

Minimum Debt Financing Requirements for Private Power Projects in India

A Report of

USAID/New Delhi
and
The Office of Energy, Environment, and Technology
Center for Environment
Bureau for Global Programs, Field Support, and Research
United States Agency for International Development

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For the Energy Efficiency Project
Contract No. PCE-5743-Q-00-2074-00
Delivery Order No. 1

June 1995

This publication was made possible through support provided by USAID/New Delhi and the Office of Energy, Environment, and Technology; Center for Environment, Bureau for Global Programs, Field Support, and Research; United States Agency for International Development. The opinions expressed herein are those of the author(s) and do not necessarily reflect the views of the U.S. Agency for International Development.

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Acknowledgments

This report was prepared under USAID's India Private Power Initiative (IPPI) as part of a program to assist the Indian Ministry of Power's Investment Promotion Cell in better mobilizing private debt for power projects. Support for this analysis was provided by the USAID Energy Efficiency Project, originally under the direction of David Jhirad of USAID, and currently Alberto Sabadell of USAID/G/ENV/EET, and John Armstrong of Hagler Bailly, Inc..

The authors, Matthew Buresch and Amit Dalal of Hagler Bailly, wish to acknowledge the support and contributions of Richard Goldman and David Hess of the USAID Mission in New Delhi, and the valuable inputs and assistance of Hemant Joshi of Credit Rating and Information Services of India Limited (CRISIL), Peter Geldart (Salomon Brothers, Hong Kong), Sanjay Khettry (Barclays Bank), Paul Pankuk (Morgan Stanley), Joseph Sauvage (Lehman Brothers), and Richard Hedberg and David Behnke (J.P. Morgan).

The report represents an initial discussion of the key points related to how private debt capital can be mobilized; considerable additional analysis is called for in this rapidly evolving field. It is an outgrowth of two reports previously published: *Mobilizing Private Capital for the Power Sector: Experience in Asia and Latin America*, prepared in November 1994 by Matthew Buresch and David Baughman as a joint discussion paper for the World Bank and USAID; and, *Submission and Evaluation of Proposals for Private Power Generation Projects in Developing Countries*, prepared in April 1994 for the World Bank and USAID by K&M Engineering and Consulting Corporation. The discussion of the independent power cycle in Chapter 2 was in part derived from *Investment Planning in the U.S. Electric Power Sector*, prepared in September 1994 for USAID's power sector restructuring project in Russia.

EXECUTIVE SUMMARY

Historically, the Indian power sector has financed its capacity expansion through two primary means: central and state government treasury payments, and bilateral/multilateral loans and equipment credits. A small but significant portion of India's nearly 77,000 MW of electric capacity has been financed by private licensees through corporate finance and capital markets. This latter method of financing, together with innovative project financing (such as sovereign and non-sovereign guaranteed financings), is forecast to become the favored means for funding much of India's future electric generation capacity.

India's private power promotion program has attracted over two dozen well known international and domestic developers, who have proposed over 100 independent power projects. The preferred approach for structuring these projects is to use project finance methods pioneered in the United States. Although there are many potential sources of financing, the risks associated with such power projects are great. Debt financing is especially difficult to arrange in developing countries and often requires sovereign guarantees.

Once the project structure is formed, the developer seeks financing from a number of sources. All lenders conduct a detailed review and credit analysis on the sponsors and the project before committing to the funding. The type and process of review differ among institutions, but certain fundamental criteria are uniformly assessed.

The typical independent power project is conceived in three phases: the development phase, the construction phase, and the operating phase. There are particular risks associated with each phase, but lenders perform a detailed credit analysis that encompasses the construction and operating phase. The development phase contains the greatest risk for the developer because the project structure must be uniquely created.

Equity holders in power projects usually include private power developers and financial institutions. Debt holders are composed of a group of commercial banks, export credit agencies, multilateral development banks, and capital markets. Special power sector investment funds may invest in both equity and debt. Usually equity participants expect a higher rate of return than debt holders. India has attracted significant equity interest, but many debt holders are still apprehensive about certain long-term risks, such as the creditworthiness of State Electricity Boards, payment, and fuel supply guarantees.

The recent financial closure of the 2,015 MW Dabhol Power Project developed by Enron, General Electric and Bechtel, and the upgrading of India's rating by Moody's to investment grade, point to the increasing confidence in the Indian market. However, several factors deter the continued development of international independent power projects. Among the most important of these are the Government of India's intention to discontinue counter-guarantees after the first seven fast-track power projects, the slow reform of the financially-bankrupt State Electricity Boards, and a limited capacity of domestic banks and capital markets.

Despite these disturbing signs, at least seven alternatives to the sovereign counter-guarantees are being explored. These include utilizing The World Bank guarantee facility, export credit agency guarantees, Indian bank financing/guarantees, state government guarantees, escrow accounts with receivables from creditworthy industrials, power wheeling, and traditional corporate balance sheet financing. If these alternatives are to make important contributions to the project pipeline, they will have to be better understood by the entire community of developers and lenders before financing can take place.

Chapter 1 Introduction

India's rapid economic growth is placing major capacity expansion demands on the largely government owned and operated power sector. The government resources available to finance capacity additions are limited, and attention is increasingly being paid to attracting both domestic and foreign private investments.

This report is intended to assist the Indian Ministry of Power (MOP), state governments and electricity boards, and USAID in understanding the minimum requirements for debt financing in India and in determining what policy measures will help support expanding private power investment. The material presented here is based on an extensive analysis of international power project financing experience, interviews with international commercial and investment bankers, and various USAID-arranged meetings for Minister of Power N.K.P. Salve and his delegation with bankers in New York City during September 1993 and November 1994.

1.1 *The Indian Power Sector*

Since independence, India has increased its power generating capacity by 55 fold: from 1,362 MW in 1947 to 76,718 MW of utility generation in 1994. Over this period, 75% of India's 550,000 villages have been electrified. With this major capacity expansion, per capita electricity consumption has increased from 15.6 kWh in 1950 to 270 kWh in 1994. Despite these achievements, India's per capita electricity consumption is still among the lowest in the world, major power shortages remain, and thousands of villages still have not been electrified. Electric energy shortages in 1994 are estimated to be about 8% and peak capacity shortages around 19%.

Major capacity expansions will be required to address the shortages and to spur India's rapid economic growth. The Central Electricity Authority (CEA) estimates that for the 8th Plan (1992-97) alone, capacity additions of 48,000 MW are needed. This figure has had to be scaled back to 30,538 MW due to limited resources. This reduced level of capacity additions will only meet the needs of the expanding economy (at a real GDP growth in 1994 of 5.0%) and will not appreciably reduce the level of power shortages in 1997.

The bulk of the government-sponsored power construction program has been financed by central government transfers to the states and by multilateral banks and equipment vendors. An exception to this trend is the recent public issues by the National Thermal Corporation. Domestic capital markets have been efficiently tapped by India's private electric companies, in part due to their superior organizational and production management skills.

The Role of the States. India's major capacity addition requirements are placing an overwhelming burden on the ability of the Government of India (GOI) and the individual State Electricity Boards (SEBs) to provide the necessary financing. The typical international sources of power sector financing from such multilateral development banks as The World Bank and the Asian Development Bank are limited, and these banks are making their lending contingent upon power sector reforms.

The GOI acknowledges that the poor creditworthiness and financial losses of many SEBs (caused by artificially low power tariffs, poor management, and overstaffing) are a major factor in forcing the imposition of these financing constraints. As shown in Exhibit 1-1, the profit/loss of SEBs varies from state to state, with more prosperous states such as Maharashtra and Andhra Pradesh indicating positive

revenues, and states such as Bihar and West Bengal showing losses (it is important to note that these profit/loss figures were collected by the GOI and have not been audited by an independent entity). A major contributing factor to their limited creditworthiness is the tendency for political parties to see the supply of subsidized power, particularly to the farming sector, as a way of gaining political support. Reforming the power sector to bring it up to a commercial basis will require political, tariff, technical efficiency, and management improvements that will take years to implement.

The Role of the Private Sector. The performance of most private utility companies in India are a reflection of the traditional financing methods of Indian industry. These utilities display characteristics that are similar to the large Indian industrial companies: they have created low-priced assets, have a small equity base (as compared to U.S. utilities), and have created large depreciation funds. For example, the Bombay Suburban Electric Supply Company (BSES), a private licensee that serves the greater Bombay area, has a market capitalization of around \$280 million. The company is guaranteed a return of 5% over the Reserve Bank of India's prime lending rate (currently around 12%): this translates into a 17% return on BSES's capital base. Old capital bases continue to receive the earlier lower decreed rates of return. Due to the differential treatment allotted to the capital base, licensees are engaged in aggressive construction programs of their own.

The Tata Electric Company is building the 180 MW Bhira Pumped Storage project, BSES has recently commissioned the 500 MW coal-fired Dahanu power plant, and Calcutta Electric is nearing completion on the 500 MW coal-fired Budge-Budge project. All of these projects share equipment vendor financing and participation by the multilateral development banks. For example, for the Dahanu project, BSES obtained Rs 8.60 billion in debt (Rs 7.5 billion from the International Finance Corporation and Rs 1.10 billion from Indian financial institutions) and Rs 5.80 billion in equity (Rs 4.65 billion from Indian capital markets and Rs 1.15 billion from internal cash reserves). Exhibit 1-2 shows the ownership structure and principal financing sources.

**Exhibit 1-1
Financial Performance of SEBs, 1992-93**

SEB	Revenue Receipts*	Operating Expenditure	Gross Op. Surplus or Deficit (1-2)	Depreciation	Interest Due to		Net Surplus or Deficit 3-(4+5+6)
					Institutions	State Govts	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Andhra Pradesh	19.11	12.76	6.36	1.28	2.23	1.72	1.13
2. Assam	3.15	2.90	-0.58	0.33	0.79	0.91	-2.62
3. Bihar	7.51	9.22	-1.70	0.69	1.31	--	-3.71
4. Gujarat	18.19	19.98	-1.79	1.33	1.68	1.14	-5.95
5. Haryana	6.97	8.73	-1.30	0.50	0.78	1.03	-3.61
6. Himachal Pradesh	0.50	1.24	0.26	0.11	0.40	0.46	-0.72
7. J & K	0.80	2.35	-1.55	0.15	0.31	0.43	-2.44
8. Karataka	9.81	10.67	-0.87	0.40	0.89	0.42	-2.57
9. K.P.C.	5.02	2.70	2.32	0.44	0.61	1.07	0.20
10. Kerala	4.45	2.99	1.46	0.30	0.60	0.52	0.03
11. Madhya Pradesh	19.11	14.17	4.94	1.53	3.50	3.57	-3.66
12. Maharashtra	42.01	29.97	12.04	2.54	4.40	3.08	-2.04
13. Meghalaya	0.38	0.23	0.15	0.06	0.21	0.10	-0.22
14. Orissa	4.59	2.99	1.60	0.44	0.87	0.29	--
15. Punjab	9.87	11.66	-1.79	1.06	--	3.62	-7.49
16. Rajasthan	10.13	10.28	-0.15	0.90	1.06	0.90	-3.01
17. Tamil Nadu	17.31	19.75	-2.44	1.21	2.83	1.05	-7.53
18. Uttar Pradesh	18.96	19.17	-0.21	1.72	2.64	4.93	-9.50
19. West Bengal	8.67	7.73	8.94	0.37	1.46	0.69	-1.57
Total	206.54	189.04	17.66	15.35	27.59	25.95	-51.21

*Unit: Rs bn. * Excluding Subsidies Source: Council of Power Utilities.*

**Exhibit 1-2
Ownership and Financing of India's Power Sector**

Ownership Structure	% of Total Generation	1994 Installed Capacity	Principal Source of Financing
State Electricity Boards; Central Sector Power Generating Companies	90%	est. 70,000 MW	State and central government treasury payments, bilateral equipment credits, World Bank and ADB loans, relatively small amounts from Indian capital markets
Private Electric Companies/Licensees	5%	est. 6,000 MW	Internally generated funds, Indian and global capital markets, term loans, equipment credits, World Bank and International Finance Corp., ADB loans
Industrial Generators (Private)	5%	est. 5,000 MW	Internally generated funds, term loans, equipment credits

There is growing recognition that the private sector, with its investments and management know-how, is generally able to operate power systems more efficiently and cost-effectively. The often cited examples of commercially-viable private electric utilities in India are Bombay Suburban Electric Supply Company and Tata Electric Company.

Given the global movement towards privatization and independent power, the GOI has made a policy decision to open up the Indian power markets to private ownership and investment. As part of India's overall economic liberalization program, the GOI has sought to attract private investment by instituting a new electricity law (The Electricity Laws Amendment Act of 1991 as found in *The Gazette of India*), the establishment of an Investment Promotion Cell (IPC) in the Ministry of Power, and the implementation of an international effort to promote power sector investments. In 1992, the IPC prepared a prospectus entitled *India's Electricity Sector: Widening Scope for Private Participation*, which was updated in October 1994. The IPC also organized three missions to the United States to promote the Indian power market to private power developers, investors, and lenders in 1992, 1993, and 1994. These marketing missions were coordinated with the support of the USAID Office of Energy, Environment, and Technology.

Since initiating this private power promotion program, the GOI has been highly successful in attracting proposals from international private power developers to build, own, and operate independent power projects in India. As of November 1994, some 93 power projects totaling about 53,500 MW were in various stages of negotiation. More than 10 U.S. private power developers alone have proposed projects in India, including such major companies as Enron, AES, Mission Energy, CMS, Spectrum, and Cogentrix. Power purchase agreements have been signed for a few of these projects, and the contracts required for project financing are being negotiated for the remainder. The GOI has selected 7 of these 93 projects as fast-track projects, which will be given special priority for development. A listing of these fast-track projects and their key characteristics is found in Exhibit 1-3.

While many of these projects have been successful in attracting equity investors, it has become apparent that the lenders or providers of debt have more stringent requirements that have not been adequately addressed in the initial policy formulation. While independent power developers have committed substantial time and resources to negotiating projects, the level of interest on the part of lenders has been less evident or well understood.

Given that the project sponsors typically will be providing only about 20% to 30% of the capital required in the form of equity investments, the 70% to 80% of the financing provided by debt financing will be critical to project implementation.

Debt financing can be arranged from three sources: banks, private placement, and public debt capital markets. It is difficult to raise debt from capital markets prior to construction, particularly in emerging markets. Consequently, development and commercial banks will play a vital role in the initial implementation of the first power projects. Because lenders are earning a fixed return, they are by nature more cautious and demanding about the key threshold requirements for financing and servicing their debt. An important factor in raising financing for power projects is the status of India's financial sector for domestic investors and foreign investors' perception of India's country risk.

1.2 The Indian Financial Sector

India has a large and vibrant financial sector. Over the past decade, the Government of India has actively intervened in the financial sector through nationalization and management control to implement reform policies. Its programs have contributed to the expansion of the banking and capital market sector, and to the development of India's high savings rate of about 24% (1993/94).

