

The Ruin of Mexico's Electricity Sector

by Ricardo García Rosas

In 1936, when Mexican President Lázaro Cárdenas decreed the creation of the Federal Electricity Commission (CFE), as a body charged with unifying the national electrical system, he was looking to the future. He could anticipate that the expansion of private electricity networks, alongside those of the state, would eventually require an agency to regulate the distribution and sale of energy in Mexico.

The nationalization of the electrical industry in 1960 accelerated the process of integration and, finally, in 1972, the two largest existing networks at the time were united through the Committee to Unify Frequencies (CUF). The two networks had been operating at different frequencies: one in the center of the country, at 50 hertz, and one for the rest of the states, at 60 hz.

With the system now unified at 60 hz, work became easier for the planning department of the CFE, which prepared a Program for Works and Installations of the Electrical Sector, guaranteeing:

- That energy demand be satisfied by an adequate margin of operating capacity;
- That rural electrification plans be carried out;
- That the stability of the electrical network be guaranteed, by building plants in sites that would strengthen it; and
- That the use of fuels be diversified: fuel oil, diesel, coal, and uranium, in a good balance with hydroelectric power.

Although the last goal was not met, primarily because of economic and political pressures, both domestic and foreign, the first three objectives were largely achieved. In fact, the present-day coverage of electricity demand is due to these policies, which were implemented between 1936 and 1982. In the last year, there were even plans to build 20 nuclear power plants, of which only one has actually been constructed.

Thus, we could say that the Mexican government's electricity policy was based on coverage of service, diversification of energy sources, and the impulse to technologically develop the country, since the company that offered the greatest national integration was awarded the contract to construct the electricity plant, providing employment to hundreds of thousands of Mexicans, who acquired skills and knowledge in the most diverse areas of the energy sector.

Another characteristic that was incorporated in this period, and which took as its model *Electricité de France*, was that of the standardized plant. All thermoelectric centers had the same base design, and so their design, construction, and modification were carried out almost in a modular fashion.

The Crisis of 1982

When the debt crisis of 1982-83 erupted, the pressures of the International Monetary Fund and World Bank began to alter the picture. The Miguel de la Madrid government shared with the IMF the vision of a privatized energy industry, such that its very first measures were:

- Suspension of the nuclear development plan;
- Dismantling the construction department of the CFE;
- Contracting all future projects under the "turn-key" approach, such that the CFE would no longer intervene in the design and construction of its own electric plants; and
- Hiring private companies to supervise all projects.

Even so, many Mexican companies continued to participate in the construction of electricity plants, although Siemens AG, Mitsubishi Heavy Industries, Inc., CG Alstom, and the Spanish companies *Mecánica de la Peña* and *Empresarios Agrupados* were granted the largest number of contracts. The "Samurai" credits from Japan and from the Spanish "Fondos del Rey" gave a great advantage to the companies of those countries, since they were the lowest-cost credit available, designed precisely to benefit the Japanese and Spanish firms.

Thus, plants were bought under schemes like Build-Lease-Transfer (BLT), which involved transferring the main generator to the CFE through a 15-year rental arrangement, and through Build-Operate-Transfer, which was a concession granted to the construction company, to build and operate the plant and to sell energy for 17 years, after which it would be transferred to the CFE. Under both schemes, the CFE reserved the right to decide the type of generating plant required, as well as its general specifications, although not the detailed design.

The Consequences of NAFTA

In 1994, when the North American Free Trade Agreement (NAFTA) went into effect, two concepts came into play which, although already known in Mexico, were usually only applied when strictly necessary. Under NAFTA, these became virtually mandatory. These were international bidding for all CFE projects, and Independent Energy producers, or PIEs.

The NAFTA chapter on "government purchases" indicates that all bidding carried out by the signator governments had to be submitted to international bidding, and that the specifications of the equipment to be bought or the projects to be carried out, should only refer to the "functions" of the equipment, and not the specific technologies. Of course, it

prohibits taking into consideration as a criterion the national origin of the companies, since “even construction workers” could be hired from other countries.

