

The electricity industry in Mexico: tension between the state and the market

Víctor Rodríguez Padilla

Faculty of Engineering – UNAM, Mexico. E-mail address: energia123@hotmail.com

Abstract:

This paper analyzes State powers over the Mexican electricity industry. The 2013-2014 energy reform replaced the hybrid single buyer model—flawed as a result of excessive government intervention—with a wholesale electricity market that will gradually be extended to all users. To maximize competition, the State has retained ample and numerous powers to intervene through the Ministry of Energy. The transition from a public monopoly to an open market entails significant risks, which Mexico aims to minimize with strong political authority and a relatively controlled market.

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Introduction

Mexico nationalized the electricity industry in 1960. Fifty years later, it opened the industry up to private capital once again, while reserving State intervention as businessperson, investor, regulator, and steering entity for the activity. This opening is embedded in a broader process to liberalize and deregulate the energy sector, which includes hydrocarbons and their byproducts. The latest, as well as most important and symbolic, phase of this process was the December 2013 constitutional reform. Among all of the arguments proffered to justify the liberalization of trade and investment in electricity, two are especially relevant. The first is that the public monopoly was not producing good results, especially in matters concerning rates, and the second is that this liberalization would provide space for economic growth and social welfare.

The reform essentially consisted of the following: *a*) reduce the scope of the public service, *b*) vertically and horizontally disintegrate the supply chain, and *c*) introduce competition in generation and commercialization, as well as retain for the State the operation of transmission and distribution lines, load dispatch, and the operation of the wholesale market. Parallel to this, the powers and duties of the Energy Regulatory Commission (CRE) and the Ministry of Energy were expanded, in both cases to guarantee the proper functioning of the market, the expansion of networks, universal service, and better exploitation of renewable energy sources.

For the Federal Electricity Commission (CFE) the former operator of the public monopoly, the reform entailed fragmentation, the transfer of activities, and the gradual dilution of its

market power in a new industrial structure. All of these measures, in the process of implementation, are aimed at transferring to the market the responsibility to upgrade and develop the electricity industry.

From the rapid process emerge the following questions. What were the problems with the model before the reform? Was there no space left for functional improvements? Why was the choice made to adopt an entirely different model? What are the unique features of the new industrial structure? What will the new balance between the State and the market look like?

It is important to note that there is no single electricity market model. There are various ways to introduce competition into the electricity industry (Joskow and Schmalensee, 1983; Hunt and Shuttleworth, 1996; Newberry, 2002; Hunt, 2002) with diverse results up until now (AIE, 2005; Millán, 2006; Weigt, 2009; Nepal and Jamasb, 2013). Moreover, the market models continuously evolve because liberalization is a process (Joskow, 2008: 36; IEA, 2005: 155). The global electricity market currently operates with a vast variety of industrial organization modes that reflect the technical, economic, and institutional circumstances of the electricity systems in each country, as well as their history (Kessides, 2012: 10, Gratwick and Eberhard, 2008: 3948; Larsen, 2013: 4). A comparison of the new Mexican model with other models derived from liberalization processes throughout the world would be beyond the scope of this paper, which is limited to an empirical analysis of the new role of the state. This paper is organized into three sections. The first discusses the characteristics of the hybrid single buyer model that was applied until 2013. The second describes the new organizational and regulatory model. And the third and final section analyzes the role of the State.

1. From public monopoly to the hybrid single buyer model

As a result of the nationalization decreed in 1960, Mexico set up its electricity supply as a vertically integrated public utility, from generation to sale, while also establishing exclusivity for the State in the provision of this service (Rodríguez and Rodríguez, 1994). Concessions were prohibited. The legal monopoly was exercised through the Federal Electricity Commission (CFE) and the Mexican Light and Power Company (*Compañía de Luz y Fuerza del Centro*, LyFC). The private sector was permitted to generate electricity for its own consumption. The public utility included minimal cost central planning to exploit economies of scale, scope, and sequence (Pistonesi, 2001: 21). The Ministry of Treasury and Public Credit (SHCP) was empowered to set electricity rates. This model thus permitted the country to satisfy very rapid growth in electricity demand and get electricity installed throughout the country (Kelly, 1994: 9).

