

THE POWER SECTOR IN: PANAMA

Issue Area	PANAMA
I. Current Status of Sector Reform: Key Points	
Power System Overview	Panama had an installed capacity of 1037 MW by the end of 1998 with a total generation of 4079 GWh. Electricity consumption in that same year was 3,245 GWh, with total losses of 19.4%. Electricity demand is growing at a rate of 5.8% per year. Electricity service coverage is 70%. The electricity system behaves as a sole system with the exception of the independent system in the canal zone. Panama will be part of the Central American common electricity market.
Structure	With the implementation of the new electricity law passed in February 1997, the sector has completed its unbundling both vertically and horizontally. A new market structure has been implemented and IRHE has been subdivided into 4 generation and three distribution companies. IRHE's distribution and generation companies were privatized in September and November 1998, respectively, and the transmission company will remain in government's hands.
Competition	The new regulatory framework aims to provide a more competitive environment. The new generation companies will have to compete against each other and different market participants will be building new generation plants. Nevertheless, the number of companies that currently exist is still small and during the transition phase (until 2002) the scope for competition will be limited, as there will be only a single buyer of electricity, the transmission company. Although the distribution sector was subdivided into different companies, they were granted regional concessions, which means that they will be regulated monopolies.
Role of the State	In 1996, regulatory functions, including tariff- and standard-setting responsibilities, were transferred to the new regulatory entity and thus separated from commercial activities. The new electricity law assigns policy functions to a new entity, the CNPE, central planning responsibility to the Transmission Enterprise, and specific system coordination, regulation, and oversight activities to the Central Dispatch Unit. Commercial activities are to be carried out by other entities. All of these functions have historically been performed by IRHE. The government has completely moved out of the generation and distribution activities but is expected to hold on to its transmission assets.
Regulatory Institution	The Public Service Regulatory Entity (Ente Regulador de los Servicios Públicos, ERSP) was created in January 1996, for the regulation of the water and sanitation, telecommunications, and electricity services. It is fully operational and has implemented the Electricity Law. The three Directors have taken on their responsibilities in other areas and have been setting up internal administrative, staffing, and procedural measures. They have also been actively involved in briefing congressional members on various sector issues relevant to the sector's legislation.
Private Sector Participation	IRHE's distribution and generation companies were privatized in September and November 1998 respectively. Thus leaving only the transmission company under government's control. The government expects that most of the future expansion in the system will be performed by the private sector. This expansion will depend on the new incentives of the market, such as demand growth, the interconnection of the markets and the possible entrance of natural gas from Colombia.
Major Outstanding Issues	<ol style="list-style-type: none"> 1. Strengthening the sector's newly created institutional and regulatory entities through staff training and other means is seen as critical to ensure their ability to perform their assigned duties effectively and efficiently. 2. Current ownership structure in the generation market raises market power issues. The only thermal company, which is the one that sets the market prices, was sold to a single investor. A close look should be taken to make sure that market prices are competitive. The law has placed ownership limits to the hydroelectric generation companies, which cannot expand, if it would result in them owning more than 25% of the total installed capacity. Nevertheless, there are no restrictions for expansion of the thermal generation companies.

