

Reform of the Electric Power Sector In Developing Countries: Case Study of Argentina

Daniel Bouille
Hilda Dubrovsky
Crescencia Maurer

Institute of Energy Economics
Bariloche Foundation

World Resources Institute

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Chapter 1. Background

This study analyzes whether and how public benefits were addressed in the reform of Argentina's electric power sector during the 1990s. The political economy of the reform process is assessed to understand both the dynamic of the reform process and debates related to public benefits. In this context, public benefits refers to social and environmental concerns that have important implications for social welfare including increasing rural access to electricity, tariffs paid by poor households, employment in the electricity sector, the efficient use of energy, development of renewable energy, and global climate change, among others. The discussion of the public benefits agenda is prefaced by a description of the domestic and international context driving reform in Argentina more generally.

It is important to recognize that different diagnoses of the Argentine power sector's situation at the end of the 1980s depended in large measure on political points of view, ideological paradigms about the appropriate role of the state, as well as perceived institutional and economic interests. To gain perspective of these underlying paradigms and how these influenced the reform process much of the analysis presented below is based on an extensive set of interviews. These were carried out with individuals from key institutions active in the reform process: former government officials, energy policy experts, staff at major donor institutions, members of academia, representatives of the private sector, and civil society groups. Published and unpublished documents, including consultant reports, articles, donor reports and publications, as well as official policy documents and legislation produced by the Government of Argentina (GOA) also informed the analysis. A list of interviews and a complete bibliography are provided as annexes.

1.1. The International and National Context for Reform

In the case of Argentina, the transformation of the power system was conditioned by larger macro-economic reforms intended to correct serious current account deficits, fiscal imbalances, and chronic hyperinflation plaguing the country at the end of the 1980s and beginning of the 1990s. The reforms drew from neoliberal economic thinking on the appropriate role of the state and markets in economic development.

Toward the end of the 1980s political and economic analysts and thinkers throughout the western world were in a state of euphoria as they contemplated the triumph of capitalism. "The single idea," "the end of history," "the end of ideologies," were some of the slogans which at that moment populated the context in which reform was under discussion. The fall of the Berlin Wall implied the beginning of a new era. The fabulous riches spent on the Cold War could now be redirected towards sustaining development and bringing the poorer nations into the fold of world markets and prosperity. Development aid would increase materially; funds would be channeled towards health, education and the reduction of poverty, and military and armaments expenditures would be sharply curtailed. Bringing the Eastern block of nations into the free market system would accelerate their development and open new markets.

To take full advantage of this change, developing countries had to deepen the opening of their markets, deregulate their economies, reduce the role of the state sector, eliminate political interference and place all productive resources at the disposal of the market. They had to become an opportunity for the world and offer competitive and favorable conditions in order to attract new investment flows unleashed by market.

A first step in this direction was to promote or facilitate private investment that would in turn generate economic growth, job creation and improve incomes. Investment could be attracted by reducing the cost of doing business, reforming tax and employment laws that limit the private sector's flexibility, cutting public spending, opening the economy, freeing prices, eliminating import substitution policies, etc. Once greater wealth and income were generated, these would be distributed through market and tax mechanisms to the general population.

To all this must be added Argentina's central problem and that of several other Latin American countries: servicing foreign debts. A program of state reform and the concomitant sale of state owned enterprises and assets would reduce government deficits, and generate funds that could be used for debt reduction or improvements in education, health, and social welfare programs. The long-term result would be a reduced need for social welfare programs as economic "overflows" would increase incomes and produce welfare improvements for the poorest segments of society. The old redistributive policies implemented by the state were perceived as failed and regressive (benefiting particular vested interests and higher income groups). The market, by contrast, would redistribute income more efficiently.

These were the dominant economic and political paradigms in ascendancy at the time, and they exerted influence over the shape and direction of reforms in Argentina. The possibility also exists that international donors brought pressure to bear to shift sectoral and overall economic policies in line with this dominant paradigm.⁽¹⁾ These larger philosophical shifts combined with the resignation of Argentina's political administration ushered in the Menem government, which in short order began to implement far-reaching state reforms.

1.2. The Electric Sector Pre- and Post Reform

At the time reforms were initiated in 1992-93, the electric sector in Argentina was characterized by the almost exclusive domination of publicly owned companies at both the federal (national and binational) and provincial levels. Enterprises under federal jurisdiction were vertically integrated and controlled the largest share of power generation, the majority of high tension transmission lines and most of the distribution infrastructure in the greater Buenos Aires region. They also served the largest share of electricity consumers. Most provinces operated their own electric companies, and together with local cooperatives, were largely responsible for distribution within their jurisdictions.

The new scheme, implemented initially at the federal level, was inspired by the reform of the British electricity sector. The main objective was to achieve greater efficiencies in the supply of electric power by promoting as much competition as possible. Competition was to be introduced by segmenting different parts of the productive chain. In general, the intention was for the state to withdraw completely from the electricity and natural gas industry, and to sell these assets to private investors. The benefits that these changes were expected to produce included protection of consumers' rights; greater market competition, increased private investment that would in turn guarantee long-term supplies; higher quality services at lower costs; and the supply of regulated transmission and distribution services at reasonable rates. The bulk of the reforms took place in the early 1990s with almost simultaneous restructuring of the sector and privatization of state electricity companies. A chronology of the reform process is provided in Table 1.

An initial concern of the federal government when it began to sell state assets was its ability to attract private investment. The state electricity companies were highly indebted and in some cases insolvent. Argentina's negative macro-economic conditions also represented risks. Thus, efforts were made to make these assets more attractive, to increase certainty with regard to the evolution of the system, and to reduce investment risks.

Thermal generating facilities were sold with 8-year pricing contracts in place, with the costs transferred to the private distributors, so as to eliminate the risk of a fall in spot prices when new hydroelectric generating stations came on line. For high-tension transmission the option was simply a fixed annual price schedule. But even though these reductions in inherent risk should

(1) As Joseph Stiglitz (former chief economist of the World Bank) stated recently: "at the beginning of the 1990s, the nations of Southeast Asia freed their financial and capital markets not because they need to attract funds – some of them having 30% or higher savings rates – but due to international pressure". Statements within the framework of the Annual meeting held in Prague.

TABLE 1: CHRONOLOGY OF ARGENTINE POWER SECTOR REFORM	
1986	National Energy Plan
1987	The Energy and Economy Secretariat passes Resolution N° 475 calling for the development of environmental norms and regulations for the energy sector.
1987	Government issues official environmental management handbook for hydro-electric projects.
1988	Government issues official environmental management handbook for high tension transmission lines.
1988-89	Electricity supply crisis.
1989	New presidency assumes executive branch (Menem administration).
1989	Law N° 23696 on state reform establishes the basis for privatization of all state-owned companies.
1990	Government issues official environmental management handbook for conventional central thermo-electric generating plants.
1990	Electrification rates reach 91.2%
1991	Laws related to emergency economic reforms and currency convertibility gain passage.
1991	The World Bank grants the Government of Argentina a \$300 million loan to assist in the restructuring and privatization of state companies in the telecommunications, railroad, and fossil fuel sectors. This loan included funds to assist with privatization in other sectors.
1991	Decree N° 634 issued on the reconversion of the electric power sector. This decree establishes a wholesale market, defines final consumers, and unbundles generation, transmission and distribution functions.
1992	Law N° 24065, Regulatory Framework for the Electric Power Sector, comes into force and assigns normative responsibilities to the Secretary of Energy. These responsibilities include environmental enforcement, application of environmental management handbooks, establishing emission limits for thermal generating plants.
1992	Law N° 24076. Regulatory Framework for the Natural Gas Sector, achieves passage (the result of a fraudulent vote in the lower house of the Argentine Congress, the House of Deputies).
1992	Resolution N° 61, Organization of the Electric System, defines private agents, and procedures for the function of the electric market.
1992-93	Federally owned thermal generating plants privatized.
1992	Distribution companies under federal jurisdiction are privatized. Distribution concessions eliminate subsidies.
1992	The National Electricity Regulator (ENRE) is created to protect consumer interests. Environmental regulation is assigned to public security entities required to enforce specific regulations and apply penalties (articles 77 and 78)
1993	ENRE begins to function post-privatization.
1993	Elimination of daylight savings time permits a return to the rational use of solar light in place of electric lighting.
1993-2000	Privatization of provincial distribution companies.
1993-97	Concessions awarded for hydroelectric plants.
1993-97	Creation and awarding of concessions to transmission companies.
1994	As a result of negotiations between ENRE, the federal government, the Province of Buenos Aires, and the distribution companies EDENOR and EDESUR, Resolution N° 6, "Framework Agreement," is adopted that establishes a four-year time period for reductions of irregular consumption. Approximately 300,000 consumers were brought formally into the grid system.
1994	Resolution 159/94 issued by the Secretary for Energía creates a regime for large consumers (those consuming between 100 kW and 2 MW) allowing them to purchase electricity directly from generators.
1997-98	The PAEPRA Program to supply electricity to isolated rural areas is designed and receives the support of the IDB, GEF and World Bank. This program has not yet been implemented.
1998	A resolution is issued by the Secretary for Energy that reduces the floor of what constitutes a large consumer (to 50 kW) and allows them to establish defined supply contracts with a generator.
1999	A large electricity blackout in EDESUR's distribution concession affects more than 500,000 in the federal capital, in some cases for over 10 days.
2000	Transmission connections are established with Brazil and agreements are finalized to permit the export of 1,000 MW.

have increased the value of the state assets being sold or awarded in concession, no minimum price was set for tenders. Thus, the privatization process resembled a public auction, in which the bidders were in a position to fix the desired level of profitability upon entry.⁽²⁾ This approach also eliminated the risk to the government that no bids would be submitted.

The major elements of the reform consisted of vertical and horizontal unbundling of the productive chain. In other words, separating generation, transmission and distribution functions. Other key elements of the reform included the adoption of a regulatory principle of incompatibility between functions (generators could not act as distributors or participate in transmission simultaneously), third party access to transmission and distribution networks as well as entry into power generation; and privatization of the business units created from public sector companies under federal control. The only exceptions were nuclear plants and binational hydroelectric power stations that remained in federal hands.

Within each segment of the productive chain competition is promoted differently. Distribution and transmission, due to their monopolistic attributes, remain regulated activities, but they are operated as concessions by private companies and awarded in open bidding processes. Nonetheless, the *expansion* of the transmission network is supposed to occur in an unregulated fashion. Existing power generation plants were privatized had free access to the transmission and distribution networks, but new thermal generation capacity requires authorization to enter the grid. The only other regulation of generation involves assuring compliance with public safety and environmental protection laws.

Competition among generators occurs in the wholesale market. The wholesale electricity market is managed by the Wholesale Electricity Market Management Company (CAMMESA) which plans the operation of the interconnected system for six-month seasonal periods, so as to meet the expected demand with a reserve agreed between the parties (economic load dispatching). The wholesale market is divided in two segments, namely: a spot and a contract market. In the latter case, distributors and large consumers³ may enter into supply agreements with producers and brokers,⁽⁴⁾ at prices freely settled in the respective contracts. In the spot market, the hourly marginal price defines the generators' selling price and its seasonal average represents the basis to determining the purchasing price for distributors.

The retail market is also divided in a regulated segment and another open to competition among suppliers, which includes large consumers. The regulated segment guarantees monopoly to the distributor who is granted the concession, who has the obligation to supply any required demand under the terms of the concession contract. Concession contracts should specify the obligations of the concession holders regarding technical and commercial quality of the service. The distributors' obligation to supply electricity is independent of power availability in the wholesale market, and the State has no commitment to cover eventual production deficits that could arise in the future.

General supervision and regulation of the electricity industry is in the hands of National Electricity Regulator (ENRE is the Spanish acronym). ENRE is an independent agency under the Secretary of Energy (see Figure 1). The following are its principal responsibilities: a) enforcement of concession contracts; b) prevention of anti-competitive behavior; c) selection of new

(2) Several authors have analyzed the potential options for the transfer of public assets and their implications. One of the most interesting works is that prepared by three economists (Jones/Tandon/Vogelsang) for the World Bank and published in 1990 by MIT under the title "Selling Public Enterprises: A cost-benefit methodology." In it the authors state that the transfer of public production assets to the private sector differs radically from transfers developed between private agents. In the latter case, the selling agent need not worry about the destination and use that the buying agent may give to the transferred good. However, the state cannot ignore its fiduciary role and its responsibility to defend public assets and interests. Thus, it should be concerned not only about the transfer but also its condition and future situation.

