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This article examines three cases in the power sector of Latin America in which a certain quanitity of public resources (monetary or equivalent) has been used to make private delivery of public services (electricity generation and distribution) feasible in smaller economies. The cases reviewed have received financing from the Inter-American Development Bank through its Private Sector Department, as described in Table 1.

Table 1: IDB financing (US$ million)

Total B-Loan and

Project project costs A-Loan cofinancing

Privatization of electricity 94 25 25

distribution in Guatemala

Capitalization of electricity 285 75 113

distribution in the

Dominican Republic

Construction and operation 66 16.5 33

of a geothermal power plant

in Costa Rica

Total 445 116.5 171

For certain projects (e.g. electrification in poor rural areas, power generation based on fuels with costly exploration) the level of investment and/or risk assumed by the private investor is not commensurate with either: (a) a reasonable equity payback period; or (b) a reasonable cost of service provision (e.g. tariffs, tolls). In other words, for the same level of payback period for investors, these types of projects would require a higher price for their output/services; or alternatively, for a given level of output/service prices, these projects would require a longer equity payback period.

Governments will therefore select the modality of private participation in power projects, as well as the risk allocation between public and private agents, based on its likelihood of achieving certain socioeconomic objectives such as improvements in electricity distribution service, additional generation capacity at a lower cost, and introduction of new technologies and know-how. These are areas where smaller economies may have shortcomings. Three different modalities, each used in the power sector of Latin America, are reviewed in this article, namely: (a) privatization of public utilities linked to an investment program requirement for which the government provides funding (Guatemala); (b) private capitalization of public utilities (Dominican Republic); and (c) private provision of energy through a power purchase agreement in which certain components are the responsibility of the private investor and the government

(Costa Rica).

In each case, innovative structures involving the public and private sectors were used. And in each case, the IDB participated in the financing of the corresponding private project resulting from the modality chosen. The three cases comprise: (a) privatization of two electricity distribution companies in Guatemala; (b) capitalization of two electricity distribution companies in the Dominican Republic; and (c) construction and operation of a geothermal power plant in Costa Rica.

(a) Electricty distribution in Guatemala

The electricity distribution system in Guatemala has traditionally faced severe problems, including a high level of technical and non-technical losses. These represented in 1998 (year of privatization) more than 30% of total output. Electrification coverage at that time was only 63% of the territory, limited mainly to urban areas, in spite of the Government of Guatemala's (GOG) efforts to expand coverage to rural areas. The privatization of the electricity distribution system covering rural areas was thus aimed at increasing coverage and improving the efficiency and reliability of the distribution network, as well as the quality of services to end-consumers.

The process involved the sale, through an international public bidding, of 80% of the GOG's shares of the distribution companies Distribuidora de Electricidad de Oriente, S.A. and Distribuidora de Electricidad de Occidente, S.A., (together, the DISCOs). The DISCOs cover the Eastern and Western parts of the country, respectively, and thus large rural areas.

As part of the privatization, the GOG required that the private investor undertake a Rural Electrification Program (PER) aimed at expanding services to 80% of rural areas and incorporating some 281,000 new customers by year 2004. Successful completion of the PER would make electricity available to more than 90% of the country's population. To ensure the commercial feasibility of the PER, the money paid by the private investor upon the privatization of the DISCOs was contributed to a trust fund. Other proceeds such as a GOG bond issue and financing from the IDB's public arm and other development institutions will complement the $333 million required for the PER2. The PER comprises the financing of both distribution and transmission assets. The GOG will own the transmission assets, whereas the DISCOs will own and operate the distribution assets.

The winning bidder was a wholly-owned subsidiary of Union Fenosa. Besides implementing the PER, the private investor developed a Strategic Business Plan (SBP) for the 2001-2004 period comprising capital expenditures to increase the efficiency and reliability of the distribution network, reduce losses and improve service to end-users3.

Public-private association

As a pure private undertaking the PER would not be economically feasible. The level of investment required from the private investor to achieve the PER's coverage goals would require tariffs (to pay back the investment) higher than the ability to pay of most of the targeted population. The modality of public private association conceived by the GOG was thus able to: (a) attract private interest in the privatization of the DISCOs; (b) ensure an efficient execution of the PER; and (c) ensure an improvement in both efficiency and coverage of the two distribution systems. Moreover, all these benefits were obtained without a substantial increase in tariffs to end-consumers (mostly poor and in rural areas).