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	<p>3. The country has to prepare for the eventual competition that will result from the opening of the Central American power market. The incentives should be structured to ensure that units that are more competitive replace the inefficient thermal plants.</p>
<p>II. Legal & Regulatory Framework</p>	
<p>Legal Basis</p>	<p><i>Law No. 6, Electricity Public Service Law (February 1997):</i> Submitted to Congress in October 1996, this law replaces provisions in Law No. 6 (1995) and other sector laws. It creates an Energy Policy Commission (CNPE) to define a strategy and a set of policies for the energy sector and outlines a new sector structure and guidelines for each activity. The law also directs the Government to restructure and sell IRHE's generation and distribution assets and delineates the possible roles of the Government and other public entities as well as the private interests in commercial activities in the sector. The law sets the basis for pricing, tariffs, subsidies, and sanctions, and establishes principles for protecting the environment and promoting energy efficiency and conservation. It also defines the specific duties of the Public Service Regulatory Entity.</p> <p><i>Law No. 26 (January 29, 1996), Establishing a Regulatory Entity for Public Services:</i> Creates a Public Services Regulatory Entity (ERSP) as an independent agency responsible for the regulation, supervision, and oversight of public water (potable) supply and sanitation, telecommunications, and electricity services. This entity will regulate each sector according to the provisions of this, and the other relevant sector laws. The law provides for the ERPS's financial resources; the approval process and minimal qualifications for the three Directors of the ERPS; and other staffing, budgetary, reporting, and administrative procedures. It defines the ERPS's jurisdiction as the areas of regulation, oversight, verification, and enforcement of laws and operating standards in the relevant sectors.</p> <p><i>Interim Law No. 6 (February 9, 1995):</i> Formulated as a transitional law pending the enactment of the new sector law, Law No. 6 required an independent regulatory entity to be established within one year, but meanwhile preserved IRHE as a vertically-integrated monopolistic enterprise with sector regulatory, tariff-setting and oversight functions. The law modified IRHE's founding law to allow private power generation companies to sell electricity to IRHE or other approved third parties. It also allowed private construction and operation of transmission and distribution systems associated with these generation activities. However, it limited private generators' capacity to 45% of the country's total installed capacity.</p> <p><i>Cabinet Resolution No. 245 (August 16, 1995):</i> Established the policy framework under which the subsequent law creates a public service regulatory entity and allows for the formulation of an electricity sector framework law.</p> <p><i>Cabinet Resolution No. 317 (October 2, 1995):</i> Approved regulations for Law No. 6 as proposed and approved by IRHE and approved by the Cabinet Council. Provided for IRHE's authority over: concessions and licenses (process, terms and conditions); least-cost expansion plan development; integrated system dispatch; operating and service norms; energy efficiency and conservation standards; oversight; enforcement tools; environmental requirements; and information requirements. In addition, the bidding provisions, procedures for evaluating bids, pricing guidelines for power purchases and back-up power, and tariff-setting norms for IRHE were outlined. The law also defined IRHE's participation in the sector.</p>
<p>Role of the State</p>	<p>With the establishment of the Public Service Regulatory Entity (ERSP) in 1996, regulatory functions (including tariff- and standard-setting responsibilities) were separated from sector commercial activities. The 1997 Electricity Law assigns policy functions to a new entity, the Comisión Nacional de Política Energética (CNPE), under the Ministry of Planning and Energy Policy. The responsibility for central planning will fall under the Transmission Enterprise, and specific system coordinating, regulating, and oversight activities to the Central Dispatch Unit (CND). Commercial activities are to be carried out by private entities. All of these functions were formerly performed by IRHE.</p>
<p>Institutional and Regulatory</p>	<p>The Public Service Regulatory Entity (ERSP) was established in 1996 to cover water and sanitation, telecommunications, and electricity services. The three Directors were appointed by the President in the</p>

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Entities and Jurisdiction	<p>summer and subsequently ratified by Congress in the fall of 1996. The ERSP is in charge of establishing the rules, norms, and regulations for power sector activities. Specific duties of the ERSP as defined in the Electricity Law include: 1) Issuing concessions, licenses and other authorizations for public service providers including (new) hydro and geothermal plants as well as public transmission and distribution services. 2) Setting efficiency and performance standards for the relevant public service providers. 3) Defining the rights and obligations of service providers and consumers. 4) Confirming the service providers' compliance with all legal and regulatory requirements and established norms, including expansion and efficiency criteria stated in the concessions. 5) Promoting competition and efficiency in the areas under its jurisdiction and guarding against monopolistic or discriminatory behavior. 