India Power Sector Reforms Update

Issue II - January 2002

(Updates in the period: October 2001 to January 2002)

India power sector reforms update is a joint initiative of Prayas, an Indian NGO based in Pune, working on power sector issues for a decade and Public Services International (PSI) which is an international trade union federation, uniting public sector workers in more than 500 trade unions in over 140 countries. Our aim is to monitor the power sector developments in three Indian states of Orissa, Andhra Pradesh and Uttar Pradesh. This is second issue of the update covering four months period from October 2001 to January 2002. First issue covered a more detail historical overview and period upto October 2001. These updates, tracking developments in these states will be published every quarter. Please direct your suggestions and comments to PSI at psiru@psiru.org.

Contents

Part I: Overview of the Indian Power Sector

Part II: Orissa

- 1. State Overview
- 2. Regulatory Intervention
- 3. Private Sector Generation
- 4. Private Sector Distribution

Part III: Andhra Pradesh

- 1. State Overview
- 2. Regulatory Intervention
- 3. State and Central Utilities
- 4. Private sector Generation

Part IV: Uttar Pradesh

- 1. State Overview
- 2. Regulatory Intervention
- 3. Private Sector in Generation and Distribution

References

Glossary of Terms

Part I: Overview of the Indian Power Sector

Electricity Bill 2001, which was introduced by the government in August 2001, is still being debated in many forums. Ministry of Power has sought feedback on the bill and it may be passed in the budget session of parliament in February-March 2002.

Accelerated Power Development Programme (APDP) is a new Plan scheme initiated by the MoP from 2000-2001. The APDP provides financial assistance to States for undertaking renovation and modernisation programmes and also for strengthening of transmission and distribution works. To receive assistance under APDP, the beneficiary state has to be committed to reforms. Under the programme, a focused investment programme will be undertaken in 60 identified distribution circles in the first phase, subsequently increasing in to 400 circles. For the year 2001-02 a budgetary provision of Rs. 15,000 m has been provided. It is expected that World Bank and Financial Institutions will support this programme [1,5].

MoP is reported to be considering an upward revision of the capital cost value for Techno Economic Clearance by CEA. Currently this limit is Rs. 10 b and MoP may revise this to Rs. 25 b for reform states [2].

There are discussions on the disinvestment of major public sector undertakings, namely NTPC and BHEL. Early December, Ministry of Finance had suggested sale of some NTPC and NHPC units to raise resources. MoP is reported to be not favouring this proposal [2]. BHEL is the major electrical equipment manufacturer in the Public Sector. In November, Government has decided to sell 17% of its equity in BHEL to bring down its share to 51%. Sale may materialise only in the next financial year [2,3].

With Tata Power picking up 51% stake in the 1500 km, 3000 MW, 400 kV Tala transmission project, private participation in Transmission projects has commenced. This project will evacuate power from Tala project in Bhutan, carry power from Nepal and link to New Delhi. This project is expected to be operational in 2005 [1,2].

In October, CERC has put on hold the Availability Based Tariff (ABT) regime till December 31, 2001. ABT has drawn protests from some SEBs and NTPC, which has plans to move the Supreme Court on this issue [2].

Unending legal battles continue debating various matters in relation to Dabhol Power Company (DPC) promoted by Enron. The issues in legal debate include: rationality of State government decision in 1996 in agreeing to purchase Phase II of project, authority of the Regulatory Commission in matter of recent dispute between the utility and the DPC regarding plant performance, financial institutions demanding that the utility starts buying DPC power and the utility rescinding the PPA due to claimed mis-declaration by DPC. In addition, DPC has filled several arbitration cases, in London against the state government, central government and the utility. Amidst this heat and dust, the plant is incomplete with claimed cost escalation of about \$0.8 billion (over the mutually agreed cost of \$2.5 billion). Enron has invited bids for sale of its equity. Despite several bidders expressing intentions, DPC did not allow them access to its documents. Only recently, after moving all documents in London and destroying large part of documents, DPC has invited the bidders to see the documents (only for three days) and complete the 'Due- diligence' process (which precedes any formal negotiations). There have been allegations that DPC removed some of the key components vital for running of plant such as Echip and coded CDs from the plant. The sale of Enron's equity has been made possible only after

a series of concessions and debt restructuring announced by the government of India. This restructuring, to be given final shape soon, will allow reduction of tariff to acceptable level, partly at the cost of public money. The sale of equity will be in tandem with restructuring the PPA, which is expected to be largely over by March 2002 (before the financial year-end in India). The final PPA is expected to come for public review under the regulatory process, after the new bidder takes over the control [3,4].