India has a complex and diverse banking system composed of the Reserve Bank of India, some 275 commercial banks, development financial institutions (e.g., Industrial Development Bank of India (IDBI), Industrial Credit and Investment Corporation of India (ICICI), Industrial Finance and Credit Institution (IFCI)), over 125 mutual fund schemes, and various all-India and state-level financial institutions. While 90% of all bank deposits are held by the 28 public sectors banks, various policies that have liberalized the banking and capital market sectors are opening the market to competition and greater private sector participation. India's capital markets are also extensive, with 23 stock exchanges, over 7,000 companies listed, and an investor base of over 18 million in 1994. The largest stock exchange is in Bombay, where market capitalization has grown from US\$ 35 billion in 1990/91 to US\$ 161 billion in early 1995.

MAP OF INDIA AND FAST TRACK PROJECTS (not available)

In 1992 the GOI established a capital market regulatory institution, known as the Securities and Exchange Board of India (SEBI), to meet the expanding need for management and regulatory oversight. Despite some abuses and insider trading scandals, SEBI has been receiving higher marks in terms of increasing regulatory control over the markets. Institutional investors are playing a growing role in this improving regulatory framework: the institutional share of the total capital raised by the corporate sector has grown from 17% in 1992/93 to 32% in 1993/94. An important new milestone is the rapidly developing secondary market for debt. The establishment of the National Stock Exchange (NSE) has contributed to the expanded trading of securities and bonds from public sector corporations. While the August 1994 capitalization of Rs 19 billion (\$600 million) is relatively small, this market is expect to grow rapidly.

Indian corporations have increasingly gone to the domestic and international capital markets to raise both equity and debt. With over 7,000 companies listed on the Indian stock exchanges, new equity issues were extensive during the last quarter of 1993/94, exceeding Rs 90 billion. During 1994 the stock market saw a sharp fall following the highly-publicized withdrawal of the US\$1 billion IPO of telecoms giant VSNL and then recovered substantially.

A major trend that primarily began in 1993 was the issuing of Global Depository Receipts (GDRs) by Indian corporations in the international capital markets. Exhibit 1-4 shows the leading Euro GDR issues in 1993/94. This new international instrument has been attractive to foreign institutional investors, given the difficulties of investing directly in India. The GDR boom created a \$4 billion market outside of India in 1994, which is equivalent to about 2.5% of India's total market capitalization. Indian securities constitute the largest share of emerging market issues on the Luxembourg Bourse. The GDR market has dampened somewhat recently. When the first GDRs were issued in 1993, they were selling at a premium to underlying stock prices in India. Growing caution in international capital markets has transformed this premium into discounts of between 15% and 20%. This has slowed the rush to the GDR market. But despite their expected volatility, the GDR and related markets are likely to grow in importance in financing India's growing economy.

All of the above factors contribute to potentially attractive domestic sources for financing independent power projects. While domestic equity for independent power will become more readily available, adequate sources of long-term debt financing will be more difficult to identify. In the near term, the Indian financial institutions, such as the IDBI and ICICI, will play an important role. For instance, the IDBI is proposed to be the rupee lender to Enron's 680 MW first-phase Dabhol distillate-fired project in Maharashtra.

Ultimately, local capital markets will need to be a major source of debt financing; however, it is evident that they have yet to develop the necessary long-term debt instruments and markets for financing large infrastructure projects. The Indian stock market has been booming since the initiation of the GOI's economic liberalization program (e.g., capital raised by non-government companies increased from Rs. 10.6 billion in 1984/85 to Rs 57.5 billion in 1991/92). Nonetheless, the framework for privately financing infrastructure has yet to be developed. The most critical area is raising commercial long-term (15-30 years) debt. Only a rudimentary commercial bond market for longer-term debt is in place and the secondary markets are only just emerging. While two rating institutions have been established, the SEBs will need to go through considerable accounting and financial reporting reforms before they can be rated and raise debt on the capital markets. The large pension funds controlled by the government are not yet permitted to invest in private projects, thus limiting a possible source of capital for private infrastructure.

Exhibit 1-4
Leading Euro-Issues Launched in 1993/94

	Amount (\$ m)	Type
Reliance Industries	300	GDR ^a
ICICI	200	ECB ^b
Nippon Centro Ispat	150	ECB
Reliance Industries	140	ECB
Arvind Mills	125	GDR
Indian Rayon	125	GDR
Hindalco	108	GDR
Jindal Strips	100	ECB
SCICI	100	ECB
Sterlite Industries	100	GDR
Indo-Gulf Fertilisers	100	GDR
Great Eastern Shipping	100	GDR
Tata Iron and Steel	100	ECB
Total (incl 14 others)	2,896	

^a Global Depositary Receipt. ^b Euro Convertible Bond.

Source: *Economist Intelligence Unit, London, 1994*

Given the capital-intensive nature of infrastructure projects in general and power projects in particular, the ability to mobilize long-term debt will be critical to the development of a broad-based independent power industry. Most individual and institutional investors have a preference for equity investments, given their higher yields and liquidity, and are generally not inclined to invest in long-term debt. Attracting capital to these markets will require establishing appropriate exit mechanisms or roll-over options to give investors sufficient liquidity. To help develop the framework for private infrastructure financing, the GOI has two major capital market technical assistance projects being financed by The World Bank, the Asian Development Bank, the International Finance Corporation, and the U.S. Agency for International Development. Over time, these programs should substantially build the capability and confidence in longer-term infrastructure financing for both domestic and foreign debt financiers.

Chapter 2 Project Investment and Lender's Credit Review

Throughout the 1980s, developers and non-utility companies pioneered the prevailing method for financing independent power in the United States: project financing, where a project's cash flow and earnings are used to pay principal and interest. Since then, some 287 projects (with capacity greater than 50 MW) amounting to almost 38.8 GW have been financed in the United States. Of these, 98 projects amounting to 10,070 MW were corporate financed and the remaining 189 electric plants totalling 28,730 MW were project financed.

Because most of the power developers active in India have already developed projects in the United States, their approach has been based on the typical project cycle as it is practiced in the United States. This chapter gives a brief overview of the U.S. project cycle and discusses lender requirements in greater detail.

2.1 The Independent Power Project Cycle

From a planning and financing perspective, there are essentially three stages of independent power project (IPP) development in the United States: development, construction, and operation. The sources of funds, in general, are different for each stage. The risks associated with the completion of each stage are also different and hence, the cost of the capital is different.

It is important to appreciate that until the project is built and capable of operating, there is no revenue source to repay the investment. Without revenue, the project's lenders and investors are unable to recover their original investment. Until the plant is operating, the risk increases for the participants as more money is lent or invested in the project. The risk of non-completion, for whatever reason, is a project's greatest risk during the construction stage. This phase is lengthy and needs to be managed carefully. As the development and construction stages proceed, there are more and more sources of funding. Then, once a project demonstrates that it is capable of operating commercially, the sources of capital increase dramatically. In addition, unlike a company that has multiple sources of revenue, a project generally has a single source of revenue, which adds a premium to its borrowing costs.

Since the Public Utility Regulatory Policies Act (PURPA) was implemented, numerous projects have been developed in the United States, and consequently, an "institutional framework" for the industry has developed. This framework includes the legal and regulatory structures, permitting requirements, and government processes. There is also a general understanding by developers and lending institutions about what types of projects, technologies, and fuels are acceptable in the U.S. market. The economic environment has been relatively stable for investments and this, together with the institutional framework, has greatly reduced the perceived project risks for investors.

The Development Stage

The development stage encompasses the period during which a developer is trying to create a project. As discussed above, it is the period of greatest risk for the developer, who is to put together all the pieces of a new business. It is important to understand that in creating a project, the developer is starting a business where no business operations existed before.

During the development stage, one cannot be certain that a "financeable" project will result. The project must first be defined in terms of the buyer's needs, the site, the fuel availability and the permitting requirements. Then the feasibility work is done. This generally consists of engineering, cost estimation and environmental work, as well as the development of preliminary project *pro formas*. (In the United States where the financial markets for independent power are mature and well defined, a financial plan is generally not included as part of the feasibility work.) The developer must then obtain contracts, secure the site, and complete the permitting for the plant. The contract that sets the direction for the rest of a project's development is the power purchase agreement. It is during the development period where the greatest "value" is being created.

Putting together a project is expensive: the costs to take a project from inception to construction funding range from \$2 to \$10 million. The source of funds generally used during this period is equity. These funds are provided by the developer and owner of the project. It is on-balance sheet financing, and development monies are rarely borrowed. In certain situations, particularly when the IPP industry was immature and many of the companies were small, this form of capital was lent by other parties. If the project is successful, the development lender usually receives a significant percentage of the project's equity as well as the repayment of his loan. These loans are sometimes secured by the developer's other assets, which could range from his house and personal effects to larger corporate assets.

The sources of financing for independent power projects are scarce because the risks of development are great. Until the project reaches financial closing for construction, there are a multitude of risks that could reduce the value of the project to zero. These risks include:

- permitting risk
- political opposition to the project
- inability to secure fuel and fuel transportation under long-term contract
- inability to obtain a financeable power purchase agreement, either because the power price is too low or the terms are not acceptable
- regulatory disapprovals
- change in law.

At the development stage, the financial management and investment planning process for a project is intended to set priorities, a time and draw-down schedule, and an estimated budget. The project must be carefully analyzed for potential obstacles to development. Strategies need to be designed for the early determination of whether these obstacles are surmountable. There should be some cap on total expenditures, so that costs do not get out of control. From a lender's point of view, the cost of developing a project can become so high as to render the project uneconomic with a sub-optimal return to equity investors. The developer has two choices: abandon the project and lose everything, or "contribute" some of the development costs to the project with the hope that he will be able to earn his money back over time through his equity return.

The Construction Period

A project enters the construction stage when it has met all the requirements necessary to put together a non-recourse project financing. This means that all of the contracts are negotiated and signed, the permits are granted, and the technology and equipment are selected. The pieces of the business are in place. Essentially, if anything goes wrong with the business, the lenders can only look to the assets of the project to recover the borrowed funds. There is limited to no recourse to the developer if there is a problem. Therefore, all the risks must be allocated through the contractual arrangements. This is the nature of non-recourse project finance.

The lenders, in general, provide the majority of the construction funds. The period of greatest risk for them is just before the plant is completed, because they have almost all of their loan outstanding and the plant is still not producing revenues.

The traditional source of construction period financing is commercial banks, which have experience in assessing project construction risk. Commercial banks may also provide a term loan during the operating period. A project financing is always structured to have a term lender "takeout" of the construction loan when the project reaches commercial operation. The term lender can also be the construction lender.

Once the project reaches the construction phase, the developer has more financing options. He can continue to develop and start construction using corporate funds, or raise the financing through non-recourse project financing. In order to reduce the time between the commencement of the development period and commercial operation, some developers choose to begin construction with a few outstanding issues. In this case, the developer uses its full credit (or "balance sheet") to support the project. The company would then be at risk for any problems, such as cost overruns and *force majeure* events. If the developer elects to start construction before non-recourse financing is available, he can choose to obtain project financing during the construction period once all the criteria are met.

The Operating Period

The primary financial management issue throughout the project life cycle is to minimize the financial and operating costs of the project. Once a project reaches commercial operation, a developer/owner has many options in terms of additional lending sources. For example, institutional buyers such as insurance companies and pension funds, as well as the public markets (which do not take construction risk), can now participate. The project now has real operating and financial data that can be used to assess the plant's performance and financial expectations. The key is planning and constant attention to the project finance debt market.

An ongoing issue is how to minimize the project's debt service. Unlike earlier periods, during the operating period, the project can be refinanced to take advantage of lower interest rates or longer terms, if the developer negotiated the right to refinance in the security documents.

2.2 Determining the Cost of Capital for IPP Projects

Debt

The cost of capital for borrowing in the United States is based on its relationship to the U.S. Treasury rate. U.S. Government securities are viewed as risk-free. This means that without doubt, if you invest in a U.S. Treasury security, you will receive all interest and principal payments as promised and on a timely basis.

Corporate and project fixed-rate borrowings are based on a "spread off" of this rate for the particular term of the debt; i.e., a ten-year project financing loan will be priced off of the ten-year Treasury rate plus a spread for fixed-rate debt. The determination of the spread between the risk-free rate and the borrower's rate is based on a credit analysis of the company or project. The credit analysis determines the degree of assurance one has for repayment of the debt on a timely basis. The analysis is the same whether the debt is borrowed from the public or the private markets. The only difference in the U.S. markets is the level of disclosure, which is greater for a public offering.

When an analysis is done for a public offering, depending how a company or project stands up to industry standards and practices, its debt securities can be rated by an independent rating agency. This rating also helps investors in the public markets to measure the pricing of these securities against others of comparable quality. Most institutional lenders such as pension funds and insurance companies are very credit conscious, and have strict investment criteria. An investment-grade rating on a security allows them to invest generally in a security. A below-investment grade security is rarely acceptable to these types of institutional buyers. Standard & Poor's has developed a methodology for rating project finance debt and has developed criteria for rating both the corporate and project finance debt of IPPs.

Corporate financing by the IPPs is a new area. Until recently, financing was obtained primarily at the project level only. Ratings in the IPP industry are generally below-investment grade because of the risky nature of the business, particularly on the development side. In spite of that, several companies have begun to use the public markets for financing at the corporate level. As the IPPs have grown, they now have the revenues to be able to service corporate debt. The source of the debt is the high-yield market, which is interested in below-investment grade securities and is driven in part by the high interest rates offered in this market. The public markets are particularly attractive to the IPPs because of their less restrictive covenant provisions, longer maturities and access to broader range of buyers.

Exhibit 2-1 contains an overview of the financial status and credit ratings of the IPP industry's largest companies. The companies with investment-grade debt securities are owned in whole or in part by companies that are rated above-investment grade. These companies are highly leveraged, both with recourse and non-recourse debt.

The offering of the California Energy Company Senior Discount Note due in 2004 took place on March 18, 1994. There are several aspects about this offering that are interesting. This debt, which is offered at the parent company level rather than for one of the projects, looks to the equity distributions of the company's projects as the revenue stream for repayment. In addition, the notes are not secured by the assets of the projects or by the equity in the projects. The notes are issued on an original issue discount basis. This means that the company will repay both the notes and the accrued interest at maturity. Thus, investors take the credit risk of both future repayment of principal as well as interest. The interest that accrues during the ten-year life of the project is approximately \$130,000,000. Finally, the notes were rated BB-/Ba3 by Standard & Poor's and Moody's, which is below investment grade (BBB/Baa rating). The interest rate on the notes was 10.25% which was, at the time, approximately 300-350 basis points (100 basis points equals 1%) over ten-year U.S. Treasuries. The interest rate was set looking at other public securities of comparable quality.

