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Bolivia

Introducing Competition into the Electricity Supply Industry in Developing Countries: Lessons from Bolivia

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PURPOSE

The Joint UNDP/World Bank Energy Sector Management Assistance Programme (ESMAP) is a special global technical assistance program run as part of the World Bank's Energy, Mining and Telecommunications Department. ESMAP provides advice to governments on sustainable energy development. Established with the support of UNDP and bilateral official donors in 1983, it focuses on the role of energy in the development process with the objective of contributing to poverty alleviation, improving living conditions and preserving the environment in developing countries and transition economies. ESMAP centers its interventions on three priority areas: sector reform and restructuring; access to modern energy for the poorest; and promotion of sustainable energy practices.

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Preface

In this report Jan Moen, a member of ESMAP's Technical Advisory Group (TAG) and the regulator of the Norwegian electricity industry, summarizes the Bolivian power sector reform experience from 1993 until the end of 1999. This report is based partly on a review done by ESMAP[*] and discussions with TAG/ESMAP staff held in 1999 on strategic issues such as poverty alleviation and economic development.

The review revealed that many of the lessons Bolivia learned while introducing competition into its electricity supply sector are broadly applicable to developing countries when restructuring and privatization are on the agenda. Many of the issues arising from the Bolivian experience are still debated, and some of the solutions have not been generally accepted, as will always be the case where competition and private ownership are employed in the cause of alleviating poverty and setting a country on a more secure economic footing. Nevertheless, a strong case can be made that the Bolivian reforms have been largely successful.

[*] ESMAP, *Review of ESMAP investments in Bolivia: Lessons Learned* (Technical Advisory Groups report, February 1999).

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Acronyms and Abbreviations

COBEE	Compania Boliviana de Energia Eléctrica
COMIBOL	Corporación Minera de Bolivia
CRE	Cooperativa Rural de Electrificación
DINE	Dirección Nacional de Eléctricidad
EC	European Commission
ELFEC	Empresa de Luz y Fuerza Eléctrica de Cochabamba
ENDE	Empresa Nacional de Electricidad
ESI	electricity supply industry
ESMAP	Energy Sector Management and Assistance Programme
EU	European Union
gdp	gross domestic product
IBRD	International Bank for Reconstruction and Development (World Bank)
IDA	International Development Agency (World Bank Group)
IEA	International Energy Agency
IPP	independent power producer
NGO	non-governmental organization
NIS	National Interconnected System
NRECA	National Rural Electric Cooperative Association
PRONER	Programa Nacional de Electrificación Rural
SRMC	short-run marginal cost
TAG	Technical Advisory Group
TCT	total cost of transmission
TI	tariff income
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
USAID	United States Agency for International Development

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Electricity Supply in Bolivia

1.1 The reform of Bolivia's electric sector is considered one of the most successful to date. Bolivia opted for both vertical and horizontal separation. The Empresa Nacional de Electricidad (ENDE), the largest power company, was divided into three generation units and a transmission grid. The generation units were capitalized, and the transmission grid was privatized as a common carrier. In distribution, the Empresa de Luz y Fuerza Eléctrica de Cochabamba (ELFEC, the Cochabamba electricity distribution company) was also privatized, while the Compania Boliviana de Energia Eléctrica (COBEE, the La Paz generation and distribution company) was already private. Among the other major cities, the Cooperativa Rural de Electrificación (CRE, the Santa Cruz distribution company) remains a cooperative, and is considered to be well run along commercial lines. Many of the smaller electric systems, which are cooperatively owned, have yet to be corporatized (i.e., to become *sociedades anonimas*).

1.2 Since the capitalization/privatization, there has been a dramatic expansion in generation capacity with US$250 million of new investment, and an additional US$17 million in transmission. Distribution networks are also growing well, with US$156 million invested by the seven largest distributors during 1996–1999. Tariffs have also been adjusted toward economic pricing. Despite this impressive progress, however, access to electricity remains limited: only 19 percent of rural households had electricity as of 1999 (as compared to 72 percent of urban households). The main issues in the sector are now (1) privatizing the smaller systems and, more important for poverty alleviation, (2) expanding access in the under-served rural areas.

Pre-Reform ESI

1.3 Bolivia's electricity supply industry (ESI) before reform comprised both an interconnected system and a number of isolated systems (see Annex A). The National Interconnected System (NIS), which covers the cities of La Paz, Cochabamba, Santa Cruz, Sucre, and Potosi, was owned and operated by ENDE. ENDE, which was also the largest generator, was established in 1967 and was 100 percent state-owned. In 1992 ENDE's available capacity was 402 MW, of which 69 percent was thermal energy and 31 percent hydropower. It supplied 56 percent of the nation's electricity via bulk sales to distribution companies and large industrial users.

1.4 The second largest generator was COBEE, with 142 MW of hydropower capacity. A private, vertically integrated utility, COBEE supplied La Paz and Oruro. The other supplier was the Corporación Minera de Bolivia (COMIBOL), a public mining enterprise.

1.5 The interconnection of these subsystems was arranged by bilateral contracts with ENDE. There were six distribution companies on the interconnected system, and three major isolated subsystems supplied mainly by ENDE. In addition, there were more than 140 cooperatives serving small rural communities. The Dirección Nacional de Eléctricidad (DINE), the national regulatory agency, approved wholesale rates between ENDE and distributors (except between ENDE and COBEE), while municipal authorities had to approve tariff rate petitions.

1.6 The key features of the pre-reform ESI were as follows:

- It comprised both an interconnected system and a number of isolated systems, with an overall installed capacity of 755 MW and total generation of 2411 GWh in 1992 (in the NIS and in the isolated systems). The interconnected system, the NIS, had an installed capacity of 544 MW.
- The plant mix was 448 MW thermal plant and 306 MW hydro plant (of which 142 MW was run-of-river). The generation mix in 1992 was 55 percent hydro and 45 percent thermal.
- Dispatch decisions for the hydro plants were limited.
- There was a mixture of private and public ownership.
- Concession franchises were extensively used in distribution and generation.
- Cooperatives played an important role.

Post-Reform ESI

1.7 The post-reform NIS includes four generating companies, six regional distributors, and a regulated monopoly transmission firm owned by Empresa Transportadora de Electricidad SA, with Unión Fenosa as strategic partner. The three largest private distributors (Electropaz, CRE, and Elfec) and the largest, also private, non-regulated consumer (Inti Raymi) account for more than four-fifths of power sales (see Table 1). Outside NIS, the isolated systems supply electricity for the rest of the country. Vertical integration is permitted for systems outside of NIS.

Table 1. Power Sector Sales in Bolivia, 1995–1996

Sector	*Buyer*	*Equity Book value (US$ million)*	*Price paid (US$ million)*	*Premium (%)*	*Size (1995)*
Generation					
Corani	Dominion	33	58.8	78	126 MW
Guaracachi	GPU	35.3	47.1	33	248 MW
Valle Hermoso	Constellation	30.7	33.9	10	150 MW
Cobee	NRG	$23/share*	$43/share	87	142 MW
Transmission					
TDE	UnionFenosa	54	39.9	-26	1,800 km
Distribution					
Elfec	Emel	34	50	47	156,000 consumers
Electropaz + Elfeo	Iberdrola	NA	62		260,000 consumers

* Market value as listed on NYSE.
Source: T. Bakovic.

1.8 Currently, there is a competitive wholesale market in operation with participation by generators, distributors and large consumers alike in a spot market based on short run marginal cost pricing. The National Load Dispatch Committee (NLDC) is in charge of the coordination and administration of wholesale transactions and the National Load Dispatch (NLD) is in charge of the operations of the system.

1.9 The privatization of the former National Electricity Company (ENDE) resulted in the establishment of three separate private generation companies. Under the Bolivian "capitalization" model, each company is 50 percent owned by a foreign partner, with the remaining 50 percent held by nationwide pension funds. Dominion Energy won the bid for Empresa Corani SA, which today has an installed capacity of 126 MW. Dominion sold its interest in Corani to Duke Energy in 1999. GPU is now owner of 50 percent of Empresa Guaracachi SA, with 414 MW. A consortium of Constellation Energy, Ogden Energy, and Power Markets Development Co. won the bid for Empresa Valle Hermoso SA which has today an installed capacity of 231 MW. The fourth generator in NIS, Compañía Boliviana de Energía Eléctrica (COBEE), remains privately held and is controlled by Northern States Power and Vattenfall and has an installed capacity of 241 MW (see Table 1). Four other generators have entered the NIS in the last few years; they are Rio Electrico with 12 MW, Hidroelectrica Boliviana with 1 MW (80 MW under construction), Synergia with 8 MW and Bulo-Bulo, an Amoco Power subsidiary, with 80 MW. Today, in the NIS, there are 1,044 MW in service, close to 600 MW additional since the capitalization took place in mid-1995.

1.10 All the distribution companies are privately owned. In order to comply with the unbundling requirements of the new Electricity Law (See Annex B), COBEE sold its distribution firms, Electropaz and Elfeo, to Iberdrola, which in turn has sold 33 percent of its stake in Elfeo to a consortium led by GE and AIG. Elfec was sold to Emel in 1995 and was recently bought by PP&L Global.

1.11 Power demand in Bolivia grew 7 percent in 1998. The total installed capacity in the sector was 1,044 MW, with hydro and thermal plants accounting for 33 percent and 67 percent respectively. Generators and transmission companies in NIS operate under licenses of indefinite duration. Distribution and integrated utilities outside NIS operate under public concession for a maximum duration of 40 years. Under the current scheme, distributors buy electricity from the spot at the prevailing spot market prices. During the year 1999, the generators charged an average of US$16/MWh for energy and US$6/kW per month for capacity.

1.12 Only 19 percent of rural residents have access to power. Supply from the grid favors urban areas, as shown by the dominance of residential customers in 1998 electricity sales (41 percent) and in revenues (44 percent). The industrial and commercial customers followed with 26 percent and 15 percent of total sales and with 26 percent and 30 percent of revenues respectively.

2

The Rationale for Reform

2.1 In Bolivia the fundamental characteristics of the economic growth model were established in the economic stabilization program of 1985. In the early 1990s, however, the need for adjustments to the model became evident, and a debate surfaced on how best to achieve them. The energy sector was put to the challenge of supporting the drive towards sustained economic development.

2.2 In early1993, the Government of Bolivia issued a Power Sector Policy Letter establishing sector policy directives and the objectives of the reform. In the same year the government asked the World Bank for assistance through ESMAP. ESMAP mounted a program of technical assistance in close cooperation with the World Bank's operational department and the Bolivian Ministry of Energy.

2.3 The assistance was delivered in two phases. ESMAP managed the first phase from 1993 until the Bolivian Congress passed an Electricity Law in late 1994. The second phase was carried out through "ordinary" Bank operations. In both phases Bolivia contracted individual advisors from Chile, Argentina, and Peru who had carried out their country's reforms previously and were closer to the Bolivian reality.

2.4 The ESMAP part of the program was described in a white paper[1] that, in addition to a draft Electricity Bill and a new regulatory regime, contained advice on the following:

- Optimal sector structures
- Tariff schemes and mechanisms
- Mechanisms for dealing with marginal target groups
- The new regulatory agency
- Identifying appropriate forms of competitive bidding
- Contracts between generators and buyers.

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[1] ESMAP, *Bolivia: Restructuring and Capitalization of the Electric Supply Industry: An Outline for Change* (Washington, D.C., September 12, 1995).

2.5 In May 1993 a seminar attended by the key stakeholders in the Bolivian ESI was conducted in Santa Cruz to consider options for reform.[2] In parallel to the seminar discussions, a formal organizing structure was set up. Notably, the premise was that it should have Bolivian leadership, with ESMAP participating only to provide support. In December 1994 the Congress passed the Electricity Law and the implementation phase of the reform started.

2.6 José Maria Bakovic, a former World Bank employee from Bolivia, described the process thus:

> In reforming its electricity industry, Bolivia broke away from some of the accepted models for reform prevailing at that time. This decision was not prompted by a desire to flout current fashionable practice, but rather because it suited the country that way and because the resulting reform program constituted an appropriate and timely response to the situation in Bolivia at that time. Instead of copying other countries' models, Bolivia wisely adopted some of the principles underlying current reform trends all over the world and applied them in the degree and form which best suited its own position. Other countries reforming their electricity industries could learn from many aspects of Bolivia's experience.[3]

2.7 More specifically, Bakovic states that "Bolivia...retained total control over the reform process through a strong local working team during two different administrations (in fact, this proved to be the main element in its success)."

2.8 This case parallels my own experience consulting for El Salvador. A "generic approach" was a key issue and specifying country specific terms later became an important next step in which domestic participation was a must. The World Bank was no exception in this traditional development, using experienced international consultants relying on lessons learned elsewhere in the world to promote sector reforms. Although the Bank managed to organize a high degree of cross-country participation, it was ultimately less successful in bridging the gap between critical generic issues and country-specific terms. Domestic ownership is perhaps the most important factor in a successful reform program.

2.9 Although Bolivia's economic stabilization program began in 1985, not until 1991 did Bolivia's economy begin to reap the benefits of economic prudence through sustained growth. The policy challenge for the energy sector was how best to support the country's drive towards sustainable economic development. The government of Bolivia thus attempted to design a comprehensive energy sector reform program.

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[2] In 1993, in a joint effort with the Ministry of Energy and Hydrocarbons of Bolivia and the World Bank, ESMAP prepared a book summarizing the seminar's presentations and roundtable discussions. The book was titled *Primer Seminario sobre Reformas del Sector Electrico Boliviano* (La Paz, Bolivia: Kuhn y Cia Norte Sur Ltda. - Talleres Editorial Salamandra S.R.L., September 1994).

[3] Jose M. Bakovic, "Reforma del Sector Electrico Boliviano Paradigmas Rotos," in *Potencia Magazine—Revista Latinoamericana de Electricidad* (ITP Publisher) No. 10, March/April 1997.

2.10 According to the 1995 ESMAP report, the main rationale for reform was the following:

- Private investment remained depressed,
- Public sector investment in productive enterprises had been inefficient, and
- Public sector investment in human capital and basic infrastructure traditionally had been low.

2.11 According to ESMAP, Bolivia's challenge was to devise a regulatory regime that would secure the efficiency benefits of privatization and competition while avoiding potential undesirable consequences.

2.12 Bakovic's baseline is somewhat tilted towards other issues:

> The conditions formerly existing within the Bolivian electricity industry were not such as are generally considered auspicious for root and branch reform. The industry was small and efficient; prices reflected costs and state-owned and private enterprise coexisted in an atmosphere of healthy understanding. In spite of this, Bolivia decided to implement radical and thoroughgoing reform and in doing so it did not adopt the models currently propounded by theorists, academics, consultants and even the directors of international organizations providing financial assistance.[4]

2.13 Most advisers opposed the implementation of radical reform within the Bolivian electricity industry because it was already operating efficiently. ENDE was one of the most efficient companies generating and transmitting electricity in the region. COBEE (also known as the Bolivian Power Company, or BPCo) was an excellent private enterprise that efficiently maintained the systems in La Paz and Oruro. The Cooperativa Rural de Electrificación (CRE) of Santa Cruz de la Sierra and the Empresa de Luz y Fuerza Eléctrica de Cochabamba (ELFEC), a subsidiary of ENDE, provided efficient service in the country's other two main distribution centers. Because of this, many wondered why the Bolivians did not let well enough alone.

2.14 The Bolivians decided that the existence of good companies within the industry was no reason not to reform it. On the contrary: it was an excellent reason for going ahead. Efficient companies, they argued, would make the industry more attractive to investors with an interest in buying or expanding the system. Moreover, there is always scope for improving efficiency; that is, efficient companies can be made even more efficient, especially by means of competition and private investment.

2.15 At the time of the reform the interconnected system in Bolivia was small. Most advisers were opposed to the idea of splitting up ENDE and COBEE. One of them recommended three integrated systems, one for each of the main centers of national consumption. COBEE would operate in the west of the country, ENDE in the center, and CRE in the east, and each would hold a monopolistic concession within the traditional area of operation. Others proposed the co-existence of IPPs—the fashionable model at the time—and ENDE, the state-owned company.

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[4] Ibid.

2.16 The true overriding rationale for reform in Bolivia was the need to attract private capital to the sector. The government simply could not afford the future investments in expansion needed to meet demand growth. Social areas like health, education, and even rural electrification were begging for funds that were being directed to the interconnected system where the richer population lived and where there was potential to attract private capital.

3

The Main Features of Reform

3.1 This chapter comments on some of the main features of ESI reform in Bolivia, comparing them to both "the Basic Theory of Regulation"[5] and my experience as a regulator.