3 The definition of a large consumer was revised downward to an entity or individual that consumes > 30 kW.

4 A broker is an approved agent that can purchase and sell power on the wholesale market from or to third party generators or buyers.

cessionaires d) public hearings to clarify conflicts between the parties; and e) oversight of compliance with environment and public safety regulations within the electricity sector.

The Secretary of Energy and Ports retains the following functions: determination and implementation of energy policy; regulation of the electricity industry, authorization of entry to and exit from wholesale electricity market, awards of concessions for the utilization of hydroelectric resources within inter-provincial waterways (in collaboration with provincial authorities), and approval of foreign electricity trade contracts.

The federal government deals with all activities involving international and inter-provincial trade. Power generation channeled through the wholesale market and the high-voltage electricity transmission network fall within this category. In the same way, federal authorities are required to intervene whenever a hydroelectric station is installed in inter-provincial or international waterways. For the most part, distribution is controlled at the provincial level. Nevertheless, due to historical reasons, electricity distribution within the Buenos Aires metropolitan area (representing close to 43% of demand for electricity in Argentina) falls within federal jurisdiction. In some provinces municipal companies act as private electricity cooperative associations.

Figure 2 shows the national transmission grid distributed in seven geographic regions. Although there is a high level of demand concentration in the central region of the country (over 85%), close to 44% of the total net demand was registered in the metropolitan area. Taken together they represent close to 60% of the electricity demand. Also shown is the total capacity installed in each region, and the regional contribution to peak load. As may be noted, the maximum surplus of installed capacity is registered in Comahue, where low-price natural gas availability led to the installation of gas stations which joined the hydroelectric stations installed in the area.

Figure 1. Argentina's Electricity Sector After Restructuring

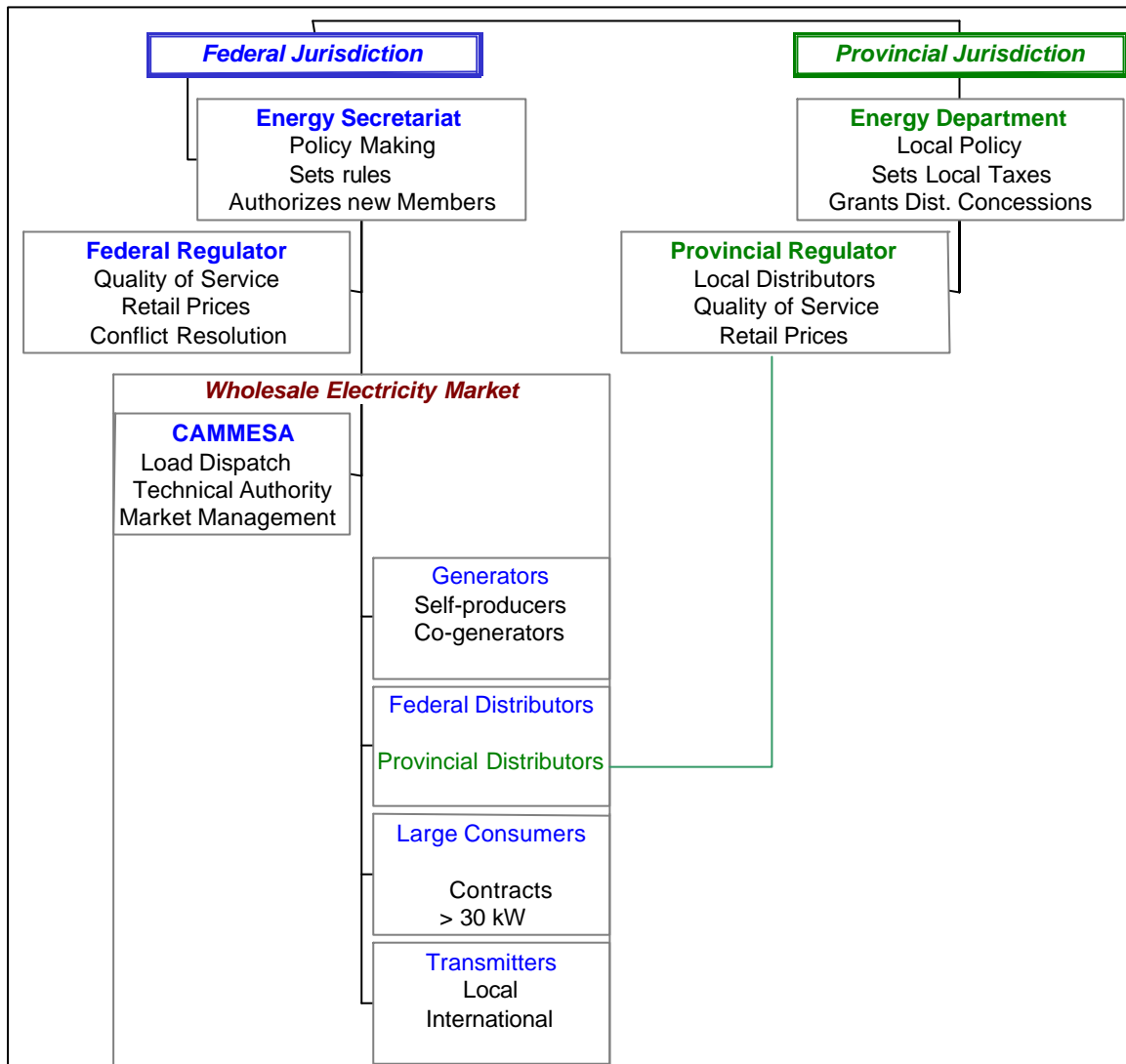
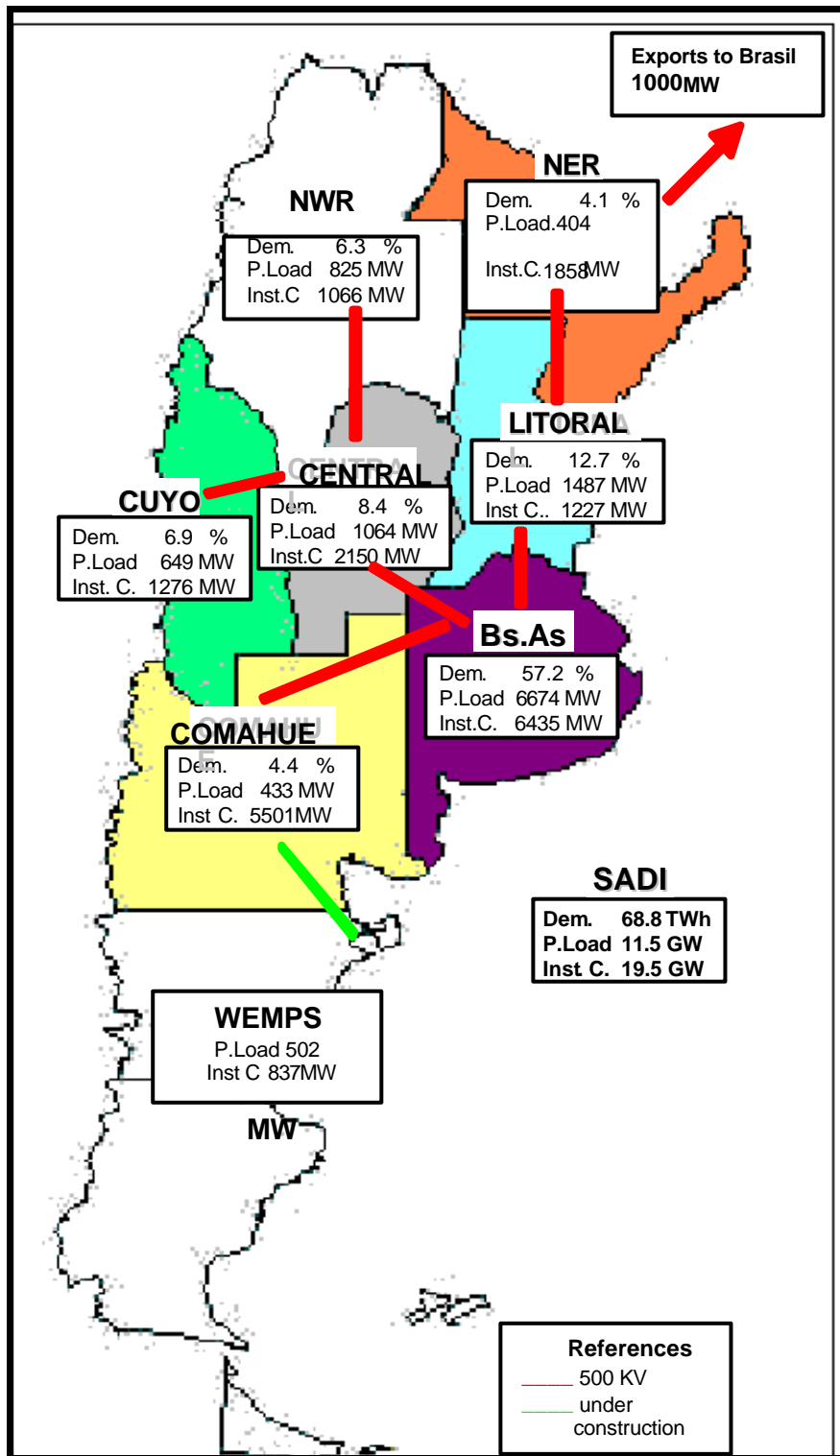


Figure 2. Demand and Supply in Argentina's High-Voltage Transmission Network



Chapter 2. The Political Economy of the Reform Process

2.1. Diagnosis of the Problem

In the early 1990s Argentine officials responsible for energy policy believed that the power sector was failing to supply society as a whole and the productive sector with adequate power. Problems experienced during the late 1980s, including continuous power cuts and fluctuating voltage levels, convinced policy makers as well as the general public there was an urgent need for radical change. Furthermore, previous attempts to improve on the existing institutional structure and efficiency of the state companies had proven unsuccessful. Vested interests, including the companies' own technicians and bureaucrats, trade unions, politicians, and private suppliers and contractors, stymied such efforts. This convinced the new Menem government that the only solution was a radical overhaul of the sector and a redefined role for the state in its management.⁽⁵⁾

In his book on Argentina's power sector reforms the former Secretary of Energy, Carlos Bastos, (the official responsible for leading the transformation process) argues that a general consensus existed that the state was no longer capable of carrying out the tasks of energy planning, investment and management.⁽⁶⁾ In reality, there was consensus on the nature of the problems plaguing the sector on the part of current and former public officials, representatives of academic and research establishments, officials of multilateral credit organizations, consultants, representatives of the business community and private companies. But there were different opinions with regard to the origins of the crisis and the steps needed to solve it.

Researchers of energy policy maintain that the sector's technical decline was not unconnected to economic decay. The necessary technical capability existed, but maintenance and repair programs weren't carried out because of financial and economic difficulties. This situation dragged on for many years. By the time privatization began in 1992, the companies being sold had already undergone a long period of economic and financial decline that began in the mid 1970s. Some of the sources of the problem included jurisdictional disputes within the government and transaction and payment problems with the provinces. This was clearly a matter of political origin and of interference and pressure by provincial governments on federal public sector companies. According to this view the source of the economic problems was fundamentally political and included excessive meddling by federal and provincial governments.

Representatives of the academic and research communities and some sectoral experts maintain that the sector operated efficiently in the hands of the state for many years. In fact, under state control the electricity sector achieved self-sufficiency; expanded modern energy sources; established an adequate balance between reserves and consumption; and guaranteed future supplies of electric power. The crisis that overtook the sector during the 1980s occurred because management responses and policies did not address problems that were exogenous to the sector, but which affected its fiscal and technical sustainability. These observers also believe that energy, given its close connection to natural resources, especially non-renewable ones, is a "strategic resource" that requires continued state involvement guarantee the sustainability of the system.

