Annual Report

2003-2004

MISSION 2012

POWER FOR ALL

POWERING INDIA'S GROWTH

MINISTRY OF
POWER
Government of India

2003-04

MAP OF INDIA

SHOWING

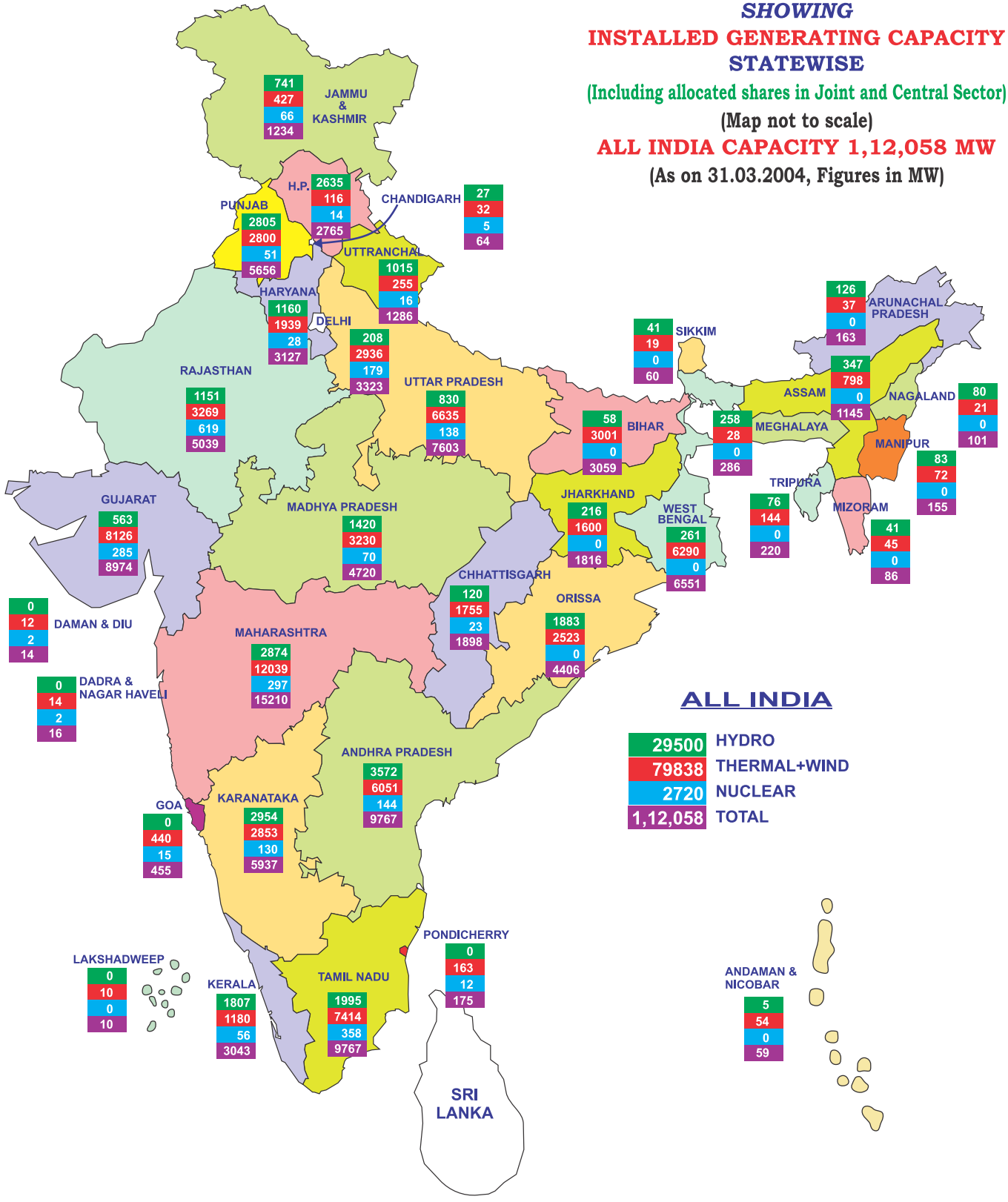
INSTALLED GENERATING CAPACITY STATEWISE

(Including allocated shares in Joint and Central Sector)

(Map not to scale)

ALL INDIA CAPACITY 1,12,058 MW

(As on 31.03.2004, Figures in MW)

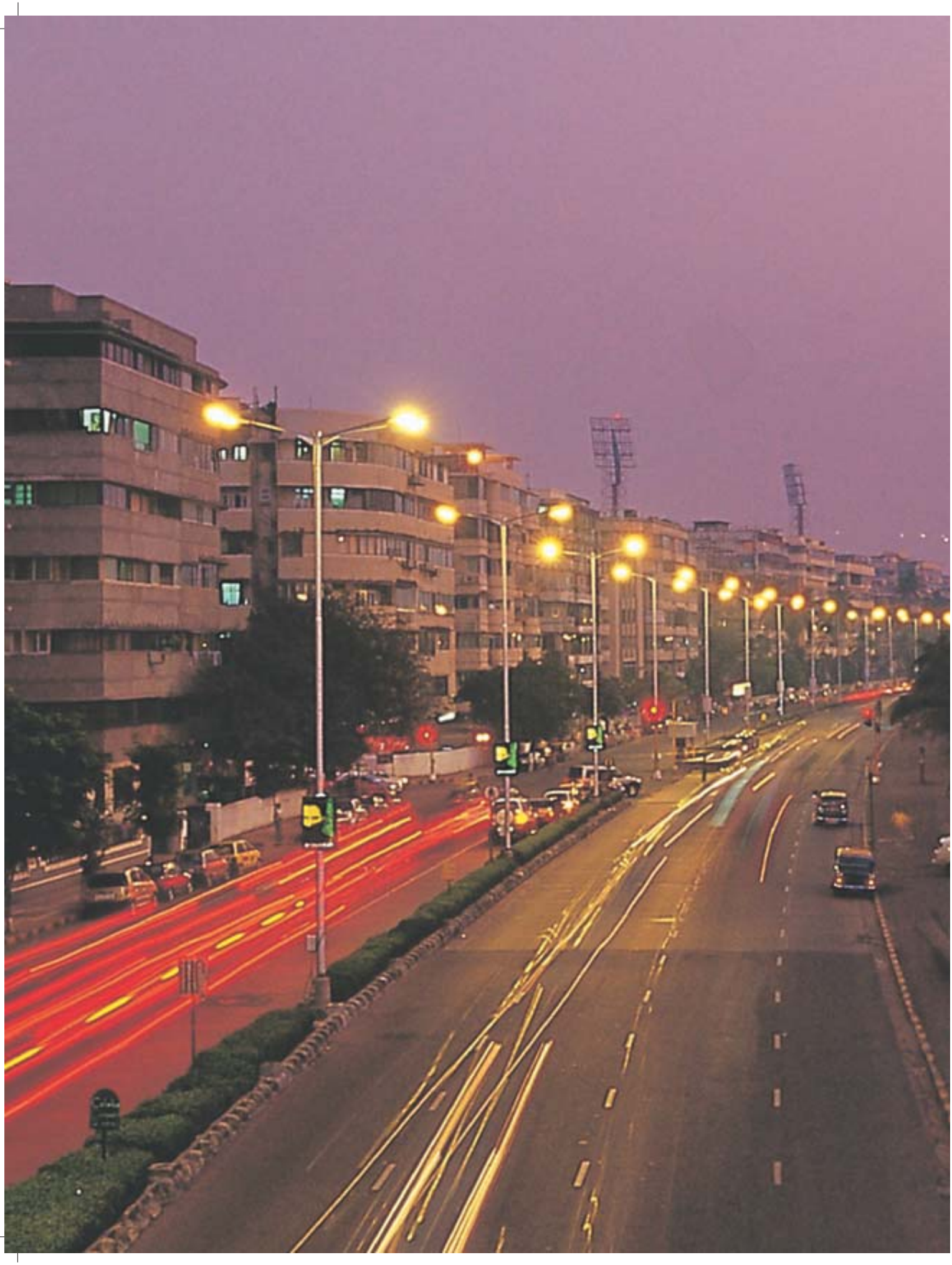


Annual Report 2003-04

Ministry of Power

Government of India

(January 2003 - March 2004)



CONTENTS

Performance Highlights
Year 2003-04

POLICY INITIATIVES / DECISIONS TAKEN

❑ Electricity Act 2003 **has been enacted.**

It is a comprehensive legislation replacing Electricity Act 1910, Electricity Supply Act 1948 and Electricity Regulatory Commission Act 1998. The aim is to push the sector onto a trajectory of sound commercial growth and to enable the States and the Centre to move in harmony and coordination.

❑ **Accelerated Electrification Programme for One Lakh villages and One Crore rural households launched. The scheme outlay of Rs. 6,000 cr. comprises grant component of Rs. 2,400 cr**.

- Integrates the existing schemes of Kutir Jyoti, AREP and RE component of PMGY.
- Implementation within two years through conventional grid connection / standalone distributed generation scheme.
- **Rural Electricity Supply Technology (REST) Mission** with emphasis on decentralized distributed generation for electrification of rural areas would monitor the implementation of the schemes under Accelerated Electrification programme. In addition REST Mission is also delegated to institutionalize an enabling framework for operation of the schemes along with a long term technology development & research.

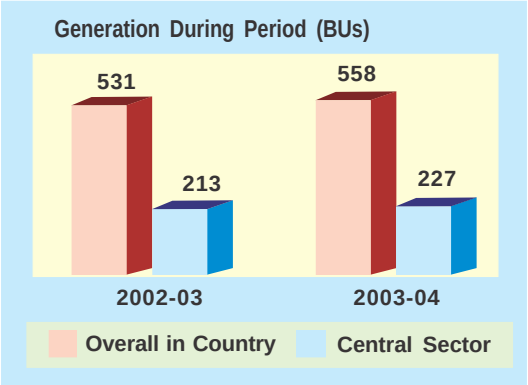
❑ **50,000 MW Hydro initiative**

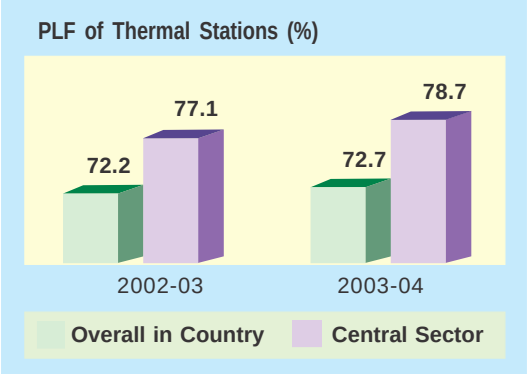
- Identified 162 projects spread across 16 States with aggregate capacity of 50,560 MW.
- Feasibility reports have been received for 132 schemes of 37,378 MW and finalized for 103 schemes of 31,150 MW during the year.

GENERATION PERFORMANCE

Generation during 2003-04 over the previous year improved from 531 BU to 558 BU

- Overall growth rate of **+ 5%** recorded while performance in Central Sector station improved by **+ 6.5%.**
- Overall **PLF of generating stations** improved **from 72.2% to 72.7%** while in Central Sector, it improved **from 77.1% to 78.7%.**

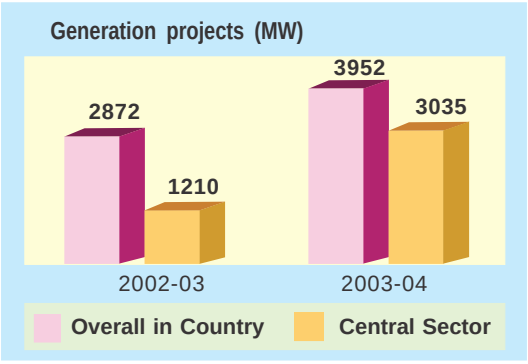




FRESH CAPACITY ADDITION

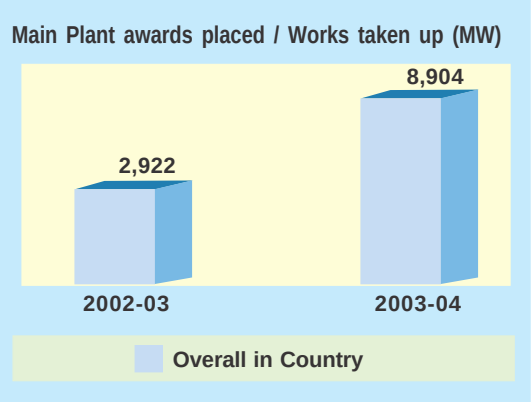
3952 MW of fresh capacity added during the year 2003-04

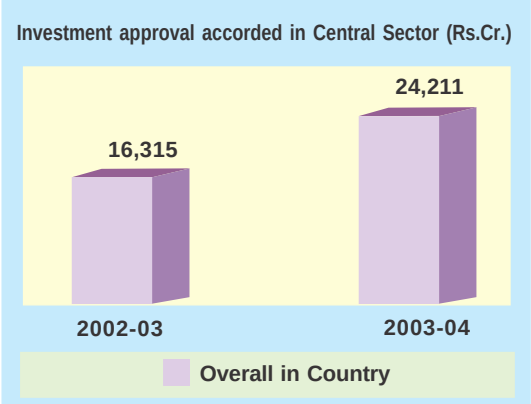
- 2003-04, the Hydro year with record highest hydro capacity addition of 2,590 MW.
- All six units, 250 MW each of Nathpa Jhakri HEP commissioned during the year within six months, which is an unprecedented achievement.



FRESH CAPACITY STARTS

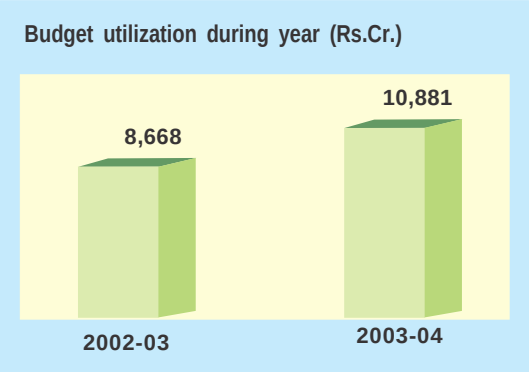
- **Fresh starts -** Main plant awards placed / works taken up **of 8,904 MW**
- 7,370 MW Hydro projects accorded Techno Economic clearance during Xth Plan.
- **Investment approval accorded in Central Sector to Generation schemes** of 5,482MW **and Transmission schemes** of 4,766 ckm during 2003-04, totaling investments of Rs. 24,211 cr., an **improvement of 48%** over last year figure of Rs. 16,315 cr.

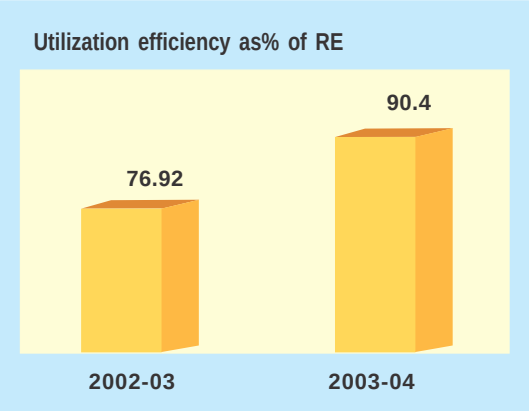




FINANCIAL PERFORMANCE

- Rs. 10,881 cr. has been utilized during the year 2003-04 against Rs. 8668 cr. during previous year.
  - Utilization efficiency of budgeted expenditure improved from **76.92%** during 2002-03 to **90.4%** during 2003-04.



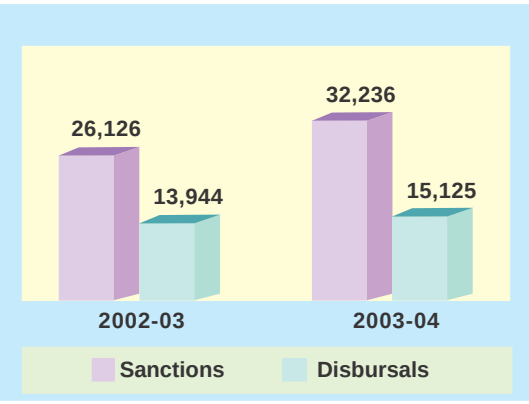


FINANCIAL ASSISTANCE

Funding for power sector schemes from Power Finance Corporation (PFC) and Rural Electrification Corporation (REC) improved during the year :

: **Sanctions** from Rs. 26,126 cr. to Rs. 32,236 cr. **(23%)**

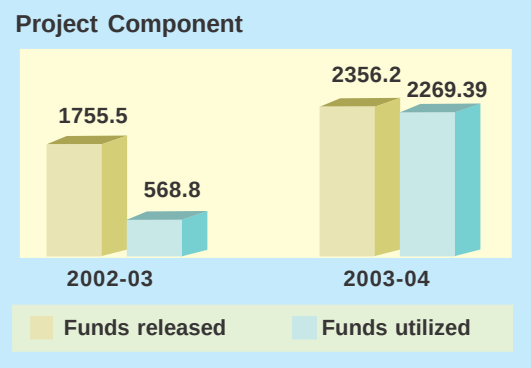
Disbursals from Rs. 13,944 cr. to Rs. 15,125 cr. **(8%)**

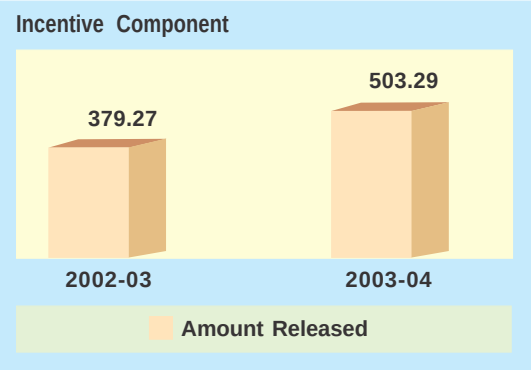


ACCELERATED POWER DEVELOPMENT AND REFORM PROGRAMME (APDRP)

- ❑ Under investment component of APDRP, Rs. 2356.2 cr. have been released and Rs. 2269.39 cr. utilized during 2003-04 against Rs. 1755.5 cr. and Rs. 568.8 cr. respectively during previous year.
- ❑ Under Incentive component, Rs. 503.29 cr. have been released against Rs. 379.27 cr. during previous year.
  - Turnaround plan for State power utilities : Introduced system of rating of SEBs w.r.t. progress on reforms. During the year 2002-03, twelve States reported loss reduction of Rs. 11,000 cr.
- ❑ Reliability index of power supply being established
  - Towns with more than eight lakhs population flagged.
    - Reliability factor more than 96% indexed in 21 towns

APDRP FUNDING (RS. CR.)





FACILITATING INVESTMENTS IN THE SECTOR

- ❑ Inter Institutional Group of leading Banks / FIs constituted for facilitating financial closure of private projects
  - Financial closure achieved for 1,802 MW, another 8,500 MW being targeted for early financial closure to enable these projects getting commissioned within Xth / early XIth Plan.

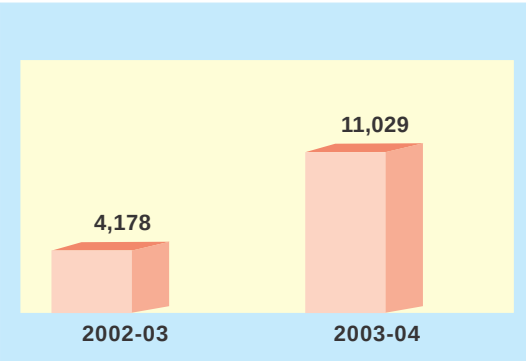
ENERGY CONSERVATION

- ❑ Bureau of Energy Efficiency (BEE) has prepared an Action Plan covering thrust areas for implementation of Energy Conservation Act.
- ❑ BEE has completed energy audit of nine government buildings.
  - Voluntary energy saving targets of Rs. 400 cr. per year undertaken by the industry.
  - Achieved energy saving of 400 MW and other energy inputs totaling Rs. 2300 cr. during last five years.

BUSINESS DEVELOPMENT

- ❑ Power Trading Corporation (PTC) traded **11,029 MU** during the year against **4,178 MU** during previous year.

POWER TRADING BY PTC (MU)



Chapter - 2

Ministry of Power

The Ministry of Power started functioning independently with effect from 2nd July, 1992. Earlier it was known as the Ministry of Energy comprising the Departments of Power, Coal and Non-Conventional Energy Sources.

Electricity is a concurrent subject at Entry 38 in List III of the Seventh Schedule of the Constitution of India. The Ministry of Power is primarily responsible for the development of electrical energy in the country. The Ministry is concerned with perspective planning, policy formulation, processing of projects for investment decision, monitoring of the implementation of power projects, training and manpower development and the administration and enactment of legislation in regard to thermal, hydro power generation, transmission and distribution. The Ministry has developed its website at **www.powermin.nic.in.**

The Ministry of Power is mainly responsible for evolving general policy in the field of energy. The main items of work dealt with by the Ministry of Power are as below :

- General Policy in the electric power sector and issues relating to energy policy and coordination thereof. (Details of short, medium and long-term policies in terms of formulation, acceptance, implementation and review of such policies, cutting across sectors, fuels, regions and intra country and inter country flows);
- All matters relating to hydro-electric power (except small/mini/micro hydel projects of and below 25 MW capacity) and thermal power and transmission & distribution system network;
- Research, development and technical assistance relating to hydro-electric and thermal power, transmission system network and distribution systems in the States/UTs;
- Administration of the Electricity Act, 2003, (36 of 2003) , the Energy Conservation Act, 2001 (52 0f 2001), the Damodar Valley Corporation Act,1948 (14 of 1948) and Bhakra Beas Management Board as provided in the Punjab Reorganisation Act,1966 (31 of 1966);
- All matters relating to Central Electricity Authority, Central Electricity Board and Central Electricity Regulatory Commission; Rural Electrification;
- Rural Electrification;
- Power schemes and issues relating to power supply/**development schemes/ programmes/decentralized and distributed generation** in the States and Union Territories;
- Matters relating to the following Undertakings/ Organizations, etc.:-

a. The Damodar Valley Corporation;
b. The Bhakra Beas Management Board (except matters relating to irrigation);
c. National Thermal Power Corporation Limited;
d. National Hydro-electric Power Corporation Limited;
e. Rural Electrification Corporation Limited;
f. North Eastern Electric Power Corporation Limited;
g. Power Grid Corporation of India Limited;
h. Power Finance Corporation Limited;
i. Tehri Hydro Development Corporation (JV);
j. Sutlej Jal Vidyut Nigam Ltd. (JV); (formerly Nathpa Jhakri Power Corporation);
k. Central Power Research Institute;
l. National Power Training Institute;
m. Bureau of Energy Efficiency;
n. Power Trading Corporation of India Limited;
o. Narmada Hydro Development Corporation (JV).

- Other Public Sector Enterprises concerned with the subjects included under this Ministry except such projects as are specifically allotted to any other Ministry or Department.
- All matters concerning energy conservation and energy efficiency pertaining to Power Sector.

ORGANISATIONS UNDER MINISTRY OF POWER

In all technical and economic matters, Ministry of Power is assisted by the Central Electricity Authority (CEA) constituted under the Electricity (Supply) Act, 1948, which has now been replaced by Electricity Act, 2003.

Badarpur Management Contract Cell (BMCC), a subordinate office of this Ministry, is responsible for administering the Badarpur Thermal Power Station (BTPS) Management Contract between the Government of India and NTPC.

The construction and operation of generation and transmission projects in the Central Sector are entrusted to Central Sector Power Corporations, viz. The National Thermal Power Corporation (NTPC), the National Hydro Electric Power Corporation (NHPC), the North-Eastern Electric Power Corporation (NEEPCO) and the Power Grid Corporation of India Limited (PGCIL). The Power Grid is responsible for all the existing and future transmission projects in the Central Sector and also for the formation of the National Power Grid. Two Joint Venture Power Corporations namely, Satluj Jal Vidyut Nigam (JV) and Tehri Hydro Development Corporation (THDC) are responsible for the execution of the Nathpa Jhakri Power Project and other projects in Satluj Basin in Himachal Pradesh and projects of the Tehri Hydro Power Complex in Uttaranchal respectively. Narmada Hydro Development Corporation (NHDC) another joint venture under NHPC is responsible for execution of Indira Sagar and Omkareshwar projects. Three statutory bodies i.e., the Damodar Valley Corporation (DVC), the Bhakra Beas Management Board (BBMB) and Bureau of Energy Efficiency (BEE) are also under the administrative control of the Ministry of Power. Programmes of rural electrification are provided financial assistance by the Rural Electrification Corporation (REC) under the Ministry of Power. The Power Finance Corporation (PFC) provides term-finance to projects in the power sector.

Further, the autonomous bodies (Societies) i.e. Central Power Research Institute (CPRI), the National Power Training Institute (NPTI) are also under the administrative control of the Ministry of Power. A Power Trading Corporation (PTC) was also set up in 1999 to catalyse development of mega power projects and to promote exchange of power with neighbouring countries.

ORGANISATION SET - UP

Shri Anant G. Geete had been the Minister of Power since the 27th August, 2002. Smt. Jayawanti Mehta had been the Minister of State of Power since the 14th October, 1999. Shri R.V. Shahi is the Secretary in the Ministry of Power since the 13th April, 2002. He is assisted by two Additional Secretaries and five Joint Secretaries, including the Financial Advisor.

Shri A.K. Jain, Additional Secretary, oversees the work relating to Hydro Power, Transmission, Operation Monitoring, Investment Promotion Cell, Training & Research and Administration including administrative matters of the Central Electricity Authority.

Smt. Gauri Chatterji, Additional Secretary, oversees the work relating to Thermal, Distribution including Accelerated Power Development & Reforms Programme, Power Finance Corporation, Rural Electrification Corporation, Capacity Planning & Addition and Official Language.

The allocation of work among the five Joint Secretaries in the Ministry of Power is as under :

i) Policy, Planning & International Cooperation (PP&IC), Restructuring of State Electricity Boards (SEBs), Official Language, Regulatory Commission, Electricity Bill, 2001, Vigilance & Security, Power Finance Corporation, Rural Electrification Corporation;

ii) Thermal, Distribution Reforms, Accelerated Power Development & Reforms Programme (APDRP), Rural Electrification & Supply Technology (REST) Mission and Information Technology (IT);

iii) Hydro Power, Operation Monitoring (OM), Investment Promotion Cell (IPC) Coordination and Press & Publicity;

iv) Power Transmission, Power Trading, Training & Research, Energy Conservation and Bureau of Energy and Administration including administrative matters of the Central Electricity Authority;

v) Accounts & Finance, Resource Planning, Monitoring of financial performance of SEBs and follow up action on the recommendations of Montek Singh Ahluwalia Committee & N.K. Singh Committees;

There is a Principal Accounts Office headed by the Controller of Accounts who in turn reports to the Financial Adviser in the Ministry of Power. Matters relating to reservations for SC/ST, Physically Handicapped, Ex-servicemen and OBC in the Ministry including PSUs under its administrative control are dealt with the Deputy Secretary (Admn), who is also the Liasion Officer for SC/ST. There is separate Liasion officer for OBCs. Matters relating to recreation activities are dealt by Power Sports Control Board. The total staff strength of the Ministry is 311.

Chapter - 3

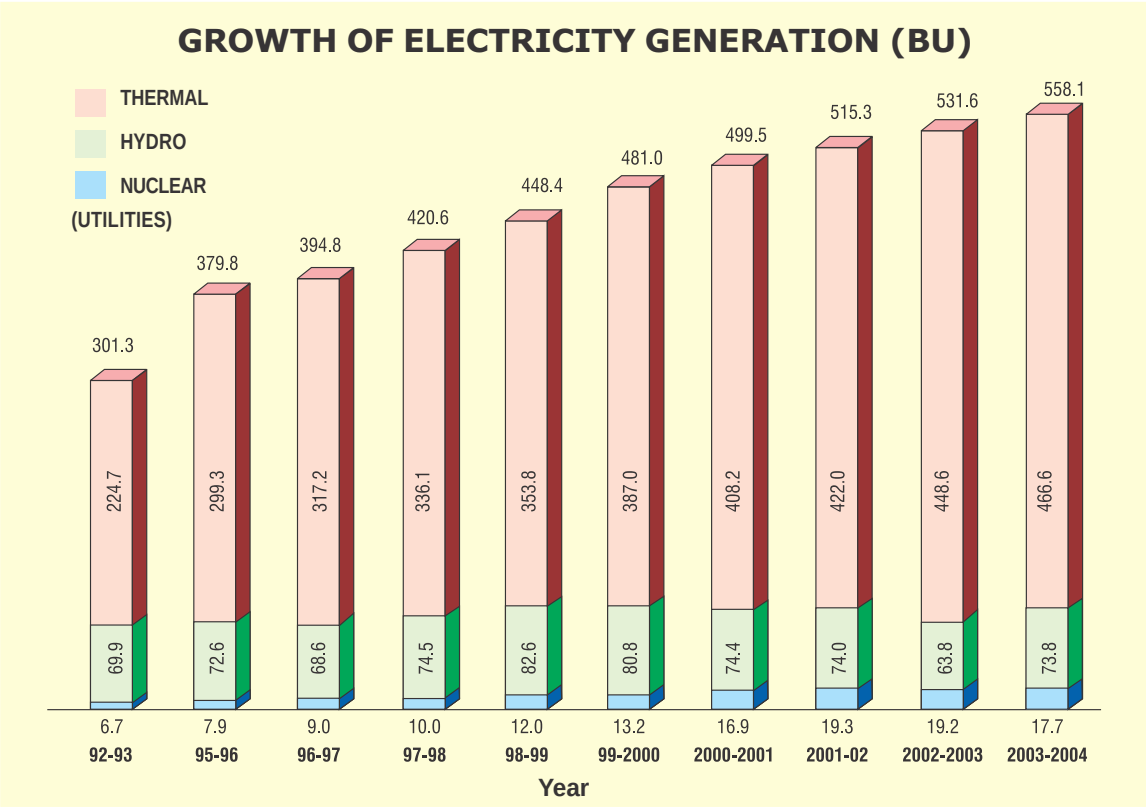
Generation & Power Supply Position

GENERATION

The over all generation in the country has increased from 301 Billion Units (BUs) during 1992-93 to 531.6 BUs during 2002-03. The over all generation (Thermal+ Nuclear+Hydro) in public utilities in the country for the last five years are as under:-

Year	Generation (BUs)
1990-2000	481.0
2000-01	499.5
2001-02	515.3
2002-03	531.6
2003-04	558.1 *

*Based on actual-cum-assessment



Plant Load Factor (PLF)

The actual all India PLF of Thermal/ Utilities during April03-March 04 is 72.7% as against the Target of 72.0%. The PLF figure from the period 1997-98 onward are as follows:-

Year	Central Sector	State Sector	Overall
1997-98	70.40	60.90	64.70
1998-99	71.10	60.80	64.60
1999-2000	73.80	63.70	67.30
2000-01	74.30	65.60	69.00
2001-02	74.30	67.00	69.90
2002-03	77.10	68.70	72.20
2003-04	78.71	68.41	72.71

Control room of a power plant

POWER SUPPLY POSITION

The power supply position during the last five years and during the year 2003 - 2004 has been as under :-

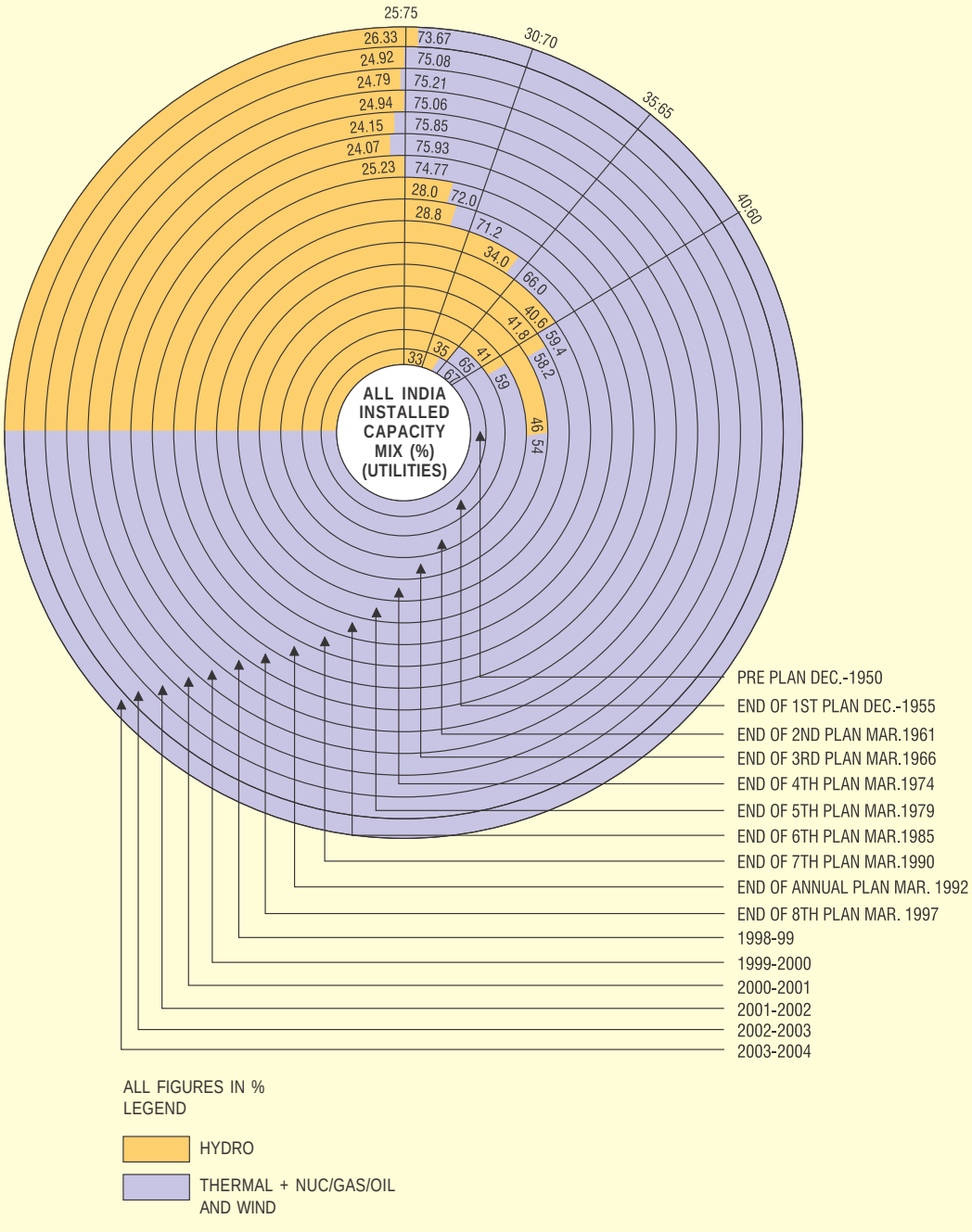
Energy **(in MU)**

Year	Requirment	Availability	Shortage	Shortage (%)
1998-99	446584	420235	26349	5.9%
1999-2000	480430	450594	29836	6.2%
2000-2001	507216	467400	39816	7.8%
2001-2002	522537	483350	39187	7.5%
2002-2003	545983	497890	48093	8.8%
2003-2004	559264	519398	39866	7.1%

Peak Demand & Peak Met **(in MW)**

Year	Peak Demand	Peak Met	Shortage	Shortage (%)
1998-99	67905	58445	9460	13.9%
1999-2000	72669	63691	8978	12.4%
2000-2001	74872	65628	9244	12.3%
2001-2002	78441	69189	9252	11.8%
2002-2003	81492	71547	9945	12.2%
2003-2004	84574	75066	9508	11.2%

ALL INDIA INSTALLED GENERATION CAPACITY
HYDRO-THERMAL MIX (%) (UTILITIES)

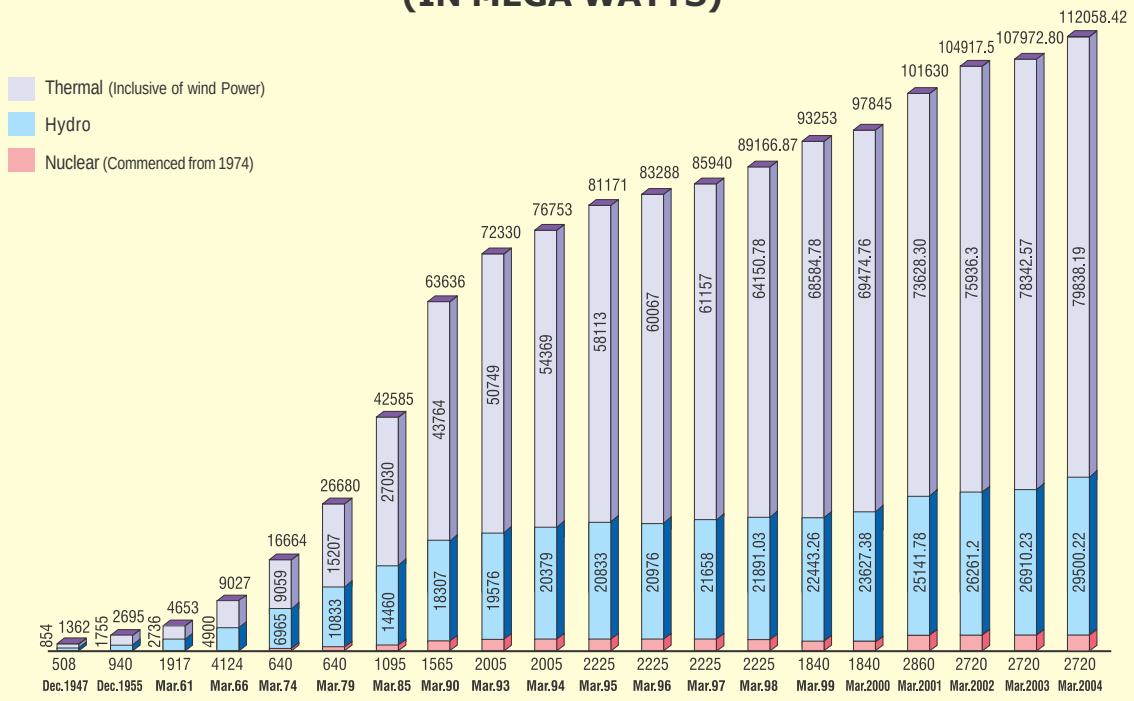


Capacity Addition : Programme and Achievement

INSTALLED CAPACITY

The all India installed capacity of electric power generating stations under utilities was 107972.80 MW as on 31.03.2003 consisting of 76606.91 MW of thermal, 26910.23 MW of hydro, 2720.00 MW of nuclear and 1735.66 MW wind which has increased to 112058.42 MW as on 31.03.2004 consisting of 77968.53 MW of thermal, 29500.23 MW of hydro, 2720.00 MW of nuclear and 1869.66 of wind.