With so many questions being raised on the state of reforms, the Union Minister of Power, Mr. Suresh Prabhu has initiated an exercise of consultation. Road shows on reforms were held, and mailers sent to many by the minister in December. Two mails have been addressed to 'opinion makers' and a third to employees of central power sector. MoP has also released a 'Blue Print' for reforms for discussion. All these take a critical look at the last 10 years reform process and seek participation to improve matters. Conferences/Round tables are planned to discuss the issue [5].

Part II: Orissa

1. STATE OVERVIEW

There has been wide ranging concern on the power reforms under way in Orissa. The High Power Committee (HPC) has held consultations with different sections to analyse the reform process. HPC had 6 members headed by Mr. Sovan Kanungo and has submitted its report to the Chief Minister. This report has pointed out the shortcomings in the reform and says that results were not achieved due to many reasons including lack of support from central & state governments. It feels that sharp up-valuation of assets was done in the beginning which led to increase in cost of power. Large sum has been borrowed from World Bank for projects, but most of them are delayed due to many reasons. T&D losses have not come down as planned and GRIDCO continues to make losses despite heavy investment. Report suggests strengthening the OERC and involving funding agencies to bring the reforms back to rails [18]. The union government is planning a mid term appraisal of the reform process with the state government, World Bank, Unions, Industry etc. [2,4]

State owned OHPC commissioned Units 3 & 4 of the Upper Indravati Project in December 2001. This 4 X 150 MW Hydro project has a very long history with the foundation stone having been laid in 1978. OHPC is reported to be in a financial crunch because of the non-payment of dues by GRIDCO. It is reported that the dues to OHPC may touch Rs. 5.2 b by March 2002 [2].

2. REGULATORY INTERVENTION

There have not been any significant orders by RC in this period. In August 2001, RC had appointed an administrator for the AES controlled CESCO. This order was stayed by the High Court in September. The AES tussle continues in Orissa.

3. PRIVATE SECTOR GENERATION

The major update in Private sector generation is the pulling out of Mirant Corporation from the Hirma mega project in December 2001. The coal based 6 X 660 MW Hirma project is the biggest IPP project in India. Power from this is to be shared by 6 states, namely Orissa, Madhya Pradesh, Gujarat, Rajasthan, Punjab and Haryana. Power Trading Corporation (PTC) is expected to trade this power and CERC is to fix tariff since this is a multi-state project. Mirant had 50 % stake in this project with Reliance holding the remaining 50%. There are some issues of concern with this

mega project: questions on the capability of PTC to handle trade of such large volumes of power, promoters' dissatisfaction with the 'low' tariff set by the CERC, Coal India's problems in supply of coal are some of them. Reliance has reportedly said that they will go ahead with the project. Another project, which will get affected due to the withdrawal of Mirant from India, is the 500 MW Balagarh project in which Mirant was partnering with CESC, Kolkatta, West Bengal [2,3].

4. PRIVATE SECTOR DISTRIBUTION

Three distribution companies with BSES, namely NESCO, SOUTHCO and WESCO continue to work towards improving their operation. CESCO with AES continue to have problems. CESCO director Ravi Chandran has said in his recent letter to state government that "As share holders of CESCO, we believe that we have been treated unjustly by GRIDCO". (AES owns 51% share in CESCO, GRDICO owns 39% and employees 10%). AES feels that appointment of administrator by RC in August 2001 was done on GRDICO's insistence and is a gross abuse of law. AES has requested the state government that it wishes to sell the 51% stake in CESCO to GRIDCO or any third party with GRIDCO's consent. GRIDCO has declined the offer and has refused permission to sell to any third party. As per the shareholder's agreement, AES cannot sell its shares without GRIDCO's permission before March 31, 2002. A reconciliation meeting called on October 22 was cancelled since GRIDCO objected to the absence of AES CEO [19].