The Capitalization Method

3.2 *Capitalization* is privatization with the distinguishing feature that the sale proceeds stay with the company to finance future investment. Under capitalization, a new set of shares was issued by ENDE's three generators and sold to strategic private partners. The price of the new shares paid in cash was retained by each generating company and committed for investments. A popular participation feature was added: the government share of the new companies was distributed to the Bolivian people via a pension fund administrator. Thus the shareholders are 100 percent private entities.

3.3 This approach to privatization can mitigate some of the popular doubts about traditional trade-sale privatizations. Also, leaving the proceeds with the company helps to solve the shortage of cash for working capital and investment that commonly afflicted popular participation schemes in Eastern Europe. The approach seems to be relevant in situations where

- the asset for sale is likely to be of interest to a strategic investor,
- the government can afford to give up the direct proceeds of the sale, and
- popular participation may help avoid political backlash.

3.4 Bolivia was the first country to restructure and privatize the power sector using the capitalization method. In doing so, Bolivia not only privatized electricity supply but also transferred one-half of the industry's ownership to Bolivian citizens. The shares allocated to

[5] This Basic Theory of Regulation is not a precise definition, but rather a concept developed by academics and regulators in countries that restructured their economies in the early 1990s.

Bolivians were entrusted to special pension funds, which were responsible for managing the shares within certain trading parameters.

3.5 This process developed both the pension funds and the local capital markets. It also ensured that capitalization took place through timely investments that were equal in size to the contributions made by private investors. This approach differs from the previous attempts at privatization in the United Kingdom (England and Wales) and Chile. In fact, the Bolivian case might be labeled as a "reverse Chilean" process because the pension funds were used to *manage* the shares rather than to buy them. This form of public-private partnership had originally been proposed in the former East Germany, but was never applied in practice.

3.6 So far the capitalization method seems to have worked well. International companies from United States, Chile, Sweden, and Spain have entered the Bolivian ESI and the prospects so far seem promising.

3.7 Following the restructuring of the industry, ENDE's generating activities were divided among three companies, which now operate together with COBEE. All are controlled by companies with a long tradition of public service, as follows:

- CORANI S.A. is controlled by Dominion Energy, a member of the Virginia Power group;
- Valle Hermoso S.A. is controlled by Constellation Energy, a member of the Baltimore Gas & Electric group;
- Guaracachi S.A. is controlled by GPU International of the Jersey Central Power and Light group; and
- COBEE is controlled by NRG Energy of the Northern States Power group of Minnesota and Vattenfall of Sweden.

3.8 The fact that highly prestigious companies with a long tradition in their own markets have entered the small Bolivian electricity system confirms the validity of the arguments used in favor of restructuring. All these companies currently have expansion projects planned or in progress, and some are preparing proposals for power export projects to Brazil, which will spearhead their assault on the largest market in South America.

3.9 The success of the capitalization process should be evaluated in a longer-term perspective when the competitive environment improves and the need for new long-term investments is on the agenda.

Competition in Generation and Supply

3.10 The competitive model chosen is a hybrid of the "wholesale" and a "limited retail" models. Generation, transmission, and distribution are unbundled, but distribution covers both the low-voltage grid and final sales or supply. The market is closed to new entrants until the end of 1999. Two new entrants are ready to start operations after 1999: Amoco Power, with the Bulo-Bulo project; and Tenaska of the United States, with the HidroBol project.

3.11 Large customers with individual demands of more than one megawatt can sign contracts directly with generators. To become one of these non-regulated customers, they need the approval of the regulator. So far, however, only four customers (all of them mining companies) have sought such approval.

3.12 Due to competition among the four post-reform generators, wholesale prices in energy have decreased from about US$18/MWh to US$16/MWh in the first three years of reform implementation. With the entrance of the Bulo-Bulo project in the second semester of 2000, energy prices are expected to drop to US$14/MWH.

Generation Prices

3.13 In Bolivia, energy generation prices are set by a "gross-pool" market scheme, by which plants are dispatched in merit order based on the system's marginal cost. The system's marginal cost comprises the incremental cost of the most expensive machine, essentially the cost of fuel and non-fuel variable costs, able to meet a change of demand at a determined hour. Generators that are able to commit firm capacity to the market also get a capacity payment. Firm capacity is valued on the basis of the unit cost related to the investment annuity (return on investment) and the costs of operation and maintenance of the gas turbine best suited to supply peak capacity. The unit cost is increased by a reserve margin needed to maintain adequate system reliability.

Transmission Tariffs

3.14 Bolivia formulated a two-part tariff for transmission services based on multinodal marginal spot prices, coupled to tolls. The way transmission prices are calculated is as follows: TCT = Toll + TI, where TCT = total cost of transmission and TI = tariff income.

3.15 First, one calculates the TCT, which are theO&M costs plus the return on investment (investment annuity); the TCT is an *average* cost. Second, one calculates the TI, or *marginal* cost, which is based on the difference between the energy and capacity input and output in the different system nodes. Both energy and capacity are calculated using the short-run marginal costs of energy and capacity. The capacity prices are affected by the capacity loss factors at the consumption node. The objective of this two-part tariff is to add to the marginal cost (TI) the toll to cover the average cost of transmission (TCT).

Distribution Tariffs

3.16 Before instating the Electricity Law, Bolivia employed the cost-plus method for electricity pricing. Because this method recognized a return over assets and the O&M costs of the electric utility, it was a source of inefficiencies. Some utilities would include spurious items (e.g., vacation houses) in the assets and then pass the cost on to the end user through the tariff.

3.17 Such inefficiencies are the reason why Bolivia decided to make two major changes to the cost-plus method. One was to cap it through an RPI – X methodology (similar to

the one in the UK), where X is an efficiency factor. The second change was to recognize a return on equity rather than a return on assets.

3.18 The Bolivian version of the price cap gives incentives to distributors to improve its efficiency because in a period of four years they get to keep their efficiency improvements through higher earnings. After four years, new tariffs are approved, and these efficiency gains are passed on to the customer by adjusting the operating costs by the efficiency factor X. Moreover, a return on equity measure simplifies the calculation for a fair cost of capital hurdle because, unlike the return on assets calculation, there is no need to separately set an allowed cost of debt. Under a price-cap regulatory scheme, the utility will also have every incentive to minimize the cost of debt since reducing interest expense will increase net income.

3.19 To facilitate the role of the regulator, Bolivia decided to be impartial and transparent by fixing the return on equity to that obtained by the energy companies listed in the Dow Jones Utility Index.[6] This market index, which tracks a changing list of companies,[7] includes both vertically integrated energy companies and internationally competitive power generators and gas producers (the latter two requiring larger returns for the larger risks they take in global energy markets). The average return is currently around 13 percent nominal (10 percent real).

The Merit-Order Dispatch System

3.20 Bolivia, like its South American neighbors, forced the generation market into a competitive equilibrium by creating an independent coordinating pool that does both the physical operation and the clearing of the market. The Bolivian pool is a "gross pool" because all physical trades of electricity must occur through the spot market; however, parties may write financial contracts so as to allocate risks associated with future prices.

3.21 The Bolivian model started with an optimum economic dispatch based on seasonal audited generation costs and water availability information and recently started allowing a seasonal bidding procedure. Therefore, Bolivia employs a seasonal power pool rather than a daily pool like England and Wales or Scandinavia (NordPool). The bidding process in Bolivia is for a period of six months. Dispatch is carried out by choosing plants in merit order of the costs that are bid, up to the point at which demand is satisfied. In general, the pool dispatches first the run-of-the-river hydropower, then the cheap gas turbines, then the hydro storage plants, and finally the expensive gas turbines.

3.22 The pool controls operations and records the prices and energy trades between generators, as well as payments by users to the owners of the network. It performs yearly, monthly, weekly, and daily operation schedules. Nevertheless, final dispatch occurs within real time and the whole tariff regime is based upon the system's actual hourly spot price. Schedules

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[6] Norway uses a bond rate determined by its Central Bank.

[7] The Dow Jones Utility Index tracks 15 large electricity and natural gas utilities.

are regularly adjusted following the actual flows of rivers, reservoir levels, loads, availabilities, etc.

3.23 One issue is the so-called flow of "electrons" versus the flow of "dollars." A generator with a contract may be considered a virtual "broker" in Bolivia because the "electrons" it supplies are not necessarily applied to its contracts (dollars) but rather dispatched, on the basis of merit, to an unknown distributor or large end-user. In fact, to supply its contract, the generator is practically buying from the "spot." It is after the "dispatch settlement" that the dispatch will tell the generator how much it owes for the merit order electrons used to supply its contract and how much the generator will be paid for the electrons its plant generated perhaps to supply other contracts.

Price Stabilization and the Spot Market

3.24 In an effort to avoid price fluctuations, Bolivia's electricity law requires distributors to buy 80 percent of their anticipated demand through three-year contracts. The idea behind the contract obligation was to add stability to the pricing system (the "spot market" is more volatile) and also to facilitate project financing (at the time of drafting the electricity law there was no such a thing as "merchant plant financing"). The law does venture, nevertheless, to allow for 20 percent of transactions to be made on the "spot" without contracts; this was designed to serve as a market "escape-valve" to allow mainly the generators to make up for differences in their contracts that could not be supplied.

3.25 Unfortunately, in Bolivia, to date, the spot prices have usually been above the node prices. Naturally, the distributors want to sign contracts only at the node price (not above it) since that is what they are allowed to pass-through to the end user and the generators rather sell to the "spot," which offers higher prices than the contracts with the distributors.

3.26 As a result, today—despite the law's 20 percent limit, as well as many economists' predictions that a "spot" market could not exist in a system as small as Bolivia's—close to 100 percent of the transactions in Bolivia are being done "on the spot," with four generators competing for sales. To deal with this "illegal" spot-market dominance, the Bolivian wholesale electricity market has developed a formula (outside the legal framework) called the "Z-factor" in order to equate node (projected) and spot (actual) prices. This is one of the main reasons why contracts are not needed. In addition, the distribution companies are 95 percent in private hands and no collections problems exist for the generators.

3.27 This same problem has been experienced in Argentina, Chile , and Peru. In Chile, the node price was adjusted upward to encourage contract signing, and in Argentina a "compensation fund" was created to make up for differences between periods. Peru has still yet to solve this problem; the contracts that were assigned to the generators at the time of privatization are not being renewed and generators are selling to the spot.

3.28 In Bolivia, the question remains whether this situation will continue at a time when excess capacity is developed and a price war starts. Generators may soon appreciate having

long-term contracts. The most relevant proof that competition is working is that at least three new players will be in the market soon, in addition to the four already in the system.

Concession System

3.29 According to Bolivia's Constitution, a concession is defined as a "public service," which implies that the concessionaire must serve the public. That is, if the lights go off, it is the concessionaire that is liable. In Bolivia, concessions apply only to distribution, whereas generation and transmission are license-based. The granting process for a license is much easier. Bolivia chose a license-granting scheme for generation in order to facilitate the attraction of private investors. A concession scheme would have been more cumbersome and bureaucratic, and it would have added the "public service" connotation to generation, thus contradicting its "commodity" definition in the Law.

3.30 The concession-bidding scheme for distribution indirectly allows potential investors to bid on the "country risk" factor for the concession because the business risk is practically known to the investors. Investors know that, at a minimum, they will earn a predetermined return on equity to cover business risk. It is through the bidding of the concession payment that an investor determines the premium return to allow for country risk.

3.31 At the expiration of the term of a public service concession, the Regulator (*la Superintendencia de Electricidad*) must hold a competitive bid to grant a new concession, and must transfer to the new Holder all the assets subject to the concession, including the facilities, equipment, works in progress, rights, and data. The former Holder has a duty to cooperate with the Regulator during the entire bidding and transfer process and may take part in the bidding.

3.32 The concession contract is cross-referenced to the Electricity Law, which covers in detail the concession's rights and obligations. The amount of payment that the former Holder of the concession shall receive for the assets subject to the concession at the time it expires, shall be the book value or bid value, whichever is lower. Any remaining balance not payable to the former Holder shall be set aside to finance rural electrification alike any penalties or royalties originating from operating the concession.

3.33 In order to encourage access to the rural areas through the expansion of the existing grid system, the Law includes in the definition of a concession area an additional border area of 100 meters surrounding all the existing lines of the distribution company. This encourages the distribution company to expand its coverage and increase its concession area.

4

Lessons from the Bolivian Experience

4.1 As the ESI was restructured, a major issue for Bolivia was how to manage the efforts of international consultants to ensure that its own interests were well represented.[8] Consulting and international support often play an important role in restructuring national economic sectors, and the Bolivian case is no exception.

4.2 In the early days of restructuring, only a few countries had any experience with it, and interest in it was acute. A consultant business grew quickly, mainly in the UK. Consultants in England and Wales pioneered the rapid restructuring of the electric supply industry (ESI), and the UK regulator (OFFER) skillfully updated the traditional utility regulation to the newly competitive ESI. Following the British example, liberalization and privatization were placed on the agenda worldwide. For a number of years British consultants had almost a monopoly in this business.

4.3 On the other hand, the British experience was less successful when it came to implementation in other countries. In practice, the restructuring of England and Wales succeeded in part because liberalization and privatization were the main driving forces for Prime Minister Margaret Thatcher. In a different country, if privatization were not on the agenda, would the British case be of any help? It soon became evident that the lessons learned from a single country would be inadequate when formulating a blueprint for other countries. A plain overview of a generic competitive system, where all country-specific terms are considered, was soon considered essential. Sally Hunt and Graham Shuttleworth, both at National Economic Research Associates (NERA), responded to this need with a book that has become a must for all new stakeholders.[9]

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[8] The quotations from Bakovic in Chapter 3 show this very clearly.

[9] Sally Hunt and Graham Shuttleworth, *Competition and Choice in Electricity* (New York: John Wiley & Sons, 1995).

4.4 Other researchers[10] carried out in-depth studies to find out how a "generic competitive electricity model" should be set up. The main challenge was to determine how these new ideas could be tested and refined as new regulatory tools. A small number of new regulatory approaches were created, and they managed to continue a creative debate. However, some practical barriers had to be overcome. In the United States, the debate was limited to journals and societies that were little known in Europe. In addition, it was difficult to bridge the gap between these academics and the regulators and legislators. In recent years networking has improved and forums[11] for such ideas have been created that have facilitated this very fruitful debate. It is now recognized that although a "generic model" is highly useful, reformers must adapt the model to each country's specific needs, taking into account the lessons learned from other countries. And although the number of generic approaches[12] is still very limited, this idea is catching on.[13]

4.5 The following are some of the most critical components of the restructuring process:

- Specifying the number and size of companies to compete;
- Creating or facilitating an efficient marketplace;
- Regulating the networks as a natural monopoly, and creating efficiency in the short and long terms;
- Efficient handling of disputes, and new regulation to enhance competition and improve control of monopoly activities;
- Lowering transaction costs for settlement and metering;and
- Creating an independent but accountable regulator.

4.6 Another important lesson from the Bolivian experience is that scales at which economies are made have become significantly smaller as a result of new technologies, and Bolivia's enormous wealth in terms of energy resources means that small hydroelectric and gas thermal power plants are competitive in an open, albeit small, market. Moreover, within a modern framework of regulations in which deregulation has made electricity into a negotiable commodity, theoretical scales must not be seen just in terms of Bolivia but rather from the broader perspective of a regional South American power market.

4.7 The Bolivian reform effort has also been innovative. One such example is the Capitalization method, which seems to work well and be worthy of emulation elsewhere in the

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10 B. Hogan (Harvard) and P. Jascow (MIT) are both excellent examples of American contributors; Jean-Jacques Laffont and Jaen Tirolle are French representatives; and R. Newburry and R Green represent the creative energy of Cambridge University.

11 One such forum is the Harvard Energy Policy Group, in which B. Hogan has been and remains a driving force. Important work has been done in this forum on improved pooling, independent system operator (ISO), and congestion issues.

12 The first review I know of on how to use a generic approach was my own, done for El Salvador (*Review of the Energy Law and Regulation in El Salvador* [Washington, D.C.: World Bank, April 1996]).

13 Larry E. Ruff recently wrote an excellent report titled *Competitive Electricity Markets: Why They Are Working And How To Improve Them* (12 May 1999). Current this is the best guide to understanding a generic approach to the competitive electricity markets.

world. The question is, Will the new companies keep up to their investment promises in the long run? The entrance of new companies on a large scale seems from the Bolivian perspective to be an advantage and an indicator of a successful reform. The challenge will be to regulate the profit in way so that a "fair" share is left to the domestic stakeholders, including the end users.

