Mexico airs national energy plan

Timothy Rush examines its ambitious goals to supply power for industrialization, and its controversial export policy.

On Nov. 18, Mexico's Ministry of Natural Resources and Industrial Development (Sepafin) unveiled Mexico's first official Energy Program (PE).

Given Mexico's immense energy resources and their central place in Mexico's development plans, the document has been closely scrutinized within Mexico.

It holds no less interest for America and other countries who look to Mexico as a possible future source of expanded oil and gas supply.

In its basic outlines, the program shows the hallmarks of the existing, more generalized planning documents, most notably the National Industrial Development Plan (PNDI). This is so because the López Portillo government has centralized the planning process to a much higher degree than any previous Mexican government, and the same team of econometricians who drafted the PNDI wrote the energy plan. The leader of the team is Vladimiro Brailowski, reporting directly back to Sepafin minister José Andrés de Oteyza.

Though these guidelines are now standard policy points within Mexican planning, they deserve mention simply because of their sharp contrast to "limits on growth" tendencies in so many other countries.

- "The principal objective of the program is to support national economic development" set at the "ambitious" level of "long-term growth at 8 percent per year." Growth in energy production, and particularly electricity, is the pacer for the effort; energy is "the circulatory system of economic development and we must avoid thrombosis." Thus oil and gas production is slated to double over the next decade; electricity, to triple.
- This massive energy development program "will radiate powerful stimuli" to related industrial fields both "downstream"—refining, petrochemicals, and energy-intensive industry in general—and "upstream" in capital goods. Mexico in fact is predicating a hefty expansion of its domestic capital-goods industry on the basis of the energy expansion.
- Plentiful as the oil is (Mexico is number five internationally in reserves), it must be seen as a transition to alternative sources (nuclear, hydroelectric, and coal) by the beginning of the next century.
- "Above all else and before any other thing," the country "must strengthen the scientific and technical infrastructure."

The export policy, in its broadest outlines, is a reiteration of previous criteria. Exports of oil and gas are determined exclusively "as a function of the capacity of the economy to productively absorb foreign resources," and not "the volume of reserves per se, nor the requirements of other economies. . . ." Specifically, export policy seeks "to absorb modern technologies, more rapidly develop domestic production of capital goods, gain access to new markets for exports of manufactures, and achieve better financing conditions." This, in a nutshell, is the famous "oil-for-technology" approach which Mexico has been pioneering over the past three years.

The only exception to this approach, the program once again highlights, is if world agreement is reached around López Portillo's plan for world cooperation in energy production and distribution, which he presented to the United Nations in September 1979. Should that be approved, foreign oil needs would be directly taken into consideration.

In addition to these general guidelines, the program is filled with specific targets in such crucial areas of energy policy as internal pricing of oil and gas (Mexico currently has some of the lowest domestic prices in the world), choice of technologies in steel and nuclear, the structure of oil products over the next decade, and growth requirements by source of energy through 1990.

No metric

The flaw in the energy program, as in the PNDI before it, is its deficient methodology. It has no method of measuring—no "metric"—to evaluate differing *qualities* of energy use and energy production, and their implications for productivity and growth in the economy. Instead there is mere *correlation* of previous ratios of energy and growth—the kind of incompetence characteristic of the Wharton School econometric model for Mexico, which not accidentally was partially incorporated in computer runs for the program.

Exemplary of the problems this leads to is the arbitrary goal in the plan of lowering the ratio of energy growth to gross domestic product (GDP) growth from

1.7 to less than 1.0. Sometimes, as the plan emphasizes, energy-intensive processes are simply inefficient technologies and should be scrapped for better, more efficient ones. This would lower the ratio of energy to GDP growth. But as the plan also notes elsewhere, the Mexican economy as a whole is still predominantly backward and will require overall upgrading of energy intensivity in order to build up productivity. It is impossible to distinguish between the two opposite tendencies with a metric as simplistic as "energy intensivity."

The correlated problem is the PE's "energy pluralism." To the plan's formulators, basically any source is as good as another when it comes to meeting projected future demand, within general limits of availability and cost. The basic criterion becomes that of a chef preparing a nice garden salad.

Thus, while correctly dismissing the great greenie hoax, solar energy, saying that it will provide only "marginal" amounts of energy for the foreseeable future, the program fails to sufficiently weigh immediate energy policy toward nuclear, though it establishes this source as the eventual principal replacement for oil.

This and other errors in the PE are immediately apparent from the viewpoint of the triple-vector-product functions of the LaRouche-Riemann model, featured regularly in *EIR* and now in the process of being extended to specifically analyze the Mexican economy. The different "mixes" of energy and investment choices show up in the LaRouche-Riemann model as crucial differences in the capacity for the economy to generate adequate rates of tangible reinvestible surplus to meet given productivity and growth goals.

The full LaRouche-Riemann Mexican analysis is scheduled for publication in *EIR* in early 1981.