Another development is the letter that AES has written to the Prime Minister of India requesting his intervention to sort out the problems it is having with state owned GRIDCO. The letter written by Mr. Dennis W Blake, President & CEO, AES, talks of the ". unfortunate situation faced by AES at the hands of the Government of Orissa and its agencies through actions amounting to expropriation, repeated contract violation, intimidation and direct interference in the day to day management". The letter says that it is still committed to India, but its commitment is being tested by the CESCO experience and the Ib valley IPP project that is getting unduly delayed [20].

Part III: Andhra Pradesh

1. STATE OVERVIEW

September began with a major power blackout on the 11th in Andhra Pradesh and neighboring Karnataka. A cascade tripping happened at about 1300 hrs, which started in Karnataka, and soon all the generating stations in AP had tripped. Supply was restored to most parts of the state after about 11 hours. APTRANSCO and CEA are investigating the collapse and APTRANSCO may come up with an 'Islanding Scheme' to contain such collapses in future [1,2,4].

World Bank released a report, "India: Power Supply to Agriculture" in October 2001. This report (dated June 2001) looks into the aspects of power supply to agriculture in two reforming states, namely Haryana and Andhra Pradesh. It criticises the poor quality of power supply, which adds to the indirect costs of the farmers and says the subsidies have missed their targets. Report suggests power reforms to solve problems: "Improving the quality of electricity services to agriculture, and therefore, improving farmers' income and agriculture growth, requires the in-depth power sector reforms that few Indian states have embarked upon. Farmers, notably the small and marginal farmers, will substantially benefit from these reforms." [16]

Spot billing in some circles in Hyderabad and Tirupati was started in October. AP has plans to introduce it for all consumers by early 2002 [1].

Tariff revision exercise started by APTRANSCO submitting the ARR to APERC in early January 2002. (These are to be submitted by December 2001). It is reported that revenue requirement for 2002-3 is Rs. 95,000 m and the income will be Rs. 66,000 m. There will be a short fall of about Rs. 29,000 m. Public hearings may be held in the month of March since tariff revision orders are to be issued in end March. This exercise is expected to raise lot of debates on reforms in the state.

Three PPAs were put out for review and public hearings held during this period. Four more PPAs are expected to come up for review in February or March 2002. In a landmark order dated November 6, 2001, APERC denied consent to the PPA of a coal based IPP, promoted by BPL. More details are given in Section 2.

Power sector issues continue to stay at the centre stage of political debates. Elections to some crucial local bodies (Corporations of Hyderabad, Rajamundry, Municipalities of Tirupathi, Hindupur, Markapur and Gaddiannaram) are scheduled in January 22, 2002. Campaign for this has provided another opportunity for hot debates.

2. REGULATORY INTERVENTION

Regulatory commission and Consumer organisations have been active in this period with continuing debate on reforms in the press and important public hearings. Discussions were held on PPAs and Wheeling Tariff. The annual tariff revision process was initiated.

2.1 POWER PURCHASE AGREEMENTS

Three PPAs were put out for public scrutiny and consent by the RC. They were of BPL Power Project, Rayalseema Thermal Power Plant Stage II and BSES Andhra Power project.

a) BPL Power Project

Public hearing on the PPA for the 2 X 260 MW Coal based BPL project at Ramagundem was held on July 2-3, 2001 and APERC had given orders dated August 17, 2001 seeking clarifications from APTRANSCO and BPL [17]. After receiving the clarifications in October, APERC gave its order dated November 6, 2001 rejecting the PPA. This has been considered a very bold step by the APERC.

