# INDIA'S POWER SECTOR LIBERALISATION: AN OVERVIEW

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## BACKGROUND

- Policy of opening electricity generation to private sector announced in October 1991.
- Union Secretaries (Cabinet, Power and Finance) visited USA, Europe, and Japan in May-June 1992 to invite foreign private sector participation
- Government offered concessions and incentives hitherto unheard of in the power sector business

**PRIVATE SECTOR INVITED BECAUSE**

- Further funding not available from Centre
- The electricity sector had “no” surpluses.
- According to World Bank (1989) $100 billion/year required by developing countries for power sector, but only ~ $20 billion was available.
- *The only possible source -- it was argued -- was the private sector (foreign & national)*

ANOTHER EXPECTATION

Higher efficiency via

- Better management
- Improved technical efficiency

# INITIAL RESPONSE

- >120 offers received from the private sector to set up > 75,000 MW at > Rs 2,76,000 crores investment
- ~ 95 projects (aggregate capacity of 48,137 MW) awarded through MOUs or LoI
- 32 projects (costing > Rs 1,000 crores each with an aggregate capacity of 20,697 MW) awarded by international competitive bidding)
- Eight were considered for counter-guarantees by the central government.

## VERY FEW PRIVATE POWER PROJECTS HAVE ACTUALLY BEEN COMPLETED (DECEMBER 1998)

| | |
|---|---|
| • ***Jegurupadu*** (gas turbine) | 235 MW |
| • ***Hazira*** (ccgt) | 515 MW |
| • ***Vijjeswaram*** (naphtha) | 172 MW |
| • ***Baroda*** (ccgt) | 167 MW |
| • ***Dhabol*** project phase I(Enron) | 500 MW |
| • Sub-total | 1,589 MW |

## OTHER POWER PROJECTS (December 1998)

- Other private projects are under implementation
- But, in some cases, work has not started as financial closure has not yet been effected

## STAKE-HOLDERS

- Central Government
- IPPs
- State Government/SEBs
- Consumers (Industry, Agriculture, Commercial)
- Households (connected and not-yet-connected)

## PROBLEMS OF IPPs

- Financing
- Risks
- Fuel supply agreements
- Litigation/renegotiation
- Techno-Economic Clearances
- Environmental Clearances

## FINANCING

- Despite SEB's poor financial position, they must off-take and pay for power
- Limits of internal financial institutions
- Foreign direct investment conditional upon all loose ends being tied up and certainty of returns

## SEBs

- Financial institutions are limiting their loans to IPPs at the "escrowable" capacity of SEBs.
- Some States have signed PPAs with an aggregate capacity higher than could be supported by way of escrows.
- “Cherry picking” leaves the SEB with unremunerative regions to service
- Existing stakeholders could object

## FOREIGN DIRECT INVESTMENT

- Foreign investment contingent upon the certainty of returns
- With the SEBs’ financial insecurity, government counter-guarantees and/or escrow accounts are sought
- Without these guarantees, no financial closure

## OTHER SOURCES OF FUNDS LIMITED

- Long payback periods of power projects inhibit funds.
- In industrialized countries, power projects raise funds through institutional investors (insurance companies, pension funds, etc.)
- But in India these investors usually favour government undertakings, limiting the funding for private power projects.
- Vis-à-vis Rs 292,500 crores required by IPPS for the next decade, the maximum borrowing from Indian FIs/banks has been pegged at 40% or Rs 117,000 crores.

## CONSTRUCTION RISK

- whether or not the project can be completed on time and within the budget
- to counter this risk, provisions for liquidation damages to cover the costs of delays are included in the engineering procurement construction (EPC) contract

## MARKET RISK (INCLUDING DEMAND RISK & PRICE RISK)

- Demand risk is avoided by the "take or pay" nature of the PPAs, whereby the SEB agrees to pay the IPP the "availability" rate regardless of the number of kWh actually obtained
- Price risk is avoided by the tariff structure in which all costs of producing power -- fixed (interest, depreciation, O & M, insurance, taxes) and variable (fuel) plus a return on equity (ROE) are assured.

## FUEL-SUPPLY RISK

- To protect against the risk of not obtaining a timely supply of the appropriate fuel
- IPPs either sign long-term contracts with the public sector supplier (e.g. gas from GAIL)
- or acquire a captive source (e.g. a captive coal mine)
- For fuel transportation, a contract with the Railways is sometimes arranged.

## FUEL LINKAGE AGREEMENTS

- Fuel linkage agreements (including licences for importing fuels - coal, naphtha, diesel and LNG or higher grade Indian coal) have, at times, been difficult to obtain.
- The rules pertaining to the use of some fuels have not been clear or have been changed and this indecision has delayed several projects.
- The charges that have to be paid by the IPPs have been regarded by them as being too high, as they include commitment charges, import-handling charges, service charges, etc.

## PROBLEMS FOR THE SEBS/STATE GOVERNMENT

- Unacceptable PPA terms - unviable for SEBs
- T&D facilities (investment and maintenance) have not been provided for
- Support for less-remunerative consumer-categories

## PPA TERMS

- High plant load factor (including buttressing PPA obligations) would result in uneconomic plant dispatch to the detriment of the system
- Since there is a shortage of peaking power rather than energy, the addition of base-load power stations is not the answer
- High return on equity (w. government guarantee)
- PPAs imply high costs of some projects (higher than those known abroad and elsewhere in India)

## UNFAVOURABLE FINANCING STRUCTURE

- In general, the rates of interest payable on dollar and rupee debt have been fixed as on the date of financial closure.
- Till this stage, the perceived lender risks and the corresponding rates of interest are relatively high.
- As the project continues, risk falls and the debt can be refinanced (i.e. interest rates can be re-negotiated), but the utility will still be adhering to the fixed rates.