Many individuals interviewed pointed out that other nations of the region did not follow the same path. Thus, the solution proposed in Argentina was not the only option, and it is not certain whether restructuring and privatization represented the best choices. "The influence of the context in which a policy is adopted – in this case a context of extreme economic crisis – is much less linear and direct than most of the theoretical approaches and political statements at the time

(5) Although in the case of the electricity sector we found reasons to support this position, the wholesale nature of the privatization program showed that the position taken by the government was dogmatic, and went beyond the problems of specific sectors. More than 120 companies were privatized as part of the macro-economic reform process, even though many registered excellent performance and were financially solvent.

(6) C.M. Bastos and M.A. Abdala. 1993. Transformación del Sector Eléctrico Argentino. Zago Editions, Buenos Aires. December.

suggest. The crisis permitted a revisiting of the existing model, in other words a recognition that the cards could be “reshuffled,” but not the hand that was ultimately dealt.⁽⁷⁾

2.2. The Role of Various Government Sectors and Civil Society

The design of the transformation of the Argentine power system was concentrated in the executive branch of the national government, with a very small number of experts and consultants hired on an ad-hoc basis to prepare the necessary technical studies and documents. An internal working group that relied on the technical advice of outside experts and consultants made the main decisions within the Ministry of Economy’s Secretary of Energy. This working group and consultants formed a unified group that had as its overarching objective to undertake preparations for the unbundling and sale of the federal electricity companies, and to work out the new legal and market framework for the sector.

Civil society as a whole took no part in discussions regarding privatization.⁽⁸⁾ Various factors contributed to this lack of participation. First, the Menem administration faced serious economic difficulties when it took charge, and there was a sense that the only way to resolve the constantly recurring crises was through radical change. Other contributing factors specific to the power sector were frequent power outages, and the perception that the system was on the brink of collapse. These views were cemented by the government’s efficient and charismatic use of the mass media to argue that the only alternative to the abyss was total transformation of the state and the privatization of all its productive activities. Some proposals went even further and championed similar solutions for parts of the health and education systems that served the poorest sectors of the population. On the whole, civil society didn’t challenge these apocalyptic predictions, and the singular solution that was offered. This lack of response by civil society can also be attributed to the weakness—still true to this day--of Argentina’s consumer associations and non-governmental organizations (NGOs).

Argentina’s powerful trade unions, on the other hand, were compensated via participatory stock programs, and their opposition was averted. Through these programs workers in most of the privatized companies were granted some percentage of shares in the newly privatized company’s stock. These “compensation” mechanisms facilitated the implementation of the policy. It should also be noted that many of the trade unions belonged to the Peronist party that also controlled the executive branch. For political purposes they supported the proposed reforms without evaluating the consequences it might have on labor. Union protests came long after privatizations were concluded and by that time they were irreversible. In the case of the provincial privatizations there was greater resistance that delayed the process in many of them.

Members of academic and research communities and experts that tried to develop alternative proposals or positions were not engaged by the small group of reformers and lacked the space in which to express their ideas.

The main political opposition party, after a hasty departure from office, was discredited, so it offered no viable opposition. Besides, the initial proposals in support of privatization originated within the Alfonsín administration that resigned from government. Thus, the Menem Government argued it was simply continuing the process.

The executive branch carried out no formal public consultation. The strategy employed by the executive was to present alternatives as unworkable, radical reform as inevitable, and the state

(7) A. Margheritis. 2000. In Spanish. "La privatización de los servicios básico y su impacto en los sectores populares en Argentina", in *Privatizaciones e Impacto en los sectores populares*. A report of the World Bank/NGO Working Group on Research on the New State. August.

(8) Although it enjoyed the general support of the public, the privatization policy was a government initiative rather than one proposed by particular social actors.

owned companies as enterprises with low credibility and prestige. There is also anecdotal evidence about aspects of the formal approval process that would have produced public outcry.

With regards to the legislative branch, a small group of active government party legislators formed to push forward and champion the executive's proposed restructuring and privatization process. This group entered into political alliances in order to ensure sufficient votes for the necessary legislation to pass. Because of the complexity of the issue as well their own lack of experience it is doubtful that any of the legislators thoroughly analyzed the characteristics and implications of the proposed changes. In general, the legislative branch played a passive role and the executive vetoed most changes it made to the laws.

There was a sufficient concentration of power and the critical mass necessary to carry these proposals forward. The lack of public consultation (similar, for example, to what happened in Uruguay when deciding on the privatization of UTE) had no relation to the lack of a democratic tradition but was fundamentally about concentrated power imposing a ready-made solution.

2.3. The Influence of Multilateral Development Banks

Multilateral development banks (MDBs) played an important role in the energy development of all of the countries of Latin America. The World Bank and the Inter-American Development Bank (IADB) were the main suppliers of funds, and also opened the door to financing from the private sector.

After 40 years of supplying financing for and supporting technical development of power sectors, the World Bank concluded that the time had come for a drastic rethinking of its policies. Its diagnosis was that performance by the power industry in developing countries was in an accelerating decline. The origins of this decline might be partially due to exogenous factors but it was essentially caused by internal problems linked to states' roles as entrepreneurs. The Bank's new approach, worked out at the end of the 1980s, advocated decentralization, unbundling, the introduction of competition and privatization as essential elements in future actions by the Bank in these countries. This new thinking was explicitly set out in a number of World Bank publications as well as in those of authors which analyzed its policies.⁽⁹⁾ (See Box 1)

The World Bank acted not only as an instrument of the new international order, but it was also one the driving forces behind the reform and adjustment policies, as the following paragraph summarizes:

*"One of the most important services the Bank can provide is to ensure that the process of policy reform is **internalized** in the country as quickly as possible, so that the reform program is designed by the country itself and integrated into its long-term development program."*⁽¹⁰⁾

There is no doubt that the World Bank's policy directly influenced energy policy as implemented in Argentina during the Menem administration. Adjustment policies had become the most important vehicle for the Bank's involvement in the restructuring of the public sector: Close to 70% of adjustment operations during 1989-90 include at least some component related to the sale of state assets.⁽¹¹⁾

(9) A. De Oliveira. 1997. "Electricity system reform: World Bank approach and Latin American reality." Additionally, numerous Bank documents refer to this policy as it appeared in various documents. For example The World Bank. 1993. In Spanish. "La función del Banco Mundial en el Sector de la Electricidad." Also, the World Bank. 1993. "Argentina: from insolvency to growth."

(10) The World Bank. 1986. "Lessons learned and Implications," in *OED Structural Adjustment Lending: A first Review of Experience*. Report No. 6409. September. Also quoted in Johnson and Wasty. 1993. "Borrower Ownership of Adjustment Programs and the Political Economy of Reform." Discussion Papers. The World Bank.

(11) World Bank. 1991. Annual Report.

Box 1. World Bank Perspectives on Electricity Reform in Latin America During the Early 1990s

"Efficiency improvements, the transformation of state electricity companies into business entities, the establishment of independent regulation authorities, and the total or partial transfer of construction, operation and maintenance activities to the private sector would reduce fiscal pressure on public resources and relieve the state of the responsibility for micromanaging electricity companies." . . . "[The] aim is for state-owned companies to meet exploitation costs and debt obligations and, above all, to make reasonable contributions to support expansion."

The challenges in Latin America are the same as those facing the rest of the developing world:

- Establishment of a legal and institutional framework guarantees stability while providing sufficient flexibility to adapt to changing conditions;
- Introduction of the market forces wherever possible in a sector that until recently was considered a natural monopoly;
- Mobilization of resources, especially those from the private sector; and
- Protection of populations and the environment affected by electricity projects.

... "In view of today's changing environment, the traditional model of the electric sector does not always provide adequate incentives to reduce production costs over time or to operate in an efficient and reliable way".

Source: The World Bank and OLADE. 1991. *"The Evolution, Situation, and Prospects of the Electric Power Sector in the Latin American and Caribbean Countries, Vol. II. Descriptions of Individual Power Sectors."* Latin America and the Caribbean Technical Department, Regional Studies Program, Report N° 7. August.

Besides privatization, the World Bank supported a gamut of initiatives by countries in the region to expand the role of the private sector. The mechanism used to do this included regulatory reform, as well as varying options for private participation in different sectors, among them the power sector. The Bank also expanded its capacity to facilitate political dialogues with and supply technical assistance to governments.⁽¹²⁾

MDBs such as the World Bank played an essential part in catalyzing and implementing reforms. The World Bank's disseminated its views through the publication of analyses that favored a role for the private sector and emphasized the inefficiency of the state. These were used to support domestic arguments, considerations and justifications for the radical transformation of the sector.

Financing provided by the World Bank is proof of its support.⁽¹³⁾ The World Bank supplied the sector with funds to finance voluntary severance or retirement programs, as well as for the corporatization, reorganization and clean up of public companies in preparation for their privatization. Also, the World Bank' tied its lending to conditions of policy reform.⁽¹⁴⁾ Specifically, the World Bank's loan documents stated the following

"Explicit progress of the country towards the establishment of a legal framework and of regulatory processes which the Bank deems satisfactory will be a requirement for all loans to the power sector."⁽¹⁵⁾

(12) The World Bank. 1991. Annual Report.

(13) In 1991, the World Bank granted Argentina a credit for U.S. \$300 million to aid the Government in privatizing and restructuring public companies in the fields of telecommunications, railways and hydrocarbons. Technical assistance was also included to privatize other public sector assets. The World Bank. 1991. Annual Report.

(14) "Bank loans for the electricity sector shall focus on nations that are clearly committed to the improvement of the sector in accordance with the principles mentioned earlier." The World Bank. 1993. "The function of the World Bank in the Electricity Sector." Policy Document. The aforementioned principles refer to efficiency, rates, cost adjustment, privatization, independent regulation, lack of government interference, etc.

(15) The World Bank. 1993. "The function of the World Bank in the Electricity Sector." Policy Document. This document reflects a policy the World Bank was already implementing.

Recommendations set out in a specific World Bank document on Argentina⁽¹⁶⁾ were based on a mission that took place between November 1991 and October 1992, these included such things as:

"In order to make the sale of public companies more attractive, the government's restructuring program must include:

a) Absorption of excess labor.

b) Absorption of all the companies' debts as well as any other obligations.

c) Reduction of the labor force is estimated at 95,200 people and represents a decrease of around 37% in relation to employment levels in June 1991.

Privatization should be used to pay off public debt.

Prices and tariffs must be set at international prices and marginal costs and indexation should be adjusted to the price index in the USA.

By contrast, the IADB supported the political decisions taken by the GOA. Some experts maintain that at an initial stage some IADB staff was skeptical of the privatization process, particularly with regard to hydropower stations. However, the IADB collaborated by identifying areas not covered by the World Bank, and providing loans for general public sector reforms, foreign debt restructuring and macroeconomic adjustment.

In its 1991 fiscal year, for example, the IADB financed projects related to public sector reform, financial reform, and the Provincial Electric Power Program (U.S. \$165 million). The latter program was designed to strengthen provincial power companies' service delivery and coverage, improve their operational and financial management, and support tariff analysis.

During 1992, the IADB financed the Structural Reform Program (U.S. \$350 million) in support of broader macro-economic reforms. This included:

- Financial reform
- Worker-management relations
- Guarantees for foreign investors
- Protection for intellectual property rights
- Reduction of internal transport costs
- Liberalization of international trade

Thereafter the IADB also provided financing to support privatization of the power sector and the design of the new regulatory framework adopted by the Ministry of the Economy's Secretary of Energy. Approval was also given for a credit (U.S. \$300 million) designed to support the corporatization and sale of the three national companies by defining the terms under which private enterprises could participate in the sector. This package included a non-refundable component (U.S. \$10 million) to hire consultants to study the availability of private capital for investments and to advise the GOA during the privatization process.