The negotiation of the North American Free Trade Agreement (NAFTA) laid the groundwork for the possibility of generating electricity for purposes other than public service (Kelly, 1994: 43), but also to exploit new funding mechanisms (Bastarrachea and Aguilar, 1994: 251). The legal framework was modified to permit small-scale production, co-generation, independent production, and foreign investment. In addition, private ownership of transmission networks for self-supply purposes and exchanges abroad were approved.

Various regulations were subsequently adjusted, first, to allow the CFE to support itself on private enterprises and capital to fulfill the Program of Works and Investment in the

Electricity Sector (POISE);¹ second, to allow private generators to sell their surpluses to the CFE or make them available to final users through self-supply companies, a figure that did not exist previously in Mexican law; and, third, to permit the use of the grid by individuals and make remote self-supply viable.

Based on the changes made to the electricity laws, the CFE started to expand the generation park, offering preference to combined cycle power plants operating with natural gas and belonging to independent producers (Sener, 2014: 61). At the same time, a nascent electricity market parallel to the public utility market began to develop, consisting of private generators and large-scale electricity consumers tied to bilateral contracts in the framework of self-supply companies using the grid to transport electricity. A good portion of the private generation projects drew on renewable energy sources, with a marked preference for wind farms in the southern region of the Isthmus of Tehuantepec. A presidential decree transferred the assets of LyFC to the CFE in 2009, and the public monopoly was consolidated into a single company (Flores, 2011 and Belmont, 2012).

The structure of the electricity industry prior to the 2013 constitutional reform thus consisted of, on the one hand, a vertically integrated public monopoly in charge of electricity supply for the entire national territory, which used its own generation park, but also bought large quantities of electricity from private producers. These purchases were made through long-term contracts entered into with independent producers,² complemented by short-term contracts reached with co-generators, small-scale producers, and self-suppliers with electricity surpluses.

Because the CFE was the only entity legally entitled to buy and resell electricity for purposes of public service, the State enterprise exercised both a monopoly and a monopsony.³ In addition, there was a market of bilateral contracts between private generators and large-scale consumers, where they set volumes, delivery timeframes, and power prices, generally between 5% and 10% below the rates set by the SHCP; the material foundation of this market rested on the planning, infrastructure, and services offered by the CFE (carrying, back-up, auxiliary services, and power bank). Finally, there was a broad set of private producers generating power for themselves, with no need to resort to the public grid (local self-supply). The CFE carried out load dispatch, operated the power system, and provided electricity to all users that did not self-supply. The State was obliged to invest whatever necessary to ensure that nobody would lack electricity. Investments in the utility were made pursuant to the minimum-cost centralized planning drafted by the commission pursuant to the planning and public policy premises set by the Ministry of Energy. Because the fiscal burden (“utilization”) was exorbitant and reflected in power rates,⁴ the federal government granted numerous subsidies to consumers (World Bank, 2009: 5), which, despite not providing any cash flow, were recorded in and affected the CFE’s books.⁵

¹ This refers to project financing schemes by which the private sector takes charge of financing and executing turnkey projects. For more information about the models used by the CFE, see Montes (2003).

² Contracts known as Power Purchase Agreements (PPA).

³ Thus the name “hybrid single buyer model” (Hunt, 2002: 41).

⁴ Equivalent to 9% of the public body’s assets.

⁵ It is important to note that both concepts were virtual. In other words, they did not entail real monetary transfers between the SHCP and the CFE. The utilization and the subsidies appeared in the accounting books of the CFE but were not part of the public budget. The

Public policy for electricity consisted of promoting and facilitating private generation and the parallel power market, as well as generation with natural gas, the replacement of fuel oil by natural gas, the addition of renewable sources, and electrification. The governmental willingness to facilitate private investment in the electricity industry translated into guarantees for electricity purchases, the fuel supply, the reimbursement of investment, as well as the absorption of commercial and market risks by the State.

Among the achievements of the public monopoly and, later on, the hybrid single buyer model, before the 2013 liberalization, were the following: 1) supply enough and reliable electricity to connected users; 2) reach a coverage rate of 98%; 3) favorable rates for farmers and low-income households; 4) an increasingly modern, efficient, flexible, and reliable, as well as less-contaminating, public generation park; 5) sufficient reserve margin to respond to growing demand; 6) continuous and sufficient flow for investment in generation; 7) increase the amount of electricity from renewable sources; and 8) closed competition in tenders for independent producer projects, and as a result, a competitive cost for the electricity procured by the CFE.