4.8 Bolivia has chosen a "hybrid" system: it wants to enhance competition but at the same time stabilize prices through a "regulated" contract system. As shown in this review, such a solution has its problems. A more pool-oriented system might be a more robust and better solution.[14] Hydro plants are volatile by nature, and trying to hide this will mean that "natural" risks are hidden. A far more fruitful way is to cope with risks in a more generic way.[15]

4.9 In the case of Bolivia's distribution companies, as for many other countries, a database of both technical and economic data will be essential to the efficient management of regulation. To improve data for the regulator, a new accounting and reporting system should be planned and put into operation. To give better estimates of the efficiency targets,[16] simple methods should be developed.

4.10 For the time being the Bolivian system seems to be working reasonably well. The challenges lie ahead, however; some critical issues will soon be quite evident.

4.11 The high number of foreign companies that have recently entered Bolivia indicates expectation of both reasonable short and long-term profit. The main challenge will be to balance domestic goals and a "reasonable" rate of return to the ESI so they stay[17] in the power sector to cope with their long-term commitments. Under the competitive generation scheme introduced in Bolivia, the rates of return are not guaranteed but rather market-driven.

4.12 Bidding for distribution concessions represents an opportunity to encourage efficiency and ensure that regulations are met. This tool has been discussed several times, but to my knowledge has never been implemented as a part of a restructuring of the ESI. How Bolivia manages this issue will provide useful lessons for other countries.

The Regulator

4.13 The regulatory office seems to be in transition and will certainly face a number of challenges, especially because large and powerful foreign companies have entered the market. In order to control natural monopolies, the regulator's main focus is currently on achieving low

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[14] Norway has a long tradition of pooling. The first pool covering all of Norway was set up in the late 1960s, and before that regional arrangements were quite common.

[15] The rapid growth of the financial markets at NordPool is one example.

[16] This is still an unsolved issue in England and Wales. OFFER still uses a review method and consultants are brought in. The level of discretion will always be an issue.

[17] In Europe, and especially in UK, the number of mergers and acquisitions is very high. Many of these companies are foreign investors that will leave the market if expectations are not met.

tariffs and efficiency. However, relatively little attention has been given to the investors' return expectations. Competitive market driven returns may discourage future capacity investments.

4.14 Bolivia has taken some courageous steps to restructure its power sector, and these will need to be monitored carefully. The most pressing issues will be whether the new private players that have resulted from capitalization will achieve the stated goals of improving and sustaining efficiency, attracting further private capital through fair pricing, and maintaining service quality.

4.15 In terms of the regulatory challenges, promoting real competition could be the regulator's most important task. Bolivia does seem to be on the right track, however, with three new generators entering the market in addition to the original four, and with energy wholesale prices dropping consistently. Moreover, there have been no collusion, price-fixing, or anti-competitive actions so far. The question will be whether new investments will be forthcoming to meet new incremental demand, and how will international investors balance their rate of return targets with fair pricing.

Contributing Factors

4.16 Various factors contributed to the successful and unique way in which the Bolivian power industry was reformed. Some of these factors were meticulously planned, whereas others were the result of happy coincidence. The most important of these factors are as follows:

- The same strong on-site technical group existed during two different government administrations.
- The reform process began under the administration preceding the one that implemented it, so that the bases for the reform of the industry were already established.
- The reform of the electricity industry only represented one element in an overall climate of economic and administrative change for the government that implemented the process.
- The successful capitalization and privatization of the companies in the industry relieved the government of the considerable financial burden involved in expanding the system.
- The reform process had popular support; Bolivia had no wish to be left behind the times.
- The reform did not have to cause a great upheaval: the industry already had the basis of an unbundled structure.
- The main companies in the industry were efficient in financial and operational terms.
- Bolivia had experienced hyperinflation (200,000 percent inflation) in the early 1980s, and the popular feeling afterward was: It is better to have reform now than revolution in the future (i.e., it is better to structure change now than have to change structures in the future).

- The process had the firm backing of the World Bank.

Critical Issues Surfaced

4.17 The areas of real concern are rural electrification and poverty alleviation. Clearly, if beneficiaries are willing to pay the full of supply, it should be profitable for distributing companies to supply them. In theory the new incentives resulting from reforms in the power sector will encourage the industry operators to boost rural electrification. In practice, however, poor people will not be able to pay the full incremental cost of supply and the restructuring and privatization will not be of any new help or support to them.

4.18 The size of the problem is clear when one realizes that, according to PRONER, about 70 percent of Bolivia's rural population is defined as "poor" and as few as 19 percent have access to electricity. If the only subsidizing scheme among consumer categories at the retail level had been removed at the time the reform was implemented, the effect on end-user prices would have been dramatic. Prices paid by commercial enterprises (and by higher-income residential customers) would have fallen approximately 40 percent and about 20–30 percent for the industry—but prices paid by poorer households would have increased an average of 60 percent! However, from the Distribution Company's point of view, their actual earnings (from increased electricity bills) would not have been that dramatic because the level of consumption from the poor customers was already very low.

4.19 The tariff studies undertaken before the reform concluded that the "re-balancing"[18] of tariffs had to be implemented gradually and through a transition period to avoid tariff increases. No tariff impact was brought by the reform process. Tariffs to the end consumer remained the same, with the industrial customer paying the most, then the commercial customer and finally the residential customer. There were no subsidies at the wholesale level and those at the retail level are being reduced thanks to the lower prices brought along with the full liberalization of the wholesale market.

4.20 One of the key and basic characteristics of the Bolivian reform was decentralization and de-concentration, as regional governments and municipalities have become greatly involved in rural electrification through the "Popular Participation" Law. Also, the private sector has now become an active player in rural electrification (which is basically deregulated). Subsidies are only accepted for investment (using the euphemism called "incentive"). Moreover, close to US$500 million dollars in investment have been brought to the sector in the 4 post-reform years. This is money the Government did not have to expand the main system, and if it were to have, it would be much better allocated to health, education or rural electrification. Wholesale energy prices have decreased from US$18/MWh to US$14/MWh in 4 years. Rural electrification coverage has increased from 14 percent to 19 percent in less than 4 years. The Bolivian citizens—most of them poor—have now a "social security" system and will be paid

[18] A properly "balanced" distribution tariff-structure is that where the industrial tariff is the lowest (due to its large load factor), lower than the commercial and the residential tariffs. In Bolivia the opposite was the case before the reform: the industrial tariff was the highest, followed by the commercial and then the residential.

dividends by the capitalized companies: they are shareholders of the companies per the capitalization process.

4.21 Notwithstanding these impressive reform deliverables, efforts to expand rural electrification are still meeting substantial barriers in Bolivia today. **It seems quite evident that the necessary expansion of the grid to connect the poor will not take place as a consequence of privatization and restructuring.** The plan to fight poverty must be an integrated part of all sector reforms. A thorough rationalization of the current subsidizing program in Bolivia is a necessity. The government should target subsidies to those who genuinely require them and the subsidies must be "administratively feasible." Subsidies that existed under state ownership were misplaced. They generally went to the middle class rather than the poor. The most viable subsidies, in terms of administration simplicity, are one time, capital cost subsidies for interconnections rather than ongoing subsidies for consumption. Research needs to be carried out on how to best accommodate rural electrification programs under power sector reforms.

4.22 ESMAP's principal recommendations are summarized in 18 bullet points in the September 1995 report and several of them have been implemented in one way or another. The report addressed the issues of poverty alleviation and electricity subsidies quite comprehensively and a number of feasible solutions were presented. The Government did not implement clearly some recommendations in the ESMAP report, and the new government preferred that ESMAP's recommendations were not to be published.

4.23 The TAG[19] found that ESMAP has a very good reputation in Bolivia, and many respondents underlined the importance of ESMAP's role in the restructuring and capitalization process. Privatization and restructuring cannot be regarded as a static conversion; rather, they must be treated as dynamic processes for which momentum is essential.

4.24 Bolivia was one of the first countries with low electricity coverage (along with Peru) that decided to implement a thoroughgoing reform of all aspects of their electricity services that could be adequately run by the private sector. At the time of reform, the electricity coverage ratio in Bolivia was 50 percent for the country as a whole and 14 percent for the rural areas. The government still faces the enormous challenge of providing a large proportion of the population with electricity. The reform of Bolivia's electric industry and the move to the private sector mean that the country can now tackle the issue of extending services, principally by means of rural electrification programs governed by the two fundamental principles of the reform process, competition and private investment. Though still modest, post-reform electricity coverage improvements are encouraging. PRONER and the earlier efforts of the National Rural Electric Cooperative Association (NRECA) are credited with having increased rural electricity coverage from 14 percent to 19 percent in less than 4 years.

4.25 Bolivia still has to prove its ability to regulate the system since it has little experience in this area and the challenges posed by the new, deregulated system are enormous.

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[19] ESMAP, *Review of ESMAP investments in Bolivia: Lessons Learned* (Technical Advisory Groups report, February 1999).

The imbalance in access to information and the possibility that the large companies might influence the legislature or dominate the industry are big challenges for the national electricity regulating authority. How Bolivia meets these challenges should be of interest to many countries in a similar position. A major issue currently is the weakness of Bolivia's executive branch of government with regard to its legislative role. Although secondary legislation (*reglamentos*) to the Electricity Law should be prepared and issued by the Executive, no provisions were made in the Law to finance the team in charge of this work. A regulatory fee is allocated exclusively to the Regulator. This has created a vacuum, just the opposite of what happened during the reform process when the local working team was strong. Lobbying pressures from private companies will continue to make a patchwork of an originally organic legal and regulatory framework. One law and two decrees have already been passed in the face of pressure by corporate lobbyists.

4.26 A review will be essential after a few years of implementation. The effect of power sector reform on poverty alleviation will need to be assessed at that point.

5

Conclusions

Power sector reform and poverty alleviation represent both a new challenge and a new opportunity. But why do the basic issues remain unresolved?

5.1 A restructuring program is often combined with a full or partial privatization of the ESI, through which the financial burden is transferred from public to private enterprises. However, more-efficient and better-organized capital markets are often used to create a win-win situation. In one of Stephen Littlechild's papers[20], he argues the following:

> In developing countries capital markets are not so extensive. But it is feasible and desirable to shift from government ownership, and from pledging government credit, to raising private capital.... Indeed, some of the arguments for private ownership—such as the need to access capital to meet growing demand and to improve quality of services—are even stronger. And the discipline provided by private ownership is even more needed in countries where this has been absent for so long. The scale of losses and non-collection is of the order of 50 percent.... This is simply inconsistent with good management and protection of the general body of customers, and would not be tolerated under private ownership.

5.2 Although these arguments are valid, in developing countries where access to electricity and poverty are the main issues, private ownership must face some government regulation.

5.3 The reasons for privatization will differ from one country to another. An important reason in any country, however, is that access to additional private capital to refurbish and improve the infrastructure seems more likely than if a sector remains state-owned. This seems to be particularly important in developing countries where loss-making and poor-quality industries can be transformed into efficient and profitable ones. Such privatization seems to be attractive to investors worldwide: both European power companies and U.S. utilities have made big takeovers and bought common utility stocks in developing countries.

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[20] S. Littlechild, "Privatization, Competition and Regulation in the British Electric Industry, With Implications for Developing Countries" (Washington, DC: World Bank, draft report dated November 1999).

5.4 In general, governments and private investors worldwide seem to forecast comfortable rates of return on the privatized ESI. Yet there is neither talk nor action on expanding access to the poor, nor on social and poverty obligations in general. Most power sector reforms ignore this issue. Instead, the following is taken for granted:

- Power prices will be set according to a competitive market, i.e., subsidies will be removed because they "destroy" the market.
- Low tariffs to protect the poor may be permitted to exist but sooner or later will be removed.
- The network will be regulated, but the rate of return must be close to international levels.
- All customers will pay accordingly.

5.5 It is quite evident that in developing countries where huge subsidies are removed "overnight," most customers are not able to pay for electricity on the new terms. The expansion to cover unserved areas requires new capital, which private owners will only supply when the risk is very low. Rather than being carried out as anticipated, any expansion plans will likely be delayed until this uncertainty has been reduced or removed by governmental measures. These issues are heavily debated. As Littlechild writes,[21]

> Price control alone is not going to be effective in protecting customers, because companies will argue convincingly that they need to pass on to customers all those costs that are outside their control. Moreover, independent regulation is yet less developed, if it exists at all, in such countries, and government control or influence often undermines prudent management. There is correspondingly greater advantage in using competition in the market to protect customers generally and to stimulate efficiency, rather than relying on regulation or government pressure.

5.6 Those who have poverty on the agenda will not rely on the market do this job alone. Littlechild's arguments are most suitable in the long term and in Western countries.

5.7 A hidden benefit of reform in developing countries is that when there are clear rules of the game together with competition and private sector participation, corruption is less likely. Ongoing corruption, sometimes camouflaged in popular subsidy programs, has plagued state utilities in the developing world, hindering economic growth. In developing countries it is often corruption that hurts the poor the most, and it is the fight against corruption that also originates the need for reform.

5.8 ESMAP's operative objectives can be divided into three groups: access, poverty alleviation, and environment protection. All of these represent obligations that the private sector cannot meet without government and regulatory support and cooperation. These issues are very often not seriously addressed in the pre-competitive planning and in the licensing phase. In Bolivia, as in many other countries, ESMAP's efforts to address these issues will meet substantial barriers if not solved before reform is implemented. The ESMAP report of September

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[21] Littlechild (November 1999).

1995 devotes a chapter[22] to the effects of reform; these issues are discussed and proposals considered. The ESMAP report also examines the tariff structure in Bolivia and finds that improvements are quite apparent.

5.9 Current experiences in power sector reform are limited to a rather small number of countries, mostly in Europe. In these countries the key issues were "gold plating" and other kinds of over-investments occurring before the reform. Because the challenges in these countries are quite opposite to those faced by Bolivia and other developing countries, the lessons learned are both few and inadequate to the ESMAP criteria.

5.10 New basic research is needed, and there is no time to lose because problems have already surfaced that will have a major impact on the credibility of power sector reform in the developing world. The major theme of this work could be to create an incentive for private investments to meet social needs and obligation in the power sector, by developing

- robust regulatory tools
- a new tariff structure
- some sort of one-time investment subsidy.

5.11 These schemes must work well in parallel with private investors, and could be labeled "Smart Subsidies."[23]

5.12 The transfer of restructuring experiences becomes limited as we reach the lower part of the ESI value chain. Generation, transmission, and wholesale markets all show similarities across countries, but as we include the final user, country-specific terms appear quite distinct, and different solutions become essential. It becomes an important regulatory challenge to make a clear distinction between western countries on the one hand, and developing countries facing poverty, limited access, and basic economic development.