2.4. Private Creditor Banks

The role of other creditor banks (a significant share of these were private banks) proved to be essential because they granted "waivers" or dispensations to release state electricity companies from their obligations as guarantors of publicly held foreign debt. A statement of one of the negotiators involved in the privatizations, former public works minister, Guillermo Dromi, is revealing: "The utilities' debt levels have forced us to obtain waivers from their creditor banks, . . . and some of these institutions have even created a committee to monitor our programs." This and other statements made to the media by the former minister left little doubt about the influence of

(16) World Bank: 1993. "Argentina, From Insolvency to Growth."

private banks and international institutions on the privatization and the economic policy and formation process.⁽¹⁷⁾ The acceptance of debt securities at nominal value as payment for their divestiture in the state-owned utilities was another mechanism negotiated with creditor banks that allowed them to recover part of their loans. In effect, this allowed them to obtain shares at a price that was below the market value. In general, the GOA waited until the very last moment to obtain these waivers. This created pressure on the government to sell the electricity companies and business units on terms that were much more favorable to buyers.

Given the view that there was limited interest on the part of private buyers, the state was forced to offer conditions that were quite beneficial by swallowing significant political and economic costs and guaranteeing future profitability through negotiation of pricing mechanisms.

2.5. Reforms in the Provinces

The early success of reforms at the federal level—including effective privatization and adequate operation of the newly created electricity market—led to the conclusion that reform processes at provincial levels should follow the same scheme. Reforms carried out at the federal level demonstrated that to obtain the greatest possible benefits from privatization strategy the following actions and measures should be taken into account:

- “Maximum advantage should be taken of the benefits of market competition;
- Incentives should be offered to new owners to take actions consistent with the public interest;
- Contracts should stipulate as clearly as possible all rights and obligations;
- The possibility for renegotiations should be allowed;
- Define conditions for the transfer of public assets that spell out the responsibilities of private owners;
- The importance of tariff design should not be underestimated; and
- Develop provincial regulating capacity with as much care as concession licenses and contracts.”⁽¹⁸⁾

Federal officials touted only the benefits of the newly reformed system without admitting to any downsides, but in discussion forums and documents they recognized that many aspects of the new model could be improved during the provincial privatizations. In fact the above list of recommendations implies an acceptance of the fact that some key aspects had been inadequately addressed in the reforms and privatization at the federal level.

It was recognized that the new tariff structures did not adequately protect captive users. Large consumers could enter into direct purchasing contracts with generators and bypass distribution companies, while small consumers could not. In almost all the provinces the electricity companies were largely providing distribution services. The issue facing newly privatized distribution systems at the provincial level was the criteria for fixing regulated prices and tariff schedules. The Ministry of Economy’s Secretary of Energy brought pressure to bear on provinces to adopt similar if not identical criteria to that applied at the federal level. They ignored the different realities of provincial power systems, such as market structure, density, size, and consumption levels by sector, etc.

The federal government brought pressure to bear on provinces by conditioning the transfer of federal funds. This tactic was reinforced by MDBs which provided loans to the provinces on the

(17) “You honestly know that all lists of conditions have an unwritten clause, a clause that we did not write out of shame, of national shame. This clause shows the degree of Argentine dependence. Argentina does not even have the independence, the dignity to be able to sell what needs to be sold”, former Minister Dromi as quoted by A. Margheritis op/cit. page 64.

(18) The World Bank. 1996. “Argentina: Reforma de las empresas provinciales de servicios públicos: Problemas, desafíos y mejores prácticas.” Report. June.

condition that they reform their supply structures.⁽¹⁹⁾ It appears this effectively opened the door to privatization at the provincial level. The transfer of resources from the National Fund for Electric Power (intended to finance power development in the interior), compensation to the provinces for final user tariffs, and provincial shares of taxes on liquid fuels were withheld to induce provincial governments to adopt tariff principles in line with the national power regulation framework.⁽²⁰⁾

To the extent that the province was economically weak and dependent on these federal funds it was possible to impose conditions from above. Even so, some provinces resisted and proposed small but not unimportant changes. One of these changes was the insertion of a requirement for mandatory investments by new concessionaries. This was the case in Tucuman. Another such modification was tariff adjustment clauses. The issue was whether tariffs should be adjusted in dollars and in accordance with US inflation. Some provinces have resisted the idea of implementing an adjustment of this type and of fixing tariffs in dollars.

In summary, there were no essential differences between the national and provincial privatization processes. As of 2001, 14 out of 24 provinces have privatized their electric power services.

(19) As one of the people interviewed stated, the main idea was to foster the right conditions for privatization, by cutting the size and increasing the efficiency of provincial governments

(20) H. Pistonesi. 2000. "Sistema Eléctrico Argentino. Desempeño posterior a la reforma." IDEE/FB.

Chapter 3. Implementation Experience: The Fate of Public Benefits

The social and environmental components of the reform should be analyzed using broad criteria. First, this chapter will comment on the social impacts of the reform, keeping in mind the potential equity effects of the measures taken and how these were addressed in the decisionmaking process. Second, this chapter explores if and in what way the reform and privatization process included environmental dimensions. For example, was energy-efficiency important in the Argentine context and what role did international financial organizations play?

3.1. Social Aspects

We understand undesirable social impacts as being those direct and indirect effects that promote regressive income distribution and which increase inequality and poverty. We have analyzed the following list of elements.

Tariffs: the criteria are used to define tariff structures, how do tariffs behave and whether appropriately targeted social tariffs exist.

Markets and Services: are these competitive or captive, has service quality improved, are low-income groups served, and has there been an expansion of service to new consumers in previously unserved areas (e.g. rural) or population segments.

Personnel and operations policy: what actions were taken to support the transition of power company employees that lost secure employment as a result of the reforms, and how where contracting and outsourcing of state functions managed.

3.1.1 Tariffs

Within the regulated segment of the distribution market, a significant change was observed in the structure of residential tariffs. Before the reforms, residential tariffs were based on increasing consumption blocks. One of the reasons for this structure was to ensure equity in pricing. When private distribution concessions were created in the Buenos Aires metropolitan area (the EDESUR, EDENOR and EDELAP concessions) residential tariff structures were modified. A system of descending average prices was introduced. The situation in the provinces varied. Where distribution was privatized a residential tariff, which decreased as consumption increased came into force. By contrast, those provinces where services continue in the public sector, or where distribution was carried out by cooperatives,⁽²¹⁾ residential tariffs retained their increasing block structure.

The structure of residential tariffs in areas where privatization occurred promotes consumption by clients with a larger capacity to pay, and improves the economic equation for the distribution companies. Where fixed components predominate, an increase in sales brings about a decrease of the average cost of distribution, and to the extent that the average tariff remains above the unit cost, a greater volume of profits is obtained.

A descending structure for residential tariffs doesn't respond to clear standards from the point of view of technical theory, or an energy policy perspective. If we assume that the tariff should respond to the cost-responsibility of the various types of residential user, it's not clear a decreasing tariff structure allocates these appropriately. If the standard of peak power demand by different user groups is utilized, it's probable that responsibility will increase along with rising levels of consumption. Allocating costs among differing groups of users depends heavily on the standard used to determine their relative degree of responsibility. It is very difficult to postulate that some

(21) La Pampa and Patagonian provinces.

residential consumers are “better” than others. On the other hand, because such responsibility differs from one residential consumer to the next, the existence of cross-subsidies between consumers is inevitable, whatever tariff structure is chosen. With this in mind, it is clear that choosing a decreasing tariff structure will produce regressive impacts on lower income groups, who will pay more per unit and more as a share of their income relative to other consumers. Finally, by encouraging consumption this tariff policy eliminates incentives for power conservation, with all the consequent effects on the efficient use of resources.

A comparison of tariff rates across different distribution concessions and service areas indicates that the current differences cannot be explained by discrepancies in the characteristics of the markets they serve. Neither do the mentioned differences seem to respond to the different institutional nature of the distribution companies. In general terms, the simple averages of the mean rates for both private and provincially owned companies do not differ significantly. In principle, this would indicate that the supposedly higher efficiency of private distributors has not translated into lower rates for residential consumers.

The steady decrease of per unit electricity prices in the wholesale market is pointed to as one of the greatest successes of the power system reforms. Since 1991, the spot price in the wholesale market has fallen over 50%. It is argued that this reduction is a result of competition introduced by the reforms. But in reality this fall in the wholesale price is due to a variety of factors--of which competition is just one and only began to produce effects in 1995. Other reasons for the dramatic fall in prices was the easing of the power shortages due to increases hydroelectricity supply (both because of an easing of drought conditions and the completion of new dams) and the increased availability of thermal generating capacity.

The increased efficiency shown by the wholesale electric power market (MEM in Spanish) was not entirely passed on to residential consumers. The average residential tariff in the Metropolitan area (expressed in US\$/kWh) shows relatively stable behavior beginning in September 1993. This development preceded most of the privatization of services. Prices in 1992 showed certain variations resulting from changes in the real exchange rate, but they peaked at a lower level than that subsequently observed.

In general terms, starting at the end of 1993 the average residential tariff reflected seasonal variations in the spot market, but only in a marginal way. This is essentially due to two factors. The first factor is linked to the privatization of the distribution concessions. In order to reduce uncertainties and for private investors the metropolitan area distribution companies were privatized using long-term contracts with thermal generators at a fixed and constant price for a period of five years and covering up to 50% of their demand.⁽²²⁾ Consequently, price improvements in the spot market did not translate into benefits for captive residential users. The second factor affecting residential tariffs was a price indexing mechanism. Through this mechanism tariffs were adjusted to reflect the wholesale price index in the United States. This rewarded increased efficiency in the MEM, but nullified the transfer of any efficiency improvements to consumers.⁽²³⁾

The new regulatory framework establishes that the prices of various electricity services must reflect or be in accordance with their cost of supply. Because the cost of distribution on the retail price of power varies inversely with the amount and voltage of the supply, a relative increase occurred in

(22) The contracts established when the SEGBA stations were sold and later imposed on the EDESUR and EDENOR concessions actually implied the withdrawal from competition of a significant share of demand. Since 1998 and after the strong growth of the commercial bypass of the large consumers of the area, the electricity purchases of these distributors represented nearly 35% of the total of the Electricity Wholesale Market.

(23) "As a result of the rate policy implemented, the estimated average price of electricity of the EDENOR, EDELAP and EDESUR distribution companies fell some 10.8% during the period under analysis. Nevertheless, this reduction affected the different types of consumption in a quite heterogeneous way. While rates corresponding to household consumers with very low electricity consumption remained practically stable – falling some 1.5% during the period -, that of high-consumption consumers fell some 70.4%. Hence, the mean household rate dropped some 8.5%." FLACSO. 1999. "Privatizaciones en Argentina."

tariffs paid by residential users as compared to those paid by industrial consumers. A table taken from a FLACSO report is provided below. Using this table, a comparison of high and low consumption residential users reveals that while the former have strongly benefited from the transformation process, the latter have benefited only marginally.

Table 2. Power Prices Before Taxes, 1991-1998
(thousandths of US\$/kWh - March 1991 index =100) ⁽²⁴⁾

	March 1991	December 1998
Thousands of US\$/kWh		
Residential low consumption	82.0	80.7
Residential high consumption	159.0	47.1
Industrial low consumption	140.0	105.4
Industrial average consumption	84.0	74.3
Industrial high consumption	56.0	37.3
Average	87.55	78.0
March 1991 index =100		
Residential low consumption	100.0	98.4
Residential high consumption	100.0	29.6
Industrial low consumption	100.0	75.3
Industrial average consumption	100.0	88.5
Industrial high consumption	100.0	66.6
Average	100.0	89.1

Before privatization and even post-privatization pensioners and retirees received subsidies for a number of basic services including price discounts, exemptions from municipal taxes or charges, free access to public transportation in urban areas; lower ticket prices in inter-city railways and mass transit systems, etc. These subsidies included goods and services supplied by public companies, private companies or directly by government. In many cases special prices weren't a regulatory or legal obligation but were the result of private initiatives from business or non-profit organizations. A significant number of these subsidies continue, and there has even been an increase in those that originate in the private sector.

In the electric power sector, the public system before privatization included social tariffs for low-income groups identified as pensioners and retirees, especially those receiving minimum benefits. After the restructuring and privatization, these social tariffs were phased out over a two-year period. The decision to exclude equity standards in public service tariffs was actively promoted by financial organizations such as the World Bank. The following paragraph summarizes this position clearly:

"Many Governments have also tried to use the electric power sector and other infrastructure services supplied by the public sector to solve problems of social equality. Experience has shown that these policies are a costly and inefficient way of handling these problems. Subsidized electricity had undermined even further the budgetary discipline of power companies and the resulting large deficits that normally result has been financed by the use of generally regressive taxes... It is evident that there are much more efficacious ways of resolving problems of social equality than the use of electricity subsidies."⁽²⁵⁾

Yet a 1999 seminar organized by the World Bank in Buenos Aires,⁽²⁶⁾ arrived at the following conclusions and recommendations, among many others:

(24) FLACSO, Op.cit.