From the very beginning of the hybrid single buyer model, there emerged challenges and proposals for more advanced liberalization (Sener, 1999), sparking intense debate (Joskow, 2000; Hogan, 2000; Prieto, 2001; Tovar, 2000; Gutiérrez, 2005) fueled by the unresolved issues and failings of the hybrid single buyer model (Eibenschutz, 2006; Hernández, 2007; Carreón, 2010 and 2013). In my judgment, the fundamental reason behind the deficiencies of this model was the propensity of the federal government to interfere negatively in the activities of the utility. This inappropriate interference operated at various levels, although most notably the following:

- Operational and investment decisions. The SHCP set the rates, as well as the budget, for the CFE, as well as guidelines for management. By maintaining control of income and expenditures and restricting spending and capital, the SHCP compelled the State utility to operate with a significant financial surplus and use financial and credit schemes to complete its projects, deepening both direct and contingent liabilities. The SHCP also determined the subsidies and the fiscal burden and, therefore, controlled the financial circumstances and equity of the CFE.⁶ This manner of operation and booking the subsidies and utilization led to negative results, but paradoxically, its debt issuances were investment-grade thanks to government guarantees.⁷
- The planning process. Economic growth assumptions supplied by the Ministry of Energy were generally overly optimistic, which led to excessive investment in

utilization was included in the electricity rates because they were formulated based on the equity and financial situation of the CFE (Article 12 of the Law for the Public Electrical Power Utility).

⁶ The difference between subsidy and utilization was noted in the equity statements of the organization with a negative sign, undermining the equity of the Company.

⁷ In May 2013, Fitch improved the score in foreign currency for the CFE from “BBB” to “BBB+,” while the local currency score went from “BBB+” to “A-.” According to CFE’s Annual Report to the Mexican Stock Market, the stock certificates issued by the company had the highest rating Fitch gives out: (AAA)mex.

generation.⁸ Over-investment in power plants, as well as continuous budgetary restrictions, led to insufficient investment in transmission, distribution, and maintenance, which translated into bottlenecks and losses in the grid, especially in distribution.

- The setting of electricity prices. The SHCP applied a rate system with major gaps between prices and marginal long-term costs, which entailed real cross subsidies that benefitted some users and penalized others. In the backdrop were industrial and social policy objectives, as well as equality-related criteria.
- Development of the public service. The policy to reduce the State's business role in the economy, as well as the way of enforcing regulations, favored the expansion of private generation and electricity supply through self-supply companies, aiming to facilitate the creation of an open market when the topic eventually came before the Congress.⁹ The development of the parallel electricity became a source of conflicts between, on the one hand, the CFE, and on the other, the private generators supported by the Ministry of Energy and the CRE.¹⁰ The flight of users to the parallel electricity market and implicit subsidies weakened the finances of the CFE and made operating difficult.

From the above, it can be concluded that the origin of the main problems was institutional, rather than a lack of natural, capital, technology, or knowledge resources. The conflict resided in the interference of the overseeing authorities whose objectives simply were not compatible with the performance of the CFE. To correct this problem, it was not necessary to eliminate neither the comprehensiveness of the utility nor the exclusivity of the State. It would have been enough to adjust energy policy priorities, improve the institutional arrangements, and comply with the terms set forth in the constitution (Valle, 1995; Valle *et al.*, 2001; Bartlett, 2003; Martínez *et al.*, 2003).

Even though the electricity system was not in a crisis and continuously progressed (CFE, 2015: 10), the government discarded the idea of introducing functional enhancements to improve the hybrid single buyer model. Rather, it preferred to adopt a competition-based model.

