the key stakeholders and the goals and strategies of the program, as well as CONAE's interests in specific elements of EPA's program. EPA then developed a week-long workshop for CONAE staff on the various elements of EPA's Green Lights/Energy Star Buildings Program. The workshop took place in March 1998.

Project Title: Performance Contract Financing

Applicable Annex Article 2 Item Number(s): 6

Sponsor(s): Environmental Enterprises Assistance Fund (EEAF)

Implementing Institution: EEAF (through USAID funding sources)

Contact Person: Mary Ann Alger, ph: 703.522.5928; email: alger@eeaf.org

Approximate Project Funding Level: \$120,000

Starting Year and Ending Year (or Proposed Starting Year): 1998 - 2003

Mexican Partners or Clients:

Empresas ESM, S.A. de C.V.; Monterrey, Mexico

Short Paragraph Describing of the Work:

EEAF has financed two of Empresas ESM's performance contracts with one of its clients, wherein Empresas ESM has installed a energy efficiency system with on-site monitoring. Without EEAF's financing these creditworthy projects may not have been financed and/or would have taken longer to implement. EEAF's borrower competes against other Mexican and U.S. ESCOs.

Project Title: ESCO Installation Financing

Applicable Annex Article 2 Item Number(s): 6

Sponsor(s): Environmental Enterprises Assistance Fund (EEAF)

Implementing Institution: EEAF (through USAID funding sources)

Contact Person: Mary Ann Alger, ph: 703.522.5928; email: alger@eeaf.org

Approximate Project Funding Level: \$150,000

Starting Year and Ending Year (or Proposed Starting Year): 1998 - 2003

Mexican Partners or Clients:

ESCO located in Mexico City

Short Paragraph Describing of the Work:

EEAF will finance three of this ESCO's installations in Mexico. EEAF's financing is for 5 years. EEAF will share in the cost savings.

Project Title: United States – Mexico Border Energy Forum

Applicable Annex Article 2 Item Number (s): 8

Sponsor: US DOE (and many additional US institutions)

Implementing Institution: Texas General Land Office

Contact Person: Soll Sussman (512-463-5039)

Approximate Project Funding Level: DOE contribution = \$15,000/year

Starting Year and Ending Year: ongoing since 1994; meets annually

Mexican Partners :

Secretaría de Energía

Comisión Reguladora de Energía

Fideicomiso para el Ahorro de Energía

Comisión Nacional para el Ahorro de Energía

Instituto Tecnológico y de Estudios Superiores de Monterrey

Universidad Autónoma de Chihuahua

Universidad Autónoma de Nuevo León

Instituto Autónomo de Investigaciones Ecológicas

Consejo de Energía del Estado de Baja California

Dirección de Catastro Estatal de Tamaulipas

Dirección de Ecología de Coahuila

Federación Mexicana de Asociaciones Privadas de Salud y Desarrollo Comunitario

Asociación Mexicana de Gas Natural

Secretaría de Desarrollo Económico de Nuevo León

Promotora de la Industria Chihuahuense

El Colegio de la Frontera Norte

Short Paragraph Describing the Work:

The goal of the annual Border Energy Forum since its first meeting in 1994 has been to bring together leaders from industry, government, educational institutions and environmental organizations to address the vital issues of energy and the environment affecting the rapidly developing region of northern Mexico and the southwestern United States. It is intended as a think tank that convenes each year.

As immediate crises are handled, steps need to be taken to facilitate the flow of information about energy and its relationship to the environment across the border and into the hands of policy level planners and action agencies in both countries. The Border Energy Forum emphasizes communications about critical energy needs and priorities at a local, state and regional level, where these issues have not traditionally been discussed.

Project Title: Texas/Mexico Border Pollution Prevention Initiative

Applicable Annex Article 2 Item Number (s): 1, 8

Sponsor: US EPA

Implementing Institution: Texas Natural Resource Conservation Commission (TNRCC)

Contact Person: Dr. Pierre Lichaa, TNRCC (512) 239-3132

Approximate Project Funding Level: \$190,000

Starting Year and Ending Year: 1998 - 2000

Mexican Partners :

Secretaria de Medio Ambiente, Recursos Naturales y Pesca (SEMARNAP)
Instituto Nacional de Ecologia (INE)
Procuraduria Federal de Proteccion al Ambiente (PROFEPA)
Mexican universities
Border state governments

Short Paragraph Describing the Work:

To goals of this activity are to:

- Continue the work with our Mexican Partners on pollution prevention capacity building projects.
- Conduct five joint site assistance visits and subsequent follow-up visits to maquiladoras in Mexican states adjacent to Texas to measure water usage, hazardous waste, and energy efficiency, and to encourage development of maquiladora pollution prevention teams
- Conduct two Permanent Pollution Prevention Program (P4) training events in Mexican states adjacent to Texas, with the participation of Mexican partner organizations and maquiladoras. Incorporate discussion and demonstration of a full cost accounting methods in environmental management.
- Continue work with our Mexican partners to conduct two workshops on the development of community recycling facilities.
- Continue work with our Mexican partners on recycling capacity building projects, to include four site assistance visits.
- Pursue cross-border recycling market development opportunities in Texas and the four Mexican states bordering Texas
- Build on the outcomes of a series of stakeholder roundtables to be held in the Texas/Mexico border region during the coming year to set future goals for the Pollution Prevention Workgroup of Border XXI. These roundtables will include state and federal representatives from the U.S. and Mexico, representatives from Texas and Mexican universities along the border, representatives from the Center

Annex 2 : Summary of EPA/DOE/AID Mexican Energy Efficiency Activities

for Cleaner Technology of Mexico, maquiladora managers and maquiladora associations.

Project Title: Technology Transfer and Capacity Building

Item Number (s): 1, 8

Sponsor: US EPA

Implementing Institution: Texas Natural Resource Conservation Commission (TNRCC)

Contact Person: Dr. Pierre Lichaa, TNRCC (512) 239-3132

Approximate Project Funding Level: \$107,000

Starting Year and Ending Year: 1996-1998

Mexican Partners :

Secretaria de Medio Ambiente, Recursos Naturales y Pesca (SEMARNAP)

Instituto Nacional de Ecologia (INE)

Procuraduria Federal de Protection al Ambiente (PROFEPA)

Mexican universities

Border state governments

Short Paragraph Describing the Work:

To goals of this activity are to assist the EPA and SEMARNAP in encouraging maquiladoras to participate in voluntary environmental audits.

Follow-up evaluations of joint site assistance visits (SAVs) conducted by the TNRCC's Office of Pollution Prevention and Recycling (OPPR) and PROFEPA to maquiladoras since 1994 showed that participating facilities are continuing to implement pollution prevention projects, and continuing to make waste reduction progress including reduction of electricity consumption. This information has been forwarded to EPA and SEMARNAP for use in briefings and presentations to maquiladoras and maquiladora associations.

U.S./Mexico Collaborative
Activities in the Field of
Renewable Energy
Related to Annex 1 of the Bilateral
Agreement

DRAFT

Prepared by

Charles Hanley, Sandia National
Odón de Buen R., Comisión
Nacional Para el Ahorro de
Energía

Annex Item #	Description of Annex Item	Activity	Mexican Partners	U.S. Partners
1	Joint research in such areas as renewable energy systems, their components, and materials	Systems research and data collection	CONAE (COFER): Proposal to establish a data base on current and programmed renewable energy projects in Mexico.	SNL, NREL: Systems research on wind projects, PV ice making, other applications
2	Cooperation in the assessment of solar, wind, and other renewable energy resources	Production of renewable energy resource data	CONAE: Initiation as central repository for all resource information (SIGER)	NREL: Completion of national solar resource maps and regional wind maps
		Monitoring of wind resource in specific sites	CONAE: Integration of information related to wind resource monitoring to SIGER. This information will be provided by IIE.	SNL, NREL: Collection of data in Quintana Roo, Baja California Sur
3	Collaboration in the training in renewable technologies of researchers, engineers, and technicians	Internet communications and exchange of information through related links between Mexican and U.S. counterparts	CONAE (COFER): Development of webpage as a central point for technical assistance throughout Mexico	SNL: Additions to Sandia Mexico Renewable Energy Program web page
		Field workshops on technical project implementation	ANES: Workshop in Mexicali on PV and wind water pumping, PV ice making	SNL: Technical assistance to Mexicali workshop
4	Cooperation in programs to encourage the use of renewable energy by the public and private sectors, including provision of educational and consulting services	Increase public knowledge about issues related to grid-connected use of renewable energy	CONAE (COFER): Coordination, sponsorship of grid-connected renewables Seminar in Saltillo, Oct. 21-24, 1998.	USAID (through Winrock): Identification and sponsorship of speakers; SNL: Presentation to COFER on broad Sandia activities in renewable energy
		Market promotion for renewable energy projects	CONAE: Development of design tools through Internet for PV and solar water heating systems, and evaluation of current small-hydro projects	
		Development of grid-tied renewable energy project (Global Environment Facility)	CONAE: Initiation of a proposal to World Bank for a grid-connected program	Winrock: Technical assistance in development of proposal
		Development of program for rural applications, to be sponsored by World Bank and Global Environment Facility	FIRCO: Main coordination of development of proposal to GEF	SNL, Winrock: Technical assistance in development of proposal

