

**THE FUTURE OF PRIVATE INFRASTRUCTURE:  
LESSONS FROM THE NATIONALIZATION OF  
ELECTRIC UTILITIES IN LATIN AMERICA, 1943-1979**

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Every politician desirous of winning popularity does what every journalist lacking a subject practices, namely he attacks the companies providing public services.

--Brazilian newspaper editorial defending a private utility, 1934<sup>1</sup>

I regret to say ... being a foreign company is considered fair game. I even think that a foreign firm exploiting a public utility has had its day and is becoming an anachronism.

--Private correspondence of a senior official of a foreign-owned utility in Latin America, 1926<sup>2</sup>

## I. Obsolescing Bargains

In the last two decades many countries have been turning to private companies to build and operate infrastructure and public utilities. In the 1980s Britain was the leader, selling off its telephone, electricity, gas, water and railway companies in the hopes that the private sector could provide better service at a lower cost. In the 1990s many developing countries followed suit, particularly in Latin America but also in Southeast Asia as well. For example, almost all of the new high performance expressways and many of the new power plants opened in developing countries in the last decade were built by private concessionaires. Most of the major railways and public telephone companies and many of the electric companies in Latin America were sold or offered as concessions to private operators during the 1990s.

One obvious question is whether this enthusiasm for private provision of infrastructure will last, especially given that many of the companies that are being privatized had been nationalized only recently. Many of the companies that Britain privatized in the 1980s were nationalized only forty years earlier, when the Labor Party came to power after World War II. Many of the Latin American companies sold off in the 1990s had been private as late as the 1960s and 1970s. Why were these companies nationalized in the past, and what is to prevent them from being nationalized again?

### Foreigners and Monopolists

Foreign-owned private companies seem especially vulnerable to nationalization, particularly in developing countries. Ray Vernon developed the concept of the "obsolescing bargain" to explain the rise and fall of foreign private investment in developing countries.<sup>3</sup> Vernon argues that agreements to allow a multinational company to invest are typically struck at times when the company offers superior technology,

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<sup>1</sup> Duncan McDowall, *The Light: Brazilian Traction, Light and Power Company, 1899-1945* (Toronto: University of Toronto Press, 1988), p. 316.

<sup>2</sup> McDowall, *The Light*, p. 265.

<sup>3</sup> Raymond Vernon, *Sovereignty at Bay: The Multinational Spread of U.S. Enterprises* (New York: Basic Books, 1971).

management and access to capital. The developing country usually makes few demands of the multinational for fear of losing the skills and investment to another nation. Over time, however, the country becomes more technologically sophisticated and wealthier, and the advantages the multinational offers become less critical. The success of the multinational in helping the country develop materially and technologically contributes to the unraveling of the initial bargain. The country may not drive the multinational out as long as its presence produces benefits. But it usually presses for additional benefits, such as more use of local inputs or secondary processing. And this process leads either to the gradual takeover of most functions by local companies and investors or to outright expropriation.

Private infrastructure companies may be particularly vulnerable to nationalization, whether their owners are foreign or domestic. Infrastructure involves services—such as water, transport, or electricity—which most households and businesses depend on daily and whose prices are visible and politically sensitive. Moreover, many types of infrastructure are also what economists call natural monopolies in that they have cost structures that make it difficult to sustain competition. This combination of essentiality and monopoly makes private provision more controversial in infrastructure than in other sectors of the economy. Simply put, the public is often leery of having such important services in the hands of a single private company, whether domestic or foreign.

The dynamics of the rise and fall of private infrastructure are similar in some respects to the dynamics Vernon identifies with foreign investment. The same forces of technology and finance often motivate the initial bargain: private infrastructure is usually allowed when the public sector seems to lack the managerial, technological or financial capacity to provide infrastructure services effectively. At the turn of the century, for example, private infrastructure may have been the obvious choice because the private sector was the forefront of the rapid technological developments of the industrial revolution. The revenue raising powers of the government were limited then as well, especially given the scope of infrastructure investments contemplated.<sup>4</sup> The bargain may eventually erode as the technological sophistication and financial resources of the public sector increases. Infrastructure engineering feats that may have seemed beyond the public sector's capabilities in the early 20<sup>th</sup> century, for example, were more commonplace by the middle of the 20<sup>th</sup> century. And during the 20<sup>th</sup> century governments improved in their abilities to raise revenues through taxes and to sell bonds on domestic and international capital markets, thereby making private finance less important.

But the fact that infrastructure is considered so important to everyday life and a natural monopoly generates additional forces to undermine the bargain for private

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<sup>4</sup> Similarly in the 1980s and 1990s, the idea of privately provided infrastructure was revived where the public sector seemed not to be providing infrastructure services effectively. In some cases, such as telecommunications, the public enterprises seemed technologically outdated, but more often the problems were management skills and incentives. Public infrastructure companies often operated at large deficits and, although the prices charged customers were often low, the quality of service was usually poor. Already heavily in debt, the public sector also was often unable or unwilling to finance investments needed to expand or modernize services. Private management and finance seemed the answer.

provision. Because infrastructure is an everyday essential, any shortcomings of the industry, whether real or imagined, are highly visible. And because it is often a monopoly, governments have a plausible justification for retaining authority to regulate infrastructure prices and services even after privatization. The difficulty, however, is that government regulators often face strong political pressures from consumers to keep prices unrealistically low. If they do hold prices down for a sustained period, then the services of the private infrastructure provider may deteriorate to the point where nationalization and public provision seem an attractive option.

### **Latin American Electricity as a Case Study**

This paper attempts to draw lessons about the prospects for private infrastructure from the history of the rise and fall of the private electric utility industry in Latin America. Latin America's electric utilities began as private firms around the turn of the century, and the industry was still predominately private until the 1950s. Between 1950 and 1975, however, the share of Latin America's power that was generated by government-owned electric utilities increased from 10 to 78 percent while the share generated by privately owned utilities dropped from 67 to 10 percent (see Table 1). Self generation—that is electricity generated by manufacturers or others for their own use—declined from 23 to 12 percent of total generation in the same period, largely because of improvements in the adequacy and reliability of electricity supplied by government-owned utilities. In many countries the private utilities had been completely nationalized by the 1975. The remaining few private utilities were generating about as much electricity in 1975 as all the private utilities had in 1950. But in that same period the total production of electricity had increased almost ten fold in Latin America, and all of the growth had been in the public sector. By 1980, private utilities had all but disappeared with a few exceptions, most notably in metropolitan Caracas.

The history of Latin America's electric utilities provides an interesting case study for several reasons. In the first place, electricity resembles many other forms of infrastructure both in the pressures for its regulation and the temptations that regulation creates. Electricity is considered a basic necessity of modern life, and there are elements of monopoly power in the long-distance transmission and local distribution networks. Popular pressures on regulators to hold down electricity rates played a major role in the demise of private utilities in Latin America. In Brazil, Colombia and Mexico, for example, the generating capacity of private utilities increased relatively slowly after World War II because investors were discouraged by the unwillingness of government regulators to allow electricity rates to keep pace with inflation. Government owned and subsidized generation expanded to meet the growing demand for electricity because it was politically more acceptable to subsidize public companies than to tolerate brownouts and blackouts or to raise the rates for private utilities.

Table 1:  
Electric Power Generation in Latin America by Sector, 1950-1975

	1950				1960				1975			
	Pri- vate utility	Gov. utility	Self gener ation	Total	Pri- vate utility	Gover nment utility	Self genera tion	Total	Pri- vate utility	Gover nment utility	Self genera tion	Total
Millions of kilowatt hours												
Argentina	3,920	603	780	5,303	4,242	3,621	2,595	10,458	2,293	22,621	4,915	29,469
Brazil	7,500	0	708	8208	14,898	3,616	4351	22,865	9,142	66,804	4,447	80,293
Chile	780	379	1,784	2,943	751	1,591	2,250	4,592	0	6,203	2,259	8,732
Colombia	800	250	220	1270	455	2,340	525	3,320	0	12,693	1,906	14,599
Mexico	3,050	500	874	4,424	200	8,389	2,139	10,790	0	39,400	4,106	43,506
Peru	380	60	380	820	800	378	1,470	2,648	0	4,565	3,123	7,696
Venezuela	430	123	600	1,153	1,851	1,040	1,679	4,570	7,121	11,558	2,500	21,179
Rest	1,610	839	1,033	3,482	1,538	4,780	2,180	8,496	4,053	16,231	3,507	23,791
Total	18,470	2754	6379	27,603	24,735	25,755	17,189	67,677	22,609	179,615	27,041	229,265
Percentage of kilowatt hours												
Argentina	73.9	11.4	14.7	100.0	40.6	34.6	24.8	100.0	7.8	75.5	16.7	100.0
Brazil	91.4	0	8.6	100.0	65.2	15.8	19.0	100.0	11.4	83.2	5.4	100.0
Chile	26.5	12.9	60.6	100.0	16.4	34.6	49.0	100.0	0	71.0	29.0	100.0
Colombia	63.0	19.7	17.3	100.0	13.7	70.5	15.8	100.0	0	86.9	13.1	100.0
Mexico	68.9	11.3	19.8	100.0	1.9	78.2	19.9	100.0	0	90.5	9.5	100.0
Peru	46.3	7.3	46.4	100.0	30.2	14.3	55.5	100.0	0	59.3	40.7	100.0
Venezuela	37.3	10.7	52.0	100.0	40.5	22.8	36.7	100.0	33.6	54.3	11.8	100.0
Rest	46.2	24.1	29.7	100.0	18.1	56.3	25.6	100.0	17.0	68.2	14.8	100.0
Total	66.9	10.0	23.1	100.0	36.5	38.1	25.4	100.0	9.9	78.3	11.8	100.0

Source: Joseph W. Mullen, *Energy in Latin America: The Historical Record* (Santiago, Chile: United Nations, CEPAL, 1978), p. 65.

Second, Latin America's history may be more relevant to the present situation in developing countries than the history in Asia or Africa. Many Asian and African countries also nationalized their private utilities during the 1960s and 1970s. But many of these countries had won their independence from colonial powers only a decade or so earlier, and the utilities they nationalized typically had been owned by their former colonial masters. By contrast, most Latin American nations won their independence in the early 1800s, a century before the disputes over private provision of infrastructure began in earnest. Many of the major private infrastructure companies in Latin America in the first half of the 20<sup>th</sup> century were foreign owned, and resentment of foreign exploitation played a major role in their eventual nationalization. But the hostility to foreigners was probably not as intense as it might have been in the immediate aftermath of independence. And the Latin American countries were already independent when they invited or permitted foreigners to invest in their utilities, a situation more akin to the present day.

Third, Latin America is not homogenous, and to some extent the countries faced different circumstances and adopted different solutions. Five countries—Argentina, Brazil, Colombia, Mexico and Venezuela—accounted for three quarters of the electric power generated in Latin America during the period of nationalization<sup>5</sup>, and they are the

<sup>5</sup> Joseph W. Mullen, *Energy in Latin America: The Historical Record* (Santiago, Chile: United Nations, CEPAL, 1978), table 35, after p. 54.

primary focus of this survey. Most of the major private utilities in these countries were eventually acquired by foreign owners, but one remained in domestic hands in Venezuela. Most countries developed national agencies to regulate private utilities in the 1930s, but Argentina and Venezuela retained municipal regulation. There are lessons to be learned both from the fact that nationalization occurred in all five countries and, more speculatively, from the variation in the pace and the extent of nationalization.

Finally, the history of Latin America's electric utilities is probably more completely documented than the histories of other forms of infrastructure. Particularly helpful are Duncan McDowall's history of the private company that provided power to Rio de Janeiro and Sao Paulo for 80 years, Judith Tendler's in-depth study of the rise of public power in Brazil, Miguel Wionczek's and Jorge del Río's accounts of the nationalization of the private electric companies in Mexico and Argentina, Carlos Sanclemente's history of Colombia's electricity industry, Juan Pablo Pérez Alfonso's critique of private utilities in Venezuela, and David F. Cavers and James R. Nelson's survey of regulatory practices in Latin America in the 1950s.<sup>6</sup>

In brief, the history of Latin American electric utilities suggests that either foreign ownership or monopoly alone might have been enough to provoke nationalization eventually, but that the combination of the two was inevitably lethal. The implications for the recent revival of private infrastructure companies are mixed. On the one hand, there are reasons to be pessimistic, as many of the factors that encouraged nationalization in the past are present today. Many of the recently privatized infrastructure companies were sold in whole or in part to foreigners, although foreign ownership is not so common today as it was in the Latin American electric industry in the early 1930s. The world economy is still subject to shocks that cast doubt on the wisdom of depending on foreigners, much as the Depression did in the 1930s. And the regulatory systems that are intended to mediate between consumer and investor interests are not so different today than they were half a century ago. On the other hand, there is reason for optimism as well. For example, the appeal and prestige of public enterprises—such as those in the Soviet Union or the Tennessee Valley Authority in the United States—is less now than it was in the past. Moreover, while foreign investment is important once again in some forms of infrastructure, particularly telephones, domestic investors are playing a key role as well in many areas. Finally, the Venezuelan experience suggests that widespread domestic stock ownership can help forestall nationalization by giving a broad cross section of the public a stake in the financial health of the company. In this regard, recent

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<sup>6</sup> McDowall, *The Light*; Judith Tendler, *Electric Power in Brazil: Entrepreneurship in the Public Sector* (Cambridge: Harvard University Press, 1968); Miguel S. Wionczek, "Electric Power: The Uneasy Partnership" pp. 19-110 in Raymond Vernon (ed.) *Public Policy and Private Enterprise in Mexico* (Cambridge: Harvard University Press, 1964); Jorge del Río, *Política Argentina y Los Monopolios Eléctricos* (Buenos Aires: Editorial Cátedra Lisandro de la Torre, 1957); Jorge del Río, *Electricidad y Liberación Nacional: El Caso de SEGBA* (Buenos Aires: Colección la Siringa, 1960); Jorge del Río, *El Porqué de la Crisis* (Buenos Aires: Editorial Cátedra Lisandro de la Torre, 1961); Carlos Sanclemente, *Desarrollo y Crisis del Sector Eléctrico Colombiano 1890-1993* (Bogotá: Empresa Editorial Universidad Nacional, 1993); Juan Pablo Pérez Alfonso, *Abusiva Aplicación de Tarifas Eléctricas y Otros Daños Causados a los Intereses Colectivos del Distrito Federal* (Caracas: Contraloría Municipal del Distrito Federal, Imprenta Municipal de Caracas, 1965); and David F. Cavers and James R. Nelson, *Electric Power Regulation in Latin America* (Baltimore: Johns Hopkins University Press, 1959).

efforts in Bolivia and Chile to spread the benefits of share ownership widely are particularly intriguing.

