

PN-ACE 932

101322

Task Order No 804

Contract No PCE-1-00-96-00002-00

Power Policy Survey and Analysis

Prepared By
Asia Consulting Group

June 19, 1998

For
USAID/India
Mr N V Seshadri

Environmental Policy and Institutional Strengthening Indefinite Quantity Contract (EPIQ)

Partners International Resources Group Winrock International
and Harvard Institute for International Development

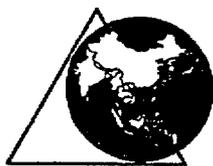
Subcontractors PADCO Management Systems International and Development Alternatives Inc

Collaborating Institutions Center for Naval Analysis Corporation Conservation International KNB Engineering and
Applied Sciences Inc Keller-Bliesner Engineering Resource Management International Inc
Tellus Institute Urban Institute and World Resources Institute

ASIA CONSULTING GROUP



USAID-EMCAT-R³
POWER POLICY
SURVEY & ANALYSIS
BY ASIA CONSULTING GROUP



USAID - EMCAT - R³
POWER POLICY
SURVEY & ANALYSIS
BY ASIA CONSULTING GROUP

19TH JUNE 1998

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SECTION VII CORRELATION & IMPACT

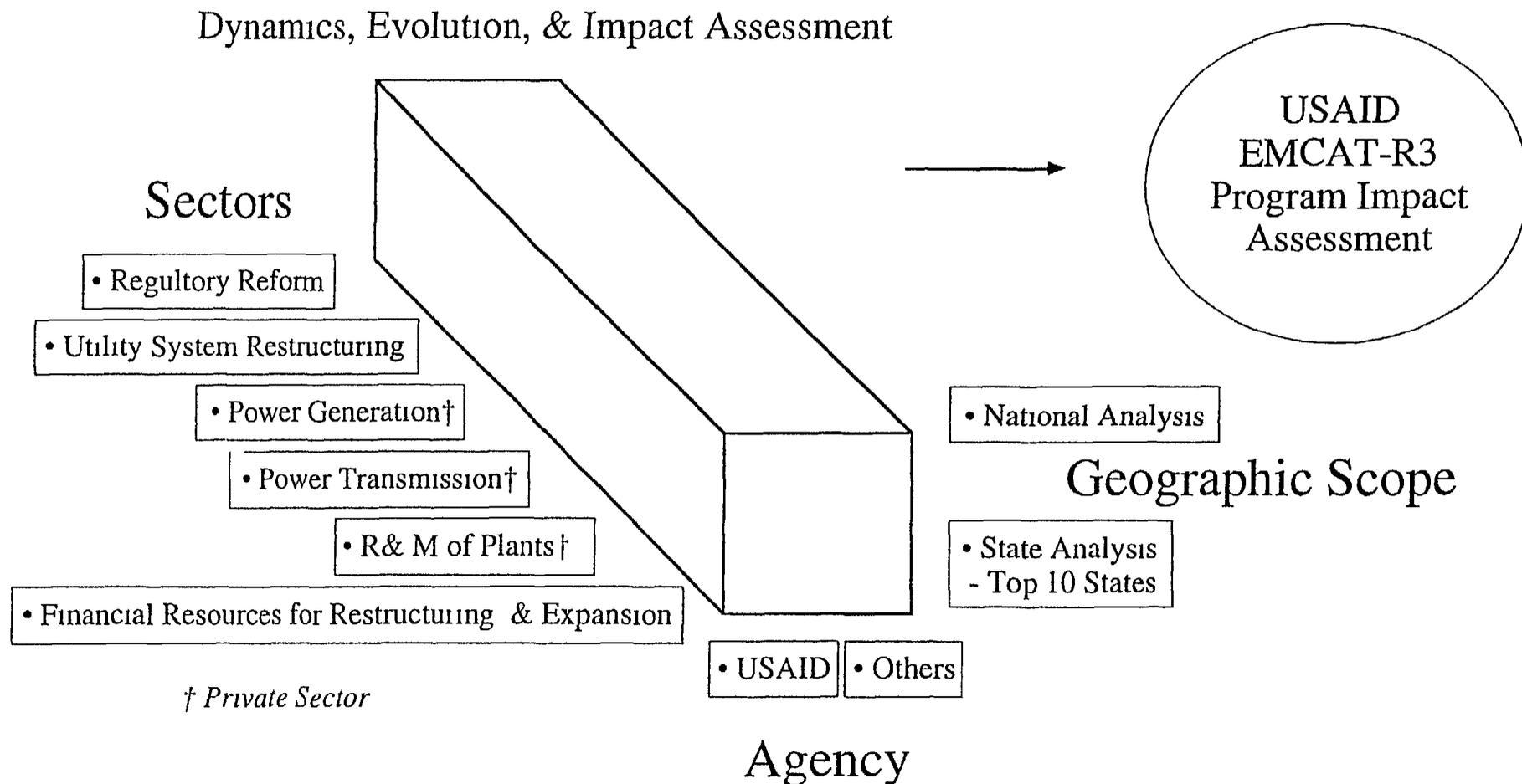
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SECTION TITLE INTRODUCTION

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STUDY II SURVEY OF POWER POLICY

STUDY II PROJECT TEAM

STUDY II POLICY SURVEY (GANTT CHART)

SOURCES OF INFORMATION

STUDY II (POLICY) PROJECT TEAM



USAID (United States Agency for International Development)

Mr N V Seshadri, Program Specialist (Energy)
Ms Kavita Sinha Project Specialist

Mr Dick Goldman, Director

IRG (International Resources Group)

Mr Ronald Leasburg, Director Energy Group

ACG Project Team

Mr V Kanwarpal, Project Manager
Mr G Lal, Analyst
Mr G Varghese, Analyst

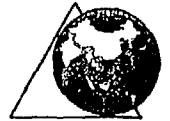
ACG Advisors

Mr R Vasudevan, Senior Advisor
(Former Secretary, Power)

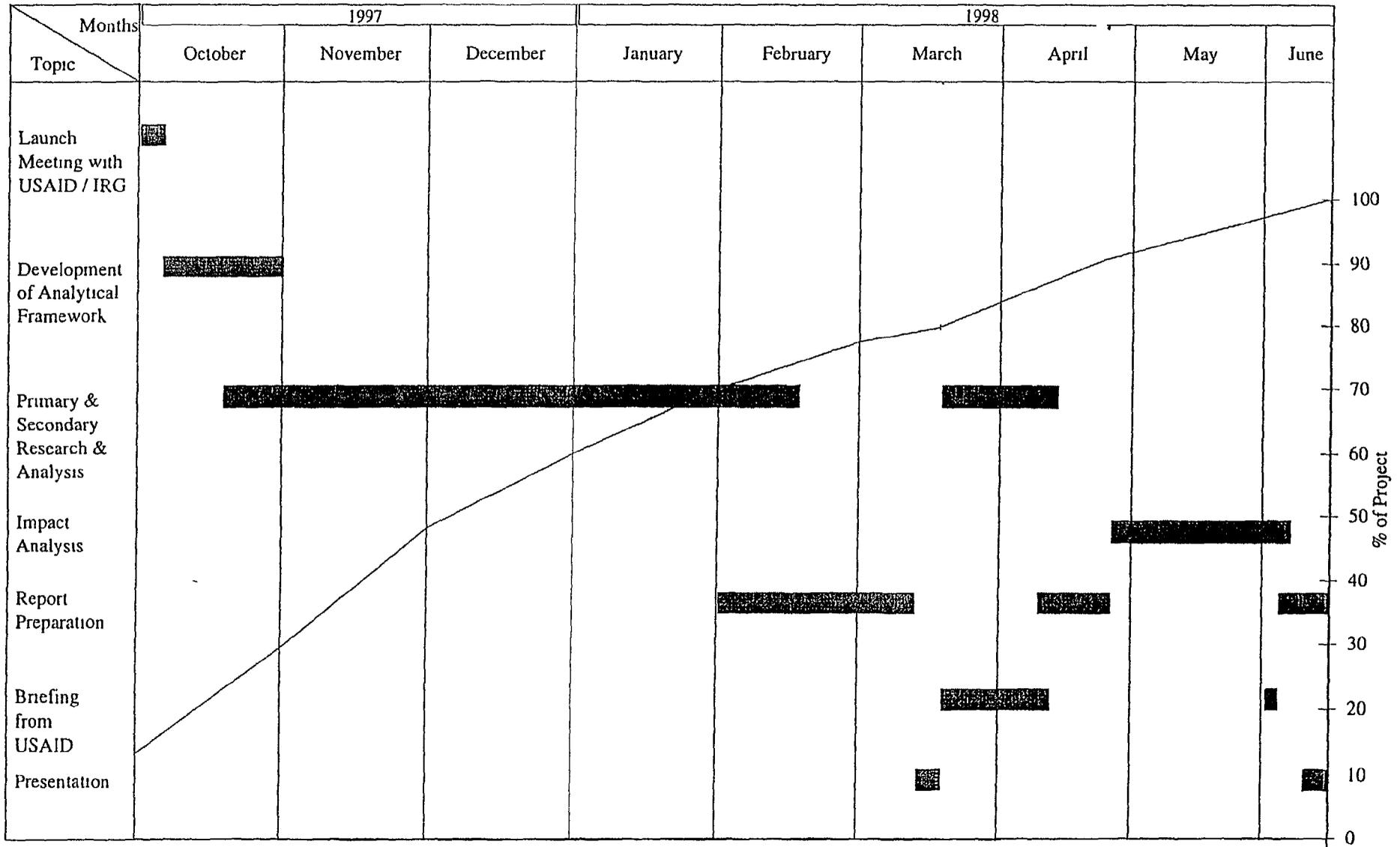


7

Overall 5 months of time has been invested in this project



PROJECT II POLICY SURVEY (GANTT CHART)



Source ACG Models & Databases ACG Analysis

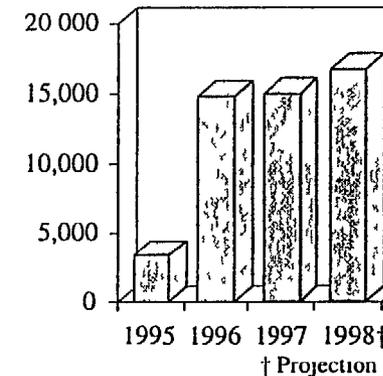
SOURCES OF INFORMATION



ACG Proprietary Resources

- Business Journals Database™ (1995, 1996, 1997, 1998)
- Captive Power Project Track™
- National Project Track™
- State Database™
- Transmission and Distribution Database™
- Electricity Intensity Analysis

Records in Business Journals Database™



Government Reports and Publications

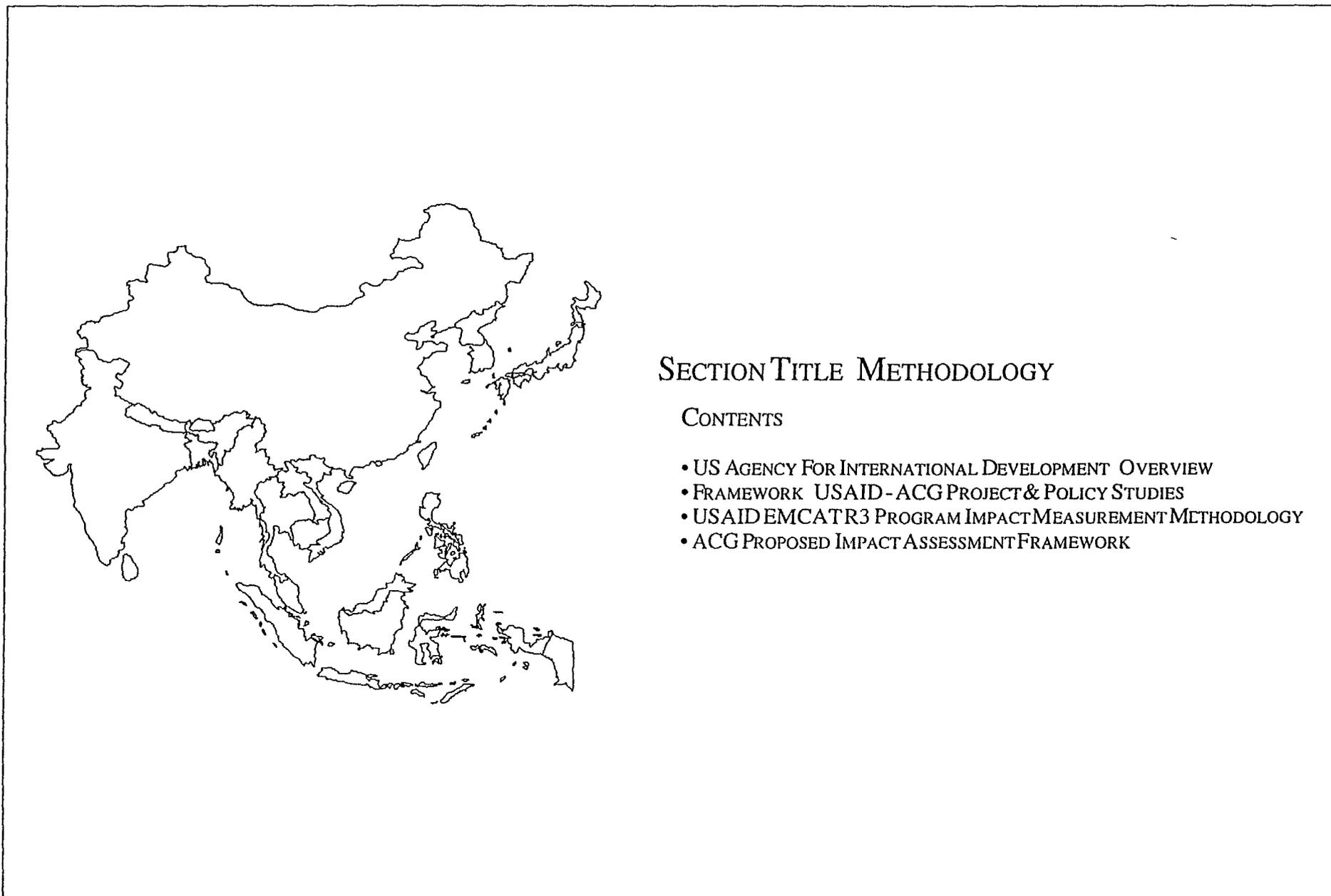
- Annual Report on the working of SEB's (1990, 1994, 1997)
- Census Of India - 1991
- Compendium of Thermal Power Stations in India, Central Board of Irrigation and Power
- Fifteenth Electric Power Survey of India, Central Electricity Authority
- Fourteenth Electric Power Survey of India, Central Electricity Authority
- Profiles of Power Utilities and non Utilities in India - 1997 Council Of Power Utilities of India
- CEA General Review
- Power Pool Arrangements and Economic Load Despatch
- Power Gen Asia Report, 1995, 1996 & 1997
- Power Gen Americas 1994 Conference Papers
- Indian Electricity Act, 1910
- The Electricity (Supply) Act, 1948

Periodicals and Magazines

- Business India
- Business Standard
- Business Today
- Business World
- Manorama Year Book 1996, 1998
- Power Line
- The Economic Times
- The Financial Express
- The Observer

Directories and Miscellaneous Publications

- Commercial and Industrial Guide, 1996
- Directory of Key Personnel in the Power Supply Industry - 1997
- Kothari's Industrial Directory of India 1996-97, Kothari Enterprise
- Power Pool Arrangements and Economical Load Despatch



SECTION TITLE METHODOLOGY

CONTENTS

- US AGENCY FOR INTERNATIONAL DEVELOPMENT OVERVIEW
- FRAMEWORK USAID - ACG PROJECT & POLICY STUDIES
- USAID EMCATR3 PROGRAM IMPACT MEASUREMENT METHODOLOGY
- ACG PROPOSED IMPACT ASSESSMENT FRAMEWORK

Source

10

US AGENCY FOR INTERNATIONAL DEVELOPMENT OVERVIEW



US Agency for International Development has been in India since 1951. Main goal of this organization is to help India achieve sustainable development.

USAID's main Projects in the energy sector are

- **Programme for Acceleration of Commercial Energy Research (PACER)**

Promotes the development of technological innovation pertaining to the energy sector. Its priorities include technologies to tap renewable energy, coal conversion technologies and technologies to improve energy efficiency. It is managed by ICICI and provides financial help of up to US \$3 million to various research institutions and manufacturers.

- **Energy Management Consultation & Training Project (EMCAT)**

Biggest Programme in the energy sector. Central aim of the project is efficient supply and use of energy. Project provides technical assistance, training and equipment to improve management by public utilities, increase the availability of reliable, efficient energy and help promote policy reforms including the pricing of power.

Main components under the EMCAT are

Renewable Energy Commercialization (RECOMM) - It is a \$3 million contract given to Wimrock, US. This programme seeks to link private sector capabilities in both the countries to the task of meeting expanding energy needs, particularly in the rural areas.

Demand Side Management (DSM) - It is being implemented for Ahmedabad Electricity Company. DSM is a five year programme expected to be completed by the year 2000.

Energy Partnership Programme (EPP) - Programme helps to transform SEBs into autonomous bodies, technological support to increase efficiency and to decrease greenhouse gas emissions.

Besides the above programmes, USAID has also launched a programme with ICICI to fund the clean technologies.

- **Greenhouse Gas Pollution Prevention Project (GEEP)** - It is a Rs 60 crore programme being implemented with IDBI. It aims at reducing emissions of greenhouse gases per unit of electricity generated in India.

- **India Private Power Initiative (IPPI)**

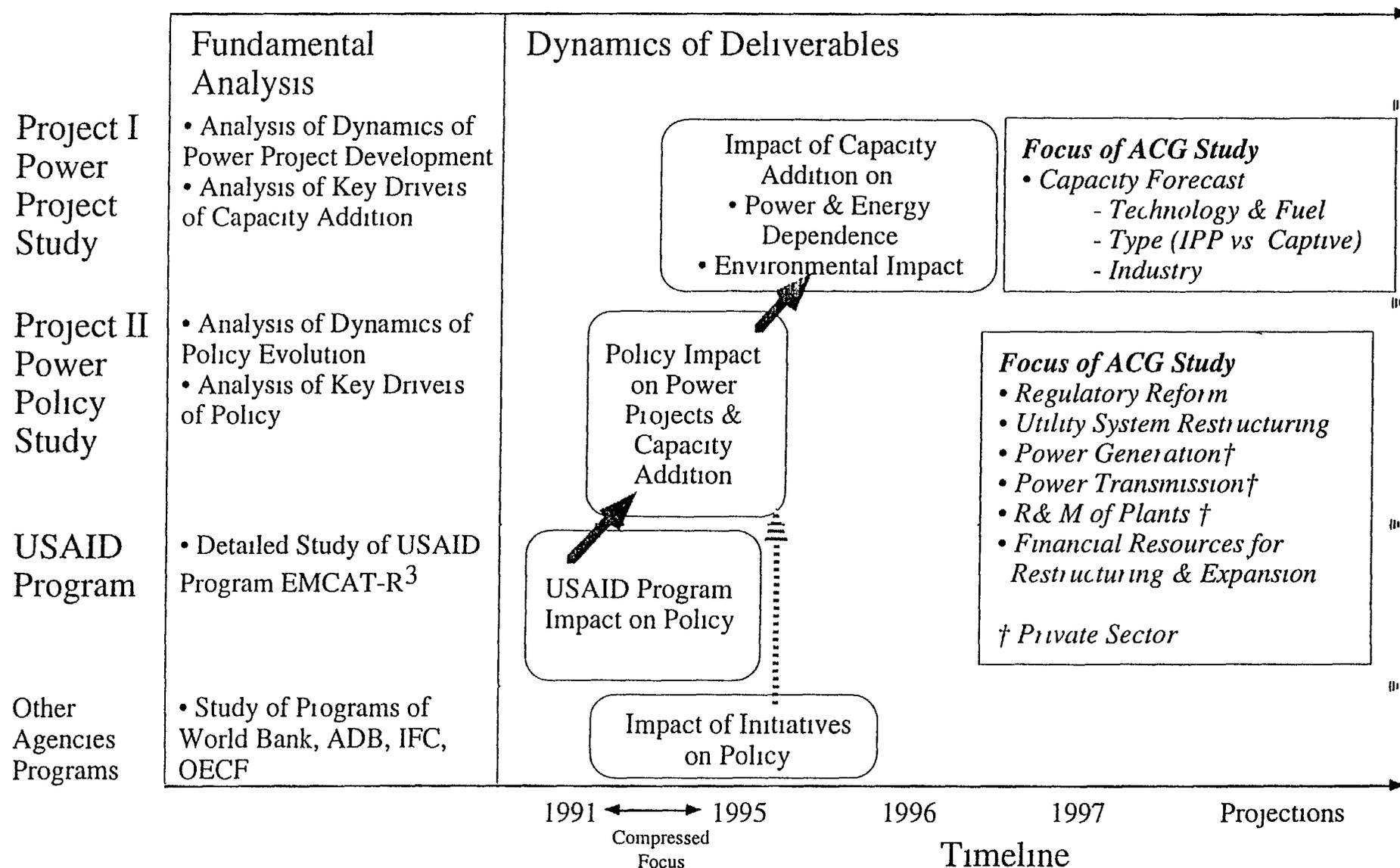
Intended to help India meet its enormous need for additional generation capacity. It helps SEBs and the government agencies to devise ways of evaluation numerous project proposals now pending, helps with documentation for international financing and legal aspects, and provides training on private sector participation in the power sector. IPPI also helps the GoI formulate the policies necessary to get the projects off the ground.