		Growth in market for solar water heating applications	CONAE: Development of a proposal for national solar water heating program (TCAPP)	SNL: Assistance in TCAPP solar water heating program proposal; Initiation of collection of information on the status of the U.S. industry
		Off-grid project implementation activities	FIRCO: Coordination of projects for agricultural water pumping	SNL: Assistance to other government and non-government agencies in capacity building and implementing projects. NREL: Assistance with wind projects.
		Implementation of community PV/wind hybrid systems	CFE: Management of all Mexican coordination for San Juanico project	SNL, NREL: Provision of technical assistance to Arizona Public Service. U.S. partner with CFE

Mexican partners:

Under Annex 1, Comisión Nacional para el Ahorro de Energía (CONAE) activities are sponsored by the Mexican Secretariat of Energy

ANES is Asociación Nacional de Energía Solar

FIRCO is Fideicomiso de Riesgo Compartido, under the Mexican Secretariat of Agriculture and Rural Development

CFE is Comisión Federal de Electricidad

COFER is Consejo Consultivo para el Fomento de las Energías Renovables - Advisory Council for Renewable Energy Promotion (sponsored and coordinated by CONAE)

IIE is Instituto de Investigaciones Eléctricas - Electric Research Institute

SIGER is Sistema de Información Geográfica sobre Energías Renovables - Geographic Information System on Renewable Energy

U.S. Partners:

Under Annex 1, Sandia National Laboratories (SNL) activities are sponsored by the U.S. Department of Energy and the U.S. Agency for International Development

NREL is National Renewable Energy Laboratory (sponsored by USDOE and USAID)

Winrock is Winrock International, under contract to both SNL and USAID

U.S./MEXICAN ENVIRONMENTAL MANAGEMENT COOPERATION

DESCRIPTION:

It is proposed that DOE's, Office of Environmental Management (EM) initiate an international collaboration with the Mexican government and its associated research institutes to address environmental management issues as they relate to the border region. EM proposes that this cooperation be kicked off at a binational needs workshop which is scheduled to be held in Monterrey, Mexico in April 1999. At this meeting, DOE/EM proposes that the Mexican side be incorporated into on-going DOE technology demonstrations in the areas of subsurface contaminants and site characterization, as well as, be invited to participate in a series of technical conferences and symposia. Currently, the lead Mexican agencies for this effort are the Secretariat of Environment, Natural Resources and Fisheries (SEMARNAP) and the National Institute of Ecology (INE).

BACKGROUND:

In cooperation with U.S. and Mexican local, Federal and State agencies, the Carlsbad Area Office (CAO) has recommended that DOE develop and implement technical collaborations with Mexico's industry, government and academic sectors to improve the management of hazardous wastes throughout the U.S. Mexico border region. It was determined at the U.S.-Mexico Border Region Forum: Application of Energy Technologies to Hazardous Waste Needs, which was held in August 1998 in Carlsbad, New Mexico, that DOE is well suited to be the technology expert to address the region's environmental remediation associated with an array of hazardous waste problems. DOE's potential contribution of technology experts was strongly endorsed during the Carlsbad meeting by U.S. and Mexican elected officials, scientific leaders, industrial participants, and the international academic community. The consensus was that the Office of Science and Technology within DOE has the ability to provide state of the art expertise which could be used in developing environmental restoration and waste management approaches for the border region.

The CAO proposes that a binational needs workshop be held in Monterrey, Mexico in April 1999, to initiate the international cooperation. EM proposes to attend this meeting and invite Mexican participation in a series of technology demonstrations and conferences (See detailed discussion below).

OPPORTUNITY:

DOE/EM proposes to invite Mexican delegates to observe selected technology demonstrations which are scheduled to be conducted in FY 99 at DOE sites in support of the Characterization, Monitoring and Sensor Technology cross-cutting program and the Subsurface Contaminants Focus Area. These technology demonstrations will provide the Mexican side with a view of the latest, state of the art, environmental management technologies that are currently being developed in the U.S. All of these technologies have

direct application to hazardous waste problems found in the border region. In addition to participating in the technology demonstration, these projects will provide the Mexican side with the opportunity to conduct in-depth technical discussions with U.S. experts in the area of environmental management. These relationships will provide the foundation for any future scientific collaborations. The following demonstrations are currently planned for FY 99 and would benefit from Mexican participation at a very low cost to DOE:

- **Chemical Analysis Automation Technology Demonstration.** The objective of this project is to develop a chemical analysis and sample preparation technology necessary for the automation of DOE environmental laboratories. Two demonstrations are planned at the Savannah River Site in FY 99. The first will be a short-term demonstration in April 1999, while the second will be a long-term demonstration that will begin in May 1999.
- **In-Situ Vitrification and Stabilization of Transuranic/Mixed Waste Demonstration.** This thermal treatment technology is being developed for permanent stabilization of hazardous waste contaminated soil. A demonstration is scheduled during the spring of 1999 at Los Alamos National Laboratory.
- **Passive Reactive Barrier Demonstration.** Passive Reactive barriers are in situ water permeable barriers that possess properties that either alter or destroy contaminants of concern in place or bind these contaminants to the barrier material. This demonstration is scheduled to take place at the Grand Junction Project Office during the spring of FY 99.
- **Alternative Landfill Cover Demonstration (ALCD).** The ALCD is a large-scale field demonstration comparing innovative landfill covers specifically designed for dry environments with currently accepted EPA cover designs as baselines. The next demonstration is scheduled to take place at the Nevada Test Site in FY 99.

Finally, in late FY99 or early FY00, an appropriate site in a border state could be identified for a technology demonstration involving Mexican participants.

BENEFITS:

International Scientific Partnership - There is an overwhelming opportunity to engage our Mexican counterparts in discussion relating to the development of a clean-up strategy for the border region. The objective of this cooperation will be to assist the Mexican side in identifying specific, state of the art, remediation technologies and systems for application in the border region. The long term benefit will be reduced environmental degradation and protection of the public health in the border states. This cooperation can be initiated at minimal cost to DOE since Mexican participation will be incorporated into on-going activities.

BACKGROUND AND TALKING POINTS

ON THE SISTER LABORATORY ARRANGEMENT WITH MEXICO

PREPARED FOR SECRETARY RICHARDSON'S MEETING WITH

SECRETARY TELLEZ

FEB 15, 1999

Background on Sister Laboratory Arrangements

In the early 1980's, the U.S. launched a new initiative to establish cooperative institutional relationships between its own nuclear research laboratories and those in nations primarily in the developing world, which have supported the NPT. Such arrangements promote the nonproliferation and peaceful uses of nuclear energy in accordance with Article IV of the NPT. These arrangements generally provide for the following:

- exchange of scientific and technical information;
- short visits by expert teams or individuals to U.S. Laboratories or their foreign counterparts;
- longer-term personnel assignments, ranging from one week to six months;
- exchange of samples, materials, instruments and components
- assistance in the acquisition of difficult-to-obtain laboratory items and reference standards;
- training of scientific and technical personnel through fellowships, seminars, or courses and;
- Various collaborative efforts.

The main objectives of the sister laboratory program are to:

- support Article IV of the NPT;
- build trust and communication through long-term technical interactions;
- increase understanding of foreign nuclear authorities; and
- Enhance the possibility of spin-off collaborations.

Sister Laboratory Arrangement with Mexico

Since 1982, the Department of Energy's Los Alamos National Laboratory and the National Institute of Nuclear Research (ININ) of Mexico have enjoyed, under the aegis of a Memorandum of Understanding Sister Laboratory cooperation, a very close and productive program directed to rational approaches to the peaceful uses of nuclear energy. Significantly, Mexico has the longest standing technology exchange agreement for the

peaceful uses of nuclear energy and its sister laboratory arrangement was recently renewed.

Under the MOU, activities identified for exchange of information and cooperation include:

- low level radioactive waste disposal;
- environmental radiological surveillance;
- the Compton anti-coincidence system;
- computational research;
- hazardous waste treatment; and
- Medical radioisotopes.

In recent years, the Laboratories' cooperative efforts have focused on the following areas:

- neutron activation analysis;
- prompt gamma-ray reaction research;
- environmental radiological surveillance;
- computational research and;
- Low level radioactive waste.

TALKING POINTS

- Since coming to the Department of Energy, I have heard very positive reports about the U.S./Mexico sister laboratory arrangement.
- The arrangement has thus far been a very successful effort towards promoting rational approaches in the area of peaceful uses of nuclear energy. We look forward to continuing to maintain and develop the close and productive program that DOE and INEN have enjoyed under the Sister Laboratory Arrangement since 1982.
- In addition, I am also very enthusiastic about progress being made in other forums such as the Track II Conference, which took place February 1-2, 1999. The conference served as an important step in arms control and disarmament and nuclear non-proliferation while enhancing U.S.-Mexico cooperation in the advancement for international security.
- I am encouraged about the prospects for furthering cooperation with Mexico both through the Sister Laboratory program and the Track II dialogue. It is through achievement and maintenance of such a close relationship that we can best work together towards the common objective of achieving a world free of the threat of nuclear war.

Electricity Sector Reforms in Mexico

On February 3, 1999, the Executive Branch of the Mexican Government (GOM) submitted a proposal to the Mexican Congress to amend Articles 27 and 28 of the Mexican Constitution to restructure the country's electric power industry and further open the industry to private sector participation.

