

Independent Power Projects (IPPs)

An Overview

Mangesh Hoskote

Introduction

Independent Power Projects (IPPs) are a major source of new power generation capacity in the United States and some European countries, notably the United Kingdom and Portugal. Faced with serious capacity and energy shortages that they cannot remedy from public resources, many countries – including Colombia, China, Guatemala, India, Indonesia, Pakistan, and the Philippines – are turning to private investors to expand electricity supply.

This trend has the potential to meet a large and immediate financing gap by mobilizing direct foreign investment in the power subsector; IPPs in developing countries have tapped new forms of financing in international capital markets. Private sector involvement in the power sector has also led to impressive construction and operational efficiency gains, and it has often been preceded by reform programs addressing the structure and ownership of the power sector. Properly structured IPPs can also stimulate the development of local capital markets and bring the discipline of the capital market to support competition in generation.

This note provides an overview of the issues faced and procedures adopted in developing IPPs and directs the reader to sources of further information and assistance.

What are IPPs?

IPPs are typically limited-liability, investor-owned enterprises that generate electricity either for bulk sale to an electric utility or for retail sale to industrial or other customers. The design of an IPP differs according to the ownership structure of the project. Typical ownership structures for IPPs in the power sector include BOO (build, own, operate); BOOT (build, own, operate, transfer); and BLT (build, lease, transfer).

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The Sector Environment

IPPs are an attractive option for financing future investments in power because, in contrast to other options such as the privatization of existing government-owned utilities, IPPs can be developed, even if a predictable and transparent regulatory mechanism is not in place, by providing for regulation in the contractual documents.

The Enabling Environment

Although a fully developed regulatory framework for IPPs does not have to be in place, basic principles do need to be established. The articulation of an unambiguous private power policy is also desirable. In addition, for IPPs to succeed, a proper enabling environment, which may include the following features, should be in place:

- a legal regime that allows for an enforceable contract, including mechanisms to resolve disputes swiftly through an objective court system or arbitration; that provides for private sector ownership of power generation assets; that empowers a state-owned utility to enter into power purchase agreements with IPPs; and that offers assurances of ownership rights to the stream of revenues;
- a satisfactory track record of adequate tariffs;
- policies that encourage local as well as foreign private investment because independent power production can be a natural niche for local developers;
- clearly defined and delineated roles and responsibilities for interministerial coordination with respect to permits, clearances, and approvals; and
- well-articulated tax laws, import duties, and incentives applicable to both local state-owned power utilities and IPPs.

In the absence of these features, project documentation may need to be structured to fill the gaps; for example, performance guarantees may be required where there is a track record of inadequate tariffs.

Further Reform

Many of the power sector reforms now under way (including those in Colombia, the Dominican Republic, Jamaica, India, Pakistan, the Philippines, and Thailand) were preceded – and facilitated – by the introduction of IPPs.

This evolutionary process may be preferable in some countries to the establishment, up front, of a “concrete” regulatory environment, since evolution allows the regulatory framework to adapt itself to the conditions and needs of the country and prospective investors on the basis of what is seen to work well, or not.

However, where reform does not follow the introduction of IPPs, political risks associated with the sustainability of the process may arise, and investment flows in further IPPs may be slower. Power sector restructuring and an independent regulatory system are not needed as such for the first or second IPP in a country; however, they can help and should follow.

Options for Tendering

Electricity utilities can seek IPPs either through competitive bidding or through negotiated single offers or "tenders." The power utilities in the United States, which were initially slow to embrace competitive bidding, have demonstrated that real benefits can be gained from using a market approach for achieving better prices. Project developers, however, typically prefer negotiated single tenders to mandated competitive bidding procedures. Debate continues about the extent to which competitive bidding will be successful in the Bank Group's member countries.

Competitive Bidding

Competitive bidding has been conducted successfully in the United States and elsewhere. The success of competitive bidding in the United States may be attributed to factors not found typically in developing countries: creditworthy power purchasers, access to reliable sources of fuel markets and transportation, and access to capital markets. The bidding process has been promoted widely and conducted in Colombia, Jamaica, India, and the Philippines. In Jamaica and in the earlier IPPs in the Philippines, the government offered guarantees to attract proposals. Recently Thailand's EGAT successfully invited proposals on its own merit. Competitive bidding has the advantage of greater transparency and has been shown in countries such as the Philippines to result in lower prices. The World Bank Group's policy is to encourage competitive bidding procedures wherever possible; this hinges on clear evaluation criteria, equitable risk allocation mechanisms, and real commitment to finalizing an award.