Source: Powerline, Industry & Government Reports, ACG Models & Databases, ACG Analysis



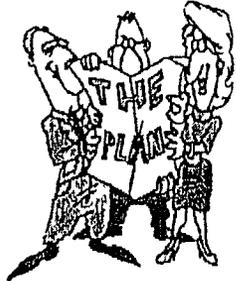
FRAMEWORK USAID - ACG PROJECT & POLICY STUDIES

- ACG will conduct the two studies synchronously for maximum analytical value





USAID EMCAT R3 PROGRAM IMPACT MEASUREMENT METHODOLOGY



• ACG has developed a 6 Step Methodology for evaluating USAID's EMCAT R³ Program Impact on Indian Power Sector

DYNAMICS OF CHANGE

1

- Analysis of Power Policy Evolution Mechanism
- Assessment of Agencies involved in influencing policy change
- Research on Policy Evolution at National as well as State level (As Power is a Concurrent subject)



USAID INITIATIVES

2

- Identification of USAID Initiatives for the EMCAT R³ program
- Organization of Initiatives according to Program Tasks



FIELD OBSERVATION

3

- Restructuring Business Journals Database to search 34,000 records of power and infrastructure development
- Classification of Information to facilitate USAID Impact Evaluation



CORRELATION

4

- Identification & Organization of key milestones identified (1,200)
- Development of Framework to classify milestones
- Analysis of correlation between USAID Initiatives and power sector developments



IMPACT

5

- Development of Impact Rating Criteria, Framework, & Scales
- USAID Initiatives Impact Evaluation



EMCAT REVISED IMPACT ASSESSMENT

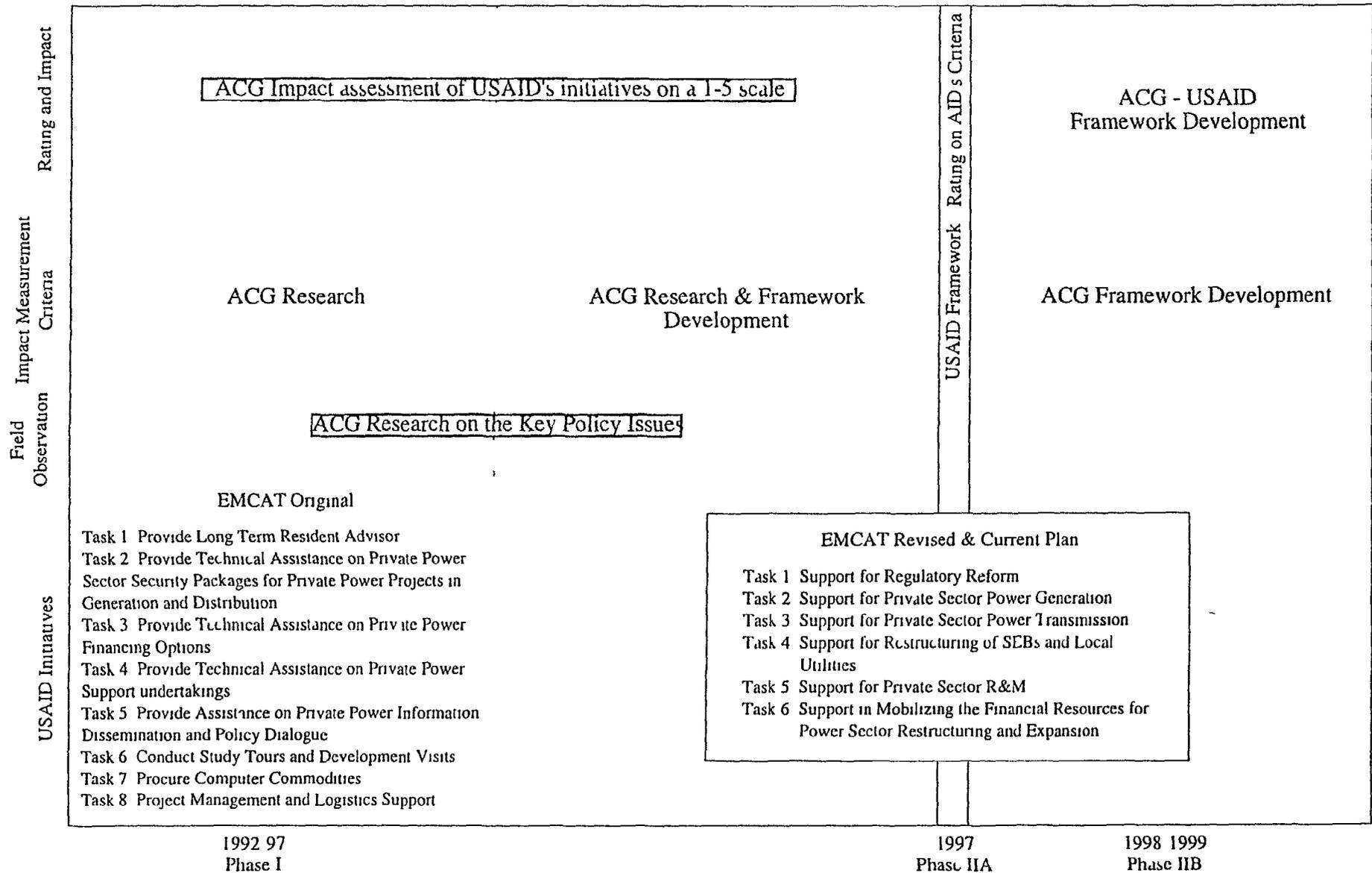
6

- Impact Evaluation for EMCAT Revised Program (Via Step 2-5)
- Updates to be provided to USAID on a bi-annual basis





ACG PROPOSED IMPACT ASSESSMENT FRAMEWORK



Source ACG Methodology



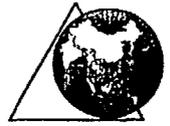
ACG has developed a 6 Step Methodology for evaluating USAID's EMCAT R³ Program Impact on Indian Power Sector

- 1 **DYNAMICS OF CHANGE**
Analysis of Power Policy Evolution Mechanism
Assessment of Agencies involved in influencing policy change
Research on Policy Evolution at National as well as State level
(As Power is a Concurrent subject)
- 2 **USAID INITIATIVES**
Identification of USAID Initiatives for the EMCAT R³ program
Organization of Initiatives according to Program Tasks
- 3 **FIELD OBSERVATION**
Restructuring Business Journals Database to search 34 000 records of power and infrastructure development.
Classification of Information to facilitate USAID Impact Evaluation
- 4 **CORRELATION**
Identification & Organization of key milestones identified (1 200)
Development of Framework to classify milestones
Analysis of correlation between USAID Initiatives and power sector developments
- 5 **IMPACT**
Development of Impact Rating Criteria Framework & Scales
USAID Initiatives Impact Evaluation
- 6 **EMCAT REVISED IMPACT ASSESSMENT**
Impact Evaluation for EMCAT Revised Program (Via Step 2.5)
Updates to be provided to USAID on a bi annual basis

SECTION TITLE DYNAMICS OF CHANGE

CONTENTS

- OVERVIEW OF CENTRAL & STATE POLICY EVOLUTION FRAMEWORK
- THE INDIAN ELECTRICITY ACT, 1910
- THE ELECTRICITY (SUPPLY) ACT, 1948
- STRUCTURE & DETAILS - ELECTRICITY ACT, 1910 & 1948
- ELECTRICITY SUPPLY ACT (1948) AMENDMENTS & NOTIFICATIONS 1991-95



OVERVIEW OF CENTRAL & STATE POLICY EVOLUTION FRAMEWORK

Federal



Key Players

Ministry Of Power (MoP)

Central Electricity Authority

Planning Commission
Energy Policy Unit

• Assist the Ministry in framing policies

Sets Up Committee

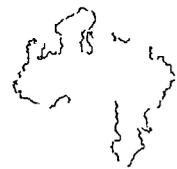
Recommendations of the Committees

Change in Policies made effective by Amendment of Existing Acts/Rules by the Central Government via Gazette notifications issued by the Ministry

Bill brought in the Parliament

Bills made into Law with the consent of The President Of India

State



Key Players

Power/Energy Department under the State Government

Independent Committees set up by State Governments

Multilateral Agencies Involved in funding

Recommendations of the Committees

Guidelines laid down by funding agencies

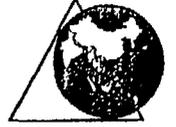
State Governments and State Electricity Boards

Feedback of State Governments and State Electricity Boards

Chief Ministers Common Minimum Action Plan

Draft Bill formulated

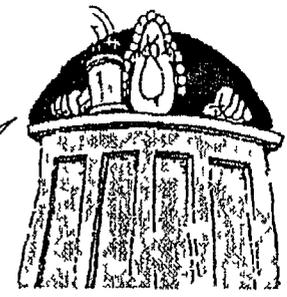
Bill is passed in the State Assembly



THE INDIAN ELECTRICITY ACT, 1910

- Electricity Act of 1887
The first legislation to regulate the generation, supply and use of electricity
Repealed & replaced by Indian Electricity Act, 1903
- Indian Electricity Act, 1903 (3 of 1903)
Considered a tentative Measure
- 1907 Government decides to amend the legislation
- Indian Electricity Act, 1910 (9 of 1910)
The Indian Electricity Bill was passed by the Legislative Council on 18th March, 1910 and it became the Indian Electricity Act, 1910. It came into force from 1st January, 1911

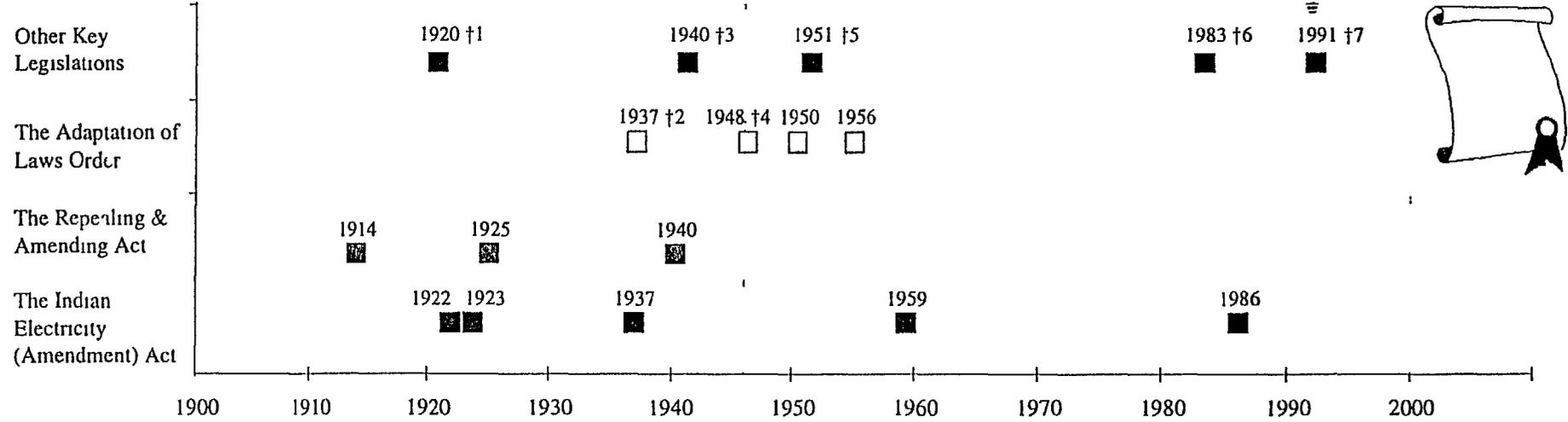
" The practical effect of the present system has been delay, as it has hitherto been virtually impossible for a company to obtain a license under two or three years. Delays of this nature are obviously most detrimental to the attraction of capital for the development of resources of the country as the financial position may and in fact frequently does, change completely between the date of application and the granting of the license "



- 15 October 1991 Amendment to Section 6 Clause (b) Subsection 1 of Act 9 of 1910
- The licence granted was changed from 20 to 30 years and renewal from 10 to twenty years
- Note This was to accommodate the requirement of IPPs. Most amendments between 1991-95 apply to Electricity (Supply) Act of 1948

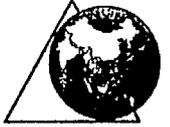
† Quote from Indian Electricity Act 1910

Evolution of The Indian Electricity Act, 1910



- †1 The Devaluation Act
- †2 GoI (Adaptation of Indian Laws) Order
- †3 The Arbitration Act
- †4 The Indian Independence (Adaptation of Central Acts & Ordinances) Order
- †5 The Part B States (Laws) Act
- †6 The Delegated Legislation Provisions (Amendment) Act
- †7 The Electricity Laws (Amendment) Act

Source The Indian Electricity Act 1910, ACG Methodology, ACG Analysis



THE ELECTRICITY (SUPPLY) ACT, 1948

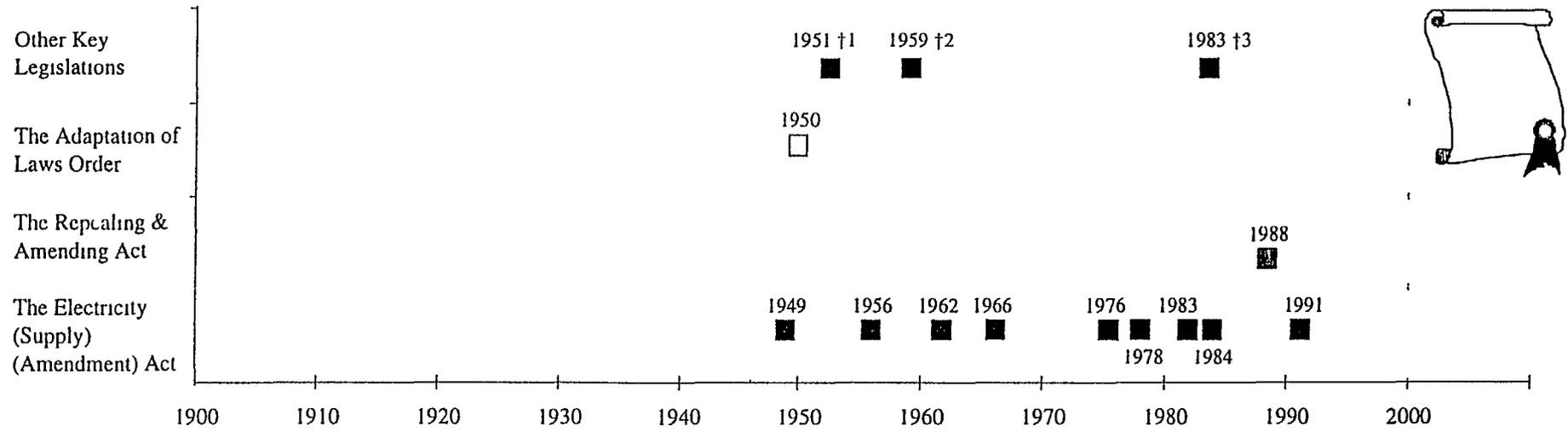
Objective To provide for the coordinated development of electricity in India there was a need of a specific legislation and to meet this, on the broad lines of the Electricity (Supply) Act 1926 in force in the United Kingdom, the Electricity (Supply) Bill, 1948 was introduced in the central legislature as a specific legislation to facilitate the establishment of regional coordination in the development of electricity transcending the geographic limits of local bodies

• Objective considered beyond scope of The Indian Electricity Act 1910

• Key Developments incorporated in the Act
 - Institution of the Central Electricity Authority (CEA)
 Formalization of
 State Electricity Boards
 - Generating Companies
 State Electricity Consultative Councils
 Local Advisory Committees

• The Electricity (Supply) Bill 1948 was passed by the Central Legislature on 10th September, 1948 and it became the The Electricity (Supply) Act, 1948 (54 of 1948)

Evolution of The Electricity (Supply) Act, 1948



†1 The Part B State (Laws) Act
 †2 The Indian Electricity (Amendment) Act
 †3 The Delegated Legislation Provisions (Amendment) Act 1983



STRUCTURE & DETAILS - ELECTRICITY ACT, 1910 & ELECTRICITY SUPPLY ACT (1948)

Act	Part	Sections	Title	Details & Analysis	Study Segment
The Indian Electricity Act 1910	I	1 - 2	Preliminary	• Title Extent, Commencement, & Definition	---
	II	3 - 27	Supply of Energy	• Licenses (Grant, Amendment, Revocation, Purchase) • Works (Procedures & Guidelines) • Supply (Procedures & Guidelines)	---
	III	28 - 30	Supply Transmission & Use of Energy by Non-Licensees	• Procedures & Guidelines • Control of Transmission & Use of Energy	---
	IV	31 - 58	General	• Protective Causes (Sites & Regulations) • Administration & Rules (Structure, Officers, & Duties) • Criminal Offences & Procedures (Definitions & Penalties) • Supplementary (Inter-Act Relations & Arbitration)	---
The Electricity (Supply) Act 1948	I	1 - 2	Introductory	• Title Extent, Commencement, & Interpretation	---
	II	3 - 4	The Central Electricity Authority (CEA)	• Constitution, Powers, Directions	---
	III	5 - 17	• State Electricity Boards • Generating Companies • State Electricity Legislative Councils • Local Advisory Committees	• Constitution, Powers, Directions	---
	IV	18 - 27	Powers & Duties of - State Electricity Boards Generating Companies	• Powers, Obligations, Loans	---
	V	28 - 58	The Works & Trading Procedure of the Board & the Generating Company	• Schemes (Development Approval, Alteration) • Relation between CEA & SEBs Power Purchase • Tariff Issues	---
	VI	59 - 69	The Board's Finance, Accounts, & Audit	• General Principles • State - SEB Relations Budgets, Loans, Interest, Depreciation • Accounts & Audits	---
	VII	70 - 83	Miscellaneous	• Effect of Other Laws • Reporting Arbitration, Offences, Penalties • State Legislature	---
	-	I - VII	Schedules	• (See Separate Slide)	-

Source The Indian Electricity Act, 1910 & The Electricity (Supply) Act 1948 ACG Methodology ACG Analysis



INDIAN ELECTRICITY (SUPPLY) ACT, 1948 NOTIFICATIONS 1991-95

	1991	1992	1993	1994	1995
Tariff	i ■	■ ■ † RoR of 12% on Equity Capital †1 † RoR raised from 12% to 16% on Equity Capital		■ ■ †3 †2 † Fixed and O&M charges modified	■ †4
Depreciation Norms	o ■ s ■	■ ■ †5 □		■ ■ †6 □	■ ■ †7 □
Operating Norms		■		■	■

Key Issues

- i Insertion of Section 43A for tariffs operating norms depreciation for a generating company
- o Omission of Sub Section (1) and (3A)
- s Substitution of Competent Government in place of Promoting Government and Sub Section (3) in place of the earlier sub-section
- †1 Factors for determining tariffs and fixed charges operating norms for thermal gas and hydro plants specified
- †2 Abolished fixation of tariffs for 5 years
- †3 Tariff determination in deviation of norms other than norms regarding PLFs and operations
- †4 Tariff and Operating Norms for Hydro based plants
- †5 New depreciation norms and rates for statement of accounts commencing from 1st April 1992
- †6 New depreciation norms and rates to be applicable for statement of accounts from 1st April 1994 instead of 1st April 1992
- †7 New depreciation norms and rates to be applicable from 1st April 1995 for NTPC instead of 1st April 1994

Comments

- The insertion of Section 43A in 1991 paved the way for the privatization of the power sector
- The Section confers on the Government/Authority to notify tariffs operating norms rates of depreciation and reasonable rate of return for the generating companies

Legend

Section			
43A	■		a addition
75A	■	← □ →	s substitution
68	□		i insertion
			o omission



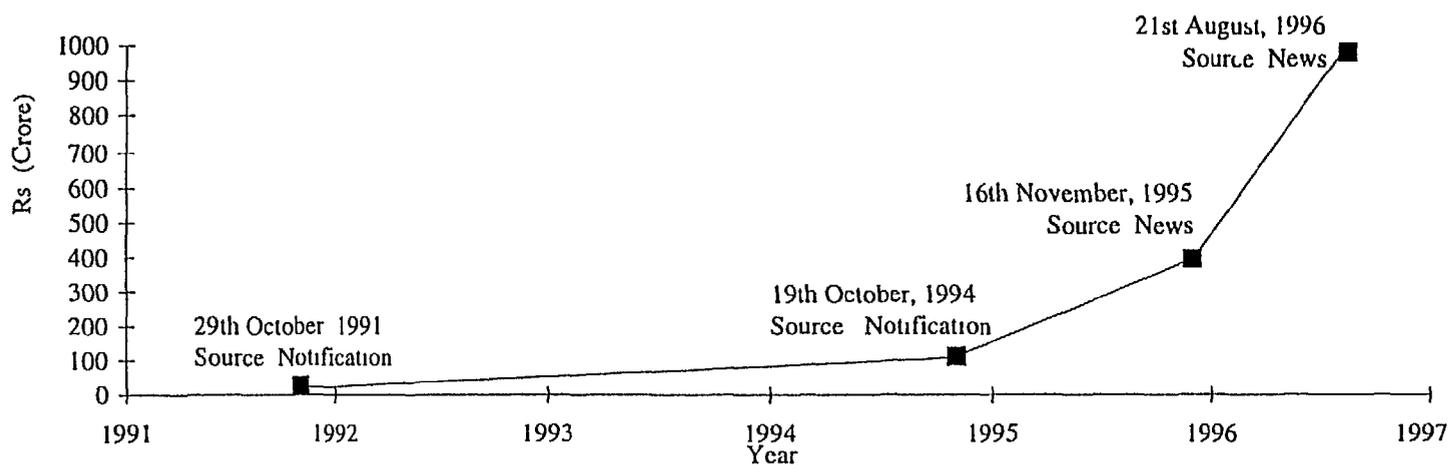
ELECTRICITY SUPPLY ACT (1948) AMENDMENTS & NOTIFICATIONS - 1991 TO 1995

Definitions	■ ^s ■ ⁱ				
Objects, Jurisdiction etc of Generating Companies	■ ^o ■ ^s				
Concurrence from CEA	■ ^s ■ ^{†1}			■ ^{†2}	■ ^{†3}
Miscellaneous	□ ^s □ ^a □ ^o □ ⁱ				
	1991	1992	1993	1994	1995

†1 Project with capital expenditure > Rs 25 crore to be approved by CEA
 †2 Project with capital expenditure > Rs 100 crore to be approved by CEA
 †3 Project with capital expenditure > Rs 400 crore to be approved by CEA

Section 2	■	□ ^a Addition
15A	■	□ ^s Substitution
29	■ [†]	□ ⁱ Insertion
Miscellaneous	□	□ ^o Omission

Capital Expenditure Above which Clearance from CEA is required



† Sub Section (1) of Section 29 of The Indian Electricity (Supply) Act, 1948, gives power to the Central Government to fix the amount of capital expenditure on schemes, above which such schemes should be submitted to the Authority for concurrence

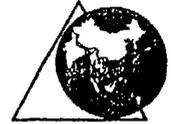


<p>ACG has developed a 6 Step Methodology for evaluating USAID's EMCAT R³ Program Impact on Indian Power Sector</p>	1	DYNAMICS OF CHANGE Analysis of Power Policy Evolution Mechanism Assessment of Agencies involved in influencing policy change Research on Policy Evolution at National as well as State level (As Power is a Concurrent subject)
	2	USAID INITIATIVES Identification of USAID Initiatives for the EMCAT R ³ program Organization of Initiatives according to Program Tasks
	3	FIELD OBSERVATION Restructuring Business Journals Database to search 34 000 records of power and infrastructure development Classification of Information to facilitate USAID Impact Evaluation
	4	CORRELATION Identification & Organization of key milestones identified (1 200) Development of Framework to classify milestones Analysis of correlation between USAID Initiatives and power sector developments
	5	IMPACT Development of Impact Rating Criteria Framework & Scales USAID Initiatives Impact Evaluation
	6	EMCAT R³ REVISIT IMPACT ASSESSMENT Impact Evaluation for EMCAT Revised Program (Via Step 2.3) Updates to be provided to USAID on a bi annual basis

SECTION TITLE USAID INITIATIVES

CONTENTS

- USAID INITIATIVES OVERVIEW
- ORIGINAL EMCAT R³ (1992-MAY 1997)
- REVISED EMCAT R³ (JUNE 1997-DECEMBER 1999)
- INDIA PRIVATE POWER INITIATIVE PROGRAM



USAID INITIATIVES OVERVIEW

USAID Initiatives Overview

- USAID initiated the EMCAT project in 1992
- Two principle components of EMCAT were
 - Supply Side Component - aimed at modernizing, rehabilitating and improving management of existing energy systems and
 - Demand Side Component - aimed at promoting investments by electricity end users in technologies that enhance energy efficiency
- Primary objective of EMCAT's first phase supply side activities was increased efficiency in power generation, transmission and distribution
- EMCAT was later revised with a focus on creation of a financially healthy power industry through regulation of a commercialized and increasingly private structure
- EMCAT was thus extended from May 1997 to December 31, 1999

EMCAT Original

Task 1 Provide Long Term Resident Advisor
Task 2 Provide Technical Assistance on Private Power Sector Security Packages for Private Power Projects in Generation and Distribution
Task 3 Provide Technical Assistance on Private Power Financing Options
Task 4 Provide Technical Assistance on Private Power Support undertakings
Task 5 Provide Assistance on Private Power Information Dissemination and Policy Dialogue
Task 6 Conduct Study Tours and Development Visits
Task 7 Procure Computer Commodities
Task 8 Project Management and Logistics Support

1992-1997

EMCAT Revised

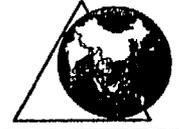
Task 1 Support for Regulatory Reform
Task 2 Support for Private Sector Power Generation
Task 3 Support for Private Sector Power Transmission
Task 4 Support for Restructuring of SEBs and Local Utilities
Task 5 Support for Private Sector R&M
Task 6 Support in Mobilizing the Financial Resources for Power Sector Restructuring and Expansion

1997-1999



ORIGINAL EMCAT R3 (1992-MAY 1997)

Task	EMCAT Original	USAID Initiatives
Task 1	Provide Long Term Resident Advisor	
Task 2	Provide Technical Assistance on Private Power Sector Security Packages for Private Power Projects in Generation and Distribution	<p>PPAs</p> <ul style="list-style-type: none"> • Preparation of Model PPA for hydro electric plant (IN PROGRESS Submitted for review by PFC, SEBs) • Preparation of Model PPA for coal fired thermal plant (IN PROGRESS, Undertaken by MoF Review completed January 96) • Finalization of Hydro, NG/Oil PPAs by March 1997 • Power Purchase Agreements (FS June 1997) <p>FSA</p> <ul style="list-style-type: none"> • Task Modified November 1995 MoP developing FSA Proposal to provide review of MoP FSA (1996) <p>Transmission Agreements</p> <ul style="list-style-type: none"> • Prepared model transmission / interconnection agreement Final Document submitted in April 1996 • Provide technical assistance on PPAs with Power Grid (Not Initiated) • Prepared distribution management agreements (1996) • Provide workshop assistance on distribution privatization (To provide support on as needed basis) • Field Support (FS) training on Managing Transition to Private Distribution Companies conducted in August 1997
Task 3	Provide Technical Assistance on Private Power Financing Options	<p>Tariffs & Costs</p> <ul style="list-style-type: none"> • Tariff Structure and Analysis (IPPI October 1994) • Tariff Analysis (PS June 1997) • Advanced Utility Costing and Pricing Techniques and Utility Rate Design was conducted for 17 PFC, SEB and generating company personnel by Penn State University and Louisville Gas & Electric Company at Monroeville PA and Louisville KY (1996) • Finalization of Capital cost Database (COMPLETED) (1996) <p>Financial Model</p> <ul style="list-style-type: none"> • Financial Analysis & Modeling (IPPI March 1995) • Project Finance (IPPI May 1995) • Security Package Agreements (IPPI, August 1995) • Finalization of Spreadsheet Financial Model & Training Course on the financial model (COMPLETED September 1995) • Financial Resource Mobilization Training Two 1 week courses conducted at NOIDA (Bechtel Consulting) (1996) • Study Tour and Seminar on Mobilization of Internal Resources (2 week trip to New York and Washington) (End 1996) • Investment Appraisal and Mgmt Training Course Conducted at Faridabad (Glenn P Jenkins & Associates) (1996) • Workshop assistance on finance and financial modeling (NOT INITIATED)