Project Financing Debt

Project finance senior debt is secured by the assets of the project. After paying operating expenses, debt service is paid from cash flow. The type of debt that has been used within a project finance structure has been varied. The project finance structure is very flexible in this way. Project debt has been both taxable and tax-exempt, and offered in both the public and private markets. Even tax-oriented lease structures have been used to take advantage of a project's tax benefits.

Exhibit 2-1
Overview of the Financial Status and Credit Ratings of Selected Companies in the IPP Business, December 31, 1994
(\$ millions except per-share data)

	The AES Corp.	California Energy Co. ¹	Destec Energy	Kenetech Corp.	Magma Power Co.	Mission Energy Co.	Ogden Projects ²	Sithe Energies ³
<i>Balance Sheet Data</i>								
Total Assets	1,687.3	1,077.0	858.4	417.3	611.3	1,840.8	2,432.3	1,549.2
Book capitalization:								
Long-term debt, recourse	125.0	500.0	32.8	203.0	3.5	999.7	28.4	10.6
Long-term debt, non-recourse	1,153.6	246.9	0.0	0.0	226.0	0.0	1,551.4	1,179.2
Minority interest	11.2	0.0	0.0	0.0	0.0	0.0	12.1	0.0
Preferred stock	0.0	58.8	0.0	0.0	0.0	0.0	0.0	0.0
Shareholders' equity	309.3	209.2	659.5	147.8	351.9	553.1	389.9	166.6
Total book capitalization	1,599.1	1,014.9	692.3	350.8	581.4	1,552.8	1,981.8	1,356.5
Long-term debt, recourse	7.8%	49.3%	4.7%	57.9%	0.6%	64.4%	1.4%	0.8%
Long-term debt, non-recourse	72.1%	24.3%	0.0%	0.0%	38.9%	0.0%	78.3%	86.9%
Minority interest	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.0%
Preferred stock	0.0%	5.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Shareholders' equity	19.3%	20.6%	95.3%	42.1%	60.5%	35.6%	19.7%	12.3%
Total book capitalization	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
<i>Financial Ratios</i>								
Pre-tax interest coverage (12/13/93)	1.55 x	3.62 x	Not meaningful	0.29 x	8.35 x	2.61 x	1.81 x	0.86 x
Total debt/total capital (12/31/93)	80.5 x	73.6%	4.7%	59.5%	39.5%	65.9%	80.2%	87.7%

	The AES Corp.	California Energy Co.¹	Destec Energy	Kenetech Corp.	Magma Power Co.	Mission Energy Co.	Ogden Projects²	Sithe Energies₃

Exhibit 2-1 (continued)

Overview of the Financial Status and Credit Ratings of Selected Companies in the IPP Business, December 31, 1994

	The AES Corp.	California Energy Co.¹	Destec Energy	Kenetech Corp.	Magma Power Co.	Mission Energy Co.	Ogden Projects²	Sithe Energies³
<i>Credit Rating</i>		Senior Unsecured Debt	No rating No rating	Senior Notes	No rating No rating	Senior Unsecured Debt	Senior Unsecured Debt	Senior Notes
Standard & Poor's Moody's		BB- Ba3		BB- B2		BBB+ Baa2	BBB+ Baa2	BBB- Baa3
	Subordinated Debt	Subordinated Debt					Subordinated Debt	
Standard & Poor's Moody's	B+ Ba3	B B1					BBB Baa3	
		Project Financing						
Standard & Poor's Moody's		BBB- Baa3						

Notes:

¹The balance sheet data for the California Energy Company are from the *pro forma* statement included in the offering circular for the Senior Discount Notes offered on March 18, 1994.

²Credit ratings are for Ogden Corporation, which is the parent corporation of Ogden Projects.

³Credit ratings are for Independence Funding Corporation, which is a company created to finance the 1,000 MW natural gas-fired combined cycle power station Independence Power Project in the State of New York.

Source: Salomon Brothers, New York, May 1994.

The selection of the debt source will be driven by the structure and the quality of the financing. As described earlier, as part of the investment planning process, the finance staff at the IPP will be constantly monitoring the marketplace for the most cost-effective financing options. Those options will also be affected by the general interest rate environment, the developer supporting the project, and the supply of funds available for project finance loans.

The commercial banks (which are the largest lenders to this market) have changing appetites. If the market for project loans is competitive, the interest rate (as determined by the spread-off of Treasuries or if it is floating debt, by the spread-off of London InterBank over-the-counter rate (LIBOR) or Treasuries) will be narrower. The domestic market is very competitive today. A project can be financed for approximately 150 basis points over Treasuries. The tenor of the loan varies depending on the project and the market. Commercial banks will lend for between 10-17 years, depending on the project and their appetite at the time. This also assumes that the project contracts exceed the term of the debt by at least a few years.

In general, for a project finance loan, lenders will require the project *pro forma* to demonstrate a debt service coverage ratio of no less than 1.3x in any year and an average coverage ratio of 1.5x over the term of the debt. In the U.S. market, the requirement for project equity is also dependent on the strength of the project and the markets in general. Some projects in the late 1980s were able to borrow 100% of the financing. This is the exception. Most projects in the United States borrow between 80-90% of the total project costs (70-75% of project costs is common in other countries).

Lenders seek contractual guarantees to mitigate the risks involved in project financing. The non-money requirements of lenders also change depending on the current capital markets. If lenders are aggressively pursuing projects and syndicating project debt is not difficult, the terms will obviously be more attractive in order to win the business. Lenders also try to manage and diversify their portfolios by technology, utilities and fuel sources, for example. This too, will affect pricing. In addition, each project is unique. Depending on the risks inherent in the project, the lenders will require different types of risk mitigation measures. As some risks exist in all projects, some requirements are standard in all types of project financing. Several of these risks and the kind of risk mitigation measures that lenders will require are described below.

Construction risk is one of the largest risks that commercial lenders will take. Without an operating facility, there is simply no way to pay back the loan. Concurrent with the concern about whether the plant will be completed is the concern about the final cost of completion. Lenders do not want to be forced into lending additional funds to a "bad" project. They also do not want to leverage the project too much because they also run the risk of not being paid back due to insufficient earnings. Therefore, at a minimum, the lenders will require a fixed price, turnkey contract with an appropriate level of liquidated damages in the event of non-performance. Depending on the technology, the liquidated damages provision is about 20% of the total amount of the construction contract; the equity for the project will be invested on a *pro rata* basis with the debt.

General operating risks include a variety of risks that can occur during the operating life of the project, such as general technology risk, operations and maintenance risk, and risk of change in law. These risks are covered by affirmative and negative covenants, financial tests, cash reserves, and dividend restriction provisions in the documents, which are designed to protect the lender at an early stage.

Lenders look to provide early warning signals of a problem in their documents. These early warning signals are in the form of financial tests and operating tests. For example, the debt service coverage ratio

is a financial test that indicates when a project's cash flow reaches low levels. A lenders' response to a problem or potential problem is to conserve cash.

This means that if a financial test reached a certain level, for instance, there are restrictions on distributions of dividends to the equity investors until the problem is resolved. The California Energy Prospectus contains a description of the covenants required for the senior discount notes.

In addition, there are reserve funds that are funded either from the financing proceeds or over time. These funds include a debt service reserve fund and a maintenance reserve fund to fund the periodic major maintenance requirements. The debt service reserve fund is usually an amount equal to 6 to 12 months' of debt service requirements. The maintenance reserve fund is usually funded in equal payments over the period of time between major overhauls.

As discussed earlier, a project financing is structured with a special-purpose subsidiary whose only business is the power project. This is done to isolate the risks of the project as well as keep the project from being encumbered by potential problems from other businesses or projects. Some of the non-financial contractual requirements that accompany this structuring concept include restrictions on the project's ability to incur additional debt and additional liens on its assets. These actions are taken to protect the project from being over-leveraged.

Fuel risk is usually the largest operating expense for a power project. Lenders look at the linkage between the fuel cost and energy costs. If the fuel contract tracks the pricing for the fuel in the power contract, this reduces the risk to the lender that increased fuel costs cannot be passed through. In the event that the fuel costs and energy payments do not track, lenders may require some form of risk mitigation. This could be in the form of a dividend restriction or a reserve fund.

Equity

All equity investors have a minimum acceptable rate of return or "hurdle rate" that must be expected if they are to make an investment in a project. The hurdle rate is determined by the perceived risks of the project. The developer assesses his expected return at the beginning of the development process. If the developer does not feel that he can reach that return, the project is not pursued.

An IPP's hurdle rate is also affected by its own cost of capital. Equity investors look at the "risk-free" rate of return offered by U.S. Treasuries and add a premium to compensate for the investment risk that they are taking. The methodology that *all* U.S. equity investors use is based on an internal rate of return calculation (IRR) of the projected cash flows. The definition of the IRR is the rate of interest that equates interest with the present value of the cash flows. Using the IRR, the net present value of the cash flows equals zero. The equity risks in a project are greater than the debt. The equity investor is the last to be paid. For this additional risk, the investor will require higher returns than the lenders who have the senior position.

In addition, there is a market for project equity and well established ranges for projects in construction or operation. Projects can be easily bought and sold. In general, there is a return that one must bid in order to be competitive on price. The timing of the investment is key in determining the expected market return. An equity investment in two similar projects, one in construction and one in operation, could have a several hundred basis point difference in return requirements.

The return is also dependent on other factors, such as fuel type. For instance, gas and hydro projects are viewed as having little technical risk. Waste fuel projects are viewed as riskier and command a higher return. The credit quality of the power purchaser is another factor. The required equity rate of return is

determined by evaluating all these factors. The domestic market for well structured, high-quality projects is very competitive today.

On a pre-tax basis, an equity interest in a gas-fired cogeneration plant with strong contracts with highly creditworthy parties could be sold for a price that would yield a return of approximately 15-16% at construction financing. If the project was operating successfully, a purchaser could expect to receive a return of 12-14% on a pre-tax basis.

2.3 Lender's Review and Typical Requirements

Lenders to private power projects include a diversified group of financial institutions: commercial banks, multilateral development banks, institutional investors and capital markets. From this group of international institutions, commercial banks, investment banks and institutional investors are assessing India's state-owned power sector for the first time. Multilateral bank lenders are aware of the issues and risks in the Indian power sector, having loaned monies to central and state electric companies. The International Finance Corporation, and to some extent institutional investors based in Southeast Asia, have invested in private utility projects with reliable success.

Lenders conduct a detailed review and credit analysis on the sponsors and the project before lending to any project. These reviews are often conducted according to a process that differs from one bank to another, but certain fundamentals are constant. Typically, the analysis is performed by a separate credit department that uses a rigorous set of criteria to determine the creditworthiness of the project, the sponsor, and the offtaker. While institutional investors (e.g., mutual, pension, and insurance fund managers) often rely on credit ratings performed by such rating agencies as Standard and Poor's and Moody's, commercial banks have their own internal credit departments that perform these detailed analyses.

The credit analyses performed by commercial banks focus a detailed appraisal of all the major risks, including country, political and economic risks, borrower risks, and project risks. The debt analysis for a loan request includes key criteria covering the industry, company management, and the project. Finally, a detailed financial analysis is performed of the company and project to assess their overall performance and creditworthiness. Exhibit 2-2 outlines these factors in detail. A specific list of key lender questions is also found in Exhibit 2-3.

2.4 The Credit Rating Process

These groups review the creditworthiness of a country, project and corporate entities. Their evaluation is critical to many investor groups, especially banks and institutional lenders. Their reputation is related to an impartial review of the credit fundamentals of the entity under review. A "credit rating" provides the market with a relative indicator of the overall risk. The most well known rating agencies are the Standard & Poor's and Moody's, both of which are based in the United States. Credit rating agencies review projects under standard credit benchmarks.

As Asian borrowers are now entering the international capital markets, credit rating agencies are expanding their presence in Asia. Moody's has opened offices in Hong Kong and Singapore, and Standard & Poor's is represented in Hong Kong. For sovereign borrowings, there is a divergence in beliefs about the economic and financial stability of several countries in Asia (e.g., Moody's has given China a high rating of A3, while Standard & Poor's has given it an investment-grade rating of BBB). Exhibit 2-4 shows ratings for 11 Asian countries.

Exhibit 2-2
Methodology for Credit Analysis

Critical Risks Facing Both Equity and Debt Holders

Country risk: Ability of a country to repay interest and principal on time or transfer foreign exchange reserves to permit agencies or borrowers to do so

Borrower risk: Ability of a specific borrower to repay interest and principal

Project risk: Likelihood of project not generating sufficient cash flows to meet interest and principal obligations

➤ Project completion risks

➤ Management risks

➤ Financial risks

- Profit margin required
- Capitalization/potential losses
- Liquidity risk
- Cash and near-cash items available to the project over life of the loan
- Review of borrower's alternatives to source of funding
- Ability to borrow, access capital market through CD or commercial paper
- Establish trade finance facilities; verify quality of assets
- Repayment risk (equity repayment relies upon an exit strategy as source of repayment)
- Instrument risk (equity investors rank behind credit lenders in liquidation and bankruptcy proceedings)
- Expected returns (equity requires a higher return overall derived from management's ability to create wealth)

➤ Production risks

- Energy costs
- Labor costs
- Equipment reliability/standby guarantees
- Legal, tax, regulatory and environmental risks

Industry

➤ Industry cycle

➤ Industry prospects over the life of the loan

➤ Industry structure, how well the industry is established

➤ Consumer market

- Market share
- Margin required to repay the loan on time
- Alternatives offered to consumers

➤ Competitors

- Export requirements to meet debt service

Management

- Company's financial performance and credit standing
- Strengths and weaknesses of the management team
- Company experience and sustainability to see project through completion
- Depth in management to cover the following functions
 - Operations
 - Marketing
 - Financial controls
 - Human resources management: health and safety

Project

- Credit quality of project
- Market and service area
 - Customer mix and growth prospects
 - Credit quality of major industrial customers
 - Economics of conservation and DSM
- Competitive position
 - Variable and total cost of production
 - Extent of large customers
 - Municipalization
- Fuel and power supply
 - Adequacy
 - Fuel diversity
 - Fuel costs and contracts
- Operations
 - Age of plant
 - Environmental issues
 - Transmission
- Asset concentration
 - Major assets as percent of net plant and common equity
 - Operating independence of major facility
- Regulation
 - Support for reasonable cash return
 - Quickness of decisions
 - Adjustment mechanisms
 - Regulatory assets
 - Allocations
 - Creative ratemaking in competitive markets
 - Support for investors (fixed and equity)
- Management
 - Financial goals
 - Credit quality
 - Plans

- Management philosophy
- Capabilities: does the project involve advanced technologies, high maintenance costs, likelihood of low performance which would impair cash flow projection, ability to operate at optimum level

➤ Financial performance

- Does the company have sufficient capital to sustain: operating losses, shortfall in liquidity, shortfall in receivables
- Does management have: a business plan, source of repayments, dependence on one consumer.