Negotiated Single Tenders

The IFC's experience is that the presence of a motivated power seller pushing the process may be the only way in some countries to achieve a workable framework for a first IPP. In such cases, the process requires a single aggressive sponsor, who is confident of eventually striking a "deal", to negotiate the detailed contracts required directly with the national utility. The entry of this first IPP has often precipitated further reforms in the power sector. When competitive power markets are established, market competition between incumbents and newcomers can substitute for formal IPP bidding processes.

Problems in Implementation

Problems in implementing IPPs have mainly related to the power sector environment, to overspecification of the project design, and to misallocation of risks between the project players.

Lack of Credible Reform

A lack of commitment, ambiguous policy signals, and unwillingness to address the underlying lack of creditworthiness of the power purchasers have frustrated projects. At a minimum, arrangements should be in place that allow for adequate and secure fuel delivery, a power purchase agreement (PPA), and freedom to convert currency and repatriate profits.

Lack of a Level Playing Field

A lack of a "level playing field" can also be a problem; IPPs cannot compete fairly unless, for example, the players (the IPPs and the existing state-owned

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utility) have equal access to sites and fuel markets, equal access to system operation procedures, and equal treatment under the tax regime.

*Public Procurement
Problem*

Overspecification, usually by the government, of the project conception (the so-called public procurement problem) has resulted in highly prescriptive technology and pricing parameters in countries (e.g., Jamaica and India) that restrict competition among investors. However, some degree of specification may be required to focus the developer. This may mean specification of a fuel type, plant capacity, or mode of operation to ensure system compatibility. The level of detail to be specified is a matter of judgment and will vary from project to project.

*Risk Allocation
Differences*

Each of the parties involved – the sponsors, contractors, government, financiers, and so on – face risks that need to be evaluated, allocated, and managed if a project is to succeed. Risks should be borne by the party that controls them, since that party can bear the risk at least cost. Differences over the allocation of project risks can delay project negotiations, and private investors may ultimately back out of financing and managing a power project if they feel that the risks are not allocated fairly. For example, the Batangas cogeneration project in the Philippines and some recent projects in China have failed because of the parties' inability to agree on risk allocation.

Means to mitigate risk are provided in the project contracts (the PPA, fuel purchase agreement, O&M agreement, and turnkey engineering and construction contract). In addition, residual risks, such as political force majeure and regulatory risks, are mitigated through guarantees and insurance. Risks not mitigated need to be borne by the consumer in the form of higher tariffs.

Table 1 gives examples of the risks faced by recent projects in developing countries.

**World Bank Group
Roles
IFC**

The IFC has been involved in about one-third of all IPPs in developing countries. The IFC has:

- provided equity and debt;
- syndicated debt financing; and
- provided advisory services on, for example, the structure of an IPP or bidding criteria.

The IFC has participated in projects in the following countries: Belize, Chile, the Dominican Republic, Guatemala, Costa Rica, Honduras, India, Philippines, Nepal, Pakistan, Côte D'Ivoire, Turkey, and Oman.

The IFC is currently considering projects in the following additional countries: China, Jamaica, Khazhakstan, Viet Nam, the Czech Republic, and Tanzania.

World Bank

The Bank's participation in the financing of IPPs has been more limited. The Bank has been involved in financing IPPs in Pakistan, Jamaica, and Tanzania through on-lending arrangements; has expanded its role in guaranteeing private financing; and is currently preparing guarantees to support IPPs in Pakistan, the Dominican Republic, India, and Laos. The Bank has also been involved in several other ways, such as:

- preparing competitive bidding documents (for the Dominican Republic, Jamaica, Morocco, and India);
- identifying and evaluating projects (for the Dominican Republic, Jamaica, Morocco, and Indonesia);
- negotiating contracts (for Jamaica, Morocco, and Pakistan);
- training clients in contractual and financial aspects of private power (in China and Kenya);
- helping governments to obtain alternatives to sovereign or Bank guarantees (in Pakistan and the Philippines); and
- developing a legal and regulatory framework (in China, the Dominican Republic, Kenya, India, Pakistan, and the Philippines).

In addition, the Bank has organized roundtables bringing together key project financiers, developers, and facilitators to discuss the constraints faced by IPPs in client countries and hence to strengthen Bank policies and procedures.

MIGA

MIGA has recently provided political risk insurance for IPPs in Honduras and Jamaica.

Financing of IPPs

Establishing a good financial structure is the key to a project's success. Mobilizing long-term debt is critical, and finance packages may be complex.