ORIGINAL EMCAT R3 (1992-MAY 1997) CONTD

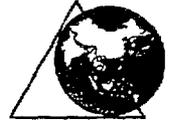
Task	EMCAT Original	USAID Initiatives
Task 4	Provide Technical Assistance on Private Power Support undertakings	<p>Competitive Bidding</p> <ul style="list-style-type: none"> • Preparation of Competitive bidding documentation (INITIATED) (1996) • Providing Workshop Assistance on Competitive bidding (Not Initiated) • Bid Solicitation, Project Appraisal & Negotiation (IPPI January 1995) • Competitive Bidding (FS January 1997) <p>FSA</p> <ul style="list-style-type: none"> • Fuel Supply, Pricing and Contracts (FS, May 1997)
Task 5	Provide Assistance on Private Power Information Dissemination and Policy Dialogue	<p>Regulation & Restructuring</p> <ul style="list-style-type: none"> • IPPI Executive Seminar on "Regulation & Restructuring" conducted in November 1995 • Provided Technical Assistance to Working Group of HSEB (1996) • Interaction with APSEB, DESU / DVB, GEB, HSEB KEB, Meghalaya SEB OSEB, RSEB & TNEB for possible participation by SEB as focus of EMCAT support (1996) • Interaction with APSEB, DESU / DVB, HSEB, KEB, OSEB & RSEB regarding USEA Utility Partnership participation (1996) • Technical assistance on Human Resources and Communication to the Working Group of HSEB (1996) • Field Support training on Human Resources Development in August 1996 • Technical assistance on SEB restructuring, Prepared and submitted draft credit-rating methodology to support PFC private sector lending (1996) • Presentation to PFC on Experiences in Restructuring (1996) • Field Support (FS) Training on "Power Sector Restructuring & Regulation" conducted in March 1997 • Assisting Design of EMCAT TA Reform module for HSEB (In Progress) • Executive Seminar at Hyderabad hosted by USAID (In Progress) <p>Private Power Policy Dialogue</p> <ul style="list-style-type: none"> • Private Sector Participation in electric Industry (IPPI June 1993) • Conference on Private Power Issue sponsored by Administrative Staff College of India (January, 1996) • PFC Workshop on Strategic Planning (June 1996) • Technical Assistance Program o Strategic Planning (TA-29) Presentation to Confederation of Indian Industry (CII) (September 1996)
Task 6	Conduct Study Tours and Development Visits	<ul style="list-style-type: none"> • Re focussed EMCAT program de-emphasizes US Study Tours (Not Initiated)
Task 7	Procure Computer Commodities	In Progress (PCs procured for IPPD Office)
Task 8	Project Management and Logistics Support	

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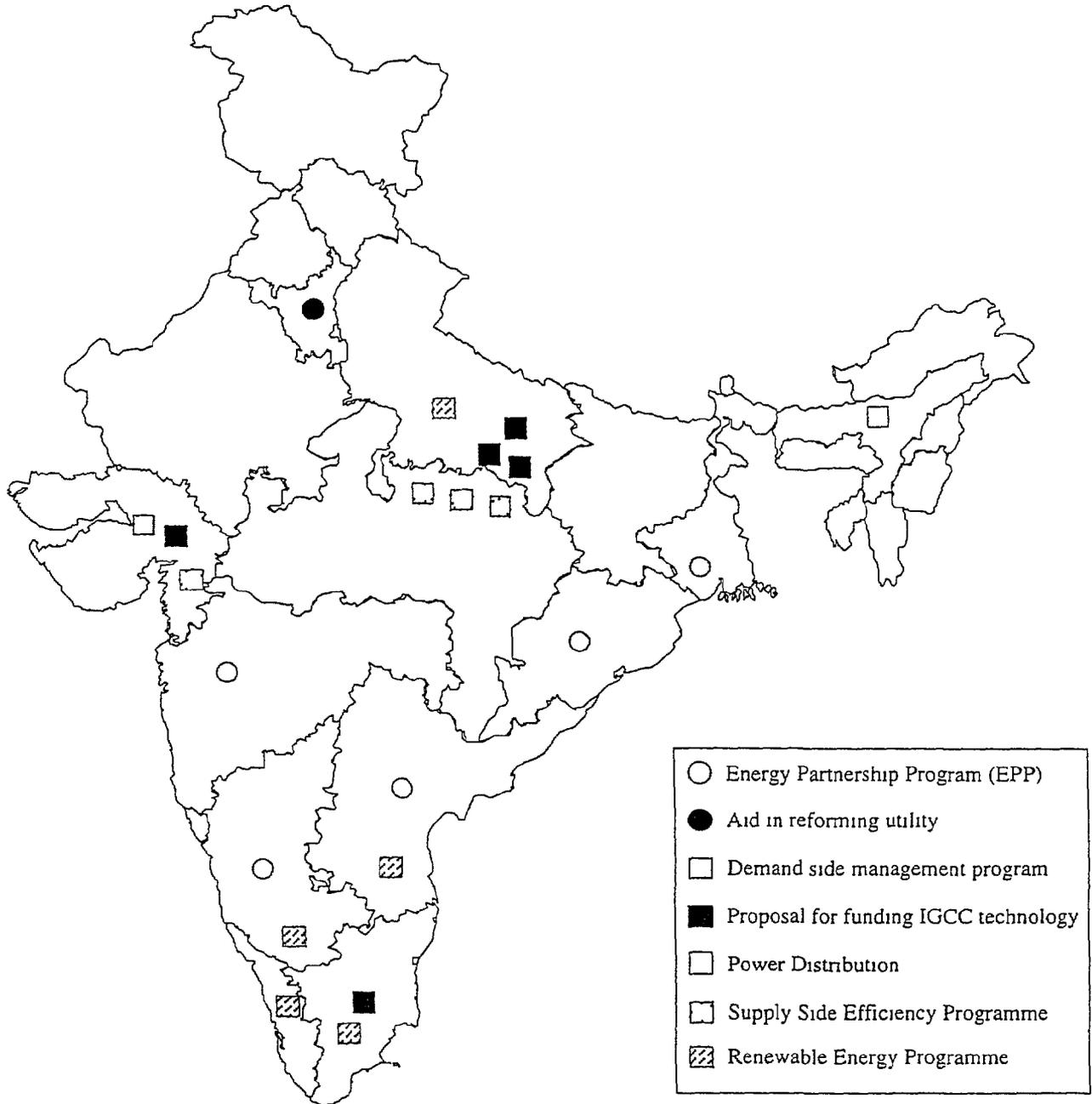


REVISED EMCAT R3 (JUNE 1997-DECEMBER 1999)

Task No	Topic	Details
1	Support for Regulatory Reform	<ul style="list-style-type: none"> • Provide assistance to the GoI and State governments in support of the GoI's ongoing effort, as set forth in the Ministry of Power's Common Minimum National Action Plan for Power to introduce regulatory reform at the central & state levels of the electric power sector of India Goals of the effort include <ul style="list-style-type: none"> Rationalizing the Delivery of Power <ul style="list-style-type: none"> - Electricity Tariffs which recover costs of delivering power to consumers Achieving financial health for the Indian power sector - Improving efficiency, quantity & quality of power - Reducing stress on scarce resources and reducing global environmental pollution
2	Support for Private Sector Power Generation	<ul style="list-style-type: none"> • Provide assistance to GoI and the State Governments in support of the GoI's efforts to maintain a facilitating environment for private investment in electric power generation, in order to obtain urgently needed new power supplies from enterprises operating on commercial bases with efficient technologies with expected results of increased average plant load factors, an increased share of power from clean technologies, and a decreased level of environmental pollution from power generation sources
3	Support for Private Sector Power Transmission	Provide assistance to the GOI in implementing the aspects of the MoP's Common Minimum National Action Plan for Power which relate to the encouragement of private sector participation in electric power transmission, to improve nation wide efficiency of electric power utilization through private funding and operation of needed new transmission facilities for which financing cannot be obtained in the public sector
4	Support for Restructuring of SEBs and Local Utilities	To provide assistance in support of the GOI program for restructuring SEBs and local utilities for efficient commercial operation and privatization, with results to include reduction of present unacceptable levels of technical and theft power losses in distribution systems, financial self sufficiency for component sectors of the electric power industry and a substantial improvement in the efficiency with which electric power is utilized in India
5	Support for Private Sector R&M	<ul style="list-style-type: none"> • Provide assistance to GoI and State Governments in their efforts to encourage private investment in R&M of existing power plants owned by the public sector for which the funding and other resources are not available in the public sector
6	Support in Mobilizing the Financial Resources for Power Sector Restructuring and Expansion	<ul style="list-style-type: none"> • Provide assistance to GoI efforts to sources of funding, particularly from the private sector and with emphasis upon the domestic private sector, for expanding and upgrading the capability of the Indian electric power industry to support the GoI's program of commercialization, privatization and self sufficiency for the industry



USAID INITIATIVES BY STATES



Source Industry & Government Reports ACG Models & Databases ACG Analysis



SECTION TITLE FIELD OBSERVATIONS FRAMEWORK

CONTENTS

- KEY PARAMETERS FOR SELECTION OF STATE FOR ANALYSIS
- RATIONALE OF SELECTION OF STATE FOR ANALYSIS
- KEY PARAMETERS DEFINITIONS
- RATING FRAMEWORK FOR FIELD OBSERVATIONS



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KEY PARAMETERS FOR SELECTION OF STATE FOR ANALYSIS



- Key parameters like Installed base employee strength etc. have among others have been used to arrive at selecting the various state that need to be included in the policy analysis

Key Parameters

1 Installed Base of the State

High installed base indicates high priority by the the state in the power development activities. The top ten states in terms of installed capacity has been included in the analysis

2 Employee / 1 000 Consumers

This indicates the over staffed SEB s. This in turn is an indicator to the financial position of the SEB. States like Meghalaya and Assam are heavily overstaffed. These states are included in the analysis based on the above criteria

3 New Capacity Proposed

Higher the capacity proposed higher is the initiative of the state in the power sector activities. This to some extent gives a feel for the investors confidence in the state

4 Initiative taken in Restructuring

The extend to which the state has been involved in the restructuring process has been taken into account

5 Transmission and distribution Losses

Higher T&D losses implies high loss of revenue of SEB. Hence states with higher T&D losses are included in the analysis

6 Peak Shortage

The state with higher peak shortage has been considered taking into account the fact that these states would be more active in the reform process of the power sector

The states selected for analysis include 17 of the 26 states in India and the main criteria for selecting these state are the level of restructuring activity in the state and the installed capacity of the state



RATIONALE OF SELECTION OF STATE FOR ANALYSIS



† Shaded portion indicates the states chosen for analysis

States	National Rank		Other Rationale
	Installed Capacity	Peak Shortage	
Andhra Pradesh	4	5	• The state has taken initiated in reform and restructuring activities
Assam	16	21	• Assam has been included on basis of high employee to consumer ratio and high T&D losses in the state
Bihar	12	1	• Bihar has the highest peak shortage The T&D losses is high In addition to this the Bihar SEB is overstaffed
Delhi	15	19	• Delhi has the highest T&D loss in the country In addition the power utility is overstaffed
Gujarat	7	13	• There has been some level of activities in the state for the restructuring the SEB, and reforming the power sector
Haryana	14	11	• Haryana is very active in restructuring the SEB
Karnataka	9	3	• State has taken various steps for restructuring
Kerala	13	4	• Kerala has high peak shortage The state has low agricultural tariff
Madhya Pradesh	5	2	• There has been some level of activities in the state for the restructuring process
Maharashtra	1	16	• Maharashtra has the highest installed capacity The state is going ahead with restructuring activities with the help of World Bank
Meghalaya	17	22	• Meghalaya has been included on basis of high employee to consumer ratio and high T&D losses in the state
Orissa	11	14	• The state was first to implement reforms The state has been included based on its restructuring activities
Punjab	6	17	• Punjab figures out in top ten states in terms of installed capacity The state has low agricultural tariff and the SEB is overstaffed
Rajasthan	8	20	• Rajasthan has taken various steps in reform in the power sector in terms of installed capacity the state is eighth in the country
Tamil Nadu	2	12	• It has taken some initiative in reforming the power sector Agricultural tariff in the state is nil
Uttar Pradesh	3	5	• The state was among the first to start the reforms in power sector There has been high level of political instability in the state
West Bengal	10	15	• The state has taken certain steps for restructuring the utility It has a high employee/consumer ratio and an above average T&D loss

† Bolded rank indicate criteria for selection

Source Industry & Government Reports, ACG Models & Databases ACG Analysis



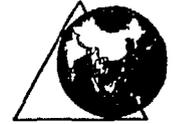
KEY PARAMETERS DEFINITIONS

- The key parameters chosen for the evaluating the policy impact have been selected keeping in mind
 - The consistency requirement across six major sectors being evaluated
 - Four year of policy evaluation
 - Inter State and National level evaluation

Key Parameters	Symbol Used	Definition
Policy Decision		Key decisions by state central government or funding agencies that have an impact on the policy of the state or the country For eg World Bank withdrawing a loan of US \$253 million to Maharashtra unless it restructures the board is a policy decision of the World Bank
Initiative / Proposal		Key Proposals initiatives by state as well as central government For eg UP initiating the restructuring process in 1992 has been described as a Initiative
In progress		Key events which describe the course of events which are being planned or events which identify the progress being achieved for the target objective For eg Plans to replace HSEB by 3 state owned bodies is a plan which is not finalized It indicates the course of action planned by the authorities
Key Milestone		Any major event which leads closer to the final aim has been classified as a key milestone For eg OSEB dissolved as a part of restructuring process is a key milestone as it leads us closer to the final aim of restructuring the board
Hurdle		Any event which obstructs attainment of the final goal has been classified as a hurdle For eg Any major conditions imposed which have to be fulfilled before the final aim is realize has been classified as a hurdle

Key Milestones thus lead to the impact evaluation of the USAID Programs which are rated on a scale of 1-5 (For details refer to Impact Evaluation Methodology Slide)

Field Observations are rated on a scale of 1 to 5 depending on the stage of activity



RATING FRAMEWORK FOR FIELD OBSERVATIONS

- ACG has developed a rating scale of 1 to 5 for rating Field Observations
- Rating Framework incorporates the Key Parameters used for evaluating the Policy Impact

Rating Scale	Regulatory Reform	Restructuring Utilities	Private Sector Power Generation	Privatization of T&D	Privatization of R&M in MW	Financing Restructuring	Key Parameters
5	Major Achievement	High Priority Given	PPA Signed Above 4,000 MW	Major Initiatives	Above 2,500 MW	Loans Granted	
4							
3	In Process	Medium Level	PPA Signed in the Range of 1,500 - 4,000 MW		In the Range of 1,001- 2,500 MW	Assurance of Loan	
2	Initial Plans	Initial Plans	PPA Signed in the Range of 1- 1,500 MW	Plans as part of Restructuring	In the Range of 0- 1,000 MW	Dialogue with Agencies	
1	Least Activity	Least Activity	No PPA Signed/ LoI Stage only	Least Initiative		No Dialogue with Agencies	

	Policy Decision
	Key Milestone
	In progress
	Initiative / Proposal
	Hurdle



SECTION TITLE FIELD OBSERVATIONS

CONTENTS

- BUSINESS JOURNALS DATABASE
- ORGANIZATION OF BUSINESS JOURNALS DATABASE FOR POLICY SURVEY
- KEY PARAMETERS FOR SELECTION OF STATE FOR ANALYSIS
- RATIONALE FOR SELECTION OF STATE FOR ANALYSIS
- KEY PARAMETERS DEFINITIONS
- REGULATORY REFORM OVERVIEW
- REGULATORY BODY KEY DEVELOPMENTS
- RESTRUCTURING UTILITIES OVERVIEW
- RESTRUCTURING KEY DEVELOPMENTS BY STATE
- PRIVATE POWER GENERATION OVERVIEW
- PPA & FSA KEY DEVELOPMENTS
- PRIVATIZATION OF TRANSMISSION AND DISTRIBUTION OVERVIEW
- POWER TRANSMISSION KEY DEVELOPMENTS
- PRIVATIZATION OF RENOVATION AND MODERNIZATION OVERVIEW
- RENOVATION AND MODERNIZATION KEY DEVELOPMENTS
- FINANCING RESTRUCTURING OVERVIEW
- FUNDING AGENCIES

<p>ACG has developed a 6 Step Methodology for evaluating USAID's EMCAT R³ Program Impact on Indian Power Sector</p>	1	DYNAMICS OF CHANGE Analysis of Power Policy Evolution Mechanism Assessment of Agencies involved in influencing policy change Research on Policy Evolution at National as well as State level (As Power is a Concurrent subject)
	2	USAID INITIATIVES Identification of USAID Initiatives for the EMCAT R ³ program Organization of Initiatives according to Program Tasks
	3	FIELD OBSERVATION Restructuring Business Journals Database to search 34 000 records of power and infrastructure development Classification of Information to facilitate USAID Impact Evaluation
	4	CORRELATION Identification & Organization of key milestones identified (1 200) Development of Framework to classify milestones Analysis of correlation between USAID Initiatives and power sector developments
	5	IMPACT Development of Impact Rating Criteria Framework & Scales USAID Initiatives Impact Evaluation
	6	EMCAT REVISED IMPACT ASSESSMENT Impact Evaluation for EMCAT Revised Program (Via Step 2-5) Updates to be provided to USAID on a bi annual basis



ORGANIZATION OF BUSINESS JOURNALS DATABASE FOR POLICY SURVEY

Overview of Database

- An important source of information for the Project II, Policy Survey is the Business Journals Database (Detailed outline of the database is given in a separate slide)
- Business Journal Database™ represents more than 38,000 key national and state events over the past few years
- Events in the database are classified by more than a hundred different categories

Organization of Business Journal Database™ for Project II Policy Survey

- Business Journal Database™ was substantially restructured to access the information, relevant to Project II Policy Survey
- The database underwent major changes, including creation of new fields and summary layouts
- New fields created include
 - USAID Category Field for Project II, Policy Survey
 - State Field
 - Key Event Field
 - Rating Category
- A rating category was developed which was used as the key parameter to rate the policy events over the years across all states (Definition for Rating Categories in separate slide)
- The specific category field has USAID specific categories which are listed here
 - Restructuring Utility
 - Regulatory Reform
 - Privatization of Generation
 - Privatization of T&D
 - Privatization of R & M
 - Financing Restructuring and Expansion
- Summary layouts were created which summarized key events in the power sector by state, USAID specific category as well as the event date

A sample list of key events in the power sector, relevant to the USAID study is given the following slides

† Note The sample list provided consists of about 110 key events Sample (Jan 96 - Dec 96)

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REGULATORY REFORM OVERVIEW

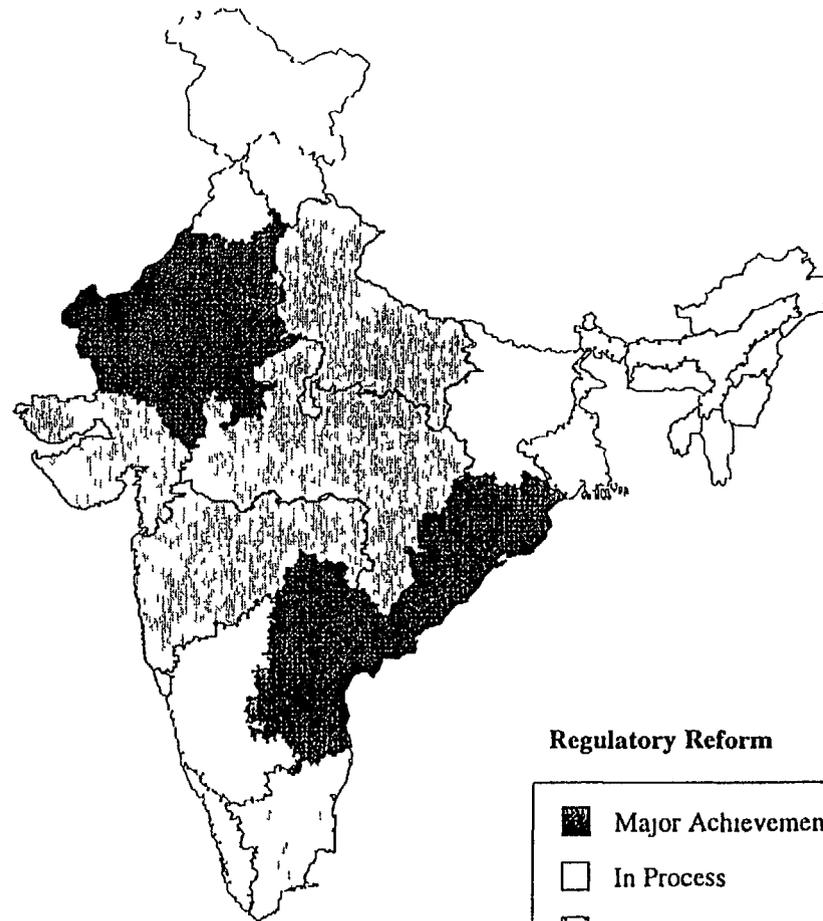
Definition

- Regulatory reform is a part of the restructuring process of the SEB's
- As part of the regulatory reforms a State Electricity Regulatory Commission (SERC) will be set up in each state and the Union Government will set up a Central Electricity Regulatory Commission
- Regulatory reform bill is passed by each state which consist of amendments incorporated for restructuring and privatization of the SEB's

Key Functions of the Proposed State Electricity Regulatory Commission (SERC)

- Tariff fixation
- Licensing and planning
- Licensing for transmission and distribution of power
- Power to revoke licenses to impose fine and charges for default

Regulatory Reform By State

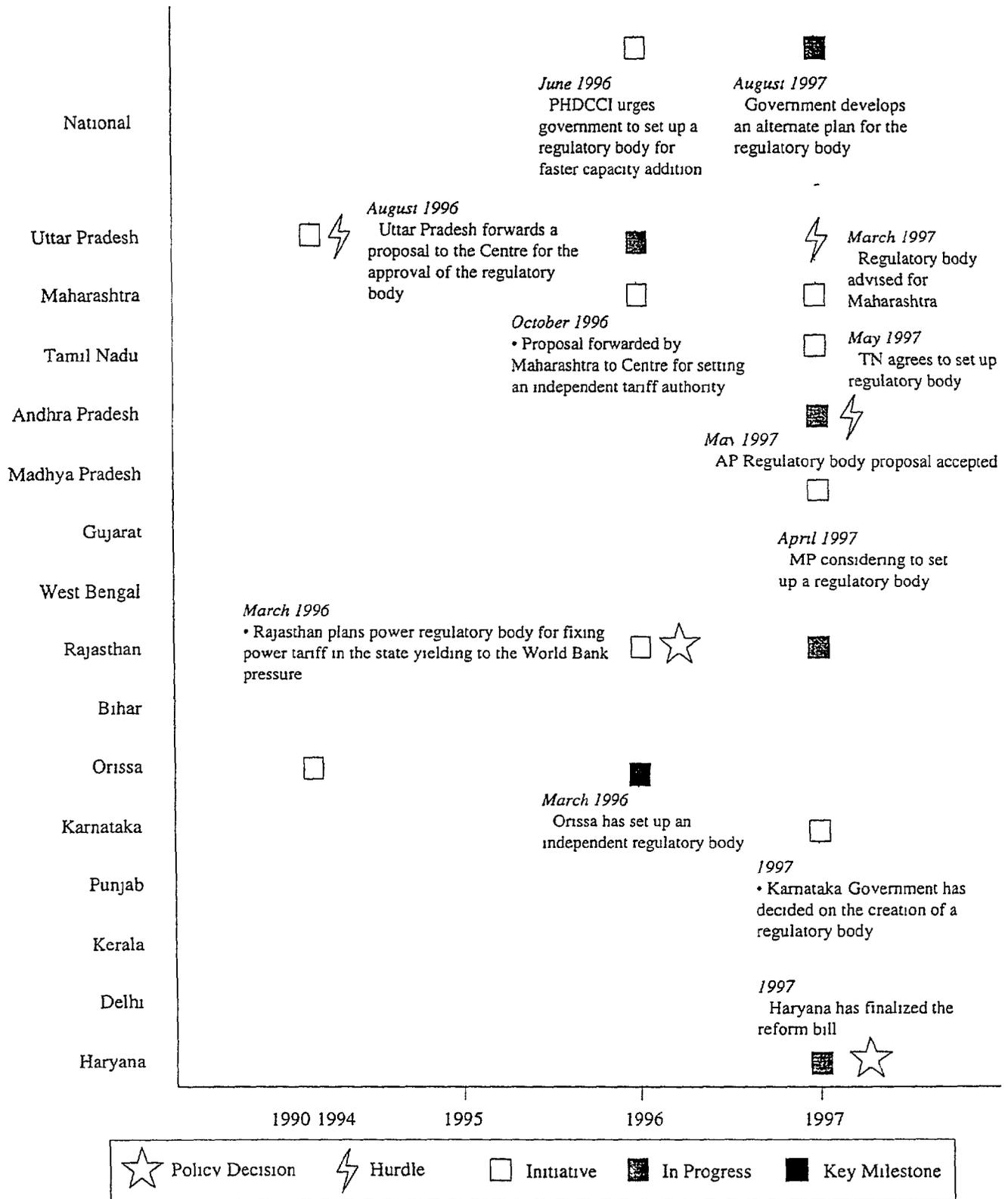


Regulatory Reform

- Major Achievement
- ▨ In Process
- ▤ Initial Plans
- ▥ Least Activity
- States not included in analysis