The constitutional reform was officially justified by the following arguments (Segob, 2013: 16): rates were 25% higher than in the United States and as much as 73% when not taking the subsidies into account; losses in distribution were double the average of OECD countries; 20% of the generation for the utility was obtained using fuel oil and diesel, expensive,

⁸ The overestimation of GDP growth translated into a high margin of reserve, averaging 40% from 2003-2010, when the optimal would have been 27% (Sener, 2014: 75). Pursuant to Article 36 of the Law for the Public Electrical Power Utility, the planning for the national electrical power system was to be carried out by the CFE based on growth needs or needs to replace generation capacity, established by the Ministry of Energy. The estimates of future electricity consumption contained in the document Prospects for the Electricity Sector had been made up until 2014 using the macroeconomic guidelines defined by the Ministry of Energy (Sener, 2014: 83).

⁹ The Ernesto Zedillo (1994-2000) and Vicente Fox (2000-2006) administrations had proposed liberalizing the electricity industry and creating a wholesale electricity market, but did not obtain enough votes in Congress to do so.

¹⁰ Dispatch, interconnection, the expansion of the grid, payment per capacity, a toll for use of the grid, charging back-up, and payment of auxiliary services were all causes for confrontation, among many others.

inefficient, and polluting fuels; the layout of the transmission grid did not reach regions with high potential for clean energy; the CFE was both judge and defendant, deciding what power could and could not enter the grid and was able to prioritize the electricity it generated, even when it was more expensive than that of other generators; and more than two million people did not have access to electricity.

These were weak arguments upon which to base such a profound structural reform, but Congress accepted them. The promise of a better future was one of the central arguments. The new model would: reduce electricity prices, boost investment, intensify the use of renewable energy sources, improve performance along the entire supply chain, and create more jobs (Secretaría de la Presidencia, 2014). These would be the other benefits in addition to the positive results that would be obtained in matters related efficiency, productivity, and sustainability (Sener, 2014: 10).¹¹

2. A new organizational and regulatory model

Mexico was late to the world of electricity markets. The majority of the markets currently operating were created in the 1990s. However, this delay was considered to be an opportunity to draw on 30 years of global experience.¹² The vertical and horizontal disintegration of the public monopoly, the expansion of competition in the generation and sale of electricity, the decision to open up the entire value chain to foreign investment, and the creation of a mandatory wholesale market for qualified users all led to a new organizational and regulatory model, whose essential features are described in the paragraphs below.

Generation and commercialization are offered in a regime of free competition; the wholesale market, transmission, and distribution are regulated. The latter two constitute the public utility. Vertical and horizontal integration are permitted only in special circumstances. Disintegration in both senses can be ordered by the Federal Economic Competition Commission (CFCE), but also by the CRE. Any person can generate electricity for sale or self-consumption. Generators can use any natural resources with the exception of nuclear energy, which is reserved. The State maintains exclusivity in planning and control of the national electricity system, which includes transmission and distribution.¹³ The law permits

¹¹ No concrete goals were set in terms of reducing electricity rates and power losses from the grid. Nor were concrete goals set for subsidies and electrification.

¹² With such a broad range of potential possibilities, the government referred to the electricity market in the northeastern region of the United States as a basic model to be adjusted to local circumstances. In the electricity industry, it is known as the PJM model, named for the main states where it operates: Philadelphia-Jersey-Massachusetts. For a concise explanation of the structure and functioning of that electricity market model, see, for example, Hogan (2009), Glazer (2013), and IEA (2005, Appendix 4).

¹³ The Electricity Industry Law stipulates that the National Electricity System (SEN) will consist of: *a*) the national transmission grid; *b*) the general distribution networks; *c*) power plants that provide electrical power to the national transmission grid or the general distribution networks; *d*) the equipment and facilities belonging to Cenace that are used to carry out operational control of the SEN; and *e*) any other element determined by the Ministry of Energy.

exercising exclusivity through public enterprises or bodies, but also through contracting with private companies, whether foreign or national.

Public and private transmission and distribution networks are permitted; the former are the only networks that can provide the public service. The State, through the Ministry of Energy or the CFE, may opt to form partnerships or enter into contracts with private agents to carry out, on behalf of the nation, the operation and development of the public grid. Control of the electricity system includes economic load dispatch and the operation of the wholesale market. The State exercises these activities through the National Energy Control Center (Cenace), which was previously part of the CFE but now operates as an independent agency.¹⁴ Planning is instructional for activities open to competition and enforceable for transmission and distribution.¹⁵ The wholesale market, scheduled to begin operating in 2016, will include short-term (spot market) and long-term (coverage contracts) transactions. The Cenace will organize auctions to supply basic supply companies.¹⁶

