

## THE POWER SECTOR IN: EL SALVADOR

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<b>I. Current Status of Sector Reform: Key Points</b>	
Power System Overview	At the end of 1998, El Salvador had 943.3 MW installed. During the year, there was a total generation of 3,669 GWh and electricity consumption of 3,322 GWh, with total electricity losses of 12.4%. CEL estimates that electricity demand will grow at an average rate of 7.3% per year until the year 1999 and at 6.4% for the following ten years. Electricity coverage in the country is 65% of the total population with 92% coverage in the urban areas and 38% in the rural areas. The system behaves as a sole market and will form part of the integrated Central American market.
Structure	The sector unbundled its different activities both vertically and horizontally. There are five generation, one transmission and four separate distribution businesses. However, the generation and transmission businesses are still government owned and controlled by CEL. There is also an independent Transactions Unit (UT) in charge of market operations. Distribution and supply activities are also unbundled.
Competition	<p>The new regulatory framework created the environment for a more competitive power sector at both the wholesale and retail levels. A new energy exchange has been in operation since April 1998. However, CEL remains the sole seller of electricity in the wholesale market, and as long as it does not divest its assets there is unlikely to be much competition. Currently some power companies from Guatemala are competing for access to El Salvador's electricity market. The current interconnection with Guatemala and the future interconnection with Honduras and with the SIEPAC transmission line will make the electricity market more competitive.</p> <p>The electricity law allows for retail competition, and some of the new distribution companies are already competing for the consumers in the boundary areas.</p>
Role of the State	<p>The State is pulling away from most of its commercial activities as well as some of its policy roles. In fact, policy functions have not been yet assigned to any government entity. This void is being filled temporarily by CEL. A new independent but weak agency, SIGET, is in charge of regulatory and oversight activities. While the government has sold its interest in the distribution sector, and it is planning to sell its thermal generation business, it will keep transmission and hydropower assets under its control and it is searching for strategic partners to develop and operate its geothermal resources.</p> <p>The Transaction Unit (UT) will have some indicative planning functions, and FINET, which is a government fund, will participate in the definition of social investment and subsidies.</p>
Regulatory Institution	SIGET, an autonomous agency in charge of the regulation and oversight of the electricity and telecommunications industries, has been operating since 1997. Since its inception it has been struggling with a heavy work load and limited resources.
Private Sector Participation	<p>The plant operated by Nejapa Power is currently the only private generator in the country. CEL is planning to sell its participation in the two generation companies, Generadora Acajutla, S.A. de C.V., which holds the thermal units of Acajutla (220.1 MW); and Generadora Salvadoreña, S.A. de C.V., which holds the thermal units of Soyapango and San Miguel (92.4 MW). CEL has hired a consortium formed by Ernst &amp; Young LLP, Deutsche Bank Securities, Inc., and Synex to assist them in the sale of these companies. CEL expects to privatize them in 1999. By the same date, CEL also plans to establish a strategic alliance to operate its geothermal company, Geotérmica Salvadoreña. S.A. de C.V.</p> <p>The four major distribution companies were privatized in January 1998. This privatization, which amounted to \$586 million, was Central America's first privatization of electricity assets.</p> <p>Both the hydroelectric companies and the geothermal companies will perform competitive bidding for the concession of new projects.</p> <p>The private sector will perform most of the system expansion in the future. Nevertheless, the hydro and geothermal companies are in charge of most of the expansion already under construction. This means that new private investments will only come in year 2002, when demand will be sufficient for the entrance of</p>

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	new capacity.