REGULATORY BODY KEY DEVELOPMENTS



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RESTRUCTURING UTILITIES OVERVIEW

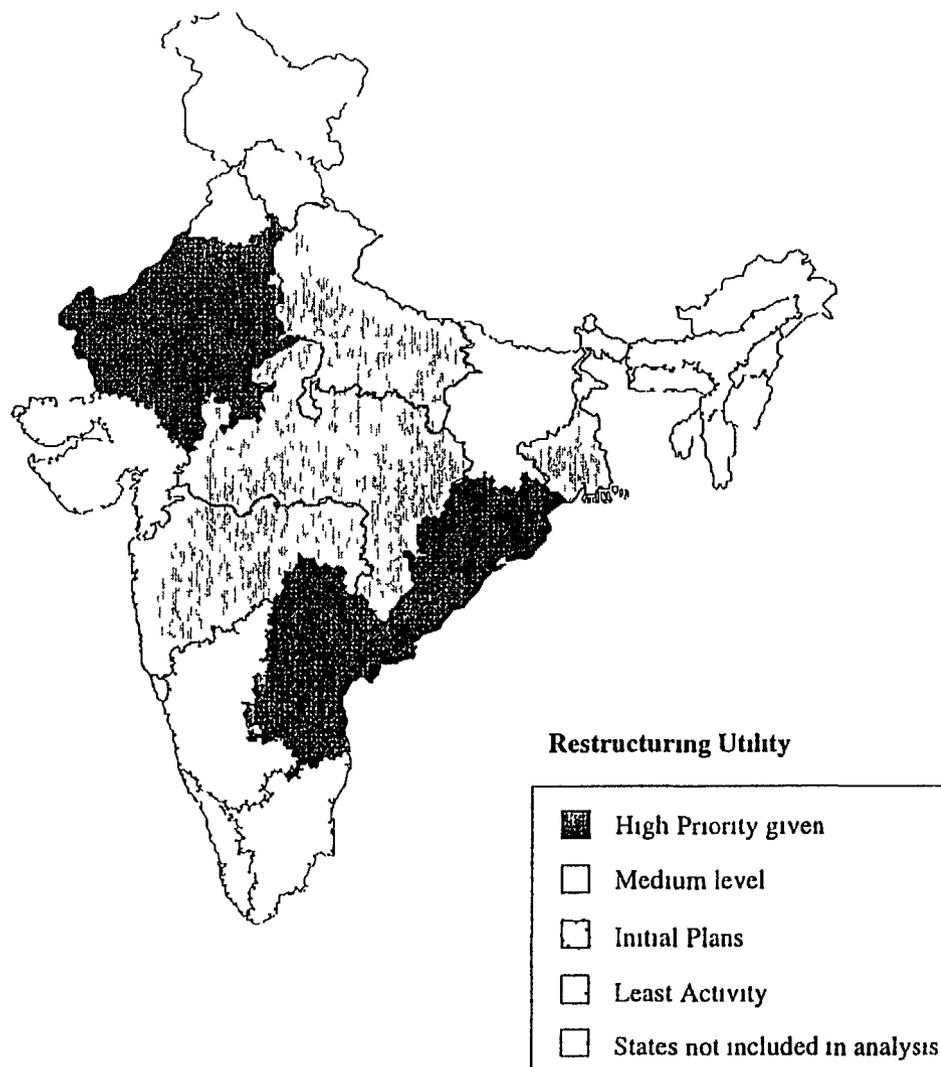
Definition

- In order to revive the State's power utilities from its deteriorating financial situation restructuring the utilities is being undertaken
- The SEB continues as the monolithic entity but is converted into corporate body and the share holding of the state government is to be brought down
- Restructuring implies changing the present form of SEB s from that of a government owned entity to a corporate entity
- An independent Regulatory Committee would be set up in the state level which would deal with all aspects of power sector regulation including those which the state government deals with at present

Initiatives taken for Restructuring

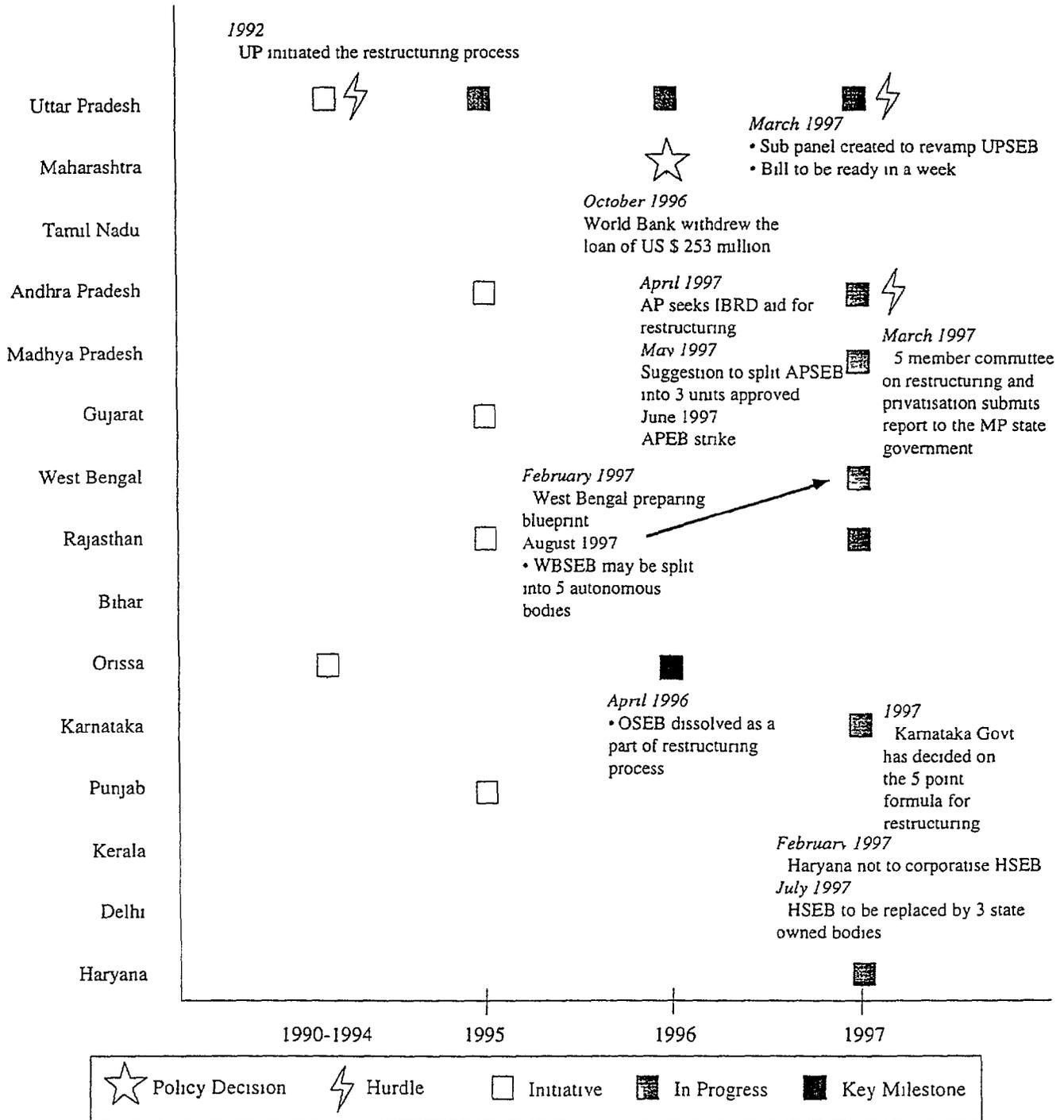
- The Chief Ministers of states met in December 1996 to discuss issues pertaining to the power sector
- The Chief Ministers agreed to a minimum action plan
- The government set up the Shankar Committee to study the restructuring of the power sector
- The Shankar committee made its recommendation and offered six different models for consideration by SEB s

Level of Activity of Restructuring by States





RESTRUCTURING KEY DEVELOPMENTS BY STATE



† Note *May 1996* Meghalaya short listed a consortium for privatising the SEB first of its kind in India
August 1996 Experts suggest restructuring of Assam SEB



PRIVATE SECTOR POWER GENERATION OVERVIEW

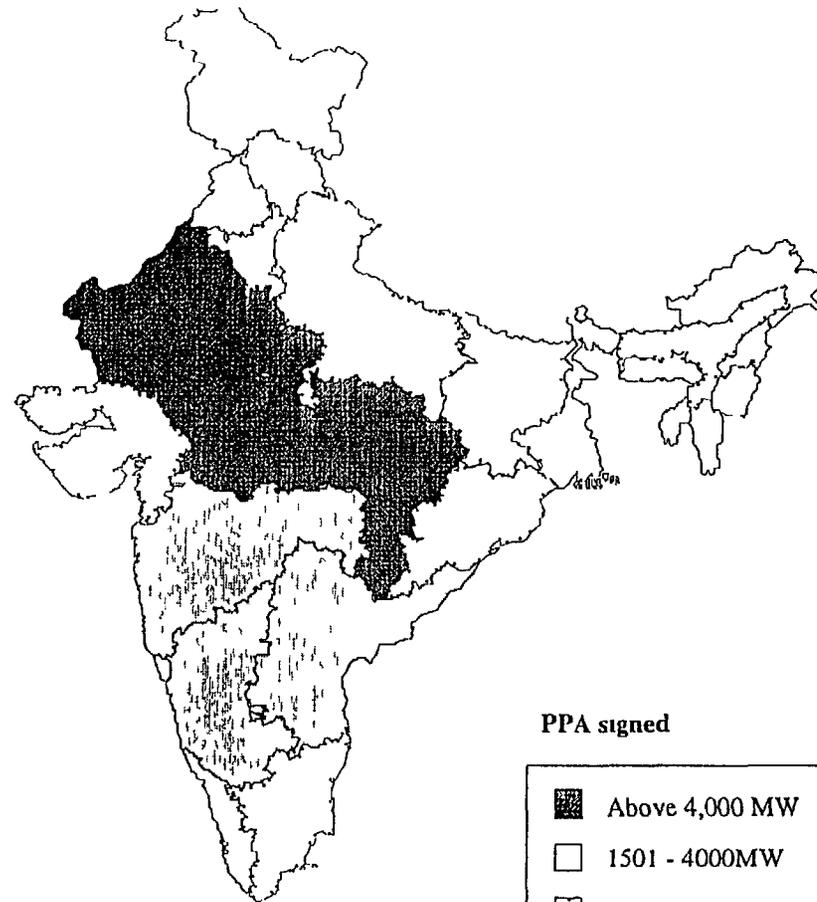
Definition

- Private sector power generation in the country has been in existence since beginning of this century These companies operate as licensees of the SEB and run their own generation and distribution systems
- Besides these, the participation of private sector power generation were through the captive power stations linked to local grid
- The growing shortage of power led to fresh initiative in the early nineties to involve the private sector in the power generation in a significant manner
- Amendments were made in the Electricity act to allow private sector companies to operate as licensees or generating companies

Incentives for Private Power Generation

- A number of incentives were announced by the Government of India to encourage private sector participation in power generation
 - The Indian Electricity Act 1910 and Electricity Supply act, 1948 were amended
 - Up to 100% foreign equity participation was allowed for projects set up by foreign private investors
- Private sector was allowed to take over existing public sector utility if its revival is otherwise not possible

PPA signed by IPP's by State

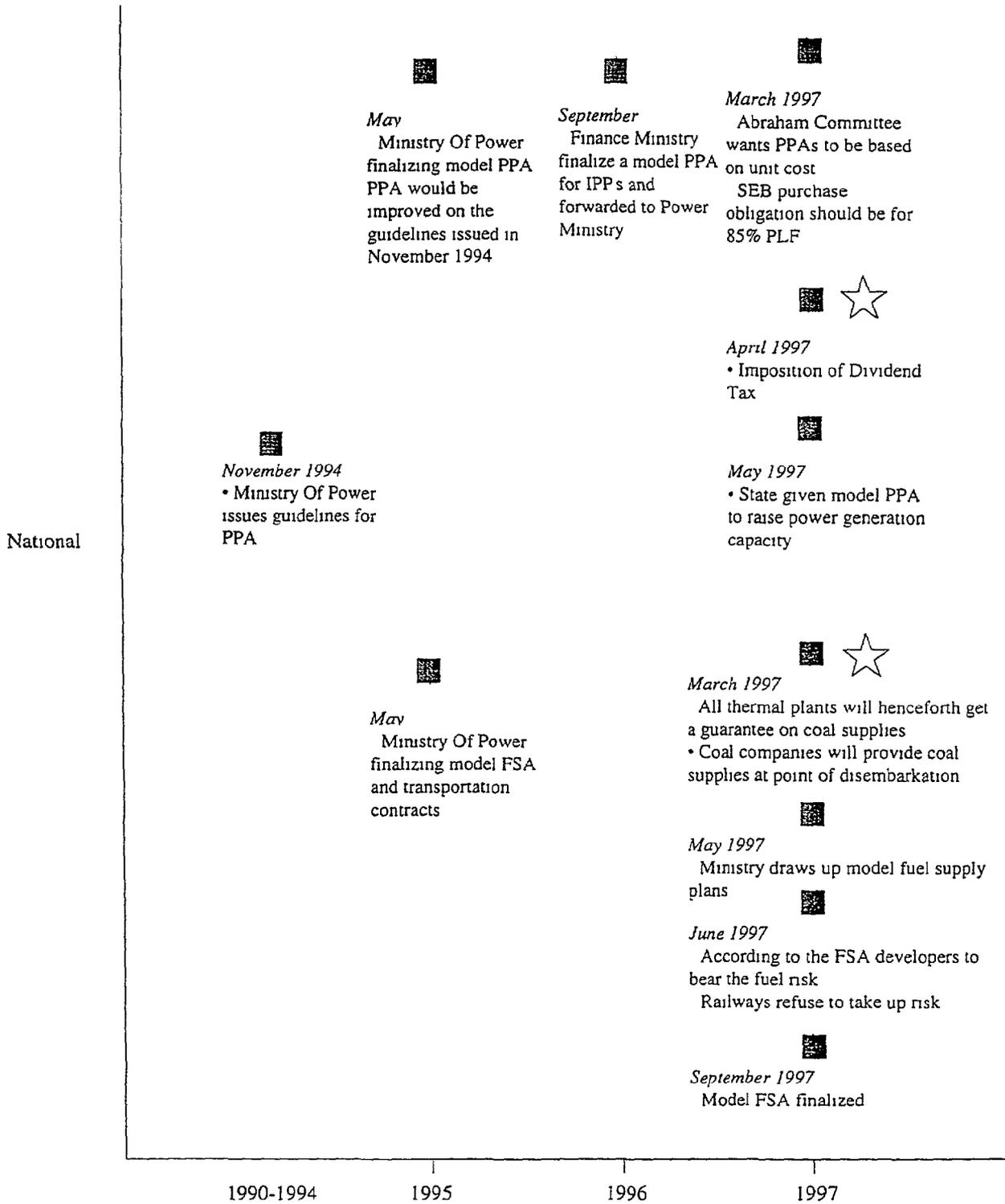


PPA signed

- Above 4,000 MW
- 1501 - 4000MW
- 1 - 1500 MW
- 0 MW
- States not included in analysis



PPA & FSA KEY DEVELOPMENTS



★ Positive Aspects
⚡ Hurdle
□ Initiative
■ In Progress
■ Key Milestone

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PRIVATIZATION OF TRANSMISSION AND DISTRIBUTION - OVERVIEW

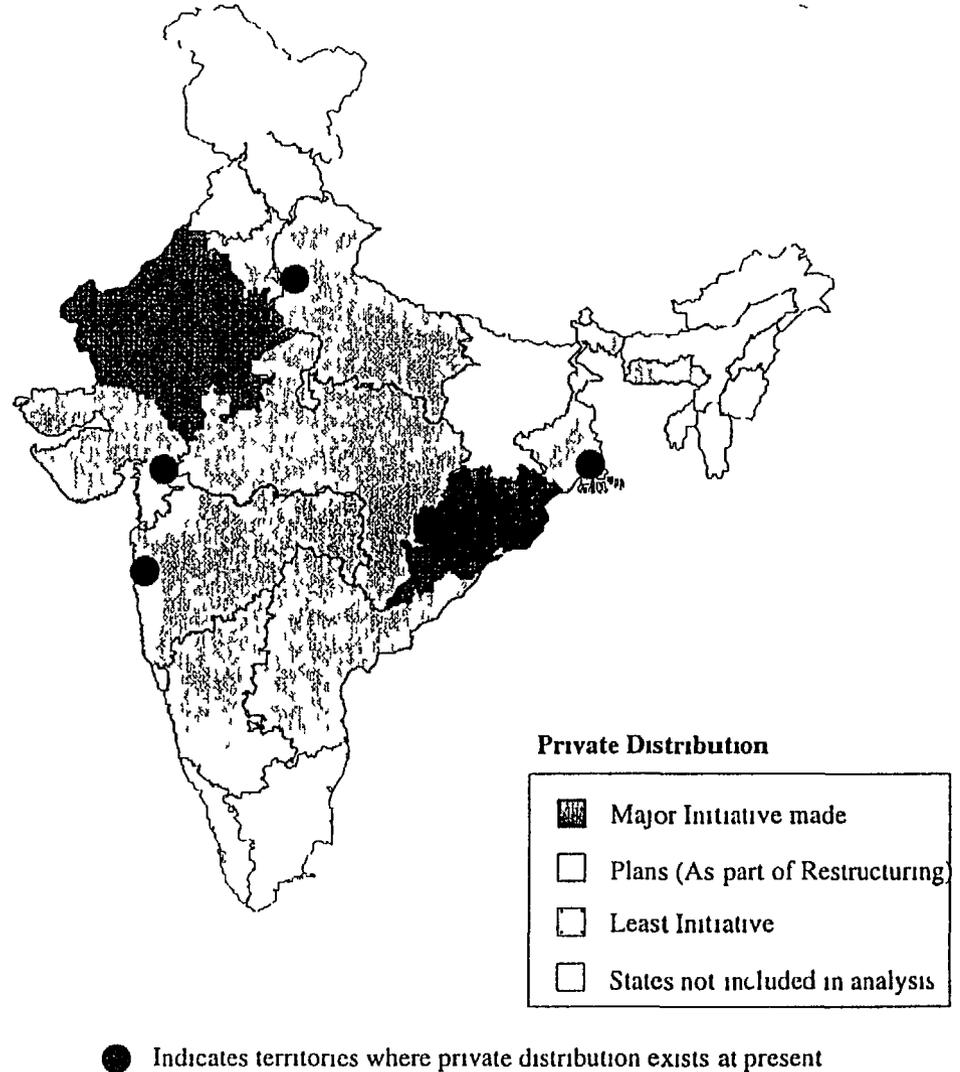
Definition

- One of the major criteria laid down by the multilateral funding agencies, as a part of restructuring is to privatise the Transmission and Distribution network of the state
- Privatization of T&D implies unbundling the SEB's operations into Generation, Transmission and Distribution and offering it to private parties
- Heavy investments are required in the Transmission sector
- The main reason that forced the government to take initiative in privatising Transmission and Distribution was the need for fund

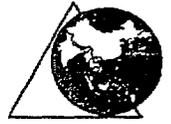
Government Initiative in Privatization of Transmission

- The government plans to introduce the Transmission Amendment Bill which would allow the private sector participation in the transmission sector
- The Bill which was to be introduced in the Parliament in the Monsoon session of 1997 has not yet been introduced
- The Ministry of Power had set up a committee under Shankar Guruswamy to examine the transmission sector and make recommendation with respect to private sector participation

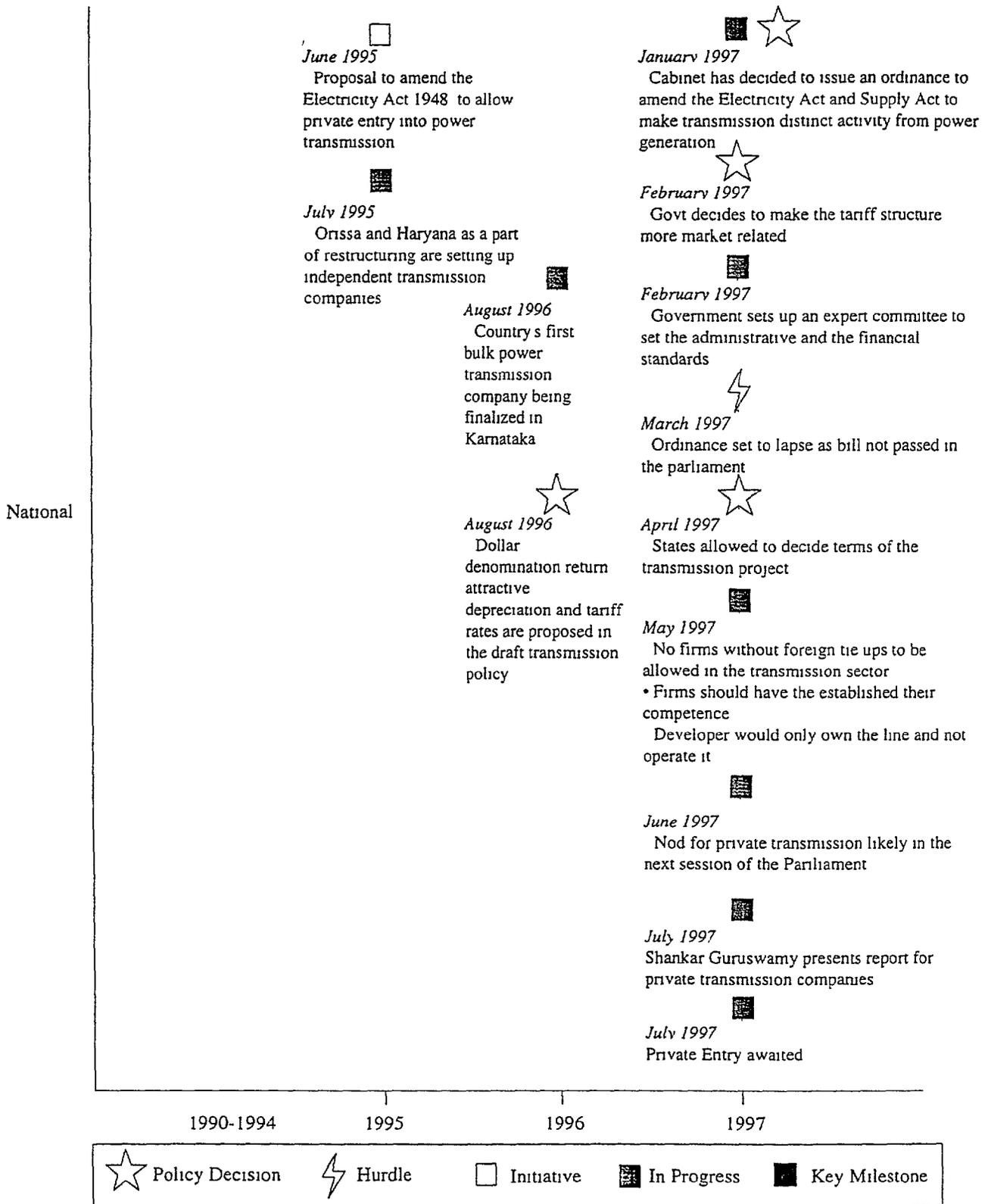
Initiative in Privatising Distribution By State



Investments to the tune of Rs 50 000 Crore are needed in the transmission sector for the 9th plan and an additional Rs 60 000 Crore are required for setting up the national grid



POWER TRANSMISSION KEY DEVELOPMENTS



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Although privatization of power sector started in 1991, R&M was opened for private sector in the year 1995



PRIVATIZATION OF RENOVATION AND MODERNIZATION - OVERVIEW

Defintion

- Renovation and Modernization of power plants implies improving the efficiency of existing power plants
- Renovation and Modernization of existing plant offers the cheapest and quickest way to add capacity
- With the amendment of the Electricity Act in October 1991, private investments were made possible in all areas of power sector
- But it was not until 1995, that the government started showing interest in privatization of Renovation and Modernization of power plants
- The government has laid down certain policy for the Renovation and Modernization (R&M) of Thermal Plants and Renovation, Modernization and Upgradation (RM&U) of Hydel Power Plants

