Developing a Legal Frame for Understanding the Production and Distribution of Electricity in Mexico

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Beginning in the early 1900s, private companies generated and distributed electrical power in Mexico. However, by the 1960s, the state became the prominent actor. With heightened pressures to increase efficiency and decrease costs Mexico once again is looking at the role the private sector can play with regard to the electrical industry. This article will discuss a legal frame that would rule the development, production, generation, transmission, and distribution of electricity in Mexico.

II. HISTORICAL PERSPECTIVE

History and the daily events of the political and judicial factions in Mexico have always been at odds with regards to electrical energy. In 1917, a Mexican citizen, no matter his socialistic ideals and no matter how aggressive he was, thought that subsoil properties and exploitation of hydrocarbons should belong to the nation. Since 1917, few, if any, would have thought that the production of electrical energy had to be an activity reserved exclusively for the state and that only the state could produce it. However, historical events that took place later caused severe changes in the rules of ownership of some goods that became national property and could be exploited exclusively by the nation. In the last fifty years, Mexico underwent a very important development. Mexicans passed legislation in which concessions were made in the production, distribution and transportation of electricity. State-based monopolies of subsoil properties occurred in 1938 with petroleum and in 1960 with electricity.

Almost a century earlier, private foreign capital contributed to the development of Mexico's electrical industry. In Guanajuato, by 1884 the first turbine to produce electricity appeared in the city of Leon and the "Central Electrica" (Electric Center) was established with investment capital from the United States of America, England and Guanajuato. The same thing happened in Puebla and Mexico City with dynamos that were nothing else but turbines moved by water to produce electricity.

By the 1890s, Mexican Light and Power was established. This enterprise was established with Canadian and some British investment capital, and later, with money from North America and Belgium. Mexican Light and Power would cover the distribution and generation of electricity in the center of the country. It was in Article 27 of the Mexican Constitution addresses ownership of national properties such as land, water, and subsoil minerals and properties including petroleum.
charge of providing electricity to Mexico City, which at that time had only 300,000 inhabitants, but today has 23 million. There is certainly a difference between then and now, but at that time, technology made it possible for plants with large resource investments for civic works to produce a small but satisfactory amount of megawatts.

Mexican Light and Power acted as a concession and immediately, one of the most important syndicates defending the rights of the workers was established—the Mexican Syndicate of Electricians, which still exists today. With this enterprise there were several companies in the northwest and southeast. Each represented different members and all were divided.

Capital for such projects came from private companies whose independent production of generating electricity was sold to one customer, namely, the Federal Commission of Electricity. But in those companies, of which there were many, it was inevitably necessary, due to the scale of economics, that the transmission would be done by only one enterprise and thus the "Impulsora de Empresas Electricas" came into being. The first thing the Impulsora did was to establish a holding of the different enterprises without owning any of them. The Impulsora would provide electrical energy and would transmit and transport it but later the Impulsora ended up being the owner of the various enterprises.

Events in the twentieth century evidence a transition from the influx of private foreign investment that began in the late 1800s. What happened in Mexico since 1960, in relation to electricity, and seventy years ago with regard to hydrocarbons? In the evolution of history worldwide, legislation would determine that the production, generation, transmission, and distribution of electrical energy that was destined for public service and the exploitation, extraction and refinement of all hydrocarbon products such as liquids, solids and gases belonged exclusively to the nation. This evolution has a fundamental historical context.