The electricity supply can be broken down into basic, qualified, and last-resort suppliers. The basic supply will continue to be led by the CFE with rates managed by the SHCP or regulated by the CRE based on economic criteria that permit differentiated rates pursuant to international practice. The subsidies shall be granted directly to low-income users. Qualified supply, open to the competition, shall be mandatory for those using loads greater than 3 MW. This threshold will gradually be lowered until it includes all users. The last-resort supply guarantees that qualified users will not be without electricity when their supplier stops providing the service; it is offered for a limited time only while the qualified user finds a new supplier and is charged at maximum price. Suppliers must enter into electricity coverage contracts pursuant to the amounts and requirements set by the CRE.

Universal service includes the electrification of rural communities and marginalized urban zones, supplying efficient lightbulbs, and offering basic supply to marginalized final users. The resources used will come from the Universal Electricity Service Fund, which will be filled with the surplus of income resulting from the management of technical losses in the wholesale market, fines assessed to participants in the market, and donations. Suppliers and large-scale electricity consumers will be required to apply for clean energy certificates for the amount set by the Ministry of Energy. These certificates may be traded in a secondary market. Protectionist measures are being set in areas related to industry development, national content, and the hiring of Mexican personnel.

3. State intervention

¹⁴ The new Cenace is now a decentralized public body.

¹⁵ Referring to the National Electricity System Development Program drafted by Cenace but subject to the approval of the Ministry of Energy.

¹⁶ The Electricity Industry Law stipulates that basic suppliers must enter into electricity coverage contracts exclusively through the auctions that will be held by Cenace pursuant to market rules. This provision ensures the purchase of electricity at the lowest price to benefit users of the basic service. One collateral effect of this mechanism is that it inhibits the vertical reintegration of the CFE and, as such, increases its market power.

The role of the State in the electricity industry is multiple and varied (Besant-Jones, 2006: 109).¹⁷ The conflict of interest is resolved by way of arbitration and distancing. The World Bank recommends that in a liberalized electricity industry, the participation of the State should focus on creating laws and regulations, designing and implementing public policies, promoting a low-risk climate for private investment, and financing subsidies for the poor (Besant-Jones, 2006: 110).

Pursuant to the new legal framework in Mexico, the State is charged with establishing and enforcing policy, regulations, and oversight of the electricity industry through the Ministry of Energy and the CRE. The former sets policy, the latter establishes the economic regulations, and both are in charge of oversight.¹⁸ In this framework, the essential objectives of State intervention are as follows:¹⁹ 1) guarantee the efficiency, quality, reliability, continuity, and security of the national electricity system; 2) promote carrying out activities pursuant to sustainability-related criteria; 3) drive investment and competition where feasible; 4) bring about the efficient expansion of the electricity industry with regard for the human rights of communities and peoples; 5) foster the diversification of the power generation matrix, as well as national energy security; 6) support the universalization of the electricity supply; and 7) protect the interests of final users.²⁰ That is the core of the public policy.

The regulations are focused on rates, efficiency, quality, reliability, continuity, security, and sustainability of the national electricity system. The granting of permits, as well as the standardization and normalization processes, is also part of the regulation.²¹ Oversight is meant to pay special mind to: 1) operating the wholesale electricity market to prevent market power practices; 2) the determinations of Cenace to ensure fair competition; 3) coverage contracts of the basic suppliers to acquire electricity cheaper; 4) the legal accounting, operational, and functional separation of the members of the industry in order to boost competition; and 5) the methodologies used by the CFE to measure profitability.

Institutional strength is a *sine qua non* condition for liberalization to produce positive results (Kahn, 1988; Guasch and Spiller, 1999; Newbery, 2002; Hunt, 2002; Irwin and Yamamoto, 2014). The reform followed this principle but with adaptations. The powers, responsibilities, and resources of the CRE were increased, but even more so were those of the Ministry of Energy. This strengthening, both political and regulatory, both for oil and natural gas and for

¹⁷ Among others are the following: owners, investors, operators, regulators, employers, human rights advocates, environmental protection advocates, and promoters of development.

¹⁸ The Ministry of Energy also has regulatory powers in locally sensitive matters that the public powers have not wanted to leave in the hands of specific regulatory bodies.