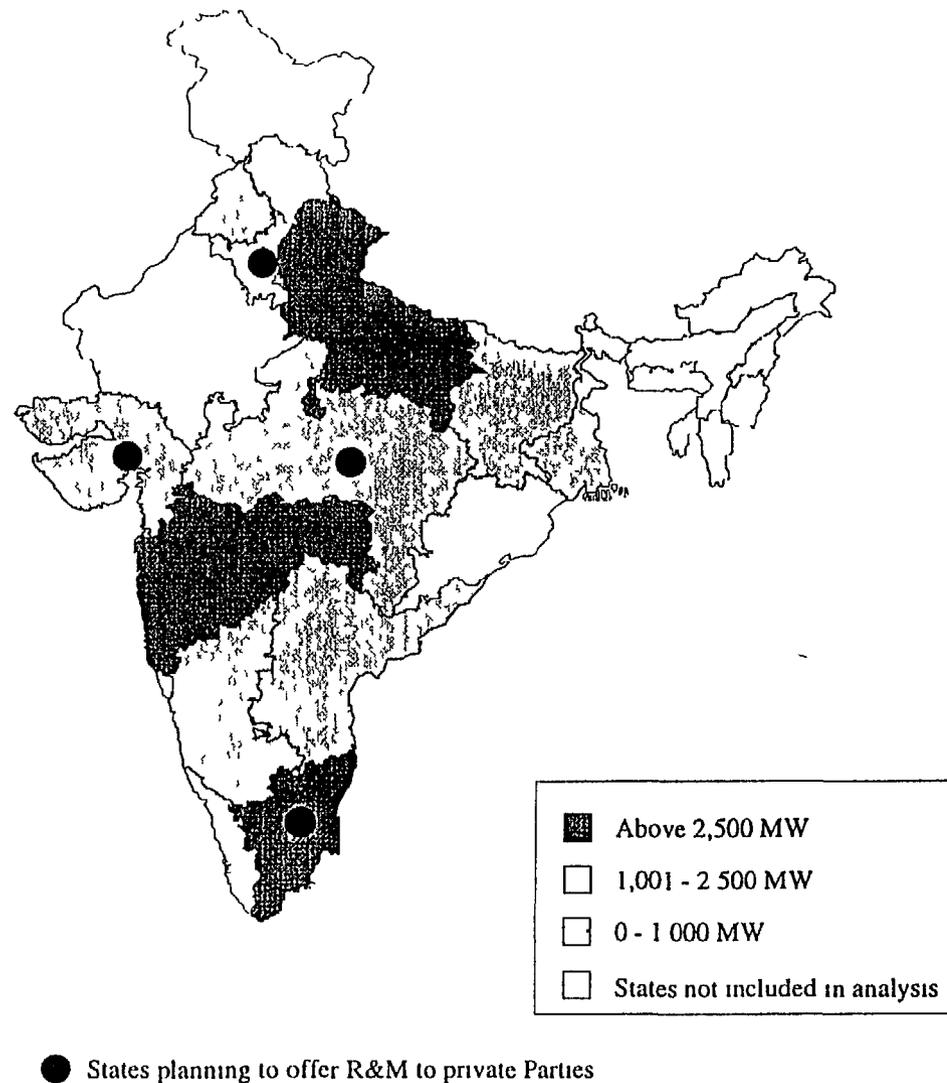
Salient Features of Policy Guidelines for Renovation and Modernization

- The initiative for Renovation and Modernization rest with the State Electricity Boards and State Governments
- The SEB can raise funds through loans from FI s for R&M and retain the ownership of the renovated plant
- An attractive alternate option would be privatization and transfer of ownership for Implementing the R&M without delay

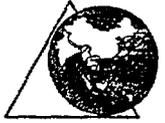
Forms of Private Investment in R&M

- Lease Rehabilitate Operate and Transfer (LRTO)
- Sale of Plant
- Joint Venture between and Private Companies

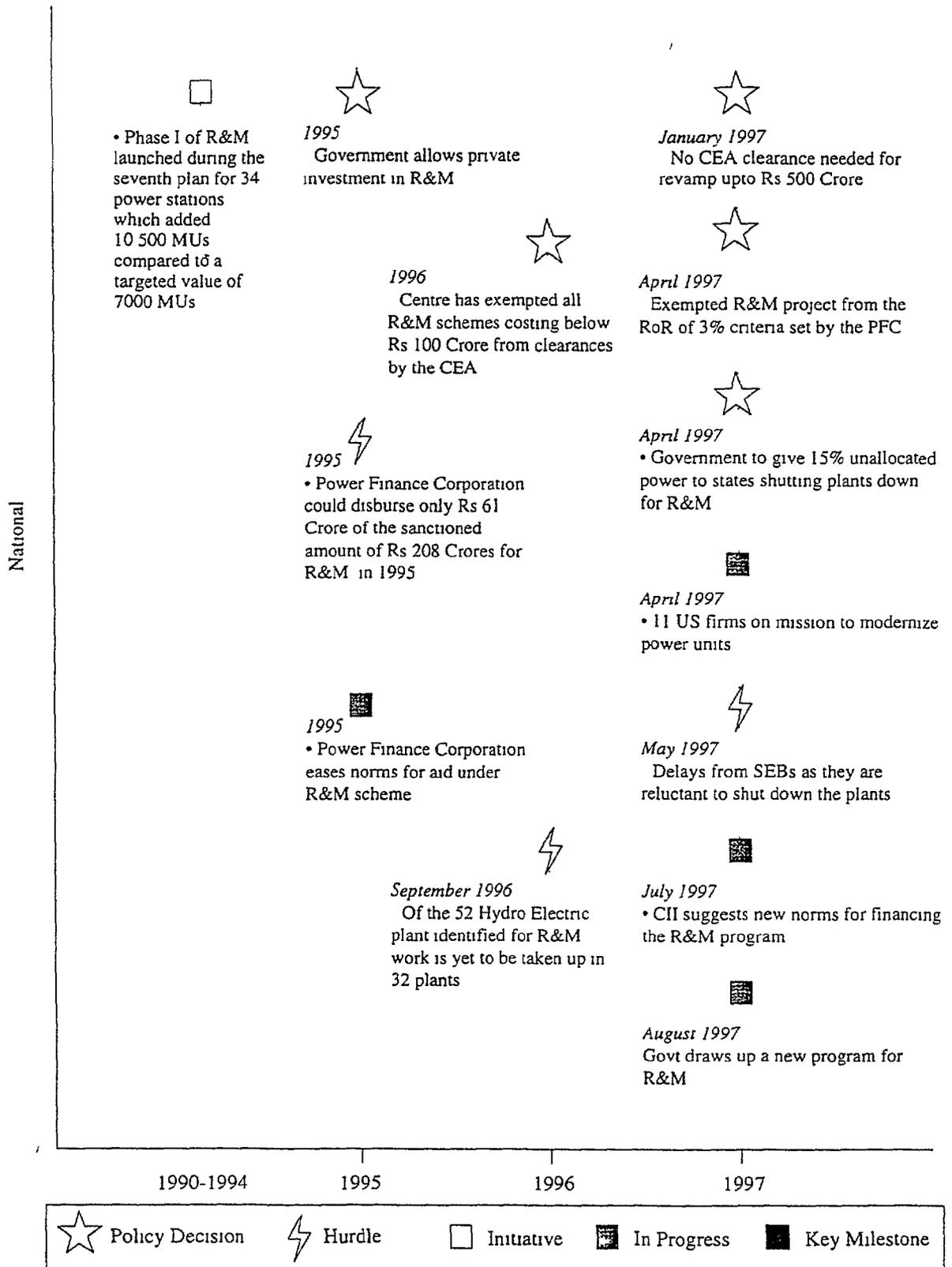
Plants Identified By CEA for Renovation and Modernization (8th Plan)



Renovation and Modernization has been given major thrust by the Government because the cost of per MW is just half of setting up a new plant

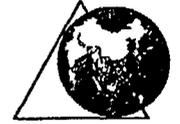


RENOVATION & MODERNIZATION KEY DEVELOPMENTS



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The states are forced to reform their power utilities according to the guidelines laid down by multilateral agencies, in order to obtain funds from these agencies



FINANCING RESTRUCTURING OVERVIEW

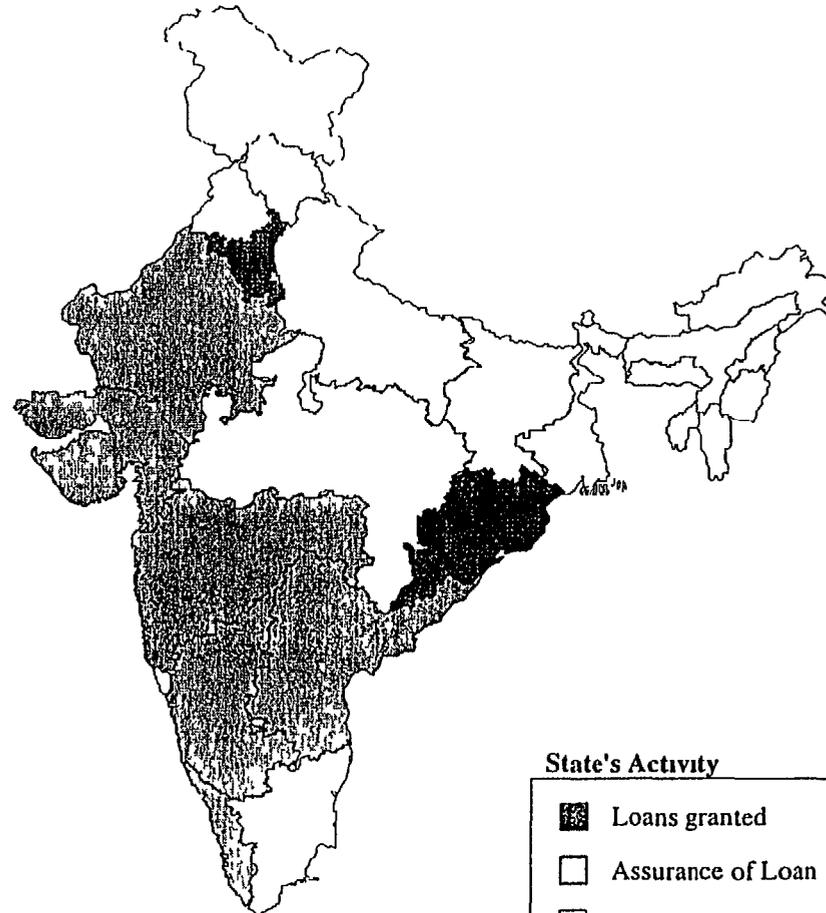
Definition

- A long term solution for the problems in the power sector is possible only through restructuring of the SEB
 - Multilateral agencies are the main source of fund for restructuring
 - Multilateral agencies like World Bank have taken initiatives to finance the reforms
 - These agencies have laid down certain guidelines for reforming the state utility
- The multilateral agencies are firm in their decision that they will not fund or guarantee power sector investments in the states that have been unable to develop transparent regulatory reform

Salient features of Guideline laid down by Multilateral agencies for funding restructuring of SEB's

- The states should establish a regulatory commission, which is autonomous from the state government
- Electricity tariff reform should be implemented that rationalizes tariff and introduces a structure that will reduce cross subsidy
- Corporatization of the State Electricity Boards
- Privatization of power generation
- Privatization of the distribution network

Financing by Multilateral agencies by State



State's Activity

- Loans granted
- Assurance of Loan
- Dialogue with Agencies
- No dialogues with Agencies
- States not included in analysis

† Analysis does not take into account funds from local agencies

Banks are keen to finance the restructuring projects of the SEBs in order to make the SEBs more credit worthy

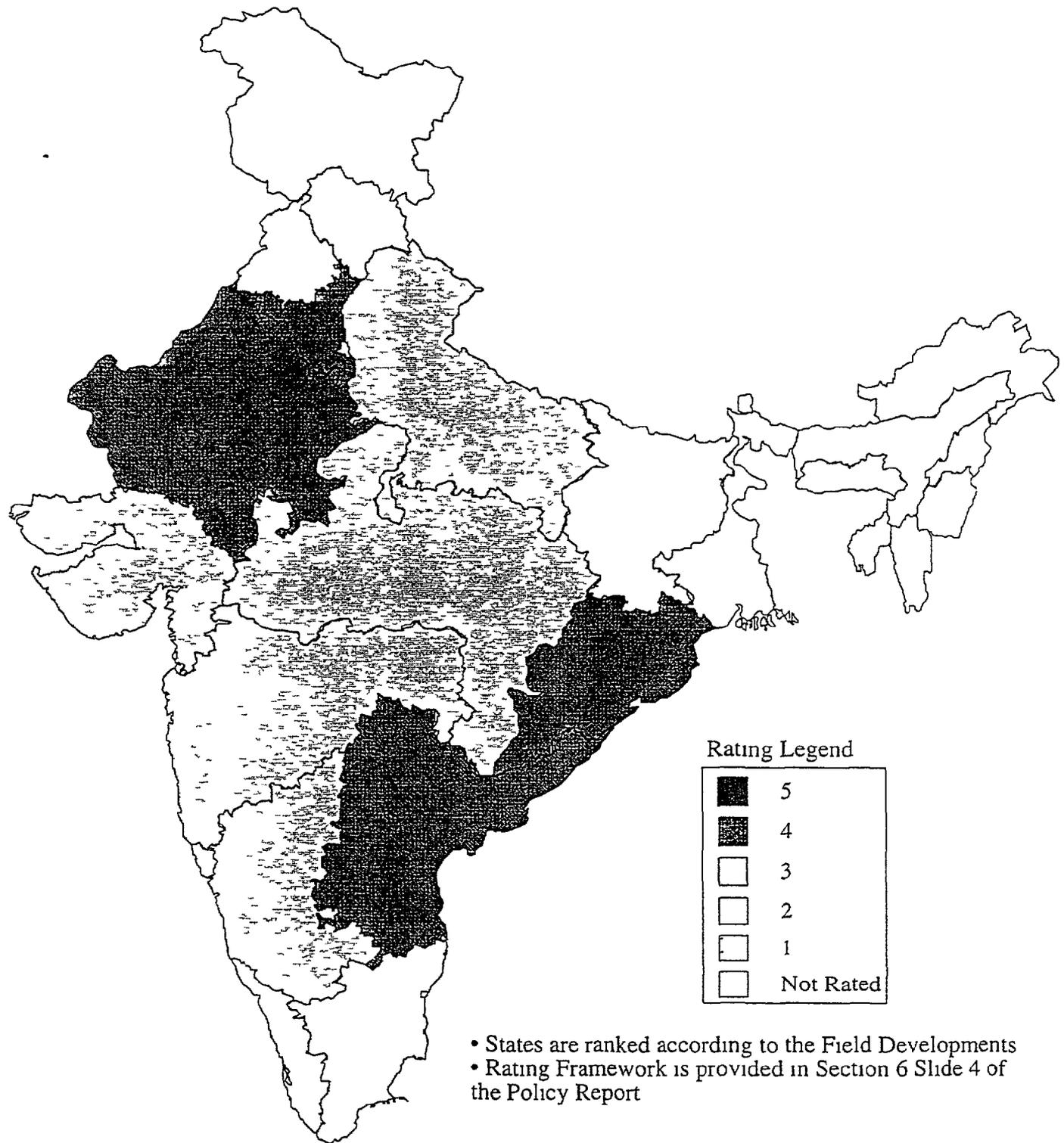


FUNDING AGENCIES

Name	Focus Area	Role in India
<p>Asian Development Bank (ADB)</p>	<p>Main goal is to promote the social and economic progress of the developing countries</p> <ul style="list-style-type: none"> • Providing technical assistance to the developing member countries • Catalyze the investment for the public and private investment Support other development activities • Main area of focus is energy sector Loans to energy sector were US \$1.26 billion 32.5 % of the total lendings 	<p>India was the third largest borrower from the ADB in 1995 amounting to US \$ 630 million</p> <p>ADB has provided foreign exchange reserves to PFC for lending to MSEB TNEB KEB OSEB (now Gridco) and APSEB for various T&D and R&M projects</p> <ul style="list-style-type: none"> • ADB is also funding the North Madras thermal power project <p>ADB has funded the project involving augmentation of the CESC network</p> <p>ADB is assisting IREDA in its renewable energy investments</p> <ul style="list-style-type: none"> • ADB is considering to give loans for infrastructure development in Rajasthan AP TN Kerala and MP <p>ADB has committed \$350 million to Gujarat for the power sector</p>
<p>World Bank</p>	<p>Main goal in India is to increase the Credit worthiness of SEBs so that the sector is able to attract the private capital and support</p>	<p>One of the most important functions of the World Bank has been the introduction of the state level power sector restructuring programmes</p> <ul style="list-style-type: none"> • Bank's Project Preparation Facility has helped prepare the power sector restructuring projects in Bihar UP Haryana and Rajasthan • Bank envisages future lending to PowerGrid and NTPC which are helping the Indian Sector reforms <p>Bank actively supports PFC</p>
<p>Overseas Economic Corporation Fund (Japan)</p>	<p>Main area of focus is to finance infrastructure projects in India</p> <ul style="list-style-type: none"> • OECF is keen on financing restructuring projects • OECF plans to pick up equity in core projects 	<ul style="list-style-type: none"> • India is the 3rd largest recipient of loans from OECF has received loans worth \$1.36 Billion • The major part of the loans was used in power sector which resulted in creating 8% of the country's total installed capacity • OECF is funding Rs 4000 Crore in Delhi's road sector



STATE RATINGS ON BASIS OF FIELD OBSERVATIONS



- States are ranked according to the Field Developments
- Rating Framework is provided in Section 6 Slide 4 of the Policy Report



<p>ACG has developed a 6 Step Methodology for evaluating USAID's EMCAT R³ Program Impact on Indian Power Sector</p>	1	DYNAMICS OF CHANGE Analysis of Power Policy Evolution Mechanisms Assessment of Agencies involved in influencing policy change Research on Policy Evolution at National as well as State level (As Power is a Concurrent subject)
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	6	EMCAT REVISED FOR IMPACT ASSESSMENT Impact Evaluation for EMCAT Revised Program (Via Step 2 5) Updates to be provided to USAID on a bi annual basis

SECTION TITLE CORRELATION & IMPACT

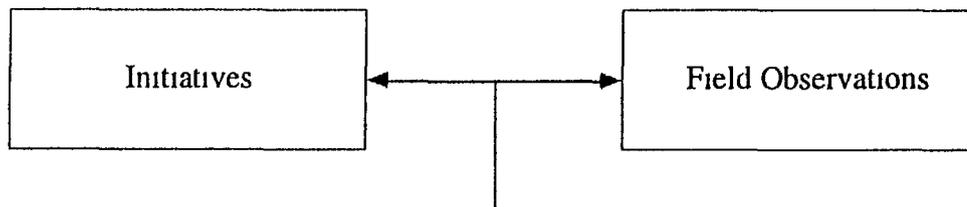
CONTENTS

- IMPACT ASSESSMENT RATING CRITERIA
- ORIGINAL EMCAT R3 (1992-MAY 1997) IMPACT & RATING



IMPACT ASSESSMENT RATING CRITERIA

To quantify the impact of USAID initiatives on the Power Sector Development, ACG has developed a rating criteria



Ratings are conducted on a scale of 1-5 as below

Rating	Comments
5	USAID initiatives directly contributing towards i Positive Policy formulation ii Active Initiatives by MoP or SEB
4	USAID initiatives directly contributing towards i Positive Policy Debate / Discussion ii Positive Policy Initiatives
3	USAID initiatives similar to other multilateral body initiatives For e g i Restructuring Activity ii Policy Developments (Note Not viable to separately measure USAID impact) iii Initiatives Underway prior to USAID participation Impact detected post USAID participation
2	Low/Unclear Impact of USAID (Note Power Sector Developments to be monitored for gradual influence)
1	No immediate impact of USAID perceived/or Negative Developments beyond the control or influence of USAID

ACG IMPACT ASSESSMENT APPROACH



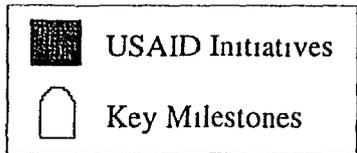
ACG identified two approaches to assess the impact of USAID initiatives and utilized a combination of the two in this study

Approach I Milestones as key drivers

- ACG leveraged its comprehensive databases to identify key milestones in the power sector
- USAID initiatives which may have had an impact on identified milestones were evaluated for influence

Approach II USAID Initiatives as key drivers

- USAID provided ACG with the key initiatives undertaken
- ACG then researched potential milestones achieved with respect to specific initiatives to measure impact



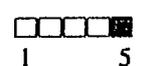
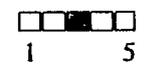
Asia Consulting Group Approach

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ORIGINAL EMCAT R3 (1992-MAY 1997) · IMPACT AND RATING

Task	EMCAT Original	Field Observations	Impact	Rating (1-5) & Comments
Task 2	Provide Technical Assistance on Private Power Sector <u>Security Packages</u> for Private Power Projects in Generation and Distribution	<p>PPA</p> <p>1994 November Ministry of Power issues guidelines for PPA</p> <p>1995 May Model PPA based on guidelines issued in November 1994 to be finalized within a month</p> <p>September 2 Model PPAs sent to State Governments to bring uniformity</p> <p>1996 July Government to appoint a committee to examine PPA norms for hydel projects</p> <p>September Separate PPA in regard to liquid fuel projects is also contemplated</p> <p>September Ministry of Finance finalizes model PPA and forwarded to MoP</p> <p>1997 March Abraham Committee suggests PPA to be based on unit cost</p> <p>May States given Model PPAs</p> <p>August PPAs to come under purview of state regulatory bodies</p> <p>December MoP works out Model PPAs for Hydro Projects & talks in progress with FIs to make it bankable</p> <p>December New projects seeking TEC after September 30, 1997 to be subjected to a PLF of 75 percent</p> <p>T&D Privatization</p> <p>1995 February Rajasthan undertakes power sector reform study to find if distribution could be handed over to private sector</p> <p>June MoP proposes amending Electricity Supply Act 1948 to allow private sector entry into transmission</p> <p>July Andhra Pradesh sets up 3 member committee to recommend privatization of power distribution in the state</p> <p>1996 May Rajasthan to privatize power distribution Four distribution zones have been identified</p> <p>August Government to introduce incentives for private sector entry in Transmission and Distribution including dollar denominated returns & attractive returns and tariff rates</p> <p>November Private sector allowed to enter the power distribution segment in the next six months</p> <p>December Bihar to privatize power distribution Power distribution to be handed to private entrepreneurs for Patna as a test case</p> <p>1997 (contd)</p>	<p>Medium</p> <p>High</p>	<p>• Government started the process of formulating model PPAs in the year 1994 whereas Model PPA preparation by USAID is in progress (See initiatives slide)</p> <p>• MoP finalized the PPA for hydro plants by Dec 1997 which could be a result of USAID's model PPA finalization in March '97</p> <p>• USAID had prepared the transmission and distribution management agreements in 1996 in line with the government's decision to offer incentives for private entry in Transmission and Distribution</p>



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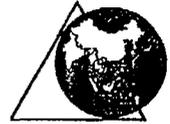
ORIGINAL EMCAT R3 (1992-MAY 1997) IMPACT AND RATING CONTD



Task	EMCAT Original	Field Observations	Impact	Rating (1-5)& Comments
Task 2	Provide Technical Assistance on Private Power Sector Security Packages for Private Power Projects in Generation and Distribution	<p>T&D Privatization</p> <p>1997 January Cabinet approves proposal to allow private investment in electricity transmission Ordinance to be issued to amend the Indian Electricity Act 1910 and the Electricity Supply Act 1948 for the purpose</p> <p>January Haryana seeks Centre's approval for privatization of power distribution</p> <p>February Centre constitutes committee to set administrative and financial standards for private investment in power transmission Committee will fix transmission tariffs and set operational parameters such as line availability and incentive structure, for the purpose Committee will frame guidelines for transmission service agreements</p> <p>February Gujarat allows private sector participation in power distribution in the state</p> <p>March UP decides to privatize power distribution in Kanpur & Moradabad</p> <p>April Rajasthan to privatize power distribution in the state in a phased manner by 2002</p> <p>July Centre plans evolving a legal frame work for setting of private transmission projects in the power sector</p> <p>July Shankar Guruswamy presents report for transmission companies</p> <p>September MoP formulating policy to attract greater private investment into power distribution</p> <p>September Gujarat government gives GEB 'go ahead' for privatization of power distribution in certain parts of the state through 'open bidding'</p> <p>September Rajasthan Assembly to takeup Power Sector Reforms Bill which seeks provisions for private sector participation in the power distribution network</p> <p>October MoP appoints one man committee to prepare blueprint for power distribution in the country The committee shall also look into the existing laws and the role of state electricity boards vis a vis private transmission companies</p> <p>October Maharashtra Government to set up JV company as part of its plans to privatize the distribution wing of the MSEB</p> <p>October Orissa government finalizes creation of four power distribution companies with a provision of 51 per cent equity for private companies</p> <p>October Goa considering privatizing power transmission & distribution</p> <p>November Madhya Pradesh is considering to bring a transmission bill to make provision for investment of private funds for development of transmission lines</p> <p>November Rajasthan postpones bidding process for two power distribution zones to early next year</p> <p>November Orissa government announces the privatization of the 4 electricity distribution companies covering the state</p> <p>December Parliamentary standing committee on energy clears power transmission bill</p>	High	<p>USAID had prepared the transmission and distribution management agreements in 1996 in line with the government's decision to offer incentives for private entry in Transmission and Distribution</p> <p style="text-align: right;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> 1 5 </p>