III. EMERGENCE OF THE ELECTRICAL ENERGY MONOPOLY

Through 1960, private enterprise in Mexico would be charged with producing, distributing and transmitting electrical energy. Although the earliest producers of electrical power were private, their expansion was impeded "in 1933 by the beginning of rate regulation and challenged in 1937 by President Cardenas' creation of a competing state enterprise, the C.F.E." What thereby followed was that "[a]fter World War II, C.F.E.'s national market share rose rapidly, from 5% in 1945 to 49% in 1960. Discouraged by their regulated rate returns, the private companies sold their assets to Mexico in 1960..."2

During the Administration of Adolfo Lopez Mateos, Article 27 was once again amended stating that "[g]enerating, transmitting, transforming, distributing and supplying electrical power for the purpose of providing public service corresponds exclusively to the Nation."3 The Federal Commission of Electricity (CFE)4 had already been created and it was the institution whose objective was to produce

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4. The CFE is better known in Mexico as "la Comision Federal de Electricidad."
electrical energy in some basins and transport such energy to incredibly remote locations making it impossible for private enterprises to be able to finance such projects.

The CFE was a mechanism of social function for the country, unwittingly creating a natural coexistence. This unspoken coexistence subsequently tightened and finally broke since the Federal Commission of Energy thought that it should be the exclusive producer, distributor and transmitter of electricity. Over time, there has been no drastic change to the present situation.

The concession system disappeared and, at that moment, Mexico adopted a monopolistic system representing the exclusive activity of the state in everything that had to do with electricity. However, the need for reform emerged in 1992 given that electricity was provided only to those in public service or exclusively for a group of members, in this case the co-generators or self-provisioners. The 1992 reforms established what was lawfully considered public service and what went beyond public service. In essence, it was now possible to develop projects relating to electricity.

IV. SHIFTING PRIORITIES: REFORMING THE MONOPOLISTIC SYSTEM AND THE RE-EMERGENCE OF PRIVATE DEVELOPMENT

Ten years ago, Mexico saw the need for changes in the judicial and legislative frame so that it would deal with the aspects that would regulate the self-provisioning of electrical energy, the co-generation of electricity for self-consumption and the independent production of electrical energy to be sold to the CFE. Interestingly enough, the legislation changed but the political constitution did not. Within the Constitution, it is still evident in Articles 27 and 28 that the generation, transmission and distribution of electrical energy for public service belongs exclusively to the nation, more specifically, to the state through its political institutions.5 These institutions are the Federal Commission of Electricity and “Luz y Fuerza del Centro.” Both institutions are essentially seen as one. Later, a series of self-suppliers appeared that were autonomous generators of their own services and apparently had large production of electricity. Examples include “Petroleos Mexicanos” (PEMEX) and many mining companies that established small electrical plants serving the mines.

Other offshoots of the industry also started utilizing more efficient generators of electricity, and with that, it was possible to reduce the universal demand of electricity. On the other hand, it was possible to guarantee the flow of electricity for the plant’s own consumption. For example, one can easily envision the need for the aluminum and steel industries to have a constant source of electricity that is of high quality and, above all, at low cost.

In time, problems would emerge with regard to the conditions under which electrical energy should be sold. Obviously for independent producers, the dilemma

would focus on the need to sell electrical energy at capacity. For technicians, this was a common concept but for others it was quite difficult to comprehend. For example, one can liken it to the renting of a house at a "vacation spot." The lessee is obligated to pay monthly rent whether or not the house is occupied, but the utility factor of the house is maximized when the occupants use it as a place of residence. Roughly the same can be said about the producers of electricity. The producers were obligated for expenses, whether they used the electricity or not.

Electrical companies have to reserve electrical energy for peak hours of work. Then the Federal Commission of Electricity, who established great hydro-electrical works with international credit, diminished the purchasing power of that credit. However, independent production did not solve this indebtedness. The reason is because such credit is considered indispensable for financial closings in order to have the endorsement of the federal government and in order to have purchasing power. Inevitably, every project had to be endorsed by the federal government.

In the beginning, only public debt was at stake. But the debt kept growing. Now that the term is widely used, it was like a "virtual" debt, because the consortium that had established the plant had the endorsement of the state. Therefore, at the precise moment when either the consortium or the state did not fulfill its obligations, the other had to assume the entire debt. Even in the face of deferment measures, the debt still stood.