6) Establishing the principles, methodologies and formulas for tariff setting purposes in regulated market areas under its jurisdiction, and for overseeing their application. 7) Establishing procedures to resolve conflicts among public service entities. 8) Arbitrating conflicts between public service providers under its jurisdiction and other government agencies, municipalities, or customers and handling complaints and claims of customers, government entities, or service providers. 9) Recommending actions including expropriation to assure the provision of public services or intervening in the service under designated circumstances. 10) Organizing public hearings as required by law or considered necessary by the ERSP. 11) Establishing accounting standards and information requirements for sector entities. 12) Organizing and undertaking inquiries as necessary to gather the viewpoints of consumers regarding the quality of the public service. The law requires public service concessions and contracts to be awarded under a competitive bidding process. It allows the appeal of ERSP decisions and it sets parameters on relationships between public service providers and consortia or companies that have concessions or contracts for similar services.</p> <p>The National Commission for Energy Policy (CNPE), under the ministry of planning and economic policy is in charge of defining strategies and policies for the energy sector and proposes new laws as needed with the aim of fostering adequate energy supplies to meet demand. The Chairman of the CNPE is the Minister of Planning and Economic Policy, and the other two members are the Minister of Industry and Trade and the Minister of Treasury and Finance. The CNPE has an Executive Director appointed for 5 years and has hired technical professional and support staff to assist in the tasks needed to accomplish its mission.</p> <p>IRHE was previously in charge of setting its own tariffs and overseeing other activities of the sector, including the management of sector finances (with the approval of the Government's Cabinet Council). The only government owned company that still exist after its unbundling-privatization is the transmission company, which will be in charge of the operation of the system and the expansion planning. The National Dispatch Center (CND) is a specialized unit of the transmission company in charge of the integrated operation of the system.</p>
Sector Planning	<p>IRHE's transmission assets were transformed into a corporatized state-owned transmission enterprise responsible for system expansion planning, among other functions. The Transmission Enterprise, 100% owned by the State, will prepare and annually update a sector expansion plan for the interconnected system based on criteria defined by the Regulatory Entity and information provided from other sector enterprises. For the first 5 years under the new sector law, the Transmission Enterprise will also prepare a mandatory expansion plan for generation, after which time the generation expansion plan will become purely indicative. In the initial 5-year transitional period, the Transmission Company will calculate the least-cost expansion plan for the system and issue invitations to bid for the construction of new generation capacity.</p>
III. Sector Structure and Participants	
Structure	<p>IRHE's generation and distribution assets were separated into different companies and privatized in 1998. The generation sector was divided into four companies and the distribution sector into three different companies. The sector is now open to new generation and distribution enterprises, which will be granted concessions from the government. IRHE's transmission assets were transformed into a corporatized state-owned transmission enterprise.</p>
Participants and Degree of	<p><i>Generation:</i> IRHE's generation was subdivided into four companies and privatized in November 1998. Fifty-one percent of the shares of the thermoelectric company and 49% of the shares of the hydroelectric</p>

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Private Sector Participation	<p>companies were sold to institutional investors. The shares on the Fortuna, S.A. generation company were sold to Americas Generation Corp. The shares on Chiriqui, S.A. and Bayano, S.A. were sold to AES Panama Energy, S.A. Finally ENRON International Panama bought the shares of Bahia las Minas, S.A. Permanent employees will own 10% of the shares in the newly created companies and the remaining portion of shares will be floated in the stock market subject to a maximum individual ownership of 5%. Occasional supply on the system is provided by self-generators, which have around 160 MW (16%) of the total nationally installed capacity. New generators will enter the sector to make offers to build new plants. Distributors will be allowed to own up to 15% of their loads.</p> <p><i>Transmission:</i> IRHE's national transmission assets were transformed into the Transmission Enterprise under state ownership. It is responsible for system coordination, central economic dispatch, and system expansion planning. No other transmission enterprises are specifically contemplated.</p> <p><i>Retail Distribution:</i> IRHE's three distribution companies were privatized in September 1998. Fifty-one percent of the shares were sold to institutional investors, 10% to permanent employees and the remaining part will be floated in the stock market. EDE Noroeste's shares were sold to Panama Distribution Group (Constellation Power) and the shares of EDE MetroOeste and EDE Chiriqui were sold to Distribuidora Electrica del Caribe, S.A. (Union Fenosa). Under the new law, Government-owned electric enterprises, along with municipal utilities, cooperatives, and private or mixed-ownership enterprises will all be allowed to provide distribution/commercialization services.</p>