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ORIGINAL EMCAT R3 (1992-MAY 1997) IMPACT AND RATING CONTD



Task	EMCAT Original	Field Observations	Impact	Rating (1-5) & Comments
Task 3	Provide Technical Assistance on Private Power Financing Options	<p>Tariffs and Costs</p> <p>1993 Paper suggests purchase of power from utilities on normative basis</p> <p>1995 December Centre notifies areas which should form the basis for fixing tariffs for liquid fuel based projects</p> <p>December Centre constitutes committee to examine tariff structure to be offered to the private power sector</p> <p>1996 July Power Tariff policy for private sector drafted Proposal for State Regulatory bodies which will fix their own tariffs</p> <p>October Centre finalizing a tariff model which would serve as a model for SEBs in fixing different rates for different consumers</p> <p>November National Task Force has decided that the principles for fixing the tariff for thermal power plants will be based on the availability concept</p> <p>1997 January Committee headed by Mr Abraham suggests tariff for private power producers to be based on the availability concept</p> <p>January Madhya Pradesh to form a utilities tariff commission</p> <p>March Two part tariff for hydel units proposed</p> <p>April, Sambamurthy committee recommends that power tariffs for hydel plants be based on the value of power peaking or non-peaking and the return on equity should not be pegged as in the case of thermal stations</p> <p>May Availability Tariff to be introduced on April 1, 1998</p> <p>June The Kerala State Electricity Board (KSEB) plans to introduce three new criteria to its tariff structure contribution towards future projects, repayment of loans and a minimum return rate of 16 percent on equity</p> <p>October The Central Electricity Authority (CEA) will formulate a new power tariff policy based on the extent of power that a station is capable of generating at any given point of time (Availability Concept)</p> <p>November CEA to frame guidelines for the country's power pricing policy for effecting bulk inter-regional energy transfers</p> <p>Financial Model</p> <p>1995 March Escrow Account mooted as alternative to counter guarantees for power projects</p> <p>1997 March Higher rate of return proposed for Hydel projects</p> <p>September Centre to frame a model Escrow account agreement to facilitate easier borrowing from the financial institutions</p>	<p>High-Medium</p> <p>High</p>	<p>• USAID's first initiative in 1994 could have prompted the centre to draft the tariff policy & set up committees for preparing a tariff model</p> <p>• Tariff Analysis conference in June 1997 may be the reason for the government to consider the availability concept in tariffs</p> <p style="text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 1 5 </p> <p>• USAID has had training programs and seminars which have been well attended by various state governments</p> <p style="text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 1 5 </p>

Source USAID Briefing, ACG Models & Databases, ACG Analysis

ORIGINAL EMCAT R3 (1992-MAY 1997) IMPACT AND RATING CONTD



Task	EMCAT Original	Field Observations	Impact	Rating (1-5) & Comments
Task 4	Provide Technical Assistance on Private Power Support undertakings	<p>1995 February Power Ministry makes it mandatory to clear power projects only through competitive bidding Guideline circulated to SEBs</p> <p>April States allowed to select bid norms for selecting private parties</p> <p>August Rajasthan CM urges centre to fix criteria for bidding as ultimate price at which power is purchased (decision arrived at during the Bid Solicitation, Project Appraisal and Negotiation Conference by IPPI in January 1995)</p> <p>1996 November New bidding norms for private power promoters to be finalized within a week</p> <p>1997 January Government allows the MoU and LoI routes for the captive power and expansion projects</p> <p>September Union Power Ministry and CEA finalizing the guidelines for evaluating competitive bids Criteria to be used will include factors such as inflation exchange rate, guaranteed heat rate and benchmark erection procurement and construction costs for the projects</p>	Medium	<ul style="list-style-type: none"> USAID's conference in January 1995 could be the main catalyst in prompting the government to consider competitive bidding Bidding documentation was to be finalized by the government by end 1996 whereas USAID has initiated the process in 1996 <p style="text-align: center;">  1 5 </p>
Task 5	Provide Assistance on Private Power Information Dissemination and Policy Dialogue	<p>Regulatory Body & Restructuring</p> <p>1992 UP Initiates Restructuring</p> <p>1993 Paper suggests setting up of regulatory structure to fix tariffs</p> <p>1995 February Orissa SEB to be converted into a regulatory body with Transmission Generation & Distribution to be taken over by separate private or state run companies</p> <p>October Orissa considering formal setting up of power regulatory commission Shadow regulatory body is in operation and the state awaiting necessary legislation amending the Electricity Act to include provision for its formal inception</p> <p>December UPSEB Restructuring put on hold due to fall of government</p> <p>1996 March Rajasthan plans power regulatory body</p> <p>March Orissa sets up regulatory body</p> <p>May Meghalaya shortlists a consortium for privatizing the SEB</p> <p>June APSEB to be restructured</p> <p>August Maharashtra to set up power tariff regulatory authority</p> <p>September UP proposes to set up power regulatory body</p> <p>October West Bengal to propose regional tariff regulatory boards</p> <p>October Maharashtra Government to reform SEB</p> <p>November Rajasthan to recast power sector</p> <p>November UP to restructure SEB</p>	Medium	<ul style="list-style-type: none"> USAID probably has a very high impact on the HSEB Restructuring but in the case of other states ACG has observed that restructuring is mainly being adopted due to pressure from the World Bank or other agencies Effect of USAID cannot be ruled out as meetings were scheduled with other states for prompting them to participate in the Energy Partnership program <p>USAID has had high impact on Orissa KEB, KPCL, APSEB & HSEB</p> <p style="text-align: center;">  1 5 </p>

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ORIGINAL EMCAT R3 (1992-MAY 1997) IMPACT AND RATING CONTD



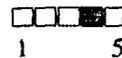
Task	EMCAT Original	Field Observations	Impact	Rating (1-5) & Comments
Task 5	Provide Assistance on Private Power Information Dissemination and Policy Dialogue	<p>1997 Karnataka has decided on the creation of regulatory body and decides on 5 point formula for restructuring</p> <p>January Haryana seeks Centre's approval for setting of a regulatory body</p> <p>February West Bengal proposing to restructure SEB</p> <p>March UP Government constitutes a sub committee to formulate legal modalities for restructuring the SEB</p> <p>May Proposal for splitting APSEB into 3 units and formation of AP Regulatory body accepted</p> <p>May TN Agrees to set up a state level regulatory commission</p> <p>June West Bengal to set up a state level regulatory commission</p> <p>June Bill to create central and state level regulatory bodies to be presented before the parliament in the monsoon session</p> <p>July Centre clears Rajasthan Power Sector Reforms Bill paving the way for conversion of RSEB into a corporation and setting up of an independent regulatory authority</p> <p>July Haryana assembly passes Haryana State Electricity Reform Bill to pave way for constitution of the proposed electricity regulatory commission HSEB to be split into four bodies</p> <p>September Rajasthan government to table Rajasthan power sector reforms bill in the state Assembly that aims to convert the SEB into a corporation and encourage more private sector participation in the power sector State Cabinet approves draft bill Bill proposes constitution of a Rajasthan power regulatory commission</p> <p>September Orissa Electricity Regulatory Commission (OERC) hopes to materialize deal for partnership with American Regulatory Commission by the end of this year</p> <p>October Madhya Pradesh government finalizes Bill to set up state electricity regulatory authority</p> <p>October Proposed TNEB restructuring envisages creation of an independent tariff regulatory authority at the state level</p> <p>November Orissa government announces privatization of electricity distribution system by offering to offload 51% of state holding in the four distribution companies of Grid Corporation of Orissa Ltd (Gridco)</p> <p>November Andhra Pradesh government to enact the Andhra Pradesh electricity Reform Bill, 1997 during the assembly session</p> <p>December Electricity Regulatory Commission Bill that envisaged setting up of the Central Electricity Regulatory Commission (CERC) being shelved</p> <p>December Tamil Nadu Electricity Board (TNEB) constitutes five member committee to bring about restructuring of its board</p>	Medium	<ul style="list-style-type: none"> USAID probably has a very high impact on the HSEB Restructuring but in the case of other states ACG has observed that restructuring is mainly being adopted due to pressure from the World Bank or other agencies Effect of USAID cannot be ruled out as meetings were scheduled with other states for prompting them to participate in the Energy Partnership program USAID has had high impact on Orissa, KEB, KPCL, APSEB & HSEB



ORIGINAL EMCAT R3 (1992-MAY 1997) IMPACT AND RATING CONTD



Task	EMCAT Original	Field Observations	Impact	Rating (1-5) & Comments
Task 5	Provide Assistance on Private Power Information Dissemination and Policy Dialogue	<p>Private Power Policy Dialogue</p> <p>1997 February The Union power ministry has appointed the Administrative Staff College of India (ASCI) to review the existing mechanism in the country's power sector and suggest an alternative regulatory mechanism to meet the changing scenario</p> <p>February National Development Council to meet soon to adopt the final draft of the power policy</p> <p>September Planning Commission to come out with the draft energy policy by the end of the year for the government to take a final view</p> <p>December Centre constitutes committee to formulate comprehensive policy guidelines for the private sector</p>	High	<ul style="list-style-type: none"> USAID had initiated program's on this front since 1993 and has conducted program's and conferences on private sector participation in electric industry which may have prompted the government to draft a national energy policy



All tasks of EMCAT R3 Original have been rated as 4 on a scale of 1-5 which implies that most of the USAID initiatives have resulted in policy debates/discussions

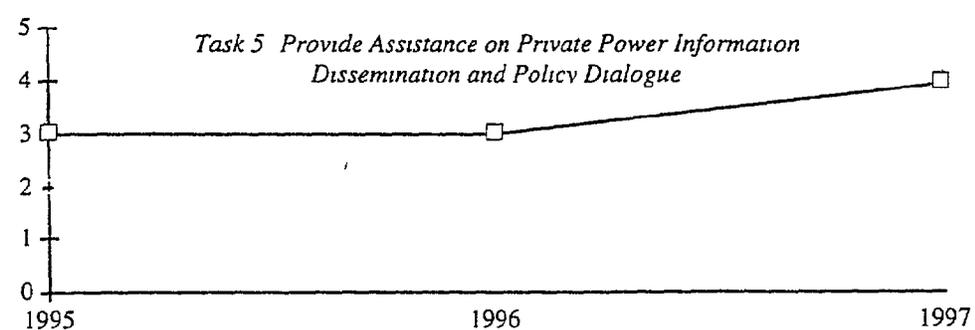
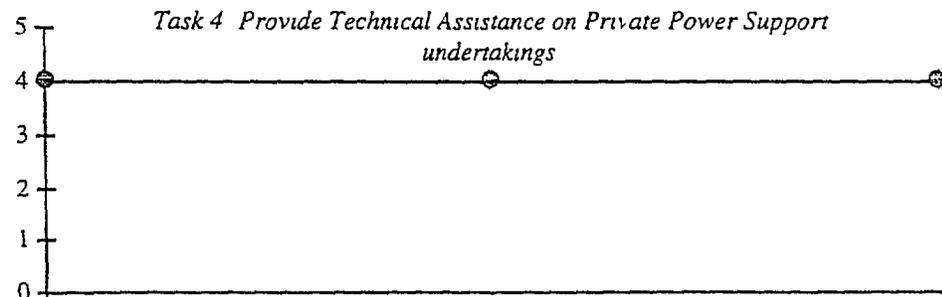
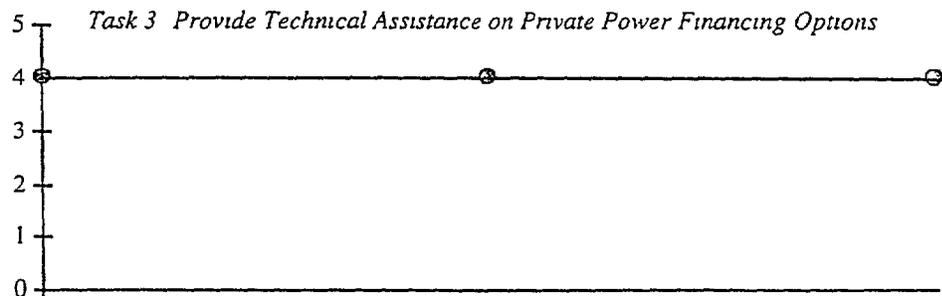
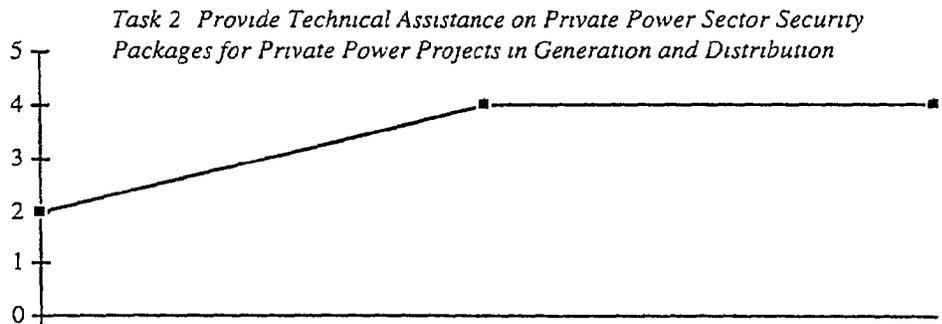
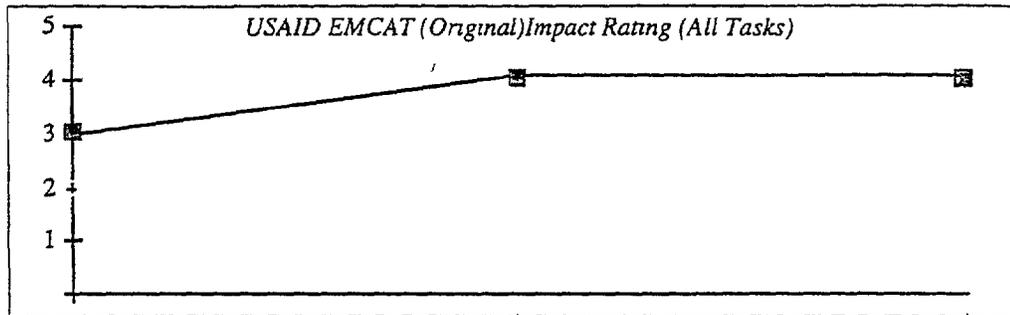


EMCAT R3 ORIGINAL SUMMARY OF RATINGS BY TASKS

Task No	Topic	Components	Impact	Rating	Rating (Average)
2	Provide Technical Assistance on Private Power Sector Security Packages for Private Power Projects in Generation and Distribution	PPA	Medium	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 5	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 5
		Transmission / Distribution Privatization	High	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 1 5	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 5
3	Provide Technical Assistance on Private Power Financing Options	Tariffs & Costs	High-Medium	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 5	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 5
		Financial Modeling	High	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 5	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 5
4	Provide Technical Assistance on Private Power Support undertakings	Competitive Bidding	Medium	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 5	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 5
5	Provide Assistance on Private Power Information Dissemination and Policy Dialogue	Regulatory Body / Restructuring	Medium	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 5	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 5
		Private Power Policy Dialogue	High	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 5	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 5



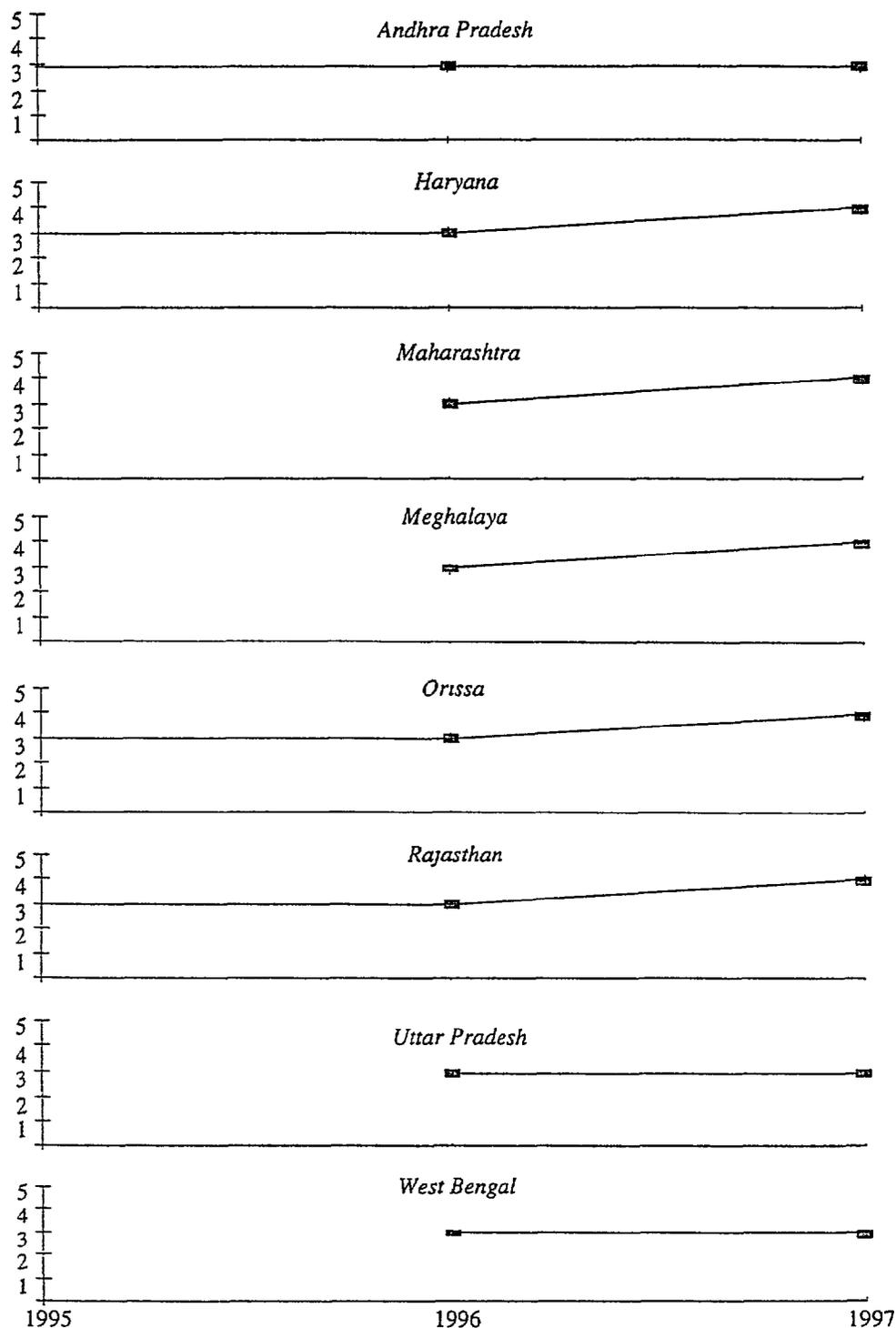
USAID EMCAT (ORIGINAL) IMPACT RATING BY TASKS



Source ACG Analysis



USAID EMCAT (ORIGINAL) IMPACT BY KEY STATES



Impact	1995	1996	1997
MP			4
Kerala			4
Tamil Nadu			3
Bihar		4	

† States not shown

Source ACG Analysis



<p>ACG has developed a 6 Step Methodology for evaluating USAID's EMCAT R³ Program Impact on Indian Power Sector</p>	1	<p>DYNAMICS OF CHANGE Analysis of Power Policy Evolution Mechanism Assessment of Agencies involved in influencing policy change Research on Policy Evolution at National as well as State level (As Power is a Concurrent subject)</p>
	2	<p>USAID INITIATIVES Identification of USAID Initiatives for the EMCAT R³ program Organization of Initiatives according to Program Tasks</p>
	3	<p>FIELD OBSERVATION Restructuring Business Journals Database to search 34 (XX) records of power and infrastructure development Classification of Information to facilitate USAID Impact Evaluation</p>
	4	<p>CORRELATION Identification & Organization of key milestones identified (1 200) Development of Framework to classify milestones Analysis of correlation between USAID Initiatives and power sector developments</p>
	5	<p>IMPACT Development of Impact Rating Criteria Framework & Scales USAID Initiatives Impact Evaluation</p>
	6	<p>EMCAT REVISED IMPACT ASSESSMENT Impact Evaluation for EMCAT Revised Program (Via Step 2.3) Updates to be provided to USAID on a bi annual basis</p>

SECTION TITLE EMCAT R3 REVISED RATING ASSESSMENT

CONTENTS

- USAID POLICY RATING FRAMEWORK
- USAID POLICY MATRIX TARGETS (1997-2002)
- USAID POLICY ISSUE DETAILS



USAID POLICY RATING FRAMEWORK

- USAID Policy efforts generally pass through five, flexibly-defined steps, each of them weighted according to its importance in the process, for a total of 100% in the case of a policy measure fully in force
- These steps, which are used for all policy reform-related activities in S04, are

Identification/Analysis (10%)

- This step includes definition of the problem, baseline data development, feasibility studies and cost/benefit analysis of various alternatives
- It also involves consultation with all interested parties GOI, NGOs, local authorities, and other partners/customers

Development (10%)

- The full development of project interventions to address the problem identified
- Development includes budgeting, identification of all costs and benefits, and detailed project planning completed

Validation/Promotion/Training (20%)

- Includes vetting proposals by relevant participants (GOI, NGOs, local authorities, etc)
- The dialogue includes all interested parties and builds awareness of the importance of what needs to be done
- Coalitions which think the proposal is a good idea and can lobby for adoption are identified, sensitized, and trained
- This is the stage of broadening public participation, through seminars, round tables, etc with the interested parties

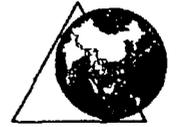
Adoption (20%)

- Can take the form of the voting on a law, the issuance of a decree, the adoption of a regulation, or the establishment of an operation
- This is the phase of public/private negotiations and GOI coordinating among ministries to get legislation, decrees and policies adopted

Implementation/Enforcement (40%)

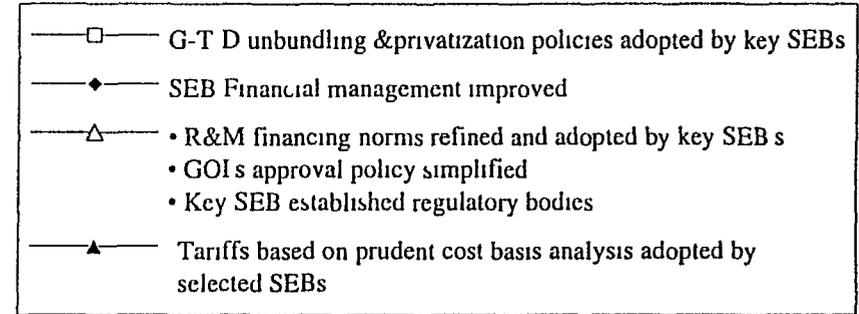
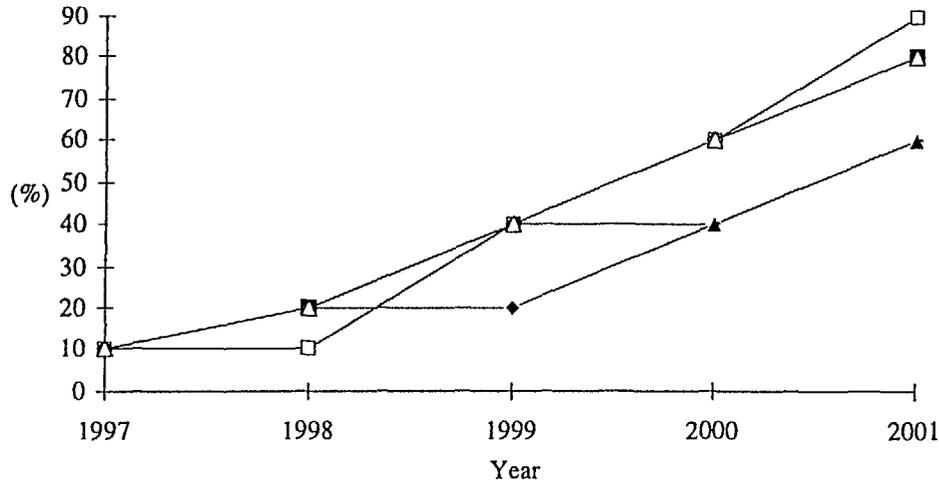
- This puts the proposal into effect
- Any TA needs for implementation pass through the RFP stage and selection process state
- The implementation staff is trained in new procedures
- Enforcement is monitored and actual impact assessed