Thousands of legal mechanisms have been used that are of assistance to each project or to a specific stage of electrical development, but these mechanisms definitely do not solve the structural issues pertaining to the market of electricity.

V. RECENT TRENDS IN THE DIRECTION OF LEGISLATIVE AND LEGAL REFORM

It is within the area of legal reform that Mexico needs to start designing the initiatives for normative change, and look for the participation of the private sector in the production of electrical energy. However, it is practically impossible to move away from the text of the Constitution as the Mexican legal system is very strict. Constitutionally speaking, the measures are inflexible and, therefore, all generation, transmission and distribution of electrical energy has to be done by the state. But there is a very important part of this market, which is the self-provisioning and self-consumption of electrical energy. The first thing that needs to be done is to name a group of managers to join a specific project to co-generate their electricity, whether by the thermal or hydraulic resources, and use that electricity for that particular project or in the services of the same enterprise. Of course, if it were a domestic enterprise, it would have to be an enterprise with a lot of stockholders. Such an approach would ostensibly not violate the law since all the consumers would be the owners of the plant.

Gradual changes in legislative initiatives have been taking place for several years. The country nonetheless has very little experience in this regard, but thanks

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6. I define capacity in the sense that a plant has to be paid to give a particular service whether it works or not and whether it gives service or not.

7. It does not necessarily have to be an enterprise it also could be individuals.
to recent change in the legislative and judicial architecture some projects have been emerging. There are currently active projects in which foreign investment in conjunction with public enterprises, in Nayarit and Jalisco, are being completed. The Energy Regulator Commission has authorized this project and the permits have been granted. Through a resolution from the State Comptroller, it has been possible to compensate the farmers who have land in the location of the proposed plant. And in a few years many towns of Nayarit will be public service consumers of electrical energy, through a private enterprise associated with these towns and with the government of the state of Nayarit.

Another project is being started in Chiapas, and another, very interesting project was recently completed in Mexico City. A foreign company, with thermal technology will join the government of Mexico City, with the service of electric transportation. Also, the Department of the Federal District will produce electricity for the use of Mexico City. The City government will use 95% of the energy and will pay 5% for appropriate expenses of operation of the plant that is being established. This is already a self-provisioning project that unloads the demands for electricity from the CFE.

In spite of such progress, Mexico is still not advancing to where it would like to be. Mexico’s target goal is to open the electric sector to private activity in order to build a market for electrical energy in which there are many who produce and offer and others who buy at reduced cost to distribute it at a lesser cost. Nonetheless, a system of subsidies designated for the should be maintained consumer.

This is precisely why the President of the Republic, Dr. Ernesto Zedillo, sent the Congress of the Union a motion for constitutional reform. This was a very simple reform as it only removed the clause of exclusiveness in the generation, transmission and distribution of electrical energy. The Congress decided to eliminate the concept that only the state could generate electricity and opened it to individuals. But this was not enough to create a market for electrical energy; it would have to be opened for distribution. The state only keeps the network for distribution in order to provide security and to maintain equilibrium of the historical forces in which the country lives. The only thing this reform does is to maintain a national network, which will charge a fee for transportation to those who produce electricity. This approach can essentially be likened to a lease.

However, if at any given moment the producer decides to establish a line of transmission, the producer can; because now it is possible to put up transmission lines. Then it would be a more reasonable effort and it would be possible from a legal point of view to establish a market for electrical energy.

The rules of public service state that self-suppliers or the co-generators can sell up to 20 megawatts (MW) without public bidding. This means that all production projects will have to be 20 megawatts, if not public bidding will take place. During this bidding process both capacity and electrical energy are purchased.