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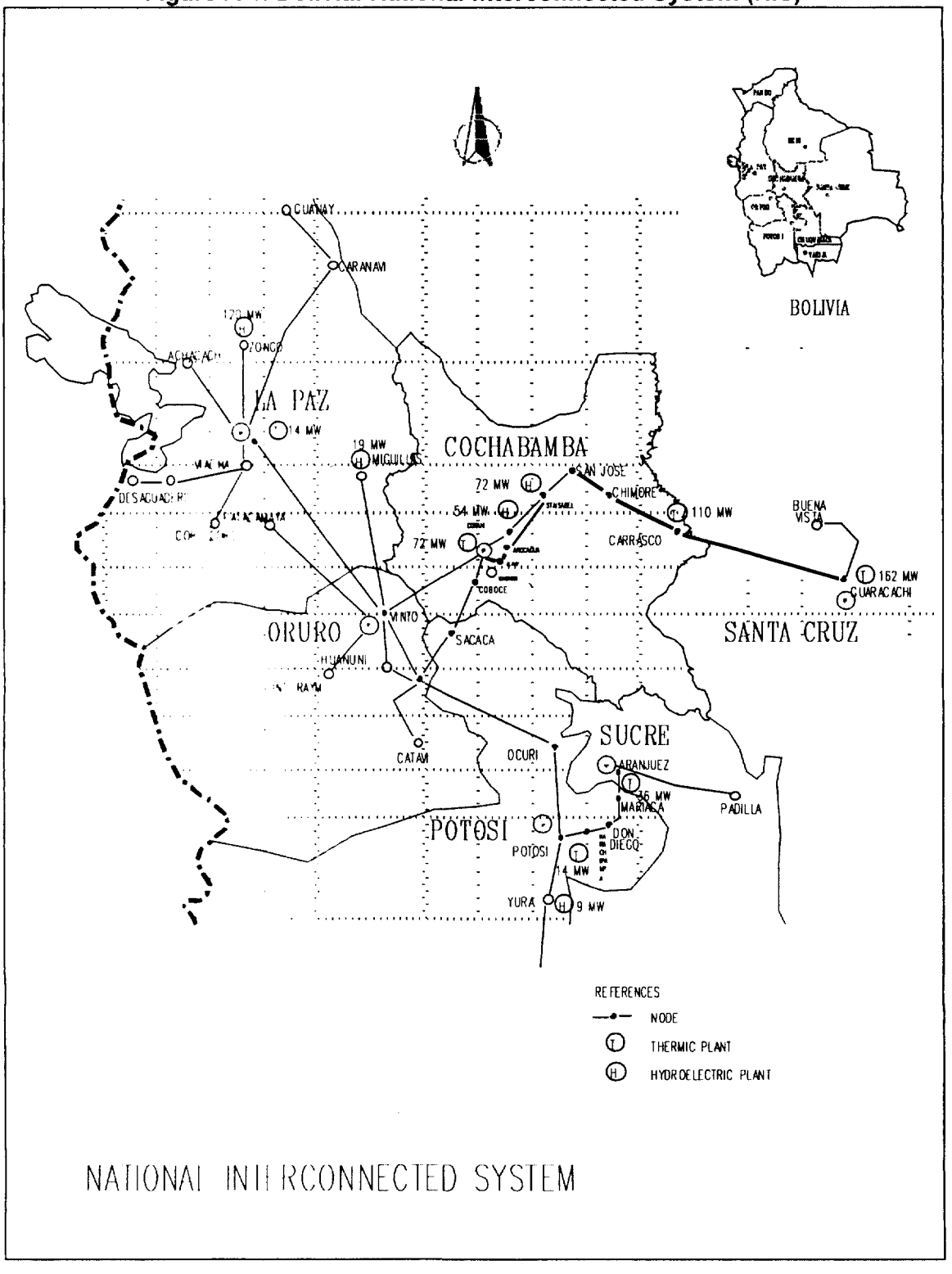
22 ESMAP (September 1995). Chapter X and Annex D are based on the Synex 1993 Tariff Impact Study on applying the Chilean VAD model to distribution. This model was rejected in Bolivia because of the impact of its high tariff on end-use consumers. Nevertheless, the report underlines two valid issues: (1) removing subsidies would have a negative impact on poverty alleviation and (2) the current regressive (higher-income, higher-subsidy) system needs a major revision.

23 These subsidies should be designed to facilitate the reform process, work in parallel with private investments, and meet social obligations on a least-cost level. To properly realize the benefit from the reform and private investments, a critical view on the current subsidies schemes seems to be a must, and funding will be important.

5.13 ESMAP should fund and organize research on regulatory tools and should also establish follow-up funds to tackle post-reform regulatory issues to ensure that restructuring can meet its goals and the reform's benefits can be passed on to all customers' groups, especially low-income families. If these issues are not addressed, they can be a threat to well intentioned reform processes. Presently, Bolivia could benefit from ESMAP funding to undertake much-needed mid-course corrections in sector policy.

Annex A: Map

Figure A-1. Bolivia: National Interconnected System (NIS)



Annex B: Bolivian Electricity Law

OFFICIAL BOLIVIAN GAZETTE

DECEMBER 21, 1994

LAW NO. 1604

GONZALO SANCHEZ DE LOZADA

CONSTITUTIONAL PRESIDENT OF THE REPUBLIC

THE HONORABLE NATIONAL CONGRESS

D E C R E E S:

TITLE I

GENERAL PROVISIONS

ARTICLE 1.-(SCOPE).- This law regulates the activities of the Electric Industry. The principles for setting electricity prices and tariffs throughout the nation are set forth herein. All natural persons and legal entities engaged in the Electric Industry, whatever their place and means of incorporation, are subject to this law. The nuclear generation of electricity shall be subject to a special law.

ARTICLE 2.-(DEFINITIONS).- For the purposes of the application of this law, the following definitions are established:

Related Shareholders or Partners- Those persons having a direct or indirect interest in the capital of the Related Companies.

Self-Production- Generation for the producer's own use carried out by a natural person or a legal entity Holder of a license.

Concession- The administrative act by which, the Superintendency of Electricity, on behalf of the Bolivian State, grants to a legal entity the right to engage in the public service of Distribution, or engage in a Free Standing System or to engage, in an integrated manner, in the activities of Generation, Transmission and Distribution. In all cases, the Concession shall be granted for a maximum term of forty (40) years.

Non-Regulated Consumer- A consumer who has a demand for power equal or greater than a certain minimum that can contract, independently, for the direct supply of electricity with the Generator, the Distributor, or another supplier. Such minimum shall be established by the Superintendency of Electricity based upon the evolution of the market.

Regulated Consumer- A consumer located in the area of a Distributor's Concession and necessarily supplied by such Distributor.

Load Dispatch- The specific assignment of load to generation plants to achieve the most economical and reliable supply, while retaining quality of the service, according to the total variations in the supply of and demand for electricity.

Distribution- The supplying of electricity to Regulated and/or Non-Regulated Consumers by means of primary and secondary Distribution installations. For purposes of this law, Distribution activity constitutes a public service.

Distributor- An Electric Company that holds a public service Concession for Distribution.

Electric Company- Public, private, national or foreign legal entities, including cooperatives, formed in this country, which have obtained Concessions or Licenses to engage in activities in the Electric Industry.

Related Companies- Subsidiaries, affiliates and controlling companies. A company is subsidiary in relation to another when it is controlled by the latter. A company is an affiliate of another or others when all are subject to common control. Controlling companies are those that can control others, either by a direct or indirect interest in more than fifty percent (50%) of the capital or in more than fifty percent (50%) of the votes at the meetings or by control of the management of the subsidiaries or affiliates.

Generation- The electrical production process in plants of any types. For purposes of this law, Generation in the National Interconnected System and Generation for export, constitutes the production and sale of a private intangible asset.

Generator- An Electric Company holding a License for Generation.

Electric Industry- Consists of the Generation, Interconnection, Transmission, Distribution, Commercialization, Import and Export of electricity.

License- The administrative act of the Superintendency of Electricity that, on behalf of the Bolivian State, grants a natural person or legal entity, the right to engage in Generation or Transmission activities. The Superintendency of Electricity shall establish the standards required for a license.

Provisional License- An administrative act of the Superintendency of Electricity, on behalf of the Bolivian State, authorizing an individual or a legal entity to engage in planning for Generation plants and Transmission installations requiring the use and exploitation of natural

resources, use of public domain properties and/or the imposition of Rights of Way. It also gives its Holder a preferential right to obtain the applicable License. Provisional Licenses shall be granted for a maximum term of three (3) years. At the request of the Holder they may be extended only once and for an equal period of time.

Ministry- The Ministry of Finance and Economic Development, and in the future, its successor.

Node- The point or bar of an Electric System intended to deliver and/or receive electricity.

Indicative Plan- The Minimum cost program of projects and works of Generation, Transmission, when applicable, and Distribution necessary to meet the growth of electricity demand in a five year period within a Free Standing System.

Reference Plan- The minimum cost program of projects and works of Generation and Transmission necessary to meet the growth of electricity demand in a ten-year period in the National Interconnected System, including the available projects, regardless of the person that proposed them.

Regulation- The activity of the Superintendency of Electricity, in complying with and enforcing compliance with this law and its regulations, assuring the correct application of principles, objectives and policies that are a part of it.

Secretariat- The National Secretariat of Energy, and in the future its successor.

Right of Way- The restriction or limitation on the property rights of private persons, public or autonomous entities, imposed as a consequence of a Concession, License or Provisional License.

Free Standing System- Any Electric System which is not connected to the National Interconnected System.

Economically Adapted System- An Electric System dimensioned in such form so as to permit the balance between the supply and demand of electricity, while seeking to obtain the lowest cost and maintain the quality of supply.

Electric System- The group of installations for Generation, Transmission and Distribution of electricity.

National Interconnected System (NIS)- The interconnected Electric System that, on the date this law is enacted, supplies electricity in the Departments of La Paz, Cochabamba, Santa Cruz, Oruro, Chuquisaca and Potosi, and the Electric systems that shall be added to it in the future.

Main Interconnected System (MIS)- The part of the National Interconnected System that is comprised of the high voltage lines, including the related substations. On the date this law is enacted, this system consists of the lines and substations of Guaracachi, Valle Hermoso, Vinto and El Kenko; Vinto, Potosi, and Sucre; and Valle Hermoso, Catavi. The Superintendency of

Electricity may redefine the installations that constitute the Main Interconnected System by means of a resolution.

Holder- A natural person or legal entity that has obtained a Concession, License or Provisional License from the Superintendency of Electricity.

Transmission- The transformation of electrical voltage and the bulk transport thereof from the point of delivery by a Generator, Self-Producer or other Transmitter, to the point of reception by a Distributor, Non-regulated Consumer or other Transmitter. For the purposes of this law, Transmission constitutes transformation and transport of a private intangible asset, subject to regulation.

Transmitter- An Electric Company which holds a License and engages in Transmission.

ARTICLE 3.-(PRINCIPLES). The activities related to the Electric Industry shall be governed by principles of efficiency, transparency, quality, continuity, adaptability and neutrality.

a) The principle of efficiency requires the correct and optimum assignment and utilization of resources for the supply of electricity at a minimum cost.

b) The principle of transparency requires that the public authorities responsible for the regulatory processes established in Law No. 1600 (Law of Sectoral Regulatory System) of October 28, 1994 and in this law, conduct those processes in a public manner, assuring the access of information to every competent authority and to interested persons. Such public authorities shall also render an account of their management, in the manner set forth in the applicable legal provisions, including Law no. 1178 (Law of the System of Administrative, Supervisory and Governmental Control) of July 20, 1990 and the regulations thereunder.

c) The principle of quality requires compliance with the technical requirements set by the regulations.

d) The principle of continuity means that the supply must be provided without interruptions, except for those planned for justifiable technical reasons, those resulting from force majeure or out of sanctions imposed on a consumer for non-fulfilment of his/her obligations or for the fraudulent use of electricity.

e) The principle of adaptability promotes the addition of technology and modern management systems to improve the quality and efficiency in rendering the services.

f) The principle of neutrality requires fair treatment for all Electric Companies and consumers.

ARTICLE 4.-(NATIONAL NEED).- For the purposes of Article 25 of the Political Constitution of the State, a national need is expressly declared for the activities of Generation,

interconnection, Transmission, Distribution, commercialization, import and export of electricity engaged in by Electric Companies and self-producers.

ARTICLE 5.-(EXPLOITATION OF NATURAL RESOURCES).- The exploitation of water and other renewable natural resources designated for the production of electricity, shall be regulated by this law and legislation on this subject, taking into account their manifold, rational, integral and sustainable exploitation.

In relation to the dimensions of the electricity market and the rational exploitation of primary resources, the Executive Branch may define the minimum hydroelectric participation in the Generation capacity of the National Interconnected System.

ARTICLE 6.-(ENVIRONMENTAL PRESERVATION).- The Electric Industry shall be subject to the environmental legislation applicable to the sector.

ARTICLE 7.-(FREE COMPETITION).- The individuals or legal entities engaged in the Electric Industry shall carry out their activities within the framework of free competition, subject to the law.

ARTICLE 8.-(RIGHTS OF CONCESSION AND LICENSE).- The granting of Concessions and Licenses may be subject to the payment of a fee, which shall be defined in the terms of reference for bidding. When the Concession or License is granted directly, the amount of this fee shall be established by regulation.

The amount collected from these fees shall be deposited in a bank account of the Superintendency of Electricity for the financing of rural electrification projects.

ARTICLE 9.-(EXPORT, IMPORT OF ELECTRICITY AND INTERNATIONAL INTERCONNECTIONS).- The export and import of electricity and international interconnections, shall be carried out according to the policies established by the Executive Branch and the provisions of this law.

ARTICLE 10.-(FOREIGN COMPANIES).- To engage in the activities of the Electric Industry, foreign companies must form subsidiaries, by organizing in Bolivia a corporation, under the provisions of the Commercial Code.

Branches of existing foreign companies holding concessions granted by the National Directorate of Electricity prior to the promulgation of this law are exempt from the application of this article.

TITLE II

INSTITUTIONAL ORGANIZATION

CHAPTER I

CONCERNING THE MINISTRY AND THE SECRETARIAT

ARTICLE 11.-(CONCERNING THE MINISTRY AND THE SECRETARIAT).- As to the Electric Industry, the Ministry and the Secretariat shall execute the duties set forth in Law No. 1493 (Law of Ministries of the Executive Branch) of September 17, 1993 and the regulations thereunder. The Secretariat, through the Ministry, shall propose regulatory standards of a general character for approval by the Executive Branch. These standards shall be applied by the Superintendency of Electricity. The Secretariat shall draft the Reference Plan for the National Interconnected System and the Indicative Plans for the Free Standing Systems.

CHAPTER II

CONCERNING THE SUPERINTENDENCY OF ELECTRICITY

ARTICLE 12.-(FUNCTIONS AND POWERS).- The Superintendency of Electricity is the entity with national jurisdiction, responsible for the Regulation of the activities of the Electric Industry. The highest executive authority of this entity is the Superintendent of Electricity who is appointed in the manner set forth in Law No. 1600 (Law of Sectoral Regulatory System) of October 28, 1994.

In addition to the general powers set forth in such law, the Superintendent of Electricity shall have the following specific powers subject to the provisions of this law and its regulations:

a) Protect the rights of consumers;

b) Assure that the activities of the Electric Industry comply with the anti-monopoly and consumer protection provisions set forth in Law No. 1600 (Law of Sectoral Regulatory System) of October 28, 1994 and Title III of this law and to take the necessary actions to correct any non-compliance.

c) Grant Concessions, Licenses and Provisional Licenses and amend them;

d) Declare and arrange for the termination of Concessions and the revocation of Licenses;

e) Take control of an Electric Companies, however organized, and appoint receivers;

f) Oversee compliance of obligations and rights of Holders;

g) Impose Easements required by the Electric Industry to engage in its activities;

h) Apply the price and tariff calculation procedures to Generation, Transmission and Distribution activities;

i) Approve and control, when appropriate, the maximum prices and tariffs applicable to the activities of the Electric Industry and publish them in a publication of national circulation;

j) Approve international interconnections, and the export and import of electricity according to regulation;

k) Supervise the operation of the National Load Dispatch Committee, established in this law, the procedures employed and the results obtained,

l) Apply the sanctions set forth;

m) Require that natural persons or legal entities that carry out any activity of the Electric Industry [provide] information, data and other items that it may consider necessary to fulfill its functions, and publish statistics on the activities of the Electric Industry;

In addition, the Superintendent shall have the following powers:

n) Enforce, and cause this law and the regulations thereunder to be enforced, assuring the proper application of the principles, objectives and policies of which it is comprised, as well as the related legal provisions;

o) Represent the Superintendency of Electricity;

p) Administer the Superintendency of Electricity, appoint and remove executive, technical and support personnel of the Superintendency of Electricity, pursuant to regulation approved by the General Superintendent of the Sectoral Regulatory System;

q) Propose to the General Superintendent of the Sectoral Regulatory System, the salary and human resources policies of the Superintendency of Electricity;

r) Prepare the draft budget for the operation of the Superintendency of Electricity and submit it to the General Superintendent of the Sectoral Regulatory System;

s) Inform the competent authorities of violations related to environmental protection and conservation found in the course of [oversight] of the activities of the Electric Industry,

t) Periodically inform the General Superintendent of the Sectoral Regulatory System concerning his regulatory activities; and

u) Perform such other duties as are established in this law as well as those necessary for the proper fulfillment of his responsibilities.

ARTICLE 13.-(REGISTER).- The Superintendency of Electricity shall maintain a public register in which it shall record :

a) Contracts for import and export of electricity;

b) Contracts with Non-Regulated Consumers and special contracts;

c) Supply contracts described in this law;

d) Contracts entered among Generators;

e) Concessions, Licenses and Provisional Licenses;

f) Other activities that do not require a Concession or License; and

g) Other acts requiring registration pursuant to this law and the regulations thereunder.

ARTICLE 14.-(FINANCING).- The Electric Companies shall pay a regulatory charge not to exceed one per cent (1%) of its gross operating revenues before payment of indirect taxes, to cover operating costs of the Superintendency of Electricity and proportionate share of costs pertaining to the General Superintendency of the Sectoral Regulatory System.