According to the GOM, the structural reform proposal calls for the creation of separate generation, transmission and distribution companies from the two existing state utilities, the Comision Federal de Electricidad (CFE) and Luz de Fuerza Del Centro (Luz). It also involves the creation of an independent system and market operator. New merchant plants will be permitted and will be able to sell directly to distribution companies or to large customers. In the future, smaller customers will also be allowed a choice of supplier. Private companies will be awarded concessions to build transmission lines not connected to the national grid, and 30-year concessions to distribute power. The government will maintain control over the transmission system, nuclear and some hydroelectric power plants, and will continue to regulate the industry. Ultimately, most power plants will likely be sold to private investors.

The government estimates it will take around two years to achieve the reforms. In addition to congressional ratification of the proposal, a new legal and regulatory framework will have to be established. According to the Finance Ministry, "the Government does not expect to be in a position to start a divestiture process until December 2000.", but "understands the need for a level playing field in order to attract new investors."

The Mexican Constitution reserves to the state the right to generate, transmit and distribute electricity in Mexico. In 1992, it was amended to permit private investment in generation for self-supply, cogeneration and independent power production. The new proposals are very significant and mean the "total opening up of the sector to private investment." Ratification will require a two-thirds majority in Congress, which the Administration (the Institutional Revolutionary Party, or PRI) hopes to win with the support of the National Action Party (PAN). It will be strongly opposed by the Party of the Democratic Revolution (PRD), whose leader, Porfirio Munoz Ledo is a likely presidential candidate. The Administration also has the support of the main electrical workers' union, which had, until just recently, been opposed to any sort of reform in the sector. A smaller union, the Mexico City power workers' union, sides with the PRD in objecting to the reforms.

Initial reaction from U.S. industry was positive, as these reforms will create major investment opportunities. President Zedillo told Congress that in order to meet its annual 6% growth in electricity consumption, Mexico will need to invest the equivalent of \$25 billion (U.S.) over the next six years.

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SUBJECT: ZEDILLO ANNOUNCES ELECTRICITY PRIVATIZATION

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REF: MEXICO 844

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1. SUMMARY: ON FEBRUARY 2, 1999 PRESIDENT ZEDILLO ANNOUNCED THAT HE HAD PROPOSED TO THE MEXICAN CONGRESS THE REFORM OF TWO ARTICLES OF THE MEXICAN CONSTITUTION TO ALLOW FOR PRIVATE INVESTMENT IN THE GENERATION, DISTRIBUTION AND MARKETING OF ELECTRICITY. THE GOM WILL MAINTAIN OVERSIGHT OF THE SECTOR AND CONTROL THE NATIONAL TRANSMISSION GRID. THE ANNOUNCEMENT HAS BEEN GENERALLY WELL RECEIVED BY MEXICANS, WITH STRONG SUPPORT FROM THE BUSINESS SECTOR AND TWO OF THE THREE MAJOR POLITICAL PARTIES. THE PRD PARTY AND ONE ELECTRICAL UNION OPPOSE THE PROPOSAL.

END SUMMARY.

2. PRESIDENT ZEDILLO MADE HIS ANNOUNCEMENT IN A NATIONAL RADIO AND TELEVISION BROADCAST AT THE SAME TIME THAT HE SENT HIS PROPOSAL TO

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this?
SW

THE MEXICAN CONGRESS. HE PARTIALLY JUSTIFIED THIS ACTION BY EXPLAINING THAT 250 BILLION PESOS (ABOUT 25 BILLION DOLLARS) NEEDS TO BE INVESTED IN THE SECTOR BY 2005, MONEY HE THOUGHT COULD BE BETTER SPENT ELSEWHERE, ESPECIALLY IN SOCIAL SPENDING. AN ANNOUNCEMENT OF THIS PROGRAM HAD BEEN EXPECTED (SEE REFTEL).
SOME OF THE DETAILS

3. ON FEBRUARY 3, ENERGY SECRETARY TELLEZ AMPLIFIED THAT CURRENT STATE-OWNED GENERATION CAPACITY WOULD BE DIVIDED INTO PACKAGES TO BE SOLD TO INVESTORS. NETWORKS FOR DISTRIBUTION TO THE CONSUMER WOULD ALSO BE DIVIDED INTO VARIOUS REGIONS AND WOULD BE CONCESSIONED, PROBABLY FOR 30 YEAR PERIODS. A COMPANY COULD NOT BOTH PRODUCE AND DISTRIBUTE OR MARKET ELECTRICITY. THESE AREAS WOULD BE OPEN TO FOREIGN AS WELL AS NATIONAL INVESTMENT.

4. TELLEZ NOTED THAT THE ENERGY PRIVATIZATION EXPERIENCE IN MANY COUNTRIES WAS STUDIED. ARGENTINA AND THE UNITED KINGDOM'S EXPERIENCE WERE PARTICULARLY HELPFUL IN PREPARING MEXICO'S PRIVATIZATION PROPOSAL.

TO BE IMPLEMENTED BY THE NEXT PRESIDENT

5. PRESIDENT ZEDILLO CHARGED THE LEGISLATORS WITH CAREFULLY REVIEWING HIS PROPOSALS AND ADOPTING THEM WITHIN THE NEXT TWO YEARS. ZEDILLO SAID IT WOULD FALL TO THE NEXT ADMINISTRATION IN 2001 (JUST AFTER A NEW PRESIDENT IS INAUGURATED IN DECEMBER, 2000) TO IMPLEMENT THE PRIVATIZATION.
THE CONSTITUTIONAL REFORMS

6. REFORM OF ARTICLE 27 OF THE CONSTITUTION WILL RETAIN FOR THE STATE THE TRANSMISSION OF ELECTRICITY, BUT OPEN THE REST OF THE SECTOR TO PRIVATE INVESTMENT. REFORM OF ARTICLE 28 WILL REQUIRE THE GOM TO OVERSEE (REGULATE) THE SECTOR AS A PRIORITY SECTOR FOR THE DEVELOPMENT OF THE MEXICAN ECONOMY.
SUPPORT AND OPPOSITION

7. BOTH THE PRI AND THE PAN HAVE SAID THEY WILL SUPPORT THE PRESIDENT'S PROPOSALS. THE PRD ANNOUNCED ITS OPPOSITION. THE PRIVATE SECTOR IS GENERALLY VERY FAVORABLE TO THE PROPOSAL. WHILE THE ELECTRICITY WORKERS' UNION (SUTERM) SUPPORTS THE PRIVATIZATION (REFTEL), THE SMALLER MEXICAN ELECTRICIAN'S UNION (SME) IS STRONGLY OPPOSED.

COMMENT

8. THERE HAS BEEN A GOOD DEAL OF DISCUSSION
OF THE PROPOSALS IN THE MEDIA. GENERALLY, IT
APPEARS THAT MEXICANS ARE IN FAVOR OF
ELECTRICITY PRIVATIZATION, BUT QUESTION
UNCLAS SECTION 02 OF 02 MEXICO 001137
DOE FOR PUMPHREY/SANTIAGO/DEUTSCH
E.O. 12958: N/A

TAGS: ENRG, ETRD, ELAB, MX

SUBJECT: ZEDILLO ANNOUNCES ELECTRICITY PRIVATIZATION
WHETHER THERE WILL BE AN INCREASE IN THE NOW
SUBSIDIZED ELECTRICITY PRICES TO THE
CONSUMER.

9. THE BIG CONCERN IN THE LABOR SECTOR IS
THE PROSPECT THAT PRIVATIZATION WILL RESULT
IN THE PERMANENT LOSS OF JOBS AND/OR THAT
UNIONS WILL LOSE COLLECTIVE BARGAINING
CONTRACTS. THE SUTERM SUPPORTS THE ANNOUNCED
CHANGES BECAUSE OF ASSURANCES RECEIVED ABOUT
BOTH CONCERNS. THE SME, ON THE OTHER HAND,
IS STILL SEEKING SUCH ASSURANCES. END
COMMENT.

DAVIDOW

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20:35 12 Apr RTRS-Reform of Mexico power sector still a year away

By Jeffrey Jones

CALGARY, April 12 (Reuters) - Controversial plans by the Mexican government to open the country's electricity sector to foreign investment stand a good chance of winning approval, but it will be at least a year before the issue is decided, Mexico's energy minister said on Monday.

The government of President Ernesto Zedillo aims to amend Mexico's constitution to allow private companies to own generating plants and market and distribute energy in efforts to help fund an estimated \$25 billion of investment needed in the industry over the next six years.

Mexican Energy Minister Luis Tellez, in Canada for a conference highlighting investment opportunities in Mexico for Canadian energy executives, conceded it would be a rocky road, but expressed optimism that the reforms would pass.

"I give it a bigger chance (of getting) it through than not getting it through," Tellez told reporters at the conference.

"It's a very politicized thing, of course...I do respect those people who are not in favor of it but I do hope we will be able to get it through given the importance of electricity for the development of the country."

Critics of the initiative fear a repeat of such past debacles as the government's \$65-billion bailout last year of privatized banks, three of whose former owners face fraud charges.

However, the government hopes to be able to attract foreign money to meet a projected increase in electricity demand of 13,500 megawatts (MW), or 38 percent of current demand, between now and 2005.

A final decision on the plans will be several months off, Tellez said.