Mexico will have to deal with the various areas requiring reform in order to reach its goal while at the same time being mindful of the law by not going beyond the constitution. This reform would simply state that for small projects, surplus up to thirty-five or forty percent will not require public bidding, which would be a more reasonable approach. A part or a fraction of small projects have marginal surplus. Rather than throwing the surplus away, the surplus should be redirected to the network, thereby reducing public investment. It could potentially be a significant
amount. If today, the small plants that sell or that can sell 13 MW, 5 MW, or 0.5 MW were aggregated as a whole, then the surplus would be around 800 MW. Such figures are the equivalent of a thermoelectric plant. Surely, such energy would be taken from different places, but the end is justified and authorized by law.

Presently, long-term and short-term costs are defined in various by-laws. Long-term costs include capacity costs. Therefore, when considering a long-term contract, one must include as an integral element of capacity cost, capital investment and the price of kilowatts when offering it to CFE for purchase. This requirement is substantially slowing down the possibility of these types of investments. In conjunction, it is necessary to establish marketing rules. These rules, published in the Diario Oficial,\(^8\) should start to determine the components of the price for each kilowatt. Each project will have a cost and this cost will be compared with the cost that the independent producer will be able to offer.

On the other hand, it is equally necessary to consider how to buy electricity and not buy capacity? The only way to do that is to determine the short-term costs of capacity investments which will result in the actual price for each kilowatt. The private owner does not have to bother determining it. Anybody can say: “Well, if I paid so much to establish my plant and I’m going to sell them this, it is necessary to factor in the price of the investment over time.” How long? It is said that electric plants pay for themselves within five or ten years. These costs should be recovered in no less than five or ten years. On a positive note, plants tend to last longer than five or ten years. The last turbine installed in 1950 has not been replaced yet, that’s almost 50 years ago.

What capital costs should be added? In most cases none. The turbine is sometimes repaired with copper so that it keeps functioning. Hydro-electrical projects are restored in such a manner. Thermo-electrical systems, whose technology have been more dynamic and have advanced significantly, are distinct. Today’s combined cycles demonstrate that since most are now dependent on solar production.

The basic foundation has now been set, not arbitrarily nor discretionarily, but on the contrary, with certitude, setting criteria that will make possible and safe for private investments to flow with respect to the production of electrical energy. Certainly, this poses some concern for lawyers, who want to establish an electricity project in Mexico, and who want to provide their clients with a certain degree of security.

The Constitutional Reform that the President of the Republic has asked for and sent to Congress, is in the hands of the delegates who will be responsible for dealing with the opening of electrical energy to private investors. Some have called it privatization. It is a concept that has been condemned in Mexico. But the President’s initiative never proposed privatization of public assets. Instead, the President proposed opening the doors to private investments to compete with public enterprises in the generation and distribution of electrical energy. This is the challenge that the President of the Republic has emphasized. Nonetheless, there are

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8. The Diario Oficial de la Federacion is the Mexican federal government’s official journal. Amendments to the Mexican constitution and all new laws are published in the journal.
groups that say that this is the beginning of privatization and that it eliminates the sweat and the blood spilled by the people.

The worst thing that can happen to a country is for it to be stranded without electricity. There are those who say: "When Telmex was privatized the rates went up." However, there were more phone lines available for public use. Privatizing the system and increasing access to phone services came together.

The sector of electrical energy needs to be opened up more in Mexico. The country needs to modernize in an effort to keep up with the development of the whole world. It is unrealistic to adhere to the archaic thought that by covering the Piramide del Sol de Teotihuacan with a layer of mica, the sun's energy can be recaptured and thus the problem will be solved. This was the frame of thought in ancient times. It has been anthropologically and archeologically proven. The Pyramid had a layer of mica, and the Aztecs, the Toltecs, and the Nahuatls had that knowledge in those days. But Mexico cannot go backwards. Without question, it is important to go to the Pyramid to remember what the country's ancestors did, but at the same time one must recognize that civilizations continue to evolve. Mexico must keep up with the times and this is the time to open the electrical sector to private investments. The current generation should bear the responsibility to fight for this historical change. A concerted effort should be made in spite of the sacrifices it might cost.