## II. The Origins of the Industry and Foreign Investment

The first electricity companies appeared in most Latin American countries in the 1890s, about ten years after they had appeared in the more industrialized nations.<sup>7</sup> Often the initial application was to replace gas or kerosene as a source of public lighting. In the larger cities, major increases in generating capacity were soon sought to electrify street railway systems. In some cases providing power for large mining or industrial enterprises was a key early goal.

Almost all of the early electric companies were privately owned and financed by domestic investors.<sup>8</sup> Typically the municipal government awarded local citizens or companies concessions to develop and provide electric service for a period of 20 to 50 years. Sometimes permission from provincial or national governments was also needed, particularly to obtain the water rights required for hydroelectric projects. In some countries, such as Mexico, there was intense speculation in concessions, and concessions changed hands several times before they reached their final users. Optimism about the future of the country and the electric industry sometimes drove the prices for the concessions to unrealistically high levels, which is thought to have contributed to later regulatory disputes as companies tried to include the inflated concession cost in their investment base.<sup>9</sup>

In the decade before World War I, many of these concessions were acquired by foreign investors, mainly from Britain, Germany and Canada. Foreign investment was generally welcomed, for many of the same reasons it would be welcomed again during the infrastructure privatizations of the 1990s. One motive was that domestic capital markets simply could not supply the large investments needed to develop the electricity business. British and Canadian investors took over the concession for Mexico City, for example, in order to finance a large hydroelectric project that would provide low-cost power to meet the growing demand for electricity in the capital and in nearby mines. In other cases, foreign funds were needed to consolidate many small concessions and serve them with larger and more efficient generating plants.<sup>10</sup>

A second reason foreign investors were welcomed was because they brought needed technical expertise. For example, the skill and experience of Canadian railway promoter William MacKenzie and the American electrical engineer Fred Stark Pearson helped convince the cities of Sao Paulo and Rio de Janeiro to award concessions for streetcar and electricity service to their Brazilian, Traction, Light and Power company,

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<sup>7</sup> James S. Carson, "The Power Industry" pp. 319-345 in Llyod J. Hughlett (ed.), *The Industrialization of Latin America* (New York: McGraw-Hill, 1946).

<sup>8</sup> There were exceptions—Medellín, for example, started a municipally owned company; Sanclemente, *Desarrollo y Crisis*, p.7.

<sup>9</sup> Wionczek, "Electric Power", pp. 21-25.

<sup>10</sup> Cavers and Nelson, *Electric Power Regulation*, pp. 11-12; Carson, "The Power Industry", p. 341; and Wionczek, "Electric Power", p. 21-22.

more popularly known in Brazil as “Light”. Light, headquartered in Toronto and backed by British and Canadian investors, developed electric streetcar systems that were the envy of Latin America in the first decade of the 20<sup>th</sup> century. And Light’s engineers were widely admired when, to meet the growing power needs of Sao Paulo in the 1920s, they created a waterfall of 720 meters by reversing the course of a river so that it flowed into a different basin. The abundant power from this ingenious scheme helped to develop Sao Paulo as Latin America’s leading industrial region.<sup>11</sup>

In some cases foreign investors became involved because they owned the mines or industrial enterprises that were major consumers of electricity.<sup>12</sup> Where electricity was a key input, it seemed safer for the company to acquire the electricity concession itself in order to insure a reliable and reasonably priced source of power. This motive accounted for the foreign acquisition and development of some electric companies in Mexico, as well as in Bolivia and Chile.

A second wave of foreign investment occurred in the period between World War I and the great Depression, in this case dominated by investors from the United States. Particularly notable was American and Foreign Power, a U.S. holding company owned by Electric Bond and Share. The General Electric Corporation (GE) had formed Electric Bond and Share in 1905 as a subsidiary to manage the stocks and bonds of many early U.S. utilities that GE had acquired as partial payment for equipment it had sold to the utilities.<sup>13</sup> Most of these securities were not marketable due to the small size and weakness of the companies, and Electric Bond and Share’s strategy was to increase their value by providing management and financial services to the companies it had interests in. Electric Bond and Share played a major role in consolidating small U.S. utilities to create larger and more efficient firms, and by the 1920s had evolved into one of several major utility holding companies in the United States.

Electric Bond and Share’s first involvement overseas came during World War I, when it took over an electricity concession that had been held by German investors in Panama because of U.S. government concerns about power supplies to the Panama Canal.<sup>14</sup> In the next few years the company acquired two other concessions in Latin America. In 1923 it decided that utility investment opportunities in Latin America were more promising than those left in the United States and created American and Foreign Power as its subsidiary to acquire foreign utilities. By 1930 the new subsidiary owned utilities in 11 Latin American countries that provided electric power and light to 696

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<sup>11</sup> McDowall, *The Light*; Tendler, *Electric Power in Brazil*, pp. 30-34; and Carson, “The Power Industry”, p. 325.

<sup>12</sup> Wionczek, “Electric Power”, p. 27.

<sup>13</sup> General Electric would own Electric Bond and Share until 1924, when it distributed Electric Bond and Share stock to its stockholders. Electric Bond and Share would later change its name to Ebasco.

<sup>14</sup> For accounts of the origins of American and Foreign Power see Norman Sharp Buchanan, “The Electric Bond and Share Company: A Case Study of a Public Utility Holding Company”, Ph.D dissertation, Cornell University, 1931, pp. 254-295; and Sidney A. Mitchell, *S. Z. Mitchell and the Electrical Industry* (New York: Farrar, Straus and Cudahy, 1960), pp. 106-112.

communities with a combined population of 9.6 million people.<sup>15</sup> In the process of buying electric companies American and Foreign Power often had to acquire the concessions to provide streetcar, telephone, gas, water or ice services as well, but it usually sold off the non-electric companies wherever it could find a buyer.<sup>16</sup> Some of its Latin American concessions were purchased from German owners after the war, but most were purchased from other foreign investors, especially British, or from domestic owners. Outside of Latin America, American and Foreign Power also owned the electric power concessions for the International Settlement in Shanghai and for Bombay and minority interests in utilities in five other countries.<sup>17</sup>

By the 1930s, foreign-owned utilities served many of the major cities and industrial areas of Latin America, but they were more important in some countries than in others. Of the five countries in this survey, Argentina had the electricity industry most dominated by foreign investors. Over 90 percent of Argentina's electricity was provided by four foreign groups.<sup>18</sup> The largest of the four (in terms of power generated) was a company serving Greater Buenos Aires that was owned by the Société Financière de Transports et d'Entreprises Industrielles, more commonly known as Sofina. Sofina was a holding company headquartered in Brussels that owned electricity and streetcar companies and manufacturers of related equipment in Belgium, Luxembourg, Spain, Germany, Mexico, the United States, and the Belgian Congo as well as Argentina.<sup>19</sup> The third largest group in Argentina was collection of companies owned by American and Foreign Power, while the second and fourth largest were controlled by Swiss interests (see Table 2).<sup>20</sup>

Brazil and Mexico were not far behind Argentina. Approximately two-thirds of the electric power in Brazil was generated by two foreign groups, the largest being the Toronto-based Light company, which alone accounted for more than half of the electricity generated in the country, and the other a group of 10 companies controlled by American and Foreign Power.<sup>21</sup> In Mexico, Brussels-based Sofina owned Mexlight, which served Mexico City, while the local American and Foreign Power subsidiary, CEE, owned the concessions in most of the other major cities.

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<sup>15</sup> The 11 countries were Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, Guatemala, Mexico, Panama, and Venezuela; Buchanan, "Electric Bond and Share", p. 284.

<sup>16</sup> In 1930, for example, American and Foreign Power supplied gas service to 8, water to 9, ice to 39, telephone to 49, and transportation to 36 communities in Latin America; Buchanan, "Electric Bond and Share", p. 284.

<sup>17</sup> Buchanan, "Electric Bond and Share", pp. 256-257.

<sup>18</sup> Herbert Bratter, "Latin American Utilities' Nationalization Proceeds Inexorably", *Public Utilities Fortnightly*, vol. 66, no. 1 (July 7, 1960), p. 4.

<sup>19</sup> del Río, *Electricidad y Liberacion*, p. 26.

<sup>20</sup> The two Swiss groups may have in fact been controlled by one holding company: Motor Columbus, headquartered in Baden; see del Río, *Electricidad y Liberacion*, p. 27.

<sup>21</sup> Bratter, "Nationalization Proceeds Inexorably", p. 11.

Table 2:  
Major Foreign-Owned Electric Utilities  
in Selected Latin American Countries During the 1930s

Country	Company (in order of size within country)	Nationalities of principal investors	Service area	Year nationalized <sup>a</sup>
Argentina	CADE (Cia. Argentina de Electricidad)	European (Sofina subsidiary) <sup>a</sup>	Greater Buenos Aires	1958 <sup>b</sup>
	CIADE (Cia. Italo-Argentina de Electricidad)	Swiss	Parts of Buenos Aires	1979
	ANSEC <sup>d</sup>	U.S. (American and Foreign Power subsidiary)	Central, southern and western provinces	1943-1945, 1949
	Cia. Suizo-Argentina de Electricidad <sup>c</sup>	Swiss	Northern provinces	1943? <sup>c</sup>
Brazil	Light (Brazilian Traction, Light and Power)	Canadian, British and European	Sao Paulo and Rio de Janeiro	1979
	Empresas Electricas Brazilianas	U.S. (American and Foreign Power subsidiary)	Reciefe, Belo Horizonte, Porto Alegre and others	1959 (Porto Alegre and Vitoria), 1962 (rest)
Colombia	CCE (Cia. Colombiano de Electricidad)	U.S. (American and Foreign Power subsidiary)	Cali and other areas	1945 (Cali), 1961 (rest)
Mexico	Mexlight (Cia. Mexicana de Luz y Fuerza Motriz)	European (Sofina subsidiary)	Mexico City	1960
	CEE (Cia Impulsora de Empresas Eléctricas)	U.S. (American and Foreign Power subsidiary)	Veracruz, Tampico, Puebla, Potosí, and many other cities	1960
Venezuela	CALEV (Cia. Anónima Luz Eléctrica de Venezuela)	U.S. (American and Foreign Power subsidiary)	Parts of Caracas	(1964 <sup>d</sup> )

<sup>a</sup> The year nationalized is the year the government assumed effective control of the company. In some cases the actual sale or compensation did not occur until many years later.

<sup>b</sup> Between 1958 and 1960 the company was operated as a joint government-private company.

<sup>c</sup> Both Bratter and del Río mention that there were four Argentine groups, but there is no account of the demise of Compañía Suizo-Argentina de Electricidad. It may be that that company was bought out by ANSEC before ANSEC was nationalized.

<sup>d</sup> The initials ANSEC came from the five main companies included: A was Cia. De Electricidad de Los Andes, N was Cia. de Electricidad del Norte Argentino, S was Cia. de Electricidad del Sud Argentino, E was Cia. de Electricidad del Este Argentino, and C was Cia. Central Argentina de Electricidad. There were four other companies that were part of ANSEC. See del Río, *Monopolios Eléctricos*, p. 22.

<sup>e</sup> CALEV was not nationalized but was sold to La Electricidad de Caracas, the domestically owned private company that served the rest of Caracas.

In Colombia and Venezuela, foreign-owned companies were important but not dominant. In Colombia, many of the companies were municipally owned, including the companies serving Bogotá and Medellín. The local American and Foreign Power subsidiary, CCE, had bought up approximately a dozen domestically owned private concessions beginning in 1927, however, including the one for Cali.<sup>22</sup> In Venezuela, most utilities were apparently owned by domestic investors, including the company that generated all and distributed most of the power for the Caracas metropolitan area. The principal exceptions were several companies owned by American and Foreign Power that distributed power in approximately one-third of Caracas and in two other areas.

### III. The Beginnings of Controversy: Consolidation and Monopoly

Initially, there seems to have been little controversy over whether the electric industry should be privately owned or not. Private ownership may have been acceptable at first because of the industry's modest origins and prospects. Often a local mechanic or merchant bought the first small generator and began to supply electricity to his neighborhood.<sup>23</sup> But private ownership also fit with the liberal political ideology that had justified the rebellions against Spain earlier in the 19<sup>th</sup> century, and that remained a powerful intellectual force in Latin America. These countries had fought their revolutions in the name of individual liberty and a more limited role for the state, and it was more consistent to grant private entrepreneurs concessions than to have the public sector supply electricity.<sup>24</sup>

By the first decade of the 20<sup>th</sup> century, controversy over private ownership began to surface for two reasons. First, electricity had begun to prove its utility as a clean and relatively inexpensive source of illumination for streets, homes and businesses and power for industry. Electricity was transforming lighting, urban transportation and manufacturing, and it was becoming difficult to imagine life without it. Second, the industry was beginning to consolidate, generating fears that customers might now be dependent on a single supplier for this valuable service. The same political liberals who had supported private over state enterprises were also opposed to private monopolies, which increasingly were emerging.<sup>25</sup>

Interestingly, the focus of the complaints was about monopoly and not foreign ownership, even though the company doing the consolidating was usually foreign owned. Usually the foreign company thought it prudent to buy up all its competitors to protect a

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<sup>22</sup> Sancelmente, *Desarrollo y Crisis*, pp. 7-11.

<sup>23</sup> del Río, *Monopolios Eléctricos*; p. 16

<sup>24</sup> For example, Norma Dolores Requielme and María Cristina Vera de Flachs stress the importance of the traditional liberal political ideology in the decision to rely on private enterprises in their history of the electricity industry in Córdoba, Argentina before World War I; *Políticas Económicas en la Prestación de Servicios Públicos: Las Primeras Empresas de Electricidad de Córdoba* (Córdoba: Sindicato de Fuerza y Luz de Córdoba, 1986).