TITLE III

STRUCTURE OF THE ELECTRIC SECTOR

CHAPTER 1

NATIONAL INTERCONNECTED SYSTEM

ARTICLE 15.-(DIVISION AND LIMITATION OF OWNERSHIP).- The Electric Companies in the National Interconnected System shall be segregated into Generation, Transmission and Distribution companies and each shall be engaged in only one of these activities. Participation in the ownership of said companies shall be subject to the following limitations:

a) None of the Generation or Distribution companies, nor any of their Related Companies and Related Stockholders or Partners may be holders of property rights in any percentage of the capital stock of any Transmission company, neither may any [Generation or Distribution company] exercise administrative control of said [Transmission] company. In the same manner, no Transmission companies, nor any of their Related Companies and Related Stockholders or Related Partners may be holders of property rights in any percentage of the capital stock of any Generation or Distribution company, nor may it exercise administrative control in said companies.

b) None of the Generation companies, or any of their Related Companies and their Related Stockholders or Partners may be holders of property rights in any percentage of the capital stock of any Distribution company, nor may it exercise control of its administration. In the same manner, no Distribution companies, nor any of their Related Companies, and their Related Stockholders or Partners may be holders of property rights in any percentage of the capital stock of any Generation company, nor may it exercise administrative control of such company.

c) None of the Generation companies, nor any of their Related Stockholders or Partners or Related Companies may, directly or indirectly, be the holders of property rights, jointly or severally, in more than thirty-five percent (35%) of the installed capacity of the National Interconnected System. [No paragraph] The installed capacity for export is exempt from this limitation. The Superintendency of Electricity may authorize a temporary increase in the limit, when due to the magnitude of new projects, the interest of any Generation company exceeds the established limit.

d) Exceptionally and pursuant to regulation, Distribution companies may be direct owners of Generation installations that use and exploit natural renewable resources provided that this capacity does not exceed fifteen percent (15%) of the total of its maximum demand.

This Generation must be operated pursuant to the provisions of Article 16(b) of this law.

For the purposes of this article, the Electric Companies shall register in the Superintendency of Electricity the [names of those] shareholders or partners whose interest in the capital stock of the company exceeds five percent (5%) of the total, pursuant to regulation.

ARTICLE 16.-(GENERATION OPERATIONS).- A Generator in the National Interconnected System shall operate under the following conditions:

a) It shall be connected to the Main Interconnected System through the respective Transmission lines, assuming the related costs.

b) All Generation plants operating in the National Interconnected System are required to comply with the provisions of the National Load Dispatch Committee. To this effect, they shall deliver all of their production for Load Dispatch, stating the availability of the Generation plants.

c) It may enter into contracts for the sale of electricity with other Generators, Distributors or Non- Regulated Consumers subject to this law.

ARTICLE 17.-(TRANSMISSION OPERATIONS).- Transmission in the National Interconnected System shall operate under the arrangement of open access. This arrangement will allow each natural person or legal entity, that carries out activities of the Electric Industry or Non-Regulated Consumer, to use the installations of the Transmission companies to transport

electricity from one point to another, subject to the related payment. Such payment shall be approved by the Superintendency of Electricity pursuant to regulation.

For the purposes of these operations, it is assumed that there is always available capacity, until the Transmitter demonstrates the contrary . The expansion of transmission installations is the responsibility of the users whose use created the demand . They shall agree upon the means of financing or payment with the Transmitter, subject to prior approval of the Superintendency of Electricity pursuant to regulation.

The Transmitter may not buy electricity to sell to third persons.

ARTICLE 18.-(NATIONAL LOAD DISPATCH COMMITTEE).- The National Load Dispatch Committee is [hereby] created, and it shall be responsible for the coordination of Generation, Transmission and Load Dispatch at minimum cost in the National Interconnected System. The duties and organization of said Committee, as to all matters not expressly covered by this law shall be established by regulation.

The Committee will be composed of one representative each of the Generation Transmission and Distribution companies, and a representative of the Non-Regulated Consumers and a representative of the Superintendency of Electricity under the conditions established by regulation.

The Load Dispatch installations will be the property of the Transmission company owner of the Main Interconnected System, who shall establish an independent accounting system for the activities of the Load Dispatch.

The Superintendency of Electricity may recommend to the Executive Branch the creation of an independent company, to be organized as a corporation pursuant to the provisions of the Commercial Code. Such company would be the owner of the Load Dispatch Installations. The Electric Companies and Non-Regulated Consumers that use such installations would have an interest in such company.

The cost of operations of the National Load Dispatch Committee shall be covered by all users of the Load Dispatch, according to the extent of their usage, in the manner established by regulation.

ARTICLE 19.-(DUTIES OF THE NATIONAL LOAD DISPATCH COMMITTEE).- The Load Dispatch Committee shall have the following duties :

a) To plan the integrated operation of the National Interconnected System, having as an objective the satisfaction of demand through a safe, reliable and low cost operation;

b) To carry out the Load Dispatch in real time and at minimum cost;

c) To determine the actual power of Generation units of the National Interconnected System;

d) To calculate the Node prices of the National Interconnected System pursuant to the provisions of this law and submit such prices to the Superintendency of Electricity for approval;

e) To determine the valued balance of the movement of electricity resulting from the integrated operation, pursuant to regulation;

f) To deliver to the Superintendency of Electricity the technical information, mathematical models, computer programs and any other data required by the Superintendency; and

g) Such other duties as established by regulation, necessary to fulfill the purpose for which the National Load Dispatch Committee is hereby created.

CHAPTER II

FREE STANDING SYSTEMS

ARTICLE 20.-(VERTICAL INTEGRATION).- In Free Standing Systems, Generation, Transmission and Distribution may be vertically integrated. The Load Dispatch in Free Standing Systems shall be established by the regulations.

ARTICLE 21.-(SUITABILITY).- Electric Companies in a Free Standing System which may [hereafter] be connected to the National Interconnected System shall modify their organization, operation and structure in accordance with the provisions of this law, within a period of not more than one (1) year from the commencement of its activities in the National Interconnected System.

TITLE IV

CONCESSIONS, LICENSES AND EASEMENTS

CHAPTER I

CONCERNING CONCESSIONS AND LICENSES

ARTICLE 22 - (PUBLIC SERVICE CONCESSION). The following activities of the Electric Industry require a Service Concession:

a) Distribution; and

b) Those activities taking place in an integrated manner in Free Standing Systems.

ARTICLE 23 - (LICENSE). The following activities of the Electric Industry require a License:

a) Generation, when the power supplied exceeds the minimums established by regulation;

b) Transmission; and

c) Transmission related to Generation.

ARTICLE 24 - (PROVISIONAL LICENSE). The plans for Generation plants that use and exploit natural resources require a Provisional License, as well as plans for Transmission installations.

ARTICLE 25 - (ACTIVITIES THAT DO NOT REQUIRE A CONCESSION OR LICENSE). The following activities of the Electric Industry require neither a License nor Concession:

a) The production of Electricity for supply to third parties or for the exclusive use of the producer, when carried out within the limits established by regulation;

b) Electricity Distribution by a Self-Producer which is not a public service; and

c) Activities carried out in an integrated manner in Free Standing Systems whose scopes are within the limits established by regulation.

The activities set forth in subsections a), b), c), of this Article may be carried out once the technical standards for the Electric Industry, the provision for the preservation of the environment and the cultural heritage of the country are satisfied.

ARTICLE 26 - (GRANTING PROCEDURE). The Superintendency of Electricity shall grant Public Service Concessions, Licenses and Provisional Licenses pursuant to the following procedures:

1. By a request of the interested party:

a) For Public Service Concessions, Licenses and Provisional Licenses, if within thirty (30) days after the date of last publication referred in Article 27 of this law, no other requests for same purpose are received or no preferential right for a Provisional License exists;

b) Licenses in respect of which a prior Provisional License was granted; and

c) Licenses for the export and import of Electricity.

2. By a public bidding:

a) For Provisional Licenses, if within thirty 30 days after the date of last publication referred in Article 27 of this law, other requests for same purpose are received;

b) For Licenses, if within thirty (30) days after the date of last publication referred in Article 27 of this law, other requests for same purpose are received, provided that a Provisional License has not been granted; however, if a Provisional License has been granted, the Holder thereof has preferential right to obtain the Licence;

c) For Public Service Concessions, Licenses and Provisional Licenses for projects identified and planned by the State ; and

d) For Public Service Concessions when their terms have expired.

Once legal formalities have been satisfied, the Superintendency of Electricity shall issue an administrative resolution granting the appropriate Concession or License. Not more than sixty (60) calendar days after the date of issuance of the administrative resolution, the related contract must be signed, which shall then be recorded in the Office of the Notary of Government.

ARTICLE 27 - (PUBLICATION AND OPPOSITION). The Superintendency of Electricity shall publish an abstract of the requests and bids for Public Service Concessions, Licenses and Provisional Licenses in newspapers of national circulation for three (3) consecutive days. Within thirty (30) days from the date of the last publication, owners and others that may be affected by the application for a Concession or License or by the proposed works, may present to the Superintendency of Electricity such objections and comments as they deem appropriate. Such objections and comments shall be considered and resolved by the Superintendency of Electricity pursuant to regulation. [no paragraph].

Within the same time period, other persons interested in the published Public Service Concessions, Licenses or Provisional Licenses, may present applications for such Concessions, Licenses or Provisional Licenses. In such case, the Superintendency of Electricity shall proceed pursuant to the provisions of Article 26, item 2 of this law, provided that no Holder of a Provisional License with a preferential right exists.

Other procedures for the granting of public service Concessions, Licenses and Provisional Licenses, bidding and special cases of competition and opposition shall be established under regulation and shall be carried out with the broadest publicity and accessibility of information.

ARTICLE 28 - (REQUIREMENTS). Applications for a public service Concession and License shall be submitted to the Superintendency of Electricity, together with the following information and minimum requirements:

a) Identification of the Holder;

b) Description of the use and exploitation of natural resources, when applicable;

c) Descriptive memorandum and basic project plans ;

d) Timetable for the execution of the works;

e) Budget for the project;

f) Specification of required Easements;

g) Specification of the public service Concession area and the area of exploitation and use of natural resources for the License, when applicable;

h) Environmental impact study; and

i) Guarantees in the form established by the regulations.

Applications for a Provisional License shall satisfy, in addition to a), f), g) and j) above, the following [requirements]:

j) Preliminary description of the use and exploitation of natural resources, when applicable;

k) Description and timetable of the studies to be implemented; and

l) Budget for the study.

ARTICLE 29 - (CONCESSION AND LICENSE CONTRACTS). Public service Concession and License Contracts shall be signed by the Superintendent of Electricity and the respective Holder and shall contain the following:

a) General legal information concerning the petitioner and legal documentation that proves that it is organized and operating in accordance with the law, in the case of legal entities organized under the Commercial Code;

b) Purpose and term;

c) Technical characteristics and location of the existing and projected works and installations, and the initial required Easements and the limits of the concession area. In Distribution Concessions, the limits shall consist of a minimum border area of one hundred meters surrounding all the existing lines of the Distribution company. Expansion of the Distribution Concession area shall be subject to regulatory adjustment every two years, pursuant to regulation;

d) Rights and Duties of the Holder;

e) Investment program and execution timetable including the commencement and completion dates of works and installations of the project.

f) Guarantees for contract performance as established by regulation;

g) Causes and effects of a declaration of termination or revocation;

h) Conditions under which the contract may be modified;

i) Sanctions for non-compliance ;

j) Technical and quality conditions for the supply;

k) Force majeure clauses;

l) Provisions pertaining to environmental protection and conservation ; and

m) Other clauses necessary or legally required for the proper compliance with this law, the regulations thereunder and the contract.

ARTICLE 30.-(OBLIGATIONS OF THE HOLDER).- The holder has the following duties:

1. In the Case of Generation.

a) Perform the construction of works and installations and place them in operation within the periods of time set forth in the contract ;

b) Conserve and maintain the works and installations in adequate condition for their efficient operation;

c) Guarantee the quality and safety of the service in accordance with the terms of the contract, this law and the regulations thereunder;

d) Present the technical and economic information to the Superintendency of Electricity, to the National Load Dispatch Committee and to other competent authorities in the manner and within the time periods set forth according to regulation;

e) Permit technical inspections of its installations and inspections pertaining to its administration, accounting and financial systems by the Superintendency of Electricity;

f) Comply with the legal standards relating to environmental conservation and protection;

g) Observe and comply with the directives of the National Load Dispatch Committee in the case of Holders operating in the National Interconnected System; and

h) Comply with the other obligations set forth in this law, the regulations thereunder and the relevant contract.

2. In the Case of Transmission.

In addition to the duties set forth in item 1 of this Article, the Holder is required to permit the use of his Transmission installation to Electric Companies, Non- Regulated Consumers and self-producers that request such use, subject to the appropriate payment;

3. In the Case of Distribution.

In addition to the duties set forth in item 1 of this Article, the Holder is required to

a) Provide service to any consumer that so requests such service within its Concession area;

b) Satisfy the total electricity demand in its Concession area;

c) Maintain in effect contracts with Generation companies pursuant to the provisions of this law; and

d) Permit the use of its installations to Non- Regulated Consumers, Generators and self-producers located within its Concession area, or to other consumers which are connected to it, subject to the appropriate payment.

4. In the Case of Free Standing Systems.

When applicable, the Holder must fulfill the duties established in items 1, 2 and 3 of this Article. Authorized personnel of the Superintendency of Electricity shall have free access, without interfering with the normal course of business, to the Electric Companies, Load Dispatch installations and every other installation or infrastructure engaged in the Electric Industry to perform the duties entrusted to them by this Law and the regulations thereunder. No Electric Company, whatever its form of organization, may demand from whoever requests the supply of electricity, to become a partner in the company.

ARTICLE 31.-(ELECTRICITY SUPPLY CONTRACTS).- To comply with its obligation to meet the total demand for electricity within its concession area, Distributors shall sign electricity supply contracts with Generators with rates agreed upon by the parties within the framework of this law. Such contracts shall cover, at a minimum, eighty percent (80%) of the maximum demand for which it is responsible, for at least three years. The minimum obligatory contractual percentage and the minimum term may be modified by the Superintendency of Electricity, taking into account the development and operation of the market.

Supply contracts between Generators and Distributors shall be entered into pursuant to procedures approved by the Superintendency of Electricity, subject to the appropriate regulation.

ARTICLE 32.-(EXPIRATION AND TRANSFER).- At the expiration of the term of a public service Concession, the Superintendency of Electricity shall hold a public bidding to grant a new Concession, and to transfer to the new Holder all the assets subject to the Concession, including, but not limited to, the installations, equipment, works, rights and data. The former Holder has a duty to cooperate with the Superintendency of Electricity during the entire bidding and transfer process and may take part in the bidding.

The amount of payment that the former Holder shall receive for the assets subject to the Concession, shall be the book value or bid value, whichever is lower. Deducting, in both cases, the expenses incurred into for the bidding process.

Any remaining balance not payable to the former Holder shall be set aside to finance rural electrification projects.

ARTICLE 33.-(CLAUSES FOR DECLARATION OF TERMINATION AND REVOCATION).- The causes for the declaration of termination of Concessions and revocation of Licenses, will arise in the following cases:

a) When the Holder does not initiate or complete the works or the installations nor make the required investments within the time periods set forth in the relevant contracts, except in the cases of force majeure as set forth in the contract and duly substantiated;

b) When the Holder, without the prior approval of the Superintendency of Electricity, modifies the purpose for which the relevant Concession or License was granted;

c) When the Holder does not comply with the contractual duties set forth pursuant to this law;

d) When the Holder does not remedy his conduct after having received notice from the Superintendency of Electricity concerning repeated non-compliance with other legal or contractual provisions, within the time periods specified in the contract;

e) When the Holder of a Transmission License or a public service Distribution Concession does not permit access, to use its installations, to a Generator, Non-Regulated Consumer or self-producer; and

f) In the case of private Electric Companies, on the date on which a bankruptcy proceeding is lawfully commenced against them.

ARTICLE 34.-(DECLARATION OF TERMINATION OR REVOCATION).- For any of the reasons set forth in Article 33 of this law, the Superintendency of Electricity, in public proceedings and by a duly adopted administrative resolution, shall declare termination or revocation, and, if necessary, shall order assumption of control, while bidding award and possession to a new Holder is proceeding, in order to assure continuity of service.

Once all the relevant appeals have been completed subject to the provisions of Law No. 1600 (Sectoral Regulatory System Law) dated October 28, 1994, the termination or revocation shall cause the immediate cessation of the rights of the Holder, as established by law and by the relevant contract. The Superintendency of Electricity shall execute the relevant guarantees.

The installations, equipment, works and rights of the former Holder shall be transferred to the new Holder at the book value or bid value, whichever is lower, after deducting the expenses incurred for the proceedings, fines and unpaid penalties .

Any remaining balance which is not payable to the former Holder shall be set aside for rural electrification projects.

Creditors of the [former] Holder of the terminated Concession or of the Holder of a revoked License, may not oppose, for any reason, the aforesaid bidding.