Major Outstanding Issues	<ol style="list-style-type: none"> <li>1. The new market configuration is currently in a transition period, as long as CEL remains the major participant in the generation market the scope for competition will stay limited. Furthermore, until a larger Central American power market is in place, the opportunities to exercise market power will be abundant.</li> <li>2. The UT will have considerable authority for the system it coordinates, and its vulnerability to influences exerted by the generators or other participants in the system is a concern to external observers (e.g., Multilaterals).</li> <li>3. The next step in the government's reform agenda should be the phasing out of subsidies implicit in CEL's current price structure in order to level the playing field for competition</li> </ol>
<b>II. Legal &amp; Regulatory Framework</b>	
Legal Basis	<p><i>Decree No. 843</i>, approved by the Legislative Assembly in October 1996, is the General Electricity Law that provides for a new, mostly unbundled sector, and defines the competitive markets to be established at the bulk power and retail levels. It creates a Transactions Unit to coordinate the interconnected system, provides for open access to networks, outlines applicable pricing mechanisms, prioritizes energy efficiency and resource conservation, provides for consumer protection, and identifies the obligations of sector entities at all levels. The restructuring of CEL is to be completed within three years of the law's enactment (i.e., by October 1999), with other activities to be implemented in advance.</p> <p><i>Decree No. 808</i>, created SIGET as the new regulatory entity in charge of the electricity and telecommunications sectors (September 1996).</p> <p><i>Decree 960</i>, approved in February 1997 creates a national investment fund in electricity and telecommunications (FINET).</p> <p><i>Decree 1004</i> of April 1997, authorizes the sale of stocks of the electricity distribution companies owned by CEL.</p> <p><i>Decree 147</i>, 1948, officially establishes CEL, though it started operating in 1945.</p> <p>The <i>Electricity Service Law</i> of 1936, established the main guidelines for the sector's development.</p>
Role of the State	<p>Regulatory, oversight, and tariff- and standard-setting functions previously under CEL were reassigned to SIGET, the new regulatory entity, established in 1997. The transactions unit (UT) is already operating the new market. No agencies have been assigned sector policy-making or planning responsibilities, and there is not a specific proposal under consideration.</p> <p>The government will remain involved in some commercial activities at least for the time being. It will keep control of two hydroelectric companies and the transmission assets. Also, the government is planning to form a strategic alliance with a private investor to operate and develop the geothermal company.</p>
Institutional and Regulatory Entities and Jurisdiction	<p>The Legislative Assembly Decree No. 808 of September 1996 approved the creation of the <b>General Superintendence of Electricity and Telecommunications</b> (SIGET). This new entity is a financially and administratively independent institution with its own patrimony. SIGET is in charge of proposing implementing regulations and setting standards (for presidential approval). It also regulates and oversees compliance with established norms in the electricity (and telecommunications) sector, fosters competition, and reduces the opportunity for regulatory discretion.</p> <p>Also, SIGET will authorize concessions for geothermal and hydro resources under established competitive conditions, define sector norms for bidding procedures, protect consumer interests, undertake international treaties and maintain and promote relationships with foreign institutions. SIGET will also inform the appropriate authority of noncompetitive practices in the two relevant sectors, collect relevant information from sector enterprises and periodically publish existing data on the sector. SIGET will keep a Public Registry for Electricity and Telecommunications with resolutions related to concessions.</p>

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	<p>The nation's President nominates SIGET's qualified General Superintendent for a 7-year term, who in turn will nominate and be supported by a Manager of Electricity and a Manager of Telecom, each serving 5-year terms, and who must each meet the non-partisan and qualifications criteria established in the law.</p> <p><b>.FINET</b>, the National Investment Fund for Electricity and Telecommunications will be in charge of promoting social projects and will participate in the definition of subsidies.</p>
Sector Planning	<p>To date, CEL has performed sector-planning functions and approved expansion plans of other sector utilities. There is no provision for sector planning responsibilities in the new Electricity Law, although it is mentioned that the operators of these systems may voluntarily undertake transmission and distribution system expansion plans. The Electricity Law mandates UT to publish an annual report in March of each year. This report should include a statement of the required investments to achieve common benefits for the system's participants, based on cost-benefit analyses.</p>
<b>III. Sector Structure and Participants</b>	