On the issue of RC's right to issue an order on an existing contract, the order says: "Considering the broad scope of regulation as explained by the Supreme Court in more than one decision, the Commission is not only within its right but also has a duty to review the Power Purchase Agreement (PPA) placed before it, to see whether it is fair and reasonable from the point of view of the consumer/ public while at the same time ensuring an equitable return to the developer" [14]. The three main points sited as responsible for withholding consent to the PPA are: (1) threshold PLF for recovery of full fixed charges (2) incentives for generation and (3) foreign exchange burden.

The order concludes with: "In the absence of a meaningful negotiation between the Licensee (APTRANSCO) and the Project Developer on the key issues and concerns voiced by the Commission it should be deemed that no effort has been made by Licensee and the Project Developer to review the same and come up with positive proposals. The Commission is vested with the responsibility to balance the interests of all stakeholders including the consumers. The

Commission considers that the PPA proposed by APTRANSCO does not take into consideration fully the interests of the consumers. The Commission is, therefore, unable to consent to the PPA submitted by APTRANSCO under its letter dated 27-01-2001" [14]. Since the commission made it clear that a revised PPA could be submitted, BPL is reported to be planning to go ahead with the project and work towards financial closure [2].

b) Rayalseema Thermal Power Plant Stage II

Rayalseema Thermal Power Plant (RTPP) Stage II is proposed to be set up by a Chinese organisation ZMEC on a 'Build & Transfer' basis for APGENCO, the state owned generation utility. This is a 2 X 210 MW coal based plant will be located at Cuddapah, where APGENCO already has a 2 X 210 MW plant (RTPP Stage I). Public hearing on the PPA was held on October 10, 2001. Issues on lack of sufficient data, why BHEL was not considered etc were raised. On the whole, there was support for setting up this plant from most quarters. APERC has not yet issued the order on this PPA.

c) BSES Andhra

BSES Andhra Power Ltd proposes to set up a 220 MW combined cycle plant at IDA, Peddapuram. This plant is to use Natural Gas as primary fuel and Naphtha as backup. Objections were invited in October 2001 and 10 objectors have made filings to the APERC by November 20, 2001. Public hearing was held in January 2002. Concerns were raised on the availability of Gas to meet this and the other planned projects, cost of Gas after the Administrated Price Mechanism (APM) is dismantled by the Government of India in April 2002, the incentive scheme and Tariff. During this public hearing TRANSCO presented its first cut Load Forecast and Power Procurement Plan.

2.2 Tariffs for Wheeling

A public hearing on Wheeling Tariff was held on December 20-21, 2001. The issue is related to the per kWh tariff APTRANSCO/DISCOM is to levy for energy wheeled from private generators to HT Consumers (third party wheeling). This issue had come up in the Tariff proposals made by APTRANSCO in January 2001 and was discussed during the tariff hearings in March 2001. APTRANSCO had suggested a wheeling charge of Rs. 1.00/kWh in their proposal in place of the existing arrangement of charging wheeling in kind. APERC had reserved judgement on this and in its tariff order for 2001-2, had stated that this issue would be addressed subsequently.

38 objections were received and 17 objectors were asked to make presentations. The private generators and beneficiary HT consumers argued that the proposed wheeling tariff of Rs.1.00/kWh is too high and without proper basis. TRANSCO, DISCOM and many consumer organisations justified the tariff and some even suggested higher tariff! APERC is yet to give its order on this issue.

2.3 Annual Tariff Revision

As per the reform process, APTRANSCO and the DISCOMs are to submit the Tariff proposals to APERC by end of December 2001. Annual Revenue Requirements (ARR) were submitted in the first week of January and the projected short fall for 2002-3 is said to be of the order of Rs 29,000 m.

There was no major tariff hike in the last tariff order and therefore there is a feeling that tariff will be hiked this time. Tariff hearings expected to be held in March 2002 will attract lot of attention. Some important issues would be: a) Performance of TRANSCO/DISCOMs (loss reduction, improving quality of power supply etc), b) Load Forecast and long term power procurement plan, c) Report on APERC directives in the last order (related to metering, loss estimation, data collection etc) and d) Agricultural power consumption and tariff.