The architecture of the PER-SBP initiative, a public-private association for improved public services, is a pioneer for Latin America. From a risk-allocation viewpoint, the PER allows for the private provision of a service that would otherwise not be feasible. The GOG thus meets its rural electricity coverage goals, keeps ownership of the transmission assets built through the PER and obtains gains in quality and efficiency of electricity distribution services. The DISCOs, in turn, are able to expand their client base in a commercially feasible manner.

idb support

IDB's support to the PER-SBP initiative is two-pronged. The first is a $25 million, 12-year loan from IDB's Private Sector Department to the DISCOs to support the SBP (approved by the Board of Directors in December, 2002). The second is a $90 million loan from IDB's public sector arm to the GOG to support the execution of the PER (scheduled to be presented

to IDB's Board of Directors in the first quarter of 2003).

(b) Electricity distribution in the Dominican Republic

Overview

The electricity sector in the Dominican Republic has traditionally experienced power shortages, low reliability and a high level of technical and non-technical losses. In the mid-nineties, under the framework of the Ley General de Reforma de la Empresa Pública, the Government of the Dominican Republic (GDR) begun to develop, with support from the public arm of the IDB, an overhaul of the electricity sector. This included, among other measures: (a) the establishment of two independent generation companies and three independent distribution companies; and (b) the capitalization of such companies (until then owned by the government).

The capitalization scheme consists of the following. Corporación Dominicana de Electricidad (CDE), the public electricity utility, owner of assets of the companies being capitalized, contributed these assets to the capitalized companies and received in exchange 50% of the capital stock of such companies. The strategic investor provided cash equity to the companies in exchange for 50% of their capital stock as well as full management and control of the capitalized companies. The equity provided by the private investor remained in the capitalized companies to cover their funding needs (e.g. initial losses, investments).

The two newly formed generation companies and three newly formed distribution companies were successfully capitalized in 1999 through an international bidding process. Union Fenosa (the strategic investor) was again the winning bidder and capitalized the distribution companies Empresa Distribuidora del Sur and Empresa Distribuidora del Norte (together the EDEs). The EDEs cover the Southern and Northern parts of the country, respectively.

Public-private association

The capitalized companies needed to invest substantial amounts in order to achieve the GDR's goal of improving the quality, efficiency and reliability of electricity distribution services. This included funding for: (a) additional investments for reduction in technical losses (network rehabilitation and upgrade) and non-technical losses (e.g. metering, invoicing, collection); and (b) covering the companies' existing high level of operational losses. In the absence of the capitalization scheme (e.g. in a pure privatization), such funding would have to be provided either by additional sponsor's equity or the companies' cash flow (clearly insufficient given the losses).

The capitalization allowed the funds provided by the strategic investor ($212 million) to remain in the company and be utilized to fund the above activities. This jump-started the process of improving the quality and coverage of services, as well as the financial sustainability of the capitalized companies.

The architecture of the capitalization scheme has been used elsewhere in Latin America (e.g. Bolivia). From a risk allocation viewpoint, the capitalization allows the companies to initiate the required investments without the need, at least initially, for additional equity contributions. The GDR thus: (a) meets its objective of improving the quality and coverage of distribution services; and (b) becomes a shareholder in the capitalized companies. The strategic investor, in turn: (a) becomes co-owner of the companies' existing assets; and (b) has funds readily available to initiate the investment program required to improve the companies' commercial sustainability in the medium-term.

idb support

IDB's public sector arm provided support to the GDR for the design and implementation of the capitalization process. Additionaly, through its Private Sector Department, IDB granted to the EDES in early 2002 a loan of $188 million comprising an 11-year A-Loan of $75 million (funded from the IDB's own resources) and an 8-year B-Loan of $113 million (funded by international commercial banks). The IDB Loan is to fund a two-year investment program with the following objectives: reduction of technical and non-technical losses; expansion of the distribution network; improvement in the quality of service; and improvement in customer service.

(c) Electricity generation in Costa Rica

Background

Due to fiscal constraints, the Government of Costa Rica (GCR) has had limited capacity to finance investments in infrastructure. In the electricity sector, such a limitation has delayed the completion of (public) power generation projects with potential adverse effects on the overall supply-demand balance. To fill this investment gap, and also based on efficiency considerations, the GCR began implementing in the mid-nineties regulatory reforms to promote the participation of the private sector in infrastructure projects.