Structure	<p>The sector was completely dominated by CEL until 1998. The national state-owned utility owned most of the generating capacity, had complete ownership of the transmission assets, and participated extensively in distribution functions through its ownership or control of six main distribution utilities and through its direct service provided in rural areas. CEL was also responsible for sector planning, coordination, oversight, and regulatory functions. Only one generator and one distribution enterprise were under private ownership.</p> <p>The Electricity Law (Decree No. 843) established a new sector structure based on an extensive vertical and horizontal unbundling of CEL's activities over the 3 years that have followed its implementation. CEL has already subdivided its generating units into different companies that operate independently under CEL's ownership. The company intends to privatize its thermal generation companies, and to form a strategic alliance for the operation of its geothermal company. Competition already exists in the distribution sector after the successful privatization of CEL's distribution companies. The law does not prohibit vertical integration of enterprises; nevertheless, each area of activity must be under separate accounting systems. Sector enterprises will be prohibited from owning shares in the transmission enterprise to be split from CEL, and the transmission enterprise will likewise be prohibited from ownership in distribution or generating activities.</p>
Participants and Degree of Private Sector Participation	<p><i>Generation:</i> CEL provides virtually all national generating supply except for Nejapa Power, a 144.5 MW thermal-fired IPP, which has held a power purchase agreement (PPA) with CEL since 1994. CEL's generation assets were reorganized into two hydro companies, one geothermal company and two thermal companies; these six companies will compete in the new wholesale market.</p> <p><i>Transmission:</i> CEL owns, operates, and maintains the transmission system and its associated facilities. It also undertakes expansion projects for the system, as well as sets connection and interconnection standards and operating criteria.</p> <p>Under the new Electricity Law, the primary transmission enterprise of each system will undertake the maintenance, improvements, and expansion of its respective system according to provisions in the law. However, the transmission enterprises, as well as generators participating in the system, must place their facilities under the operating direction of the Transactions Unit (UT) for the respective system for coordination purposes.</p> <p><i>Retail Distribution:</i> Currently the distribution market in El Salvador is entirely in private hands. The four largest companies that were divested from CEL were privatized in January 1998. The Compañía de Alumbrado Eléctrico de San Salvador SA (CAESS) is the largest company with 385,000 clients and a 1,466 GWh demand in 1997, and covers the north-central region of the country and part of the capital, San Salvador. It was bought by Electricidad de Caracas (Venezuela) during the time of privatization. Other privatized companies were: Distribuidora Electrica del Sur SA (DELSUR), which operates the south-central region and part of San Salvador; Compañía de Luz Eléctrica de Santa Ana SA, (CLESA), which</p>

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	covers the western region of the country including the second largest city, Santa Ana (Bought by AES); and Empresa Eléctrica de Oriente SA (EEO), which covers the eastern region of the country (purchased by Electricidad de Caracas). There is a fifth distribution company, Distribuidora Eléctrica de Usulután SEM (Deusem), which covers a small area in the southwest of the country. It is only partly owned by CEL (33.3%); with other investors being the local municipality and private investors.
Targets for Privatization	Generadora Acajutla, S.A. de C.V. and Generadora Salvadoreña, S.A. de C.V., CEL's newly created thermal generation companies, will be privatized in 1999. CEL also expects to form a strategic alliance to operate Geotérmica Salvadoreña. S.A. de C.V., its newly created geothermal generation company.
New Investments	<p>Under the new Electricity Law, the responsibility for new investments in generation and distribution activities will be left up to private investors. Transmission and distribution enterprises, as well as other entities, may freely undertake network expansions with the agreement of the owners of any affected facilities. The UT may authorize system expansions for participants' common benefits, allocating the financial obligations of each system user for the improvements, which will be undertaken by the Transmission Enterprise. The State may allocate funds to transmission or distribution enterprises for the expansion of these systems in particular areas, such as for rural electrification purposes.</p> <p>Under this Electricity Law, FINET will be in charge of promoting social projects.</p>
<b>IV. Electricity Markets: Areas of Competition and Monopoly</b>	
Bulk Power	Competition in the wholesale market in El Salvador is mostly based on international competition and the existence of a common Central American market. The new wholesale market currently has all the signs of a competitive market, with six generation companies (three of them will remain government owned) and five distribution companies. Generation companies from Guatemala are already bidding into the market, increasing the competitive environment in the country. Vertical integration is allowed, which raises market power issues.