<sup>25</sup> In Brazil, for example, the famous liberal political theorist of the turn of the century, Rui Barbosa, supported private power companies but was opposed to power companies getting exclusive concessions. He became a supporter of Light only after he became convinced that electric technology made monopoly inevitable. McDowall, *The Light*, pp. 143 and 147.

major investment in generating capacity that it was making or contemplating. And sometimes the company would request that the municipal government give it an exclusive franchise, so as to give legal sanction to what it had accomplished by commercial means. But nationalistic feelings were often tempered because the foreign company had much more technical and financial credibility than its competitors. In Sao Paulo, for example, there were few complaints when Light bought up competing street railway companies that were powered by mules instead of electricity, or when it took over a small, under-financed Brazilian-owned electric company and a British-owned gas company that gave indifferent service. There was a fight later, when Light asked the City Council to grant it consolidated and exclusive streetcar and public lighting concessions, but the issue was monopoly not foreign ownership.<sup>26</sup> Only in those rarer cases where the foreign company faced a determined and credible domestic rival were nationalistic feelings mobilized. In Rio de Janeiro, for example, Light had to fight off an attempt by a wealthy Brazilian family, the Guinles, to establish an electric company in Rio where Light had an exclusive franchise. Light argued that the Guinle proposal violated Light's concession contract and that it made little sense given the economies of scale in the electricity business. The Guinle family made Light's foreign provenance an issue, however, and although Light won in the courts the battle tarnished the company's public image and earned it the nickname of the "Canadian octopus".<sup>27</sup>

Concerns about monopoly were seldom strong enough to lead to the establishment of municipal or provincial electric companies, perhaps because the government did not have much credibility in such a complex undertaking. In Argentina, for example, some cities entertained proposals to establish municipal companies in the years before World War I. At the turn of the century, small private domestic and foreign-owned companies were providing electric service in Buenos Aires, some without the benefit of a formal concession agreement. The Mayor became convinced that the private companies were charging the City too much for public lighting and proposed in 1903 that the City build its own generating plant. But the private companies mobilized enough support on City Council to defeat his proposal, and to establish formal concession agreements instead.<sup>28</sup> Similarly, in Córdoba some provincial legislators became concerned that the consolidation of electric companies by a foreign-owned company would leave local industries vulnerable to monopoly and proposed the creation of a public company in 1908. The legislators stressed that establishing a public electric company would support free enterprise and foreign investment in other industries, since other industries would suffer under monopoly electric rates.<sup>29</sup> But the electric company convinced the legislature that the province's interests were protected under the concession agreements.

In the few places where municipal companies were created, it often was because the domestically owned private companies simply collapsed or could not finance needed

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<sup>26</sup> For the Sao Paulo story see McDowall, *The Light*, pp. 80-94.

<sup>27</sup> McDowall, *The Light*, pp. 110-113 and 170-177.

<sup>28</sup> del Río, *Monopolios Eléctricos*, pp. 35-37.

<sup>29</sup> See especially the legislator's speech reproduced at Riquelme and Vera de Flachs, *Políticas Económicas en la Prestación de Servicios Públicos*, pp. 24-25.

improvements. Municipal ownership seems to have developed in Colombia during the 1920s for these reasons. The company serving Medellín, for example, began in 1895 as partnership between local private entrepreneurs and the municipal and provincial governments, but with the private shareholders controlling. This lasted until around 1920 when the municipality took over the company as the only way to finance needed expansion. Similarly, in Bogotá local private entrepreneurs started a company in 1890 that eventually developed 5,800 KW of hydroelectric capacity. The supply of electricity from their dams was apparently highly variable, which created an opening for another group of local entrepreneurs to create a second company in 1920 and build a 4,500 KW thermal plant. The competition between these two companies proved ruinous to both, however, and in 1927 the City negotiated their consolidation. The municipal government bought approximately 70 percent of the shares in the combined company but retained private management. This compromise seemed satisfactory until 1951, when the firm was converted to a municipal department in order to obtain a foreign government loan.<sup>30</sup> The process of municipal takeovers seems to have been arrested or slowed in 1927, when the first foreign utility investors—American and Foreign Power—arrived and bought up many of the remaining private companies. Had other foreign investors been active in Colombia earlier, the country might have retained more private utilities into the 1930s and 1940s.<sup>31</sup>

The intensity of the battles about monopoly increased as electricity's importance became more apparent. In Mexico, for example, Wionczek reports that opposition to private utilities was confined to a few intellectuals before the Revolution began in 1910. The Revolution put matters on hold for fifteen years, but by the 1920s the electricity issue was raised again, this time championed by small industrialists and merchants particularly in Puebla and San Luis Potosí, two centers of Mexico's emerging entrepreneurial class. These entrepreneurs complained that electricity rates were high, and that small customers often paid 15 to 25 times the rates charged the big industrial customers. The discounts offered for high volumes were often confidential and the big industrial customers frequently foreign owned, which must have added further to their suspicions. The high tariffs were particularly harmful, they alleged, because there was no substitute for electricity in modern small businesses.<sup>32</sup> The complaints of these entrepreneurs may have been exaggerated compared to the real economic damage they suffered. According to Wionczek, electricity made up a small portion of total costs in the Mexican textile industry, a center of opposition to high electricity tariffs. But by the 1920s, the belief that cheap and abundant electricity was critical for economic development was widely held throughout the world. Electrification was a centerpiece of Soviet development plans, for

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<sup>30</sup> Sanclemente, *Desarrollo y Crisis*, pp. 7-9. Ellis reports that there were still a few small domestically owned private electric companies in Colombia in 1951; Cecil A. Ellis, *Public Utilities in Colombia*, Un Technical Assistance Program, report ST/TAA/K/Colombia/1 (New York: United Nations, 1953), pp. 14 and 17.

<sup>31</sup> There had been private foreign investment in the Panama light company in the late 19<sup>th</sup> century, when Panama was still part of Colombia. But other than that, Sanclemente mentions no foreign private investment in Colombia prior to American and Foreign Power's arrival in 1927; Sanclemente, *Desarrollo y Crisis*, p.10.

<sup>32</sup> Wionczek, "Electric Power", pp. 30 and 44-45.

example, and would soon play a major role in President Roosevelt's recovery program in the United States.

The occasional controversies notwithstanding, the first three decades of the 20<sup>th</sup> century were a heady period for private utilities in Latin America. By the 1920s, Mexico was emerging from its Revolution and other key countries seemed to be politically stable and poised for economic growth. The optimism was reflected in American and Foreign Power's aggressive program for acquiring new companies in the 1920s. All of the major private utilities were investing heavily in expanding their generating capacity and extending their distribution systems to meet the growing demand for electricity by households, commerce and industry. The complaints about monopoly and high prices made for occasional bad press, but usually little more. Moreover, the foreign owned utilities were acting no differently, and receiving no less criticism, than they did in their home countries. A certain amount of controversy seemed inherent in the utility business, whether at home or abroad.<sup>33</sup>

#### **IV. The Depression: Economic Nationalism and National Regulation**

The onset of the worldwide Depression in the 1930s changed the debate in two ways. In the first place, the complaints about high electricity prices and monopoly abuse intensified. Household incomes and the prices for many goods declined but electricity tariffs did not. The utilities resisted rate cuts because electricity generation and distribution were capital intensive businesses and many of their expenses were fixed. With electricity consumption declining, moreover, it may have been harder to recover capital costs even with the old tariffs. But many of the utility customers could not pay their bills, including municipalities responsible for the costs of public lighting. And the reluctance of the utilities to reduce rates in such difficult times further eroded their base of popular support.

The second change was that the foreign ownership of utilities became a central issue. Resentment of foreign ownership had always been present in the 1920s, but was played down because the foreigners usually offered superior financial and technical skills and because Latin American economies were expanding and visibly dependent on foreign capital and trade. But the Depression seemed to demonstrate the perils of relying on fickle foreign markets and the benefits of economic nationalism and self sufficiency. That foreign companies should make profits providing such essential public services as electricity seemed like colonial exploitation.

Latin American suspicions of private utilities seemed confirmed, moreover, by the criticisms being levied at them in the United States during the 1930s. President Roosevelt had devoted a chapter of his 1933 book *Looking Forward* to the scandals in the

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<sup>33</sup> Wionczek, argues that the utilities were not alarmed; Wionczek, "Electric Power", pp. 48-49. At least one utility executive, MacKenzie of Light, was pessimistic, however. McDowall quotes MacKenzie in a private communication to a London financier in 1926 as saying "I regret to say...being a foreign company is considered fair game. I even think that a foreign concern exploiting a public utility has had its day and is becoming an anachronism." But McDowall also notes that MacKenzie's fear was very premature; McDowall, *The Light*, p. 273.

U.S. public utility industry and the need for a stronger public role in the industry, and his views were cited widely and with sympathy in Latin America.<sup>34</sup> The passage of the Public Utility Holding Company Act of 1935 lent weight to the charges that utility holding companies, such as American and Foreign Power and Sofina, were devices to defraud the small shareholders of the companies they acquired and to hide profits from the public.<sup>35</sup> Roosevelt's establishment of the Tennessee Valley Authority was seen as a model of how public power could serve as a catalyst for coordinated economic development and provide a benchmark against which the performance of private companies could be measured.<sup>36</sup>

One response to the growing controversy was the development of agencies with the authority to regulate electricity rates at the national level. Prior to the 1930s, regulation was typically a municipal affair. Concessions were usually granted by municipal governments, or occasionally by provincial governments, and those governments typically had the right to review prices. Not all countries shifted from municipal to national regulation during the 1930s, however. Argentina and Venezuela continued to regulate electricity rates at the municipal or provincial level, while Brazil, Colombia and Mexico developed national regulatory agencies.

Argentina and Venezuela may not have developed a national electricity regulatory scheme because their political systems repressed the populist and nationalistic reaction to the Depression during the 1930s. One dictator, Juan Vincent Gómez, ruled Venezuela from 1908 to 1935, and his two successors were only slightly less repressive. Not until the revolution of 1945 would Venezuela experience, at least briefly, the introduction of democracy and freer expression of the popular sentiments.<sup>37</sup> In Argentina the conservative oligarchy, fearful of the social unrest brought on by the Depression, staged a coup in 1930 to oust the elected President Yrigoyen, whose middle-class Radical Party had been in power since 1916. Civilian rule was restored in 1932, but the oligarchy kept tight control of the national electoral process to insure a series of conservative presidents over the next decade. The conservatives handled the economy poorly and the military, losing faith, staged a second coup in 1943. But it was not until 1946 that Colonel Juan Perón won the presidential election at the head of an openly populist and nationalistic political party, ending a three-year power struggle among the coup leaders.<sup>38</sup>

In Brazil, Colombia, and Mexico, by contrast, the Depression brought leftist and nationalistic governments into power rapidly. Mexico's Revolution had barely finished before the Depression began, and the Depression supported the nationalistic and leftwing

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<sup>34</sup> Wionczek, "Electric Power", p. 54.

<sup>35</sup> See, for example, del Río, *Monopolios Eléctricos*, p. 33.

<sup>36</sup> Some American utility experts complained that the foreign delegations that visited the TVA came away with unrealistic expectations of what public power might achieve; Carson, "The Power Industry", pp. 343-345.

<sup>37</sup> Iéda Siqueria Wiarda, "Venezuela: The Politics of Democratic Developmentalism", pp. 293-316 in Howard J. Wiarda and Harvey F. Kline, *Latin American Politics and Development*, second edition (Boulder, CO: Westview Press, 1985).

<sup>38</sup> This account of Argentine history is based largely on Gary W. Wynia, *Argentina: Illusions and Realities* (New York: Holmes and Meier, 1992).

elements already powerful in the Mexican government. In Colombia, the Depression helped the Liberal Party to defeat the Conservative Party in the elections of 1930, and encouraged the Liberals to try to implement programs of social reform in the following decade that eventually so polarized society as to provoke a civil war in 1946.<sup>39</sup> Similarly, in Brazil the Depression helped to precipitate the 1930 coup by Getúlio Vargas and the end of the Old Republic dominated by the traditional coffee and cattle élites of the states of Sao Paulo and Minas Gerias. Vargas would rule as provisional president and then dictator from 1930 to 1946, and as elected president from 1950 until his suicide in 1954. In the process, he would build a wider and more popular political base for the national government and emphasize the need of Brazil to take charge of its own economic destiny.

Another reason why Argentina and Venezuela did not develop a national electricity regulatory system may be that regional hydroelectric projects were not important in those countries during the 1930s. As late as 1950, hydro accounted for only 3 percent of the electricity generated by Argentine utilities and 33 percent by Venezuelan utilities, compared to 89 percent of the electricity generated by Brazilian utilities, 77 percent by Colombian utilities, and 52 percent by Mexican utilities.<sup>40</sup> Argentina's hydro resources are in the foothills of the Andes, hundreds of miles from the major consumption centers along the coast. Given the high costs of long-distance transmission in the early 20<sup>th</sup> century, Argentina was forced to rely on thermal plants that could be located in the cities or provinces they served. Venezuela had more hydro resources close to its major population centers, but the largest resources were in remote regions and the country was extremely well endowed with oil, so thermal plants were economical. In Brazil, Colombia and Mexico, by contrast, the hydro resources were often located close enough to the major consumption sources that transmission was economical. Moreover, the hydro projects were often big enough and far enough away that they could serve other cities and industries besides their primary market, making the utilities that operated them often more regional rather than local in nature. The hydro facilities also raised the question of whether one local government should have the authority to develop the natural resources of another, since the rivers and dams often were not located in the principal municipality they would serve. Consolidating regulation at the federal level may have seemed more sensible compared to the welter of municipal, provincial and national controls that were developing around hydroelectric power.<sup>41</sup>

Whatever the reasons, Brazil, Colombia and Mexico had national regulatory statutes in place by the end of the 1930s. In Mexico, the national government had reserved for itself the power to award concessions for hydro projects as early as 1888, and this included a veto over the prices the concessionaire could charge. The government never exercised that right before the Revolution, and probably didn't attempt to do so

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<sup>39</sup> Harvey F. Kline, "Colombia: Modified Two-Party and Elitist Politics", pp. 249-270 in Howard J. Wiarda and Harvey F. Kline, *Latin American Politics and Development*, second edition (Boulder, CO: Westview Press, 1985).

<sup>40</sup> These figures are for electricity generated by private or government owned utilities but exclude self generation by non-utilities; Mullen, *Energy in Latin America*, Table 35, after p. 54

<sup>41</sup> This was especially true in Brazil; see McDowall, *The Light*, p. 326.

during the revolutionary chaos.<sup>42</sup> In 1926, in response to growing criticism of private utilities, Mexico passed a law authorizing federal control over all electricity prices, whether from thermal or hydro plants. But that law seems to have been mainly a symbolic gesture, not enforced by the government and largely ignored by the utilities. It would not become effective for another ten years, after the constitution was amended to expand the permissible scope of federal activities to include electricity in 1933, a regulatory agency was created in 1937, and the law clarified in 1938.<sup>43</sup> In Brazil, the government amended the constitution in 1934 to state that all mines and waterfalls were the property of the national government and required a federal concession. That same year it passed the Water Code that detailed the conditions the new concessions would have to meet, including the procedures for setting tariffs. This meant that all the old municipal and provincial concessions had to be renegotiated as federal concessions, a process that would take many years.<sup>44</sup> Colombia adopted a mixed strategy in that it maintained municipal franchises but layered national regulation on top. Its law, passed in 1936, gave the national government the authority to review rates set by municipal regulators. A specific decree governing the American and Foreign Power subsidiary was issued in 1940.<sup>45</sup>

The new national regulatory systems were modeled after the state Public Utility Commissions (PUCs) that were being used in most of the United States at the time. Many of the Latin American utility experts and public officials who helped draft the laws were foreign-trained engineers who followed the debates about utility regulation taking place in the United States and elsewhere.<sup>46</sup> In the United States, a commission of three or more members is usually given the responsibility for setting utility rates and for determining whether the utilities are providing adequate and reliable service. The commission is guided by its authorizing statute that sets out the basic considerations it must take into account and the procedures it must follow in setting rates. But the statute does not provide a detailed formula for rate setting, so the commission has discretion in deciding how the principles apply. The commission is usually insulated from immediate political pressures by appointing the commissioners to staggered terms and making them removable only for specific and limited causes. The commission is accountable, however, in that its decisions are subject to judicial appeal on the grounds that they are inconsistent with the basic considerations and procedures outlined in the regulatory statute and other relevant laws.