GROWTH OF INSTALLED CAPACITY FROM 1947 ONWARDS (UTILITIES) (IN MEGA WATTS)



❑ CAPACITY ADDITION PROGRAMME FOR THE TENTH FIVE YEAR PLAN

A capacity addition of 41,110 MW has been targeted for the 10th Five Year Plan. Sector wise details are as under :

(In MW)

Sector	Hydro	Thermal	Nuclear	Cumulative Capacity
Central	8,742	12,790	1300	**22,832**
State	4,481	6,676	0	**11,157**
Private	1,170	5,951	0	**7,121**
Overall	**14,393**	**25,417**	**1,300**	**41,110**

❑ CAPACITY ADDITION PROGRAMME FOR 2002-2003 AND ACHIEVEMENT DURING 2002-2003

- **Programme**

38 power generating units with a total capacity of 4109.10 MW comprising of 607 MW hydro and 3502.10 MW thermal were programmed for commissioning during 2002-03. The sector-wise break-up is given as under :-

	Central Sector	State Sector	Private Sector	Total
Thermal	920.00	790.10	1792.00	**3502.10**
Hydro	250.00	357.00	0.00	**607.00**
Nuclear	0.00	0.00	0.00	**0.00**
Total	**1170.00**	**1147.10**	**1792.00**	**4109.10**

- **Achievement**

(In MW)

	Central Sector	State Sector	Private Sector	Total
Hydro	0.00	435.00	200.00	**635.00**
Thermal	1210.00	665.10	348.00	**2223.10**
Nuclear	0.00	0.00	0.00	**0.00**
Total	**1210.00**	**1100.10**	**548.00**	**2858.10***

* Short fall in achievement was due to non-commissioning of Dabhol-II (1444 MW) project under private sector.

❑ CAPACITY ADDITION PROGRAMME FOR 2003-04 AND ACHIEVEMENT DURING 2003-04

- **Programme**

(In MW)

	Central Sector	State Sector	Private Sector	Total
Thermal	710.00	674.54	52.80	**1437.34**
Hydro	3465.00	200.00	100.00	**3765.00**
Nuclear	0.00	0.00	0.00	**0.00**
Total	**4175.00**	**874.54**	**152.80**	**5202.34**

- **Achievement**

(In MW)

	Central Sector	State Sector	Private Sector	Total
Hydro	2325.00	165.00	100.00	**2590.00**
Thermal	710.00	651.62	0.00	**1361.62**
Nuclear	0.00	0.00	0.00	**0.00**
Total	**3035.00**	**816.62**	**100.00**	**3951.62**

❑ CAPACITY ADDITION (LAST FIVE YEARS)

In the last five years including 2003-04 (April 2003-March, 2004), the following new capacities have been added:

(In MW)

Year	Centre	State*	Total*
1998-99	991.60	3250.40	4242.00
1999-2000	1615.40	2892.10	4507.50
2000-01	659.00	3116.66	3775.66
2001-02	905.00	2210.20	3115.20
2002-03	1210.00	1648.10	2858.10
2003-04	3035.00	916.62	3951.62
Total	**8416.00**	**14034.08**	**22450.08**

*includes private sector projects

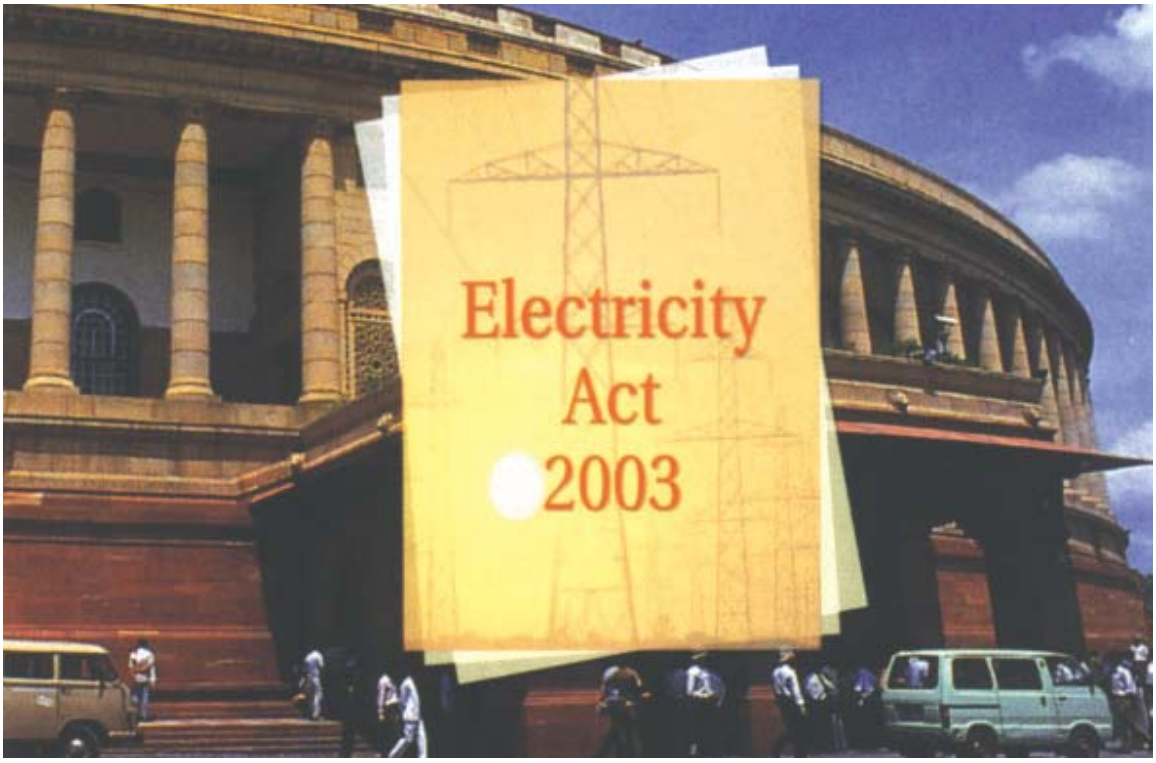
❑ FINANCIAL OUTLAYS

(in Crore)

	10th Plan	2002-03	2003-04
Allocation	143399 (GBS 25000, IEBR 118399)	13483 (GBS 3300, IEBR 10183)	14667.61 (GBS 3500, IEBR 11167.61)
Spent	—	8649.22 (GBS 1830.46, IEBR 6818.76)	11136.41 (GBS 1847.66 IEBR 9288.75)

Chapter - 5

Power Sector Reforms



THE ELECTRICITY ACT, 2003

The Electricity Act, 2003 is a very progressive legislation that creates liberal and transparent framework for development of power sector. Entry barriers have been sought to be removed in all segments of the power industry, thereby facilitating competition and ensuring efficiency gains for consumers. The Act provides for several measures to encourage reforms in the distribution sector in terms of mandatory metering and stringent penal provisions for theft of electricity. Consumers remain the focal point of the new law, with specific provisions safeguarding their interests. There are provision for Consumer Grievance Redressal Forum and Ombudsman to settle consumer's grievances. State Commissions are required to specify performance standards of licensees. Failure to comply with the performance standards makes the licensees liable to pay compensation to the affected person. The licensees are mandated to give supply to consumers on demand within a stipulated period failing which they are liable to pay penalty. State Governments are required to constitute District level committees to review inter-alia rural electrification, quality of power and consumer satisfaction. The Act also has specific provisions seeking to encourage rural electrification including local distribution through Panchayats, User Associations, Franchisees etc. The Central Government is required to formulate the specific policies on rural electrification - one, on stand alone systems for rural areas and the other on electrification and local distribution. The Act entrusts on the Appropriate Government the obligation to endeavour to supply electricity to all areas including villages and hamlets. The Act encourages licence free distributed generation (i.e. generation & distribution) in a rural area to be notified by the State Government.

ACCELERATED POWER DEVELOPMENT REFORMS PROGRAMME

The Government has launched Accelerated Power Development Reforms Programme (APDRP) which aims at upgradation of the sub-transmission and distribution system in the country and improving the commercial viability of State Electricity Boards by reducing their aggregate technical and commercial (AT&C) losses to around 15% as against the existing over 50%. This strategy envisages technical, commercial, financial and IT

intervention, organizational and restructuring measures and incentive mechanism for reducing T&D and cash loss reduction. Funds under the programme are given as additional central assistance over and above the normal Central Plan Allocation.

APDRP is an instrument to leverage distribution reforms in the States. Therefore, priority is being given to the projects from those States who have committed themselves to a time bound programme of reforms as elaborated in the Memorandum of Understanding (MoU) and Memorandum of Agreement (MoA) and are progressing on those commitments.

STATE REFORMS ACTS

Orissa, Haryana, Andhra Pradesh, Uttar Pradesh, Karnataka, Rajasthan, Madhya Pradesh, Delhi and Gujarat have enacted their State Electricity Reforms Acts.

The SEBs of Orissa, Haryana, Andhra Pradesh, Karnataka, Uttar Pradesh, Uttaranchal, Rajasthan, Delhi and Madhya Pradesh have been unbundled/ corporatised.

Distribution has been privatized in Orissa and Delhi.

STATE ELECTRICITY REGULATORY COMMISSIONS

Twenty three states namely, Orissa, Haryana, Andhra Pradesh, Uttar Pradesh, Karnataka, West Bengal, Tamil Nadu, Punjab, Delhi, Gujarat, Madhya Pradesh, Maharashtra, Rajasthan, Himachal Pradesh, Assam, Chhatisgarh, Uttaranchal, Goa, Bihar, Jharkhand, Kerala, Tripura and Sikkim have either constituted or notified the constitution of SERC.

Eighteen SERCs viz. Orissa, Andhra Pradesh, Uttar Pradesh, Maharashtra, Gujarat, Haryana, Karnataka, Rajasthan, Delhi, Madhya Pradesh, Himachal Pradesh, West Bengal, Punjab, Tamil Nadu, Assam, Uttaranchal, Jharkhand and Kerala have issued tariff orders.

SCHEME FOR ONE TIME SETTLEMENT OF OUTSTANDING DUES PAYABLE BY SEBS TO THE CPSUS

An expert Group under the Chairmanship of Shri Montek Singh Ahluwalia, the then Member (Energy), Planning Commission was constituted to address the issue of SEBs. The Group recommended a scheme for one-time settlement of dues payable by State Electricity Boards (SEBs) to Central Public Sector Undertakings (CPSUs) and the Railways. The recommendations were accepted by the Government of India. All the 28 State Governments signed the Tripartite Agreement envisaged under the scheme. The tripartite agreement was between the State Government, Reserve Bank of India and the Government of India. **Bonds amounting to Rs.28983.854 crore have been issued by 26 States as per details given below.**

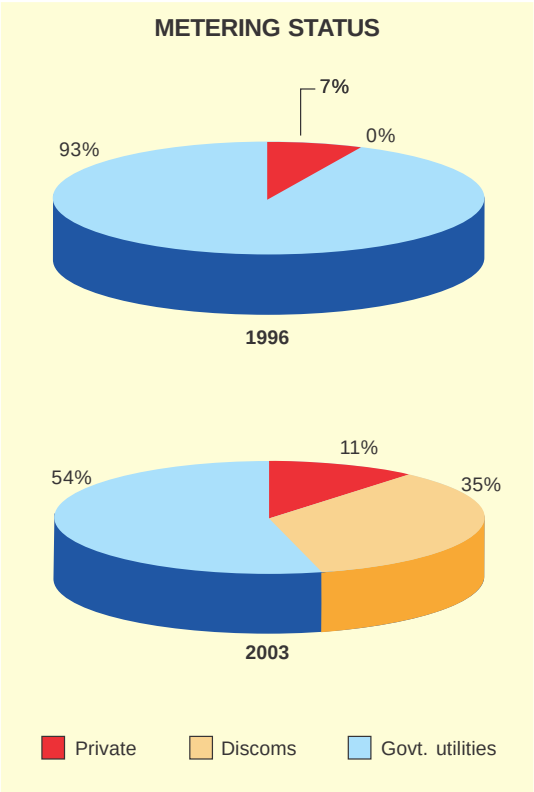
State wise details (Rs. in crores)

Sl.No.	State	Bond Value
1.	Andhra Pradesh	2436.098
2.	Arunachal Pradesh	24.072
3.	Assam	857.534
4.	Bihar	1593.520
5.	Chattishgarh	483.220
6.	Gujarat	1628.712
7.	Haryana	2022.290
8.	Himachal Pradesh	70.248
9.	Jammu & Kashmir	1590.812
10.	Karnataka	550.954
11.	Kerala	1158.252
12.	Madhya Pradesh	2663.890
13.	Maharashtra	1018.594
14.	Manipur	157.094
15.	Meghalaya	13.990
16.	Mizoram	45.566
17.	Nagaland	78.920
18.	Orissa	1102.874
19.	Punjab	637.346
20.	Rajasthan	368.782
21.	Sikkim	47.802
22.	Tamil Nadu	1962.140
23.	Tripura	63.508
24.	Uttranchal	572.000
25.	Uttar Pradesh	5871.860
26.	West Bengal	1963.776
	Total	**28983.854**

Goa has no outstanding dues. Government of National Capital Territory of Delhi securitized its outstanding dues by converting the dues into long-term advances of Rs. 3316.28 crore payable to the CPSUs concerned under Bi-partite Agreement. Jharkhand did not issue the bonds on account of the dispute it has over the division of assets and liabilities between the Governments of Bihar and Jharkhand. The scheme has also resulted in improvement in collection of current dues of the power sector CPSUs.

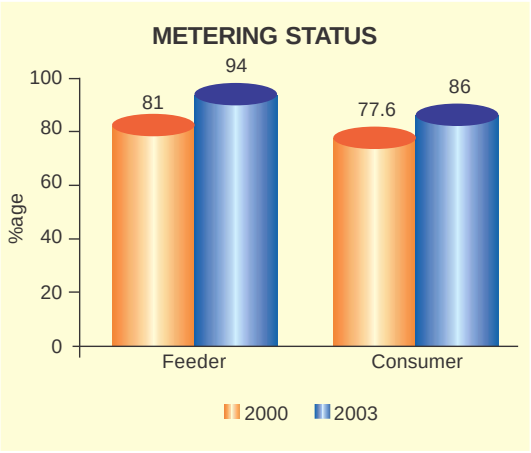
Distribution Reforms & Accelerated Power Development and Reforms Programme (APDRP)

Distribution Reforms: The Distribution Reform was identified as the key area to bring about the efficiency and improve the financial health of the power sector. Ministry of Power took various initiatives in the recent past for bringing improvement in the distribution sector. 28 states have signed the Memorandum of Understanding with the Ministry to take various steps to undertake distribution reforms in a time bound manner. Subsequently, 21 states have constituted SERCs and 17 have issued tariff orders in the direction of rationalizing the tariffs. All States are taking user charges in agriculture sector. States are now better committed towards subsidy payment to the utilities. All the states have securitised their outstanding dues towards CPSUs. 10 states have unbundled/corporatised their SEBs. 4 States are expected to unbundle/ corporatise their SEBs shortly. Electricity distribution has been privatized in Orissa and Delhi. Energy handled by Government utilities, private utilities and distribution companies in the year 1996 and 2003 is shown below:



The SEBs/utilities have started finalizing their annual accounts faster than earlier. Utilities in 11 states have finalized their accounts for 2002-03. In the balance 18 states, 7 utilities are Electricity Departments and in the states of Bihar, Jharkhand, Chattisgarh & M.P. utilities could not finalize their accounts due to bifurcation of the states.

Progress on metering in the distribution sector is as shown:



APDRP: Government of India approved a scheme called "Accelerated Power Development and Reforms Programme (APDRP)" in March 2003 to accelerate distribution sector reforms. The main objectives of the programme are:

- ❑ Reduce AT&C losses to 15%
- ❑ Bring about commercial viability in the power sector
- ❑ Reduce outages & interruptions
- ❑ Increase consumer satisfaction

The scheme has two components as below:

a. **Investment component** – Government of India provides Additional Central Assistance for strengthening and up gradation of sub-transmission and distribution network. Additional Central Assistance covers 50% of the project cost in the ratio of grant and loan as 1:1. SEBs and Utilities have to arrange remaining 50% of the fund from Power Finance Corporation (PFC) and Rural Electrification Corporation (REC) or other financial institutions or from their own

resources as counter-part fund. For Special category states 100% of the project cost is provided as Additional Central Assistance in the ratio of 90% grant and 10% loan. (States of north-eastern region, Jammu & Kashmir, Himachal Pradesh, Uttaranchal and Sikkim are covered under special category).

APDRP is an instrument to leverage distribution reforms in the States. Therefore, priority is being given to projects from those States who have committed themselves to a time-bound programme of reforms as elaborated in the Memorandum of Understanding (MoU) and Memorandum of Agreement (MoA) and are progressing on those commitments.

So far 410 projects have been started in 29 States amounting to Rs.16610.19 Crore during the year 2002-03 and 2003-04. An up to date status of fund released/utilised is shown on **next page (15).**

b. Incentive component: - An incentive equivalent to 50% of the actual cash loss reduction by SEBs/ Utilities, is provided as grant. The year 2000-01 is the base year for the calculation of loss reduction, in subsequent years. The cash losses are calculated net of subsidy and receivables.

The details of the cash loss reduction and incentives released to various states under APDRP are as below:

Sl. No.	State	Year	Cash loss reduction	Incentive released
1.	Gujarat	2001-02	472.74	236.37
		2002-03	501.10	-
2.	Maharashtra	2001-02	579.74	137.89
3.	Haryana	2001-02	210.98	105.49
4.	Rajasthan	2001-02	275.42	137.71
5.	Andhra Pradesh	2002-03	530.22	265.11
6.	West Bengal	2002-03	125.90	-
7	Goa	2002-03	17.92	-
8	Madhya Pradesh	2001-02	77.14	-
	Total		**2791.16**	**882.57**

Schemes undertaken under APDRP are for renovation and modernisation of sub-stations, transmission lines & distribution transformers, augmentation of feeders & transformers, feeder and consumer meters, high voltage distribution system (HVDS), consumer indexing, SCADA, computerised billing etc.

Consumer indexing has been started in the states of Andhra Pradesh, Delhi, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan & Uttar Pradesh. HVDS has been introduced for reduction in pilferage of electricity in CPDCL (Andhra Pradesh), NDPL (Delhi), West Bengal, Noida (Uttar Pradesh) etc. GIS mapping of distribution network has been introduced in Hyderabad & Vadodara.

As per the MOA signed by the States, 16 states have opened separate APDRP accounts. Distribution Reforms Committee have been constituted by the states for review and monitoring of progress on reforms and implementation of APDRP schemes. The States have identified feeder managers to increase accountability. This is helping the utilities in reduction of AT&C losses. Computerised billing and consumer complaint centres have been started in selected towns of Andhra Pradesh, Delhi, Gujarat, Karnataka, Maharashtra, Madhya Pradesh and Uttar Pradesh.

States of Gujarat & Karnataka have started handing over parts of distribution system on management contract to franchises. Jharkhand has also invited expression of interest for handing over distribution in Ranchi to franchises. Experience of these states will go a long way in deciding future course of action by other states in this direction.

APDRP Status

As on 31.03.2004

(Rs. in Crores)

Sl	State	Project Outlay	APDRP Compo-nent	Fund Released by GOI					
				Investment					
				2002-03		2003-04		Total Releases	Total Utilisa-tion up to Mar., 04
				Release	Utilisation	Release	Utilisation up to Mar., 2004		
Non-Special Category State									
1.	Andhra Pr.	1511.40	755.70	163.82	69.48	402.94	332.82	566.76	402.30
2.	Bihar	768.25	384.13	66.11	0.48	20.88	47.72	86.99	48.20
3.	Chattisgarh	424.58	212.29	10.00	23.90	43.07	95.16	53.07	119.06
4.	Delhi #	946.46	473.23	105.51	25.20	0.00	487.14	105.51	512.34
5.	Goa	244.60	122.30	22.04	12.53	8.54	23.46	30.58	35.99
6.	Gujarat								
a.	GEB	686.41	343.21	85.81	27.44	171.60	156.98	257.41	184.42
b.	AEC	206.41	103.21	11.58	-	7.00	86.24	18.58	86.24
c.	SEC	142.98	71.49	8.02	-	4.85	61.40	12.87	61.40
7.	Haryana	453.41	226.71	56.33	35.93	112.66	101.25	168.99	137.18
8.	Jharkhand	444.85	222.43	12.00	9.32	43.60	82.64	55.60	91.96
9.	Karnataka	1161.19	580.60	145.15	69.00	290.30	180.45	435.45	249.45
10.	Kerala	350.35	175.18	30.43	17.19	74.23	127.88	104.66	145.07
11.	Madhya Pr	679.08	339.54	74.87	11.96	10.00	29.79	84.87	41.75
12	Maharashtra								
a.	MSEB	1203.32	601.66	120.41	-	71.85	119.72	192.26	119.72
b.	BEST	144.53	72.27	18.07	65.09	36.13	40.20	54.20	105.29
c.	BSES	550.74	275.37	-	-	-	-	-	-
13.	Orissa	592.22	296.11	54.35	-	-	0.89	54.35	0.89
14.	Punjab	706.38	353.19	53.98	-	124.76	110.70	178.74	110.70
15.	Rajasthan	1255.06	627.53	125.64	71.68	219.70	253.30	345.34	324.98
16.	Tamilnadu	968.17	484.09	111.57	77.14	232.59	173.96	344.16	251.10
17.	Uttar Pr.	824.14	412.07	80.12	-	-	0.30	80.12	0.30
18.	W. Bengal	420.92	210.46	19.02	-	21.15	54.03	40.17	54.03
	Total	**14685.45**	**7342.77**	**1374.82**	**516.34**	**1895.85**	**2566.03**	**3270.67**	**3082.37**
Special Category State									
19.	Ar. Pradesh	85.99	85.99	0.00	-	36.68	1.40	36.68	1.40
20.	Assam	408.54	408.54	96.97	0.05	0.00	2.04	96.97	2.09
21.	H.P.	327.81	327.81	43.05	4.69	120.87	16.04	163.92	20.73
22.	J&K	401.10	401.10	20.00	-	180.50	21.07	200.50	21.07
23.	Manipur	10.13	10.13	2.67	-	0.00	2.64	2.67	2.64
24.	Meghalaya	42.26	42.26	6.57	-	14.56	1.06	21.13	1.06
25.	Mizoram	57.91	57.91	3.78	3.78	25.18	22.30	28.96	26.08
26.	Nagaland	47.22	47.22	13.14	2.67	10.47	2.73	23.61	5.40
27.	Sikkim	154.73	154.73	17.21	2.67	60.17	32.98	77.38	35.65
28.	Tripura	27.54	27.54	2.67	-	6.10	6.33	8.77	6.33
29.	Uttaranchal	361.51	361.51	174.63	56.60	6.13	44.36	180.76	100.96
	Total	**1924.74**	**1924.74**	**380.68**	**70.46**	**460.66**	**152.95**	**841.34**	**223.41**
	Grand Total	**16610.19**	**9267.51**	**1755.50**	**586.80**	**2356.51**	**2718.98**	**4112.01**	**3305.78**

 # Fund to Delhi is released by Ministry of Home Affairs

Chapter - 7

Transmission

Transmission projects continue to be accorded a high priority in the context of the need to evacuate power from the generating stations to the load centres, system strengthening and creation of National Grid. POWERGRID's transmission projects construction targets for the year 2003-04 and achievement are summarised below:

Works	Programme for the year 2003-2004 (Ckt. Kms.)	Achievement upto March, 2004	% of Achievement
800/400/220 kV EHV AC & 500 kV HVDC lines	1580	2487	157

CENTRAL SECTOR TRANSMISSION

POWERGRID, the 'Central Transmission Utility', is the sole agency responsible to establish the requisite transmission capacity in the central sector to match the generation capacity addition and encourage inter-state/inter-regional exchange of power to mitigate the situation of surplus/deficit of energy in various regions. POWERGRID's transmission lines and sub-stations completed during the year 2003-04 are shown in the following table:

S. No.	Name of the line/Sub-station	Voltage Class
1.	Salem-Udumalpet S/C	400 kV
2.	LILO of Chamera-I – Kishenpur S/C at Chamera-II	400 kV
3.	Unified Load Despatch and Communication Scheme in North-Eastern Region	-
4.	Agra (POWERGRID) – Agra (UPPCL) D/C	400 kV
5.	LILO of Purnea (BSEB) –Dhalkola (WBSEB) at Purnea (Existing)	132 kV
6.	LILO of Bongaigaon-Malda at Purnea	400 kV
7.	LILO of Panki-Naubasta at Kanpur	220 kV
8.	Meramundali-Jeypore S/C	400 kV
9.	Series Compensation on 400 kV Panki-Muradnagar line	400 kV
10.	Ranganadi-Ziro S/C line	132 kV
11.	LILO of Davangere-Hoody at Hiriyur	400 kV
12.	Mau- Balia S/C	132 kV
13.	Khamam – Nagarjunasagar S/C	400 kV
14.	Purnea Sub-station	400 /220 kV
15.	Hiriyur Sub-station	400 /220 kV
16.	Ziro Sub-station	132/33 kV
17.	ICT at Salakati	220/ 132 kV
18.	ICT – III at Bihartshariff	400/ 200 kV

TOWARDS FORMATION OF NATIONAL GRID

POWERGRID has envisaged establishment of an integrated **National Power Grid** in the country by the year 2012 with an inter-regional power transfer capacity of 30,000 MW. A perspective transmission plan has been evolved for strengthening the **regional grids** with ultimate objective of establishment of strong & vibrant **National Power Grid** in a phased manner to support the generation capacity addition program of about 1,00,000 MW during X & XI Plans. The major considerations followed while formulating such a perspective plan are, creation of **"Transmission Highways"** from potential generating resources mainly

in Eastern & North-Eastern Regions to major load centers in Northern, Southern & Western Regions for their optimum utilization, conservation of precious Right-of-Way along eco-sensitive areas and to achieve economy (cost/MW) in long-term.

Phase - I

Number of schemes have already been implemented by POWERGRID towards development of the first phase of the National Power Grid. In addition to few AC inter-regional links, there are four HVDC back-to-back inter-regional links already under operation, which include 500 MW HVDC back-to-back link interconnecting Western and Northern Region at Vindhyachal, 1000 MW HVDC back-to-back link interconnecting Western and Southern Region at Chandrapur, 500 MW back-to-back link interconnecting Eastern and Southern Regions at Gazuwaka, 500 MW Sasaram HVDC back to back link interconnecting Eastern Region with Northern Region at Sasaram. Under the first phase, all the power regions of the country have been interlinked mainly through a synchronous HVDC links and an inter-regional power transfer capacity of 5,000 MW has been achieved.

Phase - II

Implementation of second phase of the National Grid has already begun with the commissioning of 2000 MW Talcher-Kolar bi-polar HVDC link, 9 months ahead of schedule and at a cost lower by Rs. 700 Crore than the approved cost. The 400 kV D/C Raipur-Rourkela line (East- West Interconnector) was commissioned in March'2003, one year ahead of schedule, thereby achieving the cumulative inter-regional power transfer capacity of 8000 MW. With this the synchronous operation of regional grids covering North-Eastern, Eastern, and Western Regions with a combined installed capacity of over 50,000 MW stretching from Arunachal Pradesh in North Eastern Region to Goa in Western Region, i.e. a distance of more than 2500 Km, covering an area of 16 lac sq. Km, has been achieved.

POWERGRID has been giving special emphasis for enhancing the inter-regional power transfer capacity to facilitate optimal utilization of available energy resources. As a result of concerted efforts, inter-regional transmission of energy increased from mere 3600 MUs in 1997 to over 22,000 MUs during the year 2003-04. Similarly, during the same period the inter-regional power transfer capacity has been enhanced from 1200 MW to 8000 MW.

Doubling of capacity of Gajuwaka HVDC back-to-back link by establishing additional 500 MW block is already under implementation for enhancing the power transfer capacity between Eastern Region & Southern Region. This project is expected to be completed by Mar'2005.

The second phase of National Grid consisting of a hybrid system of HVDC & 765 kV systems is expected to be achieved by the year 2007, when the inter-regional power transfer capacity is envisaged to be about 23,500 MW, depending upon commissioning of planned generation projects.

Phase - III

In the ultimate phase, a strong National Grid has been envisaged to evacuate the power from major generating resources including hydro projects in North-Eastern Region and large sized Thermal Power Plants in Jharkhand/Bihar, Orissa and Madhya Pradesh. The scheme for National Grid involves development of high capacity transmission corridor in chicken-neck area (falling between Nepal & Bangladesh) and establishment of a ring of 765 kV lines interconnecting all the electrical regions. Cumulative inter-regional transmission capacity of the National Grid would increase to about 30,000 MW by the end of XI plan depending upon pace of generation capacity addition.

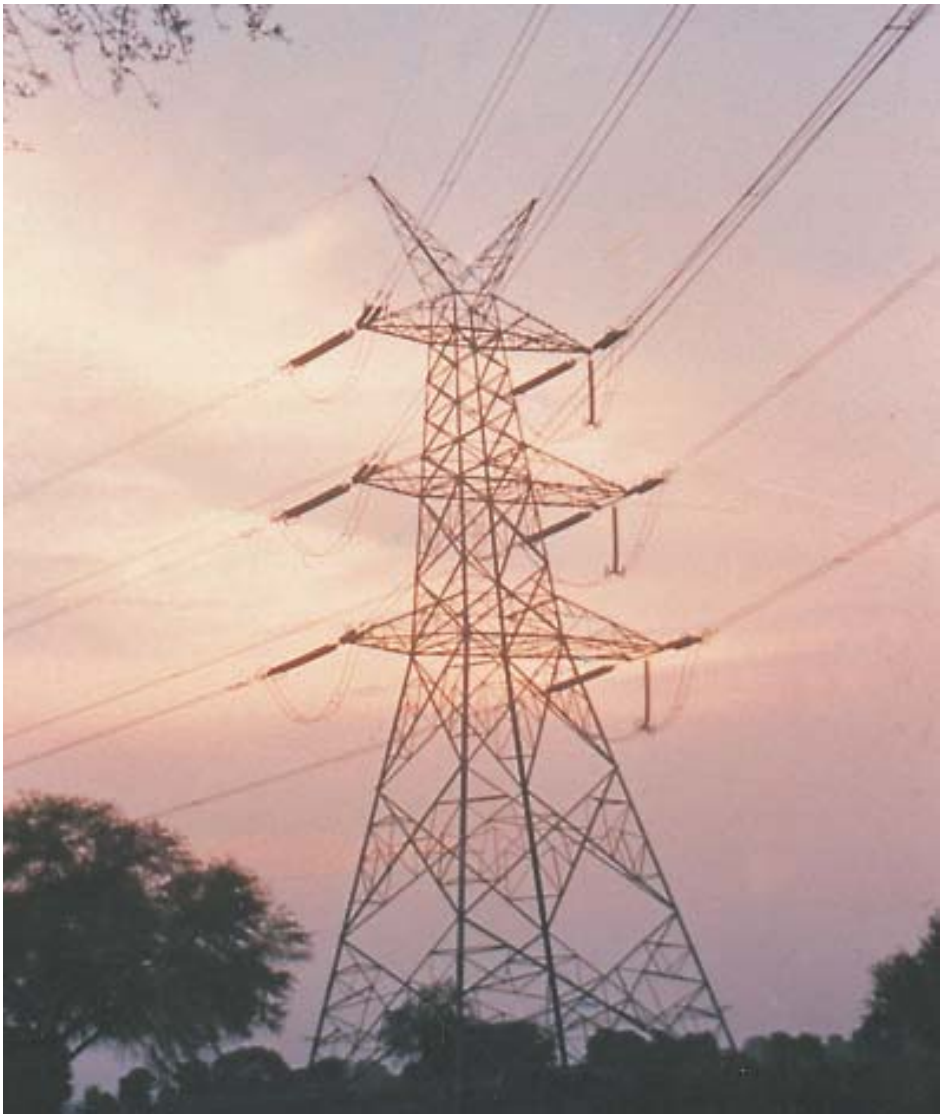
FORMATION OF SAARC GRID

As per an estimate, the hydro potential of Bhutan is 21,000 MW, that of Nepal is 83,000 MW, and of Pakistan is 36,000 MW. Bangladesh has gas potential to the tune of 40,000 bcf. India being centrally placed in South Asian region, sharing political boundaries with four SAARC countries can play a major role in facilitating interconnection between these countries leading to formation of SAARC Grid for effective utilization of Regional Resources.

