

Investment Considerations



Power outages stifle growth*

- Outages cost African countries as much as 2% of their gross domestic product.
- Revenues of big businesses down by as much as 6%.
- Sales losses for smaller businesses down as much as 16%.

* "In Africa, Outages Stifle a Boom", *The Wall Street Journal*, April 17, 2008



Electricity Investment Needs

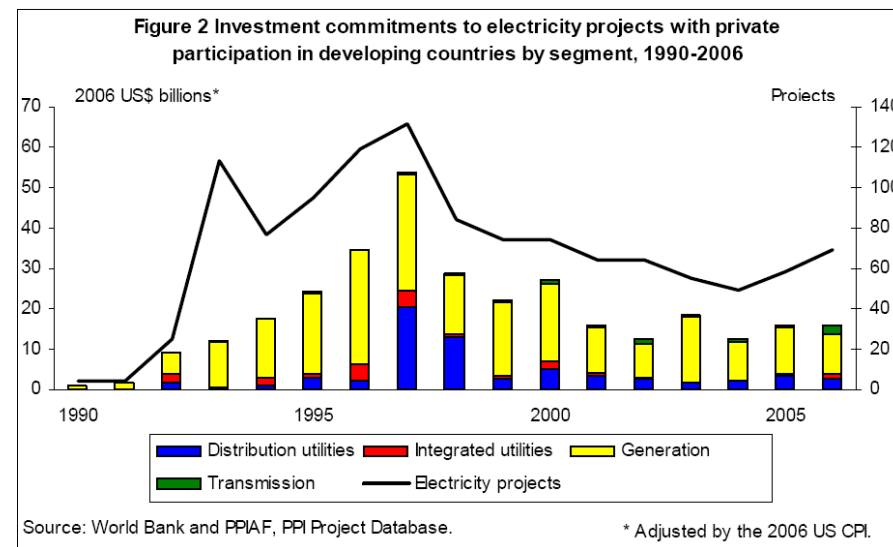
	Electrification			People without access	2001-2030 Investment
	Urban	Rural	Total		
North Africa	99.3%	79.9%	90.3%	28 million ¹	
Sub-Sahara	51.3%	7.5%	22.6%	509 million	
Africa	63.1%	16.9%	34.3%		\$609 billion
South Asia	68.2%	30.1%	40.8%	801 million	\$783 billion
Latin America	98.0%	51.5%	86.6%	56 million	\$744 billion
East Asia/China	98.5%	81.0%	86.9%	241 million ²	\$2,712 billion ³
Middle East	98.5%	76.6%	91.1%		\$258 billion
Developing Countries	85.6%	51.1%	64.2%		
World	91.2%	56.9%	72.8%	1,635 million	\$5,106 billion

Source: The IEA, *World Energy Outlook 2002* (Chapter 13) and *World Energy Investment Outlook 2003* (Chapter 7)

¹ includes parts of Middle East

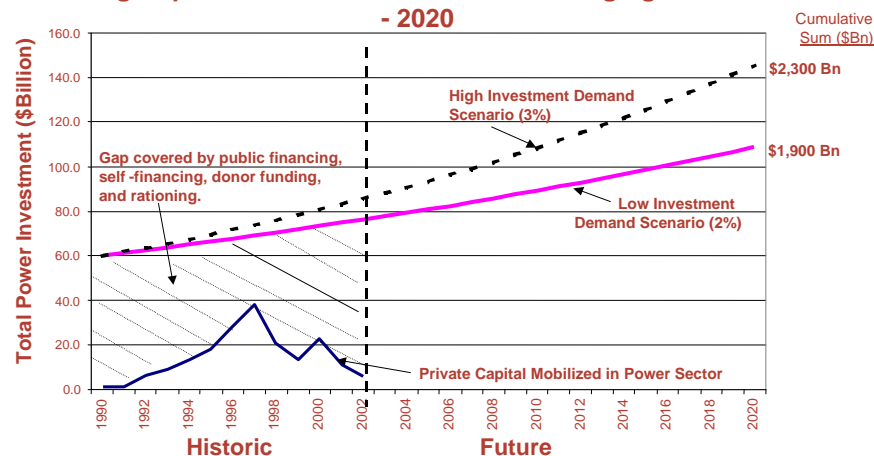
² 18 million in China

³ \$1,913 billion is for China alone



Who will meet the gap?

Financing required for the Power Sector in Emerging Markets 1990 - 2020



Source: World Bank, IFA, Deloitte Touche Tohmatsu Emerging Markets Group



The answer: mostly private sector

- There is plenty of capital in the world
- Looking for profitable investment opportunities
- But, competition is, as always, tough
- Most governments do not have financial resources
- Donor funding is limited



Energy investments

- capital intensive
- long lead times
- hence risky
- Project financing is often preferred



What is Project Finance?

- Project Finance is Single Asset, **Cash Flow Based**, i.e., without reliance on corporate or parental guarantees.
- Project Finance is highly leveraged at financial close because of contracts or because of cost structures that are profitable against commodity prices.
- A debt funding structure that relies on future cash flows from a specific development as the primary source of repayment, with that development's assets, rights and interests held as collateral security.