(25) The World Bank. 1993. "La función del Banco Mundial en el Sector de la Electricidad." Policy Document.

(26) The World Bank. 1999. "The Privatization of Basic Services and its Impact on Low-Income Sctors in Argentina." Seminar Report. Buenos Aires. May. This report includes a presentation by Myrna Alexander, Resident Representative of the World Bank, with examples of negative impacts on low-income sectors.

- *The poor were most affected by the privatization process;*
- *The rich were the greatest beneficiaries of the privatization process;*
- *The system should internalize transfer mechanisms favoring the poor (cross-subsidies);*
- *A social tariff should be established based on the capacity-to-pay; and*
- *New concessions should include a clear strategy to force operators to serve sectors with limited economic resources.*

At this time the tariff structures for private distribution concessions are in the process of revision by the government. For the first time, there will be a change in the costs that can be included in the tariff in order to encourage greater efficiency and reasonable profits. Prices will be based on marginal rates (declining with increases in consumption), and inter-sectoral tariffs will not be modified. Nevertheless, there will be changes as to what costs will be recognized or can be transferred to consumers. This could change the absolute price as well as relative prices between sectors. The outcome could have social relevance because it will re-examine the elevated distribution margins that were put in place when the concessions were first privatized. It should be noted that these renegotiations of the tariff structures for distribution concessions coincide with provincial elections for executive and legislative posts. As a result, this process could be manipulated for electoral and political ends.

The opportunity exists to incorporate social and environmental objectives (e.g. the elimination of indexing against U.S. prices or the modification of the regulatory framework to prevent prices for electricity exports to negatively impact domestic prices) in renegotiated distribution tariffs, but there is little or no political will to make these changes. Sectors close to the federal government indicate that such deep changes would represent a violation of the “legal safety” principle, and open the door to lawsuits on the part of private suppliers. Thus, the issue is not the imposition of restrictions on concession contracts but an absence of government capacity and will.

3.1.2. Markets and Services

A significant problem in the operation of Argentina’s electricity markets is the fact that certain consumers are captive within distribution concessions (small consumers) while others (large consumers) are not. In the last decade, there has been a progressive revision downward of what constitutes a large consumer. An entity that classifies as a large consumer can negotiate supply contracts directly with power generators and brokers, thus bypassing distribution companies. As a result, distribution companies have faced growing competition from power generators within their respective concession areas. Distribution companies cannot offer differential tariff treatment, which places them at a disadvantage relative to generators. Added to this is the fact that power transactions receive differential tax treatment, and provincial taxes and municipal charges are applied only to distributors’ clients. Not surprisingly, the average price paid by the large consumers is very similar to spot prices in the MEM.

This group of users, many of them industrial or commercial concerns, has benefited from a lower cost for the power they purchase. Whether these lower costs have been passed on to prices is difficult to determine. In any case, it’s possible that a change in the functional distribution of this extra income has taken place, as well as the relative benefits to different productive activities.

After the transfer of metropolitan area services to private consortia there was widespread discussion of the important improvements in service quality. One of the issues that have gotten significant attention is the reduction of transmission and distribution losses. Before reform average losses for power supplied to the network were 27%. With the near total elimination of non-technical losses, due to efforts initiated by private concessionaires, total losses have fallen to less than 10% over the course of ten years.⁽²⁷⁾

(27) ENRE, op. cit., page 28.

Another measure of service quality is the level of customer complaints. Using this indicator, we observe an appreciable difference between distribution companies in the Greater Buenos Aires (GBA) and Greater La Plata (GLP) areas. In effect, EDESUR (serving the GBA) has received the greatest number of customer complaints during the 1993-99 period.⁽²⁸⁾ See Table below.

Table 3. Complaints to Distributors in the Metropolitan Area (May 1993-December 99)

Distributor	Nº of Complaints	Percentage
EDESUR S.A.	46.606	52
EDENOR S.A.	34.669	39
EDELAP S.A.	8.386	9

Source: ENRE (1998) and ENRE (2000)

Consumer complaints increased in volume (especially up to 1995) in response to poor commercial operations as well as lack of supply. With regard to the latter problem (no supply) EDESUR received the most complaints until mid-1996. After that date, more complaints were received from consumers in the EDENOR⁽²⁹⁾ concession area. However, this changed again as a result of a large-scale blackout in the EDESUR concession in February 1999. A fire at a transformer substation that cut off service to almost half a million people caused this blackout, dubbed “the EDESUR incident.” About 10,000 people had no power for eleven days. Given that the great majority of complaints originate with residential consumers, it appears they are most affected by deficiencies in service quality. (See Box 2).

Another problem with the power market has manifested itself in the current network of high-tension transmission lines. Not only has service quality declined, but also a number of transmission corridors find themselves on the brink of supply cuts because transmission lines are operating at or near capacity, thus increasing the risk of large-scale power outages. This opens up the possibility that areas will be isolated, as in the case of San Juan province that was on the verge of collapse. The radial layout of the transmission system and the failure to attract private investment for expansion of the transmission grid have been at the root of the crisis.

To address the current regulatory scheme’s insufficient incentives for expansion of the transmission system, the Secretary of Energy with the backing of the Federal Electricity Commission (representing provincial distribution companies) launched a “Federal Electricity Plan.” This plan entails the construction of five additional high-tension lines that will fill out the system and permit the connection of the main distribution system (which is served by the wholesale market) with the Patagonian transmission system which is under construction.

The expansion will be financed with private sector investment (through competitive tenders) and contributions from the federal government’s Fund for Electricity Transmission (FETEF in Spanish). The FETEF will be capitalized from charges of US\$ 0.6/MWh on distribution companies and large consumers in the wholesale market. At this time, the private sector has demonstrated little interest in the public tenders, except for two proposed lines (the Northeast-Northwest line and the Comahue-Buenos Aires line). The first line is of interest because of the potential to facilitate exports to Brazil of new thermal generating capacity located in northern natural gas fields. In the future this line could also tap generating capacity in northern Chile.

(28) ENRE, op. cit., page 31.

(29) In accordance with the information provided by the company, EDENOR has notably improved the annual service interruption averages (service cut-offs per client) as well as the interruption hours per year (hours per client) since 1993. The first value was from 13 January 1993, and fell to 5.7 in December 1999, while the second was for 22 January 1993 and fell to 6.5 in December 1999.

Box 2. The EDESUR Incident

This blackout occurred early on February 15, 1999 when a fire broke out at the recently opened Azpardo 2 Substation. The fire affected two high-tension cables and left about 200,000 people in the center of Buenos Aires and surrounding neighborhoods without power.⁽¹⁾ The power outage also affected other services including water supply, traffic lights, and subway lines, and produced chaos in that part of the city.

First, it should be noted that EDESUR had no contingency plans in place to address such an incident.⁽²⁾ Although service was gradually re-established in the area, a large number of customers were without power for ten days. This was an unprecedented event in the history of Argentina's electricity supply. It is difficult to determine with scientific certainty whether the blackout was the result of personnel error in the design of the substation or if it was due to under-investment on the part of the concessionaire.

Another notable feature of the incident was the lack of information provided to the general public by the company. There was no information available about the causes or the nature of the power outage. On the other hand, the company's repeated promises about when service would be re-established were undermined by a failure to meet these commitments.

In sum, the incident brought to light a lack of coordination by officials with regard to how to address the situation. In fact, legislative representatives from the ruling party posed serious questions about the regulatory agency's actions. It was unclear whether ENRE retained an inspection or supervisory function to prevent accidents or power outages within its institutional mandate.⁽³⁾

A year after the power outage, 14,626 persons claimed they had yet to receive the compensation due to them from the company as part of the settlement negotiated by the regulatory agency (ENRE). For their part, company representatives stated that they have paid the 70 million Argentine pesos in the form of "rebates and indemnification." In other words, the company accepted the extraordinary fine imposed on them by the regulator, but was still involved in a drawn out dispute with a large number of customers expecting at least partial compensation for the damages they suffered.⁽⁴⁾

Sources and Notes:

(1) A press release issued by the company after the incident indicates that the number of affected customers was 156,000.

(2) A technical consultant hired by the regulatory agency to investigate the incident told the press, the "type of operation [being undertaken in the Azopardo 2 Substation] was very unusual, and involved a meticulous task that requires special precautions. [Besides, the company] did not have a contingency plan for that specific operation, or even a general emergency plan." (La Nacion newspaper, 2/25/1999).

(3) See article in La Nacion newspaper on 2/24/1999, titled "Criticisms of the Electric Power Regulator Unite Ruling and Opposition Parties."

(4) This was estimated at approximately 90 million Argentine pesos.

Another problem created by the new electric power markets was ensuring service to low-income and rural populations traditionally under- or unserved by the power sector. In the GBA area many of the lowest-income groups were illegally connected to the system. These populations were dubbed, "hangers" or "colgados." These populations of hangers were the source of the system's high non-technical losses. When private distribution companies took over service, the percentage of technical (related to the materials and quality of the physical distribution system) and non-technical (related to theft or uncontrolled/unmetered distribution) losses were extremely high. For example, EDENOR declared losses of 26.14% in December of 1993. An initial analysis of these non-technical losses showed they were related, to a great extent, with the supply of the very poorest neighborhoods, many of them slums or informal settlements.

The first step taken by the privatized companies was to cut supply to these poor neighborhoods. This caused serious social conflicts and led to the incarceration of a distribution company official by a judge that considered electricity a basic service. Subsequently, a significant portion these "hangers" were incorporated into regular service and their consumption registered and metered by the distribution company. But this was only possible because distribution companies made investments in metering as well as changes to physical infrastructure that made theft very difficult.

For the most part, municipal authorities pay services supplied to these areas. Funds for these payments are generated through municipal charges or taxes applied to electricity tariffs.⁽³⁰⁾

The International Finance Corporation (IFC) provided distribution companies (especially EDENOR) with loans to enable the significant investments needed to eliminate power theft in the poorest residential neighborhoods. Those investments resulted in important technical changes to the distribution systems, and moved many poor users into the low consumption residential user market. That loan markedly improved the companies' economic situation (according to statements by employees) as well as their distribution margins. In the case of EDENOR these increased by 450% between September of 1992 and May of 2000.⁽³¹⁾

Available information indicates that the number of consumers is growing slightly faster than the general population (2.2%). In the case of the residential sector growth in the number of users is running at 1.9%, which implies a low rate of growth for services and the inclusion of new consumers. Apparently, the post-reform situation hasn't generated the conditions necessary to promote significant expansion of power services.

It is important to note that the percentage of the population with access to electricity before the reforms was greater than 91%. This meant that the segments of the population that were not served were located in isolated zones or ones that were commercially unattractive. For the most part, distribution companies have concentrated their investments in dense urban and suburban areas where demand has grown vertically (per capita increases in consumption) or as a result of densification (increases in consumers per km²). Larger investments such as inter-connections between areas within a single concession or sub-transmission systems, have generally been financed with funds generated by taxes levied on final user prices.

The country has about 3 million inhabitants living in rural areas without access to electric power. To expand access to these populations in 1995 the Ministry of Economy's Secretary of Energy initiated the Power Supply Program for Dispersed Rural Populations (PAEPRA). The goal of this program was to supply 314,000 rural households (1.4 million people) and 6,000 public service providers. The program proposes awarding concessions covering areas with low user density to private providers for periods similar to those covered in normal power concessions.

In 1998 the PERMER (Renewable Energy for Rural Markets) Program was designed with a loan from the World Bank (U.S. \$30 million) that would tap resources from provinces, consumers and concessionaires to bring basic power services to 85,000 residential consumers and 3,500 public service providers. The GEF supplied a concurrent grant of U.S. \$10 million to elimination technical and economic barriers limiting the diffusion renewable energy technologies.