"We still have a long time to go. We still have a whole year to see what's happening. This is a major step for the Mexican energy sector and for the Mexican economy in general," he said.

Still, officials with the country's energy industry on Monday urged Canadian companies to start making the necessary contacts now so they would be near the front of the line if and when reforms are passed.

"The show is just starting," Hector Olea, president of Mexico's Comision Reguladora de Energia (CRE), told delegates.

Today, private firms can operate in the sector on a limited basis, running such businesses as independent power projects which can sell electricity to the state-owned monopoly only.

One Canadian energy executive whose company is a major investor in other sectors of the Mexican energy industry said he was not counting on a quick liberalization of the country's electricity industry.

Michael Stewart, president of Westcoast Energy Inc. <W.TO> unit Westcoast International, said his company has considered involvement in both independent power projects in the short term and full participation when reforms are made.

The projects would follow Westcoast's current investments in a gas compression project as well as a huge oil field nitrogen injection venture. Total spending by Westcoast and its partners on the two projects is \$1.3 billion.

"My sense is that opportunities are likely to unfold a little slower than some would anticipate and perhaps some would hope for, particularly the Mexican government," Stewart said.

((Reuters Calgary Bureau (403) 531-1624, jeff.jones@reuters.com))

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UNCLAS GUATEMALA 003336

E.O. 12958: N/A

TAGS: EPET, ENRG, EINV, SENV, GT

SUBJECT: GUATEMALA PLANS TO CONSTRUCT GAS PIPELINE

REF: 97 GUATEMALA 6001

1. SUMMARY: GUATEMALA IS NEGOTIATING A BILATERAL AGREEMENT FOR THE CONSTRUCTION OF A NATURAL GAS PIPELINE FROM CIUDAD PEMEX IN SOUTHERN MEXICO TO GUATEMALA'S ATLANTIC COAST AND ON TO GUATEMALA CITY. THE GOVERNMENT HAS NOT YET DECIDED HOW THE CONSTRUCTION CONTRACT WILL BE AWARDED. IN ADDITION, THE GOG PLANS TO CONSTRUCT A NEW OIL PIPELINE PARALLEL TO ITS EXISTING OIL PIPELINE. GUATEMALAN PETROLEUM PRODUCTION IS EXPECTED TO REACH 35,000 BARRELS PER DAY BY THE END OF 1998. END SUMMARY.

2. ON AUGUST 13, ECONOFF MET WITH DIRECTOR OF HYDROCARBONS CARLOS MAZARIEGOS TO DISCUSS ONGOING PLANS TO CONSTRUCT A NATURAL GAS PIPELINE FROM CIUDAD PEMEX IN SOUTHERN MEXICO ALONG THE PATH OF THE CURRENT PETROLEUM PIPELINE IN THE DEPARTMENT OF PETEN TO PUERTO BARRIOS, GUATEMALA AND ON TO GUATEMALA CITY. THE NATURAL GAS WOULD BE USED TO GENERATE ELECTRICITY AND LATER FOR INDUSTRIAL AND POSSIBLY RESIDENTIAL PURPOSES. IT IS NOT YET KNOWN WHETHER GUATEMALA HAS SIGNIFICANT NATURAL GAS RESERVES, BUT HE INDICATED THAT THE DEAL DID NOT HINGE ON THE EXISTENCE OF SUCH RESERVES. MAZARIEGOS SAID THAT CEPAL (THE UN ECONOMIC COMMISSION FOR LATIN AMERICA) HAS DONE A STUDY INDICATING THE PIPELINE WOULD BE FINANCIALLY FEASIBLE AS FAR AS NICARAGUA AND THAT A

STRICTLY GUATEMALA-MEXICO GAS PIPELINE IS ALSO FEASIBLE. WHILE LACKING SPECIFIC FIGURES, MAZARIEGOS INDICATED THAT THE USD 300 MILLION PRICE TAG MENTIONED LAST YEAR BY HIS PREDECESSOR (REFTEL) WAS IN THE BALLPARK OF WHAT THE PIPELINE WOULD COST TO CONSTRUCT. FURTHERMORE, WHILE THE PIPELINE'S DIAMETER HAS NOT BEEN DECIDED, IT WILL PROBABLY BE AROUND 36 INCHES.

3. MAZARIEGOS SAID GUATEMALA AND MEXICO HAVE DECIDED TO MOVE AHEAD WITH A BILATERAL AGREEMENT TO BUILD THE GAS PIPELINE RATHER THAN WAIT FOR THE OTHER CENTRAL AMERICAN COUNTRIES - HONDURAS, EL SALVADOR, NICARAGUA, COSTA RICA, AND POSSIBLY PANAMA - MENTIONED AS POTENTIAL PARTNERS IN A TRANS-CENTRAL AMERICA GAS PIPELINE. HE SAID HE EXPECTS A BILATERAL AGREEMENT TO BE REACHED BY SEPTEMBER 1998. HE ADDED THAT A BILATERAL DEAL WITH MEXICO DID NOT FORESTALL THE OTHER CENTRAL AMERICAN COUNTRIES FROM CONNECTING ON TO THE PIPELINE AT SOME POINT IN THE FUTURE. CURRENTLY, SUCH ISSUES AS GAS PRICES AND THE RIGHT FOR GUATEMALAN CUSTOMERS TO USE SWAP CONTRACTS WITH NATURAL GAS SUPPLIERS IN THE UNITED STATES, AND POSSIBLY CANADA, ARE BEING NEGOTIATED.

4. IN RESPONSE TO A QUERY BY ECONOFF AS TO WHEN THE OFFICIAL TENDER FOR BIDS TO CONSTRUCT THE PIPELINE WOULD BE ANNOUNCED, MAZARIEGOS REPLIED THAT THE METHOD OF AWARDING THE CONTRACT HAD NOT YET BEEN DECIDED. HE SAID HE PREFERRED AN OPEN TENDER BUT THE MATTER IS STILL UNDER DISCUSSION WITH HIS MEXICAN COUNTERPARTS. MAZARIEGOS WENT ON TO SAY THE CONTRACT WOULD BE AWARDED TO THE BIDDER THAT OFFERS THE LOWEST NATURAL GAS TRANSPORTATION TARIFF, SINCE THE PIPELINE WOULD REMAIN THE PROPERTY OF THE COMPANY THAT CONSTRUCTS IT AND NOT BE TRANSFERRED TO THE GOVERNMENT AT ANY POINT. HE INDICATED THAT U.S., ARGENTINE, AND JAPANESE COMPANIES HAVE EXPRESSED INTEREST IN CONSTRUCTING THE PIPELINE.

5. MAZARIEGOS DISCOUNTED CONCERNS RAISED BY ONE ENVIRONMENTAL GROUP ABOUT THE ENVIRONMENTAL CONSEQUENCES OF THE PIPELINE'S CONSTRUCTION. THE PIPELINE WILL FOLLOW THE EXISTING PATHS OF ROADS, THE CURRENT OIL PIPELINE IN THE PETEN, AND EITHER THE ROAD OR RAILROAD TRACK LINKING THE ATLANTIC COAST WITH GUATEMALA CITY AND THUS REQUIRE A MINIMUM OF NEW ROAD CONSTRUCTION THAT COULD LEAD TO EXPANDED ILLEGAL SETTLEMENT IN PROTECTED AREAS.

6. ON THE PETROLEUM SIDE OF THE SECTOR, MAZARIEGOS SAID A NEW OIL PIPELINE IS NEEDED TO MEET EXPANDED PRODUCTION AND BIDDING MAY BE OPENED FOR CONSTRUCTION IN DECEMBER 1998. TECHNICAL EVALUATIONS OF RESERVES ARE UNDERWAY TO DETERMINE THE DIAMETER OF THE NEW PIPELINE - PROBABLY IN THE RANGE OF 12 INCHES. THIS PIPELINE WILL RUN PARALLEL TO THE EXISTING PIPELINE FROM CENTRAL PETEN TO PUERTO BARRIOS. CURRENT PETROLEUM PRODUCTION IS 30,000 BARRELS PER DAY AND MAZARIEGOS EXPECTS THIS TO INCREASE TO 35,000 BY THE END OF 1998.

GUATEMALA PIPELINE TO BENEFIT SOUTHERN MEXICO

5 (U) ANNOUNCING THE RESULTS OF A PREFEASIBILITY STUDY, THE GOM SAYS THAT THE PROPOSED NATURAL GAS PIPELINE TO GUATEMALA (REF B) WILL PASS ALONG THE PACIFIC COAST OF MEXICO, MAKING GAS AVAILABLE TO SOUTHERN STATES CURRENTLY OFF THE NETWORK. THE ESTIMATED COST OF THE PIPELINE IS OVER 390 MILLION DOLLARS, AND THE STUDY CALLS FOR PRIVATE FINANCING. AFTER A 36-MONTH CONSTRUCTION PHASE, NATURAL GAS SALES TO GUATEMALA WOULD BE 65 MILLION CUBIC FEET PER DAY, LESS THAN ONE AND A HALF PERCENT OF PROJECTED MEXICAN NATURAL GAS PRODUCTION.