3. STATE AND CENTRAL UTILITIES

APTRANSCO commissioned the Khammam-Hyderabad 400 kV line in September. The new Load Dispatch Centre is coming up at the 400 kV Hyderabad substation, located at Mamidipally. The 11-hour blackout in September has triggered the process of putting in mechanisms to prevent its repetition. The distribution companies continue to operate as separate corporations owned by the state government.

150 MW, hydro unit-2 of Srisailam Left Bank Canal project was commissioned in November 2001. With this, the installed capacity of Srisailam LBC project is 300 MW. Unit -1 (500 MW) of NTPC's Simhadri Coal based project (2 X 500 MW) is expected to be commissioned in February/March 2002.

4. PRIVATE SECTOR GENERATION

4.1 Spectrum Controversy

Spectrum Power Generation Limited (SPGL) operates a 208 MW gas based power plant at Kakinada. It consists of 4 units, which were commissioned between January 1997 and March 1998. This plant has been operating well with good PLF and tariff of Rs.2.45/kWh. The Spectrum controversy is about the legal battle between the promoters of the plant and issues of corruption & inflated capital cost.

NTPC had planned to set up a gas-based power plant in Kakinada for which it had acquired some clearances, gas allocation and land. In 1990, following the visit of the AP Chief Minister to USA, Mr. Mohan Rao (who was with GE, USA for 18 years) set up Spectrum Technologies USA (STUSA) in New York. The objective was to invest in power projects in India. STUSA decided to invest in Kakinada project and by 1992-1993, SPGL was set up with NTPC, STUSA and Jaya Foods (better known by its brand name - Bambino) as promoters. NTPC had 10% stake and the rest was with STUSA and Jaya. Mr. Kishan Rao of Jaya Foods is said to have taken control of things and the plant was commissioned in 1997-1998.

Both STUSA and NTPC allege that Mr.Kishan Rao elbowed them out of the project and they filed court cases in Delhi High Court in May 1996. Court battle and the affidavits filed brought out possible corruption and inflated capital cost. STUSA said that they have not received any return on their investment of US \$9.3 m. NTPC withdrew their suit in April 2001 and had an out of court settlement. The legal battle between STUSA and Mr. Kishan Rao is now with the Supreme Court [3,4]. SPGL has been asking for an escalation of capital cost from Rs 7480 m to Rs. 10570 m. Rolls Royce, which was awarded the EPC contract in 1995 has an equity stake of Rs. 560 m in the project and it is alleged that they gave US\$ 22.5 m as commission to a company owned by Mr. Kishan Rao. Cases have been filed in the British courts to press these charges [21].

4.2 BPL PPA

The issue of the coal based BPL project and the PPA has been covered in section 2.1.

4.3 LANCO

The 355 MW Naphtha/Gas based LANCO project is located at Kondapally and has been in operation from July 2000. After nearly one year of operation with Naphtha, operation with Natural Gas was started in August 2001. This is expected to reduce the variable cost to half. Another news is the entry of NRG Energy (based at Minneapolis, USA; has an installed capacity of about 35 GW spread over the world) to take 30% stake in the project to replace Eastern Generation (based in UK). This marks the entry of NRG Energy into Indian power sector. [2,3]

4.4 GVK: CMS exit

GVK Jagurupadu plant has a capacity of 235 MW and is one of the first IPPs to be commissioned in India in July 1996. US based CMS Energy had a 24% stake in this plant. In October, CMS has decided to pull out of all power projects in India. This include GVK in AP; and the following plants in Tamil Nadu- GMR Vasavi at Basin Bridge (220 MW, in operation since early 1999), Neyveli (250 MW, under construction) and Ennore(1850 MW, planning stage). The stated reason is the change company's in business plans. [3]

4.5 Gas based projects update

PPAs of 5 Gas based projects for which a Memorandum of Association was signed in August 2001 are to come up for review in the next few months. These are:

S.N	Name	Capacity -	Remarks
0		MW	
1	BSES Andhra	220	Test run in January 2002
2	Ispat Power Vemagiri	520	Stage $I = 370 \text{ MW}$, Stage $II = 150 \text{ MW}$
3	Konaseema Kakinada	445	
4	GVK	440	Stage $I = 220 \text{ MW}$, Stage $II = 220 \text{ MW}$
5	Gautami	598	Stage I = 464 MW, Stage II = 134 MW
	Total	2223	

Considering the limited availability of gas in the Krishna Godavari basin and the possible increase in gas price once the Administrative Price Mechanism (APM) is lifted (possibly in April 2002), there is concern about the viability of these projects.