To date, neither of these projects has been implemented and they have faced important stumbling blocks. In particular, there are questions about the long-term sustainability of a program that lacks sources of revenue or financing once initial loan or grant funds are exhausted.

3.1.3. Personnel Policies and Outsourcing

While still in the hands of the State, the federally owned electric power companies were prepared for the privatization process. One of the first steps taken was to reduce the size of company payrolls because these were deemed to be overstaffed and a source of hidden unemployment.

(30) The total amount billed to these "consumers" is nevertheless an extremely low percentage of the total sales of the distributors. In the case of EDENOR, it was estimated in USD 6,000,000 on a total billing above USD 884,000,000 (Fiscal Period: 1999). This gives an idea of the relative significance of partially solving a poverty problem via subsidies to electricity rates.

(31) EDENOR financial data and information provided by the company.

Employees were offered voluntary retirement that, in principle, seemed highly advantageous as they offered severance payments that were much higher than those due under normal circumstances.

In general, employees that took advantage of these severance payments used them to fund self-employment in the services sector-- small businesses, taxicabs, delivery services, etc. Many of these efforts failed in the short and medium term. Ultimately, these former employees entered the pool of unemployed or found employment under less advantageous conditions. Incomes and welfare diminished, and the result was a regressive redistributive impact.

To fund the voluntary retirement and personnel reduction efforts the state assumed additional external debt. Multilateral banks contributed to this process by means of macroeconomic adjustment loans. That is to say, these loans were not classed as sectoral financing but were classed as lending for macroeconomic reforms.⁽³²⁾

Once the companies were in the hands of the private sector, staff reductions were achieved through personnel layoffs. In order to reduce labor conflicts companies offered generous severance packages that exceeded legal requirements. Few specific studies have been done on the impacts of these layoffs, but the effects were probably similar to those observed in the case of voluntary retirements. In other words, a significant share of those laid off were unable to find new employment or ended up occupying lower level jobs that effectively displaced less qualified workers. Sectoral specialists estimate that the total number of people made redundant by the privatization process of public companies reached 350,000.⁽³³⁾

Another of the mechanisms used to reduce costs was to sever direct employees and subsequently hire contractors to perform their functions. This mechanism allowed companies to reduce employment benefits, thus decreasing real incomes because for the most part benefits provided by contractors were not as generous. Such contracting also introduced changes in working conditions (hours, security, uniforms, etc.) and transferred potential liabilities. Since privatization, there have been fatal accidents due to inadequate safety practices by third party contractors responsible for construction projects. The EDESUR incident is a good example of this phenomenon. Companies have lost highly qualified personnel and been unable to substitute their experience by means of contractual methods.⁽³⁴⁾

3.2. Environmental Aspects ⁽³⁵⁾

Many countries have carried out important transformations of their power systems. In other countries the state has retained a direct role in providing power, and reform efforts have focused on improving efficiency, cost structures, and competitiveness. In either case, whether markets or governments are the lead providers of power services, the sector is generating growing environmental impacts because the overall trend is to use those resources that are the most economically efficient but that in many cases also happen to be less friendly to the environment. This leads to the question addressed in this section, to what degree did the reform process seek to mitigate potentially negative environmental effects or to generate environmental benefits?

(32) As part of a general 300 million credit to the Government to support privatization and restructuring of public companies, including but not limited to electric power companies. The World Bank. 1991. Annual Report .

(33) Clarín. 2000. "Privatizaciones: las asignaturas pendientes." Newspaper article. August 13.

(34) H. Pistonesi. Op. cit.

(35) This section reflects almost word-for-word the document prepared by Attorney Cristina Massei – Environmental Coordinator in the Economy Ministry/Secretariat of Energy during the whole transformation and privatization process. Said document was published with the title "Los aspectos ambientales en el sector eléctrico" and was included in the book, Argentina: the Power Sector (Zago Editions, 1998). As such it expresses the official position on this matter.

3.2.1. Regulatory Framework

The legal framework establishing environmental regulation for the power sector were established by Decree 634/91 issued by the executive branch and Law 24.065/92, "Regulatory Framework for Electric Power."

The decree addresses the reform of the sector. It calls for the need to concentrate the state's actions on the design and application of a framework policy and on regulation and control to harmonize electric power development with the use of alternative energy sources, and environmental protection norms that encourage the rational use of said resources.

Law 24.065 establishes that physical infrastructure, and the installation and the operation of equipment to generate, transmit, and distribute electric power must conform with measures to protect watersheds and ecosystems, as well as current and future pollution emission standards mandated by the Ministry of the Economy and the Secretary of Energy. ENRE is given the authority to set the rules and determine the technical procedures necessary to enforce compliance with environmental standards as well as for monitoring that compliance.

The major sectoral regulatory instruments are:

- Environmental management manuals that lay out the requirements for environmental impact statements for conventional thermal stations, hydroelectric projects and power transmission systems. The majority of these manuals were prepared before the reform.
- Resolutions issued by the Ministry of Economy's Secretary of Energy that establish ambient and discharge pollution levels and outline specific measures to be taken to ensure compliance.
- Procedures for complying with ENRE directives.
- Measures to be carried out for the preparation of environmental audits or monitoring by ENRE.

During the reform and privatization process within the electricity sector, specific clauses were spelled out for different activities (hydropower plants, transmission, distribution, and thermal power generation) in a set of "environmental annexes" that were incorporated into operating norms. Private operators or concession holders are directly responsible to the authorities for complying with specific requirements laid out in these clauses. The clauses provide more detailed guidance than the Environmental Management Manuals with regards to EIA requirements, and they often outline a management plan to ensure emissions are within standards or for treatment and disposal of wastes. In summary, applying environmental norms has meant continued reliance on the environmental management manuals developed before reform.⁽³⁶⁾ ENRE has concerned itself largely with setting acceptable emission levels for thermal generating stations and putting into operation enforcement and monitoring mechanisms.

In such a decentralized decision-making system, environmental concerns are not an explicit part of policies guiding investments or encouraging the use of more environmentally benign energy sources. Rather environmental concerns are addressed through compliance with government norms and resolutions that set conditions for new facilities (in the case of hydroelectric projects) and maximum permissible emission levels. A case that illustrates this approach is the construction of the Comahue-Buenos Aires transmission line. During the final phase of construction a number of environmental conflicts erupted, as the path of the transmission line would disrupt significant tourism and other economic activities. Affected parties took legal action that led to the suspension

(36) The environmental management manual for hydroelectric stations dates from 1988 and that for thermal generating stations from 1990.

of construction. The path of the transmission line was modified a solution that was negotiated by ENRE when the conflict emerged.³⁷

3.2.2. Global Climate Change

The Argentine power system has reached a stage in of development that will require important efforts in the future to temper the effects of economic growth on total emissions of greenhouse gases. In spite of efforts made in the past to improve the power infrastructure and the successful substitution of liquid petroleum based fuels, periods of economic growth have meant an increase in total emissions.

Except in transportation, where the use of natural gas is incipient, there's not very much room for attenuating the increase in greenhouse gas emissions through the substitution of end-use energy sources. In future it will be necessary not only to ensure the sustained expansion of natural gas and electric power supplies but also to improve energy efficiency in all sectors.

In some activities a natural process of technological renewal that favors the increase of energy efficiency can take place – it's important to remember that this has happened in the past. Analysis of past emission patterns shows that changes in the electric power generating structure were essential for containing growth in total emissions. In the new institutional and regulatory context of the power industry it would seem hard to maintain current emission levels into the future, since thermal generation⁽³⁸⁾ is reaching levels last seen at the beginning of the seventies, even if this is from highly efficient generating stations fuelled by natural gas.

To this day, the only concrete activities carried out to address climate change have been limited to complying with the Argentina's commitments under Annex I of the United Nations Framework Convention on Climate Change (UNFCCC). This implies only completing the necessary studies to remit National Communications. The only other development worth noting, is the Menem administration's unilateral announcement of voluntary commitments made on the occasion of COP5. To date the new political administration has not commented, officially on how and if it will carry out this voluntary commitment.

3.2.3. Energy-Efficiency

To promote competition in the power generation market, power system was vertically and horizontally unbundled by uncoupling generation, transmission and distribution.⁽³⁹⁾ Because the advantages of energy efficiency are captured primarily in generation, vertically unbundling this function reduces incentives at the distribution level to increase efficiencies among end-users or final consumers. On the other hand, the rational behavior of the actors striving to minimize investments, reduce uncertainty, guarantee fast pay-backs and achieve a reasonable level of profitability tends to channel investments towards tried-and-true technologies that are more efficient and less costly.

(37) Even though EIAs are designed to notify the public about a proposed project and to authorize its construction, it is clear that this assessment did not consult or analyze the impacts on populations potentially affected by the transmission line.

(38) Work is underway on a U.S. \$500 million project which represents a first step in the expansion of the Yacyretá hydroelectric plant's generating capacity. The projected expansion would increase generating capacity by 6,000 more gWh/annum than the dam generates today. If this comes to pass, the current emissions rate or index would decrease.

(39) No company participating generation, transmission or distribution activities is permitted a controlling interest in more than one of these activities

The behavior of different actors after the reform of the Argentine electric power system has had various consequences for energy efficiency and the environment.⁴⁰⁾

- Initial investments in new thermal generating stations were driven by the cost advantages of natural gas rather than efforts to maximize thermal efficiency. The specific consumption average of the open-cycle gas turbine stations that went on-line up to 1996 was 2,600 kcal/kwh, which is higher than that of the various steam turbine stations they replaced. However, after that date the installation of combined-cycle stations has substantially improved thermal efficiency, and theoretical specific consumption values are now around 1,600 kcal/kWh.
- Because of the Argentine energy system's high discount rates and the need for fast capital recovery it seems improbable that new hydroelectric stations will be built, even though the country has large potential hydro resources.⁴¹ This fact reverses previous state policies and potentially arrests declines of specific emissions in the electric power sector.
- The fall in the price of electric power has made the business of energy efficiency much less attractive, not only with regard to potential savings in consumption, but also with regard to exploiting potentials for co-generation.⁴²⁾ Opening the market to competition by large consumers has led to a significant fall in the price they pay power. Current levels of surplus capacity in power generation temporarily weakens one of the basic principles for saving power--avoiding the cost of investments in new generating capacity.
- Vertical unbundling of the power production chain and, the opening of retail markets to competition diminishes distributors' interest in capturing energy savings. Even though concession contracts don't usually include dispositions that require actions to promote energy efficiency at the consumer level, the high incidence of fixed costs should encourage them to maximize usage of their networks by improving the load factor. They could also achieve economic benefits by trying to attenuate the growth of maximum loads within their market areas so as to postpone the need for new investments. Some distribution companies showed an interest in studies to evaluate opportunities for energy savings. However, the government's decision to revise downward consumption levels that define a large consumer and to proceed toward complete opening of retail markets⁴³⁾ have reduced distribution companies' interests in investments that yield energy savings.⁴⁴⁾

Energy policies implemented in Argentina in the decades preceding the reforms contributed decisively to the rational use of resources as a function of their relative availability. Besides achievement of energy self-sufficiency and greater diversity of supply, it led to a considerable improvement in the local (improved air quality) and global environment (declines in emissions). However, during this period there were no significant advances with regard to energy-efficiency, especially among end users and consumers. The few attempts made to promote energy savings

(40) Hydro and nuclear stations are especially affected due to the rising opposition of certain environmentalist groups as a result of past mismanagement that produced local impacts and risks.

(41) Nevertheless, small hydropower stations (< 50 MW) have recently been constructed and have enjoyed large subsidies from provincial governments. In some cases, the subsidy has been equivalent to 50% of the value of the investment. There is also a proposed hydroelectric dam of 135 MW capacity on the Ana Cuá branch that has been inundated by Yacyretá. This dam together with the small stations mentioned above, as well as the Yacyretá expansion, represent the most likely hydropower potential to be developed in the country.

(42) A recent poll of a wide range of business agents active in the energy field, indicated that low prices, especially for electricity and natural gas, are among the main obstacles to implementing energy efficiency measures.

(43) A modification to existing concession contracts would be required to encourage energy efficiency and effectively redefine the rights and obligations of distributors in the provision of electricity services (IDEE/FB, 1998, op. cit).