DAVIDOW
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Nov. 30, 98



United States Energy Information Administration

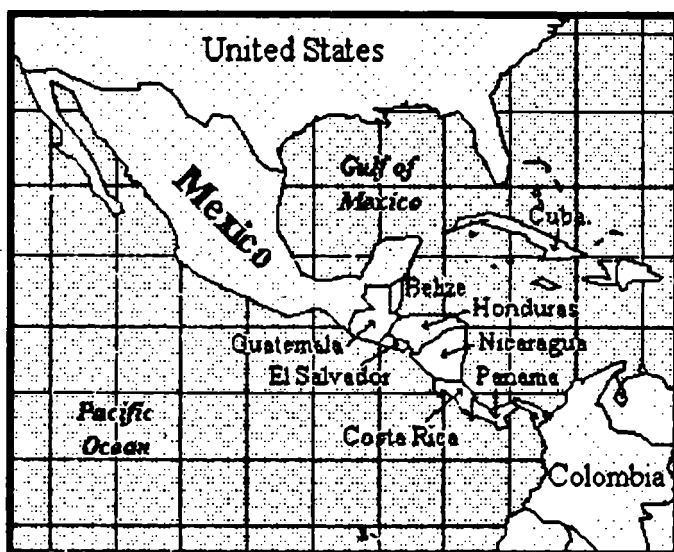
OIL NATURAL GAS ELECTRICITY ENVIRONMENT
PROFILE

May 1998

Mexico

A member of NAFTA and the OECD, Mexico is a major non-OPEC oil producer and has the world's sixth largest oil company (Pemex). Over half of Mexico's net oil exports go to the United States.

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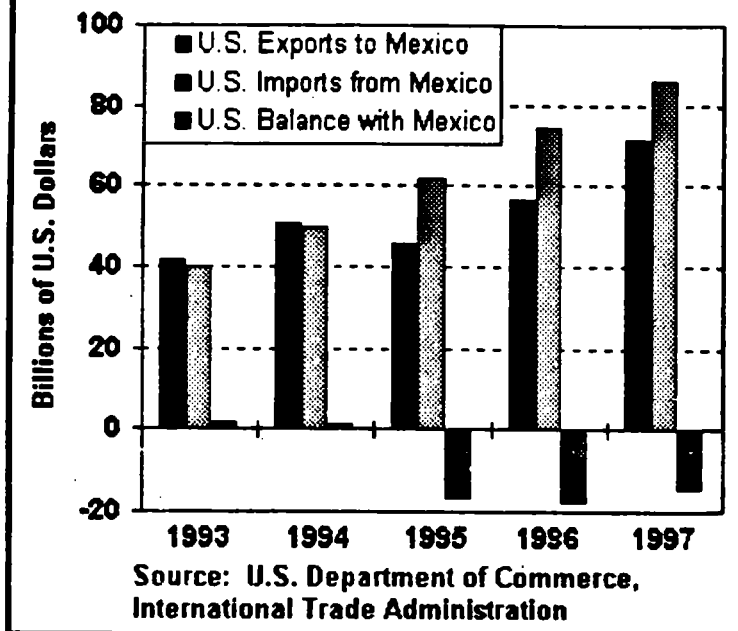
GENERAL BACKGROUND

Despite lower oil prices and the Asian economic crisis, both of which are adversely affecting the Mexican economy, the country appears largely to have recovered from the recession triggered by the December 1994 peso crisis. The recession bottomed out in the third quarter of 1995, with the economy experiencing real economic growth of about 5% in 1996 and 7% in 1997. Mexico's economy is expected to grow 4%-6% in 1998. According to the OECD (of which Mexico has been a member since May 1994), economic growth in 1998 depends on several factors, including: continued implementation of structural reforms; prudent fiscal policy; a monetary policy aimed at further reducing inflation; and stable financial

markets. Another important factor is strong exports (which are expected to face greater competition from Asia).

In late March 1998, Mexico's government was forced to slash federal spending (by \$1.1 billion) due to lower-than-expected oil prices (Mexico's federal budget is calculated around oil prices). This cut -- the second of 1998 after a \$1.8 billion reduction in January -- came despite an accord which Mexico was instrumental in brokering between OPEC and non-OPEC oil producers to cut oil production in an effort to prop up weak world oil prices. The decline in oil revenues, which account for about 40% of government income, has contributed to a worsening trade deficit and threatened to throw the government budget into disarray. Declining oil revenues also threaten to offset continued improvement in Mexico's manufacturing exports, which have been a major force behind Mexico's economic recovery.

U.S. - Mexico Trade, 1993-1997



The United States is Mexico's major trading partner and the country's primary source of foreign direct investment (about half of the total for the 1994-1996 period). In December 1997, Mexico displaced Japan as the second-largest importer of U.S. goods. This relationship has been fostered through official mechanisms including the U.S.-Mexico Binational Commission (composed of U.S. cabinet officials and their Mexican counterparts) and the North American Free Trade Agreement (NAFTA). Implemented in January 1994, NAFTA has liberalized Mexico's trade with the United States and Canada.

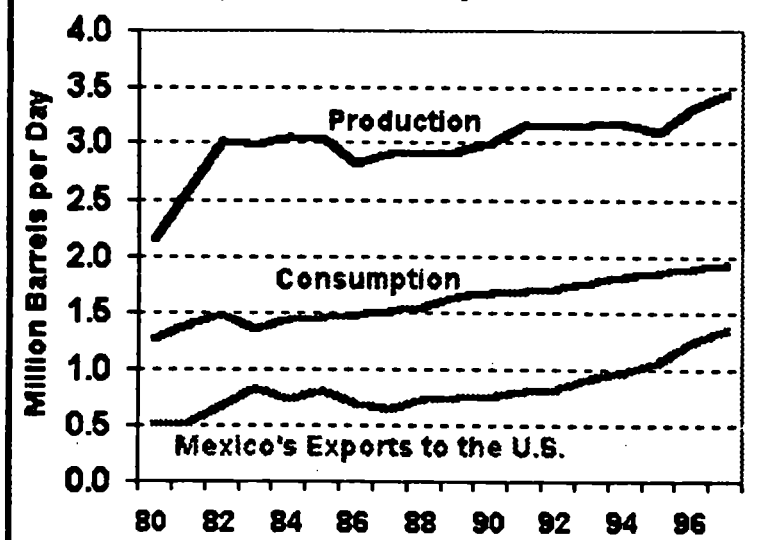
In February 1998, the monthly U.S. trade deficit with Mexico shrunk to its lowest level since the peso crisis of late 1994. Large U.S. trade deficits with Mexico in recent years (\$14.5 billion in

1997) have been a source of friction in U.S.-Mexican bilateral relations. Mexican import demand has increased as Mexico's economy recovers from its severe 1995 recession, resulting in the country's monthly trade balance turning negative in late 1997, after three years in positive territory.

Mexico's is in the midst of a privatization program expected to attract investment of nearly \$43 billion over the 1995-2000 period. This includes an estimated \$10 billion for the electric power sector, \$3.5 billion for natural gas transportation and distribution, and \$3 billion for petrochemical plants. Other initiatives focus on ports, airports, railroads, toll roads, and long-distance and international telephone service. In 1997, Mexico received more than \$12 billion of foreign direct investment.

As of late April 1998, President Zedillo's economic and financial reform program was stalled in Congress. The opposition was resisting several aspects of Zedillo's plan, particularly his Bank Deposit Insurance Fund proposal, which would spend large amounts of money to help prop up Mexico's undercapitalized (and ailing) banking and financial sector.

Mexico's Oil Production, Consumption, and Exports to the U.S.



OIL

Mexico, with the second largest oil reserves (around 40 billion barrels) in the Western Hemisphere -- after Venezuela -- produced 3.44 million barrels per day (bbl/d) of oil in 1997, of which about 3 million bbl/d was crude oil. Crude oil production increased by more than 5% over 1997 levels, following a 9% increase in 1996. In early May 1998, Mexico's state oil company Pemex reported first quarter 1998 crude oil production of 3.127 million bbl/d. Pemex's goal for 1998 is to increase crude oil output by 6.4% and crude oil exports by 8% over 1997 levels. To accomplish this, Pemex planned to invest over \$9 billion in 1998.

Mexico's current oil development efforts focus mainly on the offshore \$5.3 billion Cantarell heavy oil project in the southern part of the Bay of Campeche. Cantarell, which contributes about 2.3 million bbl/d of Mexico's total crude oil production, alone accounts for more than half of Pemex's 3-year Exploration and Production (E&P) investment budget. Pemex aims to drill 214 wells and to institute a \$1 billion nitrogen injection project at Cantarell to raise reservoir pressure and increase per-well production of heavy Mayan crude, which has fallen from 35,000 bbl/d in the 1970s to 1,400 bbl/d today. Other new Mexican oil development projects include: the heavy-crude Ku-Maloob-Zaap complex in the offshore Campeche basin; and the Grijalva Delta light oil project. Given low oil prices, Mexico's government has asked Pemex to suggest cuts in its investment budget; this could adversely affect ongoing or planned oil development projects.

Mexico produces three grades of crude oil: heavy Maya-22, which accounts for more than half of total production; light, low-sulfur Isthmus-34 (about 28% of total production); and extra-light Olmeca-39 (about one-fifth of total production). About three-fourths of Mexico's crude oil production comes from offshore sites in the Campeche Sound of the Gulf of Mexico, which contain about 15 billion barrels of proven crude oil reserves (according to Mexico's first audited reserves estimates, which were released in March 1997).