PRIVATE SECTOR PARTICIPATION IN TRANSMISSION

For creation of National Grid including the evacuation system for associated generation projects, the total investment requirement in the central transmission sector during next 10 years has been envisaged to be about Rs. 70,000 Crore. Out of this, POWERGRID plans to invest to the tune of Rs. 50,000 Crore, while the balance of Rs. 20,000 Crore is envisaged to be mobilized through Private Participation.

POWERGRID established First Public-Private joint venture in Indian Power Sector with M/s Tata Power (51% stake in the JV Company viz.



"Powerlinks Transmission Limited") for implementation of major transmission lines of the Transmission system associated with Tala HEP in Bhutan, East-North inter-connector and Northern Region Transmission System, costing about Rs. 1,100 Crore. This project has received excellent response from International Funding Institutes like IFC, Washington including multilateral financing from private sector arm of ADB, Manila and Indian Financial Institutions like IDFC, SBI. The project loan is without any guarantee from POWERGRID and GOI. The JV Company has received its transmission license from CERC, the first such license in Indian Power Sector. In fact this JV model of Public - Private Partnership, developed by POWERGRID, is first in India and in Asia and would be trend setter for future private investment not only in India but abroad as well.

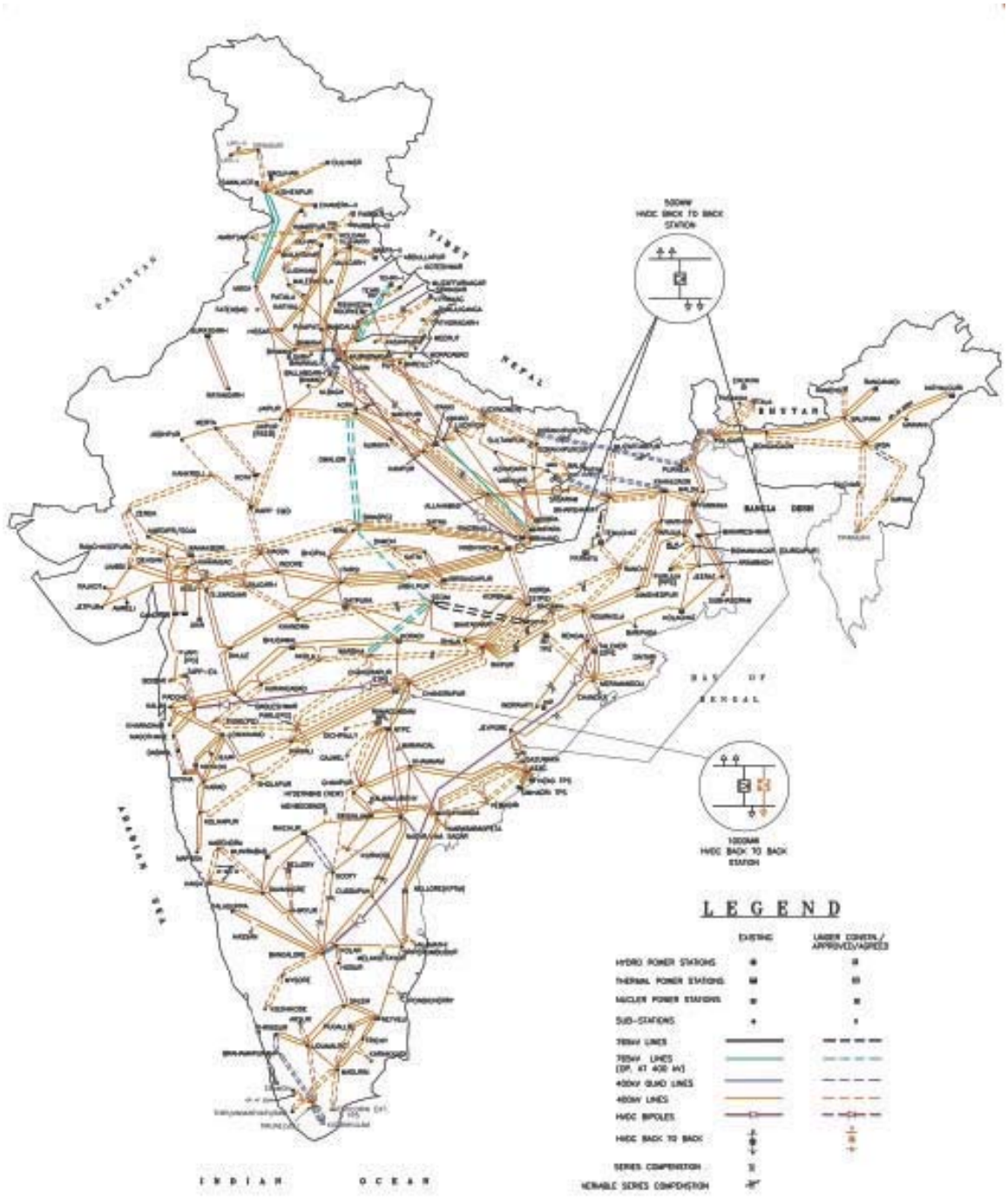
With the success of above project, POWERGRID has already initiated action to bring in more private investment in transmission projects and two more projects i.e. transmission system associated with Koldam, Parbati & Maithon, estimated to Cost Rs. 1300 Crore, have been floated under joint venture route.

In addition, transmission lines under Western Region Strengthening scheme (estimated project cost: Rs. 3,500 Crore) is also being considered for implementation under JV route.

MAJOR TRANSMISSION NETWORK OF INDIA

(400kV AND ABOVE)

(EXISTING AND APPROVED)



Chapter - 8

Rural Electrification Programme

Rural Electrification involves supply of energy for two types of programmes:

(a) Production oriented activities like minor irrigation, rural industries etc;

(b) Electrification of villages.

While the emphasis is laid on exploration of ground water potential and energisation of pumpsets/tubewells, which has a bearing on agricultural production, the accent in respect of areas covered under the Revised Minimum Needs Programme (RMNP), is on village electrification.

According to the earlier definition: "A village is classified as electrified if electricity is being used within its revenue area for any purpose what-so-ever."

This definition of village electrification was reviewed in consultation with the state Governments and State Electricity Boards and following new definition was adopted:

:A village will be deemed to be electrified if electricity is used in the inhabited locality within the revenue boundary of the village for any purpose whatsoever

It has been decided now to revise the definition of village electrification and a new definition of village electrification is as under:

"A village would be declared as electrified if

(i) Basic infrastructure such as Distribution Transformer and Distribution lines are provided in the inhabited locality as well as the Dalit Basti/hamlet where it exists. (For electrification through Non-Conventional Energy Sources a Distribution Transformer may not be necessary).

(ii) Electricity is provided to public places like Schools, Panchayat Office, Health Centres, Dispensaries, Community centers etc. and

(iii) the number of households electrified should be at least 10% of the total number of households in the village.

During the year 2003-2004, 4589 inhabited villages were electrified and 192721 pumpsets/tubewells were energised. Cumulatively 494587 villages have been electrified and 14002634 electric irrigation pumpsets have been energised as on 31.3.2004.

As regards the electrification of tribal villages, out of a total of 107045 tribal villages in the country, 82976 (Provisional) villages have been electrified as on 31.3.2004. Similarly, 301019 (Provisional) Harijan Bastis have been electrified as on the same date.

PRADHAN MANTRI GRAMOYADA YOJANA (PMGY)

Rural Electrification was included under Pradhan Mantri Gramodaya Yojana (PMGY) from 2001-02 to achieve human development at the village level. The six components of PMGY now are: Primary Health, Primary Education, Rural Drinking Water, Rural Shelter, Nutrition and Rural Electrification. During 2001-02 as against the allocation of Rs. 421.00 crores, Rs. 412 crores was released to the States for rural electrification.

During 2002-03, the PMGY is being administered by the Planning Commission. Under the revised guidelines, the States would have flexibility to decide their inter-se allocation of ACA among the six PMGY sectors as per their own plan priorities and discretion The funds for village electrification are available as Additional Central Assistance with 90% grant and 10% loan for the special category States, and 30% grant and 70% loan for other States. Government has allocated Rs. 36066.35 lakhs to various States under PMGY for 2003-04 for rural electrification **(Annexure-I).**

MINIMUM NEEDS PROGRAMME

The revised criteria for the MNP components of rural electrification adopted since the beginning of 7th Plan are as under:-

(a) all North-Eastern hilly States;

(b) All States with less than 65% electrification and in these States those districts will be taken up which has less than 65% electrification provided that districts having least percentage coverage will be given priority over the others; and

(c) All areas including in the tribal sub plan.

During 2003-04 Rs. 600 crore have been allocated to the eligible States under MNP. The break up is as under:-

(Rs. in crores)

State	Amounts
Arunchal Pradesh	12.00
Assam	60.00
Himachal Pradesh	2.00
Manipur	4.00
Meghalaya	30.00
Uttaranchal	70.00
Bihar	68.00
Jharkhand	68.00
Chhattisgarh	8.00
Madhya Pradesh	8.00
Orissa	60.00
Uttar Pradesh	150.00
West Bengal	60.00
All India	600.00

ACCELERATED RURAL ELECTRIFICATION PROGRAMME (AREP)

Govt. have approved grant of interest subsidy of Rs.563.87 Crore under Accelerated Rural Electrification Programme during the Tenth Plan period for electrification of un-electrified villages. Out of which an amount of Rs.163.87 Crore has been provided in the budget of 2002-03. Of these, Rs.157.87 Crore has been released to REC. A provision of Rs. 100 Crore have been made for the financial year 2003-04 under this scheme.

KUTIR JYOTI PROGRAMME (KJP)

The Government of India in 1988-89 launched a programme called Kutir Jyoti for extending single point light connections to the households of rural families below the poverty line including Harijan and Advasi families to improve the quality of life of such poor families. Under this programme, one time cost of internal wiring and service connection charges is provided by way of 100% grant to the State Governments/State Electricity Boards through REC. The money provided for release of Kutir Jyoti connections covers the service line from the pole, the fuse unit, switch, the meter and board. It also covers the cost of single point internal wiring and the cost of bulb.

The grant amount which was initially Rs.200/- per connection in 1988-89 enhanced to Rs. 220/- per connection during 1989-90. No grant was sanctioned by the Government for years 1990-92. The programme was revised from 1992-93 and grant amount was enhanced to Rs. 400/- per connection.

The grant amount was further enhanced to Rs. 800/- for unmetered connection and Rs.1000/- for metered connections in 1996-97. The issue of increase in the cost to cover the current cost of material labour charges, etc. for extending single point light connection under KJ programme was reviewed by the Government. The Government has now accorded their approval to revise the cost from the present Rs. 1000 to Rs. 1800 per connection in respect of special category States and Rs. 1500 per connection in other States. Government have also decided that under KJ Programme, only metered connection may be given. The above revision is effective from 18th March, 2002.

During the year 2002-03, a total number of 9.35 lakh single point light connections were reported as released under the programme against the planned target of releasing 6.53 lakh connections. Under this scheme of Government of India, Rs. 138.65 crore was disbursed to the implementing State Govts/SEBs/State Power Utilities during the financial year 2002-03. Cumulatively 62.31 lakh connections are reported to have been released and an amount of Rs. 51639 lakhs had been disbursed under the programme upto 31st March, 2004. The year wise details are at **Annexure - II**

During the year 2003-04, 445772 (provisional) single point light connections have been released. The details of grant drawn by the States/SEBs and progress under Kutir Jyoti Programme during 2003-04 are given at **Annexure – III.**

NEW SCHEME

Accelerated Electrification of One Lakh Villages and One Crore Households

The Government has approved a new scheme for "Accelerated Electrification of One Lakh villages and One Crore Households. Detailed guidelines for implementation of this new scheme is at **Annexure-IV.**

This new scheme replaces the existing Accelerated Rural Electrification Programme (AREP) and Kutir Jyoti Programme presently being administered by the Ministry of Power.

The REST Mission will review and monitor the implementation of the scheme.

ANNEXURE-I

Statewise details of funds released /allocated under PMGY for the Year 2001-02, 2002-03 and 2003-04 for Rural Electrification

Rs. in lakhs

Sl.No.	States	2001-02	2002-03(MMP)	**2003-04(MMP)**
1	Andhra Pradesh	1705.00	1705.00	**1438.00**
2.	Arunachal Pradesh	684.00	684.00	**684.00**
3.	Assam	6011.00	3000.00	**2900.00**
4.	Bihar	2457.90	2417.30	**2417.30**
5.	Chattisgarh	851.70	515.00	**-**
6.	Goa	4.50	6.00	**6.00**
7.	Gujarat	362.80	0.00	**712.20**
8.	Haryana	187.90	142.90	**142.90**
9.	Himachal Pradesh	100.00	110.00	**200.00**
10.	J&K	1922.00	800.00	**800.00**
11.	Jharkhand	379.60	1116.90	**744.60**
12.	Karnataka	841.00	1000.00	**1000.00**
13.	Kerala	594.50	-	**-**
14.	Madhya Pradesh	1460.62	1275.00	**1275.00**
15.	Maharashtra	1901.08	1664.00	**1287.22**
16.	Manipur	600.00	600.00	**600.00**
17.	Meghalaya	600.00	600.00	**600.00**
18.	Mizoram	598.00	598.00	**598.00**
19.	Nagaland	452.60	650.00	**2982.00**
20.	Orissa	1703.80	100.00	**100.00**
21.	Punjab	1488.25	444.00	**444.00**
22.	Rajasthan	1080.00	1061.00	**1061.00**
23.	Sikkim	0.00	400.00	**400.00**
24.	Tamil Nadu	1173.60	1608.20	**608.20**
25.	Tripura	850.00	500.00	**700.00**
26.	Uttar Pradesh	9417.00	10187.00	**9277.00**
27.	Uttaranchal	976.75	2000.00	**1000.00**
28.	West Bengal	2820.00	2774.00	**3816.75**
	Total	41223.60	35,958.30	**35794.17 ***

- *Amount without allocation of UTs*

ANNEXURE-II

Physical and financial performance under Kutir Jyotl Programme upto31.03.2004

Year	Physical (Nos.)		Financial (Rs.Lakh)	
	Target	Achievement	Grant Allocation	Grant Drawn
1988-90	1181815	1038678	2500	2190
1992-93	125000	63128	500	284
1993-94	250000	374183	1000	1213
1994-95	125000	133928	500	714
1995-96	625000	510130	2500	2079
1996-97	280000	335338	2500	2248
1997-98	427650	372692	3694	2918
1998-99	445000	529914	4000	4917
99-2000	540000	497373	5400	4709
2000-01	650000	524674	6500	4878
2001-02	700000	470125	7000	5580
2002-03	653007	935065	10000	13865
2003-04	652915	445772*	10000	6044
Total	**6655387**	**6231000**	**56093**	**51639**

***** Provisional

Annexure-III

Implementation of Kutir Jyoti Programme 2003-04

(Rs. in Lakhs)

Sl. No.	STATE	Allocated Programme		Prog. Sanctioned		Achievement	
		Grant Amount	Connections (Nos)	Grant. Amt.	Connections (Nos.)	Grant Drawn	Connections Released (Prov.)
1	2	3	4	5	6	7	8
1	Andhra Pradesh	719.6	47976	2250	150000	2160	115734
2	Arunachal Pradesh	24.8	1380	372	20690	187	-
3	Assam	663.6	36867	-	-	-	5076
4	Bihar	1243.9	82929	1244	82929	153	30825
5	Jharkhand	372.3	24819	-	-	67	16383
6	Goa	4.0	264	-	-	-	-
7	Gujarat	340.7	22710	75	5000	38	2916
8	Haryana	86.5	5766	76	5071	85	7037
9	Himachal Pradesh	49.2	2732	18	1000	17	649
10	J & K	104.4	5799	-	-	-	-
11	Karnataka	378.8	25255	2267	151126	1541	91606
12	Kerala	307.3	20486	307	20486	416	35046
13	Madhya Pradesh	635.9	42393	636	42393	149	14846
14	Chhattisgarh	243.2	16210	571	38095	510	38095
15	Maharashtra	663.9	44260	150	10000	50	7011
16	Manipur	75.7	4208	-	-	-	-
17	Meghalaya	48.2	2675	48	2675	51	1500
18	Mizoram	22.7	1261	27	1500	27	535
19	Nagaland	27.3	1517	54	3000	44	-
20	Orissa	764.5	50968	-	-	-	443
21	Punjab	111.8	7450	112	7450	100	3070
22	Rajasthan	360.8	24050	225	15000	222	6997
23	Sikkim	15.6	868	35	1927	15	770
24	Tamil Nadu	470.8	31388	471	31388	146	24906
25	Tripura	122.0	6780	216	12000	66	5008
26	Uttar Pradesh	1212.8	80854	-	-	-	-
27	Uttaranchal	84.1	4671	-	-	-	-
28	West Bengal	845.7	56379	846	56379	-	37319
	Total	**10000.1**	**652915**	**10000**	**658109**	**6044**	**445772**

ANNEXURE-IV

Guidelines For Rural Electrification Programme for One Lakh Villages and one crore households.

Government has approved a new scheme for electrification of one iakh villages and one crore households. The scheme would'be implemented through the Rural Electrification Corporation which may associate other financial institutions in the implementation of the programme. These guidelines will be aligned with the policies being formulated under section 4 and 5 of the Electricity Act, 2003 that would facilitate sustainable provision of electricity in rural areas.

A. Village Electrification with household Electrification

The scheme shall cover electrification of un-electrified villages as on 31st March 2004 (according to the prevailing definition of absence of use of electricity by even one person in the village habitation). In addition the scheme may also cover de-electrified villages on a case-by-case basis.

Electrification projects based on grid extension as well as stand-alone electrification projects based on distributed generation would be eligible for capital subsidies under the scheme.

The project cost that qualifies for the capital subsidy under the scheme would include the cost of the decentralized generation system and the distribution network (poles, transformers, service connections up to the household premises and meters). Single point connection for BPL households would be provided free of cost and from the subsidy granted under this scheme.

The-project would have the universal obligation to provide electricity to all consumers on demand as per the tariff proposal agreed between the beneficiaries and the Rural Electricity Supply Provider. In any event, it is mandatory that at least 10% of the households in each village included in the project are electrified as provided under the new definition of village electrification.

Panchyats, Cooperatives, NGOs, Users Associations, Franchisees, State / Regional Utilities or any other individual/entity desirous of becoming a Rural Electricity provider would be eligible for the capital subsidy under the scheme. However, in order to avail of the subsidy under the scheme, the Rural Electricity Service Providers must ensure on active support/ participation of the beneficiaries through Panchayat Raj Institutions, consumer cooperatives/ associations, NGOs etc. Where the SEB/State Utility becomes the rural Electricity Service Provider under this scheme it would need to put in place satisfactory arrangements for decentralised management and revenue collection through Panchayats/Users Associations/ Cooperatives/NGOs/Franchisees.

To be eligible for the capital subsidy, all projects would need to demonstrate revenue stream that results in sustainable operations with the given level of capital subsidy. In the event the revenue streams are based on continuing subsidies from State Governments, the same would need to be supported by satisfactory evidence of such continuing support.

The State Governments are required to make all projects receiving subsidy under the scheme compliant with Sections 13 and 14 of the Electricity Act., 2003 so as to enable the Rural Electricity Service Providers (other than existing State Utilities/Distribution Licensees) to act outside the purview of the State Electricity Regulatory Commissions for purposes of tariff determination (Sections 61, 62 and 86 of the Electricity Act. 2003).

All projects supported under the scheme would have tariffs that are acceptable to the end beneficiaries.

Projects under the scheme would be fully financed by designated local financial institutions and refinance would be provided by REC and other financial institutions involved in the implementation of the programme.

About forty percent of the capital cost could be given as a subsidy and this would be linked to sustained delivery of electricity to the targeted beneficiaries over the project life or 15 years, whichever is earlier. Subsidy would be admissible for both grid based electrification as well as stand alone projects based on distributed generation. It would, however, need to be ensured that the total subsidy for any state is forty per cent of the total approved project costs for that state.

Where feasible bids may be sought for the capital subsidy required for Rural Electricity Service provisions.

The District Electricity Committee constituted under section 166 (5) of the Electricity Act 2003 by the state government should facilitate project preparation and execution and take a proactive role for expeditious rural electrification in the district. The District Electricity Committee would monitor the functioning of these projects.

The scheme would be implemented under the overall supervision and control of REC in its capacity as the lead agency responsible for the scheme.

B. Household Electrification.

In electrified villages, 100% grant would be provided for electrification of BPL households as per existing guidelines of the KutirJyoti Scheme.

Chapter - 9

Energy Conservation

ENERGY CONSERVATION

Energy conservation has emerged as one of the central issues in the national economic agenda in recent years. A potential of at least 23 percent reduction of energy consumption from the present level is possible in different sectors, without forgoing any of the end-use benefits of energy. Society stands to gain from conservation and improved energy efficiency, both in terms of money saved by reducing energy costs in the short run as well as reducing investment needs for energy production in the long run.

ENERGY CONSERVATION ACT, 2001

Considering the vast potential of energy savings and benefits of energy efficiency, the Govt. of India enacted the Energy Conservation Act, 2001, which has come into force with effect from March 2002. The Act provides necessary legal and institutional framework to enable the government to rapidly promote efficient use of energy and its conservation in different sectors of the economy. The Ministry of Power has also created, under this Act, a central coordinating body called Bureau of Energy Efficiency, which will be responsible for promoting energy saving measures.

The Ministry of Power and the Bureau of Energy Efficiency has adopted self-regulation and market based mechanism for promoting efficient use of energy instead of resorting to command & control system. A self-regulating mechanism cast more responsibility on the stakeholders and they make every effort to comply the provision of the Act, particularly when it helps improving their business and thus profitability.

Indian Industry Programme for Energy Conservation (IIPEC)

BEE has taken an initiative to coordinate the Indian Industry Programme for Energy Conservation (IIPEC). The programme would assist Indian Industry to improve competitiveness through improved energy efficiency, as well as to enable them to meet the mandatory provisions of the EC Act.

Under IIPEC, the Task Forces have been formed for sharing information and best practices in Cement, Pulp and Paper, Textile, Fertilizer, Chlor-Alkali, and Aluminium, Petrochemicals and Refinery sectors. Best Practices on energy conservation were collected and shared among members. Presentation on "Best Practices" have been made available on Bureau's Website: **www.bee-india.com and www.energymanagertraining.com.**

The Task Force members have taken voluntary targets amounting to annual energy savings worth more than Rs. 400 crores per annum.

STANDARDS & LABELLING (S&L) PROGRAMME

Standards and labelling (S&L) programme has been identified as one of the key activities for energy efficiency improvements. For various equipment and appliances of common use, there is wide variation in energy consumption of products made by different manufacturers. Further, information on a product's energy consumption is often not easily available or easy to understand. These factors lead to continued manufacture and purchase of equipment and appliances that are energy intensive and inefficient.

The labelling programme, when in place, would provide the much needed market pull for transition from the current low level of energy efficiency to a higher level. Minimum energy performance standards will ensure that after the kick-off date, no manufacturer can sell a specified product if it does not conform to the minimum standards. This will assure increase in efficiency level of domestic appliances and engineering products.

To begin with, the following equipment and appliances have been selected for being covered under S&L:

- Refrigerators with or without low temperature compartment
- Room air conditioner (unitary)
- Electric motors up to 100 KW
- Agricultural pumpsets including horizontal centrifugal pumps, mono set pumps and submersible pumpsets up to 15 KW
- Electric light sources, control gears and luminaries including tubular fluorescent lamps, inductive type ballasts, electronic ballasts, luminaries and Compact Fluorescent Lamps (CFLs)
- Distribution Transformers
- Bureau of Energy Efficiency has initiated the programme activities for the selected equipment and appliances. Energy labeling will be introduced first followed by minimum energy performance standard.
- Market research for label design and baseline of current products has been conducted.

DEMAND SIDE MANAGEMENT (DSM)

The Demand Side Management and increased electricity end-use efficiency can together mitigate power shortages to a certain extent and drastically reduce capital needs for power capacity addition. DSM covers activities which will help an electric utility in reducing peak demand, shifting demand from peak to off-peak periods and reducing overall electricity demand. DSM has additional benefits such as higher end-use energy efficiency, improvement in quality of power and reduction in cost of power.

The following strategy has been evolved by BEE to achieve DSM:

- Establishment of DSM Cells in selected States
- Training and technical assistance to the DSM Cell staff
- Project development and implementation through private sector initiative
- Implementation of pilot projects in selected States
- Training and technical assistance for regulatory commissions
- Recommendations for tariff-driven as well as non-tariff regulatory mechanisms to provide incentives for utility DSM
- The DSM pilot projects are under formulation in the States of Maharashtra and Karnataka.

ENERGY EFFICIENCY IN BUILDINGS AND ESTABLISHMENTS

In the Commercial sector, there is vast scope for energy efficiency improvement in buildings. Energy audit studies conducted in several office buildings, hotels and hospitals indicate energy savings potential of 20-50% in end-use such as lighting cooling, ventilation, refrigeration, etc. This potential is largely untapped, partly due to lack of an effective delivery mechanism for energy efficiency.

In pursuance of Government policy and announcement, the Bureau of Energy Efficiency had initiated this activity for undertaking energy efficiency programme in various Central Government buildings & establishments such as administrative buildings of the ministries, hospitals, airport, defence establishments, port trust etc. Energy Audit studies were initiated by BEE from November 2002 onwards, by forming a consortium of energy audit consultants for implementation of energy saving measures through performance contracting route. The Energy Audit studies have been completed in various identified buildings viz. Rashtrapati Bhawan, Prime Minister's Office, Defence Ministry blocks in South Block, Rail Bhawan, Sanchar Bhawan, Shram Shakti Bhawan, Transport Bhawan, AIIMS, RR Hospital and Terminal I, II & Cargo section of Indira Gandhi Airport. Energy savings to the tune of 23% to 46% have been identified in these buildings.

Major Ministries and Departments such as Central Public Works Department (CPWD), Defence, Health, Telecom, Railways, Airport Authority, etc., having a number of buildings and establishments have already set up Core Group consisting of Technical and Financial experts. The Core Group would be responsible for implementing energy efficiency in the buildings and establishments. The Bureau of Energy Efficiency would provide support in building capacity within the Core Group.

ENERGY CONSERVATION BUILDING CODES

Energy Conservation Building Codes (ECBCs) are to be prepared for each of the six climatic zones of India for notified commercial buildings. The codes will cover energy efficiency aspects of building envelope; heating, ventilation and air conditioning (HVAC) system; lighting system; electric power and distribution system; and service water heating and pumping system.

A Committee of Experts is being constituted to guide the development of the codes. The development of codes will involve compilation and review of codes and work done relating to such codes in India and other countries of the region, followed by preparation of draft codes consistent with prevalent Indian standards and building bye-laws. The draft codes for each of the regions would be extensively discussed with experts and the concerned local authorities prior to adoption. State governments could amend the ECBCs to suit regional and local climatic conditions.

PROFESSIONAL CERTIFICATION AND ACCREDITATION

One of Bureau of Energy Efficiency mandates under EC Act is to promote efficient use of energy and its conservation in the energy intensive industries (the *Designated Consumers*) and promoting the use of energy-efficient hardware and services to reduce energy intensities in a financially attractive manner. BEE has planned to achieve this through the market mechanism, establishment of energy management system in the industry and strengthening the capacity of professionals providing services to the industry.

The EC Act envisages creation of cadre of professionally qualified energy managers and auditors with expertise in energy management, project management, financing and implementation of energy efficiency projects. Energy audit defined under the EC Act means the verification, monitoring and analysis of use of energy, including submission of technical report

containing recommendations for improving energy efficiency along with cost benefit analysis and an action plan to reduce energy consumption. Implementation of recommended measures can help consumers to achieve significant reduction in their energy consumption levels. It involves a systematic study of major energy consuming sectors and equipments with a view to identify wastages of energy and recommend energy savings projects.

Initially, while regular accreditation process and procedures are developed, accreditation will be awarded for a period of three years to existing Energy Audit firms and individuals satisfying specified criteria.

For certification of Energy Managers and Energy Auditors, a national examination has been notified. Candidates having qualifications satisfying the eligibility criteria would be able to appear in the examination. National Productivity Council (NPC) has been retained as a National Certifying Agency to conduct this examination, initially for a period of three years, based on the curriculum. Course material based on the approved curriculum has also been prepared by the national certifying agency and supplied to the intending candidates. Response to the National Certification Examination is encouraging and a record number of over 2800 candidates have registered for the first certification examination which is being conducted on 22nd and 23rd May, 2004 in 23 Centres spreading all over the country.

MANUALS AND CODES

Energy audits are being conducted with little or no standard test procedures and inadequate instrumentation. When Manuals of standardized test procedures are available and uniform codes are adopted, there would be increased awareness and clarity among users regarding the output from an energy audit. Further, energy auditors, as well as those utilizing their services, need to be made aware of the manuals and codes and of the need to adopt them in their professional work. BEE is to develop 20 energy performance codes covering a wide range of utility equipments. Draft codes for 5 equipments viz. compressor, cooling tower, boiler, pumps and fans have been prepared. Draft codes for 7 equipments are expected to be ready by August 2004.

ENERGY CONSERVATION AWARENESS IN SCHOOLS

To bring about attitudinal and behavioural changes in the society, it is necessary to introduce the concepts of energy conservation and efficiency to children through school education. Suitable material has to be incorporated in a scientific and systematic manner into the school curriculum as these are not covered at present. The Bureau of Energy Efficiency has undertaken the above programme which covers development of course materials and introduction in curriculum for classes 6 to 9, and sensitizing teachers, creating awareness through student competition, essay writing and painting. As a pilot project, the BEE has undertaken the project in 30 Schools of Delhi.

INDO-GERMAN ENERGY EFFICIENCY PROJECT (PHASE II)

This ongoing project has since been replaced by a new 5-year Programme, the Indo-German Energy Programme (IGEN) with effect from October, 2003. IGEN is the major contributor to the Bureau of Energy Efficiency with respect to implementation of the Energy Conservation Act 2001. Technical cooperation has been focusing on the key Thrust areas of the Bureau's Action plan such as (i) policy formulation for strategies leading to commercially viable service provider concepts in the field of energy efficiency, (ii) energy manager and energy auditor training under the EC-Act, (iii) labeling of energy intensive equipment, (iv) voluntary compliance and preparation of norms for designated groups under the EC-Act, the power sector, textile, cement, pulp and paper, fertilizer and chlor-alkali, (v) support for the preparation of rules and regulation, (vi) promotion of ESCO services in public Buildings.

NATIONAL ENERGY CONSERVATION AWARDS, 2003

The National Energy Conservation Awards have been instituted by the Government of India over the past decade to promote energy efficiency. These Awards have institutionalized the energy efficiency movement in the country by identifying and giving recognition to energy conservation efforts undertaken by different plants and industries. The Energy Conservation Awards for the year 2003 were given on 14th December 2003 by the Hon'ble Minister of Power Shri Anant G. Geete. A total of 191 industrial units participated in the Energy Conservation Awards Scheme 2003 which is an all time record for the Award Scheme since its inception. They have been able to save an estimated Rs.5394 millions per year in monetary terms, with an investment of Rs. 10,712 millions. The average payback period of this investment is 2 years. Besides the electrical energy savings, these units have also saved 2.21 lakh kilolitres of furnace oil, 12.65 lakh metric tonnes of coal and 73181 lakh cubic metres of industrial gas.

Chapter - 10

Renovation and Modernisation

RENOVATION AND MODERNISATION OF THERMAL POWER STATIONS

Introduction

In order to improve the performance of existing Thermal Power Stations, a Renovation and Modernisation (R&M) Programme called Phase-I R&M Programme was launched by the Government of India all over the country in September 1984 for completion during the Seventh Plan Period. This programme was successfully completed and intended benefits were achieved.

R&M (Phase-II) Programme

In view of the encouraging results achieved from the implementation of Phase-I R&M programme during 7th Plan, Phase-II Programme for R&M of Thermal Power Stations was taken up in the year 1990-91 by the Government of India for implementation during the 8th Plan. Under this programme, 44 Nos. of Thermal Power Stations covering 198 nos. of Thermal Units aggregating to a total capacity of 20,869 MW were taken up. The total estimated cost of the programme was Rs. 2383 crores and an additional generation of 7864 MU/year was anticipated after the completion of the programme.

However about 50% works could be completed by the end of 8th Plan i.e. March 1997. After partial completion of these works, an additional generation of 5000 MU/year was achieved. Also, Life Extension (LE) works on 4 Units (300 MW) were completed.

9th Plan Programme

The CEA reviewed the progress of Phase-II R&M Programme and the balance activities still required to be carried out were included in the 9th Plan Programme along with the subsequently identified additional activities. During the 9th Plan Programme, 127 Units (17306 MW) at 29 Power Stations were taken up for R&M and another 25 units (1685 MW) for Life Extension at an estimated cost of Rs.1700 crores.

Life Extension works on all the 25 units planned for 9th five year plan have been completed.

10th Plan Programme

During the 10th plan, 106 old thermal units with a total capacity of about 10413 MW at an estimated cost of Rs.9200 crores have been identified for Life Extension Works. Out of 106 units, Life Extension works of 5 units & residual life assessment (RLA) studies on 62 units have been completed and further action is being taken by concerned SEBs/utilities. After implementation of life extension (LE) schemes, the economical operating life of the units will get extended by another 15-20 years besides the overall improvement in the performance of the units. Also R&M works on 57 units (14270 MW) at an estimated cost of Rs.956 crores have been identified for improvement of their performance.