The financial analysis has three components:

- Development of financial projections
- Testing the base case sensitivity
- Analyzing key ratios

Key assumptions are:

- Operating profit growth consistent with margin and sales growth
- Debt service obligations consistent with real interest spreads
- Working capital requirements and resulting cash available to service debt
- All projections are supported by evidence from other comparable borrowers and general industry operating ratios

Check for consistencies:

- Operating margins consistent with industry trend
- Real sales growth consistent with market share and market

Standard Variables

As a guideline, a worst-case model should be worse by 10-20% than base case and a best-case model should be 10-15% better than the base case. A break-even analysis should also be presented.

Standard variables include:

- Sales or gross revenues
- Operating costs
- Borrowing costs
- Foreign exchange rates
- Local inflation rate
- Price per unit sold
- Working capital
- Interest rate for a floating rate

Coverage Ratios

Free Cash Flow/Debt Service. Free cash flow equals earnings before depreciation interest and taxes (EDBIT) minus tax paid plus/minus the change in working capital minus capital expenditure. Debt service is interest plus principal repayment.

Pretax Debt Service Coverage Ratio: Over 3.0. Pretax interest coverage ratio equals income from continuing operations, adjusted for non-recurring items before taxes plus minority interest, income tax, and interest expense, divided by interest incurred. Normally, cases showing an average interest coverage ratio less than 3x should not be evaluated further.

Total Debt to Total Capital: Under 46%. Total debt/total capital: The sum of notes payable and other short-term obligations (including current maturities of long-term debt and capital lease obligations),

divided by the sum of total capital. Total capital is the sum of short-term debt, long-term debt, preferred stock (including subsidiary preferred stock), minority interest, and common equity.

Funds from Operations Interest Coverage: 3.75x. These equal the sum of funds from operations (cash flow from operations before working capital changes) and cash interest paid divided by interest incurred.

Funds from Operations to Total Debt: Over 27%. Funds (cash flow from operations before working capital changes) divided by total debt.

Net Cash Flow to Capital Expenditures: Over 80%. Funds from operations (cash flow from operations before working capital) plus preferred and common dividends paid divided by capital expenditures.

Zero Out Short-Term Debt at Least Once a Year (10% of capitalization). Short-term debt should be paid to zero at least once each year. If necessary, for a single year, short-term debt can be maintained at a level no greater than 10% of capitalization. Short-term debt/total capital: the sum of notes payable and other term obligations (including current maturities of long-term debt and capital lease obligations), divided by the sum of total capital. Total capital is the sum of short-term debt, long-term debt, preferred stock, minority interest, and common equity.

Working Capital Ratios

Current assets/current liabilities. The measure for working capital.

Life Cycle Returns

The Internal Rate of Return (IRR). The discount rate at which the sum of the net present values of all cash flows is zero. The analysis only recognizes the cash outflows (capital expenditures, running costs) and inflows (revenues) of the operation, regardless of the way it is financed. It is as if the financing were entirely financed by equity. Capital expenditures are taken into account when they are incurred. The IRR is computed on the life cycle of the plant. Post-tax cash flows should be used for the analysis.

Exhibit 2-3
Lender Checklist for a Successful Project Financing¹

- 1.The project is sponsored by experienced and reputable developer(s)
- 2.A satisfactory feasibility study and financial plan have been prepared
- 3.The cost of raw materials to be used by the project is assured
- 4.Energy supply at reasonable cost is assured
- 5.A market exists for the electricity produced
- 6.Transmission systems are sufficient to evacuate power; retail wheeling is possible
- 7.Adequate infrastructure is or will be in place, e.g, roads, water
- 8.Experienced contractor
- 9.Experienced operator
- 10.Project management is superior
- 11.Use of well demonstrated technology
- 12.Well structured power purchase agreement, adequate cash flow
- 13.Electricity sales price risks in market are addressed
- 14.Availability of all permits and licenses
- 15.Country and sovereign risks are acceptable
- 16.Foreign exchange risks are addressed
- 17.Timely equity contributions by sponsors
- 18.Project and assets have value as collateral
- 19.Proof of adequate insurance coverage
- 20.*Force majeure* risk is addressed
- 21.Completion and cost overrun risks are addressed
- 22.Project offers adequate ROE, ROI and ROA for sponsors and investors
- 23.Inflation and interest rate projections are realistic and from reliable sources
- 24.Proper due diligence on joint venture partners and agreements that make sense
- 25.Review report of the independent engineer

¹ Project financing can be defined as "a financing of a particular economic unit in which the lender is willing to look solely to the cash flow and earnings of the economic unit as the source of funds to pay principal and interest on the loan and to the assets of the economic unit as security for the loan" (attributable to Peter K. Nevitt, *Project Financing*, Euromoney Publications, 1983).

**Exhibit 2-4
Sovereign Credit Ratings for Asia (February 1995)**

Country	Moody's Rating	S&P Rating
China	A3	BBB
Hong Kong	A3	A
India	Baa3	BB+
Indonesia	Baa3	BBB-
Korea	A1	A+
Malaysia	A2	A
Pakistan	Ba3	B+
Philippines	BA3	B+
Singapore	Aa2	AA+
Thailand	A2	A-
Taiwan	Aa3	AA+

Source: Moody's and Standard and Poor's Corp., New York.

To achieve investment-grade or near investment-grade ratings, independent power projects will need compelling credit strength in each of the key analytical areas. For most projects, this will include a thorough analysis of the following criteria:

Criteria	Observations
Very low-risk technology and low site risk	In most cases, this can be established by records on comparable projects on similar sites that were completed with few or no cost overruns and construction delays.
Conservative construction schedule	Projects with longer construction schedules will only be able to achieve investment-grade or near-investment-grade ratings when vendors and contractors are able to demonstrate overwhelming capacity to manage the accompanying risk. Construction budgets also should include schedule cushions and reserves sufficient to cover worst-case delays and cost overruns.
Strong turnkey construction contracts	The contract should shift substantially all construction risk to contractors and vendors.
Adequate capacity to perform on contract obligations	This will be demonstrated by a rating or financial guarantee in the form of a letter of commitment or surety bond providing for the payment of contract damages and penalties in sufficient time to maintain cash flow required for debt service. Contractors and vendors should be able to show extensive experience in building comparable projects at or ahead of budget and schedule. Power project construction also should be a major part of the long-term business strategy of key contractors and equipment suppliers.
Strong third-party trustee structure for management of construction funds	The trustee should be experienced in the administration and management of power project construction, preferably as a lender, and should retain an experienced engineer independent of any other interest on the project.

The process of obtaining permits should be as free as possible from the potential for significant changes in law or regulation

This is best accomplished where the project and site have support from both the surrounding community and all other affected parties, including output purchasers and environmental interests. In addition, acceptance standards should incorporate the emission levels approved under the project's environmental permits.

Source: Standard & Poor's *Credit Watch, Mid-year Review*, 1994.

Chapter 3 Profile of Equity and Debt Holders

During the formative years of the U.S. private power industry in the late 1970s and early 1980s, both the size of the independent power companies and the projects they undertook were fairly small. These were restricted in part by PURPA's requirements that "qualifying facilities" not exceed 80 MW in size. As the U.S. market has slowed somewhat and international projects have grown, these projects have become much larger and require a thorough understanding of the risks and opportunities presented.

Today, most private power projects under construction in Asia were developed on a negotiated basis and include a number of equity and debt participants. Each of the participants in private power projects has different motivations, objectives and approaches to project investment and credit criteria. This chapter provides an overview of the characteristics of project participants and the experience of projects under construction.

As the number and size of projects increase, developers using project finance techniques will need alternative sources of capital. Further, trends that are making traditional commercial lending more costly have reinforced the search for other sources of capital.

3.1 Equity

Equity holders in power projects are generally business entrepreneurs such as private power developers, special investor funds, and multilateral financial institutions (e.g., the International Finance Corporation). Private power developers are generally considered to be among the most important and aggressive in their investment strategy among the equity holders.

Equity can be defined as long-term capital, which is usually provided in the form of shares that represent an ownership interest in the venture. Equity holders may be paid a return in the form of capital appreciation and a dividend if the venture realizes a profit. If the venture fails, then the equity holders are paid last. A profile of equity holders is provided below.

Private Power Developers

Most private power developers are driven by project development, contracts, financing, construction, and ownership, and the need to maximize the financial return on a project. The developer needs capital to develop the projects for which it has formulated contracts and to create opportunities for additional ventures. A developer's investment strategy is based more on a corporate vision or business strategy than the type of investment planning that is practiced by U.S. regulated electric utilities or national utility companies. Most U.S. developers have a previous track record of developing projects in the United States. Some of the major ones are owned by electric utilities and possess extensive power plant construction, operation, and maintenance experience.

International project development is a costly business. Developers can expect to spend millions of dollars per year to develop a major power project in Asia. Developers demand a return commensurate with the risk associated with a particular project. Projects in developing countries are often riskier and therefore command a higher return, generally in the 20%-30% range.

Most lenders scrutinize developers from a number of standpoints. Probably one of the most important is their experience and ability to manage all aspects of the project for which loans are required. Many of the most experienced and successful power developers are actively involved in the Indian market.

The IPPs today undertake planning in much the same way as investor-owned utilities and other corporate entities. They determine their likely annual development expenses and where they will find the most cost-effective sources of funds to make payments. For their capital investments (which are generally financed on a non-recourse basis), IPPS must evaluate the timing of those financings and when the development process is likely to be completed.

Many of the developers in today's market (both the IPPs and the un-regulated utility subsidiaries) are large enough to access U.S. or worldwide capital markets. They strategically use corporate funds raised in the capital market to fuel both their domestic and international growth. Just in the last few years, developers have derived competitive advantage from being able to access cheaper sources of funds. The use of this strategy appears to be growing. Exhibit 2-1 in Chapter 2 shows the financial condition of eight major U.S.-based independent power developers, some of which are active in India.

Special Funds

Recently, a number of special investment funds have been created by power equipment suppliers, engineers/constructors, high net worth individuals, and multilateral banks. Many of these funds have equity and debt components, and are being marketed to global infrastructure investors and projects. These funds are managed by professional advisory companies, primarily in the United States and Europe. The funds are likely to be very aggressive and are seeking high yields for their investors.

The largest funds are those created by major power generation companies and blue-chip financial houses. For example, the Global Power Fund has participation from GE Capital Corp. and Quantum Holdings. Other funds like the Asia Infrastructure Fund (AIF) and the American International Group Infrastructure Fund (AIG Fund) have the support of the George Soros Group, the Peregrine Group and the International Finance Corporation. Because these funds are newly created, there is only limited experience to report on them. Exhibit 3-1 displays the major funds, their equity commitments and their focus areas.

New money is flowing into emerging market equity funds. The 100 largest funds grew to around \$55 billion in 1993; the estimates for 1994 are likely to be close to \$80-90 billion. These funds are mostly domiciled in the United States. Asia represents the next-largest provider, with 20% of total assets. More than 50% of the worldwide fund money is headed for Asia.

There are also industry-specific funds such as GE Capital's Global Power Fund (a combination of equity and subordinated debt). This fund is likely to become one of the largest sponsor-led equity funds and will mainly back GE projects, but is also directed to attract other equity investors. The GE fund is expected to begin disbursements by early 1995 to four GE equipment projects: Zhabei (China), Enron-sponsored Dabhol (India), Mission Energy's Paiton (Indonesia), and Samalayuca (Mexico).

Other funds similar to GE Capital's fund are those sponsored by AIG (the insurance group), the International Finance Corporation, the George Soros Group, and the Peregrine Asian Infrastructure Fund. Other ways in which U.S. and international investors have purchased equity in Asian projects directly is through special-purpose investment companies such as Hopewell Holdings' CEPA, AES's China Generating Company, and ABB Funding Partners.

3.2 Debt Holders

This section discusses the sources of long-term debt that Indian power projects can access from both private and public entities. Because many of the private power projects are larger than 100 MW in capacity, they will require sums in excess of \$100 million per project, pointing to the need to tap more than one source of funding. There are at least seven major international sources of long-term debt that developers can hope to access for financing their projects: commercial banks, export credit agencies, multilateral banks, investment banks, capital markets, institutional investors, and special funds. Each of these is discussed below, with the exception of special funds, which are examined in Section 3.1.

**Exhibit 3-1
Major Power Project Investment Funds**

INTERNATIONAL			
Fund/Equity Commitment	Date Set Up	Investors	Sector/Region Focus
ABB Funding Partners L.P. / N/A.	Nov. 1993	Heller Financial Inc., Mission First Financial, Ridgewood Energy, Tomen Power Corp., Nations Financial Capital, Entergy Power Group, Babcock & Brown.	Chemicals, petrochemicals processing, paper & pulp mills, rail, auto manufacturing. Operates globally.
Asia Infrastructure Fund (AIF) / \$400 million (est. as of 4/94)	April 1994	Peregrine Investments Holdings Ltd., Frank Russell Co., Soros Capital Inc., IFC, ADB.	Power, transport, telecom. Operates in Asia only.
AIG Asian Infrastructure Fund L.P. / \$761 million (as of 4/94)	Feb. 1994	AIG, Singapore Investment Corp., Temasek Holdings.	Energy, natural resources, petrochemical, telecom., transportation, auxiliary property, environmental services. Operates in Asia only.
Boilermaker National Pension Trust (Portfolio Manager: TCW) / \$200 million (as of 3/94)	1987	Boilermaker National Pension Trust.	Power, project finance. Operates in U.S and Canada.
The Emerging Markets Infrastructure Fund / \$208 million (as of 4/94)	Dec. 1993	N/A	Gas, electric, telecommunications, transportation companies. Operates in developing countries.
Global Environment Emerging Markets Fund L.P. / \$70.5 million (cash: \$20.5 million)	Jan. 1994	Small institutional investors, medium-sized fiduciary trusts.	Water, wastewater treatment, renewable energy, natural gas/140 countries in which the Overseas Private Investment Corp. operates.
Global Power Investments / \$450 million (as of 3/94)	Jan. 1994	Quantum Industrial Holdings, IFC, GE Capital.	Power/emerging markets (primarily China, India and Indonesia), Mexico.
Scudder Latin America Trust for Independent Power / \$100 million (as of 3/94)	June 1993	IFC, CMS Generation, NRG Energy, Inc., Corporacion Andina de Fomento.	Power/ Latin America, Caribbean.