About half of all Mexican crude oil production is exported. The average export price for Mexican crude oil in 1997 was \$15.30/barrel (\$14.30/barrel for Mayan and \$16.40/barrel for Isthmus), down from an average of \$18.90/barrel in 1996. In mid-March 1998, Mexico's crude price hit a low of \$8.22/barrel. This prompted Mexico to push for an agreement between OPEC and non-OPEC producers to cut oil production in an effort to boost prices. On March 22, 1998, Mexico announced a deal (along with Saudi Arabia and Venezuela) under which it pledged to cut its own crude oil exports by 100,000 bbl/d. Following this agreement, Mexico's crude price increased to more than \$10/bbl by early May, but still remained well below the federal budget's target price for 1998 of \$12.50/bbl. In order to reduce oil exports as agreed, Pemex plans to push more Mexican crude into domestic refineries while cutting back on oil product imports. Oil also may be used as a substitute for hydroelectric output, which has fallen recently due to a drought.

In March 1997, Mexico released its first independently audited oil reserve estimates. The study, conducted by engineering firm Netherland, Sewell and Associates, involved a field-by-field assessment according to international standards. Under these standards, proven oil reserves include only known fields which can be economically produced using current operating techniques. The new assessment places Mexico's offshore reserves at 17.1 billion barrels, a reduction of 40% from previous Pemex figures. Of this, 12.3 billion barrels is

located in the Cantarell giant field. According to the *Oil and Gas Journal*, Mexico's total oil reserves as of January 1, 1998 were 40 billion barrels.

In late March 1998, the United States and Mexico began formal talks regarding a so-called "doughnut hole" lying between the countries' 200-mile Exclusive Economic Zones in the oil-rich western Gulf of Mexico. The western "doughnut hole" covers a 4-million acre area on the outer continental shelf; a similar "doughnut hole" also exists in the eastern Gulf. In November 1997, the U.S. Senate ratified a 1978 treaty on maritime limits in the Gulf of Mexico. The Mexicans had stated that they would not discuss the "doughnut hole" issue until the border treaty was ratified by the U.S. Senate (the Mexican Senate ratified it soon after it was completed). The issue has become important in recent years as offshore-drilling technology has improved significantly, opening up for the first time the 10,000-foot waters of the western "doughnut hole."

Nationalized since 1938, Mexico's oil industry provides a major source (about 40%) of government revenue. Pemex is the world's sixth largest oil company and the single most important entity in the Mexican economy. Pemex enjoys a monopoly over exploration and extraction of all hydrocarbons, a position guaranteed by Article 27 of Mexico's Constitution (which reserves ownership of hydrocarbon resources to the state). Foreign participation in the upstream sector is limited to service and performance contract arrangements and turnkey drilling contracts. In March 1997, President Zedillo reaffirmed that Pemex will remain a national Mexican company.

As a result of low oil prices, Pemex reported that operating profits in the first quarter of 1998 were down 39% from the first quarter of 1997 (\$2.984 billion vs. \$4.883 billion). The average price for Pemex's crude oil export basket in the first quarter 1998 was \$10.76/barrel, down 42% from \$18.43/barrel in the first quarter of 1997. Pemex loses an estimated \$1.1 billion annually for every dollar per barrel decline in its average oil price.

REFINING AND PETROCHEMICALS

In the downstream oil sector, Pemex maintains monopoly control over refining of crude oil and production of eight basic petrochemicals (butane, carbon black feedstocks, ethane, heptane, hexane, naphtha, pentane, propane). Pemex Petroquímica, the petrochemical unit of Pemex, has plans to partially privatize 59 petrochemical plants at nine complexes in the country. In May 1998, Energy Minister Tellez said that Pemex would seek private bids on the first of these plants during the third quarter of 1998. Tellez also said that, although previous response had been "very poor," the Energy Ministry would continue with its plan to capitalize the plants using a 51% government/49% private ownership formula. This appears to contradict earlier reports that Pemex was prepared to sell a 100% stake in its petrochemical complexes. Pemex needs foreign capital in order to repair and upgrade its petrochemical plants, which have deteriorated due to a lack of domestic investment in the sector. Mexico's secondary petrochemical plants produce 13 types of petrochemicals at 61 plants located mainly in 10 complexes.

As with petrochemicals, Mexico's domestic refineries also are in need of upgrading (to produce cleaner burning transportation fuel, for instance). In November 1997, Pemex signed a contract for a massive upgrade of its Cadereyta refinery. The contract went to South Korea's Sunkyong Engineering and Construction, Germany's Siemens AG, and Mexico's Grupo Tribasa. When work is completed in late 2000, Cadereyta's capacity to produce jet fuel, diesel, and gasoline will increase sharply. Also in November 1997, Pemex chairman Adrian Lajous announced \$3.5 billion in planned spending over three years to build delayed coker units and other projects at three refineries (Ciudad Madero, Minatitlan, Salina Cruz). Along with Cadereyta, these upgrades will help Mexico meet its demand for jet fuel, diesel, and gasoline and possibly eliminate imports of these products.

An important source of gasoline (up to 45,000 bbl/d) for Mexico is the 255,700 bbl/d Deer Park (Texas) refinery -- a \$1 billion/year joint venture between Pemex and Shell Oil Co. of the United States. Pemex

supplies around 135,000 bbl/d of heavy Mayan crude to the refinery and in turn imports gasoline produced at the refinery.

As of March 1998, Pemex was in talks with Mobil Corp. regarding an alliance with Mobil's 320,000- bbl/d Beaumont, Texas oil refinery. The aim of the project would be to increase Pemex's ability to process high sulfur crude, which makes up most of Mexico's oil production. In March 1998, Pemex's international affiliate PMI signed a long-term supply contract with Clark USA, a U.S. refiner. According to Pemex, Clark is to build a new coking plant at its refinery in Port Arthur, Texas to process as much as 150,000-200,000 bbl/d of heavy Maya crude. The refinery is to be completed in 2001.

NATURAL GAS

Mexico produced about 1 trillion cubic feet (Tcf) of natural gas in 1997, from reserves of 63.9 Tcf. The United States exported a total of 38.3 billion cubic feet (Bcf) of natural gas to Mexico in 1997, while importing 16.3 Bcf. Mexico's Energy Ministry expects gas production to increase by an average of 10% annually over the 1996-2000 period. Domestic demand is expected to grow faster than production, at an average annual rate of 12% between 1996 and 2000, reaching 2.5 trillion cubic feet by 2006 (from around 1 trillion cubic feet in 1997).

Most of Mexico's natural gas is produced in the southeastern part of the country, far from major consuming areas in the north and northeast. Associated ("wet") gas is produced both onshore (primarily in the southern Chiapas and Tabasco regions) and offshore. Natural gas also is produced in the northeastern part of the country at the country's largest non-associated ("dry") gas field (Burgos), where Pemex has begun an ambitious plan to increase production from 500 million cubic feet/day (Mmcfd) in late 1997 to a peak of 1,400 Mmcfd in 2001. The Burgos basin has been in production since 1945, with maximum production of more than 600 Mmcfd reached in 1970. Pemex hopes to increase Burgos production through 3D seismic technology combined with new drilling techniques and hydraulic fracturing. The first major (\$110 million) contract for this work went to U.S. firm Schlumberger. Pemex plans to spend \$2 billion through 2000 (and \$5.5 billion over 15 years) on these and other efforts at Burgos.

By increasing Burgos production, Pemex hopes to supply the growing industrial market of northeastern Mexico, which U.S. producers also have targeted. In addition, Pemex is considering exporting part of any increased gas production to the United States. Natural gas consumption in northeastern Mexico -- pushed by rapid industrial growth, clean air goals, and construction of new gas-fired power plants -- is expected to increase rapidly during the next decade. In late 1997, natural gas was exported from the United States to Mexico via the new Samalayuca Pipeline, which crosses the U.S.-Mexican border near Clint, Texas. The pipeline is aimed at supplying the Samalayuca powerplant near Ciudad Juarez, Mexico, as well as other markets in the area.

In early April 1998, the Interstate Natural Gas Association of America urged U.S. Trade Representative Charlene Barhsefsky to accept Mexico's alleged offer to speed up the phaseout of the current 5% tariff on imported natural gas from the United States in exchange for U.S. tariff concessions on imports of Mexican chemicals. Specifically, Mexico wants a faster phaseout of the U.S. import tariff on purified terephthalic acid (PTA), which is currently 8.9% plus \$18/ton. Natural gas producers and marketers in southern Texas are eager to get into the growing northern Mexican gas market. The North American Free Trade Agreement (NAFTA) set Mexico's tariff on imported natural gas at 10% beginning in 1993, with an annual 1% reduction for 10 years through 2002.

Until recently, Mexico has not given high priority to the development and use of its natural gas reserves. A major constraint has been the lack of investment in pipeline infrastructure for transporting gas over long distances (most production is in offshore and southern onshore regions while population is concentrated

inland and in the north). Natural gas is slated to play a more important role in the future as new combined cycle power plants are built, existing power plants are converted to natural gas. Mexico's Energy Regulatory Commission (Comision Reguladora De Energia, CRE) expects that natural gas demand will double over the next decade, and that half of this gas will be used to generate electricity.