Programme for the year 2003-04

During the year 2003-04, the work of Life Estension of 5 thermal units (440 MW) were expected to be completed, out of which LE work on 3 units of Korba East (unit 1,4&6) and 1 unit of Kothagudem (unit-8) have already been completed and the work on Kothagudem unit-7 is in the advance stage of completion.

RENOVATION AND MODERNISATION OF HYDRO ELECTRIC POWER PROJECTS

a) R&M Phase-I Programme:

Based on the recommendations of the National Committee set up in 1987 and subsequent reviews, a programme for renovation, modernization and uprating of Hydro Power Stations was formulated by Central Electricity Authority in which 55 schemes were identified with an aggregate capacity of 9653 MW. The total cost of these schemes was estimated as Rs.1493 crores and expected benefit as 2531 MW/ 7181 MU.

b) R&M Phase-II Programme:

As per the hydro policy declared in 1998, renovation & modernization of Hydro Power Plants have been accorded priority. Accordingly, 67 hydro RM&U schemes

having an aggregate capacity of 10318 MW were identified to be undertaken under Phase-II programme till the end of Xth Plan to accrue a benefit of 3684.91 MW.

c) National Perspective Plan:

National Perspective Plan was formulated by CEA in the year 2000 including R&M proposals under Phase-II alongwith the left out schemes of National Committee (Phase-I) under implementation/ yet to be implemented. This Plan indicated the benefit of about 7755 MW during the IXth, Xth and XIth Plan through R&M of existing 117 schemes with an aggregate installed capacity of 19370 MW at an estimated cost of Rs.4654 crores.

d) Revised Xth & XIth Plan Programme:

The schemes identified by CEA under National Perspective Plan and not completed till the beginning of the Xth Plan were reviewed in totality in consultation with the utilities and a total of 74 schemes (11 schemes under the Central Sector and 63 schemes under State Sector) having a total installed capacity of 8082.45 MW to accrue a benefit of 2446.87 MW at an estimated cost of Rs.2712.237 Crores were identified for renovation, modernization and uprating during the Xth Plan and presently the schemes are under various stages of implementation. Further 31 schemes (2 schemes under Central Sector and 29 schemes under State Sector) having a total installed capacity of 4681 MW to accrue a benefit of 4415.10 MW at an estimated cost of Rs.2168.61 Crores were identified for RM&U during the XIth Plan.

e) Plan wise summary of hydro R&M Schemes :

SL.	Plan Period	No. of Schems			Installed	Cost (Rs.in Crs.)		Benefit
		Central	State	Total	Capacity	Actual	Estimated	(MW)
	Completed							
1	VIIIth Plan	2	11	13	1282.00	127.37		429.00
2.	IXth Plan	8	12	20	4892.10	567.56		1338.03
3	Xth Plan (till 31.3.04)	2	11	13	1278.80	458.28		385.00
	Programme							
4	Xth Plan (Remaining period)	9	52	61	6803.65		2247.65	2061.87
5	XIth Plan	2	29	31	4681.00		2168.61	4415.10

f) Achievement during the period 1-1-2003 to 31-03-2003 of the year 2002-03 :

The following 3 State Sector schemes to accrue a benefit of 94.30 MW having an installed capacity of 94.30 MW at an estimated cost of Rs.148.67 Crores have been completed during the period 01-01-2003 to 31-03-2003 of the year 2002-03.

Sl. No.	Name of scheme (I.C. in MW), Agency
1	Munirabad (2x9 + 1x10.3), VVNL
2	Panniar (2x15), KSEB
3	Umium St.I (4x9), MeSEB

g) Programme for the year 2003-04 :

As per the revised Xth Plan programme, the following 11 schemes (3 in Central Sector & 8 in State Sector) to accrue a benefit of 170.35 MW having an installed capacity of 2737.95 MW at an estimated cost of Rs.199.865 Crores have been programmed for completion during the year 2003-04.

Sl. No.	Name of scheme (I.C. in MW), Agency
1	Shanan Ph-A (4x15 + 1x50), PSEB

2 Pong (6x60), BBMB

3 Bhadra (1x2), KPCL

4 Sharavathy Ph-A (10x103.5), KPCL

5. Shivasamudram (6x3+4x6), VVNL

6. Pykara (3x6.65+1x11+2x14), TNEB

7. Maithon (1x20), DVC

8. Bhira Tail Race (2x40), MSEB

9. Koyna Gen. Complex (4x70+4x80+4x80), MSEB

10 Tillari(1x60), MSEB

11. Khandong (2x25), NEEPCO

h) Achievement during the year 2003-04 (1.4.2003 to 31.03.2004)

The following 4 (2 in Central Sector & 2 in State Sector) out of the 11 schemes programmed for the year 2003-04 with an installed capacity of 600.00 MW have been completed at an expenditure of about Rs.32.205 Crores against the estimated cost of Rs.34.65 Crores during the year 2003-04 to accrue a benefit of 36.00 MW.

Sl. No.	Name of scheme (I.C. in MW), Agency
1	Shanan Ph-A (4x15 + 1x50), PSEB
2	Pong (6x60), BBMB
3.	Bhira Tail Race (2x40), MSEB
4.	Khandong (2x25), NEEPCO

Works on remaining 7 schemes are in advanced stage and report regarding their completition are awaited from the respective utilities.

A view of TG Hall

Chapter - 11

Private Participation in Power Sector

The first major step towards encouraging private investment in the Power sector was taken in 1991 by providing a legal frame work through an amendment of the then existing Electricity (Supply) Act, 1948. Subsequently, a definite tariff framework was also put in place through notification issued by the Government of India. Further, to bring about rationalization and transparency in tariff setting process, the institution of Independent Regulatory Commission was created through an enactment in 1998.

Under the Electricity Act, 2003, tariff for supply of power by a generating company to a distribution licensee through long term Power Purchase Agreement (PPA), is to be determined by the Regulatory Commission. Tariff for supply involving a short term PPA (one year or less) would not, however, be regulated. Where open access has been allowed to a consumer, he can reach an agreement with his supplier for purchase of electricity and the tariff for such transaction would not be regulated. Tariff determined through competitive bidding is also not to be regulated.

RESPONSE FROM THE PRIVATE SECTOR

Private power projects being monitored by Central Government:

The response to GOI's energy policy has been encouraging. Since 1991, a total capacity of around 7400 MW from 37 private power plants has so far been commissioned. Another capacity of around 4500 MW from 12 projects is reported to be under construction.

MAJOR POLICY INITIATIVES TAKEN TO STREAMLINE THE PROCESS OF PROJECT DEVELOPMENT

Captive Power Plants

Captive Generation is now free from controls. Unlike in the Electricity (Supply) Act, 1948, the Electricity Act, 2003 does away with the requirement of approval / clearance of any authority (SEB/CEA) for setting up of captive generating plant. The new law also ensures non-discriminatory open access for conveyance of electricity generated from a captive generating plant to the destination of its own use, subject to availability of transmission capacity. For such

Torangallu TPP (130x2 MW) Karnataka (Bellary District)

open access, the person owning the captive generating plant has also been exempted from the requirement of payment of surcharge. Sale of surplus power from the captive generating plant to the grid is however subject to regulatory control. Any person setting up a captive power plant can also establish and maintain dedicated transmission lines.

Open access to transmission

Under the new Electricity Act, 2003, non-discriminatory open access in Transmission has been introduced from the outset. The transmission utilities/companies have been debarred from engaging in the business of trading. This will encourage competition amongst generators and distributors. Open access in distribution is to be introduced in phases after elimination of cross subsidies. Even before elimination of cross subsidies, open access can be allowed on payment of a surcharge to take care of the current level of cross subsidies and licensees' obligation to supply.

Section 10(1) of the Electricity Act, 2003, states that the duties of a generating company will include establishment, operation and maintenance, *inter-alia*, of the dedicated transmission lines connected to the generating station. Section 10(2) provides that a generating company may supply electricity to any distribution licensee or to any consumer in accordance with the relevant rules and regulations.

Generating company permitted to distribute electricity in Rural Areas.

Section 14 of the Electricity Act, 2003 allows any generator of electricity to distribute electricity in a rural area without the requirement of any license, subject to compliance with measures as may be specified by the Central Electricity Authority under Section 53. Under the provisions of Section 4 of the Act, the Central Government, in consultation with the State Governments, is to prepare and notify a national policy, permitting stand alone systems (including those based on renewable sources of energy and other non-conventional sources of energy) for rural areas.

Setting up of Mega Power Projects:

To facilitate setting up of large sized thermal power plants in the country and in order to derive the economies of scale, the Ministry of Power issued guidelines on10th November, 1995, for setting up of mega power projects. Power projects having a capacity of 1000 MW or above and supplying power to more than one State were defined as Mega projects. After considering the experience of this policy, the policy was revised in November 1998. Under the revised policy, specific Inter-state and Inter-regional mega power projects were identified for being developed both in the public as well as private sector. A Power Trading Company(PTC) has been established to purchase power from the private sector mega projects and sell it to the beneficiary States. The policy has been further liberalized and with effect from 1.3.2003, all inter-state projects with a capacity of 1000MW and above for thermal and 500MW and above for hydel projects are being treated as mega power projects subject to fulfilment of the required conditions and would be extended the concession of 'Zero' customs duty on import of capital goods.

Doing away with the requirement of Techno-Economic Clearance of CEA

Generation has been delincensed under the Electricity Act , 2003. The requirement of Techno-Economic Clearance of CEA for thermal power plants has also been done away with. The intention is to provide enough freedom and flexibility in the system for promoters of power plants to put up generating stations. The Regulatory Commissions would ensure that the tariffs are competitive and reasonable. This is a continuation of the policy where tariff based bidding for new IPPs has been prescribed. The objective is to get lower tariffs by promoting competition in the new liberal framework in place of the earlier system of centralised planning and detailed cost scrutiny by CEA.

Under Section 8 of the Electricity Act, 2003, any generating company intending to set up a hydro generating station is required to obtain concurrence of the CEA for the scheme wherever the scheme is estimated to involve a capital expenditure exceeding such sum, as may be fixed by the Central Government, from time to time, by notification.

Automatic approval for foreign direct investment

It has been decided to allow automatic approval (RBI route) for 100% foreign equity without any upper ceiling on the quantum of investment. The categories which would qualify for such automatic

approval are :

(i) Hydro - electric power plants

(ii) Coal/lignite based thermal power plants

(iii) Oil / gas based thermal power plants

Delegation of environmental clearance:

The following delegations have been made to the state governments in the matter of environment clearance to power projects:-

(I) All co-generation plants and captive power plants upto 250 MW.

(ii) Coal based plants upto 500 MW using fluidized bed technology subject to sensitive area restrictions.

(iii) Power stations upto 250 MW on conventional technology.

(iv) Gas/Naphtha based station upto 500 MW.

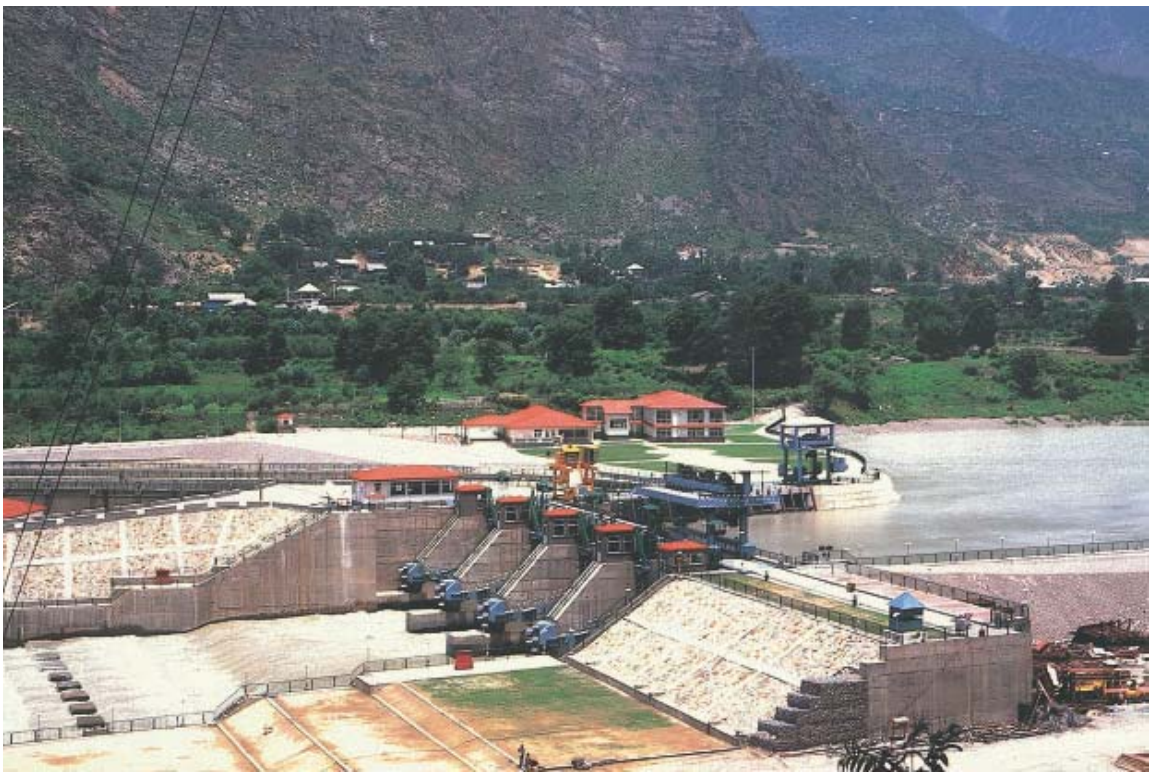
A new procedure for getting environmental clearance for pithead thermal project has also been laid down.

RENEWED INTEREST IN POWER SECTOR:

Enhancing the confidence level of investors: Government of India has been assisting wherever required, to resolve issues coming in the way of implementation of these projects. The Electricity Act, 2003 creates a liberal framework for power development and has revived interest among private sector as well as the lending institutions for making greater investments in the power sector. Encouraged by the Act, the financial institutions have indicated availability of sufficient funds for good projects wth viable tariffs sponsored by credible investors.

Close monitoring of IPPs for capacity addition in the 10th Plan - constitution of the Inter-Institutional Group.

Ministry of Power has been closely monitoring the power projects in the private sector which are considered possible for early financial closure. An Inter-Institutional Group (IIG) comprising senior representatives from the lenders and Ministry of Power has been constituted to jointly appraise such projects and facilitate financial sanction in a time bound fashion. Nine power projects with a total capacity of about 2450MW tied up the financial closure and eight more projects with a total capacity of about 9000MW are being pursued for early financial closure, possibly by the 2nd quarter of 2004-05.



Baspa HEP - A view of the Diversion Barrage in Distt. Kinnaur, across Baspa river at Kuppa, H.P.

Cooperation With Neighbouring Countries in Hydro Power

Development of water resources of the common rivers of India, neighbouring countries of Nepal, Bhutan and Myanmar for mutual benefits has been under consideration with these countries. There is regular exchange of electric power between India and the neighbouring countries for the supply of surplus power and meeting power requirements in the border areas. India has been assisting Nepal in the development of its hydro power potential and four HE schemes viz. Pokhra (1 MW), Trisuli (21MW) Western Gandak (15 MW) and Devighat (14.1 MW) have been implemented with financial and technical assistance from Govt. of India. Three major multi purpose projects in Nepal viz. Karnali, Pancheshwar and Saptakosi are presently under discussions at various levels as mutual benefits projects. Feasibility report of Karnali Multi-Purpose project (10800 MW) was prepared in 1989. Key parameters of this project are to be finalised after mutual discussions. Investigations have been carried out in respect of Pancheshwar MPP (5600 MW) by the two countries in their respective territories. A Joint Project Office (JPO) was established in Kathmandu in Dec., 1999 to carry out additional investigations and for preparation of Detailed Project Report (DPR). The JPO has been closed in July,2002. A draft DPR has been prepared by Indian side which is to be mutually agreed to. Development of this project is covered under integrated Mahakali Treaty signed between HMG, Nepal and India in Feb., 1996. India has offered financial and technical assistance for investigation and preparation of DPR of Saptakosi High Dam Multipurpose project and Sun Kosi Storage cum Diversion Scheme. Action has been initiated for setting up a Joint Project Office in Nepal for taking up field investigations and studies for preparation of Joint DPR. Joint technical experts groups have been constituted for the above projects for guidance for carrying out investigations and preparation of DPRs. A number of other projects liks Burhi Gandaki (600 MW), and Upper Karnali (300 MW) are also under discussions between India and Nepal. Further a Joint Committee on Water Resources headed by respective Water Resources Secretaries has been constituted to act as an umbrella committee of all technical and expert level committees related with Water Resources.

In Bhutan, Chukha HE Project (336 MW) implemented with Indian Financial and technical assistance and operating in an excellent manner is a shining example of cooperation between the two countries for mutual benefits. Surplus power from the project is being imported by India. In addition, Kurichu HE Project (60 MW) in Eastern Bhutan has also been implemented with Indian financial and technical assistance. Another project viz. Tala HE Project (1020 MW) has been taken up for implementation and is being executed by Tala Hydro-Electric Project Authority(THPA) comprising of Indian and Bhutanese Officers and Engineers. Design and Engineering consultancy for the project in respect of electro-mechanical and civil works is being rendered by Central Electricity Authority (CEA), Central Water Commission (CWC) and Water & Power Consultancy Services (WAPCOS). The project is being funded by India through grant and loan and major portion of the power generated will be utilised by India. The project is scheduled for completion by 2005-06. Investigation of Sankosh Multi-purpose Project (4060 MW) have been completed by CWC and DPR prepared by CEA/CWC. In addition, Manas MPP (2800 MW) was reconnoitered by a Joint Indo-Bhutan team and prefeasibility report was prepared in Aug., 1982. The investigation of the scheme could not be taken up due to objections to the scheme from environmental angle. Investigation of two Hydro-electric projects namely Wangchu (900 MW) and Bunakha (180 MW) have been completed and DPR prepared. Further, Govt of India has agreed to provide assistance for development of two hydro projects namely Mangde chu (360/600 MW) and Punatsangchu (870/1000 MW). An Indian team comprising officers from MEA, MOP, CEA, and CWC has visited Punatsangchu Project site for reconnaissance.

In Afghanistan, India has proposed to extend assistance for re-construction/rehabilitation and completition of Salma dam multipurpose project (3x14 MW) through WAPCOS.

Tanakpur Power Station of NHPC has been supplying power to Nepal on continuous basis since more than last three years through 132

KV Tanakpur - Mahendra Nagar Transmission Line. The line and transformer bay at Tanakpur end were constructed by Government of India. Out of the energy supplied through this line, 70 MU of energy is supplied to Nepal free of cost every year. Development of Tanakpur Power Station has contributed a lot to the development of neighbouring areas in Nepal, especially Mahendra Nagar town.

Recently, NHPC has taken up initiative for construction of 300 MW Upper Karnali Power Station in Nepal on BOOT basis. A portion of power generated at this power station is envisaged to be supplied to Nepal and the balance quantum of power will be imported by India. NHPC has conducted preliminary surveys of the project site and action for entering into MOU with HMGN is in progress. The cost of the project will be approximately Rs. 2000 crores. This project is expected to bring about phenomenal change in the economy of the people of the area around the project by way of huge expenditure on infrastructure, project construction, operation & maintenance, rehabilitation & resettlement and creation of other civic amenities.

Tamanthi HE Project (1200MW) on river Chindwin (Irrawady) is proposed to be developed as mutual interest project between India and Myanmar. A fact finding mission led by Member (Hydro), CEA visited Myanmar in Feb 1999, followed by Joint Site Inspection by technical representative of India and Myanmar in November'99. The Indian team comprised of experts from CEA, CWC, NHPC and GSI. The technical team of Nov. 1999 identified two potential projects sites for development viz. Tazon and Hwena. An Indian team visited Myanmar in April/May, 2000 and established Gauge and discharge stations at Tazon and Hkamti and studied general geology of the Project sites. Subsequently, another G&D site was established at Hwena in April 2002. Ministry of External Affairs entrusted the work for preparation of Pre feasibility report (PFR) of the Tamanthi Project to NHPC in June 2003. NHPC team visited Myanmar in November'2003 and held detailed discussions about responsibilities and obligations of Myanmar side and NHPC for carrying various technical / field studies for Pre feasibility report preparation .NHPC has collected relevant data pertaining to the project and shall be developing further data through conducting surveys and investigations at site. The formal letter of award for start of work has been received from Ministry of External Affairs in April 04. The work of PFR is expected to be completed by March, 2005 keeping in view the ensuing rainy season.

A delegation from NHPC comprising Director (Technical), Executive Director (Design & Engineering) & Chief Engineer (Planning) visited Uzbekistan in the month of April, 2003 and Tajikistan in the month of October, 2003 to explore the possibility of setting up a small hydropower project in those countries.

The delegation studied the small hydro power projects proposed by Uzbekistan Authorities for development and visited Shahrihan HPS No. 0 of proposed 24.8 MW capacities and noted that this was a technical feasible and implementable project. The committee has submitted its recommendations to MEA and MOP, Govt. of India and has recommended that the above said project can be considered for development under cooperation between India and Uzbekistan.

In Tajikistan, the delegation visited Varzob-I Hydropower Plant which required renovation & modernisation. It also visited project site of proposed Marzich Project (2.627 MW) and a few potential sites on Iskanderdarya river. The delegation has submitted its report to Ministry of External Affairs and Ministry of Power Government of India, and recommended that cooperation between India and Tajikistan can be done in the following:

a) Renovation, Modernisation and Uprating of Varzob HPP-I (2 x 3.7 MW) & HPP- II (14.4 MW) Projects.

b) Survey for mapping of hydropower potential of Varzob river and Iskanderdarya river, identification of suitable projects and preparation of DPR thereof.

c) Implementation of Marzich Project after required additional investigations and preparation of DPR.

However, currently as desired by MEA, renovation and modernization of Varzob-1 & II Projects is being proposed to be taken up. Embassy of India, Tajikistan has been requested to furnish basic necessary data of these two plants and also furnish the schedule / dates of visit of NHPC Technical team in consultation with Tajik authorities.

Power Development Activities in North Eastern Region

INSTALLED CAPACITY IN THE N.E. REGION

The total installed capacity in the N.E. Region, as on 30.04.2004 is 2334.41 MW as under:

	INSTALLED CAPACITY (MW) N.E. Region
Hydro	1133.93
Thermal	1200.32
Wind	0.16
Nuclear	0.00
Total	**2334.41**

HYDROELECTRIC POTENTIAL IN N.E.REGION :

As per re-assessment studies carried out by the Central Electricity Authority (CEA), identified hydro potential of the N.E. Region has been estimated as 58971 MW in terms of Installed capacity. Out of the above, 1095 MW has been harnessed so far while another 2334 MW is under construction after investment approval. The state-wise estimated hydro electric potential of North-Eastern region and its status of developement is given below :

Region/State	Identified potential as per reassessment study (MW)	Capacity developed* (Above 3 MW capacity) (MW)	Capacity under construction* % (MW)
Meghalaya	2394	185	84
Tripura	15	15	0
Manipur	1784	105	90
Assam	680	275	100
Nagaland	1574	99	0
Ar. Pradesh	50328	416	2000
Mizoram	2196	0	60
Total	**58971**	**1095**	**2334**

*Excluding hydro power units below 3 MW capacity.

SURVEY & INVESTIGATION

In North Eastern Region, 41 schemes totaling to 27231 MW are under Survey and investigation. Stage-I clearance (under 3-stage clearance procedure) i.e. preparation of pre-feasibility report by NEEPCO for 4 schemes (815 MW) namely Hirit (50 MW), Papumpam(60 MW), Bhareli lift dam-II(330 MW) and Kameng dam HE schemes(65MW) with a total estimated cost of Rs.10.69 crores and 2 HE Schemes by NHPC viz. Siang Lower (1700 MW) and Siang Intermediate with an estimated cost of Rs.14.11 Crores (approx) have been recommended by CEA to Ministry of Power.

PREPARATION OF PFRS :

Under "50,000 MW Hydro Electric Initiative" 162 Hydro Electric Projects having aggregate installed capacity of about 50,000 MW are to be prepared by different agencies in the Central/State Sector. This includes 60 nos. of schemes with aggregate installed capacity of 30427 MW in N.E. region as per details given below :

S.No.	Name of State	No. of Schemes Capacity (MW)	Installed Capacity (MW)
1.	Arunachal Pradesh	42	25690
2.	Manipur	3	407
3.	Meghalaya	9	1490
4.	Nagaland	3	970
5.	Mizoram	3	1870
	Total	**60**	**30427**

Out of these 60 schemes, draft/PFRs for 33 schemes having total installed capacity of 20513MW have been submitted in CEA and balance are to be sumitted by Sept, 2004.

POWERGRID's TRANSMISSION SYSTEM FOR DEVELOPMENT OF NORTH EASTERN REGION (NER)

The power generated by the Central Sector Power Station situated in NER is evacuated through the transmission system executed by POWERGRID. Presently, POWERGRID's transmission system in NER consists of about 5,015 ckt. kms. of inter-State transmission lines including 864 ckt. kms. of inter-regional lines between NER & ER and 14 sub-stations. POWERGRID has already invested over Rs. 1500 Crore in NER for development of transmission network. This transmission system caters to the evacuation requirement of existing / ongoing thermal/ hydro/ gas generating stations at Kathalguri (294 MW), Doyang (75 MW), Ranganadi (405 MW), Kopili (200 MW), Agartala (84 MW). The North-Eastern Region is rich in hydro/gas resources and therefore, considering the future generation potential and the eco-sensitive geography, the transmission system had been planned in consultation with the beneficiaries, to take care of future needs of various generation projects like Kameng (600 MW), Damwe (520 MW) and Amguri (100 MW), total 1220 MW, with marginal investment.

The transmission system of POWERGRID is the backbone of NER Grid and following benefits have accrued from construction of transmission system:

(i) It inter-connects the networks of all the states in the region and facilitates inter-state transmission of central sector power within the NER.

(ii) It facilitates and enables export of surplus power from Central Sector Power to other parts of the country, particularly to the Eastern Region.

(iii) Facilitates the integration of NER with the National Grid.

POWERGRID has recently commissioned the North-Eastern Region ULDC scheme. The commissioning of this scheme will lead to the modernisation of Load Despatch and Communication facilities in North-Eastern Region.

During the FY 2003-04, POWERGRID commissioned 132 kV S/c Ranganadi - Ziro transmission system in North-Eastern Region. Besides, this POWERGRID is also executing few transmission lines on deposit work basis, which include 132 kV Ziro-Daporijo-Along transmission system, 220 kV Kathalguri-Deomali transmission system, and 132 kV Balipara-Khupi-Kimi transmission line.

A view of Ranganadi Dam

Implementation of official language policy

MINISTRY OF POWER

The Ministry of Power, its attached and subordinate offices and Public Sector Undertakings, Autonomous bodies, Boards, Societies, Institutions under the administrative control of Ministry of Power have continued their efforts to ensure the effective implementation of the Official Language Policy of the Government and encourage progressively the use of Hindi in day to day official work.

In compliance with the Constitutional and statutory requirements of Section 3(3) of Official Language Act as amended from time to time all documents required to be issued bilingually, are being issued bilingually by the Ministry. Similarly, as per provisions of the Official Language Rules, 1976, all communications received in Hindi are essentially replied to in Hindi.

To promote the progressive use of Hindi through positive competitiveness among the attached offices and Public Sector Undertakings, Autonomous bodies, Societies, Institutions, Boards under the administrative control of Ministry of Power, a scheme for awarding **Vidyut Rajbhasha Shield** is in operation under which offices working in Hindi in 'A', 'B' and 'C' regions were awarded shields.

To encourage book writing originally in Hindi on the subjects related to Power Sector, **'Kendriya Vidyut Pustak Lekhan Puraskar Yojna'** has been introduced.

In compliance with the Official Language Policy, a Hindi fortnight was organized from 15th September, 2003 to 29th September, 2003. During this period various competitions including Hindi Essay Writing, Noting & Drafting, Typing, Debate and Poetry competition were organized in Hindi for the officers as well as staff of the Ministry, and they participated in them with great enthusiasm, and the winners were awarded certificates and prizes.

With a view to assessing the progressive use of Hindi in the organizations under the administrative control of the Ministry, inspections were carried out. Inspection reports of the offices inspected were prepared and necessary directions were issued on the basis of these reports. This has been beneficial in promoting the use of Hindi in Official work.

Official Language Implementation Committee of the Ministry of Power was reconstituted and its meetings were organized regularly. Similarly, meetings of Hindi Salahkar Samiti were also convened regularly wherein progress made by the Ministry as well as its subordinate and attached offices were reviewed. Suitable measures have been taken to implement the decisions taekn in these meetings.

CENTRAL ELECTRICITY AUTHORITY

All out efforts are being made to enhance the usage of Hindi in official work in CEA. All incentive schemes sponsored by the Deptt. of Official Language are in operation in CEA. In addition to this a quarterly Award Scheme for doing maximum work in Hindi for Divisions/ Sections/Units and doing maximum work for officers is also introduced. Two Divisions and two officers were awarded Rs. 1001/- each and Rs. 501/- each were awarded respectively for the first two qaurters of the year 2003. Apart from above CEA has introduced a Cash Award Scheme namely Kendriya Vidyut Pustak Lekhan Puraskar Yojna to promote original book writing in Hindi from the calander year 2003. Under this scheme winners will be awarded with the following prizes:

First Prize Rs. 50,000/-

Second Prize Rs. 30,000/-

Third Prize Rs. 20,000/-

CEA is sponsoring its employees in computer application training programmes in Hindi being organized by NPTI, Faridabad, from time to time. In addition to this NPTI organised a training programme in the CEA Hq. on the request of CEA. In this programme which was organised in August 2003, 27 officials of CEA took part. In January, 2004 four training programmes were organised and 100 officers/officials had undergone training for working in Devnagari on computers.

Hindi workshops are being organised regularly to impart training to non-Hindi knowing staff of CEA. A workshop for Chief Engineers/Directors level was also organised which was inaugrated by Hon'ble Minister of State for Power. In February, 2004, 5 Hindi Workshops were organised. 50 officers and 166 officials took part. OLIC'S are conducted regularly. Inspections of sub offices of CEA and Divisions and Sections are also conducted regularly to assess the usage of Hindi in official work.

Hindi fortnight was celebrated from 1.9.2003 to 15.9.2003. During this period various Hindi Competitions were organised. The winners of these competitions were awarded cash prizes

on Hindi Day. Hindi Day was celebrated on 15.9.2003. A cultural programme was also presented by officers and staff of CEA.

To create intrest in Hindi sufficient number of books in Hindi were purchased for library of CEA. About 50% amount of library grant was spent on purchase of Hindi Books.

To inculcate the intrest in Hindi CEA is publishing a quarterly home magazine namely "Vidyut Vahini".

NTPC

Annual programme received from Raj Bhasha Vibhag Ministry of Home Affairs is discussed meticulously in order to implement Official Language policy of Government of India. Based on the Annual programme received from Raj Bhasha Vibhag, Hindi officers of NTPC prepare an action plan in their annual conference for the smooth and systematic implementation of Hindi in day to day official work. Cash incentives have been given to the employees who perform work in Hindi e.g. cash award equivalent to one increment is given per month. Employees are being encouraged for writing original books in Hindi on technical subjects and are given cash prizes.

Regular Quarterly meetings of "Official Language Implementation Committee" is held at Corporate Centre with representatives of Ministry of Power/ Govt. of India being present. Annual Rajbhasha Officers' meets are held to discuss agenda items, review actions and adopt plans. Corporate Rajbhasha Deptt. also audits offices/Stations from time to time.

The Parliamentary Committee on official language has inspected NTPC Dadri, Faridabad, & Mumbai offices this year. The committee has appreciated the progress of official language in these offices and also given their valuable suggestions for further improvements in some areas which are being implemented. As per advice of the Parliamentary Committee, NTPC organized ALL India conference this year at Corporate Centre and at all 5 Regional Head quarters on **"Hindi in UNO: Our Preparations"** to include Hindi as the seventh official language of the UNO.

NTPC introduced "**Rajbhasha trophies"** for the PSUs under the aegis of Ministry of Power.

Hindi Diwas and Hindi Fortnight were organized during this year. Various Hindi competitions were conducted. Rajbhasha officers are placed as per requirement/guidelines in all offices/stations.

NTPC won Awards/recognition for progressive use of Hindi in the Organization.

NHPC

All out efforts were made to Implement Official Language Policy of the Government of India and to encourage progressively the use of Hindi in day to day official work. In pursuance of Government's directives a **Hindi Fortnight** was observed from September 1 to 14,2003 in Corporate Office as well as its Projects/offices. During this period various competitions and programmes (like Book Exhibition etc.,) were organised. Hindi Patrika **'Rajbhasha Jyoti'** was published. Prizes were given to the winners.

Internal **Rajbhaha Inspections** were carried out of different departments/projects/offices by Rajbhasha Vibhag of the Corporation. Hindi Language and Hindi typing/.stenography **training classes** were held. **Hindi workshops** were organised to increase the use of Hindi in official work.

PGCIL

In pursuance of Govt. of India's policy to promote extensive use of Rajbhasha in the corporation, POWERGRID has been notified in the gazette for using Hindi in all its official works. During the year, the Parliamentary Committee on Rajbhasha visited various establishments of the corporation and found implementation of Rajbhasha to be highly satisfactory. The efforts made by POWERGRID in promoting the implementation of Rajbhasha has been applauded in many forums, which is reflected in POWERGRID bagging the Rajbhasha Shield of Ministry of Power. About 400 employees have been imparted training in subjects related to Rajbhasa and a large number of employees have been imparted training in Hindi software.

PFC

It was yet another year of achievements in the field of Official Language Implementation of the Corporation. Effective and Extensive efforts were made to achieve the targets fixed in the Annual Programme issued by Department of Official Language. To give impetus to the correspondence in Hindi, Standard Hindi Letter/Format was made available on 'LAN' to the HR/Admn/Account Units. Meetings of Official Language Implementation Committee were convened regularly. For encouraging employees to do their maximum official work in Hindi, various Hindi Competitions and Workshops were organised. An incentive Scheme for giving maximum dictation by officers

in Hindi was introduced. Hindi books were purchased as per the targets fixed by the Deptt. of Official Language.

During the year, a **'Rajbhasha Month'** was observed from 1st – 30th September, 2003 and on 14th September, 2003 '**Hindi Day'** was celebrated. During '**Rajbhasha Month**', the Corporation also organised a '**Hindi Kavi Sammelan-Mushayara'** on the theme of **'Kaomi Ekta'** in which famous and renowned Poets and Shayers were invited. On 31st May, 2003 the Drafting and Evidence Sub-Committee of Parliament on Official Language in the aegis of NARAKAS (Undertakings) discussed the progress made in Hindi Implementation. Members of the Committee appreciated the progress made by the Corporation in Implementation of Official Language Policy.