The most glaring example of a breakdown in scientific method is the section on specific hydrocarbon export policy.

The PE states from the outset of this section that "1.5 mbd of oil and 300 mcfd of gas are established as the limits of petroleum exports" for the entire decade until 1990.

In the case of oil, this is the current export target due to be filled early in 1981; for gas, it is the current level of exports to the U.S.

Together with other guidelines—such as not exporting more than 50 percent of oil to any one country and not permitting any one client to satisfy more than 20 percent of its needs with Mexican oil—this section of the PE would mean that the U.S. and other oil-importing nations could not look to Mexico for any increases in oil or gas supply for a decade.

Viewed from its domestic effects, it would emasculate Mexico's capacity to conduct oil-for-technology diplomacy and would invite a catastrophic collapse of the entire industrialization effort. The PE argues that the Mexican economy can achieve 8 percent growth without going over the 1.5 million barrel limit. This simply isn't so. It is virtually impossible to build up non-oil exports, particularly of the manufactured goods that Mexico correctly prefers to export, fast enough to cover the huge import bill for the industrialization over the short- and medium-term. Increasing use of oil export revenue is indispensable.

What happened? The supernationalists of the PE planning crowd fell hook, line, and sinker for the neo-Malthusian propaganda put out by the New York and London banking and policy crowd.

To stop Mexico's industrialization, the Council on Foreign Relations, Wharton School's Lawrence Klein,

Mexican energy program projections for installed electricity capacity

(In MWe)

Source	1970	1978	1982	1990
Hydroelectric	3,228	5,225	6,915	12,000*
Oil and natural gas	2,840	8,767	10,961	25,760*
Coal	0	0	1,200	4,000
Nuclear	0	0	1,300	2,600**
Geothermal	0	150	270	640
Solar	0	0	(negligible)	(negligible)
Total	6,068	13,992	20,654	45,000

Sources: National Energy Commission, Industry Ministry, *Executive Intelligence Review*

**EIR* estimates

**The Mexican government projects to expand nuclear capacity to 20,000 MWe by the year 2000.

and a host of related policy conduits have deluged Mexico with the "disinterested" advice that Mexico's oil development must be cut back or Mexico will face out-of-control inflation and social instability "like Iran's."

The results of the campaign are telling. The PE planners have become psychologically scared of the oil, instead of viewing it confidently and aggressively as Mexico's great opportunity and economic asset. "How do we get the genie back in the bottle?" is the underlying question, not "how do we successfully invest in production and productivity in an anti-inflationary manner?"

The contortions the document then goes through to conform to foreign neo-Malthusian thinking is astonishing.

"For merely illustrative purposes," the PE states, "we analyzed the implications of two alternative scenarios of political economy for Mexico." The first scenario is one in which Mexico's industry and agriculture stagnate and the 8 percent growth per year goal is met almost solely through increased oil-financed imports. The second calls for building up domestic industry, agriculture, and industrial exports in a manner which virtually eliminates the need for any increase in exports. The program "opts" for the second scenario.

The PE never explains why increased oil exports cannot be channeled into exactly the same industrial and agricultural growth program reserved for the second scenario. It equally fails to show how in fact the second scenario can be met without increasing oil exports.

The LaRouche-Riemann model is demonstrating further that growth rates of up to 12 percent may not only be feasible but necessary for Mexico to truly reach industrial "takeoff."

The plan does not immediately affect export levels, since the levels ratified in the program are those already in effect for the period up to the end of the López Portillo term in 1982. And it is a cardinal point that the policy determinations of one administration are not binding on the next.

De Oteyza has made two prominent statements since his release of the PE attempting to break this rule and make the document binding after 1982. He lined up labor chieftain Fidel Velázquez for preliminary support in the fight.

But as his own words of introduction to the PE emphasize, energy policy for the post López Portillo era is up for grabs: "The technical details [of the program], and even some of the concrete targets or the assumptions on which these targets are based, can and should continue being discussed and refined. The program constitutes a system of permanent analysis, planning and evaluation."

The nuclear component

Mexico's new national Energy Program (PE) clearly posits nuclear power as the major alternative world energy source to oil for medium and long-term energy supply. Nuclear "at the international level, seems to be the great option of our time, with its corresponding sequel of breeder reactors."

Domestically, the nuclear component is also slated to play a preponderant role. Although the document never states that as an explicit strategy—which is an important shortcoming—the figures do show that the government has officially adopted the previously mooted goal of 20,000 MWe from nuclear by the year 2000, which will place it second only to oil as an electricity source. The PE calls for:

- "One additional unit" of 1,300 MWe to be completed by 1990, beyond the twin reactors at Laguna Verde on the Veracruz coast, due on line in 1983. Thus the total for 1990 is 2,600 MWe.
- Through the Laguna Verde and successor plants, Mexico will "prepare the first generation of Mexican technicians and workers in this field. . . .The only effective way to assimilate a technology is through its practical application."
- Mexico foresees a rapid transition to breeder reactor technology toward the end of the century, a shift which will require "technical cadre of the highest level."
- "The selection of sites and technologies" for the full program of reactors in both the 1980s and early 1990s must be made, "starting in 1981."
- "The government will strengthen the program of Uramex [the state uranium company] in the field of uranium exploration."
- Both light and heavy water reactor systems will be used in the next stage of development. "It is probable that, as in the case of steel [where Mexico is using both blast furnace and direct reduction technologies], the best solution is not to opt for just one type of reactor, but to combine them to maintain greater maneuvering room, flexibility, and technological self-determination."