The Latin American regulatory systems of the 1930s departed from the U.S. model, however, in that the regulatory agencies were less politically independent and

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<sup>42</sup> This government did not exercise its power before the overthrow of Porfirio Díaz in 1910. See Wionczek, "Electric Power", pp. 26-33.

<sup>43</sup> Wionczek, "Electric Power", pp. 41-58. A slightly different account of the key Mexican laws and regulations can be found at Cavers and Nelson, *Electric Power Regulation*, p. 116, fn. 10.

<sup>44</sup> McDowall, *The Light*, pp. 325-326; and Tendler, *Electric Power in Brazil*, pp. 48-49. A slightly different account of the key Brazilian laws and regulations can be found at Cavers and Nelson, *Electric Power Regulation*, p. 116, fn. 6.

<sup>45</sup> Sancelmente, *Desarrollo y Crisis*, pp. 54 and 70; and Cavers and Nelson, *Electric Power Regulation*, p. 116, fn. 8, and p. 131.

<sup>46</sup> Wionczek, "Electric Power", pp. 63-64.

guided by more detailed regulatory statutes.<sup>47</sup> In Latin America, the regulatory agency was usually not an independent commission but rather a bureau within a ministry. The head of the agency served at the pleasure of the minister and his decisions were subject to the minister's review and approval. In Brazil, for example, the regulatory function was placed within the Water Division of the Ministry of Agriculture until 1961, when it was transferred to the newly created Ministry of Mines and Energy. The Mexican regulatory agency, the Comisión de Tarifas, was a dependency of the Ministry of Planning and its decisions subject to broad veto power by that Minister.<sup>48</sup> In Colombia, the regulatory authority was lodged in the Ministry of Development and no separate regulatory staff was appointed until the early 1950s.<sup>49</sup> To compensate for the lack of independence, the statutes defined tariff-setting formulas in greater detail. The Brazilian law specified, for example, that rates be sufficient so that a company could earn a 10 percent return on its investment valued at their historic costs. The Mexican and Colombian laws also specified that investments be valued at historic costs, although they didn't mandate a specific rate of return.<sup>50</sup>

Two aspects of the rate-setting formulas set out in the statutes would cause serious problems for the regulators and the companies in the decades to come. One was the decision to value investments at historic costs, particularly when combined with limits on the allowable rate of return. The Latin American electricity experts who drafted the Brazilian, Mexican and Colombian statutes specified historic costs because that seemed to represent best practice in the United States in the 1930s.<sup>51</sup> The U.S. utility industry and its regulators had long debated the choice between historic and replacement cost as the method for valuing the investment base. Replacement cost has generally been preferred except during the Depression, when proponents of historic cost were particularly influential. Historic cost seemed more equitable to New Dealers, since it meant that utility investors would earn returns on only what they had actually invested. And, at the time, historic cost also meant that investors would earn more, since the Depression was a period of price deflation. But in the periodic bouts of price inflation that Latin America would experience during and after World War II, a 10 percent return on historic cost would be far too little to encourage continued private investment.

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<sup>47</sup> Cavers and Nelson, *Electric Power Regulation*, pp. 110-111.

<sup>48</sup> Wionczek, "Electric Power", p. 67 and fn. 10.

<sup>49</sup> Cecil Ellis, a U.N.-sponsored advisor to the Colombian government, reported in 1953 that the regulatory authority had been shifted around from ministry to ministry during the 1940s. A "Director of Public Services" within the Ministry of Development had been named only in 1951 and he had no staff. As Ellis put it, "A condition exists in Colombia compelling electricity enterprises to respect tariff restrictions that appear to have been inexpertly set many years ago, and which often have not been revised to meet the new situation created by large increases in operating costs." Ellis, *Public Utilities in Colombia*, p. 47.

<sup>50</sup> The Mexican law required that the rate of return be no lower than the rate on government bonds but otherwise stated only that the rate be "reasonable", a broad standard more consistent with U.S. practice. The Colombian law required a "reasonable" rate of return as well, although Sancelmente reports that the 1940 decree covering the American and Foreign Power subsidiary ordered a 10 percent return on replacement rather than historic costs; see Sancelmente, *Desarrollo y Crisis*, p. 54. For a summary of regulatory laws in Brazil, Colombia, Mexico and four other Latin countries see Cavers and Nelson, *Electric Power Regulation*, p. 131.

<sup>51</sup> Cavers and Nelson, *Electric Power Regulation*, pp. 114-116.

Table 3: Trends in Foreign Exchange Rates  
in Selected Countries where American and Foreign Power had Subsidiaries<sup>a</sup>

Country	Currency	Rates prevailing at dates			
		of major acquisitions	1943	1950	1960
Argentina	Peso	\$0.424	\$0.247	\$0.094	\$0.012
Brazil, free <sup>b</sup>	Cruzeiro	.120	.049	.053	.005 <sup>b</sup>
Brazil, pref. <sup>b</sup>					.010 <sup>b</sup>
Colombia	Peso	.973	.572	.510	.151
Mexico	Peso	.499	.206	.116	.080
Venezuela	Bolivar	.193	.299	.299	.299

<sup>a</sup> All rates are yearly averages except for the 1960 rates, which are for March 31, 1960.

<sup>b</sup> Beginning in 1958, Brazil allowed American and Foreign Power a preferential rate for conversion of interest and amortization on registered debt. The free rate applied to unregistered debt and dividends. Sources: American and Foreign Power, *Twenty-Ninth Annual Report, 1952*, p. 12 and American and Foreign Power, *Annual Report, 1959*, p. 11.

The second source of difficulty was the failure of the statutes to provide any mechanism to adjust electricity tariffs in response to changes in foreign currency exchange rates<sup>52</sup>. In this respect too the drafters may have been aping U.S. practice, although the United States probably lacked exchange rate adjustments because foreign investors were rare. But the drafters probably also were anticipating the potential for resentment if the companies were protected from currency devaluation when the general public was not. Some of the municipal or provincial concessions granted before the 1930s had specified all or part of their tariffs in gold so as to protect the foreign investors from currency fluctuations. In Brazil, for example, Light's electricity rates were protected by a "gold clause" which was so unpopular that the Vargas government repudiated it in 1933, the year before the government passed the Water Code.<sup>53</sup> The absence of any mechanism for foreign exchange risk posed major problems for the foreign owned companies since most of their debts and dividends had to be paid in foreign currencies. Throughout the 1950s, for example, the prospects for exchange rates were a major topic of every annual report of American and Foreign Power to its shareholders. The company's concern was understandable since exchange rates were deteriorating in four of the five countries in this survey, the only exception being oil-rich Venezuela (see Table 3). The company would petition the government for tariff increases or access to foreign exchange at preferential rates after each major devaluation.

The private utilities did not welcome national regulation as a replacement for municipal regulation. In Brazil, for example, Light fought the implementation of the Water Code for years. The company worked behind the scenes for the most part, recognizing that a vigorous public defense might inflame the more nationalistic elements of the Vargas government. But the basic terms of the code were so inimical to Light's interests—particularly its reliance historic costs—that the company did whatever it could

<sup>52</sup> If the regulatory statutes had allowed assets to be valued at replacement costs, there would have been less need for exchange rate adjustments since exchange rates would presumably affect domestic inflation.

<sup>53</sup> McDowall, *The Light*, pp. 318 and 324.

to influence or delay the drafting of the regulations that were needed to implement it.<sup>54</sup> Similarly, in Mexico the foreign utilities initially discouraged the government from implementing the 1926 regulatory law by suing on the grounds that the constitution did not list electricity regulation as a permissible activity for the federal government. By the 1930s, the utilities' attitudes had softened a bit. When the Mexican government asked the utilities to voluntarily reduce their rates in 1932 (before the constitution had been amended or the regulatory agency created), most of the small utilities complied immediately, although Mexlight waited until after the constitutional change. The foreign utilities tried to influence the drafting of the 1938 electricity law to insert more favorable terms, but they recognized that passage was inevitable. The Depression and the growing conflict between the Mexico and the foreign-owned oil companies had been pushing the country farther to the left. The government had just passed a new expropriation law in 1937, and would apply it to nationalize the oil industry a year later. The oil industry had helped provoke the takeover by miscalculating, until it was too late, that a developing country would never expropriate U.S. businesses. The Mexican government probably stopped at taking over the electricity industry as well because it did not want to risk a complete rupture with the United States. In this climate, national regulation of electricity tariffs was the least that the private electric companies could have been expected.<sup>55</sup>

## V. Municipal Revolts: Argentina

The expropriation of private utilities began in Argentina, perhaps because Argentina continued to rely on municipal regulation. In other countries, the establishment of national regulatory systems may have delayed a final breakdown by providing new forums for the public and the utilities to try to resolve their differences. The involvement of the national governments also made available additional resources to bridge the gap between consumer and investor interests. But in Argentina, in the absence of national regulation, matters came to a head earlier.

Argentina's first expropriations occurred from 1943 to 1945, when the provincial and municipal governments took over utilities belonging to ANSEC, American and Foreign Power's Argentine subsidiary, in Tucumán, Paraná, Corrientes, Santa Fe, Córdoba, Jujuy, San Luis and several other cities.<sup>56</sup> The two foreign-owned companies that served Buenos Aires would survive longer, but only because the national government restrained the City of Buenos Aires from expropriating them earlier. The larger of the two, CADE (Compañía Argentina de Electricidad), a Sofina subsidiary that served most of the Buenos Aires metropolitan area, was taken over in 1958. The smaller CIADE (Compañía Italo-Argentina de Electricidad), a Swiss-controlled company that served some of the outskirts of Buenos Aires, survived until 1979.<sup>57</sup>

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<sup>54</sup> McDowall, *The Light*, pp. 326-337.

<sup>55</sup> Wionczek, "Electric Power", especially pp. 46, 53 and 64-66.

<sup>56</sup> del Río, *El Porqué de la Crisis*, p. 108.

<sup>57</sup> This history of conflict between the City of Buenos Aires and its utilities is based largely on three books by Jorge del Río, a lawyer who participated in Argentina's utility disputes from the 1930s through the 1950s. del Río was an outspoken critic of the private foreign-owned utilities, so his books have a strong point of view. Nevertheless, his accounts are corroborated in their broad outline by other sources and he provides many details that enrich and support his story. Unless otherwise noted, the history of the disputes

CADE began service in Buenos Aires as CATE (Compañía Alemana Transatlántico de Electricidad). CATE was established by German electrical equipment interests in 1898 and began installing small generating stations in various neighborhoods of the city. The company had been operating without any formal concession when, in 1903, the Mayor proposed creating a municipal electric company. CATE mobilized political pressure to stop the Mayor's plan and by 1907 had convinced the City Council to award it a 50-year concession to provide electricity in the city. The length of the concession was controversial because 20 years had been the norm for most municipal gas and streetcar concessions up until that point. In return, however, the company promised to provide adequate supplies of electricity, to limit its tariffs for residential households to an agreed upon schedule, to lower those rates in the event that improvements in technology reduced its costs by 20 percent or more<sup>58</sup>, and to transfer to the City at the end of the concession all of its facilities in perfect repair for a payment of the historic investment cost less two percent per year depreciation.<sup>59</sup> In 1912, the City awarded a similar 50-year concession to CIADE.

CATE and CIADE expanded greatly during the 1920s by building new generating plants and distribution networks and buying up small companies on the periphery of the city and in the rest of the Province of Buenos Aires. If the hope in granting the CIADE concession had been to provide competition for CATE, this plan was disappointed. The two firms appeared to reach some understanding delimiting their service territories. CATE, by far the larger of the two, became the main focus of public complaints and got into several disputes with the City Council during the 1920s about the interpretation of its concession contract. These were generally resolved in CATE's favor, to the consternation of the left-wing minority on the City Council. In 1929, CATE's owners sold out to a combination of Spanish and Sofina interests because of fear that German overseas investments might be seized as payment for war reparations. The company, now headquartered in Madrid and called CHADE (Compañía Hispano-Argentina de Electricidad), reported to its stockholders that it had expanded its service area from 1,577 square kilometers in 1920 to 12,497 square kilometers in 1929.<sup>60</sup>

The disputes with the City intensified significantly in the 1930s. Elected governments were suspended in Argentine municipalities after the military coup of 1930, and the new appointed Mayor of Buenos Aires hired a young and aggressive city lighting engineer and began a more careful monitoring of the concessions. When municipal

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in the 1930s and 1940s is drawn from his most detailed work: del Río, *Monopolios Eléctricos*; the accounts of the 1950s are drawn from del Río, *El Porqué de la Crisis*.

<sup>58</sup> Half of the cost savings from the improvements in technology were to be shared with customers in the form of tariff reductions.

<sup>59</sup> The contract also provided for a reserve fund financed by contributions of 2 percent (later amended to 3 percent) per year of gross receipts to guarantee the good condition of the facilities. If the firm and the Mayor agreed, the proceeds of that fund could be spent on specific maintenance projects. The unexpended balances were to be placed in an interest bearing account that would be transferred to the City at the end of the concession.

<sup>60</sup> During the same period, the number of customers served increased from 269 thousand to 1.3 million; del Río. *Monopolios Eléctricos*, p. 51.

government was returned to elected officials in 1932, the left-wing parties still did not have a majority on the new City Council.<sup>61</sup> By then the councilors from center and right-wing parties were also critical of the utilities, however, and the Council appointed a special investigative commission chaired by a councilor from a center-left party.