Project Finance

Private power projects are usually financed on a "project finance" basis. Companies carrying out IPP projects are often established expressly for this purpose; such companies have therefore no track record to support their request for financing. Instead, in project finance, lenders and investors look to the anticipated cash flow of the project itself for repayment of the principal and interest on the loan and for the return on the investment. The project's assets, contracts, and cash flow are used as collateral in the event of default. The lenders do not, however, typically have recourse to the assets of the parent company or project sponsors (i.e., nonrecourse financing), or in some cases they may have this recourse only up to project completion (i.e., limited-recourse financing). Lenders therefore focus their credit analysis on an assessment of the risks of the project. Project financing can be more risky to lenders than corporate financing because the risks are less diversified. This has resulted in difficult and protracted financial negotiations and indeed to some failures.

Table 1. Mitigation of Risks – Some Recent Examples

Project	Project Risk	Market Risk	Foreign Exchange Risk	Country/Political Risk
<p>Shajiao B, China 700 MW Coal</p>	<p><i>Pre-Commissioning:</i> A strong investor consortium assumed the completion risk. Technology risk was minimized by selection of known technology. Equipment suppliers were highly respected companies. Civil works and construction were undertaken by a subsidiary of the developer, Hopewell.</p> <p><i>Post-Commissioning:</i> Fuel risk is minimized by take-or-pay terms (the price being fixed for 10 years), backstopped by a guarantee from a reputable financial institution (GITIC).</p>	<p>The IPP's market risk is minimized by a take-or-pay contract (10 years), backed up by a guarantee from a reputable financial institution (GITIC).</p>	<p>The PPA provided for half the payments to be made in hard currency.</p> <p><i>Profit Repatriation:</i> The developer assumed 70% of the foreign exchange risk.</p>	<p>A buoyant market mitigates country risks.</p> <p>The provincial government guaranteed that GITIC and the power purchaser would have funds available to meet their obligations.</p>
<p>Navotas, Philippines 3 X 70 MW Gas Turbine</p>	<p><i>Pre-Commissioning:</i> The developer, Hopewell Philippines, assumed completion risk. The project size and investment are small; second-hand gas turbines were purchased from a U.S. company.</p> <p><i>Post-Commissioning:</i> Fuel risk is taken by the power purchaser in a "Fuel Conversions Agreement" under which the purchaser supplies fuel at no cost.</p>	<p>The market risk is mitigated by a 12-year take-or-pay contract.</p>	<p>The fixed capacity charge is denominated in U.S. dollars. The energy charges are denominated in both foreign and local currencies, with the foreign component sufficient to cover foreign operating costs.</p>	<p>The government of the Philippines provided a guarantee of the purchaser's performance under the PPA.</p>

Table 1. Mitigation of Risks -- Some Recent Examples (continued)

Project	Project Risk	Market Risk	Foreign Exchange Risk	Country/Political Risk
<p>Pagbilao, Philippines 2 X 350 MW Coal</p>	<p><i>Pre-Commissioning:</i> The developer, Hopewell Philippines, assumes completion risk to the extent this is not covered under the Turnkey Contract.</p> <p><i>Post-Commissioning:</i> Fuel risk is taken by the power purchaser in an Energy Conversion Agreement under which the purchaser supplies fuel at no cost.</p>	<p>Market risk is mitigated by a 25-year take-or-pay contract based on Hopewell's ability to maintain prescribed levels of output and availability.</p>	<p>The fixed capacity charge is denominated in U.S. dollars. The energy charges are denominated in both foreign and local currencies, with the foreign component sufficient to cover foreign operating costs.</p>	<p>The government of Philippines provided a guarantee of the purchaser's performance under the Energy Commission Agreement.</p>
<p>Puerto Quetzal, Guatemala 120 MW Fuel Oil</p>	<p><i>Pre-Commissioning:</i> Enron, the sponsor, assumed project completion risk. The debt-financing of the project took place after the project was completed. The risks associated with technology and the equipment supplier are also assumed by the sponsor.</p> <p><i>Post-Commissioning:</i> Fuel-risk is assumed by the power purchaser. The cost of fuel is a pass-through in the PPA.</p>	<p>Market risk is mitigated through a 15-year take-or-pay contract with the state utility.</p>	<p>The capacity and energy charges under the two-part tariff are denominated in U.S. dollars, and therefore any fluctuations in the exchange rate will be reflected in the tariff. Repatriation of foreign currency is guaranteed under the PPA.</p>	<p>The Power Purchaser is creditworthy. The Project is barge-mounted, with the barge licensed in the United States; this gives the project additional protection against political risks.</p>

Gearing

IPPs are usually highly geared. Sponsors attempt to maximize the level of debt, financing the remainder with their own equity or equity from other project parties or international institutions such as the IFC. The amount of equity required depends on the lender's perceived risk for the project and typically ranges between 25% and 35% in developing countries.