Part IV: Uttar Pradesh

1. STATE OVERVIEW

Discussions are on to finalise the power sharing arrangement between Uttar Pradesh and Uttaranchal, the new state carved out of it. There is a demand by both the states to own the Hydro stations located in Uttaranchal. NTPC issued a notice in end August 2001 to Uttar Pradesh, Madhya Pradesh and Bihar for recovery of dues. Assembly elections in the state have been announced in December 2001 and are expected to be held in February 2002 along with the states of Uttaranchal, Punjab and Manipur.

2. REGULATORY INTERVENTION

One major update in this period is the tariff order for KESCO, dated November 21, 2001. Tariff revision process was started in February 2001, when KESCO submitted the proposal. Public hearing was held in July 2001 in which 13 objectors (from industry and consumer forums) participated. In the tariff order, UPERC has revised the bulk power purchase tariff of KESCO and has given many efficiency improvement directions. Directions include reduction of T&D loss (32.8% to 31.8%), improving collection efficiency (78.4% to 84%) and a cost of purchase from UPPCL of Rs. 1.92/kWh (KESCO had suggested Rs.1.75/kWh) [15]. KESCO has approached UPERC opposing the reduction of bulk consumer tariff in December 2001 [2].

Regulatory Commission has given practice direction for captive power plants in the state. There are concessions for non-conventional and co-generation plants. Third party sales of surplus power is permitted and Wheeling allowed for renewable generation, consortium based plant or when specifically permitted. Wheeling charges is 12 % of energy wheeled. Banking (supplying to the grid, not to sell, but to draw back at some other time) is allowed for co-generation and renewable as per conditions and banking charge is 12.5% of energy banked. Commission has given permission to 107 captive plants totaling to a capacity of about 906 MVA till December 31, 2001. Permissions to 5 have been with held because of non-submission of documents from the Pollution Control Board [15].

UPERC has released a model for PPA that Co-generation plants have to sign with UPPCL. It has more than 40 clauses and annexures which cover power supply plan, billing procedure, interconnection, protection, synchronisation, metering, handling disputes etc. [15]

3. PRIVATE SECTOR

It is reported that the 567 MW, coal based Rosa project at Shahjahanpur may have to approach CEA for clearance once again since there have been revision of costs as advised by UPERC. [2]. Distribution in NOIDA is still under the private company NPCL. Hyderabad based Info Tech Enterprises has received an order worth Rs 6 m from NPCL in November for software package for network analysis and Geographical Information Systems (GIS) [2].

REFERENCES

- 1. TERI Newswire: Fortnightly News abstracts on economy, energy and environment, TERI, New Delhi, Volume 7, Numbers 7-24 (September to December 2001)
- 2. Power News: Weekly News updates on Power, Power Line, New Delhi, September to December 2001
- 3. Power Line: Magazine on Power, New Delhi, Vol 5, Issue 12; Vol 6, Issues 1 to 3 (September to December 2001)
- 4. Several NewsPaper reports and Discussions with people working in the sector.
- 5. Web site of Ministry of Power: www.powermin.nic.in
- 6. Web site of Central Electricity Regulatory Commission: www.cercind.org
- 7. Web site of Central Electricity Authority: www.cea.nic.in
- 8. Website of OERC: www.orierc.org
- 9. Website of the Government of Orissa : www.orissagov.com (Energy Department for Power status and Plans)
- 10. Website of Bombay Suburban Electric Supply Company Ltd (BSES), (www.bses.com)