The commission heard complaints that CHADE and CIADE had been violating their concession contracts in numerous ways. The companies refused to acknowledge that they were obligated to reduce their rates despite the obvious and enormous technological advances in electricity generation and distribution that had occurred in the 20 years since the contracts were signed. In addition, CHADE had raised rates for some of its commercial and industrial customers above the maximum rates it was allowed to charge residential customers. The concession contracts had specified maximum tariffs only for residential customers since, at the time the contracts were written, everyone assumed the other users were more price sensitive and thus would be charged less. Now that many businesses had converted from steam power, CHADE was raising non-residential rates wherever it thought it could. The company was slow to connect customers or areas that it thought less profitable, despite its obligation to provide service to all, and it sometimes insisted that customers pay the cost of the connecting cables, a charge not sanctioned in the concession contract. Without any authorization or basis in the contract, CHADE also had required that customers make “deposits” to insure they would pay their bills and had added a surcharge to bills after Congress passed a law requiring that businesses make contributions to employee pension funds.

There was surprisingly little mention of the companies’ foreign ownership at this stage. The issue arose occasionally, as in the complaint that CHADE had increased its residential service from 110 volts to 225 volts in order to save on cable costs, disregarding the increased risk of electrocuting its customers. CHADE had made the voltage change without asking municipal permission, the critics noted, and despite the fact that the City of Brussels, where Sofina was headquartered, had prohibited 225 volts in residences as too dangerous. The critics complained that the companies were arrogant, but they generally blamed the companies’ behavior on the fact that they were monopolies rather than that they were foreign owned.

The companies may have felt justified in exploiting any ambiguities in their contracts to offset the effects of inflation and currency devaluation. The 1907 and 1912 contracts had fixed the residential tariffs in the national currency rather than in gold, so that their real value had declined in the intervening years.<sup>62</sup> Nevertheless, the improvements in technology had brought about enormous reductions in costs that offset, at least in part, the effects of inflation or currency devaluation. In the United States, for example, electricity prices fell by two-thirds between 1902 and 1930 due largely to economies of scale and technological improvements.<sup>63</sup> The opportunities for cost saving

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<sup>61</sup> There were 15 councilors from the center or right in the Concordencia alliance, and 14 on the left from the Socialist, Progressive Democrat, and Workers’ Alliance parties; del Río. *Monopolios Eléctricos*, p. 63.

<sup>62</sup> The tariff clause of the contract is quoted in del Río. *Monopolios Eléctricos*, pp. 46-47.

<sup>63</sup> In the United States, the index of electricity prices fell from 100 in 1902 to 65 in 1907, 46 in 1920, and 37 in 1930. During this same period the GNP price deflator increased from 100 in 1902 to 152 in 1930.

may have been even larger in Latin America given that its electricity industry was in an earlier stage of development. And the fact that CHADE and CIADE were still investing in new plants in the late 1920s and early 1930s suggests that they thought the electric rates were still compensatory.<sup>64</sup>

The chair of the investigative commission reported back to City Council that CHADE and CIADE had monopolized electric service in Buenos Aires, and that CHADE was earning enormous profits. He hinted that the companies had bribed politicians to overlook violations or make favorable interpretations of the concession contracts. If the contract terms could not be adjusted or interpreted more fairly, he concluded, then the Council should petition the Congress to either nationalize the two companies or allow the municipality to take them over.<sup>65</sup> The City Council decided that a committee of university deans should try to resolve the different interpretations of the CHADE contract and, if that failed, to submit the dispute to binding arbitration.<sup>66</sup> When the arbitration went against CHADE on nearly every point, the company, aided by a new Mayor, used a variety of legal tactics to delay the enforcement of the arbitrators' decision.

The battle over the contracts would not be resolved until the 1936 municipal elections, when the Radical Party won a majority in the City Council. The elected president deposed in the 1930 coup had been from the Radical Party, and the party had boycotted the next few elections in protest. Notwithstanding its name, the Radicals were a centerist party, sympathetic to free enterprise although not necessarily to monopolies or foreign-owned businesses. The new Radical majority on the Council supported revising the contracts to make them clearer. Revising the contracts also seemed advisable because the outbreak of the Spanish Civil War had made it desirable to reduce CHADE's ties to Spain. Sofina bought out the Spanish investors' shares in CHADE, renamed the company as CADE, and moved its headquarters from Madrid to Brussels.

Amidst great public controversy, the new City Council approved revised concession contracts for both CADE and CIADE that seemed much more favorable to the companies than the old.<sup>67</sup> The two companies agreed to reduce some residential rates but, in return, the Council extended CADE's concession by 25 years and CIADE's by 20 years so that both expired in 1972. When the contracts expired, moreover, the Council agreed that the City would pay the companies for the replacement cost rather than the historic cost of their investments.<sup>68</sup> If the City didn't want to pay, then the concession

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See Leonard S. Hyman, *America's Electric Utilities: Past Present and Future* (Arlington, VA: Public Utilities Reports, 1983), p. 76.

<sup>64</sup> For example, CADE opened a big generating station in the Puerto Nuevo in 1929 and CIADE opened a similar facility on the waterfront in 1933; del Río, *Monopolios Eléctricos*, p. 52.

<sup>65</sup> The chairman, Dr. Germinal Rodríguez, estimated that CHADE made over 50 million pesos per year by charging 80 million pesos for electricity that cost it only 24 million pesos to generate. See the speech of Dr. Rodríguez to the City Council as quoted in del Río, *Monopolios Eléctricos*, pp. 76-78.

<sup>66</sup> The arbitration panel consisted of one person appointed by CHADE, one by the City, and one by the Supreme Court.

<sup>67</sup> CIADE's concession contract was revised at the same time because both CHADE and CIADE's original contracts included provisions that if the City granted a more favorable contract to another concessionaire then the company could choose to have those terms applied to it.

<sup>68</sup> As in the old contract, depreciation was deducted.

would be extended for a further 25 years and the City would be responsible for all investments during the extension. The provision that the company would share half of the savings from future technological advances in the form of reduced rates was eliminated and replaced by a clause that provided for automatic tariff increases when fuel or salary costs increased. CADE argued that it could not reduce residential electric rates without the longer concession period and the other concessions. CADE's critics charged that the company had played games to make the reductions seem larger than they were and that savings in residential rates were offset by increases in other rates.<sup>69</sup>

In the provinces, several of the subsidiaries of ANSEC were soon engaged in similar disputes with local officials. The Governor of Córdoba instituted an investigation of the two ANSEC companies serving his province that lasted from 1932 to 1936, and the Chamber of Deputies of Tucumán conducted an inquiry into the two ANSEC companies serving that province from 1938 to 1942. The fact that these companies were subsidiaries of a large foreign holding company played a more prominent role in these investigations than it seemed to in the earlier Buenos Aires inquiry. The Tucumán study commission accused the ANSEC companies of inflating costs and hiding profits by paying its U.S. owners high fees for management and other services, by paying inflated costs for imported equipment, and by giving preferential electricity rates to manufacturers in which the U.S. owners had a financial interest. The Córdoba commission concluded that that ANSEC had established a monopoly that made foreigners rich and the nation poor.<sup>70</sup> Neither of these studies resulted in the immediate expropriation of the ANSEC properties, apparently because of pressure from the national government.

The situation for CADE and ANSEC deteriorated rapidly after the military coup of 1943, which was motivated by national frustration over the slow recovery of the economy. Soon after the coup, the new federal government authorized two commissions to investigate electric utilities: one focusing on ANSEC and the other on the controversial extension of the Buenos Aires concessions in 1936. The ANSEC commission repeated many of the accusations of the earlier Córdoba and Tucumán reports, and would lead to the expropriation of the most important ANSEC companies from 1943 to 1945. The Argentine government dragged out the negotiations for compensation, and it wasn't until 1959, several years after Peron was overthrown, that American and Foreign Power got a modest payment for its properties.

The investigation of the Buenos Aires concessions was more explosive, however, for it claimed to document CADE's success in corrupting city government. The evidence came from cables between the company and Sofina's headquarters in Brussels as well as from the testimony of disaffected officials. The most dramatic of the allegations were that the revised concession contract had been written in Brussels and that the Radical majority in the City Council had passed it in return for secret contributions to the party's 1937 presidential election campaign. The commission concluded that the City Council's action had been illegal because giving away public property—such as the City's reversion rights in the old concession—required prior public notice and a two-thirds vote

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<sup>69</sup> del Río, *Monopolios Eléctricos*, p. 71-72.

<sup>70</sup> del Río, *Monopolios Eléctricos*, p. 25-28.

of the Council. The commission recommended that the government revoke the CADE and CIADE concessions and expropriate their property. The federal government decided not to publish the commission's report, however, but to forward it instead to a judge who eventually dismissed its findings.<sup>71</sup> The difference in the results of the ANSEC and CADE commissions aroused deep suspicion, especially since the contents of the CADE commission's report were leaked widely. The report was finally released after Perón was overthrown in 1956, and amidst allegations that CADE had bribed Perón himself to suppress the findings.<sup>72</sup> A new advisory commission reaffirmed the earlier findings and, in 1958, the government passed a law placing the Buenos Aires electricity system under national control and transferring CADE's assets to a new public company, SEGBA (Servicio Público de la Electricidad del Gran Buenos Aires). CADE's investors received a minority interest in SEGBA as compensation, but were finally bought out by the government in 1961.<sup>73</sup>

The formation of SEGBA largely completed the government takeover of electricity in Argentina. In the 1940s, as the provinces were expropriating the ANSEC companies, the federal government created AEE (Agua y Energía Eléctrica), an agency charged with building hydroelectric projects and selling the power to the provincial electricity companies.<sup>74</sup> In the following decades, the federal government would establish four other special agencies to develop hydro facilities in Northern Patagonia, to build hydro facilities cooperatively with Uruguay and Paraguay, and to develop nuclear power plants.<sup>75</sup> The federal government and the provinces struggled over the roles that the different levels of government should play in providing electricity until the mid 1960s, when they decided that the federal government's primary role would be to generate power and operate the national grid while the provinces' primary role would be to own the distribution companies.<sup>76</sup> CIADE continued as a small private company and was finally bought out and incorporated into SEGBA in 1979.

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<sup>71</sup> del Río says the judge dismissed the allegations on the grounds that the offenses had been committed too long ago; del Río, *El Porqué de la Crisis*, p. 77. At least one member of the investigative commission appealed to the President publicly to allow the report to be released in 1945; Juan Sabato, *Por una Política Nacional de la Energía Eléctrica* (Buenos Aires: Editorial Nueva Vida, 1945).

<sup>72</sup> del Río, *Monopolios Eléctricos*, pp. 211-212.

<sup>73</sup> The original idea in 1958 was that SEGBA would be a mixed public and private company subject to and that both SEGBA and CIADE tariffs would be subject to national government regulation. This proved unworkable as SEGBA was not allowed to raise prices high enough to earn the 8 percent return on investment that it was allowed under the new regulatory regime. For brief accounts of this transition see Carlos Manuel Bastos and Manuel Angel Abdala, *Reform of the Electric Power Industry in Argentina* (Buenos Aires, no publisher given, 1996), pp. 25-26; and Carlos José Aga, *La Batalla de la Electricidad* (Buenos Aires: Gabinete Paralelo, no date), pp. 23-25.

<sup>74</sup> In 1943 the government created a small agency to build hydroelectric facilities and in 1947 it was merged with an irrigation agency to form AEE.

<sup>75</sup> These agencies were, respectively, Hidroner (created in 1967), Entidad Binacional Comisión Técnica Mixta de Salto Grande (created in the 1970s and generating power beginning in 1979), Entidad Binacional de Yacypetá (created around 1973 and generating power beginning in 1994), and CNEA (Comisión Nacional de Energía Atómica, created in 1950 and first generating power in 1959).

<sup>76</sup> There were exceptions to these rules: AEE distributed electricity in some areas, for example, while the provincial distribution companies retained some generating plants. SEGBA also remained in federal hands. In the early 1980s, the devolution of distribution to the provinces was made more complete as AEE gave up its remaining distribution systems. See Bastos and Abdala, *Reform*, pp. 28-33.

It is unclear whether CADE and ANSEC would have been expropriated had they not been foreign owned, but by the late 1930s the combination of foreign ownership and monopoly was fatal in Argentina. CADE may not have been as arrogant and corrupt as its critics claim, although the new concession of 1936 and the suppression of the 1943 report lend credence to the critics' charges. And if CADE did delay its own expropriation through bribery, the suspicion of corruption by a foreign company so inflamed public sentiments that CADE's end was quick once the government changed.

## **VI. Gradual Displacement: Brazil, Colombia and Mexico**

Municipal revolts similar to those in Argentina flared up occasionally in Brazil, Colombia and Mexico. In 1945, the municipality of Cali took over the American and Foreign Power subsidiary serving the city. The electric company had convinced city officials that higher tariffs were needed to finance increased generating capacity, but the tariff increases had provoked popular unrest and a general strike.<sup>77</sup> The American and Foreign Power subsidiaries serving Porto Alegre and Vitoria in Brazil and Veracruz in Mexico also were taken over by their respective provincial or local governments during the late 1950s.

But the fact that the national governments were in charge of regulating electricity tariffs seemed to slow the transition from private to public power in Brazil, Colombia and Mexico. National officials granted the private companies rate increases sufficient to allow them to survive and maintain their systems, but not large enough to allow the companies to build the additional generating capacity they needed to meet the postwar surge in demand for electricity. At the same time, the governments created new public companies, usually subsidized by government revenues, to distribute electricity in rural areas and to build new generating capacity for the country as a whole. These public companies were established well before nationalization might have created the need for them, unlike the case in Argentina. After two or three decades of these policies, the private utilities had declined in importance and profitability and they seemed to welcome nationalization as a relief.

The regulatory authorities treated the utilities harshly in many respects. The most serious problem was the authorities' unwillingness to revalue company assets at current or replacement costs. In Brazil, Colombia and Mexico the law constrained the regulators to use historic costs. The governments never tried to change the regulatory statutes, however, even after the rapid wartime and postwar inflation made it obvious that it would be very difficult to attract any further private investment under such terms.<sup>78</sup> Proponents of using historic costs had argued that the regulators could adjust the allowed rate of return upwards to compensate for inflation or currency devaluation, but in practice this was not done. Brazil's law restricted the rate of return to no more than 10 percent, for example. Mexico's law was more flexible on the rate of return, requiring only that the

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<sup>77</sup> Sancelmente, *Desarrollo y Crisis*, pp. 51-52.