## T&D SYSTEM

- Generation --> necessary but not sufficient
- Evacuation of power from generation sites requires efficient T & D system
- A separate trading enterprise for T&D (e.g., GRIDCO in Orissa) that needs a certain ROI would increase tariffs
- Are the extra “T&D” tariffs affordable?

## NON-SUBSIDIZED ELECTRICITY

- How do consumer sectors (domestic and agricultural) currently provided with subsidized electricity handle tariffs reflecting costs ("use-cost recovery”)?
- If only such consumers are left to the SEBs, their financial position would be far worse than at present.

## RECENT INSTITUTIONAL DEVELOPMENTS

- ***Regulatory commissions at state and central levels*** : SERCs for tariff fixation and other related functions and CERC for all state-level appeals and inter-state flows
- ***Restructuring of the SEBs t***o "unbundle" SEB activities of generation, transmission and distribution
  - CERC has sent draft guidelines to the SEBs for granting licences to private sector undertakings (already implemented in Orissa).
  - Electricity acts amended

## RECENT INSTITUTIONAL DEVELOPMENTS

- ***Regional Electricity Boards (REBs)***: for better grid management
- ***Foreign equity participation up to 100%*** allowed for electricity generation, transmission, and distribution (except for atomic reactors)

## MEGA-POWER POLICY

- For large government-owned power projects at strategic locations -- hydroelectric power plants of at least 500 MW and thermal plants of at least 1,000 MW
- Insulated from the lack of credit-worthiness of the SEBs (electricity can be sold either directly to a "cluster" of large consumers or to the Power Trading Corporation which can withdraw funds from the State's central share if the SEB defaults on its payments)
- Concessions in customs duty on the import of capital equipment, and sales tax/octroi
- Reaction has not been very favourable

## NEW FINANCIAL ARRANGEMENTS

- Setting up of the Infrastructure Development Finance Company Ltd.
- Broadening the scope of the public sector Power Finance Corporation (PFC) by allowing an active role for the PFC in negotiating loans from international banks and foreign capital markets
- Constitution of a Power Development Fund by the Power Ministry for speedy implementation and execution of power projects as also to finance feasibility studies for setting up power plants

## NEW FINANCIAL ARRANGEMENTS

- A Power Trading Company (PTC) to purchase power from power-surplus regions and sell it to power-deficient regions
- Launching of "Infrastructure Bonds" to channel household savings to the power sector
- Involving provident funds as a potentially important source of funding

## SOURCES OF FINANCE STILL LIMITED

- According to the ADB, Asia required $100 billion a year in capital for new power generation plants
- But, only 5 - 10% could be met by development banks.
- Hence, internal generation of funds is still required.

## CONCLUSION #1

- IPPs did not make major contributions
  - Contrary to 1991-92 expectations, the private sector has hardly contributed to bridging the power demand-supply gap.
  - Only a few IPPs have commenced generation, perhaps due to the problems experienced

## CONCLUSION #2

- Public Sector Undertakings remain the successful players in the field.
- Some PSUs have been constructing generating plants on/ahead of schedule
- For example, KPCL's Raichur TPS - Units V and VI, and NTPC's Kayamkulam TPS)

## CONCLUSION #3

- Demand-side management options have been largely ignored
  - No end-use efficiency-improvement measures have been addressed
  - The energy/power demand-supply gap could have been reduced with such measures ***at lower costs/unit and in less time***

## CONCLUSION #4

- IPPs have not reduced costs of supply
- If the cost of supplying electricity through IPPs was expected to be lower than that of state-run plants (due to their alleged higher efficiency, etc.) this has not occurred.
- T&D costs would further raise costs
- W/o system improvements, inefficiencies would continue

## CONCLUSION #5

- **Do "Surpluses" expose exaggerated demand projections?**
- **In some regions, with the completion of projects under construction, there has come to be an excess of electricity availability over that required by customers at the tariff payable (except during periods of peak demand)**
- **Would this surplus have occurred if all homes were electrified and if rural areas were supplied throughout the day?**

## CONCLUSION #6

- Privatization may undermine development needs
- Will profit-maximizing private distribution jettison public benefits and economically weak consumers (connected and yet-to-be-connected)?
- Or will they be left to SEBs to incur further losses?

## CONCLUSION #7

- The GROSSCON (Growth-oriented Supply-sided Consumption-directed) Paradigm dominated energy policy- and decision-making
- Policy- and Decision-makers seem unaware of the New DEFENDUS (Development-Focused End-Use-oriented Service-directed) Energy Paradigm

## CONCLUSION #8

- Shifting focus from increased consumption to increased energy services
- Challenge --> identification of a least-cost mix of centralized generation, decentralized generation and efficiency improvements
- Lower investment required for the power sector
  - either by decreasing the unit cost of installed capacity (less expensive generation or reduction of T&D losses)
  - and/or by lower generation capacity to meet lower demand decreased through demand management/ efficiency improvements

## CONCLUSION #9

Thanks to controversial power projects, there has been public debate and informed discussion, but there should be

- greater transparency in decision-making
- greater public participation (particularly from civil society)
- greater spread of information