According to USAID rating the anticipated average percentage of all reforms in the year 2001 is 87.50%

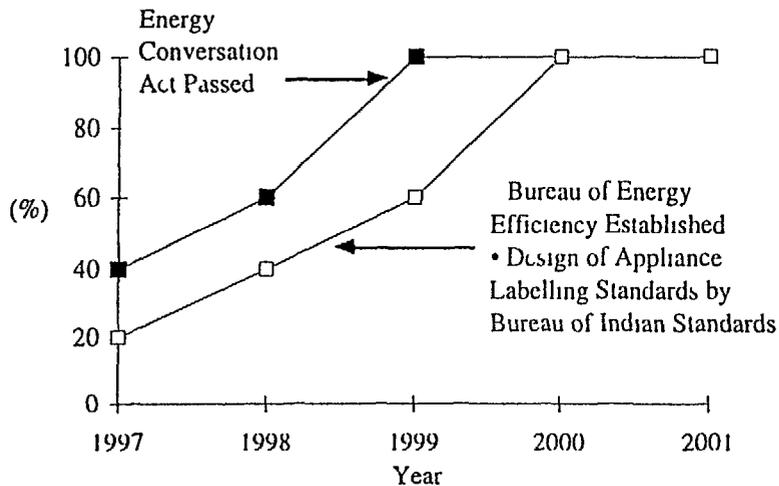


USAID POLICY MATRIX TARGETS (FINANCIAL YEAR 1997-2001)

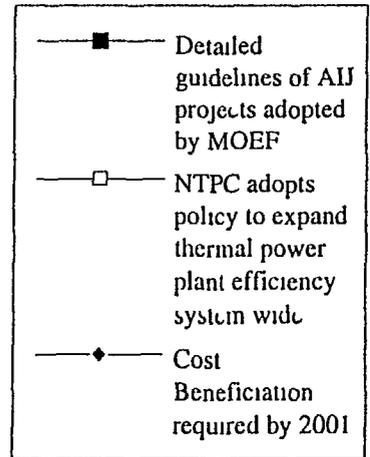
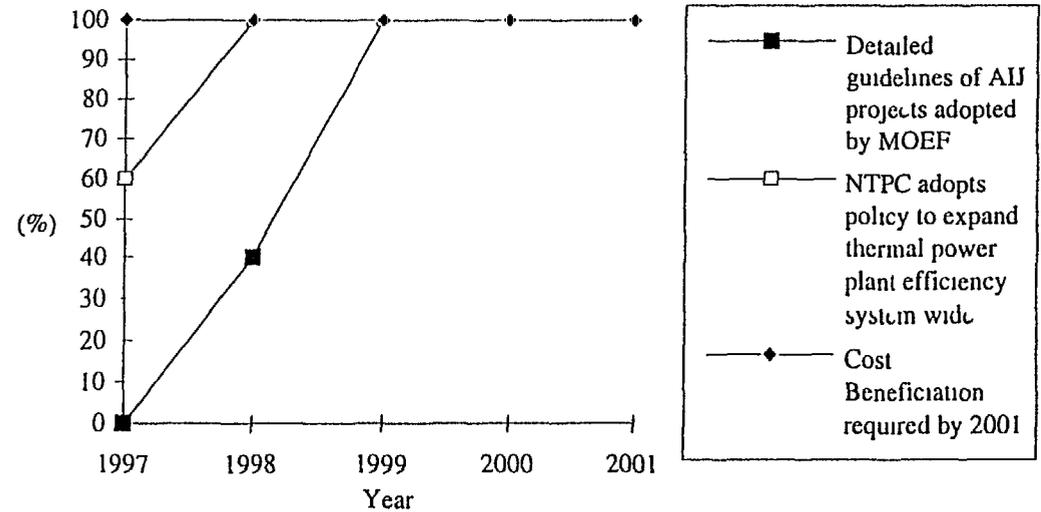
Regulatory Reform



Demand Side Management



Green House Gas Pollution Prevention



† Note Same legend used for categories following the same trend

Anticipated Average of all reforms

Year	1997	1998	1999	2000	2001
Anticipated Average (%)	25.45	40.83	61.67	76.67	87.5



USAID POLICY ISSUE DETAILS

Regulatory Reform & Restructuring Policy Issue Details

GOI's IPP Approval Policy Simplified

- GOI will encourage competitive bidding for all future projects at the Center and encourage participating states to adopt a "one-stop" window for facilitating development within the state
- Establish IPP evaluations against cost of power, dispatch considerations, fuel availability and sponsor ability to bring equity and debt financing to the project

G-T-D Unbundling & Privatization Policies Adopted By Key SEBs

- Selected SEBs will implement plans to unbundle their generation, distribution and transmissions entities
- These plans will stress the need for corporatization strategies will be development and implemented to assure that employee issues are addressed in the plans

Selected SEBs Financial Management Improved

- Selected SEBs will develop and implement planning, forecast and budget models, understand and develop financial reports, establish relations with debt and equity financial institutions and stock holders, and start developing financial reports for regulatory commissions when these are instituted

Key State Governments Will Establish Electricity Regulatory Bodies

- Independent Regulatory Bodies will be established which will oversee and regulate the power sector reforms stressing the need for financial soundness of power sector entities
- Encourage efficient use of energy and natural resources by both the power sector and end-users
- Allow access to all stake holders at tariff hearings
- Ensure least cost planning by regulated entities

Tariffs Based On Prudent Cost Basis Analysis Adopted By Selected SEBs

- Selected SEBs will shift to tariffs that represent prudent cost of service for different customer classes plus reasonable incentive profits

R&M Financing Norms Refined & Adopted By SEBs

- Selected SEBs will adopt financing mechanisms for rehabilitation and modernization (R&M) that attract outside investors as possible equity partners with selected SEB entities, especially as they are moving towards privatization
- R&M brings the greatest systems improvement, including plant efficiency, at the lowest cost when compared to the cost of setting up a new power plant



USAID POLICY ISSUE DETAILS (CONTD)

Demand Side Management

Energy Conservation Act passed

Encourage the progressive implementation of policies to promote the efficient use of energy in the industrial sector. The ministry of power (MOP) should use mandatory energy efficiency auditing to bring rational energy use into the industrial sector. Through the establishment of the Bureau of Energy Efficiency, the MOP will enforce the mandatory auditing clause of the Act to ensure compliance by industry.

Bureau of Energy Efficiency established

Support the implementation of mandatory appliance standards and labeling. Created by the Energy Conservation, the Bureau of Energy Efficiency has two mandates: To enforce mandatory auditing in the industrial sector and to enforce the use of energy efficiency appliance labeling. The bureau of energy efficiency should coordinate the research activities of other government agencies to introduce reasonable and informative appliance labels.

Design of appliance Labeling by Bureau of Indian Standards

Encourage the rational design of energy efficiency appliance labeling. The Bureau of Indian Standards (BIS) should carefully research the consumer acceptance of appliance labeling and coordinate their findings with the newly established Bureau of Energy Efficiency. Although the Government of India, Ministry of power has clearly stated their intentions of making appliance standards and labeling mandatory, the infrastructure necessary to implement this policy is still lacking.

Greenhouse Gas Pollution Prevention

Detailed guidelines for AIJ Projects Adopted

The Ministry of Environment and Forests is the nodal government agency for GOI for all AIJ (Activities Implemented Jointly) projects which aims to test the concepts of Joint Implementation in the pilot phase. The MoEF should develop detailed guidelines for development of AIJ projects indicating clearly the GOI priority areas, baseline determination, emissions off-set monitoring and verification, appraisal and approval system.

NTPC adopts power plant efficiency improvement system-wide

NTPC has received extensive technical assistance and training to implement power plant efficiency improvement. In order to achieve the total potential for carbon dioxide off-sets from efficiency improvement, NTPC corporate policy should make efficiency improvement in all their power plants a time bound policy.

Coal beneficiation required by 2001

Indian coal contains up to 50% inert material (mostly ash and shales) which needs to be pre-treated (beneficiated or washed) prior to despatch of the coal from the mines to the power plants which leads to serious air, land and water pollution. Ministry of Environment and Forests should make it compulsory for all power plant users (based on coal as fuel) to use coal of a certain minimum ash percentage. It is now anticipated that legislation will require coal washing for all thermal power plants by 2001.



SECTION TITLE CONCLUSIONS & RECOMMENDATIONS

CONTENTS

- CONCLUSIONS
- RECOMMENDATIONS



USAID IMPACT ASSESSMENT CONCLUSION

USAID Initiatives

- USAID initiated EMCAT program in the year 1992. The primary focus of the programme was to increase efficiency in power generation, transmission and distribution
- The Program was later revised in the year 1996 and extended to 1999
- Under the EMCAT Original program USAID has held programmes under the following categories
 - Assistance in Documentation Preparation
 - Power Purchase Agreements (PPAs)
 - Transmission Agreements
 - Distribution Management Agreements
 - Assistance in Private Power Financing Options
 - Tariff Analysis
 - Financial Modeling
 - Assistance in Private Power Support Undertakings
 - Competitive bidding documentation
 - Assistance in Private Power Information Dissemination and Policy Dialogue
 - Restructuring

USAID Impact

- USAID has had a major impact on the Power Sector Developments in India
- According to rating criteria developed by ACG, USAID has been allotted a rating of 4 (average) on all of its initiatives prior to the year 1997
- Rating of '4' implies that almost all of the USAID initiatives have translated into Positive Policy Debate / Discussions or Initiations (For eg Transmission Privatization, Competitive bidding documentation and Tariff Analysis)
- USAID has had a major influence on states of Haryana, Orissa, Rajasthan and Andhra Pradesh which are the key states involved in the restructuring program

USAID EMCAT Revised Continuous Impact Assessment

- ACG has developed a comprehensive framework to evaluate the impact of continued USAID initiatives
- A detailed and a comprehensive tracking and initiative rating system has been developed to enable extremely efficient updates
- Quarterly updates will provide USAID a sound foundation for
 - Program valuation
 - Associated strategic decisions
 - Rationale for sectoral focus



RECOMMENDATIONS

Observations A Challenge

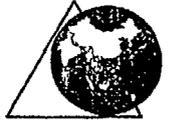
- Evaluating the impact of USAID initiatives in a dynamically evolving power sector (policy and field developments) requires a sophisticated evaluative framework and continuous appraisals
- Policy formulation is a time consuming and a complex procedure. It requires continuous and efficient monitoring at every stage (For e.g. Discussions on the transmission privatization had been initiated in the year 1996 and the bill has not been passed till date)
- USAID's EMCAT revised program envisages initiatives in the Transmission, Regulatory Body, Restructuring, Private Power Generation, Renovation & Modernization & Mobilizing Financial Resources which are issues which are currently being discussed
- USAID should constantly monitor the key milestones in the above sectors and their correlation with USAID initiatives

Proposed Solution

- ACG has formulated an efficient mechanism for evaluating the impact of USAID initiatives
- This mechanism includes the following key components
 - Business Journals Tracking System - ACG has undertaken restructuring of its databases to meet the client requirement
 - Key Parameters Identification (Identification of Milestones) - ACG has formulated a system which facilitates rapid identification of key field observations relevant to USAID initiatives
 - Rating of Field Observation - Developed to monitor the progress of developments by targeted state
 - System of Collation of USAID Initiatives with respect to field observations - Organizing the USAID initiatives along with their relevant field observations
 - USAID Initiatives Impact & Rating Criteria - ACG has developed a rating criteria for evaluating the impact of USAID initiatives
- ACG Impact evaluation Framework has been developed to provide rapid feedback on any new initiatives by USAID

Recommendations

- Asia Consulting Group to continue to provide valuable assistance to USAID in its program evaluation by
 - Ongoing tracking of power sector developments and evaluation of USAID initiatives
 - Continued refinement of the mechanism already developed
 - Leveraging the knowledge base and resource development undertaken in task 11
 - Suggesting ways and means to render USAID programs optimal in impact



SECTION TITLE APPENDIX

CONTENTS

- SECTIONS IN THE INDIAN ELECTRICITY ACT, 1910
- SECTIONS IN THE ELECTRICITY (SUPPLY) ACT, 1948
- SCHEDULES IN THE ELECTRICITY (SUPPLY) ACT, 1948
- THE DYNAMICS AND IMPACT OF DABHOL ON POWER PROJECTS (5 SLIDES)
- ABBREVIATIONS



SECTIONS IN THE INDIAN ELECTRICITY ACT, 1910

PART 1 Preliminary

- 1 Short title, extent and commencement
- 2 Definitions

PART 2 Supply of Energy

- 3 Grant of licenses
 - 4 Revocation or amendment of licenses
 - 4A Amendment of licenses
 - 5 Provisions where license of a licensee is revoked
 - 6 Purchase of undertakings
 - 7 Vesting of the undertaking in the purchaser
 - 7A Determination of purchase price
 - 8 Provisions where no purchase and license revoked with consent of licensee
 - 9 Licensee not to purchase or associate himself with, other licensed undertaking or transfer his undertaking
 - 10 General power for Government to vary terms of purchase
 - 11 Annual accounts of licensee
- Works*
- 12 Provision as to the opening and breaking up of streets, railways and tramways
 - 13 Notice of new works
 - 14 Alteration of pipes or wires
 - 15 Laying of electric supply lines or other works near sewers pipes or other electric supply-lines or works
 - 16 Streets railways, tramways, sewers drains or tunnels broken up to be reinstated without relay
 - 17 Notice to telegraph authority
 - 18 Overhead lines
 - 19 Compensation for damage
- Supply*
- 19A Point where supply is delivered
 - 20 Power for licensee to enter premises and to remove fittings or other apparatus of licensee
 - 21 Restriction on licensees controlling or interfering with use of energy

- 22 Obligation on licensee to supply energy
- 22A Powers of State Government to give direction to a licensee in regard to the supply of energy to certain class of consumers
- 22B Power to control the distribution and consumption of energy
- 23 Charges for energy to be made without undue preference
- 24 Discontinuance of supply to consumer neglecting to pay charge
- 25 Exemption of electric supply-lines or other apparatus from attachment in certain cases
- 26 Meters
- 27 Supply of energy outside area of supply

PART 3 Supply Transmission and Use of Energy By Non-Licensees

- 28 Sanction required by non-licensees in certain cases
- 29 Power for non licensees to break up streets
- 29A Application of section 18 to over head lines maintained by railways
- 30 Control of transmission and use of energy

PART 4 General

- Protective Causes*
- 31 Protection of railways, aerodromes, and canals, docks, wharfs and piers
 - 32 Protection of telegraphic, telephonic and electric signalling lines
 - 33 Notice of accidents and inquiries
 - 34 Prohibition of connection with earth and power for Government to interfere in certain cases of default
- Administration and Rules*
- 35 Advisory Board
 - 36 Appointment of Electrical Inspector
 - 36A Central Electricity Board
 - 36B Certain members affected by States' reorganization to vacate offices
 - 37 Power for Board to make rules
 - 38 Further provisions respecting rules

Criminal Offences and Procedure

- 39 Theft of energy
 - 39A Abetment
 - 40 Penalty for maliciously wasting energy or injuring works
 - 41 Penalty for unauthorized supply of energy by non-licensees
 - 42 Penalty for illegal or defective supply or for non-compliance with order
 - 43 Penalty for illegal transmission or use of energy
 - 44 Penalty for interference with meters or licensee's works and for improper use of energy
 - 45 Penalty for extinguishing public lamps
 - 46 Penalty for neglecting wasting energy or injuring works
 - 47 Penalty for offences not otherwise provided for
 - 48 Penalties not to affect others liabilities
 - 49 Penalties where works belong to Government
 - 49A Offences by companies
 - 50 Institution of prosecutions
- Supplementary*
- 51 Exercise in certain cases of powers telegraph authority
 - 51A State Government to have powers and obligations of a licensee under this Act
 - 52 Arbitration
 - 53 Service of notices, orders of documents
 - 54 Recovery of sums recoverable under certain provisions of Act
 - 55 Delegation of certain functions of State Government to Electrical Inspectors
 - 56 Protection for acts done in good faith
 - 57 Amendments of the Land Acquisition Act 1894
 - 58 Repeals and savings

The Schedule Provisions to be deemed to be incorporated with and to form part of, every license granted under part 2 so far as not added to, varied or expected by the license



SECTIONS IN THE ELECTRICITY (SUPPLY) ACT, 1948

Chapter 1 Introductory

- 1 Short title extent and commencement
- 2 Interpretation

Chapter 2 The Central Electricity Authority

- 3 Constitution of the Central Electricity Authority
- 4 Power to require accounts statistics and returns
- 4A Directions by Central Government to the Authority
- 4B Power of Central Government to make rules
- 4C Power of Authority to make regulations

Chapter 3 State Electricity Boards, Generating Companies, State Electricity Consultative Councils and Local advisory Committees

- 5 Constitution and composition of State Electricity Boards
- 6 Inter State agreement to extend Board's jurisdiction to another State
- 7 Effect of inter State agreement
- 8 Term of office and conditions for re appointment of members of the Board
- 9 Members not to hold interest in certain concerns
- 10 Removal or suspension of members
- 10A Power of State Government to declare certain transactions void
- 11 Temporary absence of members
- 12 Incorporation of Board
- 12A Board may have capital structure
- 13 Authentication of orders and other instruments of the Board
- 14 Meetings of the Board
- 15 Appointment of staff
- 15A Objects jurisdiction etc of Generating Companies
- 16 State Electricity Consultative Council
- 17 Local Advisory Committee

Chapter 4 Powers and Duties of State Electricity Boards and Generating Companies

- 18 General duties of the Board
- 18A Duties of Generating Company
- 19 Powers of the Board to supply electricity
- 20 Power to Board to engage in certain undertakings
- 20A Leasing out etc of generating stations
- 21 Powers of Board in relation to water power
- 22 Power to Board to conduct investigations
- 23 Loans by Board to licensees
- 24 Power to Board to contribute to certain associations
- 25 Consulting engineers

- 26 Board to have powers and obligations of licensee under Act 9 1910
- 26A Applicability of the provisions of Act 9 of 1910 to Generating Company
- 27 Other functions of the Board

Chapter 5 The Works and Trading Procedure of the Board and the Generating Company

- 28 Preparation and sanctioning of scheme
- 29 Submission of schemes for concurrence of Authority etc
- 30 Matters to be considered by the Authority
- 31 Concurrence of Authority to scheme submitted to it by Board or Generating Company
- 32 Power to alter or extend schemes
- 33 Provisions applicable to scheme prepared by State Government
- 35 Supply by the Board to licensees owning generating stations
- 36 Power to Board to close down generating stations
- 37 Purchase of generating stations or undertakings or main transmission lines by the Board
- 38 [Repealed]
- 39 Operation of Board's generating stations
- 40 Provision regarding connections with main transmission lines purchased by the Board
- 41 Use by Board of transmission lines
- 42 Powers to Board for placing wires poles etc
- 43 Power to Board to enter into arrangements for purchase or sale of electricity under certain conditions
- 43A Terms conditions and tariff for sale of electricity by Generating Company
- 44 Restriction on establishment of new generating stations or major additions or replacement of plant in generating stations
- 45 Power to Board to enter upon and shut down generating stations in certain circumstances
- 46 The Grid Tariff
- 47 Power to Board to make alternative arrangements with licensees
- 48 Power to licensee to carry out arrangements under this Act
- 49 Provision for the sale of electricity by the Board to persons other than licensees
- 50 Board not to supply electricity in certain circumstances
- 51 Provisional Payment
- 52 Lower limit of power factor in supply by Board
- 53 Provision of accommodation and right of way
- 54 Power to Board to connect meters etc to apparatus of licensees
- 55 Compliance of directions of the Regional Electricity Board etc by licensees or Generating Companies
- 56 Licenses of generating stations
- 57 Licensees charges to consumers

57A Rating committees

- 57B Power of rating committee to call for information etc
- 58 Power to direct amortization and tariffs policies of licensees being local authorities

Chapter 6 The Board's Finance, Accounts and Audit

- 59 General principles for Board's finance
- 60 Board to assume obligations of State Government in respect of matters to which this Act applies
- 60A Period of limitation extended in certain cases
- 61 Annual Financial Statement
- 62 Restriction on unbudgeted expenditure
- 63 Subventions to the Board
- 64 Loans to the Board
- 65 Power of Board to borrow
- 66 Guarantee of loans
- 66A Conversion of amount of loans into capital
- 67 Priority of liabilities of the Board
- 67A Interest on loans advanced by State Government to be paid only after other expenses
- 68 Charging of depreciation by Board
- 69 Accounts and audit

Chapter 7 Miscellaneous

- 70 Effect of other laws
- 71 [Repealed]
- 72 Water power concessions to be granted only to the Board or a Generating Company
- 73 Co ordination between the Board's schemes and multi purpose schemes
- 74 Powers of entry
- 75 Annual reports statistics and returns
- 75A Annual reports and accounts of Generating Company
- 76 Arbitration
- 77 Penalties
- 77A Source from which lines may be paid
- 77B Offences by companies
- 77C Cognizance of offences
- 78 Power to make rules
- 78A Directions by the State Government
- 79 Power to make regulations
- 79A Laying of certain rules and regulations before State Legislature
- 80 Provision relating to income tax and super tax
- 81 Members officers and servants of the Board to be public servants
- 82 Protection to persons acting under this Act
- 83 Saving of application of Act

The Electricity (Supply) Act, 1948 consist of 9 schedules



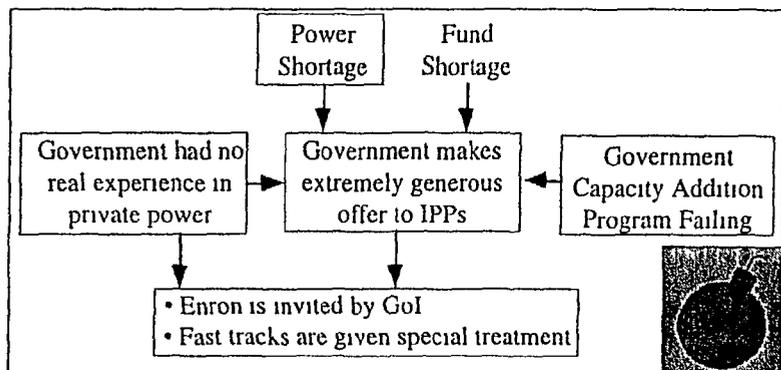
SCHEDULES IN THE ELECTRICITY (SUPPLY) ACT - 1948

<i>Schedules</i>	<i>Reference Section</i>	<i>Particulars</i>
I Arrangements in Respect of Controlled Stations	(Sections 34 and 36)	<ul style="list-style-type: none"> Regulates the relation between the Board and controlled station Part 1 of the Schedule details the "Assumptions of Control" Part 2 the "Price to be paid for the electricity supplied by the Board under Part 1" Part 3 the "Permanent closing down of a controlled station" Part 4 the "Purchase by Board of controlled station not to be closed down"
II Supply by Board to Licensees owning Stations other than Controlled Stations	(Section 35)	<ul style="list-style-type: none"> Provisions of the Second schedule apply in respect of the relation between the board and the licensee
III Closing down of Generating Stations other than Controlled Stations	(Section 36)	<ul style="list-style-type: none"> Applies to the relation between the Board and the Licensee with reference to the station be closed down
IV Price for undertakings, Generating Stations and main Transmission Lines Purchased by the Board	(Section 23, 37 and First Schedule)	<ul style="list-style-type: none"> Details out the price to be paid for for any undertaking purchased by the Board Details the qualification of the auditor appointed for determining the price
V Charges for use by Board or Generating Company of Transmission Lines and main Transmission Lines	(Section 41)	<ul style="list-style-type: none"> Lists out the various charges and allowances to be made in respect of use of Transmission lines or main transmission lines by Board or Generating Company
VI Financial Principles and their Application	(Section 57 and 57A)	<ul style="list-style-type: none"> The provisions of the Schedule is deemed to be incorporated in the license of every licensee, not being a local authority
VII	(Repealed)	<ul style="list-style-type: none"> Omitted by Electricity Supply (Amendment Act, 1978, sec 24)
VIII Determination of cost of Production of Electricity at Generating Stations	(First and Third Schedules)	<ul style="list-style-type: none"> Takes into account the cost, charges and allowances in respect of the cost of production of of Electricity at a generating station
IX Allocation of costs of Production at Generating Stations	(First Schedule)	<ul style="list-style-type: none"> The schedule describes the different components of the cost of generation