<sup>78</sup> Even in Latin American countries where revaluation was allowed, as in Chile, the regulators were slow to do so; Cavers and Nelson, *Electric Power Regulation*, pp. .

company be allowed to earn at least the rate paid on government bonds. The Mexican regulators usually picked a rate close to that minimum, however, failing to recognize that the company's equity had to earn more than its debt.<sup>79</sup> Allowances for depreciation or replacement reserves were often unrealistic as well, thus reducing the possibility that the companies could maintain or renew investments through retained cash flow. By the mid 1950s, for example, Mexlight had persuaded its regulators to raise its target rate of return to 14.7 percent but the company was earning only 10.1 percent and was receiving almost no allowance for depreciation. The average return on invested capital in Mexican private industry was around 19 percent at the time, making it impossible for Mexlight to attract new private capital.<sup>80</sup>

Everyone understood that raising electricity rates was politically difficult for the government. In Brazil, the basic electricity rate Light could charge would remain frozen for thirty years: from the enactment of the Water Code of 1934 until a military coup in 1964 finally brought in a government more sympathetic to free enterprise and sensitive to the opinions of foreign investors.<sup>81</sup> In Mexico, the electric industry soon learned that rate increases would be decided on political grounds. The companies petitioned for tariff increases as soon as the electricity law was passed in 1938, hoping at least to restore rates to the levels of the early 1930s (when they had been pressed by the government to make "voluntarily" reductions). After the deputy minister in charge of regulation ordered increases in 1939, however, the Minister suspended them in 1940 on orders from the President. According to Wionczek, the Minister wrote to Mexlight explaining that the suspension was needed to study the complaints that had been received when the new rates were announced:

This attitude is moreover perfectly justified; whereas the Ministry concedes that the regulation of public service enterprises is primarily a technical function, it must not fail to recognize that government action in this area is directly connected with the public weal since the effects of the regulation are felt throughout every part of the community served by the power companies.<sup>82</sup>

After an additional six-month delay, the Minister granted a smaller increase than originally ordered, and then only in return for the companies' promises to make certain investments.<sup>83</sup>

The authorities recognized, privately at least, the financial difficulties their tariff policies created for the companies, and they searched for politically acceptable means to grant the companies some relief. One method used by Brazil was simply to delay the implementation of the most onerous features of the regulatory statute. The Water Code of 1934 applied retroactively, which meant that the concessions of Light and of American

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<sup>79</sup> Cavers and Nelson, *Electric Power Regulation*, pp. 118-119.

<sup>80</sup> Cavers and Nelson, *Electric Power Regulation*, pp. 33-36.

<sup>81</sup> In 1957 the company's assets were revalued in Brazilian currency, however, which provided them with a one-time increase in the rate base.

<sup>82</sup> Wionczek, "Electric Power", pp. 68.

<sup>83</sup> Wionczek, "Electric Power", pp. 67-69.

and Foreign Power all had to be rewritten as federal contracts and their assets revalued at actual historic costs. The revaluation would have meant a disastrous reduction in electric rates, since the value of the historic costs of many of the key assets had been eroded by a decade or two of domestic inflation and currency devaluation. But repudiating the principle of historic cost would have alienated the more radical elements of Getúlio Vargas government. The solution was to freeze rates at 1934 levels for years while various commissions studied the detailed regulations needed to implement the law. The 1934 rates may have been unrealistic, but not as unrealistic as the rates that would have resulted had the law been strictly enforced.<sup>84</sup>

A second strategy was to leave the basic rate unchanged but to add surcharges for politically popular or palatable causes. In Brazil, the practice started during the World War II, as wartime inflation drove up the cost of living and made it hard for Light to recruit workers at its old wage rates. The deal eventually negotiated was that the government would allow Light to add an “additional” charge to its electric rates sufficient to pay for the wage increase.<sup>85</sup> The principle was extended during the 1950s to include additionals for fuel price increases at Light’s thermal plants, for foreign exchange transactions after currency devaluations, and for increases in the rates for power Light purchased wholesale from government-owned generating stations.<sup>86</sup> Between 1954 and 1964, revenues from the additionals increased from 5 percent to 94 percent of Light’s electricity receipts, while the revenue from the basic rate declined from 95 percent to 6 percent.<sup>87</sup> Tendler argues that additionals were acceptable because they did not challenge the popular resistance to increasing the basic rate. The government could explain that the added revenue was not going to the private company, but rather to more popular causes, such as workers’ wages or the public power companies.

A third strategy was to subsidize the cost of inputs used by the company. This was the approach favored by Mexico, which gave both Mexlight (the Sofina subsidiary) and CEE (the American and Foreign Power subsidiary) unrestricted access to wholesale power from government generating plants at favorable prices, persuaded the electrical unions to moderate their wage demands on the two companies, and granted domestic credits at below market rates from government-owned banks.<sup>88</sup> Both Mexico and Brazil also guaranteed loans made by international agencies to the private utilities for the construction of new generating plants. But perhaps the most important subsidy granted in Mexico and Brazil was preferential rates for the exchange of foreign currency. These various subsidies had the benefit of not appearing on the consumer’s electricity bill, unlike the additionals. But they also had the disadvantage of imposing a budgetary cost on the government that was hard to sustain.

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<sup>84</sup> McDowall, *Light*, pp. 331-337.

<sup>85</sup> This began in 1943 with an increase in Light’s streetcar fares and was extended to electricity in 1945; McDowall, *Light*, p. 351.

<sup>86</sup> Tendler, *Electric Power in Brazil*, p. 64-66.

<sup>87</sup> Tendler, *Electric Power in Brazil*, p. 53.

<sup>88</sup> Wionczek, “Electric Power”, pp. 78.

Table 4: Postwar Growth in Generating Capacity and Power Sold for Selected Foreign-owned Companies in Latin America

	1945	1950	1955	1960	1962	1978
Generating capacity (megawatts)						
American and Foreign Power						
Argentina	n.a.	n.a.	96.7	---	---	---
Brazil	169.	251.	314.5	501.9	---	---
Colombia	n.a.	n.a.	65.4	85.4	---	---
Mexico	n.a.	n.a.	203.8	---	---	---
Venezuela	n.a.	n.a.	2.0	4.6	6.6	---
Brazilian Traction, Light and Power	618.3	957.8	1,421.9	1,988.4	2,100.2	2,122.2
Kilowatt hours sold (millions)						
American and Foreign Power						
Argentina	n.a.	n.a.	325.5	---	---	---
Brazil	n.a.	n.a.	1,951.8	2,941.8	---	---
Colombia	n.a.	n.a.	276.9	408.0	---	---
Mexico	n.a.	n.a.	1,543.8	---	---	---
Venezuela	n.a.	n.a.	264.3	441.0	484.9	---
Brazilian Traction, Light and Power	2,606.4	4,051.7	5,701.1	9,362.5	11,093.1	38,500.0

Note: n.a. means not available, --- means subsidiary nationalized.

Sources: American and Foreign Power, *Annual Report, 1952*, p. 16; *Annual Report, 1955*, p. 32; *Annual Report, 1960*, p. 2; *Annual Report, 1962*, p. 14; and Duncan McDowall, *The Light: Brazilian Traction, Light and Power* (Toronto: University of Toronto Press, 1988), p. 406.

Surprisingly, the foreign-owned utilities continued to invest in new generating capacity in the postwar period, as shown in Table 4. Issuing conventional corporate debt or equity was out of the question, and retained earnings were nowhere near adequate to meet the growing demand for power. Instead, the companies turned to the emerging international lending agencies or to government guarantees. In Brazil, Light financed new generating capacity through loans either from the World Bank or guaranteed by the government of Brazil. American and Foreign Power relied heavily on loans guaranteed by the U.S. Export-Import Bank or provided by banks owned by the Mexican government. The international agencies and governments were willing to lend because the shortfalls in capacity were leading to power shortages and rationing that was harmful to economic development. From the companies' perspective, the loans must have been welcomed to help protect their reputation for adequate service. But even though the American and Foreign Power subsidiaries approximately doubled their capacity between 1945 and 1960 and Light approximately trebled its capacity during the same period, demand grew faster and shortages and rationing were chronic problems.

In the meantime, the governments were establishing the publicly owned electric companies that would gradually displace the private utilities. Many of the advocates for these new companies believed that electric power should be provided by the public rather than the private sector. But the government usually took pains to establish a distinct role for the new public ventures so as not to challenge the existing private enterprises directly. The first national agency established was often charged with planning and coordinating

the development of the nation's electric system rather than with generating or distributing electricity directly. This was the case with Mexico's CFE (Comisión Federal de Electricidad) when it was created in 1937 and Colombia's Electraguas when it was established in 1946. When the public sector expanded into generation and distribution, the government often confined the public role to serving remote rural areas or to developing multipurpose hydroelectric projects, sometimes citing the Tennessee Valley Authority in the United States as an inspiration. In the early 1940s, Mexico's CFE took on the tasks of building small plants in unserved rural areas and of developing the largest remaining undeveloped hydro resource in central Mexico. In Colombia, the national government had been giving aid to municipally owned electric companies since 1940, but in 1954 it created an autonomous regional agency to develop the Cauca Valley modeled explicitly on the TVA.<sup>89</sup> In the 1950s, the state and federal governments in Brazil created several hydroelectric power companies whose primary mission was to develop and distribute energy in underserved and remote areas, although in a couple of cases the potential to sell excess power to Sao Paulo or Rio was an important part of the justification.<sup>90</sup>

The public companies didn't confine their activities to electrifying remote areas or rural development for long, however. They usually did not invade the distribution areas of the large private utilities, but developed instead into major generators of wholesale power for the private utilities. The fact that the private companies were not expanding their generating capacity in pace with demand gave the public companies their opening. As power shortages appeared, providing more wholesale power for the private utilities became the primary rationale for capacity expansions in the public sector. The investments by the public companies were financed through a combination of grants and loans from their governments and loans from the World Bank and the Interamerican Development Bank. One or the other of the two international lending agencies was involved in financing almost every major public power project in Latin America during the 1950s, and they probably financed one-quarter to one-fifth of the cost of the projects they were involved in.<sup>91</sup>

The private companies had mixed feelings about the expansion of public power companies. In public they usually welcomed the public companies as complementary rather than competing. In private they also may have been grateful for the added generating capacity that the public companies were creating. The electricity shortages and rationing were a public relations embarrassment for the private companies that might

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<sup>89</sup> Corporación Autónoma Regional del Valle del Cauca (CVC). The aid to municipalities was through the Fondo de Fomento Municipal created in 1940. A second TVA-inspired regional power company was created in the 1960s.

<sup>90</sup> In 1952 the state of Minas Gerias created CEMIG to electrify state-wide, in 1953 the States of Sao Paulo and Parana created USELPA to construct a dam on their state borders, around 1956 the State of Sao Paulo created CHERP to develop two dams, and in 1957 the federal government created Furnas to build a large dam several hundred kilometers away from Sao Paulo. An important part of the rationale for the USLEP, CHERP and Furnas facilities was to sell power to Sao Paulo. In the early 1960s two more power companies were created: CHEVAP in 1960 by the federal government to build a dam to supply power to Rio and CELUSA in 1961 by the States of Sao Paulo and Matto Grosso to develop hydro power on a river between the two states. See Tendler, *Electric Power in Brazil*, pp. 25-30, 34-39.

<sup>91</sup> Mullen, *Energy in Latin America*, p. 55.

lead to expropriation, but it was too risky for the private companies to invest heavily in new generating capacity themselves given the hostile regulatory environment. In Brazil, Tendler argues that the specialization of the public companies in generation and the private companies in distribution played to the needs and strengths of each sector. Distribution technology was more susceptible to overloading, so that investments could be more easily postponed. When funds became available, moreover, investments in added distribution capacity often could be made quickly and incrementally, and usually by the same employees that maintained the system, avoiding the need to recruit a new workforce. Moreover, major customers often could be persuaded to help finance the increments in distribution capacity needed to improve their service. By contrast, major generating stations were extremely expensive and usually required many years of construction before they could be put into service, particularly if they were hydroelectric plants. The engineering challenges and monumental nature of the projects—all of which increased the financial risks for the private companies—increased their attractiveness to the public sector. The pioneering nature of the projects helped attract skilled engineers and managers, who otherwise might have been leery of public service, while the technological complexity helped keep political patronage and corruption at bay.<sup>92</sup>

Nevertheless, the private companies must have resented the public sector's expansion. In the first place, the division of labor between generation and distribution was not always so clear as to prevent conflict. In Mexico, for example, the public company, CFE, extended its distribution system into territory in Central Mexico that the private companies considered their own. To add insult to injury, CFE's expansion was financed in part with a new 10 percent tax on all electricity sales, private and public.<sup>93</sup> But at a more fundamental level, the private companies undoubtedly would have preferred tariffs that were sufficient to allow them to expand capacity too instead of seeing their share of power generation steadily decline.

Both the private companies and the international agencies continued to push for reform of electricity tariffs throughout the 1950s, but to little avail. The international agencies were concerned that low tariffs would ultimately force the collapse of the private companies and impose an intolerable burden on the public budget. For example, the United Nations funded studies that argued that raising electricity rates was preferable to allowing continued under investment. Raising rates need not cause social problems, the UN studies contended, because even after rate increases electricity would account for a modest portion of most household budgets and a small share of the production costs in most industries. Rates could be kept low for the poorest households without causing too much of an added burden on other consumers, moreover, because poor households accounted for a very small portion of total electricity consumption.<sup>94</sup> In Mexico, a special government commission on the electricity tariffs reached similar conclusions, arguing that the regulatory system was endangering the future of the power industry and

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<sup>92</sup> Tendler, *Electric Power in Brazil*, pp. 81-106 and 175-208.

<sup>93</sup> Wionczek, "Electric Power", p. 71.

<sup>94</sup> These arguments were made in a 1951 U.N. technical assistance mission to Colombia, for example, and in a mid-1950s region-wide U.N. sponsored study done by Harvard Law School; see Ellis, *Public Utilities in Colombia*; and Cavers and Nelson, *Electric Power Regulation*, pp. 7-8.

that the assumption that the state could underwrite the financing of the electricity industry was simply unrealistic.<sup>95</sup> These studies all were ignored, and the policy of piecemeal and inadequate rate increases continued. According to Wionczek, the frustrated companies viewed the postwar period from 1946 to 1960 as the era of “the great deception”.<sup>96</sup>

The end for most of the private power companies in Brazil, Colombia and Mexico came in the early 1960s. American and Foreign Power had not had any of its properties expropriated since the 1940s, but in 1959 the new revolutionary government in Cuba took over the company’s substantial holdings there. Meanwhile, in Mexico electricity policy seemed to be reaching an impasse. The international and US aid agencies were insisting that the government raise electricity tariffs at both the private and public companies to more realistic levels before any further credits would be extended to the public company. The government was still unwilling to increase tariffs and in early 1960 American and Foreign Power, now convinced that there was no other viable solution, approached the Mexican government with an offer to sell out. The company eventually agreed to sell for the value that the government had set for the company for rate-making purposes, and to invest the sale proceeds in Mexico.<sup>97</sup> Mexlight soon followed suit and sold out on similar terms. Shortly after the sales, the Mexican government raised electricity tariffs to satisfy international lenders, much to the irritation of the foreign companies.<sup>98</sup> In Colombia, the final act came after the government devalued the local currency by 94 percent in 1957. The local American and Foreign Power subsidiary petitioned for a 73 percent rate increase and the government finally agreed to a 40 percent increase in mid 1960. When popular protests forced the government to rescind the rate increase, American and Foreign Power offered to sell out on terms similar to those agreed to in Mexico.<sup>99</sup> In Brazil, state governments took over several local American and Foreign Power companies beginning in 1959, and in 1962, to preserve good relations with the United States, the federal government bought out all the holding company’s assets in the country.<sup>100</sup>

Light survived as a private company until 1979. Light may have benefited from its policy, accelerated during the 1950s, of “Brazilianizing” the company by promoting Brazilian nationals to senior positions.<sup>101</sup> But Light had been considering selling out in the early 1960s too, and stopped only after the populist policies of the Brazilian

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<sup>95</sup> Wionczek, “Electric Power”, pp. 80-81.