ARTICLE 35.-(PREVENTIVE RECEIVERSHIP).- When the regular supply of service is at risk, the Superintendency of Electricity, in public proceedings and by a duly adopted administrative resolution, may order the preventive receivership of the Holder for a period not longer than one (1) year, which may be extended only once with the authorization of the General Superintendency of the Sectoral Regulatory System.

At the end of this period, the Superintendency of Electricity, based on the report of the Receiver duly appointed for such purpose, shall order the termination or revocation, or, if appropriate, shall sign with the Holder a duly guaranteed agreement establishing the measures that the Holder must perform in order to continue to hold [the Concession License] .

When a judicial or extra-judicial action initiated by creditors of the Holder puts at risk the normal supply of service, the Superintendency of Electricity must be requested to order the aforesaid preventive receivership, pursuant to the first paragraph of this Article and the regulation thereunder. The assets subject to the Concession, License or Provisional Licenses may not be subject to any lien.

CHAPTER II

USE OF PUBLIC PROPERTY AND EASEMENTS

ARTICLE 36.-(USE OF PUBLIC PROPERTY).- The Holder has the right to use by free grant, the surface, subsurface and air space of the public domain as shall be required exclusively for the purpose of the Concession or License.

ARTICLE 37.-(DECLARATION OF A PROTECTED AREA).- Pursuant to Law No. 1333 (Environmental Law) dated June 15, 1992, the Holder of a Generation License has the right to apply for a declaration of a protected area for the upstream basin of a hydraulic work for the use and exploitation of water resources pertaining to the related License. The Holder is obligated to manage and preserve the protected area at his own cost.

The holder may also apply for the right to use, by free grant, public property and to the imposition of Easements on the private property of public entities or of autonomous entities within the protected area.

ARTICLE 38.-(CONCERNING EASEMENTS).- At the request of the Holder, the Superintendency of Electricity may impose Easements for the use of the Electric Industry on private property or national property of any public or autonomous entity. The use of these Easements shall be implemented in such a manner as to cause minimum damage to those that may be burdened.

ARTICLE 39.-(TYPES OF EASEMENTS).- The Easements for the use of the Electric Industry are:

a) Aqueduct easement, reservoir and hydraulic works for hydroelectric plants;

b) Duct Easement, refrigeration aqueduct and installations for thermoelectric and geothermal plants;

c) Electric Line Easement, aerial or underground lines for Transmission, Distribution or communication;

d) Substation Easement, for aerial or underground substations;

e) Right of way, for the construction and use of paths, trails, roads and railways;

f) Right of way, for the custody, conservation and repair of works and installations;

g) Easement for temporary occupation for the storage of goods necessary to carry out works; and

h) Easement for electricity transport, on transmission installations owned by entities different from the Transmitter.

ARTICLE 40.-(RIGHTS DERIVED FROM EASEMENTS).- Depending on the nature of the Easements, its imposition grants to the Holder the right to utilize the terrain necessary for the works, reservoirs, spillways, stilling basins, stilling ponds, forebays, pipes, tubes, hydroelectric, geothermal and thermoelectric plants with their outbuildings, access roads, and in general, all the works required for hydroelectric, geothermal, thermoelectric and eolian installations, the right to discharge water and use materials in the surrounding area.

The Easement for electric line and substation grants to the Holder the right to lay conductors by means of poles, towers or by underground conduit, and to install aerial or underground substations for moving or transformation related to the specific electric line. This Easement does not prevent the owner of the servient land from fencing it and building inside or planting trees, as long as it respects the minimum heights and safety areas established by standards of the Superintendency of Electricity.

The Easements shall be imposed by the Superintendency of Electricity, taking into account the rights of the owners of the servient lands.

Easements may also be established freely by agreement among the parties.

ARTICLE 41.-(RIGHTS OF USE AND EASEMENTS IN URBAN AREAS).- In urban areas the Holder shall have the following rights by free grant:

a) To install and lay aerial or underground lines in public and private property of any public or autonomous entity;

b) To install on said property, aerial or underground substations; and

c) To traverse, with works and lines, public domain properties or properties subject to public service needs.

In urban areas, the imposition of Easements shall observe the cultural heritage of the nation and the zoning regulations of the respective municipal jurisdictions.

ARTICLE 42.-(INDEMNIFICATION).- Except for the provisions of Article 43 of this law, when, because of the imposition of an Easement, the owner of the affected property is or may be damaged or deprived of all or a portion of his rights in the property, the payment of an indemnity shall be required.

When an Easement must be imposed on private property, the amount of compensation shall be established by direct negotiation between the Holder and owner of the property. If they cannot agree, the amount of compensation shall be set by the Superintendency of Electricity pursuant to regulation.

ARTICLE 43.-(COMPENSATION PAYMENT).- In the case of an Easement for an electric line in rural areas, the mere traversal of an electric cable does not give rise to a right to payment of compensation. The owner of the affected land shall have a right to receive payment of compensation when damages or injuries have been caused by the establishment of the Easement, such as the felling of trees, buildings, works or installations.

ARTICLE 44.-(PROCEDURE FOR EASEMENT).- A Holder that requires the imposition of one or several Easements shall submit the appropriate application to the Superintendency of Electricity which shall order the notification of the owners of the affected land pursuant to the legal provisions then in effect . The procedures for the imposition of Easements and for the determination of those entitled to indemnification and payment of compensation shall be established by regulation.

TITLE V

CONCERNING PRICES AND TARIFFS

CHAPTER I

GENERAL PROVISIONS

ARTICLE 45.-(PRICES SUBJECT TO REGULATION).- The following shall be subject to regulation:

1. National Interconnected System.

a) The prices of the transfer of power and energy between Generators and between Contractors and Distributors when transfers are not contemplated by the supply contracts. Such transfers shall be valued at the marginal cost of this system determined by the National Load Dispatch Committee;

b) The maximum prices for the use of Transmission and Distribution installations;

c) The maximum prices for supply to Distribution companies at the delivery nodes;

d) The maximum price for supply to Regulated Consumers.

2. Free Standing Systems.

All Electricity supply prices.

The supply prices set forth in this article shall be public knowledge. Upon written request of an interested party, the appropriate studies shall be made available.

ARTICLE 46.-(PRICES AND TARIFFS IN FREE STANDING SYSTEMS).- When applicable, the prices and tariffs in Free Standing Systems shall be established pursuant to criteria specified for the National Interconnected System. Otherwise, the Superintendency of Electricity shall approve prices and tariffs covering the average costs of supply, taking into account efficiency criteria.

ARTICLE 47.-(ACCOUNTING AND AUDITING).- The Superintendency of Electricity shall establish a uniform system of accounts for mandatory use by all companies in the sector, following generally accepted accounting principles for the Electric Industry.

Annual external auditing engagements by Electric Companies shall be performed by firms approved in advance by the Superintendency of Electricity. The annual audit report to be submitted by such firms must cover, among other things, compliance with this law, the Concession or License contract, [standards for] the quality of the supply and the efficiency and efficacy indicators established by the Superintendency of Electricity.

Electric Companies holding a Concession or License in the National Interconnected System and in Free Standing Systems shall have separate accounting systems.

Distribution companies which directly own Generation installations pursuant to the provisions of Article 15(d) of this law, shall have a separate accounting system for Generation operations.

ARTICLE 48.-(DISCOUNT RATE).- The discount rate to be used in the application of this law shall be ten percent (10%) per annum in real terms. This rate may only be modified by the Ministry of Economic Development by means of a duly adopted administrative resolution. The discount rate established by the Ministry of Economic Development may nor vary from the previous rate by more than two (2) percentage points.

CHAPTER II

PRICES FROM GENERATOR TO DISTRIBUTOR

ARTICLE 49.-(NODE PRICES).- The Node prices for supply to Distribution companies submitted by the National Load Dispatch Committee, for the points of the Main Interconnected System where transfers of electricity to Distributors take place, shall be approved semi-annually by the Superintendency of Electricity.

The calculation of the Node prices shall be made according to the provisions of this law and the regulations thereunder, in the following manner:

a) Project the demand for the next 48 months and determine the Generation and Transmission supply pool expected to become operational in such period. Such supply pool shall be comprised of existing installations, those under construction and those projected in the Reference Plan;

b) Determine the optimum operation program which minimizes the operating cost and rationing for the period of study;

c) Calculate the anticipated values for the marginal costs for the energy system in the short term for block schedules established by the Superintendency of Electricity. These values relate to the minimum cost operation program;

d) Determine the basic energy price for each block schedule as the weighted average of the marginal costs calculated before the projected demand values, discounted by the discount rate established by this law;

e) Determine the basic peak power price, calculating the annual amount of investment and the annual fixed cost of operation, maintenance and administration, of the most economical Generation unit, supplying additional power during the hours of maximum annual demand for the system. This value shall be increased by a percentage resulting

from consideration of the theoretical non-availability of the system. The annualization calculation shall be effected by applying the discount rate set forth in this law;

f) Calculate for each node of the Main Interconnected System a power loss factor and an energy loss factor in Transmission. These factors shall be equal to one (1) at the node for which basic prices are set. The power and energy loss factors shall be calculated, taking into account the marginal losses of Transmission of peak power and energy, respectively, for an Economically Adapted System;

g) Determine the peak power price at each Node, multiplying the basic price of peak power by the applicable power loss factor. At the appropriate Nodes, the applicable Transmission toll shall be added to this product.

h) Determine the energy price for each Node, for each block schedule, multiplying the basic energy price pertaining to each block schedule by the applicable energy loss factor. The maximum Node prices shall be readjusted every month, applying the applicable indexation formulas.

After the expiration of the period during which Node prices were in effect, until such time as prices for the next period have been approved, the prices in effect for such prior period, together with their respective indexation formulas, will continue in effect.

The procedure for the application of the provisions of this article shall be determined by regulation.

CHAPTER III

MAXIMUM TRANSMISSION PRICES

ARTICLE 50.-(MAXIMUM TRANSMISSION PRICES).- The maximum transmission price paid by the Generators connected to the Main Interconnected System shall cover the total cost of Transmission which includes the annualized cost of investment, operation, maintenance and management costs of an Economically Adapted Transmission System.

The maximum prices to be paid for the use of transformation and transmission installations not part of the Main Interconnected System shall consist of the annualized cost of investment plus the operation, maintenance and management costs, and transmission loss relative to typical installations of Economically Adapted Systems.

The Superintendency of Electricity shall approve semiannually the maximum Transmission prices, the respective monthly indexation formulas and shall determine the conditions for utilization of Transmission installations.

After the expiration of the period during which maximum transmission prices were in effect, until such time as prices for the next period have been approved, the prices in effect for such prior period, together with their respective indexation formulas, will continue in effect.

The procedure for the application of the provisions of this article shall be determined by regulation.

CHAPTER IV

MAXIMUM DISTRIBUTION PRICES

ARTICLE 51.-(MAXIMUM DISTRIBUTION PRICES).- The maximum prices for the supply of electricity of Distribution companies to their Regulated Consumers shall include the base tariffs and indexation formulas.

1. The tariffs shall be calculated taking into account the following aspects:

   a) The cost of electricity purchases, operation, maintenance and management expenses, interest, fees and taxes that by law burden the Concession, annual rates of depreciation of tangible assets, amortization of intangible assets, and the profit resulting from the application of the rate of return on the equity established by this law. The cost of electricity purchases shall be valued, maximum, at the relevant Node price, when applicable it shall include the prices referred to in the second paragraph of article 50 of this law; it shall not include the costs that, in the judgment of the Superintendency of Electricity, may be excessive, do not reflect efficiency conditions or do not relate to the activity of the Concession.

   b) Projected electricity sales to their consumers; and

   c) The anticipated revenues from the sale and transportation of electricity, use and maintenance of service elements and compensation received by the company by any other means from the property subject to the Concession.

2. The monthly indexation formulas shall consist of:

   a) A first component which reflects the adjustment for fluctuations in the costs of the company, established as a function of fluctuations in the price indices minus the efficiency increase index which shall be determined by the Superintendency of Electricity; and

   b) A second component that transfers the fluctuations in the electricity purchase prices and the fluctuations in the fees and taxes that by law encumber the operations of the Concession.

The Superintendency of Electricity shall approve the maximum prices for electricity supply for Regulated Consumers of each Distribution company for four-year periods. Tariffs, as well as their indexation formulas, shall be in effect for such periods. Once a four-year period has lapsed, and until the new tariffs are approved for the next period, the tariffs, and their respective indexation formulas shall remain in effect.

The procedure for application of the provisions of this article shall be established by regulation.

ARTICLE 52.-(EXTRAORDINARY REVISION OF BASE TARIFFS).- When there are significant variations with respect to the projections for the sale of electricity that were considered in the last approval of base tariffs, the Superintendency of Electricity, on its own motion or at the request of the Holder, may make an extraordinary revision of base tariffs.

ARTICLE 53.-(TARIFF STUDIES).- The approval and revision of tariffs shall be made on the basis of studies ordered by the Holder from specialized consulting companies, previously approved by the Superintendency of Electricity, which shall prepare the terms of reference and shall receive the studies.

The Superintendency of Electricity shall approve or reject studies made by consultants by means of a duly adopted administrative resolution, expressing the observations that it considers pertinent.

ARTICLE 54.-(RATES OF RETURN AND FINANCIAL COSTS).- The rate of return on equity of the Concession used to determine the profit for the calculation of the base tariff, shall be the arithmetic mean of the annual rates of return on the equity of the group of companies listed in the New York Stock Exchange and included in the Dow Jones index of public utilities companies of the last three years.

The Superintendency of Electricity shall regulate the financial costs to be acknowledged as part of the utilization costs of the Distribution company.

ARTICLE 55.-(TARIFF STRUCTURES).- The Superintendency of Electricity shall approve for each Distribution company, tariff structures defined as a function of the technical characteristics of supply and consumption of electricity.

TITLE VI

VIOLATIONS AND SANCTIONS

ARTICLE 56.-(VIOLATIONS OF HOLDERS AND THIRD PARTIES).- The Superintendency of Electricity shall impose on Holders and/or third parties, sanctions for violations of the provisions of Law No. 1600 (Law of the Sectoral Regulatory System) of October 28, 1994, this law and the regulations thereunder. In addition to the termination of Concessions, the revocation

of Licenses and receivership provided for in this law, violations by Holders shall be penalized by the imposition of fines in relation to the seriousness of the offense subject to the provisions of the regulations and the relevant contracts.

The violations of third parties, who are not Holders, shall be penalized by the National Superintendency of Electricity with fines equal to the amount of 500 to 100,000 kWh multiplied by the average sale tariff for the place for the last quarter prior to the date of violation, in relation to the seriousness of the violation, subject to the regulations and without prejudice to the right to be compensated for the damages caused.

ARTICLE 57.-(CONSUMER VIOLATIONS).- Without prejudice of the sanctions available under the Penal Code and the Holder's right to recover for any arbitrary consumption, whether unmeasured or clandestine, the Holder shall impose sanctions for the violation by consumers in the following cases:

a) Arbitrary connection;

b) Disturbance of measuring instruments;

c) Clandestine consumption;

d) Denial of access to property for inspections by authorized personnel of the Holder. The fines imposed by the Holder shall be equal to the amount of 50 to 100,000 kWh multiplied by the average tariff at the place, for the last quarter prior to the violation, according to the seriousness of the violation subject to the provisions of the regulations.

ARTICLE 58.-(DEPOSIT OF FINES).- The amount of fines collected by the Superintendency of Electricity or the Holders shall be deposited into a bank account of the Superintendency of Electricity to be used to finance rural electrification projects.

ARTICLE 59.-(DISCONTINUANCE OF SUPPLY).- In the case of end-users, default in payment of two monthly bills shall give the Holder the right to cut off service without any prior steps or proceedings.

In the case of non-payment between Electric Companies, the pertinent contractual provisions shall be applied.

ARTICLE 60.-(EXECUTIVE ACTION).- Indebtedness pertaining to the block purchase or sale of electricity, use of installations of Transmission and Distribution companies and the supply of electricity to Regulated and Non-Regulated Consumers constitute fully liquidated demand obligations; in such case, the unpaid invoice shall be treated as full title to and evidence of the indebtedness so as to permit the initiation of a summary action thereon thirty 30 days after notice of the action, together with invoice, has been given. During this period the affected persons may protest on the basis of error . The dispute shall be submitted to the Superintendency of Electricity

for resolution without any right of further appeal, if parties cannot agree. The Holder may also demand payment of interest by reason of the delinquency in payment, as legally applicable.