However, it is very complicated to make decisions in a democracy of many political parties. PANistas, the rightist parliamentary faction who had in its platform the privatization of electrical energy, are wary to support the Presidential amendment of privatization. The party that is now striving for political power is divided. There are those that think that supporters of a privatization program are ostensibly selling the nation. Unfortunately, such perceptions are dogmas, from an old fashioned policy, that are static. And then there is the Leftist Party. The fear is that privatization will destroy everything that Uzaro did for the country, which was the organization of the CFE. This dogmatic position has slowed down the reform that the President sent to Congress, which would give great satisfaction, certainty and security to private participation in the generation of electrical energy.

The project establishing COSEL, a center for distribution, delivery and reception of electrical energy has been completed, and an organic law was created which gave CFE concrete functions for the regions and for the enterprise itself. Mexico needs to fight to keep going forward as struggle in this arena will remain a virtual certainty in the near future. Thus, bylaws are being amended so that it will give certainty to investments without breaking the law, without upsetting the constitutional framework. The executive and legislative branches can really establish and show the people that by joining together the private and public investments, the country can solve a problem facing the Mexican people and prevent the lights from going out.

Some criticize the campaign that prophesized blackouts. But this needs to be contrasted with the fact that recently, the country came very close to a long blackout in the northern part of the country. The CFE technicians prevented the mishap through a series of corrections, which included a transmission line that had been established for another purpose, for the north, towards Mazatlan. The perception was that this was going to be a crisis for all of Sinaloa and Sonora in that both states were going to be without electricity due to a shortage of local electrical power.
Electrical energy would have to be transported from Monterey and even transported from Chicoasen, in Chiapas.

Luckily, the crisis did not occur. The opposite happened and instead of taking electrical energy to Sinaloa and Sonora; Sinaloa and Sonora helped with part of the electricity in Guadalajara and the low-lying lands. This interconnection was key to prevent the blackout.

Unfortunately, this does not happen as sporadically as perhaps it should. Whenever it is windy, there are certain electrical problems in Mexico City and other parts of the country. These are the problems that need to be solved. First, the correct percentage of reserve must be determined. Approximately 20 percent of installed capacity needs to be reserved to be able to maintain service during peak hours in the event of any electrical shortage due to technical failure. Mexico needs to avoid what happened in Argentina and other countries for lack of reserve during peak hours in which there were blackouts that were long and permanent.

Hence, flexibility is necessary to publish the costs of the rates to which CFE produces electrical energy. The new market that will have to be open representing a taste of the beginning of this century when farm products were bartered and now the same can be done with electricity. If change is not accomplished soon one would hope that the next administration, the next president of the Republic, will continue with it.

There is not enough capital, nor can the CFE or public companies borrow enough money to do this work that is so necessary, that is indispensable, and that should be done by private investments along with the risks that it entails. It is the responsibility of the state to give certainty, security, and look for the best way, from the normative point of view, to secure these investments with a margin of safety. This is what should be done, but change will be governed by long standing rules.

Admittedly so, the dialogue with Congress will not be easy, but efforts to obtain certainty and normative security for private investments for the generation of electrical energy should continue undeterred. Distribution will have to continue to be the responsibility of the state for a long time but it has already been distributed in financial units by regions. This generates self-management for the various companies of the electricity market.

In the near future, Mexico should see investments of co-generation, and self-suppliers that can sell electricity to different distributors which will belong to CFE, but that will result in different market costs and prices that will bring true meaning to the electricity project. The country has decided that it has to do it and it will be a challenge for all Mexicans.

VI. QUESTIONS AND ANSWERS

RICARDO SODIN: A political solution to the problem appears to be the wisest approach. From the point of view of the constitution, it is difficult to find any other solution other than to liberalize the judicial frame of Article 28. Why not combine the judicial and the political projects in order to take them to completion? It can be perfect, necessary, and indispensable, but if the two aspects are not combined, it will only be another excellent intention of a good job that will be forgotten.