<sup>96</sup> Wionczek, “Electric Power”, p. 79.

<sup>97</sup> American and Foreign Power had to agree to invest the proceeds of the sale in non-utility assets in Mexico; Wionczek, “Electric Power”, pp. 91-92.

<sup>98</sup> Wionczek, “Electric Power”, pp. 103-104.

<sup>99</sup> Although the company was transferred almost immediately, disputes about the price dragged on until 1967; *Desarrollo y Crisis*, pp. 54-59.

<sup>100</sup> In 1959 the State of Rio Grande do Sul had taken over the company serving Porto Alegre and in the next few years the State of Espirito Santo took over the company serving Vitoria while the State of Pernambuco had persuaded the courts to appoint a receiver to administer the Recife company pending the outcome of a lawsuit. The sale of all the properties was consummated in 1963 but was effective as of the end of 1962. American and Foreign Power, *Annual Report, 1962*, pp. 8-9.

<sup>101</sup> McDowall claims that Brazilian Traction, Light and Power was much more aggressive in promoting locals into senior management than American and Foreign Power; McDowall, *The Light*, pp. 336-337, 385-386, and especially 391.

government provoked a right-wing military coup in 1964. The new military government was much more sympathetic to private enterprise and foreign investors. In 1964, the government revised the Water Code to require the valuation of investments at current rather than historic costs, a change that resulted in the first increase in Light's basic rate since 1934. Light prospered under the military government but the situation deteriorated after 1973 due to a combination of the economic strains created by the world energy crisis and the return to civilian government. In 1978 Brazilian Traction, Light and Power, which had by then changed its name to Brascan, announced that it was willing to sell Light, and in 1979 it agreed to a sale price of half of Light's book value.<sup>102</sup>

The more gradual transition from private to public in Brazil, Colombia and Mexico is probably due largely to the fact that their national governments were more responsive to popular unhappiness with the electric companies and seized control of electricity regulation and policy in the 1930s. The transfer of responsibility helped delay expropriations since the national governments were more sensitive than the municipalities to the implications of such actions. Moreover, the national governments had the resources to establish public power companies in the late 1930s and early 1940s, which helped reduce the immediate pressures for takeovers by appeasing the advocates of public power and by providing subsidized wholesale power to alleviate shortages in the areas served by private companies. The fact that the major private utilities in Brazil and Mexico operated large and complex hydroelectric facilities may have played a role as well, by making the public sector more reluctant to take them over until it had gained more experience and confidence. The private companies gave up and sold out, tired of struggling to survive on only minimal rate increases while they watched their public counterparts thrive.

## VII. Venezuela: Survival and Coexistence

Of the five countries in this survey, Venezuela is the only one where a major private electric utility—La Electricidad de Caracas—survived the wave of nationalizations.<sup>103</sup> Venezuela was not immune to the pressures for public power: it created a series of major government-owned power companies beginning in the 1940s. But La Electricidad de Caracas was never taken over. The key to the company's survival seems to be not just that it was domestic rather than foreign owned, but also that it was converted from a closely-held family corporation to one owned by many small stockholders as part of a deliberate strategy to avoid expropriation.

La Electricidad de Caracas was founded in 1895 by Ricardo Zuloaga, whose descendants would dominate the company for the next seventy years. Zuloaga had secured permissions from both the municipality of Caracas and the Governor of the

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<sup>102</sup> McDowall, *The Light*, pp. 393-398.

<sup>103</sup> This account of the history of La Electricidad de Caracas is based heavily on Pérez Alfonso, *Abusiva Aplicacion de Tarifas*; and on an interview with Dr. Francisco Aguerrevere, Chief Executive Officer of La Electricidad de Caracas in Caracas on July 14, 1995. Dr. Pérez Alfonso was an outspoken critic of the private power and foreign oil companies in Venezuela. He served as Minister of Development in the brief democratic government in the late 1940s and helped organize the Organization of Petroleum Exporting Countries (OPEC).

Federal District, but these permissions apparently did not set maximum tariffs, perhaps because electricity was not considered essential or a monopoly at the time. The company's strategy was to develop two small waterfalls near the city and sell the power to small businesses that were then using steam engines to grind grain, run printing presses and other similar applications. Zuloaga and his backers calculated that the steam engines cost 6 bolivars per horsepower per day to operate, and that he could attract the business by charging 4 bolivars per horsepower per day for electric power.<sup>104</sup>

A second electric company serving Caracas was created in 1913. A Venezuelan entrepreneur managed to secure a concession from the Governor of the Federal District to provide service to the center of Caracas in 1912. He immediately sold his interest to a group of Canadian entrepreneurs who established the Venezuelan Electric Light Company with headquarters in Toronto in 1913. The concession contract gave the company exclusive rights for 25 years to provide public street lights for the city, apparently as an effort to help what was regarded at the time as a risky enterprise. The contract specified the price per lamp that the city would pay, but not the prices which private consumers would be charged.<sup>105</sup> This company and several other smaller private utilities were bought up by American and Foreign Power in 1930 and 1931, and the consolidated company was renamed *Compañía Anónima Luz Eléctrica de Venezuela*, or CALEV.<sup>106</sup> CALEV and La Electricidad de Caracas apparently developed an understanding about their territories, with CALEV serving the historic center of Caracas and the cities of Los Teques and San Felipe while La Electricidad de Caracas served the bulk of the Caracas metropolitan area.

There seemed to be very little public controversy about either company until 1938, probably because of the political repression under the dictator Juan Vicente Gómez, who ruled from 1908 to 1935. The contract with CALEV for public lighting was amended twice to reflect improvements in street lamp technology.<sup>107</sup> The municipality apparently did not regulate the rates charged the general public for electricity, however, even though it had the right to do so under Venezuela's basic municipal law.

Gómez died in his sleep in 1935, but his personal style of rule proved difficult to replicate. The development of the oil industry beginning in the early 1920s was transforming Venezuela from one of Latin America's poorest nations to one of its richest, with a growing urban population and middle class.<sup>108</sup> Bowing to popular pressures, Gómez' two successors allowed some limited experimentation with democracy, including

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<sup>104</sup> La Electricidad de Caracas, *Setenta Años de una Empresa Venezolana* (Caracas: La Electricidad de Caracas, 1965), pp. 21-27.

<sup>105</sup> The contract did say that the City would get a 25 percent discount off the rates charged regular consumers for electricity used for other purposes than street lighting, but it did not appear to say what the regular consumers would have to pay.

<sup>106</sup> Pérez Alfonso, *Abusiva Aplicación de Tarifas*, pp. 10-11; and La Electricidad de Caracas, *Setenta Años*, pp. 118-119.

<sup>107</sup> These amendments were in 1926 and 1932. The 1932 amendment also gave the City an additional 10 percent off the regular rates for electricity used for other purposes than street lights (for a total discount of 32.5 percent).

<sup>108</sup> For a discussion of the politics of this period see Wiarda, "Venezuela", pp. 302-304.

restoring popular elections for the City Council of Caracas in 1937. The final say on most issues concerning Caracas was reserved for the Governor of the Federal District, however, who was a presidential appointee. In 1938, as the street lighting contract was about to expire, the City Council petitioned the Governor that electricity was too important to leave in the hands of CALEV. The Council asked the Governor to either help the City purchase the private companies or negotiate a lower tariff that would reduce the need for expropriation. Instead, the Governor renewed the lighting contracts under the same terms as before.<sup>109</sup>

When greater democracy finally arrived at the national level in the late 1940s, electricity was one of the first targets for reform. Dissatisfaction with dictatorial rule among the middle class and young army officers led to a coup in early 1945, to elections for a national assembly later that year, and to presidential elections in 1947. In 1945, the revolutionary junta ordered reductions in electricity rates ranging from 25 percent for the customers with the smallest monthly bills to 5 percent for the largest customers.<sup>110</sup> The following year, the junta expanded the public sector's role in electricity in several ways. An electric energy office was established within the Ministry of Development to do technical studies and long range planning for the industry. A new program of grants to municipalities was established to help finance electrification in small cities and rural areas. A new national development corporation, the CVF (Corporación Venezolana de Fomento), was created to help the government invest its oil profits in modernizing and diversifying the economy. One of CVF's major responsibilities would be to finance major public hydroelectric projects. Finally, the government created the first national electric company to help develop sources of power and an interconnected network in the north-central spine of the country.<sup>111</sup> In the following year, 1947, the government drafted a law to allow the national government regulate the tariffs of all electric companies, public or private.

Venezuela's experiment with democracy was interrupted in 1948, however, when the military overthrew the elected president because of concerns about his proposed military cutbacks and populist policies. For the next ten years the Venezuelan government was run by the military, with Marcos Pérez Jiménez as President.<sup>112</sup> The country prospered as the oil industry grew and government oil royalties were used to build Venezuela's infrastructure and industry. According to their critics, the private electric companies—and particularly La Electricidad de Caracas—used their influence with the Pérez Jiménez regime to loosen some of the constraints the democratic

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<sup>109</sup> Pérez Alfonso is a little unclear as to whether the lighting contract in dispute in 1938 was with CALEV or La Electricidad de Caracas. The original 1912 lighting contract certainly was with CALEV's successor, and the confusion may come about because at the time that Pérez Alfonso was writing *La Electricidad de Caracas* had just bought out CALEV. See Pérez Alfonso, *Abusiva Aplicacion de Tarifas*, pp. 62-63 and 80-82.

<sup>110</sup> The average reduction was 16 percent; Pérez Alfonso, *Abusiva Aplicacion de Tarifas*, p. 64.

<sup>111</sup> The new technical section was the Sección Técnica de Energía Eléctrica in the Dirección de Industria. The new state-owned electricity company was La Electricidad de Maracay. Pérez Alfonso, *Abusiva Aplicacion de Tarifas*, p. 65.

<sup>112</sup> Pérez Jiménez served as head of a provisional government until presidential elections in 1952. When it became clear that he was going to lose those elections, he stopped the counting of ballots and declared himself President.

government had begun to impose on them. The CVF's program of investments in large public hydroelectric projects was continued to provide power for areas not served by La Electricidad de Caracas, but La Electricidad de Caracas was given loans from CVF to expand its own generating capacity so that it did not become dependent on public power. The draft electricity regulatory law was scrapped, although in return for the CVF loans La Electricidad de Caracas agreed to a one-time review of its rates. That review, conducted by English consultants in 1955, praised the quality of services that the company offered but suggested that rates could be reduced by 9.33 percent and questioned some of the company's accounting practices. In 1957, a government commission ordered the company to roll back rates by 8.26 percent.<sup>113</sup>

The fall of Pérez Jiménez and the restoration of democracy in 1958 changed La Electricidad de Caracas' world. The Pérez Jiménez regime's reputation for corruption and its blatant disregard for democratic procedures and electoral results had provoked widespread unrest and eventually embarrassed even its military supporters. Moreover, a broad cross section of Venezuelan society came to resent the close relationship between the regime and foreign companies, which seemed to be underlined by the strong support of the U.S. government for the dictator.<sup>114</sup> In the first years of democracy, Venezuela was beset by political tensions and the left was very active, inspired by the example of the Cuban revolution. Private companies that had prospered under the old regime might be expected to be nervous, and foreign companies especially so.

La Electricidad de Caracas soon became the object of a campaign to either regulate or expropriate the company. The most outspoken critic of the company was Juan Pablo Pérez Alfonso, a former Minister of Development during the democratic interlude of the late 1940s and one of the founders of the Organization of Petroleum Exporting Companies (OPEC). Pérez Alfonso pointed out that electric companies were either publicly regulated or publicly owned in every other major country. The municipal government of Caracas published reports by Pérez Alfonso and others arguing that La Electricidad de Caracas' tariffs were excessive and that the company had never secured the proper concessions and permits to provide electric service in the city or to place its poles and lines in public rights of way.<sup>115</sup>

La Electricidad de Caracas responded in part by stressing the high quality of the service it offered and the fact that it was Venezuelan owned. The company argued that it had the permits and concessions needed and that its critics had made basic arithmetic errors in their tariff calculations which, when corrected, showed that La Electricidad de

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<sup>113</sup> Pérez Alfonso, *Abusiva Aplicacion de Tarifas*, pp. 72-76.

<sup>114</sup> The US government awarded Pérez Jiménez the Legion of Merit and the resentment was such that Vice President Nixon visit Caracas shortly after the dictator was overthrown Nixon's car was stoned and he feared for his life; Wiarda, "Venezuela", p. 305.

<sup>115</sup> Pérez Alfonso, *Abusiva Aplicacion de Tarifas*; Luis Prieto Oliveira, *Quién Invierte Realmente en las Empresas Eléctricas?* (Caracas: Controlaria Municipal del Distrito Federal, 1964); and Luis Prieto Oliveira, *La Question Eléctrica in la Zona Metropolitana; Pagamos las mas Altas Tarifas de Latinoamerica* (Caracas: Controlaria Municipal del Distrito Federal, 1964).

Caracas charged much less than most other electric utilities.<sup>116</sup> The company acknowledged that it had been forced to impose electricity rationing in the late 1940s, when the postwar surge in demand caught the company short of generating capacity. But it argued that the rationing had been more limited than in other Latin American and European cities, and that there had been ample supplies of electricity since.<sup>117</sup> The company also pointed with pride to the fact that it had resisted American and Foreign Power's efforts to take it over in the 1930s, even though the sums offered were very "flattering". According to the company's official history, Ricardo Zuloaga told the Americans "One can't put a price on La Electricidad de Caracas!"<sup>118</sup> Venezuela could be proud of a domestic company with such a long record of distinguished service.