According to an April 1997 Energy Ministry policy document ("Prospects For the Natural Gas Market 1996-2005"), investment in Mexico's natural gas market is expected to reach \$1.4 billion in the 5 years leading up to 2000. Of that amount, \$900 million is expected to be invested in natural gas distribution in Mexico City, and \$103 million will be invested in natural gas distribution in the central Bajio region comprising Leon, Salamanca, Celaya and Irapuato.

Legislation enacted during 1995 opens natural gas transportation, storage, and distribution to private (including foreign) investment and allows private companies to import and export natural gas. Pemex, which prior to 1995 controlled all of the country's gas industry, maintains control over the gas upstream sector under this law, with midstream and downstream segments now completely open to the private sector. Under the 1995 law, the CRE is mandated to achieve a competitive, efficient, safe, and sustainable natural gas industry as part of Mexico's efforts at increasing use of natural gas for environmental, economic and other reasons. CRE's powers include enforcement of regulations, inspections of facilities, issuance of permits, regulation of prices, and overall supervision of the industry.

During 1998, CRE will oversee bidding on gas distribution permits for four of Mexico's largest regions: Mexico City, Texcoco, Monterrey, and Northern Tamaulipas. CRE already has granted gas distribution permits in the northern cities of Mexicali, Chihuahua, Hermosillo, as well as the central city of Toluca.

In October 1997, CRE granted a 30-year permit for a consortium of private companies to transport natural gas transport to the Yucatan Peninsula. The permit went to Energia Mayakan, a joint venture of Mexican firm Gutsa Construcciones, TransCanada Pipeline, and Bechtel subsidiary Interger. The consortium will invest \$276 million to build the 450-mile pipeline, which will transport gas from the petrochemical complex at Ciudad Pemex in Tabasco state to the Merida III power plant (and others) in the Yucatan. Construction on the project is scheduled to begin in 1998, with the 370 Mmcfd line due for completion in late 1999. Energia Mayakan represents Mexico's first private sector pipeline project.

Meanwhile, a joint venture between El Paso Energy Corporation and Pemex, began in December 1997 transporting natural gas from an existing El Paso Natural Gas Co. pipeline near El Paso, Texas, to the gas-fired Samalayuca power plant in Chihuahua, Mexico. In February 1998, the CRE approved permits for two other gas pipelines, both of which are to run from Palmillas to Toluca, but over different routes. The pipelines are to be built by Tejas Gas and Transnevado Gas (a subsidiary of Nova Co. of Canada).

A gas pipeline from Tabasco state to Central America has been proposed. The 440-mile, \$500 million pipeline would carry gas to Guatemala, Honduras, El Salvador, and possibly Nicaragua and Costa Rica as well. Its goal would be to supply Central America, promote regional economic integration, and substitute natural gas for traditional fuels such as diesel and wood. In late April 1998, Pemex officials said that plans for such a pipeline could be threatened by a lack of sufficient gas supply in southern Mexico.

The CRE has been busy defining natural gas distribution zones to be opened to private investment, and conducting the bidding process for distribution permits. In 1996, a consortium formed by U.S. firms Enova and Pacific Enterprises and Mexico's Proxima was granted the first natural gas concession awarded in Mexico, to deliver natural gas in the Mexicali, Baja California area. In March 1997, the same consortium was granted a permit to distribute natural gas in the Chihuahua-Anahuac-Delicias areas.

In April 1997, Compania Nacional de Gas, S.A. (Conagas) was awarded a permit to distribute natural gas in the Piedras Negras region of the northern state of Coahuila. Concessions for gas distribution in Monterrey, the country's third-largest city and most important industrial center, have been granted to the Mexican subsidiary of Spain's Repsol, and Compania Mexicana de Gas. The two companies are to invest nearly \$220 million, including \$180 million to purchase the city's existing gas system from Mexico's Federal Electricity Commission (CFE). Residential use of natural gas in Monterrey is estimated around 74% -- the highest of any region in Mexico. In 1997, Repsol won another concession, to distribute gas in Toluca, a rapidly growing industrial city west of Mexico City. In all, about 30 cities are planning to install natural gas distribution systems.

In March 1998, Pemex Gas y Petroquimica Basica announced that a new natural gas processing plant located in Tabasco should be operational in March 1999. The plant is designed to produce 44,000 bbl/d of liquid gas, with another 515 million cubic feet/day of capacity for industrial and domestic natural gas. In February 1998, Pemex Gas y Petroquimica Basica completed construction of a cryogenic plant in Nuevo Pemex to produce 550 million cubic feet/day of gas. Overall, about 84% of the Mexico's gas processing and sweetening capacity is located in the southeastern part of the country.

COAL

Coal provides only about 4% of Mexico's total energy requirements. The majority of the country's coal reserves, which are low quality due to their high ash content, are located in Coahuila. U.S. company Mission Energy, which purchased the previously government-owned company Minera Carbonifera Rio Escondido (MICARE) when it was privatized, is now the largest producer. Domestic supplies are augmented by a small volume of imports from the United States, Canada, and Colombia.

ELECTRIC POWER

Mexican power output reportedly increased 6.5% in 1997. In 1996, Mexico generated 154 gigawatthours (Gwh) of electricity from 36 gigawatts (GW) of electric generating capacity. According to Mexico's Energy Minister Tellez, the country will require 6 GW more capacity over the next six years. At present, around 70% of Mexico's electric capacity consists of thermal power plants (primarily fuel oil, plus natural gas and coal). Hydroelectric plants account for about one-fourth of the total (although there has been a shortage recently in parts of western Mexico), and Mexico's one nuclear plant for about 4%. About 2% of capacity consists of geothermal and other energy sources (including one wind-powered plant). Under Mexico's industrial energy policy, a significant percentage of Mexico's thermoelectric plants are slated for conversion to natural gas by 2005.

Like Pemex in the oil and gas industry, state power company CFE (Comision Federal de Electricidad) for years has enjoyed a monopoly in the electric power sector, although reforms instituted in 1992 allow independent power producers -- IPPs -- and cogenerators to sell it power. CFE owns most of Mexico's 36 gigawatts (GW) of installed electric generating capacity. However, this is beginning to change as CFE lacks the funds needed to meet Mexico's soaring electric power demand.

International companies (especially from the United States) are expected to play a major role in bringing online the 12-13 GW of new generating capacity which CFE says it will need by 2006. Energy Minister Tellez stated in early March 1998 that Mexico would require investment of \$12-\$15 billion over the next five years for new electric generating capacity. In November 1997, CFE announced rate hikes for 1998 of 6.2% in real terms as part of a policy aimed at removing subsidies to power consumers.

In late February 1998, a joint venture (JV) to finance, construct, own and operate private power projects in Mexico was announced between IEP Global Development of the United States and a subsidiary of Mexico's Grupo Protexa. The JV also is expected to develop gas transmission and other related infrastructure projects

in the Mexico.

CFE plans to issue tenders for 8 IPPs by the end of May 1998. These include stations at: Rio Bravo (450 megawatts -- MW); Hermosillo (225MW); El Sauz/Queretaro (450 MW); Rosarito (450 MW); Altamira (450 MW); Tuxpan (450 MW); Monterrey (450 MW); Nogales (225 MW); Saltillo (225 MW); and Campeche (225 MW). As of early May, bids had been called for only two of these projects -- Rio Bravo and Hermosillo. During 1997, CFE awarded a total of \$1.4 billion in tenders to a variety of international companies. The only major tender won by a U.S. company in 1997 was for three turbogenerators by Westinghouse.

Work on the 450-MW Merida III gas-fired power plant (Mexico's first IPP) in Yucatan state, being carried out by a group comprising AES Corp. of Virginia, Nichimen (Japan), and Grupo Hermes (Mexico), was slated to begin in April 1998, with the project (including a gas pipeline) to be completed by September 1999. Four independent power projects are currently being built on a 15-year build-lease-transfer basis: Chihuahua (450 MW, gas and diesel), Rosarito III (450 MW, gas), Monterrey (450 MW, gas), and Cerro Prieto IV (100 MW, geothermal).

The recently-completed Samalayuca power plant, which will burn natural gas imported via pipeline from the United States, was built by a group of U.S. and Mexican companies (including General Electric Power Systems, General Electric Capital Services, El Paso Energy Corporation, and Grupo Ica of Mexico) under a build-lease-transfer framework. The \$647 million project was partly financed by loans from the Inter-American Development Bank and the U.S. Export-Import Bank.

In late April 1998, the U.S. Federal Energy Regulatory Commission (FERC) approved a draft order directing El Paso Electric Co., which owns the only major U.S.-Mexico electricity interconnections in the western Texas/New Mexico areas, to offer open access on its cross-border transmission facilities to Mexico. In late December 1997, Duke Energy and Enron Corp. had separately asked for permission to sell electricity to Mexico using transmission facilities owned by El Pas Electric, San Diego Gas and Electric, Central Power and Light, and CFE.

Meanwhile, CFE has been invited to join an electric power pool in Texas (the Electric Reliability Council, or Ercot) in a move that could eventually lead to increased electricity trade between Texas and fast-growing northern Mexico. Energy Minister Tellez has stated that he would like CFE to enter into agreements with U.S. utilities for medium-term contracts to import power. Tellez also would like to connect northeastern and east-central Mexico to the Texas and Arizona power grids. Tellez has stated his belief that power imports would increase competition in the Mexican electric power sector and lead to lower prices. Importing power from the United States would allow Mexico to invest its capital in transmission and distribution. Currently, Ercot has only limited (800 MW) electricity import or export capacity between Texas and Mexico, but there is interest in expanding this due to forecasts of strong Mexican power demand growth.