UNITED STATES			
Energy Investors Funds L.P. / \$274.5 million (as of 3/94)	1990	Hancock Energy Resources, Hydra-Co Energy Inc., Kenetech Investors Inc.	Power. Operates in the U.S.
Ridgewood Power Trust III / \$40 million (est. for fourth quarter 1994)	1990	N/A	Power, environmental infrastructure. Operates in the U.S.
AES China Generating Co. Ltd. / Cash Raised \$200 million (as of 3/94)	Dec. 1993	Shareholders of AES China Generating Co. Ltd.	Power. Operates in the U.S.
CORPORATE SUBSIDIARIES			
Asia Power Group Inc./Groupe Energie Asie Inc. / N/A	Oct. 1993	Hydro-Quebec International, Ontario Hydro International Inc.	Power. Operates only in China.
Consolidated Electric Power Asia Ltd. / Cash Raised \$2 billion (est. as of 12/93)	Dec. 1993	Shareholders of C.E.P. (Including Hopewell Holdings Ltd. and others).	Power. Operates in China and Philippines.

Source: *Infrastructure Finance*, Fall 1994.

Commercial Banks

Several important changes in infrastructure project finance occurred during the early 1990s. The commercial bank market went from large single-bank undertakings to mostly "club deals" where several commercial banks participate, each holding a small percentage. They also moved from competitive pricing to spreads of more than 50 basis points, and from long maturities to shorter time frames. Contract covenants appeared to become more strict, tried and true technologies were preferred, and the concentration was on aggressive developers capable of large equity commitments. As a result of these trends, it appears that fewer commercial banks have been interested in providing finance for power projects.

Commercial banks enjoy certain distinct advantages over their competitors. They have access to specialized staff who have a broad understanding of project risks including construction risks (including staged drawdowns during the construction phase), can participate in deals that are unrated or are below investment grade, and have traditionally offered flexible terms and payback conditions. However, commercial banks have some drawbacks, which include a more stringent credit review and project structure, and they also charge relatively higher up-front fees.

Most of the commercial bankers who attended the New York Bankers Conference sponsored by USAID confirmed that they had a limited appetite for project finance debt for Indian power projects. The bankers confirmed that they were using stricter credit criteria than a few years ago and were not anxious to return to India. This cautionary approach is also attributed to the debt crisis of the 1980s and the ensuing tightening of the Bank for International Settlements Guidelines.

Export Credit Agencies (ECAs)

This group includes the OECD countries' agencies that offer credit to foreign buyers of imported goods or services. In general, the ECAs have large Asian portfolios, but have a limited appetite for non-recourse project finance.

The largest export credit agencies are the U.S. Exim Bank and the Japan Exim Bank. In addition, Hermes (Germany), EDC (Canada), and COFACE (France) are active in project financing. According to the OECD Consensus Terms agreed upon by the major Exim banks, at least 15% of a contract is to be covered by cash payments; typical lending terms are in the 10-12 year range at a rate slightly above LIBOR and an amortization period of 8.5 years (extendable to 10 years for relatively undeveloped countries), and the grace period for construction usually extends for 6 months.¹ At present, the U.S. Exim Bank does not take completion risk. But because its competitors (ECGD from England and Hermes from Germany) provide it, U.S. Exim's position may change.

U.S. Exim requires that sponsors assume the full burden of pre-completion risks. Most developers, especially smaller ones, are reluctant to assume these risks solely, and therefore end up seeking construction phase financing from a commercial bank(s). This can add significantly to fees, and may burden the tariff on a project to a level that is unworkable.

¹ The Organization for Economic Cooperation and Development (OECD) is an international institution based in Paris with 24 member countries (European Union, European Free Trade Area and non-European countries). The main purpose of the consensus arrangement terms is to provide for an orderly export credit market. This agreement thus hopes to prevent an export credit race where countries compete on the basis of who provides the most favorable financing terms for a particular deal, rather than who provides the highest-quality service at the lowest cost.

Because most Exim banks have limited country exposure and limited capital resources for dealing with project-specific risks, they pursue the obviously stronger projects. Typically, sponsors work with vendors to maximize the amounts that can qualify for export credit agency loans and to exceed the OECD consensus arrangement terms. Recently, ECAs have been very active in power sector projects seeking co-financing and co-insurance from other ECAs.

Multilateral Banks

Given their important role in financing the Indian power sector, these banks represent one of the largest providers of long-term debt for private power projects. The World Bank, the Asian Development Bank and the International Finance Corporation are the major lenders to the power sectors of developing countries including India. World Bank lending to India includes the National Thermal Power Corporation, State Electricity Boards and the Power Grid Corporation. Its annual lending is in the billions of dollars, but disbursements are considered slow.

The International Finance Corporation is probably the largest multilateral organization that invests in project and corporate finance in Asia, notably India and the Philippines. The IFC is a major player in the Asian power sector, having participated in more than 20 power projects amounting to more than \$4.5 billion.

The IFC brings a proven track record of lending to the private power utility sector in India. It has loaned more than US\$ 270 million to four Indian utilities in seven utility projects.² The IFC's board has already approved the corporation's participation in the equity and debt for at least two projects: the CMS Energy-sponsored Neyveli Lignite project (Zero Unit) and the 235 MW gas-fired GVK Enterprises-sponsored project for which an IFC \$38 million "B" loan commitment has been made. IFC's participation in India's power sector has been mostly in the expansion of electric generation facilities at private electric utilities. Its lending has included equity and debt, and has been in a number of currencies.

Investment Banks

Investment banks provide access to international and in-country capital markets to secure long-term project financing, which requires that they remain well-informed about country markets and investor needs. As a result, project sponsors often rely on experienced investment banks to access international capital markets. However, investment banks, which also provide advisory services to developers, are known to be optimistic about the potential of capital markets and their own ability to raise capital. There are two major capital market sources that are receiving the greatest attention for power project financing: the US 144a capital market and the Eurobond market, as discussed below.

U.S. Capital Markets and Rule 144A. An important development for international private power projects is the allowance of public capital markets without a U.S. Securities and Exchange Commission (SEC) filing.³ This change in regulation has opened up a new market for private power projects to secure long-term financing in the form of debt through 144A or Eurodollar offerings.

2 Since 1966, IFC's involvement has included the Ahmedabad Electric Company (1989-generation project); Calcutta Electric Supply Corp. I and II (1990, 1992-transmission and generation); Tata Electric I, II and IV (1989, 1991 transmission, generation and a GDR issue); and Bombay Suburban Electric Supply Company (1991-generation).

3 Until 1990, all developing countries and their public entities had to comply with the registration requirements of the Security Act of 1933 issued by the Securities and Exchange Commission.

During the last five years, U.S. power developers have pioneered the use of U.S. capital markets to raise attractively priced long-term debt for international power projects. This new market developed since 1990 when the U.S. Securities and Exchange Commission (SEC) promulgated a rule which allowed foreign issuers to bypass certain SEC reporting and registration requirements. This particular sector of the capital market is popularly known as the SEC Rule 144A ruling.

The Rule 144A market has grown tremendously: the aggregate dollar amount placed grew to \$62 billion in 1994, an increase of more than 200% over 1992 figures.⁴ This level of growth has been in part due to the historically low rates of interest and the increased liquidity facilitated by the expanded capital market as a whole.

The advantages of Rule 144A are quite attractive to IPP developers. First, the Rule 144A transaction does not require a review by the SEC and therefore can save developers approximately six to eight weeks as compared to a public deal, which requires SEC scrutiny. Exhibit 3-2 presents the four basic types of transactions that take place using the Rule 144A ruling.

As bond markets have begun to understand these structured transactions, the number of power projects seeking this route for long-term financing has increased. Unlike U.S. independent power projects, Asian IPPs have only recently begun to access the world's largest capital market -- the United States. Noteworthy milestones include the \$133.5 million, credit-rated, Rule 144A private placement arranged for Castle Peak Power Co. of Hong Kong by Salomon Brothers in 1992, and the successful 15-year Eurobond (with a 144A tranche) for Enron's Subic Bay project in the Philippines arranged in December 1993, which was the first public bond issue for an IPP in Asia.

The most crucial aspect of this financing was a full corporate debt guarantee up to completion pledged by Enron, the project sponsor. Other noteworthy issues (American Depository Shares) are Huaneng Power International Inc. (led by Lehman Brothers) and the Shandong Huaneng Power Development Co. Ltd. (led by CS First Boston).

The registered and investment bank(s) underwritten version is currently the most popular application for IPP developers. For example, the 1,000 MW gas-fired combined cycle plant at Independence, NY developed by Sithe Energies used such a financing. Another example is the Subic Bay Power Project in the Philippines developed by Enron Corp. The Enron-sponsored 695 MW gas-fired combined cycle plant at Dabhol, Maharashtra is also seeking such a Rule 144A financing package. But due to the recent volatility in the U.S. bond markets,⁵ the financial advisors to this debt financing are re-evaluating the 144A market and are investigating other options.

4 However, since the Rule's inception, in aggregate, Rule 144A represent less than 5% of all registered offerings.

5 The decision to suspend the \$150 million bond offering (Rule 144A) for the Dabhol Project has largely resulted from the uncertainty in the bond market after the December 1994 devaluation of the Mexican peso. Enron and their advisors, Barclays Bank, are seeking to evaluate a commercial bank loan from Bank of America.

**Exhibit 3-2
Overview on Types of 144A Financing**

Types of 144A Transaction	Description
Basic form	Similar to private placement; direct negotiation between issuer and purchaser and documentation is such that it allows for sale to qualified institutional buyers, e.g., insurance companies.
Investment bank-led transaction	Investment bank and the issuer develop pricing strategy and documentation. Bank then markets the deal (with an offering memorandum) to a wider range of buyers.
Underwritten	Investment bank underwritten deal is marketed akin to public debt transactions to pension funds, mutual funds, and investment companies. Market is potentially the 500 major debt investors in the United States.
Registered and underwritten	Investment bank underwritten with registration rights. These securities are sold with an offering memorandum and adhere to the same disclosure requirements seen in a public offering.

Two examples of Rule 144a placements are Enron's Subic Bay Project and Magma's Leyte Project in the Philippines.⁶ Enron's first power project in the Philippines was the 105 MW plant owned by Batangas Power Corporation. It was successfully financed by the ADB, OPIC and a syndicate of commercial banks, but only after protracted negotiations. Consequently, for its second major project in the Philippines, the 113.4 MW plant owned by Subic Power Corporation (a 65%-owned subsidiary of the Subic Bay Authority), Enron launched a 15-year, \$105 million bond issue that was successfully closed in December 1993 (led by Bear Stearns). The issue was a Luxembourg-listed Eurobond with a Rule 144A tranche, and was not credit rated. The bonds were placed at 385 basis points over U.S. Treasuries. Post completion, the bonds are supported by a performance undertaking from the Republic of the Philippines for the contractual obligations of the National Power Corporation under the power purchase agreement with the issuer. Until completion, the issue is fully guaranteed by Enron. At the time of the issue, project construction was already 82% completed, and had been funded by shareholder advances.

Salomon Brothers was mandated to lead manage a US\$ 210 million bond issue for Magma Power's geothermal power project in Leyte. It was intended that the bonds would be a rated Rule 144A issue, with SEC registration rights; ratings of Ba3/BB- (equal to the sovereign rating of the Philippines) were successfully obtained. Based on a very strong EPC contract with Sumitomo Corporation, the issue would also have been the first international project bond to be taken to the U.S. public market, including the non-recourse assumption of pre-completion risk by investors. Regrettably, for corporate reasons unrelated to the economics of the project itself, Magma Power has now decided to revert to raising finance by means of a shorter-term syndicated bank loan supported by political risk insurance from OPIC.

The Eurobond Capital Market. The Eurobond markets are probably the second-largest source of long-term investors after the U.S. capital markets. These markets are geographically broader than just Europe and include investors from Japan, the Middle East and Latin America. Listed in Luxembourg, Eurobonds are usually bearer bonds that are issued and traded in major financial centers (London, Frankfurt and

6 The information on these cases was provided by Salomon Brothers, Hong Kong.

Zurich), are often un-registered, and are considered to be more flexible instruments. However, a prospectus giving project and other financial details must be issued.

For many developing countries, Eurobond listings are in U.S. dollars and German marks. Many Indian corporations, particularly private sector firms, use the Eurobond markets quite successfully to raise capital for plant expansion or for new businesses. The DM Eurobond market is quite important for India: until now no developing country issuer has defaulted in this market, and many German power plant equipment suppliers active in India are also developing power projects. German investors are thus likely to be less averse to buying these kind of bonds and German/European equipment companies investing in developing markets are likely to use the DM market quite extensively.

The U.S. dollar-denominated Eurobonds for developing countries tend to be more diversified with respect to the investor base and rely heavily on institutional investors. Typically, U.S. investors participate in this market through their affiliates outside the United States. Eurobonds, whether in dollars or in other currencies, are usually bearer bonds and therefore ownership is difficult to profile.

The international and local capital markets have several advantages: the most important is their access to a whole new set of investors and the availability of long-term maturities (the length depends on the strength of the underlying credit quality within the market). Other advantages include: an optimized payment schedule that is in-step with the project's cashflow; the fixed rate of interest, which eliminates the need to purchase an interest rate cap; relatively unrestrictive documentation; and relatively rapid execution. The prime disadvantages of a capital market issue are: it is difficult to pre-pay, rates and terms are subject to market forces, and the proceeds of the capital markets issue must be re-invested in a way that allows for regular and level progress payments.

Institutional Investors

These investors include insurance companies, mutual funds and pension funds. Institutional investors were once considered highly risk averse and limited in their geographic scope to the OECD nations. But with increasing opportunities and attractive rates offered by many Asian countries, these groups have shown significant interest. They require that projects be reviewed by a credit rating institution to determine whether the project is in the investment grade category. Rating agencies, like commercial banks, measure the ability and confidence in a project to pay the equity and debt holders, and evaluate the various provisions for managing the project's commercial structure. Typically, a project bond with an investment grade rating will be attractive to most pension funds and insurance companies. However, an investment grade rating is difficult to obtain in many developing countries, including India.

3.3 Conclusions

Most financial advisors and banks recommend that the governments, utilities and developers spend time to understand the region's financial markets; many developing country borrowers have a thin grasp of financial cycles and techniques. Also, because most Asian infrastructure projects (except the Malaysia IPPs) have experienced more than a two-year development period, they must be structured with flexibility. Markets offer different benefits at different times, and a combination of financial instruments will be needed. Exhibit 3-3 presents a summary of debt sources and their terms and conditions.