TITLE VII

FINAL PROVISIONS

ARTICLE 61.-(ELECTRIFICATION IN LESS POPULATED AND RURAL AREAS).- The State is responsible for developing the electrification of less populated and rural areas whose requirements may not be satisfied exclusively by private initiative. To satisfy this purpose, the Executive Branch, through the National Fund for Regional Development, shall allocate internal and external financial resources to projects of electrification in less populated and rural areas and shall propose policies and strategies which permit the use of other energy sources for the purpose of supplying energy to less populated and rural areas within the framework of the comprehensive development policies of this sector.

ARTICLE 62.-(FINANCING OF ELECTRIFICATION IN LESS POPULATED AND RURAL AREAS).- The National Fund for Regional Development shall be responsible to evaluate and approve the electrification projects in less populated and rural areas submitted by the Base Territorial Organizations through the Municipalities, or both, on its own initiative. These projects may be co-financed by the Municipalities and other entities of the public and private sector. If the projects presented by these entities do not show adequate levels of profitability, the Fund shall allocate concessional resources or grants, when available, to permit the implementation of the projects.

ARTICLE 63.-(REGULATION OF THE ELECTRIFICATION IN LESS POPULATED AND RURAL AREAS).- The Superintendency shall regulate the electrification activities in less populated and rural areas.

ARTICLE 64.-(INCLUSION OF FREE STANDING SYSTEMS).- In special cases, the National Fund for Regional Development may participate in the financing of projects to incorporate Free Standing Systems into the National Interconnected System. Similarly, the National Fund for Regional Development shall evaluate these projects, and, if necessary, may grant concessional credits when such credits are available.

ARTICLE 65.-(GRANTING OF NEW CONCESSIONS AND LICENSES).- Commencing with the date of enactment of this law, the Superintendency of Electricity shall grant Concessions, Licenses and Provisional Licenses only to corporations formed under the Commercial Code.

Natural persons or legal entities which are self-producers, as well as cooperatives which on the date of enactment of this law have already been granted concessions pursuant to the Electricity Code and which apply for public service Concessions and/or Licenses under Article 15(d) of this

law, which are complementary to their areas of influence, are exempt from this limitation on the granting of Concessions, Licenses and Provisional Licenses.

ARTICLE 66.-(CONCERNING COOPERATIVES).- For the purposes of this law, cooperatives engaged in activities in the Electric Industry are authorized to convert into corporations governed by the Commercial Code.

To authorize such conversion, a resolution must be adopted at a special meeting of the members of the cooperative at which a statutory quorum is present, by a simple majority of the votes of the members present.

If by reasons of number and geographic distribution of the members it is not possible to hold a special meeting on the first call, the competent authority that oversees the transparency of the process and the interests of the members, may direct a second call. In such case, the special meeting may be validly held with the number of members present, or, alternately, may provide for a written authorization by the members. In both cases, an affirmative vote of a majority of the partners present at the meeting or that responded to the written authorization shall be required. The entire procedure shall be supervised and approved by a competent authority.

Following conversion to a corporation, the shareholders may exercise their right to transfer their shares, pursuant to the by-laws of the corporation and the Commercial Code.

For tax purposes, such conversion shall be treated as a corporate reorganization.

ARTICLE 67.-(REGULATIONS).- The Executive Branch shall adopt regulations to implement this law.

ARTICLE 68.-(ABROGATIONS AND REPEALS).- Commencing on the date this law becomes effective, the Electricity code approved by Supreme Decree no. 08438 of July 31, 1968 is hereby abrogated and other legal provisions which conflict with this law are repealed pursuant to Article 76 of this law.

TITLE VIII

TRANSITORY PROVISIONS

ARTICLE 69.-(ADJUSTMENT).- Within a period of not more than eighteen (18) months from the date of the enactment of this law, those natural persons or legal entities engaged in the activities of the Electric Industry in the National Interconnected System which, on the date of the enactment of this law, are vertically integrated shall adopt the legal, administrative and other measures necessary to adapt to the new structure established by this law. Within the same period, the Superintendency of Electricity and the concession holders shall adjust the Concessions in force to conform to the provisions of this legal standard.

ARTICLE 70.-(TEMPORARY LIMITATION ON THE GRANTING OF GENERATING LICENSES).- In order to optimize the process of capitalization of the Empresa Nacional de Electricidad S.A. and to insure the investment required for the supply of electricity, the Generation Companies currently operating in the National Interconnected System and those which will result from such capitalization process shall have exclusivity until December 31, 1999 for obtaining new Generation Licenses in the National Interconnected System. This limitation may be modified if the Superintendency of Electricity proves that the projected demand for electricity will not be adequately satisfied. This limitation does not include Generation Licenses resulting from revocation nor those which may have been requested by self-producers.

The granting of Generation Licenses for export shall be limited to the Generation companies that currently operate in the National Interconnected System and those which arise from the capitalization of the Empresa Nacional de Electricidad S.A. until December 31, 1998.

During this transition period, the Superintendency of Electricity may grant Generation Licenses which individually or in the aggregate do not exceed three percent (3%) and ten percent (10%), respectively, of the installed power in the National Interconnected System.

ARTICLE 71.-(GRANTING OF CONCESSIONS AND LICENSES).- The Superintendency of Electricity, without the need for the previously established procedures under this law, is authorized to grant Concessions and Licenses, to those electric companies that shall be separated pursuant to the provisions of Article 15 of this law and to those companies that have Provisional Concessions granted by the National Electricity Directorate or to those companies that have submitted applications for concessions presented according to the Electricity Code and are pending before such Directorate.

ARTICLE 72.-(ASSIGNMENT OF CONTRACTS TO COMPANIES TO BE CAPITALIZED).- The Empresa Nacional de Electricidad S.A. shall assign its contracts of sale of electricity to the companies that result from the capitalization process.

ARTICLE 73.-(TARIFF PROVISIONS).- For a period of not more than seven (7) years from the date of enactment of this law, the Superintendency of Electricity shall establish the procedures to implement the tariff provisions applicable to the generation concessions granted before the enactment of this law.

ARTICLE 74.-(TRANSFER OF SHARES).- To satisfy the provisions of Article 15 of this law, the transfer of shares in electric distribution companies, which are the property of the State, public sector companies and entities, to natural persons or public or private sector legal entities is hereby authorized.

ARTICLE 75.-(AUTHORIZATION TO NON-REGULATED CONSUMERS).- During the first five (5) years of the application of this law, those consumers that by reason of their consumption characteristics, might become Non-Regulated Consumers within the Concession areas granted to

the Distribution companies, must obtain authorization from the Superintendency of Electricity in order to act as Non-Regulated Consumers.

ARTICLE 76.-(VALIDITY).- This law shall become effective commencing on the date designated by the General Superintendent of the Sectoral Regulatory System and the Superintendent of Electricity. Until such date, the provisions of the Electricity Code shall continue to apply.

Together with this law, the rules contained in Title V of the Law 1600 (Law of Sectoral Regulatory System) dated October 28, 1994 shall become effective for the Electric Industry, subject to the exceptions set forth in this law.

[T.N.: following text missing from original translation].

Remand to the Executive Branch for constitutional purposes.

Plenary Session of the Hon. National Congress.

La Paz, December 21, 1994.

Hon. Juan Carlos Duran Saucedo

PRESIDENT

HON. NATIONAL SENATE

Hon. Walter Zuleta Roncal

SECRETARY SENATOR

Hon. Yerko Kukoc del Carpio

SECRETARY CONGRESSMAN

Hon. Javier Campero Paz

PRESIDENT HON. CHAMBER OF CONGRESSMEN

Hon. Freddy Tejerina Ribera

SECRETARY SENATOR

Hon. Edith Gutierrez de Mantilla

SECRETARY CONGRESSWOMAN

Therefore, I enact it so that it will be held and observed as the Law of the Republic.

Governmental Palace of the City of La Paz, on the twenty-first day of the month of December of nineteen hundred ninety-four.

SIGNED: GONZALO SANCHEZ DE LOZADA

CONSTITUTIONAL PRESIDENT OF THE REPUBLIC

Carlos Sanchez Berzain

MINISTER OF THE PRESIDENCY

Alfonso Revollo Thenier

MINISTER WITHOUT PORTFOLIO

IN CHARGE OF CAPITALIZATION

Jaime Villalobos Sanjines

MINISTER WITHOUT PORTFOLIO

IN CHARGE OF ECONOMIC DEVELOPMENT

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Joint UNDP/World Bank

ENERGY SECTOR MANAGEMENT ASSISTANCE PROGRAMME (ESMAP)

LIST OF REPORTS ON COMPLETED ACTIVITIES

Region/Country	*Activity/Report Title*	*Date*	*Number*
	SUB-SAHARAN AFRICA (AFR)		
Africa Regional	Anglophone Africa Household Energy Workshop (English)	07/88	085/88
	Regional Power Seminar on Reducing Electric Power System Losses in Africa (English)	08/88	087/88
	Institutional Evaluation of EGL (English)	02/89	098/89
	Biomass Mapping Regional Workshops (English)	05/89	--
	Francophone Household Energy Workshop (French)	08/89	--
	Interafrican Electrical Engineering College: Proposals for Short- and Long-Term Development (English)	03/90	112/90
	Biomass Assessment and Mapping (English)	03/90	--
	Symposium on Power Sector Reform and Efficiency Improvement in Sub-Saharan Africa (English)	06/96	182/96
	Commercialization of Marginal Gas Fields (English)	12/97	201/97
	Commercilizing Natural Gas: Lessons from the Seminar in Nairobi for Sub-Saharan Africa and Beyond	01/00	225/00
Angola	Energy Assessment (English and Portuguese)	05/89	4708-ANG
	Power Rehabilitation and Technical Assistance (English)	10/91	142/91
Benin	Energy Assessment (English and French)	06/85	5222-BEN
Botswana	Energy Assessment (English)	09/84	4998-BT
	Pump Electrification Prefeasibility Study (English)	01/86	047/86
	Review of Electricity Service Connection Policy (English)	07/87	071/87
	Tuli Block Farms Electrification Study (English)	07/87	072/87
	Household Energy Issues Study (English)	02/88	--
	Urban Household Energy Strategy Study (English)	05/91	132/91
Burkina Faso	Energy Assessment (English and French)	01/86	5730-BUR
	Technical Assistance Program (English)	03/86	052/86
	Urban Household Energy Strategy Study (English and French)	06/91	134/91
Burundi	Energy Assessment (English)	06/82	3778-BU
	Petroleum Supply Management (English)	01/84	012/84
	Status Report (English and French)	02/84	011/84
	Presentation of Energy Projects for the Fourth Five-Year Plan (1983-1987) (English and French)	05/85	036/85
	Improved Charcoal Cookstove Strategy (English and French)	09/85	042/85
	Peat Utilization Project (English)	11/85	046/85
	Energy Assessment (English and French)	01/92	9215-BU
Cape Verde	Energy Assessment (English and Portuguese)	08/84	5073-CV
	Household Energy Strategy Study (English)	02/90	110/90
Central African Republic	Energy Assessement (French)	08/92	9898-CAR
Chad	Elements of Strategy for Urban Household Energy The Case of N'djamena (French)	12/93	160/94
Comoros	Energy Assessment (English and French)	01/88	7104-COM
	In Search of Better Ways to Develop Solar Markets: The Case of Comoros	05/00	230/00
Congo	Energy Assessment (English)	01/88	6420-COB
	Power Development Plan (English and French)	03/90	106/90
Côte d'Ivoire	Energy Assessment (English and French)	04/85	5250-IVC
	Improved Biomass Utilization (English and French)	04/87	069/87

Region/Country	*Activity/Report Title*	*Date*	*Number*
Côte d'Ivoire	Power System Efficiency Study (English)	12/87	--
	Power Sector Efficiency Study (French)	02/92	140/91
	Project of Energy Efficiency in Buildings (English)	09/95	175/95
Ethiopia	Energy Assessment (English)	07/84	4741-ET
	Power System Efficiency Study (English)	10/85	045/85
	Agricultural Residue Briquetting Pilot Project (English)	12/86	062/86
	Bagasse Study (English)	12/86	063/86
	Cooking Efficiency Project (English)	12/87	--
	Energy Assessment (English)	02/96	179/96
Gabon	Energy Assessment (English)	07/88	6915-GA
The Gambia	Energy Assessment (English)	11/83	4743-GM
	Solar Water Heating Retrofit Project (English)	02/85	030/85
	Solar Photovoltaic Applications (English)	03/85	032/85
	Petroleum Supply Management Assistance (English)	04/85	035/85
Ghana	Energy Assessment (English)	11/86	6234-GH
	Energy Rationalization in the Industrial Sector (English)	06/88	084/88
	Sawmill Residues Utilization Study (English)	11/88	074/87
	Industrial Energy Efficiency (English)	11/92	148/92
Guinea	Energy Assessment (English)	11/86	6137-GUI
	Household Energy Strategy (English and French)	01/94	163/94
Guinea-Bissau	Energy Assessment (English and Portuguese)	08/84	5083-GUB
	Recommended Technical Assistance Projects (English & Portuguese)	04/85	033/85
	Management Options for the Electric Power and Water Supply Subsectors (English)	02/90	100/90
	Power and Water Institutional Restructuring (French)	04/91	118/91
Kenya	Energy Assessment (English)	05/82	3800-KE
	Power System Efficiency Study (English)	03/84	014/84
	Status Report (English)	05/84	016/84
	Coal Conversion Action Plan (English)	02/87	--
	Solar Water Heating Study (English)	02/87	066/87
	Peri-Urban Woodfuel Development (English)	10/87	076/87
	Power Master Plan (English)	11/87	--
	Power Loss Reduction Study (English)	09/96	186/96
	Implementation Manual: Financing Mechanisms for Solar Electric Equipment	07/00	231/00
Lesotho	Energy Assessment (English)	01/84	4676-LSO
Liberia	Energy Assessment (English)	12/84	5279-LBR
	Recommended Technical Assistance Projects (English)	06/85	038/85
	Power System Efficiency Study (English)	12/87	081/87
Madagascar	Energy Assessment (English)	01/87	5700-MAG
	Power System Efficiency Study (English and French)	12/87	075/87
	Environmental Impact of Woodfuels (French)	10/95	176/95
Malawi	Energy Assessment (English)	08/82	3903-MAL
	Technical Assistance to Improve the Efficiency of Fuelwood Use in the Tobacco Industry (English)	11/83	009/83
	Status Report (English)	01/84	013/84
Mali	Energy Assessment (English and French)	11/91	8423-MLI
	Household Energy Strategy (English and French)	03/92	147/92
Islamic Republic of Mauritania	Energy Assessment (English and French)	04/85	5224-MAU
	Household Energy Strategy Study (English and French)	07/90	123/90

Region/Country	*Activity/Report Title*	*Date*	*Number*
Mauritius	Energy Assessment (English)	12/81	3510-MAS
	Status Report (English)	10/83	008/83
	Power System Efficiency Audit (English)	05/87	070/87
	Bagasse Power Potential (English)	10/87	077/87
	Energy Sector Review (English)	12/94	3643-MAS
Mozambique	Energy Assessment (English)	01/87	6128-MOZ
	Household Electricity Utilization Study (English)	03/90	113/90
	Electricity Tariffs Study (English)	06/96	181/96
	Sample Survey of Low Voltage Electricity Customers	06/97	195/97
Namibia	Energy Assessment (English)	03/93	11320-NAM
Niger	Energy Assessment (French)	05/84	4642-NIR
	Status Report (English and French)	02/86	051/86
	Improved Stoves Project (English and French)	12/87	080/87
	Household Energy Conservation and Substitution (English and French)	01/88	082/88
Nigeria	Energy Assessment (English)	08/83	4440-UNI
	Energy Assessment (English)	07/93	11672-UNI
Rwanda	Energy Assessment (English)	06/82	3779-RW
	Status Report (English and French)	05/84	017/84
	Improved Charcoal Cookstove Strategy (English and French)	08/86	059/86
	Improved Charcoal Production Techniques (English and French)	02/87	065/87
	Energy Assessment (English and French)	07/91	8017-RW
	Commercialization of Improved Charcoal Stoves and Carbonization Techniques Mid-Term Progress Report (English and French)	12/91	141/91
SADC	SADC Regional Power Interconnection Study, Vols. I-IV (English)	12/93	--
SADCC	SADCC Regional Sector: Regional Capacity-Building Program for Energy Surveys and Policy Analysis (English)	11/91	--
Sao Tome and Principe	Energy Assessment (English)	10/85	5803-STP
Senegal	Energy Assessment (English)	07/83	4182-SE
	Status Report (English and French)	10/84	025/84
	Industrial Energy Conservation Study (English)	05/85	037/85
	Preparatory Assistance for Donor Meeting (English and French)	04/86	056/86
	Urban Household Energy Strategy (English)	02/89	096/89
	Industrial Energy Conservation Program (English)	05/94	165/94
Seychelles	Energy Assessment (English)	01/84	4693-SEY
	Electric Power System Efficiency Study (English)	08/84	021/84
Sierra Leone	Energy Assessment (English)	10/87	6597-SL
Somalia	Energy Assessment (English)	12/85	5796-SO
South Africa Republic of	Options for the Structure and Regulation of Natural Gas Industry (English)	05/95	172/95
Sudan	Management Assistance to the Ministry of Energy and Mining	05/83	003/83
	Energy Assessment (English)	07/83	4511-SU
	Power System Efficiency Study (English)	06/84	018/84
	Status Report (English)	11/84	026/84
	Wood Energy/Forestry Feasibility (English)	07/87	073/87
Swaziland	Energy Assessment (English)	02/87	6262-SW
	Household Energy Strategy Study	10/97	198/97
Tanzania	Energy Assessment (English)	11/84	4969-TA
	Peri-Urban Woodfuels Feasibility Study (English)	08/88	086/88
	Tobacco Curing Efficiency Study (English)	05/89	102/89
	Remote Sensing and Mapping of Woodlands (English)	06/90	--