Although it does not belong to the energy sector, the example of the expansion of the refinery of Cadereyta, Nuevo León, is typical of these “turn-key” projects, with all the basic engineering carried out in Korea by Sunkiong Engineering Company. Ninety percent of the components were purchased abroad and 1,200 Korean engineers lived at Cadereyta, carrying out the engineering tasks, and supervising the construction, purchases, and plant start-up.

As a result, of the 20,000 Mexican engineers employed on engineering projects in 1985, only some 2,000 remain, with an average salary of \$900 a month. The engineering schools, both public and private, have become machine administration schools, since graduates no longer require the advanced academic level needed when they were designing and constructing plants, or when a development plan called for Mexico’s third nuclear plant to have 70% of its components made in Mexico.

The PIE scheme has brought about the near total death of the Mexican electrical industry. The first PIE plant to be built was Mérida III, which began operations in 1996. The PIE plants were the property of private companies which operated them on the basis of agreements that favored the owner, since the CFE was committed to buying the largest quantity of energy possible. If demand were to decline, the CFE still had to pay the amount stipulated in the contract.

According to privatization and deregulation plans, the cost of PIE-produced energy sold to the CFE would be determined by the U.S. energy market, and would be paid in dollars. For the moment, the government has been forced to remain the owner of the national electricity grid, in order to guarantee that the PIEs would receive payment for energy generated, even at high costs, so that the generating companies could be guaranteed payment, while electricity rates to the consumer were quintupling.

Meanwhile, the Mexican government is subsidizing the PIEs. It is not out of the question that the government, at some point, will have to resort to an “electricity bailout,” as is already ongoing in California.

Privatization Plans

On its website (www.energia.gob.mx), the Mexican Energy Department describes its privatization and deregulation plans in a document entitled “Proposal for Structural Change of the Mexican Electrical Industry.” The document proposes the “segmentation of vertically integrated companies, to achieve real competitiveness”—that is, dismember the CFE. It adds that “different generators will compete, offering their energy through postures (offers of available energy quantity and cost), so that buyers can make their energy purchases from those offering the lowest prices. The market is operated, in real time, by an autonomous agency that orders the

generators, from small to large, according to their posture prices, until the energy demand at each given moment is satisfied.”

The Mexican government’s proposal for operating the electricity system under this deregulation and privatization scheme, is identical to the scheme in California. It proposes that the PIEs “would fight” to offer the cheapest energy to network operators, so that they in turn can offer “competitive” prices to users. However, in the real world, this turns out to be one more speculative scheme, in which only energy pirates Enron and Duke come out as winners, while the network operators can only hope that the government has sufficient money to come to the rescue, when their accumulated debts threaten to bankrupt them.

The Future

The privatization and deregulation of the energy sector implies a 180-degree turn in Mexican energy policy, since the turn-key projects have led to total dependence on foreign engineering and construction companies. Privatization implies the fragmentation of the productive structure of the national electricity system.

Thus, the same characteristics that were once considered positive, such as vertical integration, adequate balance of supply and demand, and stability of electricity rates, are now viewed as negative aspects to be eliminated by means of the “free market.”

Worst of all is that the real problems of the energy grid, such as energy theft, excessive dependence on fossil fuels, deficiencies in the network in the country’s southeast, and linkup with the peninsular systems (Baja California and Yucatán), are not even mentioned in the government’s plans.

Our forecast, thus, is that if the “energy reform” the government proposes is approved, it will take but a few short months to destroy what it took decades to build, and we will hear, as occurred in Santiago, Chile, some high-level executive of a foreign energy company tell us: “The company cannot guarantee the continuity of supply under the current rate structure, so we will have to suspend electricity flow for three hours a day in various parts of the country.” Of course, there was a significant hike in electricity rates as the result of this blackmail.

We are not against the participation of the private sector in the energy sector. The construction and operation of generating plants is urgently needed, in that it would not only help the state to guarantee electricity supply, but would also generate high-skilled and well-paying jobs. But it is the height of lunacy to encourage the disintegration of the industry, the “auctions” of energy, the lack of control over supply, and the “laundering of kilowatts” that we have seen in the deregulated networks. This only creates a chaotic situation, in which the winners will not be the consumers, but the companies with the greatest speculative power.