In addition to above, Corporation was also awarded '**Rajbhasha Shiromani'** Award for outstanding work done in the field of Official Language and was also awarded second prize for Excellent Publication of the Quarterly In-house Journal (URJA DIPTI) by the **Akhil Bhartiya Rastrabhasha Vikas Sansthan & UMS Patrika, Ghaziabad.**

REC

Efforts were made to comply with the directives and achieve the targets given in the Annual Programme issued by the Department of Official Language, Ministry of Home Affairs. During the Hindi Pakhwara, various Hindi competitions were organized & winners were given away 50 percent cash awards as well as 50 percent Hindi literature. Hindi workshops were organized to remove hesitation in use of Hindi for official work. Cash awards & certificates were given to officers/ employees for doing their original work in Hindi during the year. Inspection programme & meetings of the Official Language Implementation Committee were organized according to rules. Nine Divisions Corporate Office are specified under 8(4), where complete work is done in Hindi.

All 31 English stenographers have been given training in Hindi shorthand. 19 English typists have been given training in Hindi typing & they are required to work in Hindi typing also. All 102 computers in Corporate Office have been equipped with Hindi software. Corporation's website has been updated and made bilingually. REC was awarded "NTPC Rajbhasha Shield" in 2002-03 for its better work performance.

THDC

Directives of the Official Language Department, Ministry of Home Affairs are implemented in THDC effectively. Corporation has made all possible efforts to propagate the use in the official work in all its offices, and won awards, praise and recognition in the implementation of official language. Various progammes for promotion in the use of Hindi were organized and award/ incentive were given to employees for their contribution for the purpose during the year.

DVC

Promotion and implementation of the Official Language policy of the Government of India is the object for which DVC is functioning with all its efforts. During the year under review, the Corporation implemented the programmes as per directives of the Official Language Department issued by the Govt. of India from time to time.

Classes for imparting working knowledge in Hindi among the employees of DVC are run at Headquarters as well as in the field formations. Some of the employees have acquired knowledge of Hindi through correspondence course. An arrangement for Hindi typing training has also been made in DVC Headquarters.

A **special drive** has been initiated by DVC for filling up the vacant posts in Hindi Cell. As a result of regular training and with the recruitment of some Hindi staff, there has been a remarkable increase **in the implementation of section 3(3) of O.L. Act and rule 5 of the Official Language Rules in DVC.**

During the year under review, **separate Official Language workshops were organized for officers and employees** to develop their working knowledge required for implementation of official language policy in DVC Headquarters and its field formations.

During the year under review, **Hindi Diwas/ Pakhwara** were celebrated. Several **competitions related to official language,** were organised to inspire employees for executing their official work in Hindi. One departmental **Rajbhasha Shield** was awarded to the **best department** on the basis of **using maximum Hindi in official activities.**

During the year under review, Damodar Valley Corporation received the **first prize from CALTOLIC (Undertaking), Kolkata** for **its excellent performance in implementation of official language activities.**

BBMB

Special efforts have been made by BBMB for implementation of Official Language policy of the Union. All the documents under Section 3(3) of the Official Language Act are issued bilingually and letters received in Hindi or signed in Hindi are invariably replied in Hindi. At present about 85% correspondence of Board Secretariat is being done in Hindi. Website of Board's Consultancy Services is made available bilingually and discussions in the meetings of Board's High Level Administrative Committees are held in Hindi also and their minutes are also issued bilingually.

Meetings of the Official Language implementation Committee of Board Sectt., are held regularly in which report regarding progressive use of Hindi in any subordinate office of the Board is also reviewed. Almost 50% notings against the target of 35% fixed for 'B' region are done in Hindi.

Bilingual working facilities are available on all computers of the Board. Training in Hindi typing has been imparted to all the English Steno typists/ typists/Clerks.

Hindi Library has been set up in Board Secretariat and 50% amount of total expenditure for the purchase of books is being spent for the purchase of Hindi Books for the last three years. Hindi Workshops are organised on quarterly basis and subordinate offices are regularly inspected for effective implementation of official Language.

All magazines/journals of the Board are published bilingually. Two editions of Board's quarterly news bulletin are published in Hindi only. Besides, 'TAKNIKI SHABAVALI' and 'RAJBHASHA SAHAYAK PUSTAK' has been published and distributed to all employees so that they can work in Hindi in a more convenient and effective manner.

Board Secretariat has been awarded on a number of occasions for excellent performance in Implementation of Official Language policy of the Government by Ministry of Power as well as by Town Official Language Implementation Committee.

NPTI

Hindi Pakhwara was celebrated in the Corporate office and its Institutes. Ten employees were awarded for original writing of noting and drafting etc. in Hindi. Official Language Implementation Committee meetings/workshop are organised regularly.

42 Programmes on Hindi computerization under the aupices of Rajbhasa Vibag,Ministry of Home Affairs, Govt of India were organised successfully.

Vigilance Activities/Disciplinary Cases

MINISTRY OF POWER

During the year 2003-04 attention was paid to preventive vigilance especially in the public sector enterprises of the Ministry of Power. CVOs were requested to ensure that the criteria mentioned by the CTE's organization of CVC for processing of bid documents are properly followed. In a review meeting held by CVO, Ministry of Power, the CVOs of public sector enterprises were asked to lay special emphasis on the preventive vigilance work. Secretary (Power) also reviewed the vigilance work of various PSUs and Offices under the Ministry of Power and underlined the necessity for speedy disposal of disciplinary cases.

Vigilance investigation of important cases was continued during the year; major penalty proceedings against two board level appointees were instituted. Besides, twelve cases of disciplinary proceedings were pending/ contemplated and were at different stages of processing.

Vigilance Awareness Week was celebrated in the Ministry and its attached offices/PSUs from 3rd November to 8th November, 2003. Secretary (Power) administered the pledge to the Officers and staff of the Ministry. Like the previous years, a competition for Essay Writing, Poem Writing and Poster-cum-Slogan writing was also held to convey the message of integrity, honesty and transparency in the society.

CENTRAL ELECTRICITY AUTHORITY

The Vigilance Section of CEA is entrusted with the assignments in respect of all employees/ officers of the Headquarters as well as its subordinate offices, such as disciplinary proceedings, examination of various complaints received, completion, maintenance and movement of Confidential Reports, examination of Conduct Rule cases, safe custody of important documents such as papers relating to sanction of various advances such as House Building Advance, Motor Car Advance, PC advance etc.

Disciplinary proceedings against seven (7) persons were pending/contemplated at the beginning of the year 2003 where CEA is the Disciplinary Authority. During the period from January, 2003 to March 2004, seven (7) more new cases were added and out of the total no. of 14 cases, 7 cases were finalized with imposition of penalty. As on 31.3.2004,7 cases are pending and are at differents stages of processing. In addition to the above cases, the Vigilance Section of CEA was involved with inter-action with Ministry of Power and Central Vigilance Commission etc. in cases relating to the officers of CEA, in whose case the President is the Appointing/Disciplinary Authority.

During the above-cited period, the Vigilance Section was also involved in defence of two Applications filed in Central Administrative Tribunal.

The Vigilance Awareness Week was celebrated during October-November, 2003 to give the message of integrity and transparency.

NTPC

NTPC Vigilance Department – an ISO 9001:2000 accredited department of the NTPC, consists of five Units, namely Special Intelligence & Investigation Unit (SIIU), Special Investigating Task Force (SITF), Corporate Co-ordination & Vigilance Cell (CCVC), Technical Examination Cell (TE Cell) and Departmental Inquiry Proceedings Cell (DIPC). These units deal with various facets of Vigilance Mechanism. Exclusive and independent functioning of these Units ensure transparency, objectivity and quality in vigilance functioning.

There has been prompt disposal of complaints in accordance with the time–frame prescribed by the CVC. 163 complaints were handled during the period. 130 of these complaints were investigated and carried to logical conclusion. 6 complaints were received from CVC, CBI and MOP. These complaints were also taken up for investigation within the stipulated time-frame.

16 cases involving 22 officials were proceeded against for major penalty action; 26 cases involving 45 officials were proceeded against for minor penalty action and 2 cases involving 13 officials were proceeded against for administrative action. Major penalties were imposed on 7 officials and minor penalties were imposed on 35 officials. 8 officials were exonerated and in respect of 4 employees, the cases were closed with 'Advice' or 'Displeasure'.

6 CVC cases involving 23 employees were pending action as on January 1,2003. Cases against 11 employees were in progress which included 6 major penalty action and 5 minor penalty action, as on March 31,2004 There were non-CVC 5 cases involving 7 employees facing major penalty action; 6 cases involving 7 employees facing minor penalty action and 2 cases involving 2 employees facing administrative action as on January 1,2003. 15 cases involving 22 employees were received during the relevant period. As on March 31, 2004, 3 cases involving 3 employees were under disciplinary action for major penalty action; 3 cases involving 3 employees were under disciplinary action for

minor penalty action and no case was pending for administrative action. 10 cases involving 20 employees were under disciplinary action at regional level as on January 1,2003. 3 cases involving 4 employees were received during the period. As on March 31,2004, 2 cases involving 2 employees were pending for major penalty action and 3 cases involving 4 employees were pending for minor penalty action.

2 cases were registered by the CBI during the period. Investigation is in progress in both the cases. 2 cases were under trial as on January 1,2003. These cases remain under trial as on March 31,2004.

325 Surprise Checks were conducted, 28 cases instituted out of these checks; recoveries of Rs.76.11 lakh were effected and savings to the extent of Rs.76.39 lakh were made; Business dealings were suspended with 11 Parties. 26 Workshops on "Vigilance Mechanism" were conducted in which 1161 Officials participated. 21 System Circulars were issued. NTPC Vigilance deptt. also brings out Annual Vigilance Journal 'Sachetak. So far XI Volumes of Sachetak have been brought out, XII volume of 'Sachetak' is in the offing. Property Returns relating to immovable property are obtained from employees every two years. The maintenance of Property Returns has been computerized for an easy access. Technical Examination Cell of the NTPC Vigilance Department takes up packages for intensive examination, tenders advice on technical matters in vigilance investigation, conducts system studies and assists in setting CTE's paras**.** 36 Internal Audit Reports were received from NTPC Finance Deptt. during the year. These reports were examined from vigilance angle.

Vigilance Awareness Week was observed all over NTPC with tremendous enthusiasm, gaiety and for all over NTPC Project, Regions, Sites from November 03,2003 to November 08,2003.

Though day to day security of the plant is the work of CISF and the local administration, specialised security especially relating to areas connected with anti-terrorism and subversive forces are handled by Vigilance Deptt.

NATIONAL HYDRO ELECTRIC POWER CORPORATION LIMITED

During the period Vigilance Department of NHPC conducted 227 surprise and 246 regular inspections out of which 168 actionable points were detected and 7 disciplinary cases were instituted. 14 nos. intensive examinations were conducted by CTE and 5 nos. such intensive examination were also conducted by Vigilance department on CTE Pattern.

During the period NHPC received 47 complaints, out of which 10 were signed complaints having vigilance angle. All the 10 cases were taken up for investigation. There were three cases pending under investigation as on March 31, 2004. Out of the total 10 cases, investigation has already been completed in 7 cases. Minor Penalty in 6 cases has been recommended to 20 employees and Major Penalty to 1 employee in 1 case during this period. In one case administrative action was approved.

Two preventive circulars, one checklist and a compendium of Training Module were prepared and circulated to all the projects/offices during the period.

Also during the period, 6 nos. CAG reports were received containing 37 para, 5 reports have been closed and no vigilance case has been instituted on this account.

In its effort to increase awareness about rules and procedures, the Vigilance Division organized 66 nos. Vigilance Awareness Programmes/ workshops at various projects in which 1439 persons participated, in the period under review. Two Regional Programmes on Vigilance awareness were organized by Vigilance Division, Corporate Office at Salal Power Station and Teesta Low Dam Project.

Vigilance Awareness Week was observed in all projects, regional offices, Corporate Office from November 3 to 8, 2003 and reports received from various quarters have been complied and sent to CVC as per their direction.

Fourth edition of Vigilance Journal *"CHETNA"* published by NHPC has been distributed to projects, regional offices and various divisions of Corporate Office, during the Vigilance Awareness Week.

Surveillance Audit for ISO 9001:2000 certification for Vigilance Division, NHPC was conducted by Bureau of Indian Standards. No non-conformity was observed by the auditors during audit. As intimated by the BIS, NHPC is the first organization in India to get ISO 9001:2000 certification for Vigilance Division.

Vigilance Action Plan for year 2004 was prepared and sent to all Project Vigilance Officers after approval.

POWER GRID CORPORATION OF INDIA LTD.

In its continuous efforts towards bringing about total transparency in management, POWERGRID has gone ahead to promote the culture of zero tolerance. During the year high priority was placed on transparency, particularly in areas of Works and Procurement and Quality Assurance with special emphasis on inspections both at the regional as well as Corporate level. During the year about 116 inspections were conducted

which included 46 surprise inspections, 41 site inspections and 29 inspections in which LOAs/ files were scrutinized. Further, an amount of Rs. **1,00,87,403** was also recovered during the year as a result of inspections. Over and above these, 9 inspections were carried out by the Chief Technical Examiner's Wing of CVC of the major works of POWERGRID. An amount of Rs. 17,49,500 of overpayment arising out of defects pointed out by CTE were assessed and recoveries were also affected during the year. Besides the above, the Organization also received about 42 complaints during the year, out of which 15 complaints were taken up for investigation, and 19 complaints were closed after preliminary verification. Investigations were completed in 27 cases, and charge sheets were issued in 24 cases during the year. Out of these, 21 disciplinary cases were finalized during this period, out of which penalties were imposed on 20 officials. Preventive action and blacklisting of firms was also a direct outcome of investigations taken up by the Vigilance Department.

"Ethics in Excellence" was the theme for this year's Vigilance Awareness Week and also for "Candour", the annual in-house journal of the Vigilance Department. The Week was full of activities relating to the theme, which included debates by school children, essay and slogan writing competitions by the employees, seminars and panel discussions being organized both at the Corporate as well as regional levels.

High priority was also placed on training in which various workshops were organized at the Corporate and regional levels and also as part of the HRD Calendar for training. As a part of this, workshops were organized under the aegis of the IIM, Kolkata, for about 25 executives of the Eastern and North-Eastern region, in which the primary focus was on ethics and values. Similarly, a workshop was conducted at the Corporate Centre by Prof. S.K.Chakraborty of IIM, Kolkata, in which about 40 executives, which included EDs, Directors and CMD, participated. Besides the above, about 120 non-vigilance executives were imparted training on vigilance matters in the various workshops organized at the regions during the year.

POWER FINANCE CORPORATION

Vigilance Unit functions as a resource to the top management for carrying out investigation into complaints, suggesting corrective measures for improving the systems, enforcing compliance of laid down procedures and also taking other preventive vigilance initiatives.

During the period from January 2003 to March 2004, the Vigilance Unit functioned as an effective tool of positive management. The aspect of preventive vigilance was focussed upon by conducting periodic & surprise inspection of files and by issuing effective guidelines to streamline systems with the aim of eliminating loopholes so as to minimize scope for misuse. Vigilance Unit undertook the review of operational manuals of various activities of the Corporation. One comprehensive manual in respect of Resource Mobilization (Domestic) has already been notified after its review and various others are in the process of finalization.

As part of other preventive vigilance initiatives, Vigilance Unit reviewed the property returns of the employees on a continuous basis. It identified the list of sensitive posts afresh in view of change in organizational structure, ensured job rotation in the sensitive posts and worked towards maintenance of transparency in administration by suggesting adequate checks & balances and control systems. The vigilance clearance cases of the employees were processed on a continuous basis in respect of resignations, promotions, going abroad for personal visits etc.

In accordance with the directive of Central Vigilance Commission (CVC), Vigilance Awareness Week was observed from 3rd to 8th November, 2003 in the Head Office and Regional Offices of the Corporation to disseminate a strong message of integrity and transparency. PFC organized a one-day 'Vigilance Awareness Talk' and a two-day 'Programme on Management of Discipline' during the week. Further, it organized Slogan and Essay Competitions on themes relating to vigilance /corruption with the aim of involving employees and encouraging them to come forward with innovative ideas in spreading awareness about the ill effects of corruption.

RURAL ELECTRIFICATION CORPORATION

The Vigilance Department of REC under the charge of Chief Vigilance Officer continued to instill probity in the organization and enforce discipline in exercising power in a judicious way in matters relating to administrative and financial functions.

The Vigilance set up of REC is located at Corporate Office of REC and comprises of 3 Vigilance officers in the rank of Deputy Chief, Deputy Director and Assistant Director, in addition to the CVO.

The drive for Vigilance Awareness was continued throughout the year. Talks were arranged by REC on various aspects of Vigilance by officers from CVC, Canara Bank etc. Vigilance Awareness Week, was observed both at the Corporate Office as well as at all the field Offices in the country, and talks and seminars were held. At the Headquarters, talks on "Funding of Projects"

& “Frauds In Projects” were delivered by Officers from Canara Bank and CVC respectively.

During the year, Senior and Middle Level Executives of the Corporation were deputed for training to CBI Academy, Ghaziabad, All India Management Association, New Delhi, Power Management Institute, NTPC, etc., to attend to various training programmes/workshops related to Vigilance matters.

Prescribed periodical statistical returns were timely sent to CVC, CBI and MOP. Instructions received from the Central Vigilance Commission from time to time were also complied with.

14 regular inspections and four surprise inspections were carried out by the Officers of Vigilance Division in the field Offices through out the country. In addition to the 7 complaints brought forward as on 1.1.2003, 10 complaints were received during the period. All the 17 complaints have been finalised. In addition to the 6 disciplinary cases pending as on 1.1.2003, 2 new cases were received upto March, 2004. All the eight Disciplinary cases have been finalized.

Emphasis was also laid on Preventive Vigilance. Existing procedure of loan documentation, reimbursement of Medical Expenses, drawal of 2nd and subsequent loan instalments, Kutir Jyoti Programme, Recovery of Special Reserve Fund, unauthoriised absence and Pending Closure Proposals were reviewed and streamlined. Agreed lists in respect of all the 19 Offices of the Corporation have been finalised. Annual Property Returns have been computerised.

As per norms, performance of Vigilance Division was reviewed by the CMD REC, CVO of the MOP, Central Vigilance Commission in addition to the periodical reviews undertaken by the CVO, REC.

SATLUJ JAL VIDYUT NIGAM LIMITED

Upto date vigilance status of the employees and executives of SJVN as well as those on deputation was maintained and cases of vigilance clearance were promptly dealt with on their receipt from the concerned administrative authorities.

In accordance with the instructions contained in the CVC’s Special Chapter on Vigilance Management in PSEs, a number of posts in the executive category were identified as sensitive in nature and proposal submitted for periodic rotation of the executives working against the sensitive posts.

Complaints other than anonymous / pseudonymous received from various sources were taken up for investigation. After completing investigation, the reports were put to the concerned competent authorities for taking a view for initiating disciplinary proceedings in accordance with the rules.

Inquiry proceedings were completed in all the pending major penalty cases except one case. Whenever required as per the rules, cases were referred to the Central Vigilance Commission for seeking advice / reconsidered advice before issuing final orders.

The Agreed List and List of Persons of Doubtful Integrity were prepared in accordance with the laid down guidelines.

Vigilance Awareness week was observed from 3rd November to 8th November 2003. Besides the pledge which was administered at all the Offices of the Corporation as well as at the Project, the activities during the week also included a lecture on the ‘Preventive Vigilance’ by Shri M. K. Singhal, former Chief Technical Examiner, Central Vigilance Commission, and a quiz programme on vigilance related questions. A booklet containing material on vigilance related topics was also prepared and circulated. CMD, SJVNL, also gave a message on this occasion.

Surprise checks were carried out by the Project Vigilance Officers from time to time and appropriate preventive action taken in consultation with the authorities concerned.

THDC

The Vigilance matters of the Organisation are headed by Chief Vigilance Officer appointed by Govt. of India. The Corporation conducted various Vigilance activities during the year, surprise inspection and regular checks were made in the different departments of the Project. The Vigilance Department focused on preventive Vigilance during the year. A Vigilance Awareness Week was observed in all Units/Offices of the Organisation and directions of the CVC were shared amongst employees to enhance awareness. Employees were also administered oath as per CVC instructions.

DVC

With a view to achieve a clean, transparent, responsible and effective working environment, the Vigilance Deptt. during the year 2003-04 worked continuously and laid considerable stress on the streamlining of system and procedures and increasing the awareness of the cross section of employees.

Altogether 7 circulars/O.Ms were issued by the Corporation on the basis of the recommendations made by the Vigilance Deptt. All the important instructions received from the CVC were also brought to the knowledge of concerned authorities. Vigilance Deptt. also worked with the concerned deptt. for issuance of the updated

version of Purchase-Manual, DVC S.R and Conduct Regulations.

In order to bring improvement in the general awareness, Workshops were organized at different locations in which approx. 220 Gr.A and Gr. B employees were trained in the spheres of Conduct Rules, Disciplinary proceedings, Service Regulations and role of Vigilance Deptt. The Vigilance awareness week-03 was celebrated in the first week of Nov.03 with pride and joy. Colourful and educative programme were organized in all the field formations of the Corporation. More and more school children were involved in all such programmes. A Prabhat-Pheri taken out by the students of DVC School at BTPS was the highlight of this week.

Like Previous year, Vigilance Deptt. also published the IVth issue of its in-house journal "Chetna" containing articles on the various facts of Vigilance administration.

In the area of punitive-vigilance too, considerable efforts were made. Minor Penalty proceedings were initiated against 17 employees while major penalty proceedings were initiated against 6 employees. Major penalty was imposed upon 4 employees while Minor Penalty was imposed upon 12 employees. 1 employee was also exonerated after conclusion of disciplinary proceedings.

The efforts to make inspections result oriented also yielded results. A substantial amount could be realized after detection of irregularities during such inspections. The year ended with a resolve to play a more proactive role towards making a prosperous organization with strong ethical foundation.

BBMB

The Vigilance Organisation in Bhakra Beas Management Board comprises a Chief Vigilance Officer (CVO) of the rank of Dy. Chief Engineer/ Superintending Engineer who is assisted by six Vigilance Officers (VOs) of the rank of Superintending Engineers at various Project Stations of Bhakra Beas Management Board, viz Bhakra Dam, Nangal (Two VOs), Beas Dam, Talwara (One VO), Beas Satluj Link Project, Sundernagar (One VO), Chandigarh (One VO) and Panipat (One VO). Any complaint(s) received is got investigated through the VO and appropriate action is taken.

The Vigilance Organisation in the BBMB is doing earnest efforts to inculcate in all the employees of the BBMB the following as a measure of preventive vigilance :-

- To check and control the very tendecny on one's part to delay the matters.
- To record speaking orders in clear terms on the files giving merits of the orders.
- To avoid decisions being influenced by those who might have an axe to grind.
- To be always receptive to any suggestion by a colleague superior or a subordinate which may result in savings to the exchequer.
- To be firm in conviction that integrity is to be safeguarded and any price paid in this regard is insignificant.
- To keep a watchful eye on all breeding places of corruption
- To expose without fear those involved in acts of self gratification.
- To take pride in humble living and acts of honesty.
- To follow the rules, procedures, instructions, manuals, etc meticulously.
- To avoid drawing illogical and dubious inferences so as to derive undue benefits, whenever an ambiguity in rules is encountered.
- Expedite the inquiries, their followup action to get decision from parent States/State Electricity Boards
- Implementation of disciplinary actions without any delay wherever BBMB itself can take the same.

Besides above, **Vigilance Awareness Week - 2003** was celebrated in BBMB at Chandigarh as well as at Project Stations. On this occasion, the Vigilance Organization of BBMB published 2nd issue of its Vigilance Journal titled **'Ankush'**. The Journal has been sent to various project offices of BBMB for inculcating a sense of vigilance awareness upto the grass-root level.

CPRI

- During the year 2003-04 there were no major complaints received.
- There was 1 disciplinary case initiated for major penalty and the disciplinary proceedings is under progress.
- CPRI observed the Vigilence Awareness Week during 3rd November to 8th November 2003 in all Units/Divisons/Sections/ Laboratories as well as the Corporate Office of CPRI

NPTI

Vigilance activities at NPTI are carried out by a Director nominated for these purposes.

The status of vigilance activities is as under

- Vigilance Awareness Week was observed at the Institute from 3-7 Nov 2003.
- Enquiry for two vigilance cases is under progress.
- Reports are sent to MOP from time to time.

Chapter - 16

Activities Relating to Women Employees

MINISTRY OF POWER

There are 42 women employees in the Ministry of Power. The representation of women employees at various levels in the Ministry of Power is indicated below:

Group	Total Employees	No. of Female Employees	% of Female Employees
A	37	03	8.11
B	97	19	19.59
C	108	18	16.66
D	69	02	2.90
Total	**311**	**42**	**13.50**

Employment of women in various grades in the Ministry of Power depends on the nominations received from the recruiting agencies such as the Union Public Service Commission, Staff Selection Commission etc.

CENTRAL ELECTRICITY AUTHORITY

Women employees of this office participates in all the activities such as sports recreation,cultrul activities. They are also made members of the Governing Bodies like CEA Dpartmental Canteen management Committee.

BTPS

There are total no. of 57 women employees at BTPS, 26 in Workmen category, 09 in Supervisor category & 22 in Executive category.

NTPC

Details of Women Employees in NTPC Manpower as on 31.03.2004

Category of Employees	Total Employees	No. of Female Employees	% of Female Employees
Workmen	12371	601	4.86
Supervisors	2057	169	8.22
Executives	8686	265	3.05
Total	**23114**	**1035**	**4.48**

NATIONAL HYDROELECTRIC POWER CORPORATION

No. & percentage of women Employees in NHPC as on 31.03.2004.

Cadre	Total Employees	No. of Female Employees	% of Female Employees
Executive	2860	167	5.84
Assistant Officer/AE/Supervisor	2157	146	6.77
Workmen	8386	727	8.67
Total	**13403**	**1040**	**7.76**

Generally women employees are not transferred except in cases of administrative exigency and even if transferred due care is taken to ensure that posting is made to the station where the spouse is posted. No women employee is posted to hard projects. Special care is always taken to nominate deserving

women employees to training programmes/seminars organized exclusively for women employees. Free membership of WIPS (Women in Public Sector) at Corporations expense. Creche facility is provided for women with infant children in Corporate Office. Suitable mechanism for prohibition of harassment of women employees at work place. Special committees have also been set up to look into the grievances/ complaints of harassment of women employees.

PGCIL

At present there are 359 no. of Wonen Employees working at different levels in the corporation out of a total of 6828 employees. Details are given below :

Category	Total Employees	No. of Female Employees	% of Female Employees
Executive	2663	94	3.53
Non-Executives	4165	265	6.36
Total	**6828**	**359**	**5.25**

PFC

In PFC, women employees represent 18% of total employees strength. They are positioned in almost all functions, departments across the level from a Stenographer to a Senior Executive level. Some of the women employees have dual qualification of engineering as well as management. In specialized field we have law graduates, chartered/cost accountants. They are provided with all special facilities as per Government guidelines and due attention is given to their training and development. It is ensured that all women are safe at work. Group wise, break-up of women employees are as below:-

Group	No. of Female Employees	Percentage of overall staff strength
A	15	09.49
B	09	31.03
C	26	36.61
D	-	-
Total	**50**	**18.58**

RURAL ELECTRIFICATION CORPORATION

Employment situation of Women Employees in various grades in REC as on 31.3.2004 is as follows:-

Class / grades	Total Employees	No. of Female Employees	% of Female Employees
I	162	23	14.20
II	202	35	17.33
III	182	31	17.03
IV	120	11	9.17
Total	**666**	**100**	**15.02**

NEEPCO

Represntation of woman employees as on 31-03-2004

Group	Total Employees	No. of Female Employees	% of Female Employees
A	630	37	5.87
B	890	63	7.08
C	1465	173	11.81
D	251	48	19.12
Total	**3236**	**321**	**9.92**

SATLUJ JAL VIDYUT NIGAM

Since the inception in 1989, 87 females have been recruited at various executive / non - executing levels in the Corporation. At present, the strength of the women employee is 58 which comprises of 16 Executives and 42 Non-Executives. Their present strength accounts for about 10% of the total work force of the Corporation. It is ensured that women employees get adequate representation in various activities / programmes in the Corporation. In the year 1997, a Women Cell has been setup in the Corporation with the objective of promoting awareness among women employees about their rights and their all round development. This cell is being headed by a female employee of the rank of an executive in the middle level management. This Cell is functioning effectively since then.

THDC

The Women Cell set up as per the recommendation of the National Commission of Women looks after the welfare of the women employees in the Corporation and it facilitates the redressal of their grievances. Special efforts were made to impart training to the women employees exclusively for their overall enhancement.

DVC

The Corporation has in its employment large number of women employees working almost at all levels of hierarchy. During the FY 03-04 fresh appointment of women as detailed below was made :

Gr. 'A'	-	4
Gr. 'B'	-	-
Gr. 'C'	-	40
Gr. 'D'	-	7
Total		**51 Nos.**

All Sports & Games facilities are extended to women employees and they are encouraged to take part in competition of Sports & Cultural events.

All statutory facilities like maternity and other benefits are extended to the women employees.

Complaint Committee (s) to address complaints of sexual harassment of women employees at working place function at different establishments of the Corporation.

BBMB

BBMB is a statutory body set up under the Punjab Re-organisation Act. 1966 to carry out the functions of operation and maintenance of Bhakra Nangal and Beas Projects Staff for the operation & maintenance of BBMB works is provided by the Partner State Govts / State Elecy. Boards on transfer basis. However, in the event of inability or partner State Govts./ State Elecy. Boards, BBMB resorts to direct recruitment in respect of Grade 'III' & 'IV' employees only. BBMB is following the reservation policy of Punjab Govt. issued from time to time. Due representation is being given to the Women employees as per policy of Punjab Govt.

CPRI

Employment situation of Women Employees in various post(s) in CPRI as on 31.03.2004 is as follows :

STAFF POSITION OF CENTRAL POWER RESEARCH INSTITUTE

Group	Total Employee	No. of Employees	%age of Women Employees to total no.
A	233	27	11.59
B	82	17	20.73
C	384	40	10.42
D	82	5	6.10
TOTAL	**781**	**89**	**11.40**

Women cell in CPRI is functioning since 1997 to look after the welfare activities of woman employees (totalling to 88 and constitute 11.26% of total employees strength). The initiative taken by the woman cell includes running of creche satisfactory for last 5 years for the employees children and grievance redressal of the woman employees of the Institute. As part of the Awareness Program a technical lecture on "Career Development and Women" by Smt. Manju Dhoundiyal, Faculty, National Institute of Public Co-operation & Child Development, Banglore, was organised on 7th January 2004.

NPTI

12% employees of NPTI are women. During 2003-04 three women employees have been promoted to the posts of Asstt. Director (Admn.), Section Officer (Admn.) and Steno. Gr.III respectively.

Chapter - 17

Physically Challenged Employees

MINISTRY OF POWER

The representaion of Physically Handicapped employees at various levels in the Ministry of Power is indicated below:

Group	Sanctioned Strength	Number of diasabled persons in position	Remarks
A	37	--	Reservation for Physically Handicapped is applicable only to the direct recruitment in Group-A category posts. None of the Group-A post under the administrative control of the Ministry of Power is filled through direct recruitment.
B	97	--	Reservation for physically Handicapped is applicable only to the direct recruitment in Group-B category posts and the recruitment against which is made by the DoPT on cetralised basis.
C	462	7	
D	69	2	

BTPS

At BTPS, in view of existing manpower strength, no new recruitment is being done. But, as far as recruitment of Physically Handicapped persons are concerned, BTPS recruited 3 Physically Handicapped persons last year(2002-03). They are working as Assistant Accounts in W-3 grade out of which two are women and are Orthopedically Handicapped (OH) and one male who is Hearing Handicapped (HH).

BTPS has recruited 6 Nos.Physically Handicapped persons in Financial Year 2003-04. Out of these 6 employees, 2 employees are working in W-0 grade one each in Contract & Materials & Hospital as attendants on ad-hoc basis, both of them are hearing handicapped. 4 employees are working in W3 grade, out of these, 2 are working in Contract & Materials Deptt. as Asstt. Store Keeper (Trainees) and they are also hearing handicapped. Balance 2 employees are working as Asstt. Accounts (Trainees) in Finance Deptt. and they are visually handicapped.

NTPC

Details of Physically Handicapped Employees in NTPC Manpower as on 31.03.2004

Category of Employees	Total Employees	Physically Handicapped Employees
Workmen	12371	270
Supervisors	2057	7
Executives	8686	22
Total	**23114**	**299**

NATIONAL HYDROELECTRIC POWER CORPORATION

No. & Percentage of PH Employees in NHPC as on 31.03.04

Cadre	Total No. of Employees	No. of PH Employees
Executive	2860	20
Assistant Officer/AE/Supervisor	2157	32
Workmen	8386	39
Total	**13403**	**91**

POWER GRID CORPORATION OF INDIA LTD.

At present there are 25 No. of Physically Handicapped Employees working at different levels in the corporation out of a total of 6828 employees.

PFC

Implementation of reservation for Physically Challenged persons in PFC is monitored as per Government directives and instructions from time to time. The person appointed in PFC against Physically Handicapped comes from the category of Orthopaedically Handicapped (OH).

RURAL ELECTRIFICATION CORPORATION

Employment situation of Physically Handicapped Employees in various grades in REC as on 31.3.2004 is as follows:-

Class / grades	Total Employee	No. of Physically Handicapped
I	162	2
II	202	2
III	182	3
IV	120	1
Total	**666**	**8**

NEEPCO

Position regarding Physically Handicapped persons as on 31.3.2004

Group	Total Employee	No. of Physically Handicapped
A	630	1
B	890	-
C	1465	18
D	251	22
Total	**3236**	**41**

SATLUJ JAL VIDHUT NIGAM

From the very beginning, it has been the endeavor of SJVN to give due representation to the physically challenged persons in the employment of the Corporation. However, due to geographical conditions and peculiar construction work of the hydro electric projects, most posts in the technical area do not suit the disabled persons. As such, their employment has mainly been in non technical posts. At present, their strength is 5 (five), which is about 1 % of the total manpower of the Corporation.

THDC

Govt's directives for physically challenged employees have been implemented meticulously. Their welfare has been given utmost importance in the Organisation. During the year one Officer

of the Organisation (Hearing Handicapped) got the National Award for excellence on his services rendered to the Organisation.

DVC

Appointments are made as per GOI Rules.

During employment they are engaged on only those jobs which they can perform or they volunteer.