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Tanzania	Industrial Energy Efficiency Technical Assistance (English)	08/90	122/90
	Power Loss Reduction Volume 1: Transmission and Distribution SystemTechnical Loss Reduction and Network Development (English)	06/98	204A/98
	Power Loss Reduction Volume 2: Reduction of Non-Technical Losses (English)	06/98	204B/98
Togo	Energy Assessment (English)	06/85	5221-TO
	Wood Recovery in the Nangbeto Lake (English and French)	04/86	055/86
	Power Efficiency Improvement (English and French)	12/87	078/87
Uganda	Energy Assessment (English)	07/83	4453-UG
	Status Report (English)	08/84	020/84
	Institutional Review of the Energy Sector (English)	01/85	029/85
	Energy Efficiency in Tobacco Curing Industry (English)	02/86	049/86
	Fuelwood/Forestry Feasibility Study (English)	03/86	053/86
	Power System Efficiency Study (English)	12/88	092/88
	Energy Efficiency Improvement in the Brick and Tile Industry (English)	02/89	097/89
	Tobacco Curing Pilot Project (English)	03/89	UNDP Terminal Report
	Energy Assessment (English)	12/96	193/96
	Rural Electrification Strategy Study	09/99	221/99
Zaire	Energy Assessment (English)	05/86	5837-ZR
Zambia	Energy Assessment (English)	01/83	4110-ZA
	Status Report (English)	08/85	039/85
	Energy Sector Institutional Review (English)	11/86	060/86
	Power Subsector Efficiency Study (English)	02/89	093/88
	Energy Strategy Study (English)	02/89	094/88
	Urban Household Energy Strategy Study (English)	08/90	121/90
Zimbabwe	Energy Assessment (English)	06/82	3765-ZIM
	Power System Efficiency Study (English)	06/83	005/83
	Status Report (English)	08/84	019/84
	Power Sector Management Assistance Project (English)	04/85	034/85
	Power Sector Management Institution Building (English)	09/89	--
	Petroleum Management Assistance (English)	12/89	109/89
	Charcoal Utilization Prefeasibility Study (English)	06/90	119/90
	Integrated Energy Strategy Evaluation (English)	01/92	8768-ZIM
	Energy Efficiency Technical Assistance Project: Strategic Framework for a National Energy Efficiency Improvement Program (English)	04/94	--
	Capacity Building for the National Energy Efficiency Improvement Programme (NEEIP) (English)	12/94	--
	Rural Electrification Study	03/00	228/00
	EAST ASIA AND PACIFIC (EAP)		
Asia Regional	Pacific Household and Rural Energy Seminar (English)	11/90	--
China	County-Level Rural Energy Assessments (English)	05/89	101/89
	Fuelwood Forestry Preinvestment Study (English)	12/89	105/89
	Strategic Options for Power Sector Reform in China (English)	07/93	156/93
	Energy Efficiency and Pollution Control in Township and Village Enterprises (TVE) Industry (English)	11/94	168/94

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China	Energy for Rural Development in China: An Assessment Based on a Joint Chinese/ESMAP Study in Six Counties (English)	06/96	183/96
	Improving the Technical Efficiency of Decentralized Power Companies	09/99	222/999
Fiji	Energy Assessment (English)	06/83	4462-FIJ
Indonesia	Energy Assessment (English)	11/81	3543-IND
	Status Report (English)	09/84	022/84
	Power Generation Efficiency Study (English)	02/86	050/86
	Energy Efficiency in the Brick, Tile and Lime Industries (English)	04/87	067/87
	Diesel Generating Plant Efficiency Study (English)	12/88	095/88
	Urban Household Energy Strategy Study (English)	02/90	107/90
	Biomass Gasifier Preinvestment Study Vols. I & II (English)	12/90	124/90
	Prospects for Biomass Power Generation with Emphasis on Palm Oil, Sugar, Rubberwood and Plywood Residues (English)	11/94	167/94
Lao PDR	Urban Electricity Demand Assessment Study (English)	03/93	154/93
	Institutional Development for Off-Grid Electrification	06/99	215/99
Malaysia	Sabah Power System Efficiency Study (English)	03/87	068/87
	Gas Utilization Study (English)	09/91	9645-MA
Myanmar	Energy Assessment (English)	06/85	5416-BA
Papua New Guinea	Energy Assessment (English)	06/82	3882-PNG
	Status Report (English)	07/83	006/83
	Energy Strategy Paper (English)	--	--
	Institutional Review in the Energy Sector (English)	10/84	023/84
	Power Tariff Study (English)	10/84	024/84
Philippines	Commercial Potential for Power Production from Agricultural Residues (English)	12/93	157/93
	Energy Conservation Study (English)	08/94	--
Solomon Islands	Energy Assessment (English)	06/83	4404-SOL
	Energy Assessment (English)	01/92	979-SOL
South Pacific	Petroleum Transport in the South Pacific (English)	05/86	--
Thailand	Energy Assessment (English)	09/85	5793-TH
	Rural Energy Issues and Options (English)	09/85	044/85
	Accelerated Dissemination of Improved Stoves and Charcoal Kilns (English)	09/87	079/87
	Northeast Region Village Forestry and Woodfuels Preinvestment Study (English)	02/88	083/88
	Impact of Lower Oil Prices (English)	08/88	--
	Coal Development and Utilization Study (English)	10/89	--
Tonga	Energy Assessment (English)	06/85	5498-TON
Vanuatu	Energy Assessment (English)	06/85	5577-VA
Vietnam	Rural and Household Energy-Issues and Options (English)	01/94	161/94
	Power Sector Reform and Restructuring in Vietnam: Final Report to the Steering Committee (English and Vietnamese)	09/95	174/95
	Household Energy Technical Assistance: Improved Coal Briquetting and Commercialized Dissemination of Higher Efficiency Biomass and Coal Stoves (English)	01/96	178/96
Western Samoa	Energy Assessment (English)	06/85	5497-WSO

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	SOUTH ASIA (SAS)		
Bangladesh	Energy Assessment (English)	10/82	3873-BD
	Priority Investment Program (English)	05/83	002/83
	Status Report (English)	04/84	015/84
	Power System Efficiency Study (English)	02/85	031/85
	Small Scale Uses of Gas Prefeasibility Study (English)	12/88	--
India	Opportunities for Commercialization of Nonconventional Energy Systems (English)	11/88	091/88
	Maharashtra Bagasse Energy Efficiency Project (English)	07/90	120/90
	Mini-Hydro Development on Irrigation Dams and Canal Drops Vols. I, II and III (English)	07/91	139/91
	WindFarm Pre-Investment Study (English)	12/92	150/92
	Power Sector Reform Seminar (English)	04/94	166/94
	Environmental Issues in the Power Sector (English)	06/98	205/98
	Environmental Issues in the Power Sector: Manual for Environmental Decision Making (English)	06/99	213/99
	Household Energy Strategies for Urban India: The Case of Hyderabad	06/99	214/99
Nepal	Energy Assessment (English)	08/83	4474-NEP
	Status Report (English)	01/85	028/84
	Energy Efficiency & Fuel Substitution in Industries (English)	06/93	158/93
Pakistan	Household Energy Assessment (English)	05/88	--
	Assessment of Photovoltaic Programs, Applications, and Markets (English)	10/89	103/89
	National Household Energy Survey and Strategy Formulation Study: Project Terminal Report (English)	03/94	--
	Managing the Energy Transition (English)	10/94	--
	Lighting Efficiency Improvement Program Phase 1: Commercial Buildings Five Year Plan (English)	10/94	--
Sri Lanka	Energy Assessment (English)	05/82	3792-CE
	Power System Loss Reduction Study (English)	07/83	007/83
	Status Report (English)	01/84	010/84
	Industrial Energy Conservation Study (English)	03/86	054/86
	EUROPE AND CENTRAL ASIA (ECA)		
Bulgaria	Natural Gas Policies and Issues (English)	10/96	188/96
Central and Eastern Europe	Power Sector Reform in Selected Countries	07/97	196/97
Eastern Europe	The Future of Natural Gas in Eastern Europe (English)	08/92	149/92
Kazakhstan	Natural Gas Investment Study, Volumes 1, 2 & 3	12/97	199/97
Kazakhstan & Kyrgyzstan	Opportunities for Renewable Energy Development	11/97	16855-KAZ
Poland	Energy Sector Restructuring Program Vols. I-V (English)	01/93	153/93
	Natural Gas Upstream Policy (English and Polish)	08/98	206/98
	Energy Sector Restructuring Program: Establishing the Energy Regulation Authority	10/98	208/98
Portugal	Energy Assessment (English)	04/84	4824-PO
Romania	Natural Gas Development Strategy (English)	12/96	192/96
Slovenia	Workshop on Private Participation in the Power Sector (English)	02/99	211/99

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Turkey	Energy Assessment (English)	03/83	3877-TU
	Energy and the Environment: Issues and Options Paper	04/00	229/00
	MIDDLE EAST AND NORTH AFRICA (MNA)		
Arab Republic of Egypt	Energy Assessment (English)	10/96	189/96
	Energy Assessment (English and French)	03/84	4157-MOR
	Status Report (English and French)	01/86	048/86
Morocco	Energy Sector Institutional Development Study (English and French)	07/95	173/95
	Natural Gas Pricing Study (French)	10/98	209/98
	Gas Development Plan Phase II (French)	02/99	210/99
Syria	Energy Assessment (English)	05/86	5822-SYR
	Electric Power Efficiency Study (English)	09/88	089/88
	Energy Efficiency Improvement in the Cement Sector (English)	04/89	099/89
Syria	Energy Efficiency Improvement in the Fertilizer Sector (English)	06/90	115/90
Tunisia	Fuel Substitution (English and French)	03/90	--
	Power Efficiency Study (English and French)	02/92	136/91
	Energy Management Strategy in the Residential and Tertiary Sectors (English)	04/92	146/92
	Renewable Energy Strategy Study, Volume I (French)	11/96	190A/96
	Renewable Energy Strategy Study, Volume II (French)	11/96	190B/96
Yemen	Energy Assessment (English)	12/84	4892-YAR
	Energy Investment Priorities (English)	02/87	6376-YAR
	Household Energy Strategy Study Phase I (English)	03/91	126/91
	LATIN AMERICA AND THE CARIBBEAN (LAC)		
LAC Regional	Regional Seminar on Electric Power System Loss Reduction in the Caribbean (English)	07/89	--
	Elimination of Lead in Gasoline in Latin America and the Caribbean (English and Spanish)	04/97	194/97
	Elimination of Lead in Gasoline in Latin America and the Caribbean - Status Report (English and Spanish)	12/97	200/97
	Harmonization of Fuels Specifications in Latin America and the Caribbean (English and Spanish)	06/98	203/98
Bolivia	Energy Assessment (English)	04/83	4213-BO
	National Energy Plan (English)	12/87	--
	La Paz Private Power Technical Assistance (English)	11/90	111/90
	Prefeasibility Evaluation Rural Electrification and Demand Assessment (English and Spanish)	04/91	129/91
	National Energy Plan (Spanish)	08/91	131/91
	Private Power Generation and Transmission (English)	01/92	137/91
	Natural Gas Distribution: Economics and Regulation (English)	03/92	125/92
	Natural Gas Sector Policies and Issues (English and Spanish)	12/93	164/93
	Household Rural Energy Strategy (English and Spanish)	01/94	162/94
	Preparation of Capitalization of the Hydrocarbon Sector	12/96	191/96
	Introducing Competition into the Electricity Supply Industry in Developing Countries: Lessons from Bolivia	08/00	233/00

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Brazil	Energy Efficiency & Conservation: Strategic Partnership for Energy Efficiency in Brazil (English)	01/95	170/95
	Hydro and Thermal Power Sector Study	09/97	197/97
	Rural Electrification with Renewable Energy Systems in the Northeast: A Preinvestment Study	07/00	232/00
Chile	Energy Sector Review (English)	08/88	7129-CH
Colombia	Energy Strategy Paper (English)	12/86	--
	Power Sector Restructuring (English)	11/94	169/94
	Energy Efficiency Report for the Commercial and Public Sector (English)	06/96	184/96
Costa Rica	Energy Assessment (English and Spanish)	01/84	4655-CR
	Recommended Technical Assistance Projects (English)	11/84	027/84
	Forest Residues Utilization Study (English and Spanish)	02/90	108/90
Dominican Republic	Energy Assessment (English)	05/91	8234-DO
Ecuador	Energy Assessment (Spanish)	12/85	5865-EC
	Energy Strategy Phase I (Spanish)	07/88	--
	Energy Strategy (English)	04/91	--
	Private Minihydropower Development Study (English)	11/92	--
	Energy Pricing Subsidies and Interfuel Substitution (English)	08/94	11798-EC
	Energy Pricing, Poverty and Social Mitigation (English)	08/94	12831-EC
Guatemala	Issues and Options in the Energy Sector (English)	09/93	12160-GU
Haiti	Energy Assessment (English and French)	06/82	3672-HA
	Status Report (English and French)	08/85	041/85
	Household Energy Strategy (English and French)	12/91	143/91
Honduras	Energy Assessment (English)	08/87	6476-HO
	Petroleum Supply Management (English)	03/91	128/91
Jamaica	Energy Assessment (English)	04/85	5466-JM
	Petroleum Procurement, Refining, and Distribution Study (English)	11/86	061/86
	Energy Efficiency Building Code Phase I (English)	03/88	--
	Energy Efficiency Standards and Labels Phase I (English)	03/88	--
	Management Information System Phase I (English)	03/88	--
	Charcoal Production Project (English)	09/88	090/88
	FIDCO Sawmill Residues Utilization Study (English)	09/88	088/88
	Energy Sector Strategy and Investment Planning Study (English)	07/92	135/92
Mexico	Improved Charcoal Production Within Forest Management for the State of Veracruz (English and Spanish)	08/91	138/91
	Energy Efficiency Management Technical Assistance to the Comision Nacional para el Ahorro de Energia (CONAE) (English)	04/96	180/96
Panama	Power System Efficiency Study (English)	06/83	004/83
Paraguay	Energy Assessment (English)	10/84	5145-PA
	Recommended Technical Assistance Projects (English)	09/85	--
	Status Report (English and Spanish)	09/85	043/85
Peru	Energy Assessment (English)	01/84	4677-PE
	Status Report (English)	08/85	040/85
	Proposal for a Stove Dissemination Program in the Sierra (English and Spanish)	02/87	064/87
	Energy Strategy (English and Spanish)	12/90	--
	Study of Energy Taxation and Liberalization of the Hydrocarbons Sector (English and Spanish)	120/93	159/93

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Peru	Reform and Privatization in the Hydrocarbon Sector (English and Spanish)	07/99	216/99
Saint Lucia	Energy Assessment (English)	09/84	5111-SLU
St. Vincent and the Grenadines	Energy Assessment (English)	09/84	5103-STV
Sub Andean	Environmental and Social Regulation of Oil and Gas Operations in Sensitive Areas of the Sub-Andean Basin (English and Spanish)	07/99	217/99
Trinidad and Tobago	Energy Assessment (English)	12/85	5930-TR
	GLOBAL		
	Energy End Use Efficiency: Research and Strategy (English)	11/89	--
	Women and Energy--A Resource Guide		
	The International Network: Policies and Experience (English)	04/90	--
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	Roundtable on Energy Efficiency (English)	02/95	171/95
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	A Synopsis of the Third Annual Roundtable on Independent Power Projects Rhetoric and Reality (English)	08/96	187/96
	Rural Energy and Development Roundtable (English)	05/98	202/98
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