Exhibit 3-3
Summary of Debt Financing Sources for Power Projects

Sources	Terms	Features for Sponsors
Commercial Banks	5-7 years Prime or LIBOR+	<ul style="list-style-type: none"> ➤ Requires political risk insurance (OPIC, MIGA, ECGD) ➤ Security interest in revenue stream (escrow accounts) ➤ Requires guaranteed revenue stream ➤ May need development bank cover
Export Credit Agencies	12 years LIBOR* + low-margin amortization period: 8.5 years Grace period: construction + 6 months	<ul style="list-style-type: none"> ➤ For U.S. Exim, finance for 85% of U.S. exports, plus 15% to cover local costs, IDC and financing fees; no construction risk assumed ➤ Security will be taken strictly <i>pari passu</i> with other senior lenders ➤ Sponsors provide full pre-completion risk guarantees ➤ Amounts dependent on country exposure ➤ Commitment fee and insurance fee
Multilateral Banks	10-20 years approx. 7%	<ul style="list-style-type: none"> ➤ Sovereign guarantee required ➤ Usually government borrower, and international competitive bidding on equipment and construction
Investment Banks/ U.S. Capital Markets	10-12 years variable rates	<ul style="list-style-type: none"> ➤ Repayment schedule can match project cash flow ➤ Relatively easy documentation ➤ Exposed to market volatility
Institutional Investor/Public Bonds/Equity Funds	15-20 years	<ul style="list-style-type: none"> ➤ Demands well-developed local capital markets ➤ Demands investment-grade project credit rating ➤ Requires underwriting capability ➤ Needs local liquidity ➤ Freely exchangeable currency is a plus
Special Funds (Equity Funds/ Privately-placed Debt)	7-10 years Prime +	<ul style="list-style-type: none"> ➤ Needs major sponsor and operator ➤ Usually requires political risk insurance ➤ Requires revenue guarantees

* London Inter Bank over-the-counter rate.

Chapter 4 Debt Financing Risk Concerns and Management Requirements

This chapter reviews the major risk concerns and management requirements of those who provide debt for power project financings in India. It presents the overall framework for understanding project investment and lenders' credit review processes.

4.1 Introduction

Lenders are insisting on credit terms that minimize the risk of defaults or rescheduling on any proposed independent power project loans. The potential participation of commercial banks in the Indian power sector is determined by the country's overall credit rating, economic policy trends and performance, country exposure limits, and project-specific credit and debt service coverage criteria. While the bankers interviewed for this study have been quite interested in engaging in trade finance, retail banking, investment banking, and financial advisory activities in India, they expressed particular cautions about engaging in long-term non-recourse project financing in the Indian power sector. The type of long-term country and project risk exposure that lenders are being requested to accept in this sector requires far closer scrutiny and specific assurances.

Several international commercial banks are familiar with specific features of India's capital and independent power policy as a result of their business presence in India. The country's major economic liberalization policy is playing a key role in raising investor and lender interest in the Indian market. Certain banks, such as J.P. Morgan, Barclays, and Citicorp, have offices in Bombay and have been engaged in trade financing, retail banking, or investment banking for some time. Banks such as Barclays and J.P. Morgan are well informed about India's independent power policy because they have been hired by Enron and AES to provide financial advisory services for their independent power bids in India. Most commercial and investment banks manage their operations for Asia out of offices in London or Hong Kong.

In the domestic market, key Indian banks are quickly stepping up to meet the demand for power project financing. In particular, ICICI, IDBI, and SBI are three of the major potential players in the market. The Industrial Development Bank of India (IDBI), for example, has agreed to provide US\$ 95 million in financing for the Enron/Bechtel/GE Dabhol project in Maharashtra and to guarantee a U.S. Exim loan of US\$ 350 million.

Despite the bankers' general familiarity with the Indian market, many specific details of India's independent power policy (as outlined in *The Gazette of India* and the GOI brochure *India's Electricity Sector: Widening Scope for Private Participation*) require further clarification. The bankers interviewed focused their concerns on six major areas:

Major Lender Project Finance Concerns in India

1. Creditworthiness of State Electricity Boards
2. Tariff Structures
3. Access to foreign exchange and currency risk
4. Fuel supply agreements
5. Domestic capital markets

6. Government guarantees and credit support arrangements

From the lenders' perspective, there are both favorable and less favorable features of the Indian market that they must consider. The favorable features are:

- a large and fast growing electricity market
- a growing private sector and entrepreneurial class
- large and rapidly growing capital markets
- a positive debt repayment history
- recent economic reform, which is encouraging private and foreign investment
- the rupee is partially convertible and likely to become fully convertible
- well established institutional and legal frameworks
- government and business speak English.

Given the strong economic growth that is being experienced in India in particular and Asia as a whole, both investors and lenders are clearly showing great interest in the Indian market.

Many emerging economies have recently implemented economic liberalization programs designed to attract foreign investment and are thus competing for international capital. While recognizing the many attractive features of the Indian market, various factors do contribute to lenders' overall concern:

- *India's country credit rating is relatively low.* Moody's has upgraded India to investment grade (Baa3), but Standard & Poor's rating is just below investment grade (BB-). This affects debt financing from a number of sources.
- *Limited recent experience in issuing international sovereign bonds.* Since India's retreat from the international capital markets during the late 1980s, neither lenders nor Indian borrowers have had an opportunity to test the market's perception of country risk.
- *Perception of a closed economy.* India has a fairly recent history of being a closed economy, with major restrictions on foreign investment and disappointing experiences by some multinational corporations and commercial banks.
- *Large and restrictive bureaucracy.* The government bureaucracy has a reputation for being extremely slow to act and commercial dispute resolution, especially when the public interest is involved, can often be difficult.
- *The reform program is young.* The economic liberalization program is relatively young compared with the programs of some other emerging economies (i.e., reforms were initiated in FY 1990-91). Further, the program is yet to affect the largely state controlled heavy industry and infrastructure facilities.
- *Regulation of capital markets.* If the capital markets are to be useful for power projects, they will require significant reform with respect to regulatory oversight, the development of long-term debt instruments, and secondary markets.
- *Poor macroeconomic performance.* The negative trade balance and historic low levels of foreign exchange reserves (which has grown to a comfortable surplus of around US\$ 20 billion in 1994) trouble foreign investors and lenders in terms of the long-term ability to access foreign exchange to service debt and repatriate profits.

At a recent meeting with international bankers, Minister of Power Salve remarked on the bankers' preoccupation with the negative features of the Indian market. He urged the bankers to not overly concern themselves with the worst-case scenario, but rather to focus more on the positive features of India's new policy and economy.

The facts that many of the banks are active in the Indian market with local offices and joint ventures and that so many banks took the time to come to the New York meeting with the GOI delegation clearly demonstrate their interest in India's market. Nonetheless, it is important for the GOI to recognize that power project financing in India will call on banks to make large, long-term loans that will require costly due diligence to obtain approval from their loan boards. For many banks, international project finance in the power sector is not regarded as a priority business since other banking services (e.g., trade finance, asset-backed financing, retail banking, investment banking) can offer lower risks and higher returns. The loan officer of a bank must consider all the contingencies of any prospective loan and especially worst-case scenarios. For this reason, bankers will need to ask tough questions on all relevant country and project risk factors. As a matter of procedure, bankers are required to look at a range of cash flow scenarios including the worst case.

All of the six areas of concern listed above revolve around the lender requirement that the risk of default or failure to service the debt be minimized. The key points raised in each of these areas are discussed below.

4.2 Creditworthiness of State Electricity Boards

The financial performance and creditworthiness of the power purchasing utility are key factors in assessing the bankability of a power purchase agreement (PPA) between an independent power generator and an SEB. While profit and loss data have been published on all of the key SEBs, the accounting and financial reporting procedures used to determine these figures do not meet the standards used by international bankers. As a result, it is currently extremely difficult for rating agencies to rate the creditworthiness of these institutions.

Credit rating institutions have recently been established in India, such as the Credit Rating Information Service of India Limited (CRISIL), and have rated other government and private corporations. In the power sector, only the National Thermal Power Corporation's (NTPC) rupee-denominated debt has been rated by CRISIL, with no SEB having a rating to date. Thus far, CRISIL has not been active in rating hard-currency denominated debt.

A range of medium- to long-term activities will be called for to improve the creditworthiness of SEBs. In many cases, electricity pricing will need to be raised to a level that fully reflects the costs of generation. Expansion planning will need to adopt least-cost approaches that ultimately can be combined with demand-side management to implement an overall integrated resource planning (IRP) process. In some cases, the corporate management of the SEB may need to be reformed to establish the necessary commercial framework and incentives. In addition, the SEBs' accounting and financial reporting procedures will need to be revised to standards that are acceptable to international bankers. Those SEBs actively seeking private capital or entering into independent power agreements will be called on to have their institutions rated by certified rating agencies.

Prior to a rating being established, lenders may want to review whatever financial performance data are available. Ultimately, however, they will look to government guarantees and the back-stopping commitments of multilateral development banks and export credit agencies as the final assurances for

the projects currently being negotiated.

4.3 Tariff Structures

One of the most critical areas of concern to equity holders and lenders alike is the precise level and structure of the tariff under which the SEB will purchase power from the independent generator. The power purchase tariff is commonly divided into two parts: a variable and a fixed-cost component. The variable component typically covers fuel and operations and maintenance (O&M), while the fixed-cost component covers all the fixed costs of operating the plant. In particular, lenders want to see debt service (covering both interest and principal) included in the fixed-cost part of the tariff. If the private generator meets the minimum plant load or availability factor defined in the PPA (e.g., 60% - 80%), the utility is obligated to make its capacity payment, which will at least cover the debt service on a take-or-pay basis.

The GOI has designed a two-part tariff mechanism for the purchase of independent power. The fixed component of this tariff will cover such costs as debt service, O&M, taxes, a minimum return on equity, interest on working capital, and depreciation. The variable component will cover only fuel costs. While this tariff policy has been summarized in various publications and in *The Gazette of India*, specific details require further clarification.

It is understood that the minimum return on equity built into the fixed capacity payment is based on a plant load factor (PLF) of 68.49%. It is highly likely that the private generator will want to earn a higher return by generating power at a higher PLF. The lenders were interested in understanding how incentive payments will be structured at PLFs above 68.49% and, therefore, what higher returns a project sponsor could earn. Preliminary indications based on a forthcoming revised tariff structure report being prepared by the Ministry of Power are that for every percentage increase in the PLF beyond the statutory level of 68.49%, investors will be provided an incremental incentive of 0.6% on their return on equity. While the lenders' debt service will not be changed by a higher PLF, they will have a greater comfort margin since a higher level of cash flow will increase the debt service coverage ratio and thus reduce the risk of default.

At the bankers' meetings, much discussion revolved around the proposed schedule for depreciating power project assets. The current tariff structure requires that the loan principal repayments be paid from the depreciation component of the tariff. The Indian delegation was uncertain about the depreciation schedule, but indicated that they believed it was on a straight-line basis over nine years. The U.S. bankers were pleasantly surprised to learn that the depreciation schedule was so short. Given that a power plant typically has a much longer useful life, depreciation schedules in the United States are generally over about 30 years. In the mature U.S. capital markets, it is possible to raise debt financing for power projects over about the same period as asset life.

In new and emerging international markets such as India, debt holders will generally not be willing to finance beyond 10 or 12 years. In order to maintain an adequate cash flow, it is necessary to reduce the depreciation schedule to a period similar to the financing term. Recent GOI announcements have clarified this issue somewhat: the annual depreciation rate for SEBs will be increased from 5.06% to 7.5%, which represents a reduction from a 19.8 year to a 13.3 year schedule. Indications are that for specific IPP projects, the depreciation term may be as short as nine years. Lenders will want to be provided with the exact terms and laws/regulations regarding this new schedule.

A variety of additional tariff-related questions remain. As discussed in a later section, lenders are concerned about how the access to foreign exchange and currency risk coverage issues is treated in the tariff payment of the PPA. Questions were raised as to whether the SEB will want the private generator to

be a dispatchable or a must-run plant, and how will this be treated in the tariff. Will there be any incentives for the plant owner to operate more efficiently?

It is generally understood that SEB electricity prices are typically subsidized to the point that the SEB power purchase tariff for the first IPPs will likely be higher than the average sales tariff. How long can the price differential be sustained? Will the public perceive this imbalance as private generators profiting at the expense of the public interest?

An issue was raised with respect to the terms offered to foreign versus domestic investors (such as guaranteed returns on equity denominated in dollars) and whether there are different standards that put domestic investors at a disadvantage. The lenders are aware that the public perception of fairness will be important to ensuring long-term government support of its obligation to foreign lenders.

4.4 Access to Foreign Exchange and Currency Risk

Foreign investors have often been concerned about India's level of foreign exchange reserves, which have occasionally reached perilously low levels. For instance, during the Gulf War in 1990, the reserve levels dropped to as low as about \$1.5 billion (in large part due to India's dependence on imported oil and the sudden jump in oil prices).

Over the past four years, however, India has seen a steady growth in foreign exchange reserves, which reached almost \$20 billion in 1994. India has a favorable balance of payments position: its current account is almost balanced and its foreign debt position is reasonable. While this position may deteriorate somewhat over the coming years, India's healthy reserves and international liquidity are strong enough to withstand major increases in the current accounts deficit and capital outflows. However, there could be devaluation pressure on the Indian rupee. Given India's relatively high inflation rate (10% in 1994 as compared with less than 5% in the OECD) and the potential reversal in investment flows as a result of foreign investors' growing caution about emerging markets, a moderate adjustment in the rupee exchange rate could result.

Bankers are generally concerned about how the management of foreign exchange access currency risk is to be handled. Given the long-term loans required for power projects, the near-term foreign exchange reserve position in India does not provide adequate comfort. A great deal has been published on how the PPA guarantees equity holders a minimum 16% return in hard currency. Lenders want the same currency risk coverage terms explicitly stated for the dollar portion of the debt. Without such explicit statements, some bankers were concerned that debt could be subordinated to equity in terms of access to foreign exchange. While the lenders would insist on priority access to hard currency in their agreements with the project sponsors, it was clear that they wanted their access to foreign exchange for debt service spelled out more definitively.

It was generally recognized that the GOI was not prepared to provide guaranteed access to foreign exchange, and that access to hard currency will be based on the availability and price of foreign exchange on the open currency market. Because the GOI is moving towards a freely floating and fully convertible rupee within the next year, the SEBs would be required to pay the prevailing rupee price necessary to service debt and cover minimum return on equity in dollars. Should these assumptions reflect an accurate summary of the GOI position, lenders will need to have these terms stated clearly, and may not be satisfied without a reserve account of hard currency. The absence of the Ministry of Finance (MOF) and the Reserve Bank of India (RBI) at this meeting prevented a clearer discussion of these issues. It is recommended that representatives from these key financial sector institutions be included in any future meetings with commercial bankers.

4.5 Fuel Supply Agreements

An independent power project's performance will hinge on the reliable supply of quality fuel necessary to operate the plant. Many of the IPPs currently being negotiated that rely on domestic fuel sources will involve coal supply agreements with Coal India (CI), oil supply agreements with the Indian Oil Corporation (IOC), or gas supply agreements with the Gas Authority of India Ltd. (GAIL). Lenders have concerns about the overall creditworthiness of these institutions and their ability to deliver fuel at a level of quality and on a schedule required by IPPs. The transportation links between the fuel source and power plant are also critical. For instance, is Indian Rail able to deliver coal to a power plant consistently on schedule in the face of technical, resource, and labor constraints? For the most part, these institutions do not have a track record of meeting the performance and guarantee standards private investors expect.