BBMB

BBMB discharges its functions as laid down in Section 79(1) of the Punjab Re-organization Act, 1966 for which staff for the operation & maintenance of BBMB work is provided by partner State Govts./SEBs on transfer basis. However, in the event of inability of partner States/SEBs to provide the requisite staff, BBMB resorts to direct recruitment & promotion in respect of Class III & IV employees only as Officers of Class I & II category are being provided by partner States/SEBs. BBMB Class III & Class IV Employees (Recruitment & Conditions of Service) Regulations, 1994 were approved by the Central Govt. & published in Part-Ill Section 4 of the Gazette of India dated 8.10.1994. As per Regulation 11 of these Regulations, the members belonging to SC, ST. BC, Ex-servicemen, Physically handicapped persons and the dependents of deceased employees in the service shall have the reservation in the service & all other concessions as prescribed by the Punjab Govt. from time to time. Accordingly, in view of provisions of Rule 6 of BBMB Rules, 1974 & Regulation 11 of BBMB Class III & Class IV Employees (Recruitment & Conditions of Service) Regulations, 1994, BBMB is following the reservation policy of Punjab Govt. issued from time to time in regard to implementation of provision of reservation in jobs for physically handicapped persons. According to the instructions of the Punjab Govt., 3% vacancies to be filled up by direct recruitment reserved for physically handicapped persons 1% each in the category of blind, deaf & dumb and orthopaedically handicapped. We have issued instructions to all CEs that the policy instructions of Punjab Govt. regarding reservation for persons with disability issued from time to time may be followed strictly at the time of making direct recruitment and also to ensure that reservation of persons with disabilities does not lapse.

CPRI

No. of physically Challenged employees in the Institute on 31.03.2004

Group	Total Employee	No. of Physically Handicapped
A	233	2
B	82	3
C	384	6
D	82	6
Total	**781**	**17**

Further, instructions of the Government of India on the subject were followed.

Shri Suresha, Attendant Grade I, participated in the BRITISH OPEN ATHELETICS FOR PHYSICALLY HANDICAPPED which was held at Burmingham, UK, from 16-17 August,2003 and SWISS WHEEL CHAIR CHAMPIONSHIP which was held at Langenthal, Switzerland, from 30-31 August,2003 and has won several individual awards.

NPTI

Out of the seven posts identified for Physically handicapped candidates in group 'C & 'D categories, five are already filled up. Action to fill up the remaning 2 posts (one Steno. Gr.III and one Attendent) has already been initiated.

Chapter - 18

Central Electricity Authority

Organisation of CEA

Central Electricity Authority(CEA) is a statutory organisation constituted under Section 3 (I) of the Electricity (Supply) Act, 1948 which has since been substituted by Part IX of the Electricity Act, 2003. Presently, the authority comprises Chairman and six full time Members. Chairman is the head of the organisation and the Members are over all Incharge of different functional Wings such as Planning, Thermal, Hydro, Power System, Grid Operation and Distribution, Economic & Commercial. Secretary, CEA appointed by the Government, assists in the discharge of CEA's statutory functions. Besides he also assists the Chairman in all matters pertaining to Administration and other technical matters.

Functions of CEA

The Authority is to exercise such functions and perform such duties and act in such a manner as the Central Government may prescribe under the Rules framed under Section 176 of the Electricity Act, 2003 or by issue of written directions in matters of policy involving public interest under Section 75 of the said Act. CEA is particularly charged with the following functions under Section 73 of the said Act.

(i) Advise the Central Government on the matters relating to the national electricity policy, formulate short-term and perspective plans for development of the electricity system and co-ordinate the activities of the planning agencies for the optimal utilisation of resources to subserve the interests of the national economy and to provide reliable and affordable electricity for all consumers;

(ii) specify the technical standards for construction of electrical plants, electric lines and connectivity to the grid;

(iii) specify the safety requirements for construction, operation and maintenance of electrical plants and electric lines;

(iv) specify the Grid Standards for operation and maintenance of transmission lines;

(v) specify the conditions for installation of meters for transmission and supply of electricity;

(vi) promote and assist in the timely completion of schemes and projects for improving and augmenting the electricity system;

(vii) promote measures for advancing the skill of persons engaged in the electricity industry;

(viii) advise the Central Government on any matter on which its advice is sought or make recommendation to that Government on any matter if, in the opinion of the Authority, the recommendation would help in improving the generation, transmission, trading, distribution and utilisation of electricity;

(ix) collect and record the data concerning the generation, transmission, trading, distribution and utilisation of electricity and carry out studies relating to cost, efficiency, competitiveness and such like matters;

(x) make public from time to time the information secured under this Act, and provide for the publication of reports and investigations;

(xi) promote research in matters affecting the generation, transmission, distribution and trading of electricity;

(xii) carry out, or cause to be carried out, any investigation for the purposes of generating or transmitting or distributing electricity;

(xiii) advise any State Government, licensees or the generating companies on such matters which shall enable them to operate and maintain the electricity system under their ownership or control in an improved manner and where necessary, in co-ordination with any other Government, licensee or the generating company owning or having the control of another electricity system;

(xiv) advise the Appropriate Government and the Appropriate Commission on all technical matters relating to generation, transmission and distribution of electricity; and

(xv) discharge such other functions as may be provided under this Act.

Apart from the above functions CEA also undertakes design and engineering of power projects with a view to develop in house technical know-how and also to assist the State Electricity Boards, Generating Companies & State authorities requiring such assistance . Besides this, the monitoring of fly-ash generation by coal /lignite thermal power projects is being carried out on all India basis.

Subordinate Offices:

1. Northern Regional Electricity Board, New Delhi
2. Western Regional Electricity Board, Mumbai
3. Southern Regional Electricity Board, Bangalore
4. Eastern Regional Electricity Board,Kolkatta
5. North-Eastern Regional Electricity Board, Shillong
6. Regional Power Survey Office, New Delhi
7. Regional Power Survey Office, Bangalore
8. Regional Power Survey Office, Mumbai
9. Regional Power Survey Office, Kolkatta
10. Regional Inspectorate Office, New Delhi
11. Regional Inspectorate Office, Chennai
12. Regional Inspectorate Office, Panaji (Goa)
13. Regional Inspectorate Office, Shillong

TECHNO ECONOMIC APPRAISAL OF POWER SCHEMES

(Period 1.1.2003 to 31.3.2004)

The Central Electricity Authority had been according Techno-economic Clearance/ Appraisal to generation schemes (Hydro and Thermal) and Transmission schemes etc. under the then Electricity (Supply) Act, 1948 before the enactment of the Electricity Act, 2003. CEA's consultation u/s 44(2A) of repealed Electricity (Supply) Act, 1948 was also being conveyed to the concerned State Electricity Boards/ Regulatory Commissions for captive power plants. The Electricity Act, 2003 came into force w.e.f. 10th June, 2003. As per The Electricity Act, 2003, concurrence of CEA is now required for only Hydro Generating Schemes. Techno-economic Clearance of CEA to Thermal generation and Transmission schemes as well as consultation for captive power plants are not required now.

During the period, Central Electricity Authority accorded TEC/TEA to 10 Nos. Generating Schemes aggregating to a capacity of 7783 MW comprising of 6 Nos. Thermal Schemes with total capacity of 3265 MW and 4 No. Hydro Schemes with total capacity of 4518 MW under the repealed Electricity (Supply) Act, 1948. Further, 6 Nos. Hydro Schemes aggregating to a capacity of 1526 MW were accorded Techno-Economic Clearance / Appraisal under the Electricity Act, 2003.

Thus, during the period from 1st January 2003 to 31st March, 2004, CEA accorded TEC/TEA to 16 No. schemes (details as per Annex-I & II) aggregating to a capacity of 9309 MW comprising 6No. Thermal schemes aggregating to capacity of 3265 MW and 10 No. Hydro schemes aggregating to a capacity of 6044 MW.

RESEARCH AND DEVELOPMENT

Under the provision of Electricity Act, 2003 Central Electricity Authority will function and perform such duties so as to promote research in matters affecting the generation, transmission, distribution and trading of electricity.

IMPORTANT TASKS HANDLED DURING 2003-2004

1. **Preparation of Perspective Plan for Research & Development**

   A standing Committee on R&D for preparation of a Perspective Research and Development Plan for next 15 years was constituted by the Ministry of Power under the Chairmanship of Chairman, CEA. The report of the Committee 'National Perspective Plan for R&D in Power Sector' has since been submitted.

2. **CEA Chairs at IIT, Delhi**

   An MoU exists between CEA and the IIT, Delhi for creation of two CEA Chair Professorships, one in the Center for Energy Studies and the other in Electrical Engineering Department to fulfil following objectives concerning Power Sector.

   - To take part in the academic programs of IIT, Delhi, as full time professors/

faculty in the Center for Energy Studies and Electrical Engineering Department and coordinate HRD programs in the frontier areas of Power Management.

- To develop R&D programs relevant to the needs of CEA and in areas defined in the appendix to the MoU (subject to need based revision)
- To initiate and develop HRD programs relevant to the needs of CEA and to coordinate courses for any batch of students from the CEA.

Under the program, a number of topics for research have been forwarded to IIT, Delhi along with names of CEA officer (s) for each of the topics, to carryout R&D work in association with the faculty of IIT, Delhi. Methodology for carrying out research work is being formulated. A number of officers are pursuing M.Tech and PhD courses at IIT, Delhi under the program, which will give long term benefits to the Power Sector.

3. Preparation of Data Base

The data/information regarding R&D work in power sector being carried out by various agencies/ organizations in Private and Govt. Sectors was obtained and compiled in the form of a Directory. The same is available on CEA website. The directory has been updated based on the revised information obtained from the Research organizations.

50,000 MW HYDRO-ELECTRIC INITIATIVE

To give necessary fillip for development of hydro sector, Central Electricity Authority in the year 2001-2002 completed Ranking Study to determine the inter-se priority of balance hydro electric schemes for taking up their development in appropriate sequence. The schemes considered attractive in the Ranking Study have now been taken up for preparation of Preliminary Feasibility Reports (PFRs).

The 50,000 MW Hydro-electric Initiative was launched by Hon'ble Prime Minister on 24.05.2003 which covers preparation of PFRs for 162 hydro-electric projects spreading in 16 states with aggregate capacity of over 50,560 MW. The studies are targeted to be completed by September, 2004 for all these projects. National Hydro-Electric Power Corporation, WAPCOS, North-eastern Electric Power Corporation, Satluj Jal Vidyut Nigam and number of State Power Utilities have been associated to complete these feasibility studies. These feasibility studies are being coordinated, monitored and appraised by the Central Electricity Authority.

The initiative has evoked interest in the country as also in the international community with regard to enormous potential opportunities to the equipment suppliers, construction agencies, financers and prospective independent power producers. Methodology and responsibility of various Organisations in respect of preparation of PFRs are well defined. Consultants are responsible for preparation of PFRs. Vetting/ review of water availability would be responsibility of CWC. Similarly, vetting/review of conceptual planning, power potential studies and sizing of power plant, power evacuation system would be responsibility of CEA. Vetting of preliminary layout shall be responsibility of CEA/ CWC.

Till 31st March 2004, 112 draft PFRs with installation capacity totaling to about 33,718 MW (tentative) which include 63 final PFRs (17,754 MW) have been submitted by the Consultants. The draft PFRs are being vetted by CEA/CWC at various levels. Remaining PFRs of Hydro Electric Projects are targeted to be completed by September 2004.

The PFRs will provide useful information to prospective developers for taking up detailed Survey & Investigation and DPR formulation and facilitate the accelerated development of balance Hydro Electric Potential in the country.

As a follow up of preparation of PFRs, it is proposed to take up preparation of DPRs for attractive schemes selected from PFR schemes thereby providing a shelf of projects for execution in the near future. Out of 162 schemes of PFRs, 50 schemes would be prioritized in the order of their relative attractiveness for taking up of detailed S&I and preparation of DPR. The aggregate capacity of these projects is likely to be of the order of about 15,000MW which could yield benefits during 11th, 12th & 13th plan period.

Annexure - I

Details of Schemes cleared techno-economically by CEA during 1.1.2003 - 31.3.2003

HYDRO SCHEMES

Sl.No.	Name of Scheme/State/ Executing Agency	Installed Capacity (MW)	Estimated Completion Cost	Date of CEA Clearance
1.	Subansiri Lower HEP in Arunachal Pradesh/Assam by NHPC	8x250 =2000	US$39.648 M +Rs.6418.37 Crs. (12/02 PL) = Rs. 6608.68 Crs.	13.01.2003
2.	Tipaimukh HEP in Manipur by NEEPCO	6x250 =1500	Rs.5163.86 Crs. (12/02 PL)	20.1.2003 (Techno-economic appraisal found in order) 2.7.03 (TEC)
3.	Jalaput Dam Toe HEP in Orissa/AP by M/s Orissa Power Consortium Ltd.	3x6 =18	Rs.69.68 Crs. (Completed Cost)	31.1.03
4.	Karcham Wangtoo HEPIn H.P. by M/s Jaypee Karcham Hydro Corpn. Ltd. (M/s JKHCL)	4x250 =1000	US$117.44 M +Rs.5345.88 Crs. =Rs.5909.59 Crs (Completed Cost)	31.3.03
	SUB-TOTAL (HYDRO)	**4518 MW**		

THERMAL SCHEMES

Sl.No.	Name of Scheme/State/ Executing Agency	Installed Capacity (MW)	Estimated Completion Cost	Date of CEA Clearance
1	Anpara 'C' TPS in U.P. by UPRVUNL	2x500 =1000	Jap.Yen B 35.657 + Rs.2100.233 Crs. (Completed Cost) =Rs. 3526.51 Crs.	16.1.2003
2	Vijayawada TPS-Stage-IV in A.P. by APGENCO	1x660 =660	Euro231.730 M +Rs.1600.609 Crs. (Completed Cost) =Rs. 2705.73 Crs.	28.2.2003
3	Kutch Lignite TPS Extn (Unit 4) in Gujarat by GEB	1x75 =75	Rs.304.69 Crs. (Completed Cost)	6.3.2003
	Sub Total (T)	**1735 MW**		
	GRAND Total (H+T)	**6253 MW**		

Annexure - II

Details of Schemes cleared techno-economically by CEA during 1.4.2003 - 31.3.2004

HYDRO SCHEMES

Sl.No.	Name of Scheme/State/ Executing Agency	Installed Capacity(MW)	Estimated Cost	Date of CEA Clearance
1.	Kishanganga HEP in J&K by NHPC	3x110 =330	US$3.5 M +Rs.3169.52 Crs. =Rs.3186.32 Crs. (Present Day Cost) (1/03 PL)	6.8.03(TEA)
2.	Chamera HEP III in H.P. by NHPC	3x77 =231	US$3.708 M +Rs.1346.47 Crs. =Rs.1364.01 Crs. (Present Day Cost) (4/03 PL)	10.10.03
3.	Parbati HEP St. III in H.P by NHPC	4x130 =520	US$12.54 M +Rs.2170.69 Crs. =Rs.2228.41 Crs. (Present Day Cost) (7/03 PL)	12.11.03
4.	Teesta Low Dam Stage-IV HEP in W.B. by NHPC	4x40 =160	Rs. 998.36 Cr. (Present Day Cost) (8/03 PL)	23.12.03
5.	Uri Stage II HEP in J&K by NHPC	4x60 =240	US$10.393 M +Rs.1647.92 Crs. =Rs. 1695.73 Crs. (Present Day Cost) (7/03 PL)	11.2.04(TEA)
6.	Nimoo Bazgo HEP in J&K by NHPC	3x15 =45	Rs.631.54 Crs. (Present Day Cost) (9/03 PL)	16.3.04(TEA)
	SUB-TOTAL (HYDRO)	**1526 MW**		

THERMAL SCHEMES

Sl.No.	Name of Scheme/State/ Executing Agency	Installed Capacity(MW)	Estimated Cost	Date of CEA Clearance
1.	Monarchek CCGT Project in Tripura by NEEPCO (Revised Proposal)	280	US$99.55 M +Rs.504.156 Crs. = Rs. 977.019 Crs. (Completion Cost)	25.4.03
2.	Kahalgaon STPP – St. II, Phase-I in Bihar by NTPC	2x500 =1000	US$ 373.548 M +Rs.2118.577 Crs. =Rs.3930.285 Crs. (Present Day Cost) (4th Qtr.2002 PL)	13.6.03
3.	Paras TPS Expansion in Maharashtra by MSEB	1x250 =250	Rs. 1026.70 Crs. (Completion Cost)	13.6.03
	Sub Total (T)	**1530 MW**		
	GRAND Total (H+T)	**3056 MW**		

Note : TEC meetings for thermal projects were held as per E(S) Act, 1948 before The Electricity Act, 2003 i.e. 10.6.03. Now TEC of CEA is not required for thermal Schemes as per The Electricity Act, 2003.

Badarpur Thermal Power Station

INTRODUCTION

Badarpur Thermal Power Station (BTPS) was established by the Government of India in the year 1967 to ensure power availability for meeting growing demand of power in the Northern Region. The installed capacity of BTPS is 720 MW consisting of 3x100 MW and 2x210 MW coal fired units. However, the 3 units of 100 MW each have been derated to 95 MW w.e.f. 11.1.1990 making the present capacity as 705 MW. The station is owned by Government of India and is being managed by NTPC since 1st April'1978 on an agency basis.

BTPS is one of the major sources of power supply to Delhi state and since April'1987, the entire energy generated at this station is supplied to the Delhi Vidyut Board now called Delhi Transco Limited (DTL).

GENERATION ACHIEVED FOR 2003-04

The generation target for BTPS had been fixed at 5200 MUs at a PLF of 84.20% & Availability of 89.91% for the year 2003-04. Against this the generation achieved was 5428 MUs at a PLF of 87.67% & availability factor achieved was 95.85%.

HIGHLIGHTS FOR THE FINANCIAL YEAR 2003-04

- The station achieved best performance levels during 2003-04 in respect of Generation, Plant Load Factor, Availability, Sp. Oil Consumption, DM Make up water consumption& least forced outages since inception.
- Station has received ISO-9001:2000 certification valid upto 28.03.2006.
- Station has achieved ISO-14001 (for environment) valid upto 26th May'2004.
- Five employees of BTPS received "Rashtriya Vishwakarma Puraskaar" for the year 2001 from Labour minister, Govt. of India on 17th September 2003.
- BTPS received Golden Peacock Award 2003 for Environmental Management.

RENOVATION & MODERNISATION PHASE-I

BTPS is one of the Thermal Power Stations identified under the centrally sponsored scheme for Renovation and Modernization of thermal utilities. Under the Renovation & Modernization Scheme Phase-I, various schemes for 3x100 MW of BTPS for Rs.36.97 crores were approved. All of the works under these schemes have already

been completed and an expenditure of Rs.36.97 crores has been incurred up to March'2002. With implementation of R&M Phase-I schemes for BTPS, the actual annual average PLF has improved from 45.30% to 65.00% against the envisaged improvement in PLF from 45.30% to 55%.

RENOVATION & MODERNISATION PHASE-II

Under R&M Scheme Phase-II programme, certain areas were identified for carrying out further modification. BTPS submitted a proposal for R&M Phase-II for an estimated cost of Rs. 187.77 crores (latest revised cost Rs.232.77 crores) for approval covering all units of BTPS. Though the proposal has been techno-economically cleared by CEA and approved by PIB in April'1997, the scheme was not cleared by Ministry of Finance. The scheme mainly emphasizes on reduction in heat rate and sustaining the present level of generation. The scheme also covers various measures to ensure best environmental norms in addition to increase in the reliability of the units.

REPLACEMENT AND REPAIR WORKS

Pending sanction/release of R&M Phase-II funds, SFC schemes covering certain urgent works of capital nature were identified jointly with CEA for immediate implementation in the BTPS Units. Four schemes (Replacement and Repair works I,II, III & IV have been approved for execution during the years 1998-2000, 2000-02, 2001-02 and 2003-04 at an estimated cost of Rs. 14.70 crores (SFC-I), Rs. 14.91 crores (SFC-II) Rs. 14.95 crores (SFC-III) and Rs.7.95 crores (SFC-IV) respectively. An expenditure of Rs.14.70 crores have been incurred till 31st March'2002 under R&R works - I (SFC-I). Under R&R Works-II (SFC-II) schemes, Rs.14.91 crores has already been spent till 31st March'2003. Also, an expenditure of Rs. 14.95 crores has been incurred till 31st March'2002 under SFC-III schemes.

ASH UTILISATION

4,01,485 MT of ash was utilized during the financial year 2003-04.

BTPS achieved a progress of 14.21 lakh bricks in F.Y.2003-04. Bricks are being used in-house for civil constructions in a big way. Ash bricks from the station have been supplied in the past to IIT Delhi, US Embassy, CPCB, CPWD and CBRI, Roorkee for their construction works.

Dry ash bagging facility has been commissioned. In F.Y. 2003-04, 97300 bags (containing 40 kgs ash per bag totaling 3892 MT of ash) have been issued to various agencies.

Another area of ash utilization is for filling up of low-lying areas. For Noida-Greater Noida Express Highway project, ash is being lifted from the station for use in this project. DDA, MCD and other neighbourhood people are also using ash from the station for land filling.

Central Electricity Regulatory Commission

The Central Electricity Regulatory Commission (CERC), an independent statutory body with quasi-judicial powers, was constituted on 25th July 1998 under the Electricity Regulatory Commission Act, 1998. The Commission consists of a Chairperson and four other Members including the Chairman, CEA as the ex-officio member.

2. Under the Electricity Act, 2003, the Central Commission shall discharge the following functions, namely:-

(a) to regulate the tariff of generating companies owned or controlled by the Central Government;

(b) to regulate the tariff of generating companies other than those owned or controlled by the Central Government specified in clause (a), if such generating companies enter into or otherwise have a composite scheme for generation and sale of electricity in more than one State;

(c) to regulate the Inter-State transmission of electricity;

(d) to determine tariff for Inter-State transmission of electricity;

(e) to issue licenses to persons to function as transmission licensee and electricity trader with respect to their Inter-State operations;

(f) to adjudicate upon disputes involving generating companies or transmission licensee in regard to matters connected with clauses (a) to (d) above and to refer any dispute for arbitration;

(g) to levy fees for the purposes of this Act;

(h) to specify Grid Code having regard to Grid Standards;

(i) to specify and enforce the standards with respect to quality, continuity and reliability of service by licensees;

(j) to fix the trading margin in the Inter-State trading of electricity, if considered, necessary;

(k) to discharge such other functions as may be assigned under this Act.

3. The Electricity Act, 2003 further states that the Central Commission shall advise the Central Government on all or any of the following matters, namely;-

(k) to discharge such other functions as may be assigned under this Act.

(a) formulation of National Electricity Policy and tariff policy;

(b) promotion of competition, efficiency and economy in activities of the electricity industry;

(c) promotion of investment in electricity industry;

(d) any other matter referred to the Central Commission by that Government

4. To give effect to the functions vested with the Central Commission under the Electricity Act, 2003, the CERC has during the year 2003-04 circulated the following Consultation/Discussion Papers for soliciting the views of all concerned:-

(i) Discussion Paper on Terms & Conditions of Tariff for period commencing 1.4.2004

(ii) Concept Paper on Open Access in Inter-State Transmission; and

(iii) Concept Paper on Eligibility Conditions for Grant of Power Trading License

The Commission has conducted the due process of hearing and consultation with the stakeholders, experts and informed citizens, on the above issues. The Commission has already issued final regulations on 'Open Access in Inter-State Transmission' and 'Grant of Power Trading License'. The Regulations governing Terms & Conditions of Tariff for the period commencing 1.4.2004 have also been specified.

5. During the year 2003-04, CERC issued notifications/regulations relating to re-constitution of Central Advisory Committee and its amendment and addition of new members, extension of billing of tariff charges upto 30.9.2003, CERC (Terms & Conditions of Tariff) (First Amendment) Regulations, 2003, CERC (Terms & Conditions of Tariff) (Second Amendment) Regulations, 2003, CERC (Procedure, Terms & Conditions for grant of Transmission License and other related matters) Regulations, 2003 and extension of billing of tariff charges upto 31.3.2004.

6. The Commission has also opened its web site **(www.cercind.org)** which is regularly updated by posting all the programmes and orders of the Commission from time to time.

7. 159 petitions were carried forward from the previous year, that is 2002-03. In addition 121 petitions were filed during 2003-04, the year under report, taking the total number to 280 petitions. Out of these, 155 petitions were disposed of during 2003-04 itself.

Chapter - 21.1

National Thermal Power Corporation Ltd.

National Thermal Power Corporation (NTPC) was set up in 1975, as a central sector generating company to plan, promote and develop thermal power in India. The Corporation has rapidly grown to become largest thermal generating company in India. The total approved investment of the corporation as on **31.03.2004** stands at **Rs.79336.67 crores.**

The commissioned capacity of NTPC owned stations, as on 31.03.2004 is 21,749 MW (statement enclosed as **Annexure**). Presently, NTPC has to its credit 13 coal based thermal power projects and 7-gas/liquid fuel based combined cycle projects. In addition, NTPC has acquired 314 MW of Captive Power Plants of SAIL through formation of a Joint Venture Companies with SAIL.

Besides its own stations, **NTPC also manages the Badarpur Thermal Power Station in Delhi (705 MW).**

NTPC PERFORMANCE HIGHLIGHTS: as on 31.03.2004

- During the year 2003-2004, an all time high generation of over **149161 Million Units** was achieved registering an increase of 5.9% over the previous year's generation of 140868 Million units. With 19.24% share in the total installed capacity of the country, NTPC contributed 26.7% electricity during 2003-2004.
- NTPC stations recorded the highest PLF of 84.4 % since inception at availability of 88.8%. Rihand achieved the highest PLF of 90.6%, followed by Singrauli (89%), Korba (88.5%), Ramagundam (88.5%), Simhadri (87.9%), Unchahar (87.4%), Dadri Coal (83.8%) Vindhyachal (82.4%), Talcher Kaniha (81.7%) and Kahalgaon (80.9%). Tanda, a takeover project, achieved the highest ever PLF of 75.3 %. Badarpur station managed by NTPC achieved the highest ever PLF of 87.7%.
- The year 2003-04 was yet another period of satisfying performance for National Thermal Power Corporation (NTPC). The Corporation has achieved all the targets set for it for "Excellent" rating in the **MOU** with Govt. of India for the **17th consecutive year** In April 2003. NTPC received '**Merit Certificate'** for excellence in achievement of MOU targets for the year 2001-02 in May 2003.
- The Company is at present implementing Eight power projects with a capacity of **8010 MW** viz. 2000 MW **Talcher Stage-II** in Orissa (4 x 500 MW), **Ramagundam Stage-III** (1 x 500 MW) in Andhra Pradesh, 1000 MW **Rihand Stage-II** in Uttar Pradesh (2 x 500 MW), 800 MW **Koldam** Hydro Electric Power Project in Himachal Pradesh (4 x 200MW), 1000 MW **Vindhyachal stage –III** in Madhya Pradesh (2 x 500 MW), 1000 MW **Kahalgoan** stage –II phase-I in Bihar(2 x 500MW), 500 MW **Kahalgoan** stage –II phase-II in Bihar(1 x 500MW), 1000 MW **Sipat-II** in Chhatisgarh (2x500 MW) and 210 MW **Unchahar-III** in Uttar Pradesh (1x210 MW) Out of 8010 MW the **first two units of 500 MW** each of **Talcher stage –II** (4 x 500 MW) have already been **synchronized** ahead of schedule in January 2003 and October 2003 respectively and the same have been declared commercial since 1st August 2003 and 1st March 2004 respectively.
- NTPC has paid a **dividend** of **Rs.747.46 crores** for the financial year 2002-03 (including dividend tax of Rs.39.46crores).
- The energy billed for the year 2003-04 were Rs.20382.29 crore with realisation of Rs.21394.82 crore i.e. **105%.**
- 8.5% tax free power bonds of Rs.15788.40 crore issued by RBI on behalf of State Government against NTPC's dues upto 30th September 2001 from SEBs under One-Time-Settlement Scheme.
- Detailed Project Reports are ready for **Loharinag Pala (4 x 150 MW) and Tapovan Vishnugad (4x 130 MW) hydro projects.**
- **NTPC Hydro Limited** a wholly owned subsidiary has been set up to carry out business of implementing and operating small and medium hydro power projects of upto 250 MW capacity. It has signed a MOU with Government of Uttaranchal for implementation of **Lata Tapovan Hydro Electric Project** (108 MW). MOEF first stage clearance for the project received and survey and investigation work awarded.
- **NVVN** transacted business with 18 state utilities trading in more than 1300 MU's in 2003-04.

- Expression of Interest submitted for city distribution franchisee in **Baroda** and **Rajkot by NESCL.**
- New capacity addition is also being planned under **joint ventures with SAIL at Bhilai (500 MW)**, **with Railways at Nabinagar (1000 MW), and with Tamilnadu Electricity Board at Ennore (1000 MW).**
- NTPC is pursuing **business opportunities in Saudi Arabia, Iran, Vietnam, Sri Lanka and Bahrain** and has submitted Expression of Interest as power plant service provider in Saudi Arabia, Iran, Vietnam and Sri Lanka in an effort to expand its business to International boundaries.
- **MOU** signed with REC for setting up a joint venture to take up **Decentralized Distribution Generation Scheme (DDG)** for rural electrification through Non-Conventional energy sources.
- MOU signed with Management Development Institute (**MDI) Gurgaon** for starting a course in Post Graduate Diploma in Business Management (PGDBM) and with **Indian Institute of Technology, Mumbai** to promote **R&D** projects.
- NTPC ranked **third best** among 220 major companies in **"Business Today – Hewitt Best Employers in India 2003**" survey.
- **National Award** for welfare of persons with disabilities in the **Best Employer Category** conferred upon NTPC by President of India.

GENERATION (as on 31.3. 2004)

NTPC Stations

As on 31.03.2004, a total capacity of **21,435 MW** is under operation at various NTPC stations. This comprises 32 units of 200/210 MW at Singrauli, Korba, Ramagundam, Farakka, Vindhyachal, Dadri, Unchahar and Kahalgaon, 20

units of 500 MW at Singrauli, Korba, Ramagundam Farakka, Vindhyachal, Rihand, Talcher-Kaniha and Simhadri, 6 units of 110 MW at Tanda and Talcher, 4 units of 60 MW at Talcher and 22 Gas Turbines and 10 Steam Turbines at Anta, Auraiya, Kawas, Dadri, Gandhar, Kayamkulam & Faridabad combined cycle power plants.

The generation performance of NTPC Stations has consistently been at high level. **The gross generation from NTPC stations during the year 2003-04 has been 149161 MUs as against 140868 MUs generated during the same period last year**. NTPC achieved ever-highest PLF of **84.4%** since inception.

Station Managed by NTPC

Badarpur Thermal Power Station (BTPS), Delhi (705 MW)

Badarpur Thermal Power Station (BTPS), Delhi (705MW) owned by GOI is being managed by NTPC since 1st April 1978. 100% power from this station is supplied to DVB now being called Delhi Power Supply Company Ltd. **(DPSCL)**. During the year 2003-04, the station generated 5429 MUs at a PLF of 87.70% against 5280 MUs at a PLF of 85.5 % during the same period last year.

OUTSTANDING DUES OF NTPC

The billing for the financial year 2003-04 were Rs.20382.29 crore with realisation of Rs.21394.82 crore i.e. 105%. Thus the total outstanding dues of Rs. 25233.44 crores as on 31.03.2003 were reduced to Rs.3583.39 crores at the end of financial year 2003-04.

Consequent upon the implementation of Scheme for One-Time Settlement of SEBs dues the states were required to take following actions:

(i) Give acceptance to the Scheme by signing the Tripartite Agreement between States, Reserve Bank of India and Government of India.

(ii) Issue bonds against dues as on 30.9.2001 including 40% of surcharge.

(iii) Open/enhance the LC equal to 105% of average monthly billing of the past 12 months and maintain in future for payment of current monthly bills of the CPSUs.

(iv) Make full payment of current monthly bills from 1.10.2001 onwards.

NTPC has received bonds of **Rs.15788.396 crore from 20 States who have arrears payable to NTPC as on 30.9.2001.** Although Govt. of Jharkhand has signed the TPA but they are yet to issue the bonds. With issuance of above bonds, the major portion of outstanding dues as on 30.9.2001 have been settled with various States. However, in case of **Madhya Pradesh, Chhattisgarh, Bihar and Jharkhand, the final division of liability of undivided MPEB and BSEB for the period before the bifurcation are coming in the way of settling of dues.** Therefore, the following outstanding dues of respective SEBs as on 30.9.2001 are yet to be securitised:

SEB	Bond Amount (Rs.Crore)
Jharkhand	1200.10
Bihar	222.42
Chhattisgarh	220.18
Total	**1642.70**

As the Union Territory Govts were not authorised to issue the bonds, an alternative payment mechanism was formulated under the One Time Settlement Scheme to convert the outstanding dues of union territories in the form of long term advances. The Bipartite Agreement in this regard was sent to all the union territories including the Govt. of NCT, Delhi in May,2003. **The Bipartite Agreement has been signed by D&D, D&N and Govt. of NCT, Delhi**. Other Union Territories are being persuaded to sign the Bipartite Agreement.

Consequent to the signing of BPA, the outstanding dues of Rs.1060.29 crores payable by DVB to NTPC, as on 30.9.2001 have been securitised on 17.2.2004 and converted into long term advances. **However, the outstanding dues of DESU period amounting to Rs.1310.83 crores are yet to be securitised.** The outstanding dues payable by DVC as on 30.09.2001 amounting to Rs.343.79 Crores have been liquidated during the financial year by cash payment.

The opening and maintaining of LC has significantly improved the realisation of current monthly bills w.e.f. July, 2002. The realisation of monthly bills from July, 2002 to March, 2003 was 98.5% which has further improved from April, 2003 onward. **The realisation of monthly bills from April, 2003 to March, 2004 was 100%.** Further, some of the SEBs have also cleared

their arrears accumulated from October, 2001 onwards and Rs. 1012.53 crore was collected against these arrears. BSEB is the only SEB which is not releasing the payment of arrears amounting to Rs. 571.30 crore accumulated between 1.10.2001 to 30.4.2003 payable to NTPC and which has increased to Rs. 679.19 crores due to accumulated of interest of Rs. 107.89 crore on this account for the period upto 31.03.2004. Ministry of Power has been requested to deduct this amount from the account of Govt. of Bihar maintained with RBI as per terms of Tripartite Agreement and make payment to NTPC.

Those SEBs which have issued bonds to NTPC under One Time Settlement Scheme have been paying full amount against current monthly bill during 2003-04, therefore, they have received **cash incentive** from NTPC for the first half of 2003-04. Further, the cash incentive for the 2nd half of 2003-04 would be released to SEBs shortly.

GROSS REVENUE AND PROFIT

NTPC recorded a provisional **Gross Revenue of Rs.25,184 crore** including the effect of one time settlement scheme during **2003-04** as against Rs.19,850 crore during 2002-03. **Estimated Net profit after tax is Rs.4,905 crore** as compared to Rs.3,608 crore during the previous year

DOMESTIC BORROWINGS

NTPC has tied up a line of credit facility of **Rs.7,000 crore with Life Insurance Corporation of India (LIC)**. The line of credit is available to NTPC in the form of unsecured term loan of Rs.4,000 crore and Bonds of Rs.3,000 crore. **This is the largest financial assistance provided by LIC to a single entity.** The amount is available for meeting NTPC's capital expenditure and can be drawn over four years. The tenor of the facility is 20 years.