AUTHOR: Dialogue has been maintained with the different factions in the chamber. The Senate of the Republic did not deal with it during its extraordinary session and
thinks it should be left for the upcoming session. Discussion must continue with the
different parliamentary factions in the Senate. The Secretary of Energy went to the
Senate to explain and defend the project. The President of the Republic has talked
about the urgent need for this reform more than ten times. The message of the
President is related to a generic vision. He wanted to deal with aspects that he
considered necessary to be discussed in Congress. All these problems will be dealt
with in the document that he is obliged to write and that will soon be published.

It is inconceivable that the party who within its platform and within its
declaration of principles, does not want to vote for the solution of the electricity
problem in the Senate Chamber. On the day that the PAN had to vote on the organic
reform or the law of political institution, they broke the quorum! Mexican
governmental officials should start having political civility, which is considered
parliamentary procedure throughout the world. Breaking the quorum is done when
counsels do not want to make a decision. All should be more united. It is necessary
to get closer to a political solution and maybe the solution will be adding some
amendments that some delegates want, for example, saying that everything that is
hydroelectric will continue to be property of the nation. There should not be a
problem with this if the margin of electrical reserve is conformed. There are many
possibilities that are being talked about. Either reform occurs or we will have an
actual blackout. What must be done is preventive medicine, and, for now, it is
necessary start working the projects that are within the legal frame.

SODIN: Lets return to the political solution that we all want to find. In regards to
the proposed reforms, you mentioned that the President has gone to the Senate
chambers to emphasize the urgent need for this reform, but it seems that the
criticism to this reform does not have anything to do with the reform itself but rather
with the question of sovereignty and national heritage. What can be done to
convince the people, the delegates and everyone else that they do not have to worry
about that what they fear will happen?

AUTHOR: This question is very important but it is rooted in ideological aspects.
These historical tendencies, in which it is believed that if electricity were produced
by an individual the country would lose sovereignty, are questionable. It is absurd
to say that Great Britain or the United States have given up their sovereignty
because electrical energy is produced by private companies. It is irrational to think
that way. Look, for example, I have had meetings with the Mexican Syndicate of
Electricians where I have faced them giving them my point of view. They tell me:
"It is too hard." And it's not just the privatization they are worried about. They are
afraid to lose their privileges. The Mexican Syndicate of Electricians counting
retired and active members has close to 42,000 workers. You can imagine how hard
it will be for me to convince them that the best thing would be to lay off two at of
every three workers. It's impossible!

However, it is not impossible to have the reform. The reform does not sell assets
nor destroy companies. It opens judicial channels so that individuals can compete
with the state in the generation and distribution of electrical energy. The industry
understands that the moment that there are cheaper prices, (and this is already
happening in some regions), the customers buy. From the one that sells it cheaper.
The increasing value given by the service does not determine the real value of the
product. If the service of a distributor is better, people will buy from him and not
from another. This is reality. It is hard work, but we have to move forward.
MIKE GORDON: There are several other projects that are very important both for the government and for the private sector involved. However, there is a lot of doubt throughout the private sector and amongst their creditors about the viability of government financing. What is the Mexican government saying to them now with respect to these projects? Does the Mexican government take the stance that the investors are trying to provide capital based on the risk of the government?

AUTHOR: The financial closings are very complicated because the ability to borrow money has reached its limit. And apart from that the availability of world resources for public enterprises is diminishing. Then what the government is doing is giving signals and making adjustments to give assurance to investors without breaking constitutional law. If the law is broken, then there will be more insecurity. The degree of precision that we use to reform these rules will prevent them from being completely open. The second part will be to look for mechanisms that the state has to ensure the payment and the recovery of investment of the different projects. Again it is very hard work and are immersed in it. Luckily, we have good lawyers that are advising us and therefore we will keep moving forward.