Lenders will be looking for specific data and fuel supply contract clauses that address three key risk areas: supply, price, and transportation. The provision for back-up fuel and economic incentives and penalties to reinforce the fuel supply agreements will be expected. Specific clauses may be designed to link payments to performance and quality. For instance, in order to ensure that the fuel quality is adequate, the fuel supply could be denominated in units of energy (i.e., Btu) instead of weight (i.e., tonnes). The type of contracts lenders will seek and the information they will require from the Indian fuel supply institutions will go beyond what these institutions are accustomed to, and may be regarded as intrusive and excessive. Nonetheless, it is important to recognize that these conditions are required for any private power project, regardless of where it is located.

Given that the key fuel and transportation companies are government-owned and cannot be deemed creditworthy on their own, lenders are looking to the national government to provide a fuel supply guarantee to cover liquidated damages in the event that fuel of prescribed quality is not delivered on schedule. The damages would effectively be the lost revenues that the IPP would earn if it had delivered the agreed-upon power during the period of fuel shortage. There are some indications that the GOI may be willing to provide such fuel supply guarantees. The specific terms of such government commitments need to be clarified.

4.6 Domestic Capital Markets

In appraising a project loan, lenders will be interested in evaluating the entire financing package, which includes both debt and equity as well as domestic and foreign capital. Because domestic sources of capital are an essential part of the package for financing the domestic costs of the project, lenders will be interested in learning about the sources for local capital. The extent to which local equity investors have a long-term commitment to the project helps to build confidence in the project. In addition, the potential for raising debt from domestic banks or the local public or private placement markets is important to cover the local currency portion of the project investment. The overall maturity of the domestic banking sector and capital market with respect to the needs of a power project financing will be an integral part of this analysis.

Although the local capital markets will ultimately need to become a major source of debt financing, it is evident that the markets have yet to develop the necessary debt instruments and markets for financing large infrastructure projects. The Indian stock market has been booming since the initiation of the GOI's economic liberalization program, resulting in dramatic increases in capital raised by non-government companies on the stock market over the past few years. Nonetheless, the framework for privately

financing infrastructure must still be developed. The most critical area is raising commercial long-term (15-30 year) debt.

Only a rudimentary commercial bond market for longer-term debt is in place and there is a very limited secondary market for debt instruments. While two rating institutions have been established, the SEBs will need to go through considerable accounting and financial reporting reforms before they can be rated and raise debt on the capital markets. The large pension funds controlled by the government are not yet permitted to invest in private projects, thus limiting a possible source of capital for private infrastructure.

Given the capital-intensive nature of infrastructure projects in general and power projects in particular, the ability to mobilize long-term debt will be critical to the development of a broad-based independent power industry. Most individual and institutional investors have a preference for equity investments, given their higher yields and liquidity, and are generally not inclined to invest in long-term debt. Attracting capital to these markets will require establishing appropriate exit mechanisms or roll-over options to give investors sufficient liquidity. To help develop the framework for private infrastructure financing, the GOI has two major capital market technical assistance projects being financed by The World Bank, the Asian Development Bank, the International Finance Corporation, and the U.S. Agency for International Development. Over time, these programs should substantially build the capability and confidence in longer-term infrastructure financing for both domestic and foreign debt financiers.

In the near term, domestic financing will largely come from the large Indian banks (e.g., ICICI, IDBI, SBI) in the form of conventional bank loans and guarantees. One example is the role that IDBI is playing in the first major private power project in India. Specifically, IDBI has agreed to provide US\$ 95 million in financing for the Enron/Bechtel/GE Dabhol project in Maharashtra and to guarantee a U.S. Exim loan of US\$ 350 million.

4.7 Government Guarantees and Credit Support Arrangements

The State Electricity Boards are owned by state governments and cannot be regarded as creditworthy by international banking standards. For this reason, lenders are calling for the Government of India and state governments to back up key agreements between the SEBs and independent generators with specific performance guarantees, assurances, or credit support arrangements. The performance guarantees cover the power purchase agreements (PPA) with the SEBs, the fuel supply agreements with the state-owned fuel supplying institutions, and agreements on access to foreign exchange and currency risk coverage. Because the latter two issues were discussed above, this section will only focus on the PPA.

An independent power project will depend on selling most, if not all, of its power to the local SEB. PPAs will represent the cornerstone of the independent power business enterprise. In the United States, the bankability of an independent power investment is largely contingent upon the creditworthiness of the "offtaker" or power purchasing utility. Since the SEBs have not demonstrated their creditworthiness by national or international standards, both developers and lenders are insisting that the government backstop the PPA by assuring that if the SEB is unable to pay under the contract terms, the government will provide a guarantee to cover the difference.

As has been announced, power purchase payments under the terms of a PPA will be guaranteed through a series of step-wise measures. Payment to the private generating company would be through irrevocable letters of credit and/or through an escrow account established on the basis of an agreement among the SEB, the private generator, and the commercial bank. This escrow account agreement would be backed by a state government guarantee, and if required by the private generator and the state, could be further backed by a GOI counter-guarantee. As is stated, "the GOI's counter guarantee would be

limited to the total amount of the state's share of taxes and central assistance due to the state in a particular financial year." It is thereby understood that if an SEB and state are unable to make payments for power delivered by the private generator, the GOI will make direct foreign currency payments of the amounts in default to the private generator out of the national budgetary allocation to that state government. The GOI emphasizes that this counter-guarantee does not represent a sovereign guarantee from the national government.

The lender will want to examine the language of such a counter-guarantee on a case-by-case basis. Factors to evaluate would include the overall size of the state and its budget relative to the exposure a particular IPP would pose. Given all the demands on the state budget, if a large IPP project in a small state were to require a significant share of the state's revenues, would it be viable for the state to deprive other vital sectors (e.g., schools, hospitals, welfare) from financial resources they are expecting to cover the SEB's losses? If acceptable, how many more projects in power or other infrastructure sectors could be prudently sustained by such counter-guarantees? Given the competition among many different infrastructure sectors for capital and with government guarantees being sought for many of them, the GOI and state governments may need to ration the guarantees to those they consider a priority. By what criteria is that prioritization determined?

In private, a banker suggested that Indian government guarantees of utility performance and fuel supply for an independent power project should not be issued at no cost to the requesting SEB. In order to send the necessary market signals, government guarantees should be sold at a price that in some way reflects the level of risk exposure the government is assuming. While this concept would be complex to implement, it addresses the overall need to establish the appropriate incentives for SEBs to improve their financial performance and reduce their likelihood of default under the PPA terms.

While the lenders were interested in understanding the terms of the guarantees and the underlying creditworthiness of institutions, their foremost concern was the overall credit risk of India. Ultimately, the bankers sent a fairly clear message that for the first IPPs in India, they would be looking for export credit agencies and other bilateral institutions (e.g., U.S. Exim, Japan Exim, OPIC) to provide loan guarantees and political risk insurance to backstop the GOI's guarantees. In addition, they would expect to see multilateral banks (e.g., IBRD, IFC, ADB, MIGA) participating in the project as equity and/or debt holders or loan guarantors. This requirement effectively calls for multiple layers of guarantees from the GOI as well as export credit agencies and the multilateral development banks.

Chapter 5 Evaluation of Options and Recommendations

The review of minimum debt financing criteria has revealed the most serious obstacle to private capital mobilization in India's power sector. While equity for project financing is relatively easy to raise, the availability of debt is proving to be the primary constraint. The major concern is how much private debt financing is likely to be available to the Indian power sector in the coming years.

The total demand for new capacity in India during the 8th Five Year Plan (1992 to 1997) is estimated at 30,538 MW. Even if this demand is met, power shortages are expected to average 9% and peak power shortages could reach 21%. It is estimated that the actual capacity additions could be as low as 20,000 MW, which will further exacerbate the power shortage problem.

As of November 1994, some 93 memorandums of understanding had been negotiated by private power developers in India totaling over 53,500 MW. While not all of these projects will be constructed, SEB and private sector interest in private power appears to be strong. Assuming that half of these projects (i.e., about 25,000 MW) successfully negotiate all the agreements and permits, and seriously seek financing, approximately \$25 billion of private financing would be required between 1995 and 2000. Assuming a 20/80 equity to debt ratio, this represents a demand for about \$20 billion of debt. The fundamental question is how this debt financing will be raised and how much private debt is likely to be available under current market conditions.

This chapter first briefly examines the seven fast-track IPPs in India, which have or are expected to receive GOI counter-guarantees. Enron's Dabhol project is viewed in greater detail to help determine whether it could serve as a model for future project developments. Next, in light of the GOI's stated intention to eliminate counter-guarantees after they have been granted to the first-track projects, seven near-term alternatives to guarantees are presented. Last, this chapter proposes five options for linking guarantee alternatives to the longer-term reform process.

5.1 The Fast-Track Independent Power Projects

An important milestone has been reached with the recent financial closure of the first phase of Enron's Dabhol gas-fired project in Maharashtra, totaling 2,015 MW. The first phase is a 695 MW distillate-fired power project which will cost about \$920 million, with Enron holding about 80% of the equity and Bechtel and GE holding about 10% each. Debt financing involves a \$298 million loan from the U.S. Exim Bank (with a GOI guarantee, not a project financing), a \$100 million loan from OPIC, an IDBI loan of \$95 million in rupees, and commercial bank loans from Bank of America for \$90 million and ABN-AMRO for \$60 million. Enron's original intention was to go to the U.S. capital markets for a 144A bond issue, but the recent volatility and retrenchment in the capital markets in the wake of the Mexican financial crisis forced Enron to abandon this plan.

The Enron Dabhol project received the first counter-guarantee from the GOI. Six other fast-track projects under development, totaling about 3,000 MW, are expected to receive government guarantees. The only other fast-track project to have received the counter-guarantee at this time is the 420 MW coal-fired IB Valley units 3 & 4 project in Orissa, which is being developed by AES. Final negotiations are being completed for the third counter-guarantee for the CMS and STO Power Systems Neyveli 250 MW lignite-fired power project in Tamil Nadu. The GOI has clearly stated that it will stop issuing counter-guarantees

beyond these projects.

The initial guarantees are being issued to induce the first private power investments, with the expectation that there will be a multiplier effect in mobilizing greater quantities of private capital without guarantees. While projects receiving counter-guarantees should not expect major financing problems, the key issue is how difficult it will be to finance projects without central government guarantees and what the alternatives are. Does the Enron Dabhol project present a model for other project financing in India or is it a special case?

The financial closing of the Dabhol project, combined with Moodys' recent upgrading of India's credit rating to investment grade, will clearly increase investor and lender confidence in the Indian power market. However, a number of obstacles remain to widespread power project financing. There are three major features of the Dabhol project that would suggest that it is a model that will be difficult to replicate on a large scale across India.

- Enron's project was clearly favored at the highest levels of the Indian government. This degree of political and guarantee support from the central government is not likely to be extended beyond the fast-track projects.
- Dabhol is located in one of the most industrialized and creditworthy states in India. Financing large numbers of projects in less creditworthy states without GOI guarantees and concerted political attention is likely to prove very difficult.
- Dabhol received extensive financing and credit support from the U.S. Exim, OPIC, and IDBI. The capacity of these institutions to engage in project financing in India's power sector is limited. Given their need to diversify their portfolios and the credit risks of power sector investments, it is hard to see how these banks could be expected to finance more than a portion of the approximately \$20 billion required for private power in the next five years.

It is important to note that substantial opposition to the Dabhol project continues in India, despite the successful financial closure. Various opposition groups have criticized the project as having costs, tariffs, and rates of return that are too high. Given the required import of gas, the foreign exchange requirements are considered very burdensome. The tariff structure and guarantee arrangements are also open to criticism. All told, this opposition is likely to affect future power project negotiations.

5.2 Near-Term Alternatives to Counter-Guarantees

Various alternatives to central government guarantees are being proposed. As explicitly recommended by international bankers in the two meetings Minister Salve held in New York in 1993 and 1994, the massive financing requirements of the India power sector necessitate that all alternatives be considered and no option be discarded at this time (including limited GOI guarantees). Given the GOI's plan to discontinue issuing counter-guarantees after the remaining fast-track projects receive their promised approval, follow-on projects must develop alternatives. It is important to distinguish between near-term versus long-range alternatives. Clearly, the long-term solution is to reform the power sector such that SEBs become creditworthy. At that point, SEBs or power developers that have power purchase agreements with SEBs will be able to borrow and raise capital on the open markets. Given that the reform process will take a number of years to implement, a near-term set of alternatives to counter-guarantees need to be devised. The most widely considered alternatives fall into the following seven general categories:

- World Bank Guarantee

- Export Credit Agency Guarantees
- Major Indian Bank Financing and Guarantees
- State Government Guarantees
- Escrow Account with Industrial Receivables
- Power Wheeling and Direct Industrial Generation
- Corporate Balance Sheet Financing.

The basic purpose of these measures is to address specific country and project risks related to utility performance under a power purchase agreement, policy changes, and the availability or convertibility of foreign exchange. Many of these options are interrelated and sometimes will be pursued in combination.

- **World Bank Guarantee.** The World Bank is mainstreaming its Expanded Cofinancing Operations (ECO) program into a guarantee for covering particular country risks in private infrastructure financing. The types of country risks the guarantee intends to cover are utility performance, changes in policy, and foreign exchange availability/ convertibility. In most cases, these are the risks that are holding back bank debt financing for projects in India. This guarantee has already been applied to a variety of power projects in Pakistan, China, Jamaica, and the Philippines. While the guarantee would be attractive to some foreign developers and banks, it could pose some concern to the GOI. By charter, The World Bank cannot engage in lending or guarantee activity without requiring a back-to-back government guarantee. If the GOI wants to reduce central government liability exposure, The World Bank guarantee may prove problematic.
- **Export Credit Agency Guarantees.** Export credit agencies (ECAs) are actively supporting the sale of power generation equipment from such countries as the United States, Germany, United Kingdom, and Japan for projects in India. Many of these ECAs have set up or are in the process of setting up project finance departments that are designed to engage in infrastructure project financing. ECAs traditionally engage in trade financing that involves a government guarantee, particularly when the purchaser is a government corporation. The new project finance departments are increasingly prepared to consider financing infrastructure projects without requiring a government guarantee. The credit analysis performed by ECAs, however, would still require that the project meet basic risk management criteria. A recent example of an ECA financing for a power project in India without GOI guarantees is the 655 MW project being developed in Gujarat by the Torrent Group and Siemens with support from Germany's ECA, Hermes. The role that ECAs could play in financing India's power sector is nonetheless limited by capital constraints. For instance, large ECAs such as the U.S. Export-Import Bank, only lent about \$15 billion in 1993 for all countries and sectors.
- **Major Indian Bank Financing and Guarantees.** Such major Indian banks as the Industrial Credit and Investment Corporation of India (ICICI), the Industrial Development Bank of India (IDBI), and the State Bank of India (SBI) are prepared to provide debt financing, and in some cases guarantee foreign commercial bank loans and capital market issues for power project financing. The first such financing has taken place with the IDBI loan to Enron's Dabhol project. Expanding such financing, particularly for the rupee component of projects, will clearly take place and represent a significant source of financing. However, the total capacity of these banks to finance the power sector is limited. Leading Indian banks that might lend to independent power projects such as ICICI and IDBI only have total assets of around \$3.5 billion and \$10 billion, respectively (1990). Given the overall size of their lending capacity and their need to diversify across sectors, it is estimated that the total lending capacity to the power sector of these major banks is not likely to exceed \$1 billion per year (this estimate needs to be researched in greater detail). From the foreign bank perspective, one of the major factors that would make a guarantee from these banks acceptable is the fact that a majority of these bank shares is owned by the GOI.