For the past two years, a furious fight between light and heavy water reactor advocates had stalled any decision on the next reactors after Laguna Verde. The PE states now, "The decision must not be deferred."

One of the most important aspects of the PE, just as in the case of Mexico's giant oil expansion, is its close planning link with Mexico's growing capital-goods in-

dustry. The nuclear plan "must begin immediately," because of long lead times and to provide detailed bills of materials for gearup of the domestic capital-goods industry.

Alberto Escoffet Artigas, the pronuclear director of the Federal Electricity Commission (CFE), stressed "by the 13th or 15th unit" in the 20-unit 20,000 MWe program, "85 to 90 percent of the components" can be produced domestically. He termed the development of the nuclear industry "indispensable" to the national economy.

The nuclear section of the PE, however, is definitely timid in terms of near-term implementation. The goal of adding just one further unit beyond Laguna Verde by 1990 means that the overwhelming weight of the program is concentrated in the final period of the plan—yet there is no mention of the annual rate of nuclear starts that will be needed to reach that ambitious goal.

There is good reason to believe that the PE's ambiguity on this point is a reflection of a policy fight over whether nuclear is primary, and whether Mexico can afford to wait before making a firm choice of nuclear technologies. This was underscored when Escoffet and Uramex director Francisco Vizcaino Murray called a press conference the very day that the PE was announced, to insist that nuclear was vital for the country's energy and industrial future, and that it had to be acted on immediately.

Vizcaino revealed that uranium reserves now have increased to 10,000 tons proven, 100,000 probable, and 500,000 potential. He emphasized that the 100,000 figure, based on uranium contained in phosphoric rock deposits now under government exploitation on the Baja California peninsula, is virtually "guaranteed." Looking ahead, the Uramex director concluded, "Mexico is a country which can pass with comfort from first generation reactors, such as those of Laguna Verde, to those of the second generation, that is breeder reactors, or, in the same period, to thermonuclear fusion."

An outline of the plan

Overall Targets

- Double oil and gas production by 1990.
- Triple electricity capacity (now 15,000 MWe) by 1990.

Export Policy

- Limit on exports to current levels and targets of 1.5 mbd of oil, and 300 mcfd of gas.
- No more than 50 percent of exports to any one country.
- No more than 20 percent of any client's oil needs satisfied by Mexico.
- No more than 50 percent of export revenue from oil.

Rationalization and Price Levels

- Cut back wasteful use of energy by the equivalent of 1.0 mbd by 1990, equivalent to savings of $11 billion.
- Bring Mexico's internal prices of industrial fuels and diesel up to 70 percent of world levels, and "virtually eliminate" differentials in all other oil products by the end of the decade.
- No basic changes in electricity price structure. Goal of 25 percent self-financing in electricity capital investments.

Oil and Petrochemical Production

- Total production levels of 3.5 mbd of oil and gas liquids in 1985; 4.1 mbd in 1990. Natural gas targets for the same years: 4.1 bcfd and 6.9 bcfd.
- An excess production capacity margin of 10 percent.
- A ratio of production and proven reserves never to dip below 15 years.
- Retooling of refineries to handle more heavy crudes from the offshore wells during the early 1980s.
- Duplicate refining capacity by 1990; construction of the equivalent of five "Minatitlans," (Minatitlan is the largest Mexican refinery today).
- Natural gas demand will exceed production until the mid-1980s, eliminating any flaring. After 1985, domestic use will have to be encouraged to avoid flaring and replace declining heating oil production.

Coal and Steel

- Steel demand will increase from 8.5 million tons in 1979 to 23 million by 1990.
- To meet this demand and avoid imports, coal production must leap approximately 3 million tons every 2 years. (Current total coke production is under 3 million tons).
- If natural gas is priced at international levels, future steel plants above 2 mtpy will be more economical with blast furnace technology; under 2 mtpy, with direct reduction. As the plan's price policy of raising internal prices toward international levels takes hold, the energy cost factor for steel "will take greater weight."

Electricity

- Hydroelectric, currently 60 percent of electricity production, will fall to 28 percent by 1990; oil-fired plants will sharply rise in proportion to production.
- There exists a 5:2:1 ratio between total hydroelectric potential; resources capable of being exploited by 2000; those exploitable by 1990.
- Coal and nuclear will rise markedly as sources of electricity (see page 38). Geothermal will also rise; solar will remain marginal.