- 11. Website of AES Corporation, USA (www.aesc.com), activities of Transpower group in Orissa
- 12. Website of APGENCO: www.apgenco.com
- 13. Website of APTRANSCO: www.aptranscorp.com
- 14. Website of APERC: www.ercap.org
- 15. Website of UPERC: www.uperc.org
- 16. Website of World Bank: www.worldbank.org.in
- 17. India Power Sector Reforms Update, Issue I, October 2001, Prayas, Pune. (Available at www.psiru.org and <a href="htt
- 18. "Orissa: reforms failure", www.centralchronicle.com, November 6, 2001
- 19. "AES blames Gridco for mismanagement", Imran Khan, $\underline{\text{www.rediff.com}}$, December 06.2001
- 20. "AES complains to PM about Orissa Government", The Hindu Business Line, October 22,2001
- 21. "Forget the planes, this is about hijacking a project", A Barman & S Raghuraman, Economic Times, Hyderabad, October 24, 2001.

GLOSSARY OF TERMS

ADB Asian Development Bank

AP (The Indian state of) Andhra Pradesh

APERC Andhra Pradesh Electricity Regulatory Commission

APSEB Andhra Pradesh State Electricity Board

ARR Annual Revenue Requirement

CCGT Combined Cycle Gas Turbine (based power plant)

CEA Central Electricity Authority

CERC Central Electricity Regulatory Commission

CPP Captive Power Project
CSIs Civil Society Institutions

DFID Department for International Development (of UK, called ODA before)

DISTCOM/ Distribution Company

DISCOM

DSM Demand Side Management

EHV Extra High Voltage

ERC Act Electricity Regulatory Commissions Act (1998)

Financial Year Indian Financial Year - 1st April to 31st March. Typically represented as FY

98-99 etc.

GENCO Generation Company GoI Government of India

GoAP Government of Andhra Pradesh

GoO Government of Orissa

GoUP Government of Uttar Pradesh

GRIDCO Grid Corporation

HP Horse Power (1 HP = 746 Watts)
HT High Tension (or High Voltage)
HVDC High Voltage Direct Current

Hz Hertz

IDBI Industrial Development Bank of India

IDFC Infrastructure Development Finance Company Ltd

IPPs Independent (Private) Power Producers

IPS Irrigation Pump Sets

IRP Integrated Resource Plan (usually implying a least-cost plan that takes an

integrated view toward all energy options)

kCal Kilo Calories kg Kilograms kV Kilo Volt

kVA Kilo Volt Ampere

kW Kilo Watt kWh Kilo Watt Hour LNG Liquefied Natural Gas

LT Low Tension (or Low Voltage)

MDBs Multilateral Development Banks (such as the WB and ADB)

MkCal Million Kilo Calories

MoU Memoranda of Understanding

MP (The Indian state of) Madhya Pradesh

MU Million Units (million kWh)

MW Mega Watts

NGOs Non-Government Organisations NHPC National Hydro Power Corporation

NPC Nuclear Power Corporation

NTPC National Thermal Power Corporation

ODA Overseas Development Agency, UK (now called DFID)

OECF Overseas Economic Corporation Fund of Japan

O&M Operation & Maintenance OSEB Orissa State Electricity Board

PFC Power Finance Corporation (a GoI-owned financing agency for the power

sector)

PLF Plant Load Factor (also called Capacity Utilisation Factor)

PSIRU Public Services International Research Unit

R&M Repair & Maintenance RC Regulatory Commission

REC Rural Electrification Corporation, New Delhi

Rs Rupees (Indian currency)

SAR Staff Appraisal Report (the project appraisal document from the WB)

SEBs State Electricity Boards (vertical monopoly power utility owned by the state

government)

SERC State Electricity Regulatory Commission

T&D Transmission and Distribution TEC Techno Economic Clearance

TOD Time-Of-Day

TRANSCO Transmission Corporation

UP (The Indian state of) Uttar Pradesh

UPSEB UP State Electricity Board WB The World Bank group