¹⁹ See Article 6 of the Electricity Industry law. The general objectives of the public policy in energy matters include: energy security in the country, sustainability, continuity in the fuel supply, and the diversification of markets; these objectives are set forth in the Hydrocarbons Law in Article 80.

²⁰ Based on a reading of the law, it seems, on the one hand, that the State does not have enough instruments to guarantee the efficiency, quality, reliability, continuity, and security of the supply for three reasons: 1) the construction of power plants and electricity generation are free activities that depend on what the markets decide; 2) the guarantee indicated is limited to certain criteria set by the CRE and the levels that participants really attain; 3) the other objectives with which the State is charged are limited to development measures, meaning that performance will depend on rationality, as well as the strategies and decisions of others. Moreover, the objective of the State is no longer to guarantee sustainability, national energy security, or the universalization of the electricity supply. Its obligations are now limited to promoting, fostering, and supporting those results. Nor is the State obliged to guarantee that operators respect human rights, it must merely encourage them to do so.

²¹ Cenace will be entitled to issue technical specifications with the authorization of the CRE.

electricity, is the cornerstone of the new balance between the State and the market and one of the most striking features of the reform.

Powers of the ministry of energy...

The Ministry of Energy (Sener) led the planning process and drafting of the “National Electricity System Development Program” with 15-year estimates. In parallel, it approved the “Five-Year Plan to Expand the Natural Gas Transportation and Storage System,” which is intimately tied to the expansion of the electricity system.²² It establishes the strategic projects, social benefit projects, and economic development projects; for these projects, it determines, together with the SHCP, the investment mechanisms. Another of its duties consists of preparing and coordination the execution of strategic projects with the infrastructure needed to comply with the energy policy. It is also empowered to instruct productive enterprises of the State to carry out said projects. In addition, it also determines the formation of joint ventures or the celebration of contracts aiming to expand the transmission and distribution infrastructure. Planning is binding for companies and public agencies.

The Ministry sets the basic guidelines and rules for the wholesale electricity market. Moreover, it is empowered to: 1) set criteria for the delimitation of power plants, transmission networks, distribution networks, load centers, and the national electricity system, but also to classify electricity facilities into the corresponding categories; 2) determine the limits of the open market and its evolution by defining qualified users; 3) establish the legal separation of members of the electricity industry, as well as the dis-incorporation of assets, rights, or shares; 4) order the transfer of rights and obligations of basic service suppliers that default; and 5) authorize the signing of agreements with the people responsible for operating the markets and electricity systems abroad.

Sener instructs the productive companies of the state, its subsidiaries and affiliates, to carry out the actions needed to guarantee that their activities and operations do not hinder competition, the efficient development of markets, and energy policy. Moreover, the head of the Ministry participates in the administrative boards. The sectoral authority is therefore involved in the industrial organization, the integration of participants, and the tactical and strategic behavior of public enterprises; their decisions are drivers in the growth of these companies and their market counterparts.

The Ministry ensures coordination between authorities, regulators, and technical bodies; it evaluates the latter group; and it provides guidelines for regulations and enforcement to be aligned with the energy policy. In other words, regulators enjoy certain autonomy but remain under the political control of the sectoral authority. The Ministry proposes to the President of the Republic the interventions, the requisitioning, and the setting up of legal easements; it also promotes temporary, partial, or total occupation, or the limitation of the domain rights

²² With the energy reform, the annual reports on electricity and natural gas prospects prepared by the Ministry of Energy stopped being published after 2014 and were replaced by the "National Electricity System Development Plan" with a 15-year timeframe and the "Five-Year Plan to Expand the Natural Gas Transportation and Storage System" (with a five-year timeframe).

or movable goods rights needed to carry out activities related to the electricity and natural gas industries; it also intervenes to facilitate investment processes.

The Ministry regulates the clean energy certificates, as well as coverage contracts for basic suppliers; it carries out the consultation procedures and rules on social impact assessments; it sets coverage obligations for the electricity supply in rural communities and marginalized urban zones, and implements the mechanisms to allocate economic resources to this end; it coordinates, alongside the SHCP, targeted subsidy programs; it determines the electrification schedules; it sets minimum percentages and other national content conditions in the provision of contracts; and ensures that public enterprises operate profitably.