(44) Several analysts have expressed doubts as whether electricity distributors actively promote end-use efficiency through through integrated resource planning (i.e., when they act in retail markets that are open to competition (Ibid).

measures during the 1980s fell apart as a result of serious macroeconomic problems. The need to implement structural reforms to stabilize the overall economy excluded the design of policies to promote energy savings.

Beyond a few important improvements in production efficiency, (reduction of natural gas venting, of consumption in the oil fields, of power distribution losses, and improvements in energy-intensive activities) no regulatory mechanisms or policy instruments have been designed to exploit the potential for energy savings. This vacuum with regard to active policies or regulatory norms is, to a great extent, the result of the belief on the part of reformers that the assignment of resources should be left to decentralized decisions by private actors. Public intervention in the form of active policy measures are unnecessary and inefficient.⁽⁴⁵⁾

Thus, despite the existence of a National Office for the Rational Use of Energy within the Secretary of Energy, the government did not design or execute policy instruments to promote these objectives. That office's activities were in practice limited to opportunities presented by donor and bilateral aid cooperation.

3.2.4. Multilateral and Bilateral Donor Programs

Environmental matters and energy sustainability have been the arenas where the actions of bilateral cooperation agencies and multilateral development banks have been most active. Their programs and actions have been developed with the participation and/or approval of national authorities, and have also involved public institutions, public and private companies, public and private research organizations, technical assistance agencies and NGOs.

The list of activities implemented by donors is extensive, therefore, what follows is a selective look at donor-led or funded programs. Generally, the most active donors in the energy arena have been: the World Bank, the IADB, the European Union (EU), the Global Environment Facility (GEF) GTZ (Germany), the Japan International Cooperation Agency (JICA), the U.S. Agency for International Development (USAID), the U.S. Department of Energy (DOE) and the U.S. Environmental Protection Agency (EPA). For the most part, the point of view espoused by this group is that technological development can simultaneously generate economic and environmental benefits, while creating new business opportunities. All that is required are favorable conditions for the introduction and adoption of new technologies. The document detailing the EU cooperation program illustrates this point.

“Energy cooperation programs between the EU and Latin America, especially Argentina, have been very successfully. Among the great variety of aims these programs pursue, it is worth emphasizing the following:

- *Financial support for actions in the energy sector, in accordance with EU objectives in this field.*
- *Supporting the adoption of appropriate regulatory frameworks.*
- *Stimulating the modernization of Latin American energy systems by means of technology transfer and European know-how.*
- *Promoting the creation of joint ventures among European and Latin American companies.*
- *Introducing co-generation in these countries.*⁽⁴⁶⁾

(45) An example of the tendency to discount policy measures was the decision to eliminate changes in time zone in winter and summer. Before 1993 this was a standard practice that reduced electricity consumption. In 1993, the first year of operation of the fully privatized system, time changes were eliminated to avoid disrupting billing by the newly privatized electricity companies.

(46) "Cooperación entre la Unión Europea y América Latina en el sector energético." 2000. Buenos Aires. March.

European Union Programs

The European Union (EU) supported five cooperative programs in Argentina: ALURE, SYNERGY, THERMIE, URE and ARCO. The total value of EU contributions for energy cooperation programs has been about 7 million Euros.

The ALURE program supports modernization of energy systems in the electric power sector. It has had strong participation from Argentina's private power providers with roots in European companies (EDENOR, IBERDROLA).

The SYNERGY program seeks to secure energy supplies, enhance global competitiveness and promote environmental protection. It includes the concept of third party financing for investments in Buenos Aires Province, and also funds post-graduate courses and analysis of natural gas connections within MERCOSUR.

The THERMIE program promotes the use of European technologies that are environmentally sound and efficient. Its priorities include the promotion of co-generation, distributed supply for rural populations and sustainable urban development.

The URE program promotes the transfer of community technologies and the creation of public-private ventures in the industrial sector. Specific actions have included diagnosis of energy-efficiency potential, energy labeling, municipal street lighting and driver education projects, etc.

Finally, the ARCO program aims to introduce and spread co-generation technology and European know-how. Four demonstration projects have been concluded or are currently running.

Bilateral Cooperation

GTZ and JICA are two bilateral aid agencies that have had a very active presence in the energy sector. A number of U.S. government agencies also supported energy-related programs in Argentina—USAID, DOE and EPA.

GTZ has worked on the rational use of energy in small and medium enterprises and to this end has funded studies, seminars and workshops to promote the use of efficient technologies. Their efforts were coordinated with the Ministry of Economy's Secretary of Energy and were channeled through agreements with various public and private organizations.

JICA (Japan) worked closely with the Secretary of Energy and the National Institute of Industrial Technology (INTI). Its projects were large scale and supplied instruments and equipment to enable systematic emissions monitoring and measurement at thermal electric power generating stations. It made important contributions during the first few years after privatization by generating valuable data on significant air emissions and pollutants from thermal generating stations. It also cooperated extensively with INTI to put into operation a new laboratory to facilitate measurement and analysis. The lab was located in INTI's energy center (CIPURE).

USAID's main efforts in Argentina were the development of a demand side management program together with the Ministry of the Economy's Secretary of Energy, and the promotion of Integrated Resource Planning (IRP). These efforts were launched at a June 1994 workshop, but generated little interest among private sector companies. Because there were almost no representatives from the private sector at the event it practically doomed the initiative before it started.

DOE and EPA pursued a number of cooperative programs. One worth mentioning was support provided to Secretary of Environment to carry out studies that would aid the Argentine government to develop a position with regard to voluntary emission reductions under the UNFCCC. These studies supported Argentina's decision to announce quantifiable emission reduction goals at the 5th conference of the parties (COP-5) in 1999.

Multilateral Organizations

A concern of some MDB staff with regard to bilateral cooperation is the tendency to finance individual projects without learning more systematically about how to achieve sustainable energy use and development in Argentina's deregulated, decentralized, and strongly competitive power markets. Demonstration projects generally include important subsidies that in the final analysis aren't sustainable.

In an attempt to respond to this concern, the IADB developed a program, "sustainable markets for sustainable energy," which it attempted to introduce in Argentina first. IADB staff believed that Argentina was the ideal starting ground because it had successfully introduced competitive markets in the electricity sector. It designed the initial intervention in collaboration with the Secretary of Energy, and the first activity was a conference that brought together the public and private sectors to identify opportunities to harness the market in support of energy-efficiency, co-generation, demand management, etc. An important number of international experts were invited. The Secretary of Energy was initially very enthusiastic, and market opportunities in the provision of efficient public and residential lighting, improvements in public transportation, and the marketing of energy savings or services companies (ESCOs) were identified as arenas to be developed by the program.

However, the initial interest shown by Secretary of Energy faded as a result of changes in leadership. A new energy secretary took office and demonstrated little or no interest in pursuing the program's priorities. Mid-level personnel changes also contributed to the decline in interest as the effort was personally identified with or supported by a few individuals within the office of rational energy use.

The World Bank perspective on how to create incentives and systems that support more efficient and sustainable use of energy has evolved over time. Primarily, it has argued that the best method is the use of price signals to influence behavior. Market prices promote the efficient use of energy. Thus, some World Bank staff have expressed the opinion it has channeled 100% of its loans towards energy efficiency because institutional reforms and efficient tariffs will and have driven improvements in energy efficiency.⁽⁴⁷⁾ However, a growing interest in environmental concerns has led the World Bank to moderate this position. As a consequence, the Bank financed or co-financed many activities, projects, seminars, workshops and studies aimed at incorporating environmental concerns and the efficient use of energy into energy and environmental policies.

Almost all of the World Bank's recent environmental activities were closely linked to global environmental concerns and focused on applying lessons learned from successful policy and technology transfer experiences. Some activities that deserve mention are the Clean Air for Latin American Cities program and studies linked to the identification of options for the mitigation of greenhouse gases at the local level. However, these activities never went beyond studies and pilot projects.

Finally, the GEF played a role in the analysis of environmental problems associated with energy supply and consumption.⁽⁴⁸⁾ It financed Argentina's first national communication under the UNFCCC, and thus brought together a working group that developed significant experience in this field. It also supported additional studies on the economics of greenhouse gases and a research project on the most important barriers to mitigation. Aside from these studies it financed a small number of pilot projects, such as the introduction of methane capturing technologies at oil and gas fields.

(47) IADB. 1993. "Annals of the meeting on the efficient use of electric power."

(48) The GEF is the primary financing mechanism of a number of multilateral environmental agreements. Its sole purpose is to support or assist developing country's meet their obligations under these treaties, which deal solely with global environmental problems like biodiversity loss, global climate change, desertification, etc.

3.3. Recent Reform Efforts

In the last 3-4 years a number of policy or regulatory changes have been introduced to address problems that have emerged in the electricity sector. These measures, as noted before, attempt to improve or to realign incentives within the electricity sector. In essence, they attempt to tweak the existing system. Many of the problems these measures try to solve address governance or public benefits concerns. The major actions or changes taken are summarized below.

Regulatory

- The system's inadequacy in supporting expansion of the transmission system on a regulated market basis has led to the approval of a Federal Electricity Plan to partially finance new high-tension and long-distance transmission lines.
- Creeping vertical and horizontal integration of single or related private companies led the Ministry of the Economy to force the company ENDESA to sell its share in the EDENOR distribution company, while allowing it to maintain its share's in the EDESUR distributor. Thus, breaking its domination over electricity distribution in the GBA area.

Tariffs

- A majority of provinces are conducting studies to support revision of rate charts for provincial electricity distribution companies. Most provincial governments appear to lack the political will or interest to correct social inequalities, introduce incentives for efficient use of energy or to revisit the criteria for setting the revised rates.
- At the federal level, ENRE has called for studies to support the revision of current rate charts for private distribution companies operating in the GBA and GLP areas (EDENOR, EDESUR and EDELAP). The terms of reference for these studies include evaluation of social criteria, incentives for energy efficiency, and standards for service quality. These terms of reference also introduce an interesting methodological concept: representative electricity systems. The objective of introducing this concept is to permit identification of different types of retail consumers. Although the actual influence of these studies on the revised rates is unclear, it does point to a concern for incorporating social and environmental factors.

Measures to Support Energy Efficiency

- In response to public pressure the Secretary of Energy has undertaken studies to assess whether instituting time changes for winter and summer seasons would result in energy and economic savings for consumers as well as general environmental benefits.

Support for Renewable Energy Sources

- In 1998 the Argentine congress passed legislation providing subsidies for the construction of wind powered generation in four southern provinces. The subsidy provided is US \$0.60 per megawatt hour.
- Provincial governments are providing subsidies for the construction of small hydroelectric plants (less than 50 MW).
- Planned investment in the expansion of the existing Yacyretá dam as well as the construction of a smaller (135 MW) hydroelectric dam on the Ana Cuá, which is in the process of approval, improve the prospects for development of hydroelectric resources than was the case in the initial years of reform.

One of the more substantive policy changes listed above was promoted by an environmental NGO with the financial support from companies interested in wind power generation. The NGO, Greenpeace, actively lobbied for the passage of a law to support aeolic generation in provinces with significant wind potential. The law, passed in 1998, provides subsidies for construction of wind-driven turbines. This effort was successful primarily because it involved a sustained media campaign that generated public support for wind energy development over other (renewable and non-renewable) options. As a result, legislators responded to public pressure and approved the legislation. The media campaign cost millions of pesos and it was financed with contributions from wind-turbine manufacturers.

The Secretary of Energy demonstrated weak support for the new legislation and the framework law it created. As a result, supporting regulations were not issued until December 1999. This delay was compounded by the failure of wind turbine manufacturers to live up to commitments they made when the legislation was enacted into law. To date, only a few wind generation projects, for the most part involving provincial electric power cooperatives, have been undertaken as a result of the above legislation.

Very recently (February 2001), two companies, ENDESA y ELECNOR, signed a joint venture agreement to build wind farms in four southern Argentine provinces. The proposed installed capacity to be built over ten years is 3,000 MW (11.5% of projected demand). The total investment is estimated at U.S. \$2,300 million. The companies noted, however, that their ability to meet this target is dependent on the construction of a distribution network, and a supportive regulatory regime that ensures price stability over a 15-year period. The current law provides a subsidy of one cent per kilowatt-hour of power generated as well as reductions in value added taxes during the construction phase.