Transmission and Distribution (Networks)	<p>CEL continues to operate the national transmission system and the interconnection with Guatemala. CEL's transmission enterprise, as well as the transmission enterprises in other systems, are responsible for the maintenance and reliability of the system, but have to allow its system to be coordinated by the UT.</p> <p>The UT is not allowed to undertake electricity transactions on its own behalf, and cannot hold stakes in other sector activities. The UT also coordinates transactions over international interconnections. Generally, the interconnection or transaction undertaken by any party that has an impact on the host system or on a third party is held responsible for the impact.</p> <p>Both transmission and distribution networks are required to provide open access. Under the new law, generators connected to the transmission systems must maintain valid transmission service contracts.</p>
Retail Distribution	<p>Distribution (commercialization) enterprises are allowed to compete with generators or other commercialization entities to supply end users. If a (host) distribution enterprise supplies the end user, the terms and conditions of supply approved annually by SIGET for that provider will be applied. Other commercialization entities will be able to negotiate these terms and conditions freely with each end user it supplies.</p> <p>All agents with commercialization functions, including generators, have to maintain valid distribution service agreements and register them with SIGET. All end users will have to sign supply contracts with commercialization entities.</p>
<b>V. Load Dispatch and Pool Operation</b>	
Dispatch Entity and Basis	The UT (Transactions Unit) coordinates and undertakes the programmed dispatch for each defined time unit according to the contracted energy transactions. The UT also administers accounts of system participants and manages transactions in the spot (regulated) market, which are defined by the increments

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	<p>of energy and capacity and the respective prices established in the programmed dispatch for the contracts market. The UT is a corporate entity with shareholders composed of the various participants in the interconnected system (i.e., generators, transmission enterprises, distributors, and end-users with at least 5 MW of capacity). Each representative group of shareholders has two votes except transmission entities, which only have one vote.</p> <p>SIGET sets the system's operating and connection criteria; the UT determines the dispatch periods and bid procedures, assigns responsibility for system failures, and creates a methodology for calculating system losses.</p>
Pool Operation	<p>The Wholesale Electricity market is already in place operated by the UT. The market is formed by the generation, transmission and distribution/commercialization entities. The wholesale market consists of both a contracts market and a spot market. The contracts market is based on previously agreed contracts between generators and distributors-marketers, and dispatch is based on its volumes. Non-contracted energy is traded in the Mercado Regulador del Sistema (MRS) and is based on a system of price and volumes bids and offers for energy. The UT must be informed of all contracted transactions, though not in financial terms, and generators must give price offers to meet contracted energy needs during congested periods and thus maintain the equilibrium between the system's supply and demand balance as well as its reliability.</p> <p>The MRS will operate to balance supply and demand on the basis of the offers and corresponding prices for units of energy defined in excess of or below the level of programmed dispatch (i.e., to meet the obligations of the contracts market). Generators without sales contracts may participate in the MRS with an assigned programmed dispatch value set at zero.</p>
<b>VI. Pricing</b>	
Bulk Power	<p>The wholesale market consists of a deregulated market for bilateral contracts and a regulated market.</p> <p>The prices for the deregulated market are freely negotiated among the different parties. These contracts are physical and represent real dispatch in the system.</p> <p>Companies will also be allowed to participate in the regulated market (MRS) to offer and buy their non-contracted power. The UT will dispatch the plants based on the price offers and the demand. Charges to the relevant system participants finance the operation of the UT.</p>
Transmission/ Distribution (Networks)	<p>The SIGET is in charge of establishing regulated charges for the coordinated operation of the transmission system, and for access and service fees for the use of transmission and distribution networks.</p> <p>The charges for the use of transmission networks are based on the operating and maintenance costs for an efficiently run system (using international standards of efficiency) and factor in a value for compensation in case of failures. The maintenance charges include an annually updated New Value of Replacement for equipment (factoring in useful life of equipment and standard depreciation) needed for the efficient maintenance of the grid. Charges will be calculated on the estimated maximum power to be transmitted over the system.</p> <p>Use of the distribution system entails a charge based on the average annualized investment, operating, and maintenance costs of an efficiently sized and operated distribution system. This charge does not account for costs associated with marketing, retail sales, or other customer services performed by a commercialization agent. Investment costs incorporate the New Value of Replacement of an efficiently dimensioned system, annualized on the basis on the normal useful life of installations and real discount rate (set by law at 10%). Annual operating and maintenance costs will incorporate local costs; international efficiency standards, average energy and capacity losses in distribution, and expected compensation for failures for a corresponding efficiently dimensioned and operated model distribution grid.</p>