Sources of Finance

Loans

Loan sources for IPPs in developing countries include export credit agencies (ECAs); bilateral and multilateral lending agencies (MLAs); and commercial banks and other commercial lenders. Commercial banks have been reluctant to make loans in many developing countries. However, in addition to providing debt financing for their own accounts, the IFC and the Bank's Cofinancing Department have mobilized financing from commercial banks through loan syndications.

Bonds and Private Placements

In addition to the traditional sources of loan finance, IPPs in developing countries have been looking at alternative forms of finance, such as the bond or stock markets and private placements.

Bonds: Although bond issues are common in the U.S. capital market for investor-owned utilities, public-debt financing for IPPs in the United States is a recent phenomenon. In client countries, public debt has seldom been raised for IPPs. In 1992, the Gujarat Industries Power Corporation, India's first IPP, raised debt financing in the domestic market by issuing convertible and nonconvertible debentures for its 145 MW power project in Baroda. In Malaysia, financing for the 1,303 MW Sikap Energy Ventures IPP in Lumut, Perak, was secured using domestic private savings. The project equity was provided through subordinated shareholder loans. Half of the debt financing was supplied by a fixed-rate long-term bond issue placed with a local pension fund, and the balance through a nonrecourse floating-rate loan from local banks. The development of local capital markets and new financial products are likely to be critical for financing future IPPs.

Bond financing requires compliance with securities laws and complete disclosure of project risks. Issuing public debt through bonds and debentures has two major advantages. A public-debt issue provides access to a broader range of buyers and offers flexible financial structures. Domestic bonds reduce the project's exposure to foreign exchange risks, and the tenor is for a longer period than traditional loans (typically about 15 years).

However, disadvantages of the public markets include the following:

- registration and disclosure requirements must be met under securities regulations;
- they have less flexibility than loans, because if subsequent modifications are required, a large number of bondholders need to be consulted; and
- difficulty may be encountered in obtaining a credit rating prior to construction and operation.

Private Placements: Private placements are long-term debt issues to institutional investors such as insurance companies and pension funds. These institutional investors need to match the timing of returns on their investment with their financial products' obligations. Malaysia is an interesting example of a developing country where debt for IPPs has been successfully placed in the domestic market (in the Employees Provident Fund).

A special case of private placements recognized by the Securities and Exchange Commission of the United States is the "Rule 144A Market." This provides a safe harbor against the registration requirements of section 5 of the 1933 Securities Act for resale of unregistered securities to a class of sophisticated institutional investors, the so-called qualified institutional buyers. U.S. sponsors have tapped this market. For example, Enron raised \$105 million in the 144A market for its Subic Bay project in the Philippines. It is still unclear how the Rule 144A market will develop.

Guarantees

In countries where utilities are financially sound, tariff-setting mechanisms are transparent, and the economy is robust – such as Malaysia – guarantees may not be required. The Mamonal project in Colombia, for example, is one of the first project-financed IPPs in Latin America to be financed without support from MLAs, due largely to the creditworthiness of the electricity purchasers. However, in many World Bank Group member countries, guarantees of one kind or another are still needed; lenders require the assurance of guarantees ranging from "comfort factors" to guarantees from MLAs, sponsors, and governments.

"Comfort Factor"

Lenders may prefer the presence of bilateral or multilateral institutions that have a long-term relationship with the host country. The involvement of such institutions can provide comfort on political risk and currency convertibility, because they are sufficiently capitalized to share some of the risks associated with project financing. Their presence can thus mobilize financing from other financial institutions and institutional investors.

MLA Guarantees

MLAs provide specific guarantee packages, as described below.

Multilateral Investment Guarantee Agency: MIGA's investment insurance covers equity against losses from currency transfer or inconvertibility, expropriation, breach of contract, and war and civil disturbance. However, the standard policy covers investment for only 15 years and up to \$50 million per project.