Chapter 4. The Bottom Line

The restructuring and reform of the Argentine electricity system has been a dynamic and on-going process that has introduced successive regulatory changes over the last decade. The most dramatic changes were introduced at the start of the reform process. However, the transformation of the sector's institutional structure produced unexpected outcomes with regard to how the system functioned, as well as the behavior of different political and economic actors (government, donors, labor unions, the private sector, and civil society).

Throughout the process the GOA has demonstrated an unwavering commitment to the neo-liberal model it adopted in the late 1980s. In other words the creation of private electricity markets, the transfer of power generation, transmission and distribution assets to private hands, and a shift in its role to a facilitator of private participation and competition. Resulting problems experienced with the development of the electricity sector, the inequitable distribution of benefits generated by reforms, or environmental impacts could be resolved by taking market reforms and liberalization of the sector further. The two political administrations that have presided over on-going reforms have not questioned the adequacy of the current market model.

The implication, therefore, is that the reforms have a high level of irreversibility. Without a change in political will or a recognition of problems associated with the current model, it will be difficult to overcome regulatory deficiencies, renegotiate the terms of concession contracts, introduce a new structure for electricity tariffs, introduces incentives for energy-efficiency, etc.

Conclusions about the fate of public benefits are presented below in summary form. This synopsis is followed by sections that discuss governance issues and key actors.

4.1. Social Impacts

The social impacts of the reform can be subdivided to include trends in residential electricity prices, quality of service, and employment effects.

Tariffs

- The post-reform electricity markets clearly benefited large consumers through significant reductions in electricity input costs relative to the pre-reform period.
- Until 1999, retail rates did not show a consistent decline in parallel to declines observed in the wholesale market.
- A comparison of present retail rates across jurisdictions indicates that tariff differences are not significant and do not reflect differences in the characteristics of markets, or the public or private nature of the distribution companies. This seems to indicate that the alleged higher efficiency of the private distributors has not translated into lower rates for consumers.
- A declining price structure based on consumption levels prevails for residential tariffs, particularly those that were previously under federal jurisdiction and in provinces that adopted similar rate structures. These rate structures lack a clear theoretical-technical justification, reduce incentives for energy conservation and efficiency measures, and are socially regressive.
- Distribution companies are reaping benefits from tariffs that include a component for "distribution value added" that was negotiated when these services were privatized. As a result, current distribution tariffs do not reflect real costs. It is possible this component will be reduced or eliminated in the pending renegotiation or revision of concession tariffs.

- Restructuring and privatization led to the elimination of all social pricing over a two-year period. These social tariffs benefited low-income populations, in particular pensioners and retirees receiving minimum social security benefits. Private and local government initiatives have preserved some aspects of social tariffs in individual jurisdictions.

Access and Quality of Service

- The degree and number of consumer complaints with regard to service quality in the GBA area was not recognized until the EDESUR incident that brought these problems to public attention. Public hearings on the incident led to an increase in complaints regarding privatized services generally, and generated pressure on ENRE to change its position with regard to the indemnities to be paid by the distributor.
- The number of households that have gained access to electricity in the post-reform period has been limited. Distributors have generally concentrated their investments in already electrified urban and suburban areas.
- The PAEPRA and the PERMER programs have not been implemented and face important stumbling blocks in the post-reform system.

Employment Effects

- Actions taken to reduce personnel while the companies were still in State hands were linked to schemes for voluntary advantageous retirement.
- This process had consequences for those made redundant and for the State. In the first case, incomes diminished, their welfare decreased and the solution chosen had a regressive redistributive impact. In the case of the State, the process was financed by taking on additional external debt that impacted on the level of external indebtedness.

4.2. Environmental Impacts.

Global Impacts

- Given the rational behavior shown by the new actors in the overall Argentine energy system (high discount rates and fast capital recovery), it is improbable that new hydroelectric stations will be built, despite the country's significant hydro potential. The exception are small or run of river dams that are being subsidized with public resources or the expansion of the existing Yacyretá dam's generating capacity. This implies a reversal of diminishing trends for specific emissions in the electric power sector.

Local Impacts

- Enforcement of environmental norms has meant continued use of environmental management manuals developed before the first generation of reforms. ENRE has concerned itself almost exclusively with setting maximum allowable emission levels for thermal generating stations and with monitoring and enforcement of existing regulations.
- In a decentralized and deregulated electricity market, environmental concerns are not explicitly addressed in investment decisions. These concerns are addressed through the narrower scope of environmental impact assessment approved by governments, and the negotiation of specific terms for individual projects' compliance with emission levels.

Energy Efficiency

- Beyond a few but admittedly important improvements in production efficiency (reductions in natural gas venting in oil fields, elimination of power distribution losses, production changes in energy-intensive industries) no regulatory mechanisms or policy instruments have been introduced to encourage or enable companies to capture economic benefits from energy savings.
- In spite of the existence of a National Office for the Rational Use of Energy within the Secretary of Energy, higher levels within the executive branch did not give it the necessary instruments or resources to pursue its major goal. Thus, in practice government efforts to promote energy efficiency and sustainability were limited to activities supported by donor, multilateral and bilateral assistance programs.

4.3. Governance Challenges

In the course of the research, including literature searches and interviews, social and environmental concerns and the issue of public benefits were not generally a central topic. However, problems of governance and the adequate participation or involvement of consumers and other stakeholders were frequently a subject raised in both the literature consulted and the interviews conducted. Some of the most important concerns raised in this respect include:

- The current regulatory framework has failed to ensure the expansion of the system or to guarantee reliable long-term supplies. Because power generation is no longer considered a basic public service, experts and numerous documents indicate that these objectives or goals are no longer being met in a privatized system. If expansion of supply and long-term supplies are important, the regulatory framework will need to be altered to ensure fulfillment of these objectives explicitly.
- The vertical and horizontal unbundling of electric power supply, transmission and distribution has resulted in each segment of production chain operating within a separate dynamic. When these fail to coincide they can threaten the functioning of the whole system. The problem encountered with the expansion of transmission grid is a good example.
- There is growing public sentiment that privatized companies have captured ENRE, the federal regulatory agency. This is exacerbated by ENRE's inadequate defense of consumer interests. Groups representing consumers and civil society have had weak or limited involvement in the regulatory process, while industry associations and others representing generators and distributors have had stronger involvement. This results in an imbalance, and creates an environment conducive to decisions that favor business interests over that of consumers.
- The sector is moving towards a dangerous process of concentration that strongly enhances the market power of the actors involved in power supply. Concentration resulting from vertical and horizontal re-integration of the productive chain, as well as integration between different energy chains has occurred, and the public sector's response has been cautious.
- Actions taken to reduce the size of the state and its influence in economic sectors, in combination with successive macro-economic adjustment policies designed to maintain fiscal balances have affected the capacity and authority of the public sector. In this case, a smaller state is one with fewer resources, less personnel, lower salaries, and weaker technical capacity.

4.4. The Influence of Donors and Other Actors

MDBs, such as the World Bank, played an essential role in the inspiration and initial implementation of reforms. The World Bank's research and statements favoring participation of the private sector in the electricity sector, and its emphasis on the inefficiency of the state fed arguments and justifications for the transformations carried out by the executive branch. Financing provided by the World Bank supplied the sector with funds for financing voluntary retirement programs, as well as macro-economic adjustment, and preparation of public companies for privatization.

The IADB and the World Bank had greater influence at the initial stages of reform when the sector and the government faced severe fiscal shortfalls and experienced macro-economic crisis. During later reforms—which were not driven by such crisis—these institutions appear to have significantly reduced leverage. This is the case for the World Bank in particular.

After the completion of the first generation of reforms, the MDBs and other donor organizations provided significant support for environmental matters. It should be noted that the IADB did provide financing to the government early on to strengthen its environmental authority, laws and regulations. In the environmental arena, energy-efficiency and sustainable energy were an area of active collaboration that engaged public authorities, public and private companies, public and private research institutions, and NGOs.

With regards to civil society, the strongest participation in the political process in the initial years after the reform were producer and industry associations to the extent that they participated in consultations and engagements with ENRE and CAMMESA. Labor unions, which were politically aligned or affiliated with the political administration that instituted the first generation of reforms, agreed to support the government's macro-economic reform programs given the economic crisis affecting the country at the time. The same can be said for civil society that responded to overwhelming public opinion in favor of a solution to the protracted economic crisis. Ironically, Argentina seems to be repeating the history of a decade earlier with the political administration demanding and receiving special powers to address a new economic crisis in 2001.

It is important to note that after the 1999 EDESUR incident, public interest groups, in particular those representing residential consumers, become more actively engaged in the regulatory process. These groups pressured ENRE to extract adequate compensation and a significant penalty from EDESUR. In 1998, Greenpeace, with the financial support of renewable energy companies, successfully lobbied for the passage of legislation to provide public subsidies for wind power development. Although highly effective, the latter action is the sole example of a domestic environmental group actively working to influence energy policy.

INTERVIEWS

Former Officials in the Ministry of the Economy's Secretary of Energy

Mr. Luis Caruso (engineer)

Former Director, National Electric Power, 1989-1991.

Former Director, National Coordination and Regulation, 1991-1993.

Vice President, CAMMESA, 1993.

President, Energy Markets, Inc./Mercados Energéticos S.A. (a consulting firm) – 1994- to present.

Mr. Guillermo Cappadoro (engineer)

Former Director, National Electricity Policy and Programming, 1989-1991.

Director, PSI Consulting/PSI Consultora, 1992-to present.

Mr. Omar Arza (attorney).

Former Director, Integrated Energy Study of the NEA, Secretary of Energy, 1986-1989.

Former Director, Integrated Energy Study of Buenos Aires, Secretary of Energy, 1990-1993.

Former Director, Office for the Rational Use of Energy, Secretary of Energy, 1993-1999.

Dr. Hector Ferro

Former Advisor, Secretary of Energy, supported negotiation of external financing, 1991-1995.

Former official, Latin American Energy Organization/Organización Latinoamericana de Energía (OLADE), 1996-1999.

Mr. Jorge Lapeña (engineer)

Former Secretary of Energy, 1984-1988.

President, General Mosconi Argentine Institute of Energy

Member, Board of Directors, National Atomic Energy Commission.

National Electricity Regulator, ENRE

Mr. Juan Legisa (engineer)

President, ENRE

Former Undersecretary for Electric Power, 1989-1991.

Private Sector Representatives

Mr. Roberto Brandt (attorney)

Former Director, Integrated Energy Study of the NEA, Secretary of Energy, 1984-1989.

Former Advisor, Secretary of Energy, 1986-1989.

President, Ecoenergy Consulting/Ecoenergía Consultora, 1990-1999.

Advisor, Board of Directors, METROGAS

Mr. Jorge Karacsonyi (engineer)

Former consultant, contracted to support privatization process.

Dr. Oscar Edgardo Marano

Director, Financial Management, EDENOR

Dr. Martin Rodriguez Pardina

Macroenergy, Inc./Macroenergía S.A.

Academia and Research Institutions

Dr. Daniel Azpiazu

Professor, FLACSO University

Expert and researcher of energy privatization processes

Ms. Graciela Diaz de Hasson (attorney)

Advisor, Secretary of Energy

Author of numerous works dealing with the privatization process

Donors and Development Assistance Agencies

Dr. Alain Roche

Chargé for Bilateral Cooperation Agreements

Embassy of the European Union, Buenos Aires.

Dr. José Gallego

Chargé for Bilateral Cooperation Agreements

Embassy of the European Union, Buenos Aires.

Mr. Jorge Martinez Riva (engineer)

Sector Specialist

Inter-American Development Bank.

Mr. Jaime Millan

Principal Energy Economist

Environment Division

Inter-American Development Bank

Mr. Claudio Carpio (engineer)

Environment Division

Inter-American Development Bank.

Dr. Jaime Sujoy

Infrastructure Unit

Southern Cone Division

Inter-American Development Bank.

Dr. Nelson de Franco

Principal Power Engineer

Finance, Private Sector and Infrastructure

Latin America and the Caribbean Region, The World Bank

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