Retail Tariffs	Retail tariffs are regulated by SIGET for supply provided by distribution enterprises. Distribution enterprises must annually submit for SIGET's approval a tariff schedule that proposes the prices and other

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	<p>conditions for the supply of electricity within its territory. Those tariffs include the average price of electricity in the regulated market during the preceding year at each relevant node, plus the charges for use of the distribution grid and the costs of supplying the particular client. The discount rate is set at 10%. Supply provided through a non-distribution commercialization entity will be subject to negotiation of the terms, conditions, and prices between the power purchaser and selling entity without SIGET's intervention. SIGET is authorized in a transitory way by the Electricity Law to set maximum tariffs for consumers with an average monthly consumption of less than 500 kWh for 18 months and up to 200 kWh for 18 more months. After these 36 months, SIGET doesn't have any authority to regulate residential consumers.</p> <p>Previously, tariffs were based on accounting costs, and there were no incentives for efficiency. In 1992, 1994, and 1995, tariffs were increased by 30%, 30% and 16% respectively, restoring CEL's financial health and viability. Regular tariff increases (5-9%) were planned for the 1995-1999 period to achieve levels equivalent to 100% of the system's long run marginal costs by 1999.</p>
Subsidies	<p>There is a distortion in the rates charged to different customer categories, which indicates implicit cross-subsidies for some consumers. The reform program intends to set tariffs for each customer category, which reflect the actual costs of service, and any subsidies will be explicit.</p>
<b>VII. Sector Problems and Priorities</b>	
Framework and Other Issues	<p>The institutional framework fails to provide a defined body that will formulate policies for the sector, and doesn't establish a coordinating entity for the energy sector at large. Moreover, no entity is assigned to perform system-planning functions, indicative or otherwise. SIGET is not only a multi-sector agency, but is in charge of various functions such as regulation, awarding concessions and overseeing the market.</p>
Operating Needs	<p>The high projected annual demand growth, 7.3% during 1995-1999, and 6.4% during 2000-2010, requires a focused effort to bring unavailable capacity back online and to push forward with steady increments of new capacity throughout the given period in tandem with an energy conservation program. Most of the needed capacity until year 2002 is already under construction and consists of capacity additions to the hydroelectric plants and of geothermal projects, which will be implemented by government companies. Private participation will then be restricted to the privatized companies (100% of the distribution market and less than 50% of the generation market). Competition will depend on international interconnections.</p> <p>There are still considerable improvements to be made in transmission and distribution facilities, damaged during the war and deteriorated further due to low levels of investment in maintenance and expansion programs. It has already caused major problems in the reliability of the operating system.</p>
Electrification and Energy Efficiency	<p>Current electric service is provided to about 65% of the population, or 92% of the urban and 38% of the rural population. It is expected that transmission and distribution entities or their affiliates under the restructured sector will be directed by a national government agent to undertake electrification programs in targeted areas, to be financed through FINET.</p> <p>The Electricity Law clearly emphasizes the role of energy efficiency and resource conservation as an underlying foundation for sector development. Energy efficiency was a key component of an IDB loan approved in 1992.</p>
<b>VIII. Sources and Relevant Web Pages</b>	

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<p>ECLAC-United Nations, Energy Unit, 1999. “La Industria Eléctrica del Istmo Centroamericano: Situación de los Procesos de y Perspectivas para el Corto y Mediano Plazo”.</p> <p><b>Relevant web Pages</b></p> <p>Ejecutiva Hidroeléctrica del Rio Lempa (CEL): <a href="http://www.cel.gob.sv/">http://www.cel.gob.sv/</a></p> <p>ndencia General de Electricidad y Telecomunicaciones (SIGET): <a href="http://www.siget.gob.sv/">http://www.siget.gob.sv/</a></p> <p>Transacciones (UT): <a href="http://www.ut.com.sv">http://www.ut.com.sv</a></p> <p>Catholic University of Chile: <a href="http://www.ing.puc.cl/~power/southamerica/southamerica.htm">http://www.ing.puc.cl/~power/southamerica/southamerica.htm</a></p>	