NTPC has tied up loans from Domestic Banks and Financial Institutions, aggregating **Rs.12,269 crore as on 31st March, 2004 for its capacity addition programme.** During the year 2003-04 eight new loans aggregating **Rs.5,900 crore** were tied up including LIC Loan of Rs. 4000 crore. An amount of Rs.1,734.40 crore was drawn and utilized during 2003-04. The cumulative utilization upto 31st March, 2004 is **Rs.6,089.35 crore**.

NTPC renegotiated the interest rates for high cost loans drawn by NTPC. The estimated savings on the balance life of the loan is **Rs.110 crore**.

DOMESTIC BONDS

The Company has issued during 2003-04 Series XVI, XVII, XVIII and XIX Bonds of **Rs.700 crore**.

On its maturity on 24th March 2004, the Company has redeemed ten-year **Series XI Tax-free Secured Bonds aggregating Rs.100 crore which carried a coupon rate of 10.50% p.a. payable semi-annually.**

The total amount of **Domestic Bonds outstanding as on 31st March 2004 is Rs.3211 crore.**

In February 2004, the Company has listed **privately placed Bonds of Series XII, XIII, XIV and XVIII on the National Stock Exchange of India in compliance to the listing requirement of SEBI.**

PUBLIC DEPOSITS

The **cumulative Deposits** received by the Company from **3230 depositors** as on **31st March 2004 stood at Rs.511.18 crore**.

EXTERNAL ASSISTANCE

The cumulative assistance (Tranche-I, II, III and IV) extended by Japan Bank for International Co-operation (JBIC) for Simhadri Project is **JPY 65,168 million.** As against this, an amount of **JPY 60,109 million has been utilized** till 31st March 2004.

EURO BOND ISSUE

During the year 2003-04, NTPC made its debut issue of Eurobonds amounting to **US$ 200 million to finance the capital expenditure of on-going/new projects**. These Bonds carry a coupon of **5.5%** per annum payable semi-annually and are to be **redeemed at par on 10th March 2011**.

The Bonds received **overwhelming response from the international investors and attracted 79 accounts**. The investors were widely distributed, Asian investors accounting for 45% of proceeds; European investors contributed 47% and balance 8% of the proceeds were contributed by US off-shore accounts.

With the issuance of the above bonds, NTPC has tapped new investor base hitherto unexplored under conventional syndicated loans market dominated by foreign commercial banks**. In addition to the banks contributing 32% of the bonds, the asset managers subscribed to 39% of the bonds. The balance was contributed by pension/insurance funds accounting for 17% and retailers & others constituting the rest 12%.**

MOU PERFORMANCE

NTPC is the **first power sector corporation** to have signed a Memorandum of Understanding (MOU) with the Govt. of India and has a consistent record of surpassing the set targets in MOU year after year. NTPC achieved the **Excellent** targets set under the Memorandum of Understanding (MOU) signed with GOI and achieved **Excellent Rating** for all the 17 years upto 2003-04 since inception of the MOU system.

Based on the Memorandum of Understanding (MOU), signed between NTPC and the Ministry of power for the year 2003-04, the performance of NTPC against MOU targets in respect of major performance parameters are as follow :

S.No.	Parameters	Unit	Target 2003-2004 Excellent	Actual
1.	Generation	MUs	142000	149161MUs
2.	Heat Rate	Kcal/kWh	2465	<2465
3.	Gross Margin	Rs.Cr.	5512.79	8003.26
4.	Net Profit to Net Worth	%	9.90	14.13
5.	Ash Utilisation	%	16.5	>16.5

CORPORATE PLAN

In tune with the transformation roadmap, the corporate plan of NTPC for the period **1997-2012** has been updated to 2002-2017 and the updated Corporate Plan has been approved by company's Board of Directors. The updated plan envisages a total installed capacity of **56,000 MW** comprising 42,000 MW coal and gas based capacity, 11,000 MW hydel capacity, 2000 MW nuclear capacity and 1000 MW from non-conventional sources. The ownership profile of the total planned capacity addition comprises 48,000 MW on Company's own Balance Sheet, 6,000 MW through Joint Ventures, 1,000 MW through Domestic Subsidiaries and another 1,000 MW through Overseas Ventures. The plan also envisages NTPC's presence in coal mining, washeries, LNG, power distribution and trading businesses. Further, major thrust has been laid on Research & Development and integrated Enterprise Resource Planning. In essence, by **2017 NTPC aims to have presence in many countries through different business vehicles and a combined group annual turnover of Rs.1400 billion.**

NTPC has adopted a multi-pronged **growth strategy** to reach the desired goals by the year 2017. The strategy, inter-alia, includes capacity addition through greenfield projects, expansion of existing stations, joint ventures. Further, new business opportunities are being continuously explored through environment scanning and new business plans are adopted through mid-course corrections.

Capacity Addition Programe

With a view to achieve a capacity of **40,000 MW by the year 2012**, NTPC has formulated an ambitious capacity addition programme as follows:

ON GOING & NEW PROJECTS IDENTIFIED BY NTPC FOR BENEFITS DURING 10TH & 11TH PLAN PERIOD

Sl. No.	Projects/State	Capacity addition Fuel	Capacity (MW)
ON GOING PROJECTS			
1	Talcher-II STPP, Orissa	Coal	2000*
2	Ramagundam-III STPP, A.P.	Coal	500
3	Rihand-II STPP, U.P.	Coal	1000
4	Vindhyachal-III STPP, M.P.	Coal	1000
5	Kahalgaon-II TPP,Ph-I, Bihar	Coal	1000
6	Koldam HEPP, H.P.	Hydro	800
7	Unchahar-III TPP,UP	Coal	210

8	Kahalgaon-II TPP,Ph-II, Bihar	Coal	500
9	Sipat-II TPP,Chattisgarh	Coal	1000
NEW PROJECTS			
1	**Sipat-I TPP, Chattisgarh@**	Coal	1980
2	Barh TPP,Bihar	Coal	1980
3	North Karanpura TPP, Jharkhand	Coal	1980
4	Kawas-II CCPP,Gujarat	LNG/ Natural Gas	1300
5	Gandhar-II CCPP,Gujarat	LNG/ Natural Gas	1300
6	Loharinag Pala HEPP,Uttaranchal	Hydro	600
7	Tapoban Vishnugad HEPP,Uttaranchal	Hydro	520
8	Kayamkulam CCPP-II,Kerala	LNG/ Natural Gas	1950
9	LataTapovan HEPP, Uttaranchal #	Hydro	108
10	Nabinagar TPP, Bihar (Under JV)	Coal	1000
11	Bhilai CPP-II, Chattisgarh (Under JV)	Coal	500
12	Ennore TPP,Tamil Nadu (Under JV)	Coal	1000

* 1000 MW already commissioned
Note : JV – Joint Venture
Thru NTPC Hydro Ltd. –a wholly owned subsidiary of NTPC
@ The Investment approval for **Sipat-I TPP** has been accorded and the main plant contract for SG package and TG package have been awarded in April,2004

A) ON-GOING PROJECTS — 8,010 MW

8010 MW capacities for Talcher-II (**Out of totalcapacity of 2000 MW for Talcher-II, 1000 MW has been already commissioned),** Rihand-II, Ramagundam-III, Koldam HEPP, Vindhyachal-III, Kahalgaon-II, Sipat-II and Unchahar-III is already under construction:

Talcher-II (4x500 MW), Orissa

Commissioning Schedule : Unit-V (May' 2005)
Unit-VI (February '2006)

Present Status : Unit-III and IV are under Commercial operation. Erection work is in progress as per schedule for Unit-V & VI.

Ramagundam-III (1x500 MW), Andhra Pradesh

Commissioning Schedule : Unit-VII (August 2005)

Present Status : Civil construction and erection work is in progress as per schedule.

Rihand-II (2x500 MW), Uttar Pradesh

Commissioning Schedule : Unit-III (August 2005)
Unit-IV (May 2006)

Present Status : Civil construction and erection work in both the units is in progress as per schedule.

Koldam HEPP (4X200 MW), Himachal Pradesh

Commissioning Schedule : Unit-I (November 2008)
Unit-II (January 2009)
Unit-III (March 2009)
Unit-IV (April 2009)

Present Status : - Main dam package has been awarded Dec.'03 and excavation work has been taken up.
- Price bids for Power House & penstock package opened on 31st Mar'2004.Price bids for Electro-mechanical Pkg have been opened on 5th April'2004.
- NIT for desilting arrangement package has been issued on 31st Mar'2004.

- Diversion tunnel civil works are in progress as per schedule.

Vindhyachal-III (2x500 MW), Madhya Pradesh

Commissioning Schedule : Unit-IX (February 2007)
Unit-X (August 2007). Efforts are on to commission both the units in the Tenth plan.

Present Status : Main Plant contract awarded to BHEL in March 2003. Civil works for main plant and Boiler erection are in progress as per schedule.

Kahalgaon Stage-II, Phase-I (2x500 MW), Bihar

Commissioning Schedule : Unit-V (November 2006)
Unit-VI (May 2007) Efforts are on to commission all the units in the Tenth plan.

Present Status – Phase-I (2x500 MW) : Investment approval accorded in July 2003. Main Plant award to BHEL completed in August 2003. Civil and Structural activities at site have been taken up.

Phase-II (1x500 MW) : Unit-VII (Mar'2007)
LOI has been placed on M/s BHEL in Dec'2003 pending MoEF clearance, which is awaited.

Sipat-II (2x500 MW), Chhatisgarh

Commissioning Schedule : Unit-IV (June'2007)
Unit-V (Dec'2007) Efforts are on to commission both the units in the Tenth plan.

Present Status : LOI has been placed on M/s. BHEL in Dec'2003 pending MOEF clearance which is awaited. Excavation work for Boiler foundations has been taken up.

Unchahar-III (1x210 MW), Uttar Pradesh

Commissioning Schedule : Unit-V (Sept'2006)

Present Status : LOI was placed on M/s. BHEL in Dec'03. MOEF clearance received in Mar'2004 and LOA has been released to BHEL. Piling work has been started at site.

B) NEW PROJECTS

a NEW Project of total capacity **1980 MW** have been accorded investment approval:

Sl. No.	Projects (Location)	Capacity (MW)
1.	Sipat Stage-I (Chhattisgarh)	1980 (3x660)

Also the main plant award for **Sipat Stage-I (3 X 660 MW) TG package** has been placed on **6th April 2004** and award for **SG package** has been placed on **15th April 2004.**

b. The following new projects with a total capacity of **4550 MW** are under consideration and for which action for procurement of LNG / Natural Gas has been taken up on International Competitive Bidding basis. Implementation of these projects is, however, subject to availability of LNG / Gas in a suitable time frame, at reasonable price/ terms also acceptable to the beneficiary states.

Sl.No.	Projects/ Location	Capacity (MW)
1.	Kawas Stage-II/(Gujarat)	1300
2.	Gandhar Stage-II/(Gujarat)	1300
3.	Kayamkulam –II (Kerala)	1950

Hydro Power Projects

Construction of **Koldam Hydroelectric Power Project (4x200 MW) in Himachal Pradesh** is progressing as per schedule. Award for Main Dam, Spillway & Power In-take Package for Koldam project (800 MW) placed in December

2003. The benefit from this project is expected in early part of **11th plan.**

NTPC has signed a Memorandum of Understanding (MoU) with the Government of Uttaranchal for taking up execution of **Loharinag Pala Hydro Project (600 MW)** near Uttarkashi on river Bhagirathi and **Tapovan-Vishnugad Hydro Project (520 MW)** near Joshimath on river Alaknanda. First stage site clearance and defense clearance for these projects have been obtained. **Preliminary Project Reports for Loharinag Pala HEP (4x150 MW) and Tapovan Vishnugad HEP (4x130 MW) have been submitted to CEA. Detailed Project Reports are ready**. NTPC is also looking into the possibility of considering another 4000-5000 MW Hydro projects subject to timely availability of resources etc. with a view to achieve capacity addition of around15, 000-16,000 MW during the eleventh plan

To boost its capacity addition programme in the Hydro Sector, the Corporation has formed a subsidiary company **"NTPC Hydro Ltd."** for development of small and medium scale hydropower projects, of capacity upto 250 MW. The Government of Uttaranchal has allotted **Lata-Tapovan (108 MW) HEP for implementation by NTPC Hydro Ltd**. An MOU to this effect has already been signed.

LNG Procurement

NTPC has invited bids under International Competitive Bidding (ICB) process for sourcing of LNG/Natural Gas for expansion of gas projects in **Western Region at the first instance, which is in advance stage of finalisation.** First availability of LNG/Natural Gas is expected by year 2007-08. For sourcing of LNG relating to capacity addition at Kayamkulam (for existing 350 MW and expansion of 1950 MW), separate International Competitive Bidding Process has been initiated.

Coal Mining and Coal Washeries

NTPC has decided to undertake captive mining to ensure alternative supply of coal for meeting its ever-growing coal requirements. In this connection, NTPC has identified number of coal blocks in Talcher & North Karanpura coalfields and has approached Ministry of Coal through Ministry of Power for their allotment to NTPC. NTPC is also planning to set up Coal Washeries.

Joint Ventures

A Strategic Alliance

To tap the growing potential in the field of power globally, the Company has entered into a strategic alliance with **Black & Veatch(B&V),an Internationally acclaimed Company based in USA.** An MOU has been executed between NTPC and B&V to collaborate, on project to project basis, to provide efficient and reliable services for Operational & Maintenance of Thermal Power Plants and for setting up state-of-the-art power plants for clients in India and abroad. Various other allied services are also covered in this MOU

B Existing Joint Ventures

UTILITY POWERTECH LTD. (UPL) (a joint Venture Company of NTPC & BSES) which was formed to take up assignments of construction, erection and supervision in power sector and other sectors in India and abroad is progressing satisfactorily. The turnover of the Company for the year **2002-2003 was Rs.77.88 crore and profit after tax was Rs.4.62 crore.** UPL has received cumulative orders of **Rs.18.80 crore** (other than Power Station Maintenance Agreement) during the period April 2003 to March 2004. **The turnover and profit for the year 2003-2004 have been Provisionally worked out as Rs.88 crore & Rs. 3.45 crore (after tax) respectively**.

"NTPC ALSTOM POWER SERVICES PVT. LIMITED" (NASL)

NTPC has formed a JV Company with ALSTOM POWER GENERATION AG, (formally ABB KRAFTWERKE AG), under the name of "NTPC ALSTOM POWER SERVICES PVT. LIMITED", (NASL) for taking up **Renovation & Modernization assignments of Power Plants both in India and abroad**. NASL has achieved a turn over of **Rs.34.89 crore and profit after tax of Rs.44.16 lakhs during the year 2002-2003**. **The provisional turnover and profit (after tax) for the year 2003-2004 is worked out as Rs.100.43 crore & Rs.3.34 crore respectively.**

Power Trading Corporation of India Ltd. (PTC) A Company viz. Power Trading Corporation of India Ltd. Has been formed with an Authorized Capital of Rs.750 crore and paid up capital of Rs.91.5 crore. **NTPC, NHPC, PGCIL and PFC have contributed Rs.12 crore each. Tata Power has contributed a total of Rs.15 crore and DVC has contributed Rs.10 crore.** FIIs' have contributed Rs.18.5 crore. PTC is purchasing power from power Station /SEB's having surplus power and selling it to the SEB's needing power. **The turnover for the year 2002-03 was Rs.927 crore and net profit after Tax Rs.9.84 crore**.

JOINT VENTURE WITH SAIL

(i) The turnover of the Company "**NTPC-SAIL POWER COMPANY (Pvt.) LTD." (NSPCL)** for the year 2003-2004 was Rs.300 crore (Provisional) as compared to Rs.278 Cr. during 2002-03, registering an increase of 8%. **The profit (after tax) of the Company for the year 2003-04 was Rs.25.01 Cr. (**Provisional). The Company generated total of **1666 MU at Rourkela CPP-II and Durgapur CPP-II during 2003-04.**

(ii) The Turnover of the Company **"BHILAI ELECTRIC SUPPLY COMPANY Private Limited (BESCL)"**, another Joint Venture of NTPC & SAIL was **Rs.147 Cr. (Provisional) during 2003-04 as against Rs.140 Cr. during 2002-03, registering an increase of 5%.** The profit (after tax) of the Company for the year **2003-04 was Rs.7.02 Cr. (Provisional).** The Company generated **521 MU during 2003-04**. In addition Bhilai CPP-II supplied 11.95 lakh tonne Saturated Steam to Bhilai Steel Plant during 2003-04.

NTPC and TNEB have formed a Joint Venture Company under the name of "**NTPC-Tamil Nadu Energy Company Ltd.**". The Company was incorporated on **23rd May 2003 to set up a coal-based power station of 1000 MW capacity, at Ennore, using Ennore port Infrastructure facilities**. Site Specific & other studies are presently under progress to establish the feasibility of setting up of the project.

C Activities for New Joint Ventures

a) **Joint Venture with Railways**

NTPC has signed an MOU with Ministry of Railways on 18.02.2002 for setting up power plant(s) of 2000 MW capacity to meet the traction and non-traction power requirement of Railways. After studying various sites in India, it has been decided to set up a **1000 MW (4x250 MW) power plant at Nabinagar, Bihar.** FR for this project has been prepared. PIB meeting for the project was held on 13.02.04. Cabinet note is under preparation. Cabinet approval will be sought after State Pollution Control Board clearance and MOE&F clearance is available.

b) **Take Over of Muzaffarpur Thermal Power Station (MTPS)**

Meetings were held with BSEB and GOB for the transfer of the MTPS to NTPC on a long-term lease and for NTPC to carry out the necessary R&M for improving the performance of the station. Draft agreements had been prepared after discussion with GOB/BSEB. **'In-principle' approval of GOB for handing over the Station to NTPC is awaited from Govt. of Bihar.**

c) **Joint Venture with BHEL**

MoU has been signed between NTPC and BHEL on 19th June 2003 to take up **EPC jobs, running maintenance and peripheral activities in India & abroad.** Joint Venture Company will be formed after signing the Joint Venture agreement, which is under approval of the management of NTPC & BHEL. JVA will be signed by BHEL & NTPC after management approval in both organizations.

d) **Joint Venture with REC**

NTPC is exploring the possibility to take up **Decentralized Distributed Generation (DDG) for rural electrification through Non-Conventional energy resources such as Biomass, Solar etc**. REC has shown keen interest in joining with NTPC for implementation of such projects. MoU has been signed with REC on 23.03.04. A task force is being formed to handle the projects under DDG.

e) **Joint Venture with GPCL**

MoU has been signed on 20.02.04 between NTPC, Gujarat Power Corporation Ltd. (GPCL), and GEB to set up **1000 MW Thermal Power Project at Pipavav in Gujarat.** Draft share acquisition & shareholders agreement is under preparation.

f) **MoU with KSIDC**

A MoU was signed on 14.01.04 with **KSDIC** for extending all the necessary assistance to expand **Kayamkulam Combined Cycle Power Project to 1950 MW using LNG as fuel**.

Subsidiaries

A NTPC Electric Supply Co. Ltd.(NESCL)

A wholly owned Subsidiary Company for power distribution business namely, **NTPC Electric Supply Company Ltd**. has been formed to take up power distribution activities. NTPC Electric Supply Company Ltd. (NESCL) has been awarded the **consultancy work** of Project Monitoring and Quality Assurance and Inspection of APDRP circles of Indore and Ujjain along with 8 districts of Western Zone of MPSEB for a total value of **Rs 191 lakhs by Madhya Pradesh State Electricity Board (MPSEB) / Madhya Pradesh Pashchim Kshetra Vidyut Vitaran Company Ltd. (MPPKVVCL).**

An **expression of interest** has been submitted for city distribution in **three divisions of Baroda and two divisions of Rajkot in Gujarat.**J & K Power Development Department (J&KPDD) has given their consent for entrusting the **job of Metering in Jammu Circle under APDRP to NESCL**

A preliminary MOU has been signed with **Special Economic Zone (SEZ), Noida for taking up Distribution and R&M work.**

CONSULTANCY SERVICES

Consultancy Wing was set up in 1989 to provide single window services to all domestic and international clients. Consultancy Wing, an ISO 9001 certified unit of NTPC has achieved a provisional turnover **of Rs 24.47 crore and an estimated profit of Rs 7.45 crore during the year 2003-2004**.

SPECIAL PURPOSE VEHICLE FOR AFFORESTATION

A Special Purpose Vehicle for Afforestation has been registered as a society by the name of **National Power Afforestation Society (NPAS)** under Societies Registration Act (1860) with the objective to increase national forest cover and facilitate fast forest clearance for the projects likely to be taken up by NTPC and other Central Power Sector Utilities requiring diversion of forest land.

The MOU to be signed between NPAS, MOP and MOEF covering the modalities for early operationalisation of NPAS has been made and is under finalization by MOEF. Approximately 500 Ha. of degraded and denuded forest land has been identified in Uttaranchal for taking up afforestation.

Night view of Kawas Gas Power Project

B NTPC Vidyut Vyapar Nigam (NVVN)

NTPC has formed a wholly owned subsidiary company for trading in power NTPC Vidyut Vyapar Nigam Ltd., a subsidiary of NTPC transacted business with **18 State Utilities spread all over the Country, trading in more than 1300 MUs in 2003-04.**

C NTPC Hydro Limited (NHL)

NTPC has formed a wholly owned subsidiary company for taking up small hydro projects of capacity up to 250 MW. NHL has entered into a Memorandum of understanding with Government of Uttaranchal for development of **108MW Lata- Tapovan Hydel Project subject to techno-economic viability.**

ASH UTILISATION

During the year 2003-2004, about **75 lakh tons of ash has been utilized for various productive purposes, which is approximately 23.5% of the total ash generation against MOU excellent target of 16.5%.** The major ash utilization was in the areas of issue to Cement and Asbestos Industry, Ash Dyke Raising and Land Development & Road Embankment.

REHABILITATION & RESETTLEMENT

NTPC is committed to help the populace displaced for execution of its projects and has been making efforts to improve the Socio-economic status of Project Affected Persons (PAPs). In line with its social objective, the company has focused on effective **resettlement and rehabilitation of its PAPs and also community development works in and around the projects.**

During the year Rehabilitation Action Plans for Koldam Project was approved in **June 2003 for Rs.28.96 crore and community development plan was approved for Rs. 8.69 crore in Janaury 2004**. Additional community development plan for newly acquired area for MGR corridor etc. of Simhadri Project was approved on **April 2003 for Rs.100.0 lakhs**. Implementation of **RAP of Unchahar-II project was completed in March 2004**. Implementation of approved RAPs for Anta-II, Auraiya-II, Sipat and Simhadri is in progress.

ISO CERTIFICATION

NTPC's pursuit for excellence with good system orientation has been Engineering Division, Operation Services Divison, Contracts & Materials Divison, Consultancy Wing, Corpoate Commercial, Corporate HR and the Power Management Institute (PMI) achieving **ISO-9001** certification. Eighteen (18) out of Twenty (20) Stations of NTPC have been accredited with **ISO-9002** certification and Nineteen (19) out of Twenty (20) Stations of NTPC (including Badarpur) have implemented **ISO-14001** certified Environment Management Systems (EMS) the same is under implementation at Simhadri. The Corporate Environment and Ash Utilisation division has also achieved ISO-4001 Certification.

ENERGY CONSERVATION

NTPC carries out **150 to 200 energy audits in its power stations every year** whereby efficiency of equipment and plants is enhanced through implementation of recommendations emerging out of energy audit reports. During the year **2003-04, 194 energy audits were carried out at different NTPC stations** in addition to daily energy surveys and day to day monitoring of auxiliary power consumption. In addition, NTPC has also installed non-conventional energy gadgets like solar water heaters, solar water pumps, solar PV lights, bio-gas and bio-mass plants and adopted energy saving technologies like vapour absorption machines for air conditioning, variable frequency drives, soft starters, energy efficient lighting lamps and gadgets etc. On account of such specific efforts towards **energy conservation, an energy savings amounting to the tune of Rs. 26.72 crores have been achieved during the year 2003-04.**

TECHNOLOGICAL INITIATIVES

Technology driven innovation and adaptation of best engineering practices have been a source of strength for NTPC over the years in project implementation, operation & maintenance as well as renovation & modernisation. In tune with this tradition several technological initiatives have been taken in the areas of **Integrated Gasification Combined Cycle**, 765 KV System, Supervisory Control and Data Acquisition and Gas Insulated Technologies.

The **Integrated Gasification Combined Cycle (IGCC)** technology offers opportunities for the country to increase the conversion efficiency of coal to the level of 42-45% from the conventional levels of 35-36%. This offers the twin benefits of preserving the natural resource of the country i.e. coal by reducing its consumption and results in substantial reduction in the CO_2 emission per unit of electricity generated. The challenge lies in Indianisation of the technology to suit the high ash Indian coal. Realizing the huge potential, **NTPC, in collaboration with USAID, has undertaken the selection, assimilation, Indianisation and commercialisation of the IGCC technology**. Simultaneously as per the directive of MOP, NTPC and BHEL are collaborating for setting up a **100 MW IGCC Demonstration Plant based on Indian coal.**

ACCOLADES AND AWARDS

NTPC has been the recipient of various prestigious awards for its performance in various areas and the major Recent Awards have been:

NTPC bagged IOD (Institute of Directors) "**Golden Peacock Award for Corporate Social Responsibility"** for the year 2003.

SCOPE Institutional Excellence Award - Gold Trophy for year 2000-01 **Award for Excellence in Infrastructure-2002** in Organization Category -Confederation of Indian Industry **(CII).**

NTPC bagged **Greentech Environment Gold Award** for the year 2002-03 in Thermal Power Sector.

CoRE-**BCSD Corporate Social Responsibility Award 2001-2002 by TERI Climate Protection Award 2003 to CenPEEP** of NTPC. US Environmental Protection Agency.

National Safety Awards 2002 won by NTPC - British Safety Council.

Golden Peacock National Training Award 2003.- Institute of Directors.

Hewitt's Best Employers Award 2003- Hewitt Associates & Business Today.

National award for welfare of persons with disabilities in the Best employer category- Ministry of Social Justice and Empowerment.

DETAILS OF NTPC PROJECTS ALREADY COMMISSIONED

I. COAL BASED PROJECTS

Project	State	Commissioned Capacity (MW)
Singrauli	UP	2000
Korba	Chhattisgarh	2100
Ramagundam	AP	2100
Farakka	WB	1600
Vindhyachal	MP	2260
Rihand	UP	1000
Kahalgaon	Bihar	840
NCTPP	UP	840
Talcher STPP	Orissa	2000
Talcher TPS	Orissa	460
Unchahar	UP	840
Simhadri	AP	1000
Tanda TPS	UP	440
Total (Coal)		**17480**

II. COMBINED CYCLE PROJECTS

Auraiya	UP	652
Anta	Raj	413
Kawas	Gujarat	645
Dadri	UP	817
Jhanor-Gandhar	Gujarat	648
Kayamkulam	Kerala	350
Faridabad	Haryana	430
Total (Gas)		**3955**
TOTAL (Coal + Gas)		**21435**
III. CAPTIVE POWER PLANTS		**314**
GRAND TOTAL		**21749**

National Hydroelectric Power Corporation Ltd. (NHPC)

National Hydroelectric Power Corporation (NHPC) was set up in 1975. NHPC has become the largest organisation for Hydro Power development in India, with capabilities to undertake all the activities from conceptualization to commissioning of Hydro Projects. Execution of Geothermal and Tidal Power Projects in the country has also been included in the corporate objectives of NHPC.

NHPC is a Schedule "A" Enterprise of the Government of India with an Authorized Share Capital of Rs. 15,000 Crores and an Investment base more than Rs. 20,000 Crores.

The Corporation has following operating power stations and under-construction projects -

A. OPERATING POWER STATIONS

Following eight Projects have been commissioned by NHPC in India :

1.	Baira Siul (HP)1	180 MW (3x60 MW)
2.	Loktak (Manipur)	105 MW (3x35 MW)
3.	Salal (J&K)	690 MW (6x115 MW)
4.	Chamera -I (HP)	540 MW (3x180 MW)
5.	Tanakpur (U'chal)1	120 MW (3 x 40 MW)
6.	Uri (J&K)	480 MW (4x120 MW)
7.	Rangit (Sikkim)	60 MW (3 x 20 MW)
8.	Chamera - II (HP)	300 MW (3x 100 MW)
		2475 MW

During the current financial year (upto March 2004), NHPC Power Stations generated 11045.52 MU against the target of 9400 MU excluding a deemed generation of 70.82 MU.

B. ONGOING PROJECTS

(Status ending March 2004)

1. Dulhasti HE Project (3x130 MW), J&K

Excavation of Head Race Tunnel has been completed on 27.08.03. 5812m (58.42%) HRT Lining has been done till March 04. The balance lining work of HRT is expected to be completed by Nov.'04. All other works except HRT has already been completed.

2. Dhauliganga HE Project, Stage-I (4x70 MW) Uttaranchal

Day Lighting of 5290 M long Head Race Tunnel achieved on 30.06.2003.Completion of 437 M long Tail Race Tunnel Concrete lining in May 2003. 985500 cum (98.55%) of Spillway Excavation has been done. 8, 30,500 cum (83.05%) of Dam embankment placement has been done . Flip Bucket Excavation completed in May 2003.Concrete lining of Silt flushing Tunnel has been completed in October 2003.Concrete lining of 112 M long Intake Tunnel-I and 96 M long Intake Tunnel-II has been completed in September 2003 and May 2003 respectively.4416 M (83.47%) concrete lining of Head race Tunnel has been done. Surge Shaft excavation has been completed in November 2003. 52M Surge Shaft lining has been achieved out of 95m. Steel liner erection in pressure shafts has been completed. Erection of generating units is in progress. The project is scheduled to be commissioned by March'05.

3. Chamera HE Project Stage-II (300 MW), HP

The Project is being executed on Turnkey basis and agreements with the consortium members were signed on 18.7.99. M/s Indo Canadian Hydro Consortium. The Project has been commissioned ahead of schedule. The Project was dedicated to the Nation by Hon'ble Prime Minister of India on 9.2.2004.

4. Teesta HE Project Stage-V (3x170 MW), Sikkim

Teesta –V located in East Sikkim is a run of river peaking scheme on Teesta river. The project is to generate 2573 MUs of Energy in a 90 % dependable year. All the major works are going as per schedule and Project is expected to be completed as per schedule i.e. by Feb. 07.

5. Teesta Low Dam Project, Stage-III (132 MW), West Bengal.

Teesta Low Dam Project-III (132 MW) was entrusted to NHPC on 15th Nov. 2000. Govt. accorded CCEA clearance on 30/10/2003 with completion schedule of Project as March 2007. Major Civil Works have been awarded in Oct'03.

6. Subansiri (Lower) HE Project (2000 MW) Ar. Pradesh.

Subansiri Lower HE Project (2000 MW) was entrusted to NHPC on 1st May 2000 Govt. accorded CCEA clearance on 9th Sept. 2003 with completion period of Project in 7 years. Major civil works have been awarded.

7. Loktak Downstream HE Project (3x30 MW), Manipur

Loktak Downstream HE Project (90 MW) is located in Tamenglong District of Manipur. It is a run of the river scheme to utilize the discharges of the Loktak Power Station that is in operation since March,84. The Project will yield benefits of 7 hours of peaking power daily and an annual energy generation of 420.25 million units in a 90% dependable year. It was sanctioned in December 1999 for a cost of Rs. 578.62 crores including IDC of Rs. 46.95 crores (at April 1999 price level) and was scheduled to be completed by December 2008.

8. Parbati HE Project, Stage-II (4x200 MW), H.P

Parbati HE Project stage-II on river Parbti (a tributary to Beas River) in Kullu district is a run of the river scheme. River diversion have been achieved in November,2003. Execution of adits for HRT, Power house completed.

9. Sewa HE Project Stage-II (3x120 MW), H.P

CCEA clearance was accorded by Govt. of India on 09.09.03. The Civil Works Lot-I - Diversion Tunnel, Coffer Dams, Concrete gravity Dam, Desilting Chambers, HRT & other associated works have been awarded on 9.9.2003.

C. NEW SCHEMES

S. No.	Projects	State	Inst. Capacity (MW)
1.	Koel Karo	Jharkhand	710
2.	Kishenganga	J&K	330
3.	Chamera-III	H.P.	231
4.	Parbati-III	H.P.	520
5.	Uri–II	J&K	240
6.	Chutak	J&K	44
7.	Siang Middle	A.P.	1000
8.	TLDP-IV	W.B.	160
9.	Nimmo Bazgo	J&K	45
		TOTAL	**3280**

1. Koel Karo HE Project (710 MW), Jharkhand.

The project was sanctioned in Nov. 91. However, due to local resistance regarding R&R issue, land acquisition and paucity of fund, the work on this project could not be taken up. CCEA note for the third revised cost estimate was returned by CCEA for getting final approval from MOEF and consent of beneficiary states for purchase of power. CAT plan was approved by MOEF in Nov. 2000 & Govt. of Jharkhand had submitted the revised R&R plan.

The issues to be resolved with State Govt before starting the projects are:

- Fresh survey of project affected people through Land Acquisition & Rehabilitation Directorate.
- Signing of PPA with Govt. of Jharkhand.

2. Kishenganga HE Project (330 MW), J&K

CEA has issued Techno-Commercial Appraisal vide letter dated 06.08.2003 at Jan 2003 price level.

3. Chamera (Stage-III) HE Project (231 MW), Himachal Pradesh

Feasibility report was submitted by NHPC and Commercial Viability has been established by CEA vide letter dated 7.9.2001. MOEF has accorded site clearance stage –I & II in October 2001 & December 2001 respectively. DPR submitted to CEA on 19.6.2003 for Techno-Economic Clearance. CEA has issued Techno Economic clearance on 10.10.2003. Development of infrastructure is in progress.

4. Parbati –III HE Project (520 MW), H.P.

Feasibility report has been submitted by NHPC and Commercial Viability has been established by CEA vide letter dated 17.9.2001. MOEF has accorded site clearance stage-I & II in December 2000 & March 2002 respectively. DPR submitted to CEA on 08.08.2003 and CEA has accorded TEC on 12.11.2003. Development of infrastructure is in progress.

5. Uri HE Project Stage – II (240 MW), J&K

Feasibility report has been submitted by NHPC and Commercial Viability has been established by CEA vide letter dated 2.8.2001. MOEF has accorded site clearance stage – I & II in August 2001. DPR was submitted to MOP vide our letter dated 29.8.2003 for accord of Techno-Economic Appraisal. TEA meeting was held on 25.11.2003 and TEA letter issued vide letter dated 11.02.04.

6. Chutak HE Project (44MW), J&K

Feasibility Report has been submitted by NHPC and Commercial Viability has been established by CEA vide letter dated 15.9.2003. Site Clearance Stage – I & II has been accorded by MOEF vide letter dated 1.11.2001 & 9.10.2003 respectively. Stage- II Cost Estimate for preparation of DPR and taking up infrastructure development has been recommended by CEA to

MOP for sanction. DPR has been submitted to CEA on 16.01.04 with installed capacity of 44 MW.