In 1995, under the framework of Law 7508, the Instituto Costarricense de Electricidad (ICE), the Costa Rican public electricity and telecommunications utility, launched an international bidding process to develop the 27MW Miravalles III geothermal power plant. The project was to be located in the Miravalles Geothermal Field, in the province of Guanacaste (northwest Costa Rica), and sell power to ICE under a 15-year power purchase agreement (PPA). In 1997 the project was awarded to a consortium comprising US-based Oxbow Power Corporation, Japan's Marubeni Corporation and a local investor (together, the private investor).

The project consists of a power plant in which steam is used to drive a turbine to produce electricity. The steam is delivered by ICE at guaranteed levels of supply and quality. The private investor is responsible for building and operating the plant during the life of the PPA, after which ownership of the project will be transferred to ICE.

The private investor also committed to provide to ICE a defined set of materials and services (the Supply List) for the following purposes: (a) to build the pipeline that enabled ICE to transport the required steam to the power plant; (b) to supply equipment for the steam separation and control; (c) to build a 2km transmission line to connect the power plant to ICE's Miravalles substation; and (d) to supply ICE with equipment required for exploration activities to ascertain the technical viability and potential for additional capacity at the steam field. Provision of these additional equipment/services, although not part of the power plant itself, are required for the operation of the plant and were required by ICE in the bidding documents.

Public-private association

The Supply List is one form of public-private association aimed at ensuring a successful implementation of a private project. From a risk allocation viewpoint, the works contained in the Supply List correspond to those in which ICE is the party most able to perform them (and bear the associated risks). ICE has proven capacity in geothermal exploration and hence can perform such work more efficiently than the private investor. Since the routing of the steam pipeline is determined by such exploration work, it is logical that ICE also bear the risk of building the pipeline. The same rationale applies to the transmission works.

The Supply List arrangement has the following benefits to ICE (and the GCR): (a) ensuring that the project is operational on time (since it mitigates delays in the public sector procurement of key project components such as the steam pipeline); and (b) obtaining such works in a more cost effective manner (compared with direct public procurement). From the private investor's viewpoint, such arrangement insulates the project company from key project risks such as delays and cost escalation associated with the exploration and management of a geothermal field.

idb support

The IDB provided financing for the Miravalles III project through its Private Sector Department, for a total of $49.5 million. The financing comprised an A-Loan of $16.5 million from IDB's own funds, and a B-Loan of $33 million funded by international commercial banks. Long tenors provided by the IDB (13 years for the A-Loan and 11 years for the B-Loan) enabled the project to offer a lower tariff to ICE, which may then pass it through to end consumers via electricity tariffs.

In addition to financing the private project, the IDB supported the development of the Miravalles Geothermal Field through technical studies, geothermal research and training programs. The Bank also provided investment loans to ICE to develop the Miravalles II (55MW) power plant. This support, carried out by the public sector arm of the IDB, paved the way for making the private provision of energy through a competitive bid a feasible outcome.

Conclusions

The combination of limited fiscal resources (for public investment) and incipient regulations (for private investments) limits the ability of smaller economies to develop infrastructure projects in general. This is aggravated in the case of private projects in which certain commercial risks would render them not viable as a pure private undertaking. Innovative structures involving public and private resources have been developed in Latin America to bring these types of projects to fruition. These structures (public-private associations) comprise a specific role for, and corresponding risk allocation among, governments and private investors.

The three cases analyzed herein (summarized in Table 2) demonstrate how such associations have been applied to private power projects in Guatemala, Dominican Republic and Costa Rica. Support from the IDB to these projects provides: (a) financing at terms consistent with the nature of the investments (long-term) through its A/B loan and co-financing programs; and (b) mitigation of risks associated with governments' performance under such structures.

Footnotes

1 Adriana de Aguinaga is responsible for Project Structuring in the Private Sector Department of IDB. Roberto Vellutini is Head of Project Finance in the same Department. The views expressed herein are those of the authors only and not necessarily of the IDB.

2 Since 1999 the DISCOs have been executing the investments under the PER, having connected by November 2002 more than half of the required clients.

3 During 1999-2001 the DISCOs have achieved major operational and performance improvements, including a reduction of losses from 30% in 1998 to 25% in 2001 and 21% in 2002.