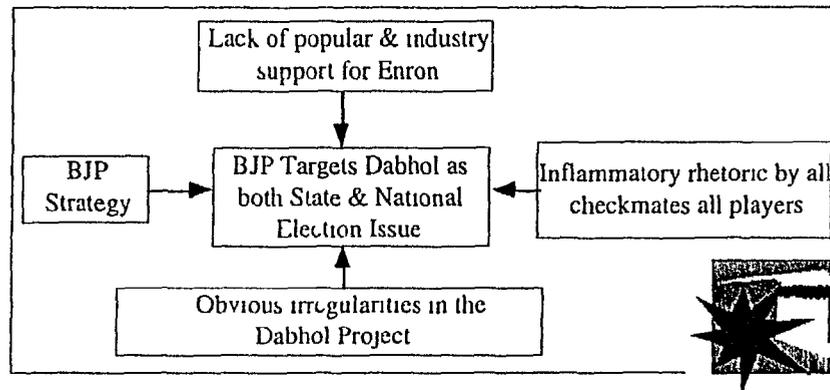


DYNAMICS & IMPACT OF DABHOL ON POWER PROJECT DEVELOPMENT IN INDIA

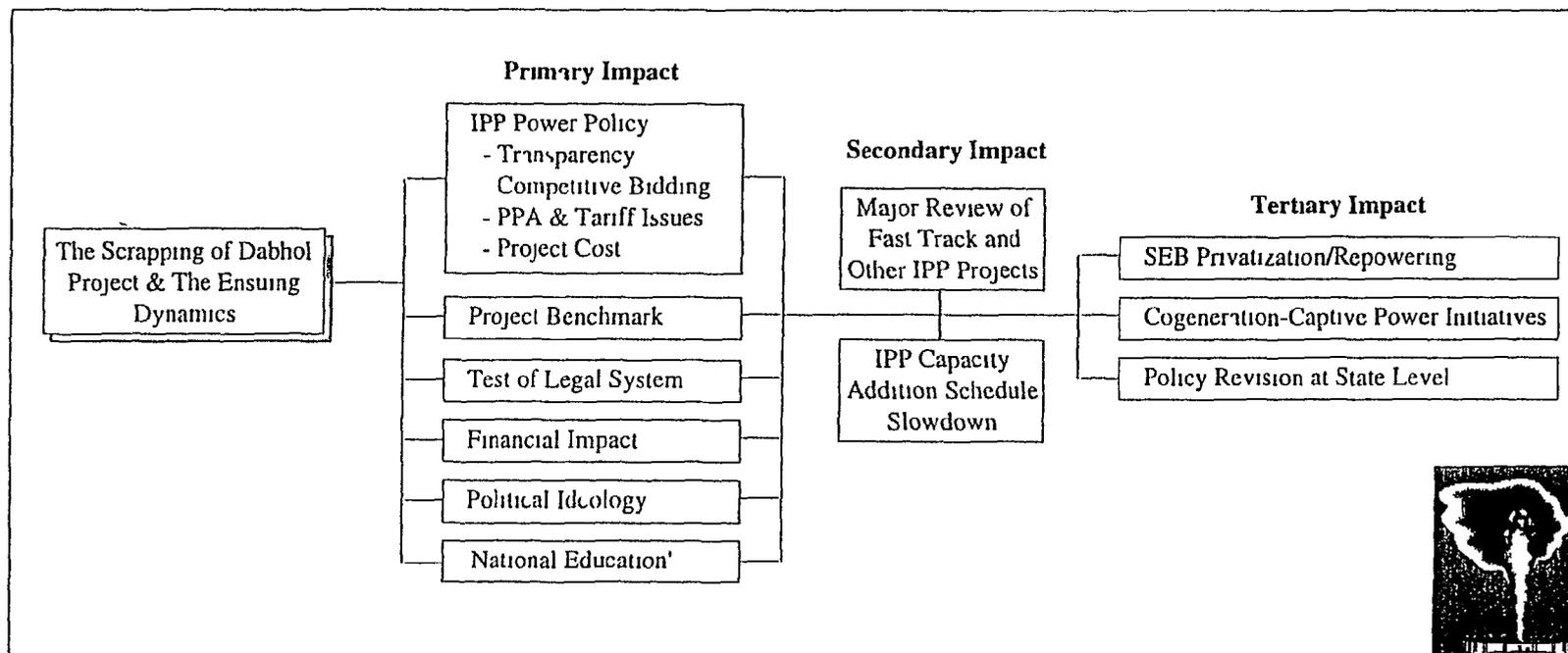
I The Power Scene in India 1991 onwards



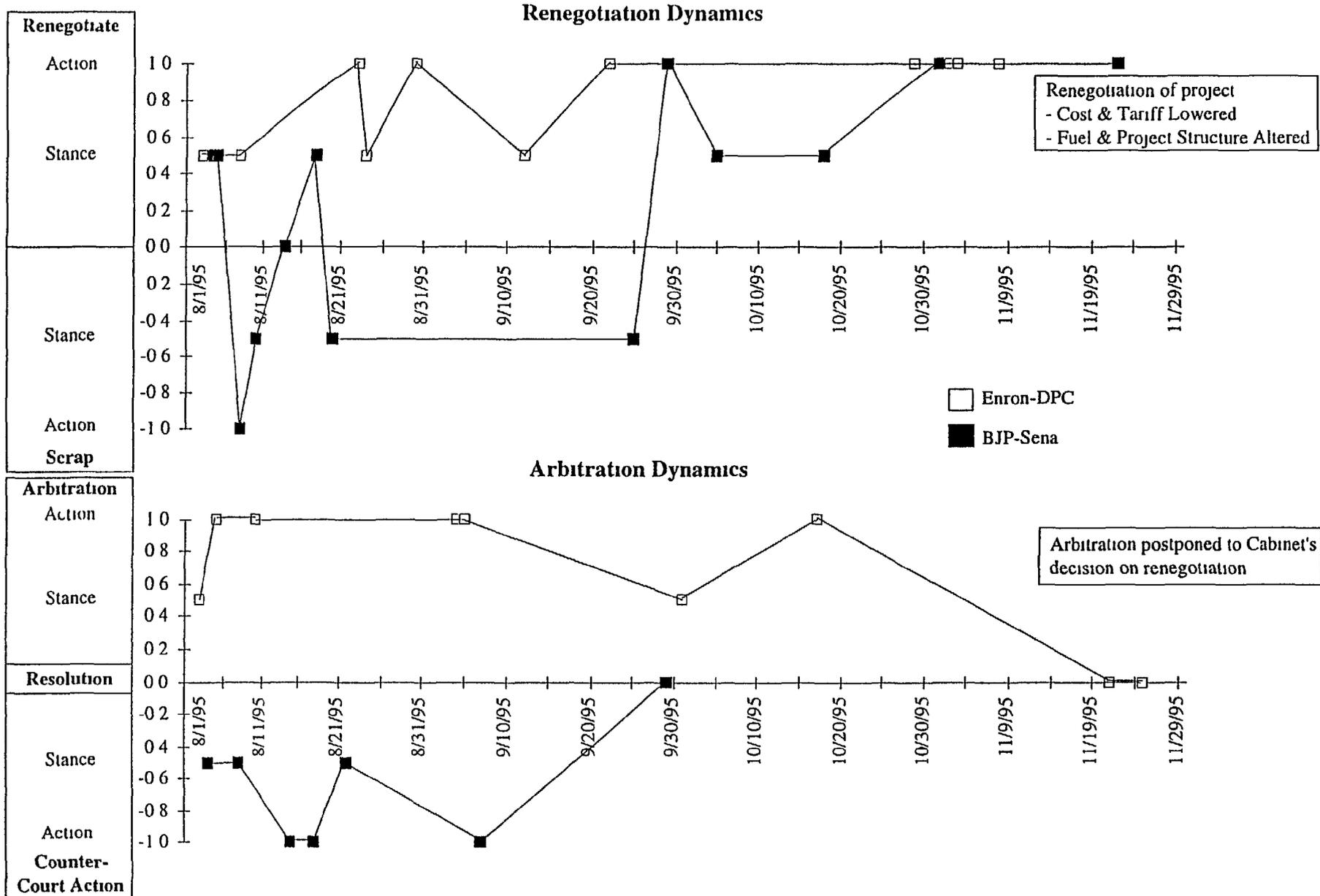
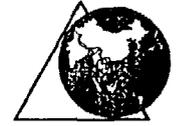
III The Opposition in Maharashtra & India to Congress Government

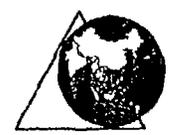


IIII Dabhol & Impact on IPP Project Development in India

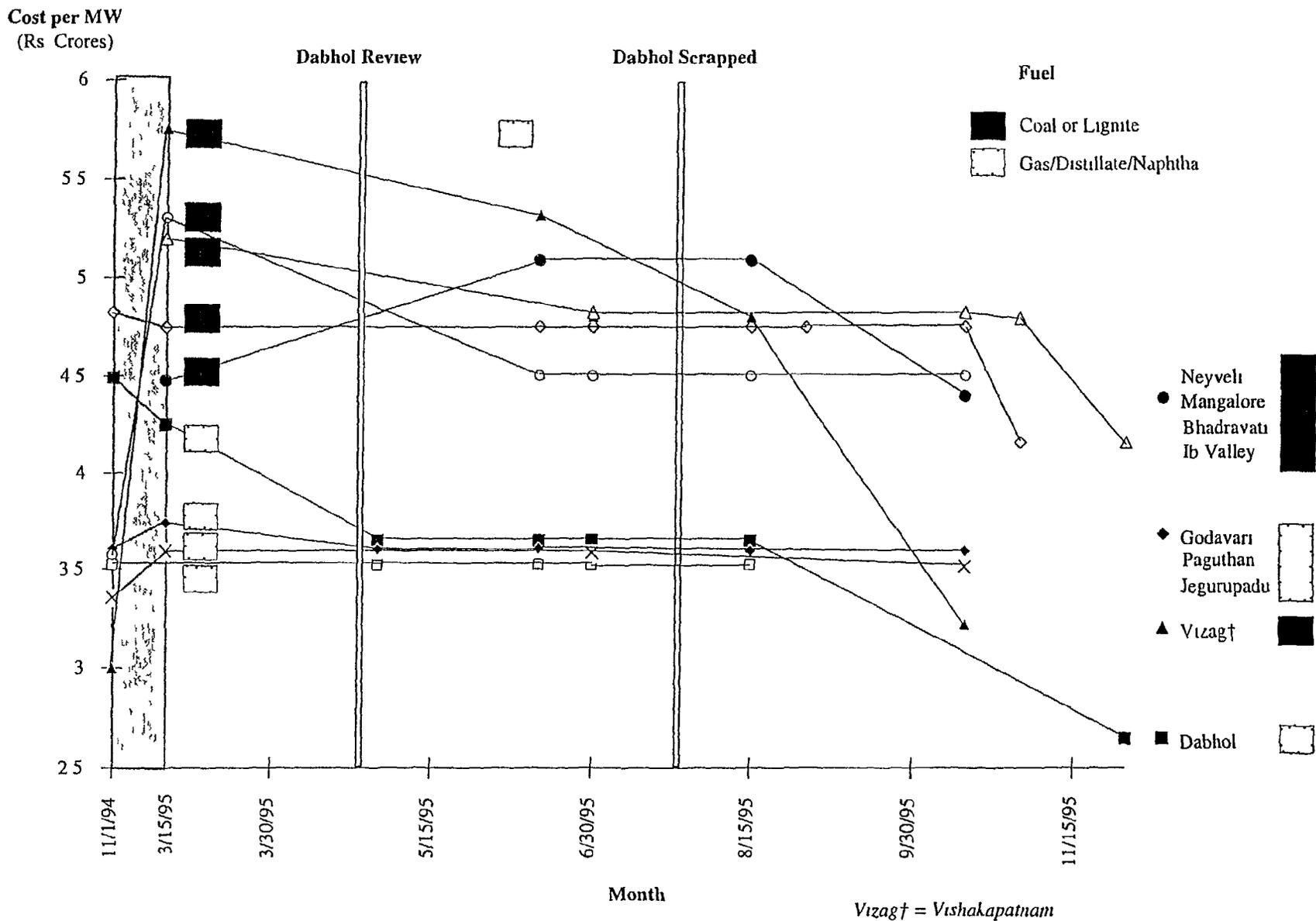


RENEGOTIATION & ARBITRATION TUG OF WAR - AUGUST TO NOVEMBER, '95

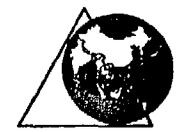




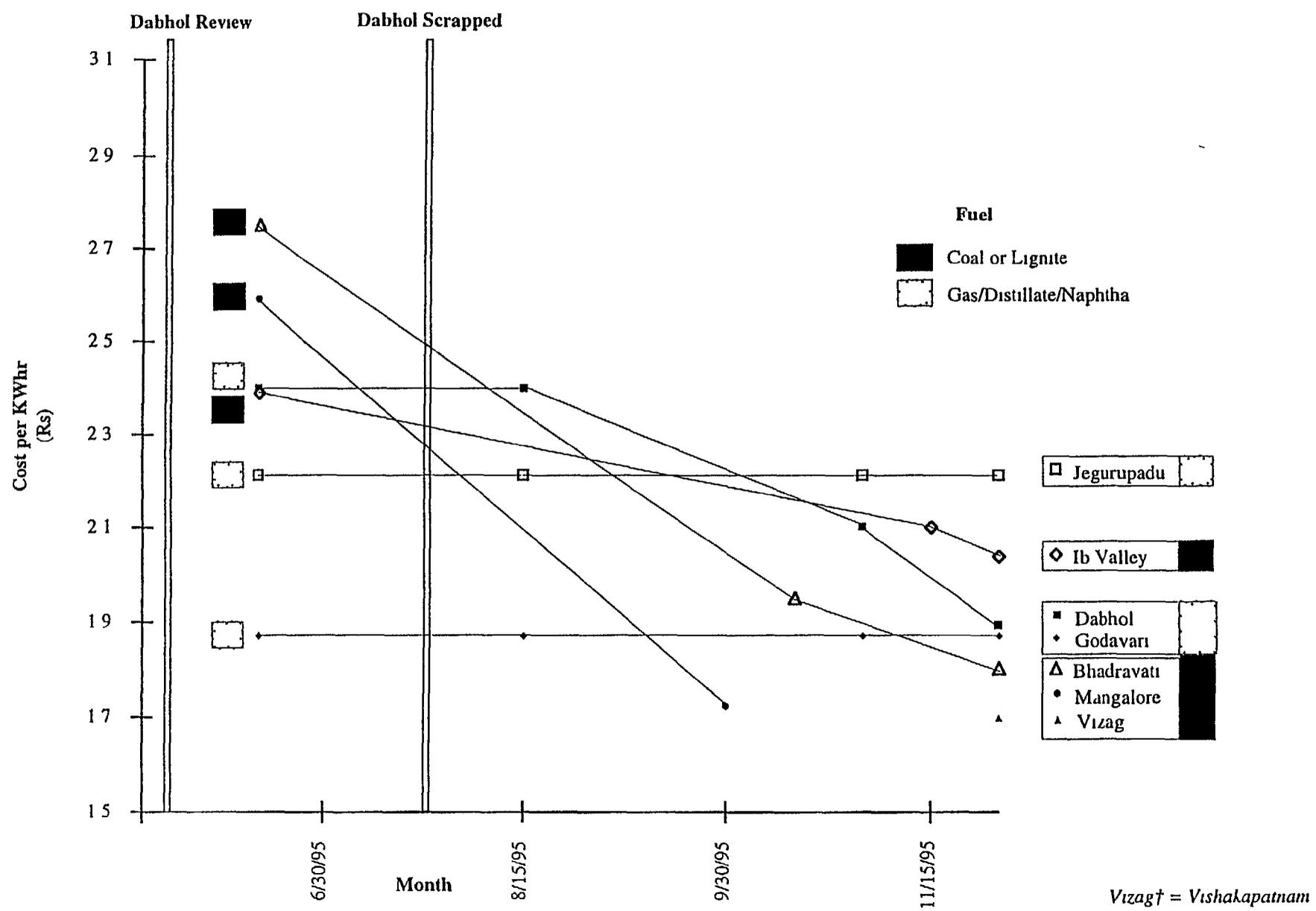
PROJECT COST DABHOL IMPACT ? (FAST TRACK PROJECTS)



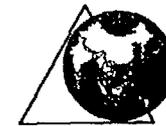
Source: Industry & Government Reports, ACG Models & Databases, ACG Analysis



POWER PURCHASE TARIFF DABHOL IMPACT ? (FAST TRACK PROJECTS)



Source: Industry & Government Reports, ACG Models & Data Bases, ACG Analysis



MAIN POLITICAL PARTIES VIEWS ON LIBERALIZATION

Party	1	2	3	4	5	6	7	8	9	10	From Review to Scrap	Renegotiation hunting Dabhol Revival
Congress	●	●	●	●	●	●	●	●	●	●	<ul style="list-style-type: none"> • Union Minister of Power "Review is anti national Signed contracts should not be considered a play thing on the chessboard of politics " • Ex chief Minister (Maharashtra) If scrapped - 'The fallout of such a decision are likely to be extremely unpleasant Future generations may have to pay a heavy price for political adventurism PM 'A mutually beneficial solution shall be only be derived 	<ul style="list-style-type: none"> • Power ministry formulating policies for quick clearances and capacity addition without foregoing internationally accepted methods • Ex CM (Maharashtra) Welcomed renegotiation and cut in capital costs saying that it was better late than never
BJP (Bharatiya Janata Party)	○	●	○	●	●	●	●	●	●	●	<ul style="list-style-type: none"> • BJP leader Mr Joshi will have to decide whether he wants Enron's power or political power If we go back on our promise to scrap the project people will loose faith in us and that can spell doom for us in the state • SJM an ally of BJP Foreigners go home 	<ul style="list-style-type: none"> • Mr Pramod Mahajan (Secy BJP) "We do not want the state to own everything, we in fact welcome liberalization, but we are concerned about whose economy this is • Mr Atal Bihari Bajpayee "Foreign direct investment is welcome in high-tech and infrastructure areas most emphatically the country does require FDI's Swadeshi does not mean that India should remain cut off from the rest of the world Swadeshi is mainly depending on our own resources, both human and material to lay the foundation for future prosperity'
JD (Janata Dal)	▨	●	▨	●	○	●	○	○	○	○	<ul style="list-style-type: none"> • Were alleged to be mastermind behind attack by 600 strong mob at Dabhol site, on 12 May 95 	-
CPI (M)	○	●	○	●	○	○	●	○	●	●	<ul style="list-style-type: none"> • Politburo Anything short of scrapping would be betrayal of country's interests • Follows lessons from China on cushioning the fallout of reforms 	<ul style="list-style-type: none"> • Mr Somnath Chatterjee (CPM leader West Bengal) The first thing to decide is whether you want industrialization or not MNC bashing was never the aim of CPM The party continues to oppose economic imperialism

Issues

1	Tariff Reductions	6	Banking Sector Reforms	●	Accelerate Reforms	○	Go Slow on Reforms
2	Taxation Reforms	7	NRI Investment Incentives	●	Same Pace of Reforms	▨	Status Quo ante
3	Export Incentive Reduction	8	Power Oil & Mining Privatization				
4	Capital Market Reforms	9	Telecommunication Privatization				
5	Foreign Investment	10	Aviation Privatization				



ABBREVIATIONS

A		D		H	
A&P	Administration and Planning	Dec	December	HBJ	Hazira-Bijapur-Jagdishpur
ABB	Asea Brown Boveri	DG	Diesel Generator	HC	High Court
ACG	Asia Consulting Group	DGFT	Director General Foreign Trade	HPCL	Hindustan Petroleum Corporation Ltd
ADB	Asian Development Bank	DPR	Detailed Project Report	HSD	High Speed Diesel
AFBC	Atmospheric Fluidised Bed Combustion	DVB	Delhi Vidyut Board	HT	High Tension
APSEB	Andhra Pradesh State Electricity Board	DVC	Damodar Valley Corporation	I	
Aug	August	DPC	Dabhol Power Company	IAS	Indian Administrative Services
B		Dy	Deputy	ICICI	Industrial Credit and Investment Corporation of India
BHP	British Horse Power	E		IDBI	Industrial Development Bank of India
BJP	Bhartiya Janata Party	EPC	Engineering, Procurement and Construction	IEM	Industrial Entrepreneurs Memorandum
C		ERLDC	Eastern Regional Load Despatch Center	IFC	International Finance Corporation
CAGR	Cummulative Accrued Growth Rate	E/S	Electricity Supply	IFFCO	Indian Farmers Fertilisers Cooperative Ltd
CBM	Coal Bed Methane	Exe	Executive	IGCC	Integrated Coal Gasification Combined Cycle
CC	Combined Cycle	Expn	Expansion	IGFC	Integrated Gasification Fuel Cell
CCFI	Cabinet Committee for Foreign Investment	F		IOC	Indian Oil Corporation
CCGT	Combined Cycle Gas Turbine	FDI	Foreign Direct Investment	IPP	Independent Power Producer
CCPP	Combined Cycle Power Project	FI	Financial Institution	IREDA	Indian Renewable Energy Development Agency
CDC	Commonwealth Development Corporation	FIPB	Foreign Investment Promotion Board	J	
CEA	Central Electricity Authority	FO	Fuel Oil / Furnace Oil	Jan	January
CESC	Calcutta Electric Supply Corporation	FSA	Fuel Supply Agreement	Jul	July
CM	Chief Minister	G		JV	Joint Venture
CNG	Compressed Natural Gas	GAIL	Gas Authority of India Limited	K	
CPM	Communist Party of India (Marxist)	GBPP	Gas Based Power Project	KEB	Karnataka Electricity Board
CWC	Central Water Commission	GDR	Global Depository Receipt	Km	Kilometers
		Govt	Government	Kribhco	Krishak Bharati Co-operative Limited
		GT	Gas Turbine	KV	Kilo Volts
		GW	Giga Watt	Kwh	Kilo Watt Hour
		Gwh	Giga Watt Hour		

ABBREVIATIONS (CONTD)



L		NRLDC	Northern Regional Load Despatch Center	SIL	Special Import License
L/C	Letter of Credit	NSDP	Net State Domestic Product	SLDC	State Load Despatch Center
LDC	Load Despatch Center	NTPC	National Thermal Power Corporation	Sq	Square
LNG	Liquefied Natural Gas	No	Number	Sr	Senior
LPG	Liquefied Petroleum Gas	Nov	November	SRLDC	Southern Regional Load Despatch Center
LROT	Lease Rehabilitate, Operate & Transfer	O		ST	Steam Turbine
LSHS	Low Sulfur Heavy Stock	O&M	Operation & Maintenance	T	
LT	Low Tension	OC	Open Cycle	T&D	Transmission and Distribution
LoI	Letter of Intent	OECF	Overseas Economic Corporation Fund	TEC	Techno-Economic Clearance
LoP	Letter of Permission	OSEB	Orissa State Electricity Board	Tel	Telephone
Ltd	Limited	Oct	October	Twh	Tera Watt Hour
M		P		U	
Mar	March	PTB	Pressurise, Fluidised Bed Technologies	UK	United Kingdom
MHD	Magneto Hydro Dynamics	PFBC	Pulverised Fluidised Bed Combustion	UPSEB	Uttar Pradesh State Electricity Board
MMBTu	Million Metric British Thermal Units	PHDCCI	PHD Chamber of Commerce & Industry	USA	United States of America
MMSCMD	Million Metric Standard Cubic Meters per Day	PIB	Public Investment Board	UTI	Unit Trust of India
MMT	Million Metric Tonnes	P O	Post Office	V	
MMTPA	Million Metric Tonnes Per Annum	PLF	Plant Load Factor	V	Fifth
MNC	Multi National Corporation	PM	Prime Minister	VI	Sixth
MoP	Ministry of Power	POL	Petroleum Oil	W	
MoP&NG	Ministry of Petroleum and Natural Gas	PPA	Power Purchase Agreement	WRLDC	Western Regional Load Despatch Center
MoE&F	Ministry of Environment and Forestry	PSU	Public Sector Undertaking		
MoU	Memorandum of Understanding	R			
MP	Madhya Pradesh	R&M	Renovation and Modernization		
MSEB	Maharashtra State Electricity Board	RCF	Rashtriya Chemicals and Fertilisers		
MU	Million Unit	REB	Regional Electricity Board		
MVA	Million Volt Amperes	RLDC	Regional Load Despatch Center		
MW	Mega Watt	RoR	Rate of Return		
N		Rs	Rupce		
NERLDC	North Eastern Regional Load Despatch Center	S			
NFL	National Fertiliser Ltd	SBI Caps	State Bank of India Capital		
NHPC	National Hydro Power Corporation	SBM	Single Buoy Mooring		
NPC	Nuclear Power Corporation	SC	Supreme Court		
NPT	National Project Track	SEB	State Electricity Board		
		SERC	State Electricity Regulatory Commission		
		Sep	September		