But, above all, the law empowers the Ministry of Energy to take tough, strong, and even drastic measures. It sets the speed at which the market will open by modifying the definition of qualified user, with no chance for the final consumers to avoid the obligation of enrolling in the corresponding registry; it sets the terms of strict legal separation among participants; orders the sale of assets, rights, shares, or equity interests of any participant; intervenes with permit-holders when they jeopardize the supply; intervenes with basic service suppliers that default on their payment obligations and, if necessary, orders them to transfer their rights and obligations to another supplier. It is also empowered to instruct companies and public agencies to form joint ventures or enter into contracts with individuals or private parties so that the latter can take charge of the financing, installation, maintenance, operation, expansion, modernization, and conservation of the infrastructure. The Ministry therefore has the power to use companies and bodies to “anchor” private projects and invest where others do not want to. The law also charges the Ministry with dividing the CFE into various independent units, legally separated from each other, including the privatization of assets that by its judgment are necessary for the success of the new model.

In this way, the designers of the reform “built the success of the new electricity industry model on the authority of the Executive branch and an extremely strengthened Ministry of Energy” (Rojas Nieto, 2014). The Executive branch can go over the basic service rates set by the CRE and set them discretionally. Sener can do practically whatever it wants with public enterprises: spin them off, privatize them, put them under guardianship, requisition them, etc. It can also oblige them to carry out unaffordable, risky, or low-profit projects, assign operations, enter into partnerships, and contract activities with the private sector.

The reform raised the status of the Ministry of Energy, giving it more powers and prerogatives, both policy-related and regulatory. For a long time, the institutional relations were inverted. The scene was dominated by public enterprises. In practice, Sener was subordinated, with no capacity to oblige Pemex and the CFE to overcome their differences and work in coordination; it had the authority, but the information, knowledge, skills, and resources were at the companies, and therefore they defined, in large part, the energy policy. The other pole of decision-making was located in the SHCP with its power to decide in what to invest public money. Trapped between the giants, the Ministry of Energy had little influence on major decisions.

In the new institutional architecture, the Ministry of Energy has obtained a much wider margin to act and is now playing an unprecedentedly large role. It no longer has to share public policy design with Congress because the National Energy Strategy disappeared. Nor does it have to coordinate and coordinate with Pemex and the CFE through the National Energy Council, which was also disbanded. It will work in the future with technical bodies and sectoral regulators through the Energy Sector Coordinating Council, to which public

enterprises are not invited. So as not to leave any loose ends, regulators are required to regulate pursuant to the public policy issued by the Ministry of Energy.²³

This orientation of the Mexican electricity reform is consistent with the recommendations of the World Bank (Besant-Jones, 2006: 109-111) and with the lessons learned from international experience. In this sense, Joskow (2008: 38) concluded that the results of some of the electricity reforms have made the governments cautious and that the key resides in the political will to carry out reforms and resist the pressure of interest groups, as well as the margin of maneuvering to act (before and after the reform). Because at the end of the day, “contracts and regulation alone are not enough to overcome political constraints or to compensate for the lack of political will” (Besant-Jones, 2006: 109).

...that could accelerate or derail the market

The standard textbook model of electricity reform (Joskow, 2008: 11) highlights the importance of strong political commitment in light of the technical, institutional, and political challenges involved in the reform. If there is a policy commitment around the market, political authorities will have greater capacity not only to identify institutional and market failings, but also to design solutions aligned with the development of the same. Likewise, it will be more likely that they are willing to coexist with some imperfections, “recognizing that there is no perfect market and that the cure can be worse than the illness” (Joskow, 2006: 37). By contrast, when the commitment and will are weak, authorities are more likely to look for rapid and simple solutions that undermine the healthy development of markets or, worse even, destroy or discard them.

Mexican legislation reflects a strong commitment with the market, while at the same time making the federal government the centerpiece to ensure that market functions work as they should, which adds an element of uncertainty, because excessive involvement could undermine the expected results of competition, as well as an element of weakness, because political will varies depending on the whims of the administration in charge.