World Bank Guarantees: In a follow-up scheme to the Enhanced Cofinancing Operations (ECO), the Cofinancing and Financial Services Department (CFS) at the World Bank now guarantees debt of commercial lenders as a transitional measure pursuant to a client country's commitment to substantial sector reform. World Bank guarantees mitigate selected risks that the market is not positioned to accept in particular project or country circumstances. The program aims to lower the cost of financing, to extend loan maturities, and to reduce a government's liability to the minimum required to make the project financeable.

Two types of guarantees are available:

- *Partial risk guarantees* cover debt service payments in the case of defaults resulting from the nonperformance of contractual obligations undertaken by governments and their agencies. This guarantee mechanism is similar to the ECO used in Pakistan's Hub Power Project.
- *Partial credit guarantees* cover all events of nonpayment for a designated part of the financing. This guarantee mechanism is similar to the ECOs used in three recent public sector projects: in China's Yangzhou and Zhejiang thermal power projects and the Leyte-Luzon geothermal project in the Philippines.

*Government
Guarantees*

Lenders nearly always seek government guarantees to back up either debt obligations or adherence to the terms of the PPA where, for example, the power purchaser is not creditworthy. The effectiveness of such guarantees is a matter of some debate:

- investors may argue that some government guarantees provide insufficient assurance that the government would respond if the guarantee was called; and
- governments may not favor providing a guarantee because it means the project remains on its balance sheet as a contingent liability.

Lessons Learned

*Ensure Political
Commitment*

A reformed sector and/or regulatory framework are not necessarily required for IPPs because the "regulation" occurs through contracts. Political commitment, however, is required to create an "enabling" environment, clear government policies, and coordination between government ministries and their agencies.

Start Small

Smaller projects (up to 200 MW) have been more successful at reaching financial closure than larger projects. The first generation of successful smaller projects includes a 40 MW barge-mounted diesel in the Dominican Republic, a 110 MW barge-mounted diesel in Guatemala, a 64 MW slow-speed diesel in Jamaica, a 50 MW hydro project in Belize, and the 210 MW Navotas project in the Philippines. The substantial financing required for larger projects tends to intimidate lenders, and the increased problems of risk allocation among the parties make larger projects harder to bring to financial closure.

*Mitigate
Construction Risks*

The construction phase of the project development is the most risky stage because completion guarantees need to be provided either by the lead sponsor or by the turnkey construction contractor. In the Shajiao "B" project in China, and in the Navotas and Subic Bay projects in the Philippines, the lead project sponsor provided the completion guarantees. Some projects are balance-sheet-financed during construction with a view to syndicating the project once it is under operation and generating reliable cash flows.

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Tap Local Capital

Local capital plays a role in ensuring the political sustainability of an IPP. Domestic private savings can be tapped for these projects provided that the local currency is fully convertible and that the availability of foreign exchange in the domestic market is assured, since the foreign costs can be nearly 70% of project costs.

Reap Benefits of Standardization

Because of the nature of risks in emerging markets and the fact that the financial packages need to be closely tailored to the project and country's needs, it is difficult if not impractical to replicate project documentation across countries. However, the second IPP in a particular country may benefit significantly from the lessons learned on the first.

Become Better Purchasers of Power

State-owned utilities often need to learn quickly how to become more knowledgeable buyers of private power.

Mitigate Risks to Purchasers

It is generally preferable for plants to be dispatchable. Where purchasing utilities take on the demand risk by signing "take or pay" contracts with IPPs, attention needs to be paid to ensure that payments to IPPs are tied to optimal availability and performance levels through appropriate incentive arrangements.

Ensure that a Project is Good Business

The whole deal must make business sense for all involved – the key participants, investors, and the country – otherwise the deal, no matter how "watertight" its contracts, will not work in the long run.

Other Publications

World Bank Group Publications

Submission and Evaluation of Proposals for Private Power Generation Projects in Developing Countries (IEN Occasional Paper No. 2), Peter Cordukes

Financing Private Infrastructure Projects (IFC), Gary Bond and Laurence Carter

"Barge Mounted Diesel Generators" (Energy Note No. 5), Robert Bacon

"Risks and Price in PPAs" (Energy Seminar), Ed Kahn

"IPPs in Developing Countries" (FPD Note No. 1), James Bond

For copies of the publications above, contact the IEN Publications Clerk, phone: (202) 473-3672; fax: (202) 477-0542

"Jamaica's Rockfort Private Power Project" (Project Finance and Guarantees, CFS)

"Guarantees Improve Terms of China's Private Borrowing" (Project Finance and Guarantees, CFS)

Mobilizing Private Capital for the Power Sector: Experience in Asia and Latin America (CFS Publication), David Baughman and Matthew Buresch

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