It is assumed that the GOI would have to backstop these banks in the event of default. For this reason, guarantees from these banks will not completely free the GOI from some liability exposure.

- **State Government Guarantees.** Guarantees by state governments may in some instances be acceptable to foreign banks. The key determining factor is the state's financial condition and level of creditworthiness. While international credit rating agencies have yet to perform credit analyses and ratings of individual states, there is a general recognition from available economic and budget data as to which states are the most creditworthy. In particular, Maharashtra would be considered among the most financially-sound, with other possible contenders being Andhra Pradesh, Gujarat, and Tamil Nadu. While the most creditworthy states may succeed in attracting debt financing for power projects with their guarantees, the credit of many others will not be attractive enough. This guarantee mechanism is closely tied to the annual transfer of funds from the central government to the states; central government "budgetary allocations" are an important indicator of a state's ability to provide guarantees. This regional imbalance poses a serious problem that is already evident in terms of India's overall economic development. Only a few states are fully benefiting from foreign and private investment in general, while many others are being left behind. This growing divide has broad ramifications in terms of maintaining political support for the central government's overall economic reform program. For this reason, the GOI may want to take a more proactive position in trying to balance private capital flows across many states by implementing measures that do not simply rely on state guarantees.
- **Escrow Accounts with Industrial Receivables.** Another approach developers and bankers proposed to reduce their risk exposure is to single out the State Electricity Boards' most creditworthy customers as the primary payers for independent power. By entering into an agreement among the SEB, the bank, and the developer, a special escrow account would be established whereby the power bills of the top SEB customers would be routed directly to an account reserved for settling payments to the independent power developer under its power purchase agreement with the SEB. While this approach could be very workable for the first few projects, a problem will arise as the power purchase commitments begin to approach the level of industrial customer receivables. This approach is clearly not a substitute for reforming SEBs in terms of raising tariffs to reflect the costs of generation and reducing management and staffing inefficiencies. In fact, earmarking industrial receivables for private power will accelerate the moment of truth when the SEBs will face financial pressures in meeting their obligations to other commercial, government, and residential customers. A politically explosive issue could emerge if residential and agricultural customers see their power supply reduced due to the SEBs' commitments to private power developers, most of which will be foreign.
- **Power Wheeling to Major Industrial Customers or Direct Industrial Generation.** An alternative approach to the above industrial receivables escrow accounts is to allow independent power generators to enter into direct contracts with major industrial customers to wheel power over the transmission system. This would require that the SEBs and Power Grid Corporation agree to a policy and legal framework that gives independent generators the right to wheel power and charges reasonable rates for access to the transmission network. Alternatively, power plants can be located directly at factory or industrial park sites through various cogeneration and industrial power plant schemes. While this approach is being applied in some cases and is under widespread consideration, it poses the same problems described in the previous option. Direct power sales or budgetary links between independent generators and the most creditworthy customers allow the private sector to "cherry pick" the SEB's reliable paying customers and leave the SEB with the least creditworthy customers with which to keep their operations solvent. Again, without major SEB and power sector reforms, this scenario could be untenable in the long run.

- **Corporate Balance Sheet Financing.** Another debt financing option receiving increased scrutiny involves expanding corporate balance sheet financing so that developers put more of their corporate credit on the line. A recent project that has been held up by the GOI as an example that they would like to see replicated is the 655 MW project in Gujarat being developed by the Torrent Group and Siemens. This sizeable project is proceeding without any GOI counter-guarantees. While it does involve some balance sheet exposure, an important component of the debt financing reportedly includes German Hermes export credit guarantees. In Minister Salve's delegation visit with bankers in New York during September 1994, various participating industrialists, including Reliance Industries and the Goenka Group, expressed a willingness to engage in more balance sheet financing. While this is a realistic option in various cases, it is counter to the general objective of many companies to finance power projects on a limited recourse or project finance basis, and to reduce their balance sheet exposure. Foreign companies such as Enron and Hopewell have been known to take balance sheet exposure for construction risk, but are less likely to take such term risks as utility performance on their balance sheet. In the absence of a creditworthy SEB, some form of the above-listed credit enhancement would likely be required. The capacity of major Indian industrial groups to take balance sheet exposure will be limited, and it is highly unlikely that such financing will be able to support a substantial portion of India's major capacity addition requirements.

Each of these seven alternatives can be applied in the Indian context and is viable under specific conditions. However, the extent to which they can support the approximately US\$ 20 billion of debt financing for power projects is unclear. An overview analysis of state and SEB credit, the power payments of industrial customers, Indian bank lending and guarantee capacity, Indian industrial group balance sheet financing capacity, etc. could help to clarify the extent to which each of these alternatives could support private debt. This topic warrants further examination in order to provide the GOI with a clearer understanding of the applicability of each of these alternatives.

5.3 Longer-Term Alternatives

Notwithstanding the viability of the above near-term options, nothing will serve as a substitute for long-term power sector reforms. The fundamental problem is that the poor financial performance of many SEBs is limiting power projects. Subsidized power tariffs, high staff per customer levels, low power plant load factors -- in the neighborhood of 60% as compared to 85% for power plants in the United States, inadequate power plant efficiencies, high transmission and distribution losses -- in the range of 20-23% (as compared to a worldwide average of 8%), and sub-optimal management practices all combine to undermine the financial viability and creditworthiness of most SEBs. Even the process of evaluating SEB credit is hampered by accounting practices that are not transparent and acceptable to the international financial community. The major power sector reforms being promoted by the GOI, with support and guidance from The World Bank, are critical to financing private power. However, these reforms will likely take several years to carry out. In the meantime, financing for expanding power capacity to meet the needs of India's growing economy is urgently needed. Government guarantees and the various options reviewed above simply represent transitional and stop-gap measures to facilitate private capital flows in the near term.

It is important to note that the criteria used by international banks for project financing are being applied world-wide and present India with the type of financial and credit discipline that is essential to long-term market reforms. For this reason, the process of evaluating and understanding debt financing criteria will benefit India in terms of bringing it into the international economy in a way that can ensure expanded

foreign investment in infrastructure for years to come. In 1993 and 1994, India has successfully raised billions of dollars for creditworthy corporate issues (e.g., Reliance Industries) on the European markets through global depository receipts. While SEBs and private power projects have not matured to this stage, the prospects for raising capital on the international capital markets will be very real when Indian power companies become creditworthy by international standards.

In addition to the various power sector reform programs being implemented in different states, other options are being considered to support the necessary restructuring. One suggestion involves establishing a power tariff board. This board would regulate tariffs, and ensure that costs are properly reflected in the tariff and that necessary cross-subsidies are carried out according to acceptable guidelines. There is discussion of vesting power distribution in private hands and carving up an SEB's distribution system into manageable components that have the appropriate mix of industrial, commercial, agricultural, and residential customers. By privatizing distribution, it is expected that losses could be reduced and bill collection improved.

Another option being explored involves the state-owned Power Grid Corporation, which was formed by the GOI in 1989 to establish a nationwide transmission network to optimize the distribution of power across the country. Through budgetary allocations and World Bank loans, the GOI is extensively expanding the transmission network under PGC. It has been proposed that independent power producers enter into PPAs with PGC and sell their bulk power to the center for disbursement to the states by PGC. Given that a corporation owned by the GOI would be the offtaker, banks would only look to the credit of India as a whole rather than to individual states or SEBs. In its recent negotiations with the GOI, Hopewell has signed a preliminary memorandum of understanding for major coal power generation under this scheme. The limited size of PGC and its asset base, however, will mean that it is not be able to support the extensive private power project financing requirements of India. This approach will thus be equivalent to financing on the balance sheet of the GOI; it will not reduce the exposure of India's credit.

It is clear that the priority objective for the Indian power sector needs to be power sector reform. Key elements of this reform will involve raising tariffs to reflect costs, implementing integrated resource planning and demand-side management, improving the efficiency of generation, transmission, and distribution, reducing employees per customer, and streamlining management practices. For good reason, development institutions such as The World Bank are making loans to the power sector contingent upon implementing these necessary reforms, and are very concerned that the use of guarantees and guarantee alternatives will take the pressure off SEBs to make the painful changes necessary. Guarantee alternatives need to be implemented in a way that supports the power sector reform process. If guarantee alternatives are perceived as giving the SEBs more latitude to avoid painful restructuring, they will increase the exposure of these institutions and the GOI in a way that could result in eventual default on commercial loans. There are various suggestions of how to link the guarantee options to the reform process.

- **Capacity Analysis of Guarantee Alternatives.** While there has been much discussion about alternatives to guarantees, little is known about the actual private financing capacity of these alternatives and the legal and market barriers to their widespread implementation. In order for policy makers and financial institutions to make decisions that have realistic potential for supporting the large private financing requirements of India's power sector, detailed analyses need to be performed on the viability and scope of these alternatives. The underlying credit of those supporting institutions must be examined to determine what level of credit enhancement and support can be provided without compromising their financial viability. For instance, the balance sheets and credit of state governments, Indian banks, and major corporations that are prepared to shoulder some of the key country and project risks of concern to international lenders need to be examined.

- **SEB Credit Analysis.** It is widely recognized that an objective and internationally acceptable analysis of SEB creditworthiness needs to be performed. Local credit rating agencies in India have been formed, such as CRISIL. International rating agencies such as Standard and Poor's and Moody's are active in the Indian market as a whole. SEB credit ratings will not only give international bankers an indication of the level of risk they face with SEB power purchase agreements, but will also give policymakers and SEB managers an independent indicator of their level of progress in the reform process. In order to perform this credit analysis, the SEBs' accounting practices will need to be upgraded to a level that is acceptable to international financial institutions. While there will be considerable political opposition to implementing credit ratings across all states, given the poor financial health of many SEBs, the full integration of capital markets into the financing of the power sector cannot be achieved without taking this important step.
- **Linking Credit Standing to Guarantee Pricing.** Many of the alternatives to central government counter-guarantees involve guarantees and risk taking by other government and corporate institutions in India and abroad. There is no way that the specific country and project risks can be masked or eliminated without serious power sector reforms; consequently, some entity must be prepared to take on these risks in the near term. Wherever possible, efforts should be made to place a price on these guarantees that in some way reflects the level of risk being taken by the market. While this is the way capital markets normally function, the lack of adequate credit information on the SEBs has hampered making this critical link. While the GOI has attempted to implement this type of framework in its Tri-Partite Agreement between the Ministry of Finance, state governments, and SEBs, considerably more could be done to make the process more transparent and rigorous. The purpose of this linkage will be to provide a financial incentive for SEBs to implement the reform process and thereby reduce their cost of capital.
- **Capital Market Development.** Ultimately, Indian capital markets will play an important role in financing the power sector through long-term commercial bonds. However, the Indian capital markets are only in the nascent stages of developing long-term debt markets. Commercial bonds with tenures of 10-15 years are not marketable at this time in India. Secondary markets for commercial bonds are also only in the early stages of development. Power sector reform needs to be implemented in parallel with capital market reform and development. Analyses that summarize developments in the capital markets and the projected rate of long-term commercial debt secondary market development are needed in order to determine when and on what scale this important source of capital could be accessed.
- **Balancing Economic Growth and Wealth Distribution.** A major concern about some of the guarantee alternatives is that they will enable the private sector to "cherry pick" the most creditworthy industrial customers and regions of the country, which will accelerate the rate of financial decline of SEBs that are left with the uncreditworthy residential, government, and rural/agricultural customers. Power wheeling or escrow accounts with industrial receivables are notable examples of options that are likely to have this deleterious effect. Serious policy analysis needs to be performed to evaluate the extent to which these options could be economically and socially destabilizing in terms of increasing the polarization of wealth and poverty. Various options for providing investment incentives to attract capital to less attractive regions and sectors need to be explored.

The above recommendations will shed light upon the viability of the counter-guarantee alternatives as well as the potential policy responses needed to achieve power sector and economic reforms. Detailed analyses on each of these topics will make a valuable contribution to formulating long-range policies that

are beneficial to the power sector and the Indian economy.

**U.S. Agency for International Development
Bureau for Global Programs, Field Support, and Research
Center for Environment
Office of Energy, Environment, and Technology**

The Center for Environment of the Bureau for Global Programs, Field Support, and Research houses the environmental programs of the U.S. Agency for International Development (USAID). One of five *Centers of Excellence* within the Agency, the Center for Environment provides field support to U.S. bilateral assistance efforts, manages global environmental program activities, oversees USAID's environmental research efforts, and is USAID's principal liaison on technical environmental issues to the rest of the U.S. Government, non-governmental organizations and universities, and other bilateral and multilateral donors.

The Office of Energy, Environment, and Technology is a part of the Center for Environment and helps developing countries and emerging economies find market-oriented solutions to their energy and environment problems. The Office helps set the energy policy direction for the Agency and responds to the short-term needs of USAID's field offices in assisted countries.

A lack of energy is seriously curtailing economic growth in developing countries and countries in transition. Expansion of energy supplies imposes a huge financial burden while increasing environmental threats in these countries. In addition, many countries lack the institutional capability and appropriate technology to operate and manage energy systems efficiently. These factors contribute to the role energy development plays as a leading contributor to global climate change and regional and local environmental problems.

To address these problems, the Office of Energy, Environment, and Technology leverages the financial resources of multilateral development banks, such as The World Bank and the InterAmerican Development Bank, the private sector, and other bilateral donors to increase energy efficiency and expand energy supplies, enhance the role of private power, and implement novel approaches through research and adaptation. These approaches include improving power sector investment planning ("integrated resources planning") and encouraging the application of cleaner technologies that use both conventional fossil fuels and renewable energy sources. The Office's promotion of greater private sector participation in the power sector and a wide-ranging training program also help to build the institutional infrastructure necessary to sustain cost-effective growth.

Further information regarding the Office's projects and activities is available in our annual Program Plan, which can be requested by contacting the Office of Energy, Environment, and Technology at the following address.

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