These same laws permit two extreme scenarios, depending on the political organization of the administrations enforcing them. In Scenario (A), with strong and sustained political commitment to the market, what results is a mixed electricity industry where the private sector is the major player in all segments of the value chain, owns the vast majority of means of production, operates broad swaths of the national electricity system through contracts, and supplies electricity to nearly all users; infrastructure ownership is essentially private in generation and public in the transmission and distribution networks; the retail market is fully developed and reaches the majority of users; the basic supply is reduced to its minimum level possible and subject to rates regulated by the CRE based on economic costs. This scenario could be reached by way of the systematic use of operating contracts and the sale of public assets in multiple modes.

In Scenario (B), with scant and fleeting political commitment to the market, what results is a mixed industry, but highly statist, with a scantily fragmented public enterprise, where the CFE

²³ The SHCP sets the basic supply rates when they are not regulated by the CRE, defines the financial schemes applicable to public projects, and plays role in the strategic management of the CFE.

is the monopolistic actor in transmission and distribution and dominant in generation and supply, and although the private sector participates in building new infrastructure, ownership and operation remain in the hands of the State. The qualified reserve is reduced and the basic supply prevails with rates administered by the SHCP. This scenario is possible, maintaining the vertical integration ordered by law, and without the federal government violating or disregarding the enforcement of regulations. It would be enough to simply not use or inadequately use the instruments made available to it to curb the market and favor the public enterprise. The direct or indirect control exercised by the President of the Republic over the regulatory bodies could be used so that they work under this guise. Both scenarios illustrate that the line between the State and the market is uncertain due to the broad discretion granted by the new legislation to the energy policy authority.

Conclusions

The reform opted for complexity, considering that it was easier to resolve the problems inherent to the electricity market than the difficulties of running a monopoly afflicted by political maneuvering. The adaptation of the market model used in the northeastern region of the United States to the Mexican electricity industry will be a highly complex exercise in light of the differences between the two systems.

The cornerstone to the functioning of the Mexican electricity market will be State intervention, which entails a double paradox: first, because the interventionism of the overseeing authorities was the primary cause behind the market failures of the hybrid single buyer model that the reform discarded and, second, because at a critical moment, market promoters doubted the effectiveness of the market and ended up empowering the State to intervene extensively. The monopoly was broken up, but State interventionism was not eliminated, but rather renewed. Some of its prerogatives have been taken away, but others have been expanded and strengthened. The State maintains its role as owner, operator, and investor, as well as its unfailing role as regulator and overseer of activities.

The decision to maintain a strong political authority, with broad intervention capacity, both direct and indirect, can be explained in various ways. One of these explanations is the imperative for a smooth transition from the market monopoly, the need to dilute the dominant position of the CFE to give momentum to competition, the reluctance of private parties to assume all of the risks in an environment of low visibility of income, as well as muted enthusiasm by business operators to increase the amount of their own resources contributed to financing projects.

Designers of the reform estimate that the electricity market would not be viable without close collaboration of the State, at least in the early stages. The kick-off of the reform required a big effort by Congress to change the Constitution and establish a new organizational and regulatory model. In the future, the decided intervention of the State is expected to guarantee proper functioning of the market.

The risk is that State intervention would curb the market. Essentially, despite the political will to develop competition, the capacity to accelerate or put the brakes on investment which the reform put in the hands of the State could get in the way of market competition and favor competition for the market, as was the case before the reform with the numerous public tenders. Some investors have preferred to wait for the overseeing authority to get nervous

and order projects through tender, rather than making the choice to invest and assume all of the risks. If the Ministry of Energy frequently resorts to tendering projects with State guarantees, the transition will be prolonged and the reform will have failed in its objective of transferring to the private sector the development of the electricity industry.

The passage from a public monopoly to an open market brings with it risks. To minimize them, the choice was made for a strong and willful public authority, which is why the Ministry of Energy was endowed with numerous oversight and intervention measures. The decision to transform the Ministry into a sort of market gendarme reflects six emotions: 1) fear of losing control of the industry; 2) fear that the market model will fail; 3) suspicion towards the behavior of the public enterprise (CFE); 4) wariness towards third parties involved (environmentalists, communities, indigenous people); 5) skepticism about the real investment flow in a context of higher risks for private investment; and 6) suspicion that it will not be easy and at some point it will be necessary to act decisively and toughly to ensure that competition works and electricity is not lacking.

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