Targets for Privatization	<p>The sale of majority shares to institutional investors of IRHE's generation and distribution companies has already been performed. Ten percent of the shares in those companies will be reserved for the permanent employees of the companies and the remaining shares will be floated in the stock markets with a maximum individual ownership of 5%. The operation of these companies in the sector will be subject to a concession or a license; the law stipulates a 50-year term limit for concessions in hydroelectric generation activities, 25 years for transmission activities and 15 years for distribution activities. Upon expiration, these concessions will be re-offered by the regulator for an equivalent period of time. The transmission company will remain in government hands.</p>
New Investments	<p>Private investors will virtually undertake all the new investments in new generating capacity, as well as rehabilitation of existent generation facilities. Although hydropower (which is subject to economies of scale and is often less attractive to private investors) dominates the least-cost expansion plan (60% of new capacity), most of the new capacity to be added in the near to medium term might be thermal. Therefore, private investors will have different incentives to invest in the new market, as they will probably take into account the new common electricity market and the possibility of entrance of natural gas from Colombia.</p> <p>The expansion and rehabilitation of existing distribution assets, as well as any new distribution concessions, will also be achieved by the private sector. Nonetheless, the new sector law permits municipalities and the national government to participate in commercial sector activities, even though the Government has indicated its intention to basically abdicate responsibilities in all operating areas except the transmission and dispatch functions for the national interconnected system. The Government may also provide funding for electrification programs in specified areas.</p>
IV. Electricity Markets: Areas of Competition and Monopoly	
Bulk Power	<p>IRHE's generation assets were subdivided into four generation companies and a majority part of its shares were sold to institutional investors. Competition will also be introduced through international solicitations for the concession to construct the generation projects prioritized in the system expansion plan (for an initial 5-year period, until February 2002). The Government does not itself intend to build new capacity once the Estf hydropower project is completed, thus leaving the future generating area open to privately-owned IPPs.</p> <p>Generators will compete in the bulk power market to sell power to large deregulated consumers and to supply the distribution enterprises initially via agreements with the Transmission Enterprise (and based on merit order economic dispatch) and later via direct contracts. However, there are a limited number of large consumers (altogether comprising only 8% of the total demand), as well as distribution enterprises, thus constraining the number of purchasing entities in the future wholesale power market. There is only</p>

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	<p>one thermal company under the new market; this company could be able to raise prices since it currently holds the price setting unit.</p> <p>Before February 2002, the sector configuration will be the one of a Single Power Purchaser, which will be the transmission company. Although it is not supposed to make any profit from its energy buying-selling operations, there are some concerns related to its possible monopsony power.</p>
Transmission and Distribution (Networks)	<p>The transmission company will remain 100% completely owned. The Electricity Law requires the transmission and distribution companies to guarantee open access to market participants according to regulated terms and tolls. Under the new law, extension lines may be authorized to be built/operated by private generators if none already exist, and these private generators may charge negotiated access tolls to other parties using its lines.</p>
Retail Distribution	<p>IRHE's distribution assets were subdivided into three distribution companies. Majority shares on these companies were sold to institutional investors. Given the small size of the total market, the concentration of 70% of the demand in Panama City does not lend itself to the division of retail service functions into diverse enterprises with balanced market areas. This limitation precludes the use of actual "yardstick" competition between distribution enterprises, and forces the Regulatory Entity to apply benchmark regulation based on international standards or other substitutes for competition that promotes economic efficiency in the retail market area.</p>
V. Load Dispatch and Pool Operation	
Dispatch Entity and Basis	<p>Historically, IRHE has performed central load dispatch for all generation units and centrally set the dispatch and other system operating standards and criteria. The Central Dispatch Unit (CND) under the Transmission Enterprise now performs system coordination and dispatch independently, according to economic merit order and system integrity. The ERSP is responsible for setting dispatch and other operating standards and criteria, and for overseeing compliance with the standards and norms.</p>