But La Electricidad de Caracas went further by deliberately shifting from a company whose stock was largely controlled by the Zuloaga family to a widely held corporation. The general public was encouraged to become stockholders by beginning to offer stock for sale to the general public in denominations of only 20 or 25 shares. Customers were encouraged to become stockholders by waiving the deposit of 500 bolivars normally required to obtain service for those who bought 5 or more shares of the company's stock. Finally, employees were made stockholders through the investments of their pension funds.<sup>119</sup> The company's reputation and the offering prices were attractive enough that by 1963 the head of the company, Dr. Oscar Machado Zuloaga, reported that he now owned only 5 percent of the stock.<sup>120</sup> The strategy of broad stock ownership was not without difficulties, however, since the company wanted to issue dividends that were generous enough to maintain the support of its numerous stockholders but not so generous as to call attention to the fairness of the electricity rates. Pérez Alfonso attacked the company's dividends as excessive in the early 1960s, and the controversy forced the company to reduce electricity tariffs in the middle of that decade.<sup>121</sup>

Light and American and Foreign Power had also tried to encourage national investors to buy the stocks and bonds of their subsidiaries during the 1950s. In Light's case the motive was largely political, while in American and Foreign Power's case the motives seemed to be the desire to raise additional capital and reduce foreign exchange requirements. Neither company courted small domestic shareholders in anything like the systematic way that La Electricidad de Caracas did, however, and their half hearted efforts proved to be neither financially nor politically very significant.<sup>122</sup>

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<sup>116</sup> Oscar Machado Zuloaga and Ricardo Zuloaga, *En Defensa de las Empresas de Electricidad: Refutación al Informe del Doctor Luis Prieto Oliveira "Quien Invierte Realmente en las Empresas Eléctricas?"* (Caracas: C.A. La Electricidad de Caracas and C.A. Luz Eléctrica de Venezuela, 1964).

<sup>117</sup> La Electricidad de Caracas, *Setenta Años*, p. 86.

<sup>118</sup> La Electricidad de Caracas, *Setenta Años*, p. 119.

<sup>119</sup> La Electricidad de Caracas, *Lineas, Año 4 Edición Extraordinaria en Memoria del Doctor Oscar Machado Zuloaga* (Caracas: La Electricidad de Caracas, no date), pp. 22-23.

<sup>120</sup> Pérez Alfonso, *Abusiva Aplicación de Tarifas*, p. .

<sup>121</sup> Auguerrevere, interview.

<sup>122</sup> In 1953, after five years of effort, American and Foreign Power had sold domestic investors only \$20 million in stock in its Brazilian subsidiaries, \$4 million in bonds for its Cuban subsidiaries, and \$1 million in bonds for its Costa Rican subsidiaries. After 1953, the effort to sell shares and bonds to local investors is no longer mentioned in the company's annual reports. American and Foreign Power, *Annual Report, 1953*, p. 3.

Competent service and broad-based Venezuelan ownership were enough to save La Electricidad de Caracas as an independent private company. American and Foreign Power sold CALEV to La Electricidad de Caracas in 1964, explaining to the holding company's stockholders that there seemed to be few opportunities to develop their electricity business further in Venezuela. Another private company serving the Maricabo region was nationalized in the 1970s, at about the same time that Venezuela nationalized the petroleum industry. By the 1990s, only La Electricidad de Caracas and a small company serving the Valencia area remained in private hands.<sup>123</sup>

Venezuela's public power companies continued to multiply and to expand their capacity, although they stayed out of the distribution territory of La Electricidad de Caracas. One large public company was created to provide electricity distribution services throughout most of the rest of the country and a second was established to develop the formidable hydro potential of the Guyana region for industry and for transmission to other parts of the country.<sup>124</sup> La Electricidad de Caracas built thermal rather than hydro plants for its new capacity because fuel was cheap in Venezuela and it did not want to be dependent on plants 600 kilometers away. The public hydro power was offered at such low prices, however, that by the 1990s it was purchasing approximately one-third of the electricity it sold from public companies.<sup>125</sup>

National regulation of electricity rates was imposed gradually, in part at the behest of La Electricidad de Caracas. Beginning in 1977 the national government negotiated with the electric companies over rate increases, but without the authority of a specific electricity regulation law. This system seemed to work reasonably well until the late 1980s when inflation, which had been suppressed by foreign exchange controls, increased significantly. La Electricidad de Caracas and the other electric companies approached the government requesting the creation of some more formal and dependable method of tariff adjustment, and in 1989 the government issued a decree establishing U.S.-style rate-of-return regulation for both the public and the private companies.<sup>126</sup> In 1992, a regulatory commission and agency were created.<sup>127</sup> By the mid 1990s the government still had not passed a law establishing the primacy of national regulation over municipal regulation, however, so there were occasional conflicts in which some mayors would tell their citizens not to pay rate increases ordered by the national government.<sup>128</sup>

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<sup>123</sup> The Maricabo company became ENELVEN, while the Valencia company is ENEVAL. Although I speak of La Electricidad de Caracas as a single company, legally as of 1994 it still maintained Luz Eléctrica de Venezuela, La Electricidad de Guarenas y Guatire, and Luz Eléctrica del Yaracuy as separate subsidiaries.

<sup>124</sup> CADAFE was the distribution company and EDELCA the Guayana generating company. Another important public company was ENELVEN, which operated thermal plants and distributed electricity in Maricabo.

<sup>125</sup> Augerrevere, interview.

<sup>126</sup> Augerrevere, interview.

<sup>127</sup> The commission, CREE (Comisión Reguladora de Energía Eléctrica), is composed of four ministers and several consumer representatives. It is staffed by the regulatory agency, Fundalec.

<sup>128</sup> Jorge Pirela, "Marco Regulatorio del Sector Eléctrico: Anarquía e Indefiniciones", pp. 165-169 in Janet Kelley (ed.), *Servicios Públicos: Clave para el Bienestar* (Caracas: Ediciones IESA, 1996).

The strategy of making its stock available to small investors, customers, and employees is not the only factor that saved La Electricidad de Caracas. The company probably benefited from the creation of the large public companies, for example, since they took on the politically important tasks of developing hydro in Guyana and of rural electrification that the private company probably would have shirked as too risky. La Electricidad de Caracas also gained from Venezuela's stable foreign exchange rates, which meant that it didn't have to constantly seek rate increases to pay for imported generating equipment. Moreover, widespread stock ownership had its own risks since it made the potential tradeoffs between tariffs and profits very public. But the strategy of wide stock ownership gave more Venezuelans a stake in the financial health of the company, and made it more difficult for the government to offer a modest compensation in the event of expropriation.

## VII. Lessons

### **Private Monopoly, Foreign Ownership and Nationalization**

It is difficult to disentangle the roles that private monopoly and foreign ownership played in the nationalization of the electric industry in Latin America because the two characteristics were usually found together. In most large Latin American cities, it was a foreign owned company that bought up its competitors to form a monopoly in the early decades of the 20<sup>th</sup> century. By the time nationalization began in the 1940s, almost all the private monopolies available to be expropriated were foreign owned. Nevertheless, the history suggests that either monopoly or foreign ownership alone might have been sufficient to provoke nationalization in many cases, although the combination of the two was particularly lethal.

The importance of foreign ownership is illustrated by the fact that every foreign-owned private electric utility in Latin America was eventually expropriated, and that the few private utilities that survived into the 1980s were domestically owned. But the more convincing evidence is the expropriation after World War II of many foreign-owned companies in other industries that are not natural monopolies. Not all foreign companies in Latin America were expropriated—usually they had to be in a sector that was large and important enough to be politically visible, such as oil in Mexico and Venezuela or mining in Bolivia and Chile. But monopoly was not needed to provoke nationalization.

The possibility that private monopoly alone might have led eventually to nationalization is suggested by the fact that the complaints about monopoly arose before the complaints about foreign ownership. The concern that the electric industry might be monopolized was raised even before World War I, and intensified as the importance of electricity to households and business became more apparent. The fact that foreign companies were doing the consolidation often did not provoke a nationalistic response because the foreign companies usually had much greater financial and technical resources than the locally owned companies they were buying out. If a city wanted adequate and modern service, the foreign company often seemed the only realistic alternative. But the superiority of the foreigners did not stop the public from complaining that the companies

were abusing their position by charging excessive rates. And it was not until the Depression that the issue of foreign ownership seemed to eclipse the issue of monopoly.

The role of private monopoly is also illustrated by the battle that the only large domestically owned electric company—La Electricidad de Caracas—had to wage to avoid nationalization. Once democracy was established in Venezuela in 1958, La Electricidad de Caracas felt very vulnerable. The fact that it had supplied good service and that it was domestically owned did not protect it from attack and the threat of expropriation. In the end, the company felt it had to take the further step of distributing its shares widely among customers, employees, and the general public. Otherwise, its managers thought there would be too little popular support to prevent the company's nationalization.

But the combination of foreign ownership and private monopoly seems to create irresistible pressures for nationalization. The possibility that a monopolist is earning excessive profits seems outrageous to the public, especially if that monopolist is providing a service deemed essential to modern life and development, such as electricity. But the thought that those profits are being remitted to foreigners adds salt to the wound. And the sting is particularly sharp when the owners are rich North Americans or Europeans while the consumers are from a country struggling to develop.

Foreign-owned monopolies also raise suspicions of foreign corruption of government. Even if it is not a monopoly, an infrastructure company usually depends on the government for various permissions, for example, to put poles on public streets or to condemn private property for dams or transmission rights of way. And if it is a monopoly, the government usually regulates the company's prices and services as well in the name of protecting the consumer. The dependence on government leads to understandable efforts by the company to influence public policy, and to understandable fears that those efforts might include corruption. A domestically owned company is not immune from these suspicions, as La Electricidad de Caracas discovered in 1945 and again in 1958. But when a powerful foreign company is suspected of corrupting government, such as CADE in Argentina, the popular reaction can be especially vehement. Such corruption is often seen as an attack on national sovereignty.

### **The Future of Private Infrastructure**

The history of the electric industry in Latin America suggests reasons for both caution and optimism about the future of the infrastructure companies that were privatized during the 1990s. On the pessimistic side, some of the newly privatized companies are owned or controlled by foreign investors, just as most of the private electricity companies were after the 1920s. Foreign ownership is particularly common, as one might expect, in industries where foreigners have a pronounced advantage in technical skills or where investment needs are great and domestic capital markets are thin. Thus, foreigners commonly own substantial shares in many newly privatized telephone, electric and water companies.

In addition, the world economy has not learned how to avoid shocks that seem to cast doubt on the wisdom of foreign investment. In this regard, for example, the Latin American financial scare that followed Mexico's peso devaluation in 1994 and the Asian financial crisis that began in Thailand in 1997 may have some of the same effects as the Depression of the 1930s. The underlying causes in all three cases are different, and to the extent that foreign investors made the situation worse by panicking in Latin America and Asia it was the investments in short-term, liquid assets that were to blame, not the long-term and relatively illiquid investments in infrastructure. Nevertheless, the peso and Asian crises convinced many in developing countries that opening their markets to foreign investors is not an unalloyed benefit. And, where the foreign infrastructure investors had convinced governments to assume all or most of the foreign exchange risk, as was the case with many of the Asian private power plants, their customers faced substantial price increases that they could ill afford.

Finally, the regulatory systems intended to mediate between the investors and customers of a monopoly do not seem to have advanced greatly. The municipal concession contracts and national regulatory agencies employed to control monopoly power today are not too dissimilar to those used in Latin America in the 1920s, 1930s and 1940s. There have been improvements to be sure. Concession contracts are now usually bid competitively rather than negotiated, for example, so the public has more assurance that the initial terms are reasonably fair. But the basic dilemmas involved in designing a regulatory system that can balance investor and consumer interests over many years are hard to resolve. Modern regulatory systems are unable, for example, to provide complete insulation from popular pressures for unrealistically low prices.<sup>129</sup>

On the optimistic side, Latin America's experiences in the 1970s and 1980s have made the region considerably more skeptical of the potential for publicly owned utilities than it was in the 1940s, 1950s and 1960s. Nationalization may have prevented monopoly abuse, if that indeed was a problem, but it created a host of inefficiencies and shortcomings of its own. It proved politically difficult to raise electric rates in pace with inflation even after the utilities were nationalized, and the combination of low rates and increasing inefficiency often led to large deficits and deteriorating services. Some Latin American countries had begun privatizing public enterprises even before the collapse of the socialist economies in the Soviet Union and Eastern Europe in 1989 further underscored the shortcomings of public ownership. While the memories of the poor performance of government owned utilities are likely to fade, Latin America will be skeptical of nationalization for at least a while.

Another reason for optimism is that domestic investors own a higher proportion of the shares of Latin America's private utilities in the 1990s than they did at the end of the 1920s. Foreign ownership is still common, particularly in telephones. But there is less need to rely on foreigners because domestic capital markets and technical skills are stronger in developing countries in the 1990s than they were in the 1920s. And where

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<sup>129</sup> For a review of the options in regulating monopoly see José A. Gómez-Ibáñez, "Commitment and Flexibility: Strategies for Regulating Privatized Infrastructure", discussion paper, Taubman Center for State and Local Government, Harvard University, January 1999.

foreigners are involved they often have domestic investors as highly visible and important partners. Politicians and the public are unlikely to treat such partnerships with the same favor that they would show a wholly domestic company. But if foreign involvement is lower, however, the tensions and complications may be reduced somewhat as well.

In addition, a few countries have made an effort to insure that the shares of the private infrastructure companies are widely held. In the 1990s, pension funds have been the main vehicle for spreading share ownership for infrastructure companies in developing countries. Chile requires that all workers invest a portion of their wages in a pension, and private pension funds compete to attract the workers' investments. Chile's private pension funds have been major investors in the shares of Chile's private infrastructure companies. Bolivia auctioned off half of the shares of many of its infrastructure companies to strategic investors, usually foreigners. The investors were required to invest the sales price in the company, however, so that services would be modernized and improved. And the other half of the company shares was reserved to start a pension system to cover all Bolivian families. Hopefully, the investments of these pension funds will provide increased popular understanding of the financial needs of the private companies.

A final reason for optimism is that the degree of monopoly or market power has declined for some types of infrastructure. In some cases changes in technology have reduced monopoly power. Railroads no longer enjoy the degree of market power that they did at the turn of the century, for example, because of the development of competition from modern highways, trucks, and buses. The development of microwaves, satellites, and fiber optics has eliminated the market power in long distance telephony and may soon do the same for local calling. In other cases the industries have been restructured to introduce competition wherever possible. Many countries are separating long distance from local telephone providers, for example, since competition is possible among long distance providers. Similarly, many countries are separating the generation of electricity from long distance transmission and local distribution since competition is possible among generators. Where market power has been reduced, so too is the need for regulation and its attendant problems.