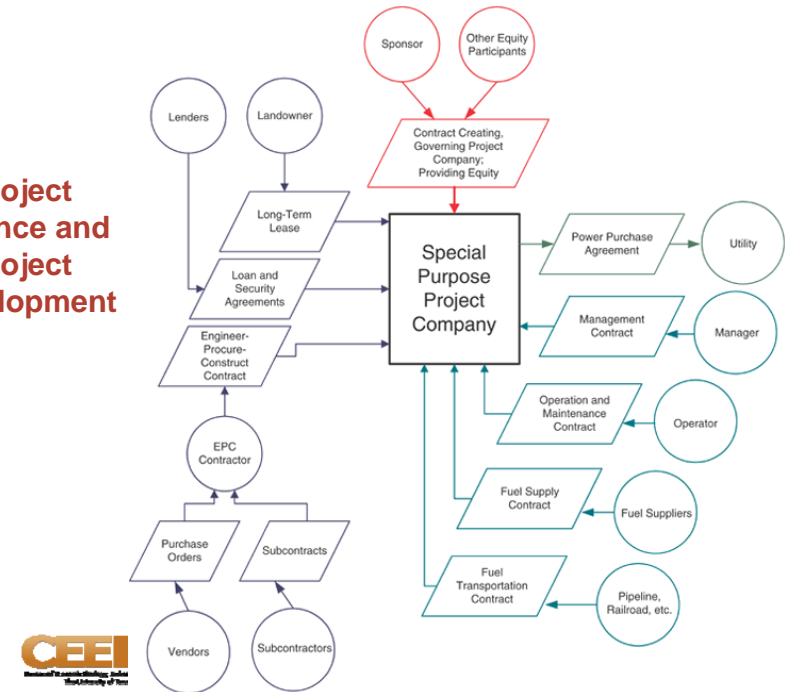


Project Finance Characteristics

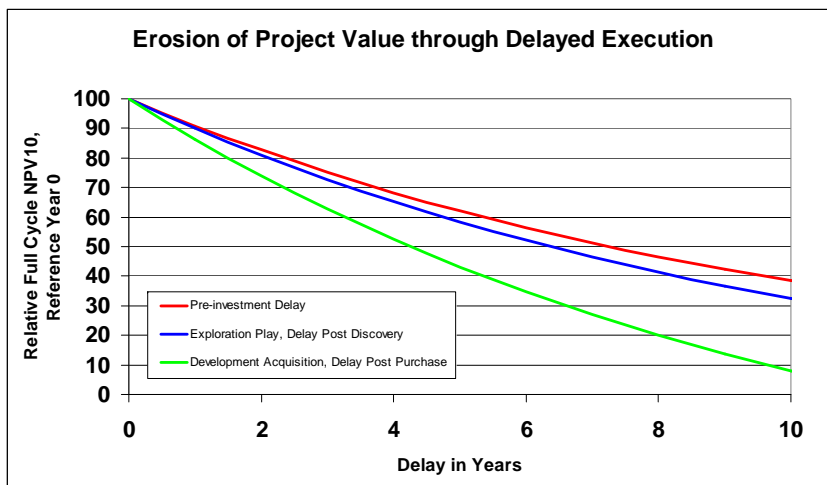
- **Ring Fenced Project** – Legally and economically self-contained; only business is the project. Project is not exposed to risks outside and project cannot rely on financial support if things go wrong.
- Usually a **new project**.
- **High ratio of debt to capital and long debt term.**
- **No guarantees** after the project begins operation.
- **Lenders rely on the cash flow** of the project, rather than the value of the assets or the ability to re-finance.
- Exposure to risk of political influence by host governments leading to use of **political risk guarantees** providing a cross-country assessment.
- Security for debt is the contracts, the **resource rights, etc.**
- The project has a **definite life**.



Project Finance and Project Development



Delayed Execution Erodes Value

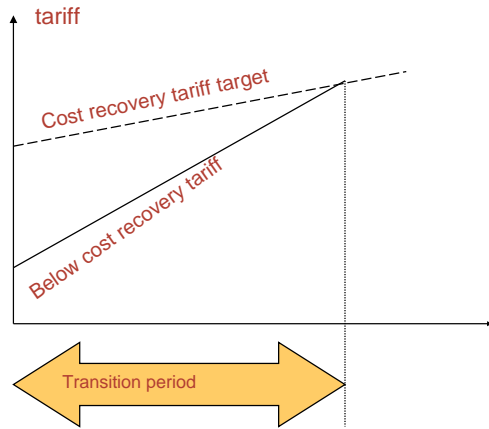


Surveys of power sector investors

- Confirm that adequacy of cash flow is one of the most critical factors in determining success of failure of a project →
- tariffs should be designed such that
 - costs are recovered and
 - excess capital is generated for new investment to maintain and expand the system
- collection discipline must be improved



One way to rationalize tariffs



What type of plant?

With recent cost inflation, these costs have probably increased at least 50%

Coal	Natural Gas	Nuclear	Wind	Micro Hydro	Solar	CHP
\$35-60 per MWh	\$40-63 per MWh	\$30-50 per MWh	\$45-140 per MWh	\$65-100 per MWh	\$200 (24% avail)	\$30-70 per MWh
Inv 50% O&M 15% Fuel 35%	Inv 20% O&M 7% Fuel 73%	Inv 70% O&M 20% Fuel 10%	O&M 13-40%			

Natural gas price range of \$3.5-\$4.5 per MMBtu

Source: *Projected Costs of Generating Electricity -- 2005 Update*, by IEA and NEA