Pool Operation	<p>The new wholesale power market will consist of a regulated and a deregulated market. In the deregulated market, generators will be free to negotiate their prices and quantities sold to the different buyers, who will include the distribution companies, the large consumers, marketers and foreign companies. Non-contracted energy will be sold to the spot market, which will be operated by the CND.</p> <p>During the initial five-year period after the promulgation of the electricity law (February 1997 – February 2002) the sector will be structured under the Single Power Purchaser (“SPP”) model. Under this model, most of the generators will be required to sell 100% of their capacity to the transmission company under terms specified in their individual contracts. The SPP will resell the capacity and energy to the distribution companies without making a profit. A minimum of 85% of all electricity transactions will flow through this market, while the balance will be negotiated directly by large end-users with the generation company of their choice. After this initial phase, the power sector will move to a wholesale market model.</p>
VI. Pricing	
Bulk Power	<p>During the SPP process, generators will sell all their generation to the transmission company according to preset contracts. Generators will be forced through these contracts to sell to distribution companies, but large end users can buy directly from generators at negotiated prices with the generation companies. This deregulated market will only be 15% of the total electricity transactions.</p> <p>After the initial phase, the power sector will move to a wholesale market model in which distribution companies will be free to purchase power through either the electricity spot market or energy supply contracts, which will competitively bid out to generation companies.</p>
Transmission/ Distribution (Networks)	<p>Regulated transmission (and distribution) system access and retail wheeling fees will be established by the regulatory entity and are expected to be based on forward-looking, efficient costs-of-service. The rates will allow for financial sustainability as they permit cost recovery and compensation for capital employed, which is measured against an efficient company in the sector with comparable risk. The rates will also promote economic efficiency as they will be close to the price structure of competitive markets</p>

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	and rate setting will take into account not only costs but also expected increases in productivity.
Retail Tariffs	The Public Service Regulatory Entity has set the procedure for determining the value-added of Distribution (VAD) and price cap principles for distribution enterprises. These and the pass-through of generation and transmission costs are the basis for the regulated distribution tariffs, which will be reviewed every 4 years. The final tariff then consists of the sum of the generation and transmission costs plus the VAD.
Subsidies	The new electricity law contemplates the possibility that the Government will decide to provide subsidies for low-income consumers in the form of discounts for the billed electricity service to be provided. The subsidies, to be handled by the distributor, will target a particular type of service and will be capped at a subsistence consumption level defined in regulations. The subsidy cannot exceed 20% of the distributor's cost-of-service. The Government may provide transparent investment subsidies for uneconomic expansion of service in rural areas.
VII. Sector Problems and Priorities	
Framework and Other Issues	<ol style="list-style-type: none"> 1. It remains to be seen whether the market in Panama is large enough to support competition. 2. The country's power sector needs to prepare for the competition that will come from the creation of the Central American market. The sector needs to improve its generation efficiency, which is part of an adequate expansion plan that should consider the future increase in competition. 3. Market power issues have risen lately and are mainly related to the small number of companies in the country, from the possible expansion of the price-setting thermal company, and from the monopoly power exerted by the SPP.
Operating Needs	1. There is a need for improvements in the existing thermal power plants, as well as in the overall operational efficiency. Distribution systems experience unacceptably large losses (>20%). Expansion of service coverage is also a sector goal. The new regulatory framework is based on providing the incentives for the private companies to perform these efficiency gains via competition.
Electrification and Energy Efficiency	IRHE has performed all electrification efforts in the country since its creation. Electricity service covers between 70 - 72% of the total population. It is expected that the distribution enterprises derived from IRHE's restructuring will be responsible for expansion of service coverage. The funding for further electrification efforts will be specified by the regulatory agency, but will be mostly covered by charges to the consumers as well as the distribution and generation entities. Transparent Government subsidies for service extension in rural areas may be provided.
VIII. Sources and Relevant Web Pages	
<p>Sources</p> <p>ECLAC-United Nations, Energy Unit, 1999. "La Industria Eléctrica del Istmo Centroamericano: Situación de los Procesos de Reforma y Perspectivas para el Corto y Mediano Plazo".</p> <p>Ente Regulador de los Servicios Públicos, Panama 1998. "The Regulatory Environment of the Electricity Sector in the Republic of Panama".</p> <p>IFC – Government of Panama – IRHE, 1998. "Preliminary Background Memorandum".</p> <p>Relevant WEB Pages</p> <p>Ente Regulador de los Servicios Públicos (ENTE): http://www.sinfo.net/ente_reg/</p> <p>IRHE: http://www.irhe.com/</p> <p>Catholic University of Chile: http://www.ing.puc.cl/~power/southamerica/southamerica.htm</p>	