Experts believe that Mexico has large untapped renewable energy potential, including solar, wind, and hydroelectric. Mexico also created a special commission in 1989 to study the use of solar, wind, hydroelectric, and biomass. Despite this, Mexico has few viable renewable energy projects underway. In March 1998, the U.S. Initiative on Joint Implementation selected a project aimed at building a hybrid system to utilize solar, wind, and diesel capacity in San Juanico, Baja California Sur. The project involves Arizona Public Service Co., Niagara Mohawk Corp., and CFE. In April 1998, Switzerland's ABB Asea Brown Boveri announced that it would supply an advanced, high-efficiency, low-emissions power plant to CFE for \$250 million.

ENVIRONMENT

In addition to domestic air quality targets established in response to serious pollution problems, Mexico has international environmental obligations under the North American Agreement for Environmental Cooperation

(NAAEC), a NAFTA side agreement. Mexico participates with its NAFTA partners in the North American Commission for Environmental Cooperation (NACEC) and is pursuing infrastructure projects along the U.S.-Mexico border. Priority border projects being developed and financed by the North American Development Bank (NADBank) and the Border Environment Cooperation Commission (BECC) address wastewater treatment, drinking water, and municipal solid waste.

Mexico has a 5-year National Environmental Program (1996-2000) which is expected to invest \$13.3 million to reduce air pollution in and around Mexico City. The project is intended to serve as an example for other major cities. Mexico also has introduced a federal tax incentive program for purchases of pollution control equipment, and has reformed its General Law of Ecological Equilibrium and Environmental Protection (LGEEPA).

Under LGEEPA, Mexico's ministries dealing with environmental and natural resource issues have been reorganized. The Ministry of Environment, Natural Resources, and Fisheries is designed to modernize and centralize Mexico's federal environmental policy and enforcement. The National Institute of Ecology is responsible for executing environmental policy; the Federal Attorney General for Environmental Protection carries out environmental inspections and negotiates compliance agreements with businesses and industrial groups in Mexico. Responsibility for chemical substances and hazardous wastes is held by the Ministry of Communications and Transportation, while nuclear power and waste issues are dealt with by the Ministry of Energy.

Mexico receives international assistance for its environmental programs, primarily from the World Bank, Japan, and the United States. Major activities include pollution abatement planning and programs in the Mexico City area (covering emission standards development, pollution research support for the Instituto Mexicano del Petroleo and other institutions, and loans for new, clean taxis and small buses), the National Center for Environmental Research and Training (which disseminates information on air pollution and studies industrial hazardous wastes), programs for desulfurizing crude oil at the Tula refinery, environmental infrastructure development, and strengthening northern border region environmental planning and administration at the federal, state, and local levels. In March 1998, the Interamerican Development Bank (IDB) loaned Mexico \$23.4 million for work on overcoming barriers to the commercialization of energy efficiency.

COUNTRY OVERVIEW

President: Ernesto Zedillo (since December 1994; next election in 2000)

Independence: September 16, 1810 (from Spain)

Population (1997): 94.2 million

Location/Size: Southern N. America/762,000 square miles (nearly three times the size of Texas)

Major Cities: Mexico City (capital), Guadalajara, Monterrey

Languages: Spanish, Mayan dialects

Ethnic Groups: Mestizo (Indian-Spanish), 60%; Amerindian, 30%; Caucasian, 9%; Other, 1%

Religions: Roman Catholic, 89%; Protestant, 6%, Other, 5%

Defense (8/96): Army: 130,000, Navy: 37,000, Air Force: 8,000, Rural Defense Militia: 14,000

ECONOMIC OVERVIEW

Finance Minister: Jose Angel Gurria

Currency: 1 Peso = 100 centavos

Market Exchange Rate (5/5/98): US\$1 = 8.5 pesos

Gross Domestic Product (GDP, market exchange rates) (1997E): \$415 billion

GDP Per Capita (1997E): \$4,405

Real GDP Growth Rate (1997E): 7.0% (1998E): 4%-6%

Inflation Rate (consumer prices, 1997E): 15.7% (1998E): 13%-15%
Unemployment Rate (1996E): 10%
Total External Debt (1997E): \$162 billion
Current Account Balance (1997E): -\$7.3 billion
Major Trading Partners: United States, Canada, Japan, Spain, France, United Kingdom
Merchandise Trade Balance (1997E): \$0.62 billion (\$14.5 billion with the United States)
Exports : \$110.4.2 billion (\$85.8 billion to the U.S.)
Imports: \$109.8 billion (\$71.4 billion from the U.S.)
Major Export Products: Crude oil and products, coffee, silver, engines, motor vehicles, cotton, consumer electronics
Major Import Products: Metal-working machines, steel mill products, agricultural machinery, electrical equipment, aircraft, motor vehicle and aircraft parts
Total Reserves (non-gold) (1997E): \$27.5 billion

ENERGY OVERVIEW

Energy Minister: Luis Tellez Kuenzler (appointed 10/20/97)
Proven Oil Reserves (1/1/98): 40 billion barrels
Oil Production (1997E): 3.44 million barrels per day (bbl/d), of which 3.0 million bbl/d is crude
Oil Consumption (1997E): 1.9 million bbl/d
Net Oil Exports (1997E): 1.5 million bbl/d
Gross Crude Oil Exports (1997E): 1.7 million bbl/d (1.3 million bbl/d to the United States)
Oil Export Revenues (1997E): \$11.5 billion
Crude Oil Refining Capacity (12/22/97): 1.52 million bbl/d
Natural Gas Reserves (1/1/98): 63.9 trillion cubic feet (tcf)
Natural Gas Production (1996E): 1 tcf
Natural Gas Consumption (1996E): 1 tcf
Natural Gas Imports from U.S. (1997E): 38.3 billion cubic feet (bcf)
Natural Gas Exports to U.S. (1997E): 16.3 bcf
Coal Production (1996): 10.1 million short tons
Coal Consumption (1996): 14 million short tons
Coal Imports (1996E): 2 million short tons
Recoverable Coal Reserves (12/93): 1.3 billion short tons
Electric Generation Capacity (1/1/96): 36 gigawatts
Net Electricity Generation (1996): 154 billion kilowatthours (bill kwh)
Net Electricity Consumption (1996): 144 bill kwh

ENVIRONMENT OVERVIEW

Minister of Environment, Natural Resources, & Fisheries: Julia Carabias Lillo
Total Energy Consumption (1996E): 5.6 quadrillion Btu
Energy Consumption per Capita (1996E): 58.2 million Btu (vs. 331.8 million Btu in the United States)
Energy Consumption per \$1987 of GDP (1996E): 34.6 thousand Btu (vs. 16.7 thousand Btu in U.S.)
Energy-Related Carbon Emissions (1996E): 86.3 million metric tons (1.4% of world carbon emissions)
Carbon Emissions per Capita (1996E): 0.89 metric ton (vs. 5.42 metric tons in the United States)
Carbon Emissions per thousand \$1987 of GDP (1996E): 0.53 metric tons (vs. 0.26 metric tons in U.S.)
Major Environmental Issues: Natural fresh water resources scarce and polluted in north, inaccessible and poor quality in center and extreme southeast; raw sewage and industrial effluents polluting rivers in urban areas; deforestation; widespread erosion; desertification; serious air pollution in the national capital and urban centers along U.S.-Mexico border.

ENERGY INDUSTRY

Organization: *Oil and natural gas* - Petroleos Mexicanos (Pemex), four operating subsidiaries (Exploration and Production, Refining, Gas and Basic Petrochemicals, Secondary Petrochemicals), Petroleos Mexicanos Internacional (PMI); *Electric power* - Commission Federal de Electricidad (CFE); *Natural gas and electric power regulation* - Commission Reguladora de Energia (CRE)

Major Ports: Gulf Coast - Cayo Arcos, Dos Bocas, and Pajaritos (handle most of Pemex's oil exports), Tuxpan, Ciudad Madero; Pacific Coast - Salina Cruz, Rosarito

Major Oil-Producing Fields (1997): Cantarell, Abkatun, Ku, Caan, Pol

Major Refineries (1/1/97 Capacity): Salina Cruz (330,000 bbl/d), Tula Hidalgo (320,000 bbl/d), Salamanca (236,000 bbl/d), Cadereyta (235,000 bbl/d), Minatitlan (204,000 bbl/d), Ciudad Madero (195,000 bbl/d)

Pipelines: *Crude oil* - 17,500 miles; *Petroleum products* - 6,300 miles; *Natural gas* - 8,200 miles

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Links to other sites:

[1997 CIA World Factbook - Mexico](#)

[U.S. Department of Energy's Office of Fossil Energy's International section - Mexico](#)

[U.S. State Department's Consular Information Sheet - Mexico \(April 1998\)](#)

[U.S. State Department's Country Commercial Guide - Mexico](#)

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[PEMEX's Home Page](#) the state-owned oil company of Mexico

[Institute of Latin American Studies Reference Home Page on Mexico](#)

[Mexico Energy information](#) from the National Law Center for Inter-American Free Trade

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