7. Siang Middle HE Project (1000 MW), Arunachal Pradesh

Site clearance Stage-II accorded by MOEF on 25.08.2003. CEA recommended Stage-II estimate amounting to Rs. 23.05 cores for pre-construction & infrastructure development and preparation of DPR (excluding Rs. 18.78 crores already incurred upto August 2002).

8. Teesta Low Dam (Stage-IV) HE Project (160 MW), W.B.

Site Clearance stage-II has been accorded by MOEF vide letter dated 20.10.2003. DPR submitted to CEA on 15.09.2003 for Techno-economic Clearance (TEC). TEC accorded on 23.12.2003.

9. Nimmo-Bazgo (Alchi) HE Project, Laddakh (J&K), (45 MW)

Commercial viability ascertained by CEA. Site Clearance Stage –I&II has been accorded by MOEF vide letter dated 18.3.2002 & 01.04.2003 respectively. Draft CPIB memo based on the recommendations of CEA has been submitted to MOP on 19.06.2003. DPR submitted to CEA on 08.12.03 for Techno Economic Appraisal (TEA). TEA meeting held on 12.03.04. TEA letter issued on 16.03.04.

D SCHEMES SURVEY AND INVESTIGATION

S. No.	Projects	State	Inst. Capacity (MW)
1.	Siang Lower	Arunachal Pradesh	1600
2.	Siang Upper	Arunachal Pradesh	11000
3.	Subansiri Pradesh	Arunachal	1600
4.	Subansiri Upper	Arunachal Pradesh	2000
5.	Pakal Dul	J&K	1000
6.	Bursar	J&K	1020
7.	Shivsamudram	Karnataka	270
8.	Bav-II	Maharashtra	20
9.	Bav-I	Maharashtra	18
10.	Devade	Maharashtra	6
11.	Dibang	Arunachal Pradesh	3000
12.	Lakwar Vyasi HE Project	Uttranchal	420
13.	Kotlibhel HE Project	Uttranchal	850
	Total		**22804**

1. Siang Lower HE Project (1600 MW), Arunachal Pradesh.

Stage I estimate recommended by CEA vide letter dated 16/02/04 for Rs. 8.137 crores. Commercial viability accorded by CEA vide letter dated 25/03/04 based on the Feasibility Report submitted by NHPC. A copy of feasibility report also submitted to Planning Commission for in principle approval.

2. Siang Upper HE Project (11000 MW), Arunachal Pradesh.

Investigation works for preparation of Feasibility Report is under progress. The installed capacity is to be firmed up on the basis of data being collected for which S&I works at Intermediate site is in progress. Stage – I estimate has been recommended by CEA.

3. Subansiri Middle (1600 MW) Arunachal Pradesh

4. Subansiri Upper HE Project (2000 MW), Arunachal Pradesh

CEA has advised NHPC to prepare DPR and take up essential infrastructure works. Proposal for Site Clearance Stage-II submitted to MOEF on 16.10.2002 and MOEF vide letter dt 19.6.03 rejected the site clearance on the basis of recommendation of IBWL in case of Lower Subansiri Project. IBWL has Imposed a condition that no construction of Dam up stream of Subansiri river be taken up in future.

5. Pakal Dul HE Project (1000 MW), J&K

Feasibility Report has been submitted by NHPC and Commercial Viability has been established by CEA vide letter dated 1.8.2001. MOEF has accorded site clearance stage-I & II in July 2001 & April 2002 respectively. DPR is under preparation. NHPC has reviewed the project proposal earlier finalised and some changes in project parameters are being considered to reduce cost and that the case scenario for the project will be worked out after deciding upon the exact location, submergence and other parameters.

390 MW Dulhasti Project (J&K) - Adit Tunnel

6. Bursar HE Project (1020 MW), J&K

Commercial viability has been ascertained by CEA. Taking into account benefit of downstream NHPC projects (1571.23 MU) by which Ist year tariff will come down to Rs.2.93/unit. CPIB meeting for sanction of Stage-II estimate is to be fixed. Survey & Investigation works suffering on account of adverse law & order situation. The scheme is under review alongwith Pakal Dul Project.

7. Shivasamudram HE Project (270 MW), Karnataka

CEA has accorded commercial viability to the feasibility report formulated by NHPC. Stage-II estimate is held up due to interstate dispute. No work is under progress.

8. Bav (Stage-II) HE Project (20 MW), Maharashtra

Feasibility Report for 50 MW was submitted to CEA for accord of commercial viability, which was also declared commercially viable on 23.05.2003. NHPC submitted revised FR for 20 MW on 12.01.04. CEA vide letter dated 23.01.04 has ascertained commercial viability of the project.

9. Bav Stage-I HE Project (18 MW), Maharashtra

On account of large submergence and large number of families affected, MOEF in a meeting held on 21st Nov. 2001 advised that rather than taking up Bav-I & II Projects simultaneously; NHPC should take up the projects one after the other. It was agreed to proceed with Bav-II first.

10. Devade HE Project (6 MW), Maharashtra

Stage-I estimate to take up survey and investigation has been recommended by CEA. Survey and investigation works for preparation of feasibility report of the project is in progress.

11. Dibang HE Project (3000 MW), A. P.

DPR under Preparation by Brahmputra Board &

CWC with inputs of certain investigations results by NHPC. Recently CWC has changed Dam Axis. Tentative schedule for completion of DPR is June'04.

12. Lakhwar Vyasi HE Project (420MW), Uttranchal.

An MOU was signed on 1.11.2003 between NHPC and Government of Uttranchal. Collection of data/records for preparation of revised DPR is in progress.

13. Kotlibhel HE Project (850 MW)

Uttranchal Government has entrusted the Kotlibhel Project to NHPC and MOU was signed between NHPC and Uttranchal Government on 22.9.03, which envisages cascade development of Kotlibhel Project. Stage-I estimate amounting to Rs.22.85 crorers for preparation of FR of the three stage of the project submitted to CEA on 01.12.03. Based on reconnaissance survey and preliminary study, NHPC has proposed three stage development.

A **KOTLI BHEL STAGE-IA (At Mudeth):** It is proposed to be constructed on river Bhagirathi, 2 kms upstream of Devprayag with an installed capacity of 300MW.

B **KOTLI BHEL SAGE-IB(At Pali)** It is proposed to be constructed on river Alaknanda, 6 kms upstream of Devpryag with an installed capacity of 250 MW.

C **KOTLI BHEL SAGE-I I (Near Kaudiyala):** It is proposed to be constructed on river Ganga, 20 Kms downstream of Devprayag with installed capacity of 300 MW.

Site clearance (Stage-I) for Kotlibhel cascade scheme has been accorded by MOEF through their letter dated: 20.10.03. Survey & Investigation works are in progress.

E JOINT VENTURE PROJECTS.

1. Indira Sagar HE Project (8x125 MW), Madhya Pradesh

The project is under execution by NHDC, a Joint Venture Company with equity participation of MOP/NHPC and GOMP incorporated in Aug. 2000 to take up execution of Indira Sagar HE Project (1000 MW) and Omkareshwar Project (520 MW). The Government has accorded sanction for incorporation of NHDC and cost estimate for execution of Indira Sagar project in March, 2002. The construction of all the project components are going as per approved schedule and the project is to be commissioned by May, 2005. However with the pace of the work, 4 Units of the project have already been commissioned by March 2004 much ahead of schedule. The overall project is expected to be completed by December 2004.

2. Omkareshwar HE Project (8x65 MW), Madhya Pradesh

CCEA approval has been accorded on 29.05.2003. Notification of award for the work of turnkey execution of (8x65 MW) 520 MW Omkareshwar project has also been issued to M/s Jai Prakash – Voith Simens Consortium, New Delhi on 09.06.2003. The contractor has started mobilizing resources to take up construction of the project and many of construction activities have since been started in full swing. The infrastructure works are also in full swing.

3 Purulia Pumped Storage Scheme (4x225 MW), West Bengal.

PIB meeting to consider formation of Joint Venture and investment decisions was held on 24.03.04. Minutes of meeting awaited. Tripartite Power Purchase Agreement with Govt. of W. B., WBPDC, for purchase of input power and with Govt. of W.B., WBSEB for sale of generated power has been signed on 02.08.2003. CEA vide letter dated 19.9.03, has expressed that point raised by it on Revised Cost Estimate have been resolved.

F SMALL HYDROELECTRIC PROJECTS

1. Kambang Small HE Project (6 MW), Ar. Pradesh

The Project is under execution by NHPC on deposit basis from Arunachal State Government and construction works are going on in full swing. Commissioning of the project is expected shortly.

2 Sippi Small HE Project (4 MW), Ar. Pradesh

The Project is under execution by NHPC on deposit basis from Arunachal State Government and construction works are going on in full swing. Commissioning of the project is expected shortly.

G DEVELOPMENT OF GEOTHERMAL POWER

NHPC has been appointed as a Nodal

Agency for exploitation of Geothermal Energy in the country by Ministry of Non Conventional Energy Sources(MNES). The ranking studies of geothermal fields in India have been carried out through an International Consultant viz., M/s GeothermEx, USA. Two proposals for the installation of 300 kW and 1 MW pilot geothermal plants at Tattapani were submitted to MNES. These have not been found commercially viable by MNES. The proposal for overall development of Tattapani Geothermal Fields was prepared by NHPC which has been examined by MNES and now NGRI has been asked to submit proposal to MNES for conducting detailed survey. NHPC is to be associated for further action, based on survey results. In addition to above, a pre-feasibility report for installation of national demonstration geothermal power plant of 5 MW capacity at Puga, J&K was also submitted to MNES. MNES has conveyed that the Commission for Additional Sources of Energy (CASE) has not approved this proposal.

H COMMERCIAL

The principal outstanding dues excluding Development surcharge as on 31.3.2003 were Rs. 1094.08 crores which have been reduced to Rs. 342.97 crores as on 31.03.2004. The major component of Outstandings is due from DTL, which is yet to be securitized.

During financial year 2003-04 the percentage realization works out to 97.06% (provisional).

A view of Chamera Dam

Power Grid Corporation of India Ltd. (POWERGRID)

As of March 31, 2004, POWERGRID is operating a total of 47,757 ckt. kms. of transmission lines consisting of 563 ckt. kms. of 800 kV, 4,368 ckt. kms. of HVDC; 33,281 ckt. kms. of 400 kV; 7,356 ckt. kms. of 220 kV; 2,152 ckt. kms. of 132 kV and 37 Ckt. Kms. of 66 kV level along with 82 Sub-stations with transforma-tion capacity of 46,461 MVA. With the use of modern state-of-the-art preventive maintenance techniques, average availability of transmission systems during the year 2003-04 was maintained at 99.28%. Based on its network size and operational efficiency, POWERGRID ranks among one of largest and best-managed transmission utilities in the World. POWERGRID continues to wheel about 40% of total power generated in the country through its gigantic transmission network.

The company registered a Turnover of Rs. 2783 Crore and earned a Net profit (After tax) of Rs. 740 Crore thereby recording a Net profit margin of 26.59%. The company's Gross asset base at the end of the financial year 2003-04 stood at Rs. 20,000 Crore as against Rs 18,943 Crore at the end of last financial year.

The company undertook a capital investment of Rs.2,351 Crore during the financial year 2003-04 and the required funds were tied up from internal resources, bonds/term loan from the domestic sources, grant from Government of India and ECB/ Supplier's Credit. During FY 2003-04, POWERGRID raised Rs. 900 Crore from the domestic capital market to finance its capital investment program and the appraisal process was initiated to tie up foreign loans worth about US$ 2,000 million from The World bank and ADB for future expansion program. Costlier loans of Rs. 1,584 Crore were re-financed with cheaper loans/ bonds thereby saving Rs. 551 Crore for residual period of loans, which have been passed on to the beneficiaries by way of reduction in payable transmission tariff.

During financial year 2003-04, POWERGRID commissioned 1,512 circuit km of transmission lines and established Three (3) new sub-stations of 400/220 kV EHV AC (2) and 132/66 kV sub-station (1) in the year, besides extension of existing sub-stations and added transformation capacity of 1725 MVA. Major projects commissioned include, North-Eastern Region ULDC Scheme, third in the series of ULDC Schemes, commissioned 7 months ahead of schedule and Rs. 50 Crore less than the approved cost of Rs. 264 Crore; Chamera-II 400 kV transmission system, Commissioned in a record time of 10 months and within the approved cost; Khammam-Nagarjunasagar 400 kV Single Circuit line, Commissioned 18 months ahead of schedule, etc.

In addition to above, 10 new projects worth about Rs. 4,000 Crore, with 4,400 Ckt Kms, have been taken up for implementation in 2003-04, which include Tala transmission system, Raipur-Chadrapur transmission system, Neelmangala-Mysore transmission line, Sipat-I transmission system, Vindhaychal-Korba Trans. System, Teesta-V, System Strengthening-I in NR, System Strengthening -II in NR, System Strengthening in –IV in SR, and Strengthening in Vidhyachal-Singraulli corridor.

Presently, about 51 transmission projects, costing about Rs 11,250 Crore are under implementation and most of the projects are either on schedule or ahead of schedule. Further, 18 transmission projects (14,600 Ckt Kms) costing about 11,200 Crore are initiated and are under various stages of investment approval.

The outstanding dues of CPSUs in power sector were securitised by signing the Tripartite Agreements (TPAs). Under securitization scheme, out of a total of 29 states, the Tripartite Agreement (TPA) has been signed by 27 states and issued bonds worth Rs. 1803 Crore against outstanding dues of POWERGRID which includes conversion of old bonds of Rs. 613 Crore. This has helped in liquidation of past dues and also timely payment towards the current dues.

BUSINESS DEVELOPMENT

POWERGRID, an ISO 9001 certified company, has acquired in-house expertise at par with global standards in the field of Planning, Engineering, Load Despatch and Communication, Telecommunication, Contracting, Financial and Project Management. During the year 2003-04, Business Development activity in POWERGRID has shown a quantum jump in securing consultancy assignments and revenue realisation besides venturing into new areas of consultancy. POWERGRID has secured 31 nos. of new

consultancy assignments with a consultancy fee of more than Rs. 165 Crore, corresponding to project cost of more than Rs. 2,100 Crore.

In the international arena, POWERGRID completed survey work for a 220 kV D/C transmission system during 2003-04, passing through hostile terrain in Afganisthan at an altitude of over 4000 m.

RESEARCH & DEVELOPMENT

Towards dovetailing R&D activities into practice, it has tied up with various renowned Academic/ Research institutes like IITs (Indian Institute of Technology), CPRI (Central Power Research Institute), etc. and is encouraging Indian manufactures to develop products, which would reduce dependence on offshore supplies.

Thrust is being given on following major technologies:

- **Flexible AC Transmission System (FACTS):** POWERGRID has installed fixed series compensation as a part of FACTS on 400 kV Kanpur-Ballabgarh D/C line which has increased its power flow capacity by 40%, i.e., 200-250 MW by modifying the system parameters.
- **Sub-station automation**: For the first time in the history of Indian Power Sector, POWERGRID operationalised fully automated, remote controlled 400 kV sub-station at Bhiwadi in Rajasthan. 6 more such sub-stations are planned to be established.
- **Standardisation of Towers** - POWERGRID has standardized tower designs through in-house developmental efforts. This has contributed substantially towards saving in implementation period and also optimised the cost of the projects.
- **Equipment condition monitoring and Residual Life Assessment.**

Techniques such as Dynamic testing of relays, Dynamic Contact Resistance Measurement of circuit breakers, Third Harmonic Leakage current measurement on lightning arresters, Thermo-vision scanning of switchyard with new generation thermo-vision cameras, Frequency Response Analysis (FRA) for transformers and reactors etc. have helped in more accurate, effective and efficient equipment maintenance planning and replacement strategy.

- **Enhancing power flow capacity of transmission lines –** The studies have been carried out for :
- **Increasing maximum allowable temperature for transmission line conductors** from 75º C to 85º C/ 95ºC for new transmission lines have been completed and it was decided to raise the limit to 85º C for all future transmission lines with Aluminum Conductor Steel Reinforced (ACSR) Conductors resulting in enhancement of thermal rating by 30 per cent with only 1% increase in cost.

- **Introduction of High Temperature Endurance Conductors -** Use of special aluminum alloy strands, INVAR reinforced conductors can be operated at temperature level up to 230º C as against 85/95º C for normal ACSR Conductor. These conductors offer thermal capacity of the order of 2 to 3 times of ACSR for same diameter and comparable mechanical strengths. Use of INVAR conductor in Indian power system has been taken up on experimental basis.
- **Use of Compact towers for transmission lines** has reduced ROW requirement from 85 m to 64 m (a reduction of 25%)
- **HotLine Maintenance –** An excellent O&M practice that has enhanced the availability of POWERGRID's Transmission System.
- **Hotline washing by helicopters**

  Use of helicopters for hotline washing in geographically tough terrains, has facilitated the process, on many occasions in a much easier way.
- **Erection of Emergency Restoration System by helicopter**

  The devastation caused by cyclone of Gujarat in June 1999, Orissa in October 1999 and earthquake of Gujarat in 2001 was attended by POWERGRID on war footing and normalcy was restored within few days which otherwise would have taken several months, using Emergency Restoration System. Use of helicopters facilitates ERS in geographically tough terrains.
- **UPGRADING & UPRATING OF TRANSMISSION LINES**

  Feasibility studies for Upgrading & Uprating of Transmission Lines have already been completed by POWERGRID for following voltage level:

  1. 66kV D/C to 132kV D/C
  2. 110kV D/C to 132kV D/C
  3. 132kV D/C to 400kV S/C
  4. **220kV D/C to 400kV S/C** (Already implemented on Kishtwar-Kishenpur Line)

Implementation of these is proposed to be undertaken on need basis. Further, Feasibility studies for converting 400 kV Double Circuit lines to HVDC Bi-poles are also underway.

- **Modern survey techniques for Transmission Line**

  POWERGRID explored use of satellite imageries for route alignment and preliminary survey for its transmission lines and Air Borne Laser Terrain Mapping (ALTM) techniques in association with National Remote Sensing Agency (NRSA) and activities have been initiated to undertake surveys using these techniques for the forthcoming Parbati-II, Barh and Kudankulam Projects.

E-GOVERNANCE

POWERGRID is systematically developing competency to deploy Information Technology for efficient and effective discharge of its functions. Some of the salient achievements are Web based Enterprise wide Information Portal as a step towards E-Governance, State-of-the-Art Multi Locational Video Conferencing System, Inspection Management System on internet based B2B platform, Engineering Project management system developed in-house, Enterprise wide Converged IT and Communication System, Establishment of state-of-the-art 1200 node IT network infrastructure at Gurgaon office complex with innovative features like Wi-Fi. POWERGRID has also initiated implementation of ERP.

POWERGRID implemented Video conferencing facility in the capacity of technical expert cum co-ordinator for MOP and CPSUs under MOP and successfully completed the first consultancy venture in IT for M/s Delhi Transco Ltd.

CONTRIBUTING TO DISTRIBUTION REFORMS UNDER APDRP

Under Accelerated Power Development & Reforms Program (APDRP) of Ministry of Power, POWERGRID has been assigned the role of Advisor-cum-Consultant (AcC) to lend its managerial and technical expertise for developing 105 distribution circles spread over 18 States. During 2003-04, APDRP Schemes for 35 Circles/ towns amounting to Rs. 1558 Crore were approved where POWERGRID was Advisor cum Consultant. In addition, POWERGRID has undertaken implementation of APDRP schemes worth Rs. 663 Crore on bilateral basis, in the States of Bihar, Goa and Meghalaya. POWERGRID is also executing Rural Electrification works of 2400 villages in Bihar on behalf of BSEB costing about Rs. 178 Crore, covered under **"Pradhan Mantri's Gramodaya Yojana (PMGY)"**.

ENCOURAGING GRID DISCIPLINE

POWERGRID, in its efforts to ensure delivery of quality power and to maintain grid discipline, extended the implementation of Availability Based

Tariff (ABT) in Eastern Region w.e.f. April 01, 2003 and North-Eastern Region from November 01, 2003. With this, ABT has been implemented in all the regions. This has stabilized the frequency to the prescribed band as per IEGC i.e. 49.0 Hz to 50.5 Hz for large percentage of time in all the five regions.

ABT has also encouraged inter-State and inter regional bilateral trading resulting in meeting higher demand from the existing sources. Merit order operation of generating units is gaining importance and many states are utilizing this facility to utilize the system commercially to full advantage. There is overall improvement in Grid stability and partial and total blackouts have drastically reduced.

Further, Western, Eastern & North-Eastern Regions continued to operate successfully in synchronous mode. In fact Raipur – Rourkela 400 kV D/c line rescued Western Regional Grid in Sept'03 by importing power from Eastern Region when there was a generation loss in western Region.

Efforts made by POWERGRID in modernizing the Regional Load Despatch Centers (RLDCs), implementation of Availability Based Tariff (ABT), power transfer through inter-regional links and effective Operation & Maintenance measures using State-of-the-Art technologies have led to overall improvement in power supply position in all parts of the country. **It is demonstrated by the fact that there were no major grid disturbances during the financial year 2003-04**. The trippings per line were lowest ever & the system availability was as high as 99.28%.

With the development of vital inter-regional transmission links, surplus power of Eastern Region is being gainfully utilized for power deficit regions. POWERGRID was able to facilitate transfer of 22,000 MU of energy across the regions during the year 2003-04, an increase of about 70 % compared to previous year (i.e. 13,000 MU during 2002-03). Thus, inter-regional power transfer of worth Rs. 4,400 Crore was facilitated, most of which would have remained bottled up but for the facilities created by POWERGRID.

MANAGEMENT OF ENVIRONMENTAL AND SOCIAL ISSUES

Concern for Environment

Impact of POWERGRID's business on environmental degradation is almost negligible, however, it believes that conservation and management of the environment has to remain the integral and essential part of economic development. Following the well established principles of environmental management, POWERGRID has evolved its own Environmental and Social Policy & Procedures (ESPP) in consultation with a wide section of people to take ample care of environmental and social issues arising out of its activities. This ESPP document, which has been inducted for application in all of its projects, helps to address all environmental and social issues at appropriate time and in appropriate manner.

POWERGRID has been successfully implementing the ESPP through in-house designing of Rehabilitation Action Plan (RAP) and Environment Assessment Management Plan (EAMP). All projects were implemented according to these plans. These plans are executed at site and monitored not only at the highest level of the hierarchy but also by multilateral funding agencies like WB & ADB.

Emergency Restoration

POWERGRID, in conscious endeavours to discharge its broader social responsibilities, has taken many steps which include faster restoration of transmission system belonging to State utilities which are damaged during Natural calamities like flood, earthquake, cyclones, etc.

Transparency in operation

In POWERGRID, System & Procedure Manuals have been developed for most of the functional areas like Construction, O&M, Human Resource, Quality, etc. and well defined "Works & Procurement Policy and Procedure" (WPP) is in place.

Committees of eminent independent experts constituted to advice POWERGRID on various strategic issues related to financial management, procurement, and project execution. Similar Committee on HR strategies and Research & Development activities are under finalization.

CONVERGENCE WITH TELECOM

To exploit the synergy of transmission business with advantages of inherent communication infrastructure, POWERGRID diversified into Telecom business.

POWERGRID's huge transmission infrastructure of over 48,000 Ckms will be sturdy, clean, easier to lay and free from rodent menace and vandalism. Besides, network will provide safe, reliable and secure connectivity to cities/ towns & rural areas across the country.

A major boost to POWERGRID's Telecom venture has been received with the GOI approval for the implementation of POWERGRID's nation

wide telecom network at an estimated cost of Rs 934 Crore. POWERGRID envisages a broadband network of about 20,000 km interconnecting over 60 major Metros/Cities, rural and unserved area. The broadband telecom network envisages installation of high capacity Dense Wave Division Multiplexing (DWDM)/ Synchronous Digital Hierarchy (SDH) technology and dedicated Integrated Network Management System for efficient operation and maintenance of the telecom network. POWERGRID's over 20,000 Kms of Telecom Link to be commissioned shortly will provide much needed strong highway of communication at affordable cost with ultra modern and eco-friendly implementation techniques.

POWERGRID has obtained Infrastructure Provider–I&II and ISP–Category 'A' license from Government of India. In fact, POWERGRID has already commenced commercial operation of few of its links like Commercial operation began on existing links: Delhi – Chandigarh, Delhi – Simla, Delhi – Jaipur & Delhi – Lucknow – Mumbai – Ahmedabad.

EXISTING/PROPOSED INTER-REGIONAL TR. CAPACITY (MW)

EAST-NORTH	Existing	By 2006-07	By 2011-12	Total
Dehri-Sahupuri 220 kV S/c	150			150
Sasaram HVDC back-to-back	500			500
Muzaffarpur-Gorakhpur 400 kV D/c		2000		2000
Patna – Balia 400kV D/c		2000		2000
Biharshariff – Balia 400kV D/c		2000		2000
Nabinagar – Balia 400kV D/c		1200		1200
Nabinagar – Sasaram 400kV D/c		1200		1200
Barh – Balia 400kV D/c		2000		2000
North Karanpura – Balia 765kV S/c		2400	2400	
Sub-total	***650***	***10400***	***2400***	***13450***
EAST-WEST				
Budhipadar-Korba 220 kV 3 ckts.	450			450
Rourkela-Raipur 400 kV D/c	1200			1200
Rourkela-Raipur 400 kV D/c (2nd)		1200		1200
Ranchi -Sipat 400 kV D/c		1200		1200
N'Karanpura – Sipat 765kV 2xS/c			4800	4800
Sub-total	**1650**	**2400**	**4800**	**8850**
WEST- NORTH				
Vindhyachal HVDC back-to-back	500			500
Existing 220kV AC Lines	200			200
Malanpur-Agra 765 kV S/c		1500		1500
Sub-total	***700***	***1500***		***2200***
EAST- SOUTH				
Gazuwaka HVDC back-to-back	500			500
Existing 220kV AC Lines	200			200
Talcher-Kolar HVDC bipole	2000			2000
Gazuwaka HVDC back-to-back (2nd)		500		500
Sub-total	**2700**	**500**		**3200**
WEST- SOUTH				
Chandrapur HVDC back-to-back	1000			1000
Existing 220kV AC Lines	300			300
Sub-total	**1300**			**1300**
EAST- NORTH EAST				
Bongaigaon-Siliguri 400 kV D/c	800			800
Birpara-Salakati 220kV D/c	200			200
***Sub*-total**	***1000***			***1000***
TOTAL	**8000**	**14800**	**7200**	**30000**

Power Finance Corporation Ltd.

The Power Finance Corporation Limited (PFC) was incorporated in 1986 under the Companies Act,1956. The mission of PFC is to function as the prime Development Financial Institution dedicated to the growth and overall development of the Power Sector. The borrower-portfolio of PFC comprises of State Electricity Boards (SEBs), State Generation Transmission & Distribution Companies, Municipality-run power utilities and also central, private, joint sector and co-operative sector power utilities. The funds provided by the Corporation are in the nature of additionality to Central Plan Allocation (in respect of SEBs, etc.) and based on the merits of the individual projects. The Power Finance Corporation is a schedule 'A' organisation.

PERFORMANCE HIGHLIGHTS

As on 31.03.2004, PFC sanctioned loans of the order of Rs. 16,472 crores (during 2003-04) for a wide range of power projects in various parts of the country and disbursements are to the tune of Rs. 8975 crores. As on 31st March, 2004 the Authorised Capital and the Paid-up (equity) capital of the Corporation stood at Rs. 2000 crores and Rs. 1030 crores, respectively. The Profit Before Tax (provisional), for the year ended 31.03.2004 was about Rs.2127 crores. In addition to the above, PFC had paid an interim dividend of Rs. 147 crores for the year 2003-04 to the Govt. of India which owns all its equity. Besides being a consistently profit-making Corporation, PFC was placed in the highest category of 'Excellent' for the tenth consecutive year, by Govt. of India on the basis of its overall performance during the year 2002-03. PFC has figured in the top 10 PSUs list for the outstanding performance shown against Memorandum of Understanding (MoU) targets for which it has recently received 'MoU Excellence Award' from Hon'ble President of India.

A table showing at a glance year-wise financial performance of PFC, for the past 3 years, is as under:

(Rs. crores)

FINANCIAL PERFORMANCE AT A GLANCE (LAST 3 YEARS)

	2000-01	2001-02	2002-03
Sanctions	7706	8506	14001
Disbursements	3230	5150	7338
Profit before tax	772	963	1368
Profit after tax	604	778	1172
Realisation	1416	1992	2811
Dividend	150	200	235

RESOURCE MOBILISATION – DOMESTIC

The Corporation continued to mobilize funds from the domestic market at competitive rates through bonds/term loans from banks/Financial Institutions. Corporation has raised Rs. 8147 crores out of which Rs. 3625.30 crores were raised through long term loans from banks, Rs.3766.73 crores as short term loans from various banks at a fixed rate and Rs.725 crores by way of taxable bonds and a Foreign Currency Loan of Rs.30.39 crores .

EXTERNAL CREDIT UTILISATION

Asian Development Bank (ADB):

Second line of credit from ADB is approved by ADB for an amount of US $ 150 Million for the projects in the reform-oriented states.

Kreditanstalt fur Wideaufbau (KfW);

PFC signed loan agreement with KfW of Germany in June, 1995 for mixed credit of DEM 46.5 Million under Energy Investment Programme, for financing rehabilitation of existing Power Plants and distribution system. Rehabilitation of Koyna Hydro-electric Project (HEP) Stage I &II in Mahrashtra and Hirakud HEP Stage I (Unit 3 & 4) are to be covered from the loan. As on 31.3.2004, PFC has disbursed Rs. 54.4 crores for Koyna HEP of Maharashtra State Electricity Board and Rs. 29.52 crores to Orissa Hydro-electric Power Corporation.

INSTITUTIONAL DEVELOPMENT OF POWER UTILITIES

PFC has been adopting a proactive and pragmatic approach to encourage improvement in the financial and operational efficiency of the state power sector. Keeping this is view, Operational & Financial Action Plans (OFAPs) consisting of series of time bound action plan for different functional area of the utilities are formulated. The OFAPs are formulated with active participation of the concerned utility and approved by the respective Board of the Utilities as well as State Govt. The implementation of various activities included in OFAP are monitored quarterly and progress report on the same is sought from the utilities. As on 31st March, 2004, OFAPs are in place for 9 State Electricity Boards (SEBs), 16 State Generation Corporations (SGCs), 1 autonomous body, 21 transmission & distribution companies and 5 department-run power utilities. OFAPs have been instrumental in bringing about a perceptible change in quantitative and qualitative performance of State Power Utilities functioning.

It was not possible to achieve improvements beyond a limit on the basis of OFAP within the existing structure and with a view to take the reform process to its logical conclusion, PFC facilitates formulation of Reform-OFAP. Besides aiming at bringing about efficiency improvements in the state power sector, R-OFAP focuses on reform/ restructuring activities needed to create an institutional mechanism for the self sustainability of the sector in the long run.

During the year 2003-04, R-OFAPs have been entered into with West Bengal State Electricity Board (WBSEB) and Uttar Pradesh Jal Vidyut Nigam Limited (UPJVNL).

FINANCIAL ASSISTANCE FOR POWER SECTOR STUDIES

Power Finance Corporation (PFC) being a developmental financial institution provides technical and financial assistance by strategically providing grants, interest free and / or concessional loans to carry out power sector studies including Distribution Management, Renovation & Modernization (R&M) Thermal, Reform & Restructuring and Institutional Development. The major studies completed so far (March, 2004) are Residual Life Assessment (RLA) Study of Bassi HEP, RLA / Life Extension Study (LES) of Bhatinda Thermal Power Station Unit –4, Distribution Management Study at Lucknow (Uttar Pradesh Power Corporation Limited), Preparation of feasibility report for 'Supervisory Control And Data Acquisition' (SCADA) System for New Delhi Municipal Corporation, DMS at Guwahati (Assam State Electricity Board), DMS study at 24 Paragana (West Bengal State Electricity Board).

Grants worth Rs. 8.02 crores is sanctioned by PFC during the year 2003-04 and an amount of Rs. 5.29 crores disbursed upto 31st March, 2004 towards studies R&M Thermal, Reform & Restructuring and Institutional Development etc. So far, PFC has sanctioned Grants worth of Rs. 45.37 crores (till March, 2004) and released grants worth Rs.31.10 crores.

RENOVATION MODERNISATION & LIFE EXTENSION OF THERMAL & HYDRO PLANTS

PFC, as on 31st March, 2004 has sanctioned loans worth Rs.1075.40 crores towards R&U (Hydro) and Rs. 4819.03 crores towards R&M (Thermal). The corresponding cumulative disbursements till March, 2004 are Rs. 557.84 cores and Rs.2455.36 crore for R&U (Hydro) and R&M (Thermal) respectively.

PRIVATE SECTOR FINANCING

PFC has so far supported 3750 MW of Generation Capacity by way of sanctioning financial assistance of about Rs.3780 crores to 44 Private Power Projects out of which 1459 crores was disbursed. This includes important generation projects viz. Lanko Kondapalli Power Projects in Andhra Pradesh, Captive Power Plant of Sanghi Industries in Gujarat, Malana Power in Himachal Pradesh, Balaji Power in Tamil Nadu etc.

During the year 2003-04, loans were sanctioned to 15 private power projects amounting to Rs.955 crores which include; 469 MW Gas based CCP Plant of Gautami Private Power Ltd., 110 MW Corex gas based Captive Power Plant of JSW Power Ltd., 120 MW Gas based power project of Aban Power, Samal HEP of Orissa Power Consortium, 18 MW Bio-mass project of Raghuram Renewable Energy Ltd., 26 MW Bagasse based project of SCM Sugars Ltd. & 6 MW Bio-mass project of Sainath Power. Cumulatively, 1100 MW generation capacities in Private Sector have been commissioned with PFC's support, so far.

ACCELERATED POWER DEVELOPMENT AND REFORM PROGRAMME (APDRP)

PFC has sanctioned a counterpart loan of Rs.1380 crores (during the year 2003-04) for implementation of distribution schemes in the States of MP, AP, Bihar, Delhi, Haryana, Jharkhand, Goa, Maharashtra & UP. As on date, (31.3.2004) cumulative sanctions of counterpart loan by PFC stands at Rs.3500 crores. An amount of Rs.214 crores has been disbursed during the financial year 2003-04 under APDRP counterpart funding. The APDRP counterpart funding provided by PFC covers distribution improvement schemes major cities namely Delhi, Patna, Ranchi, Hoogli, Hyderabad, Barellie and Faridabad etc. This also includes a recent sanction of Rs.80 crores to NDPL for improvement of distribution system in Delhi.

ACCELERATED GENERATION & SUPPLY PROGRAMME (AG&SP) DURING 10TH PLAN

The AG&SP scheme has been extended to 10th Plan. The AG&SP scheme for the 10th Plan envisages the following.

1. The assistance under the AG&SP scheme shall be limited to only State sector, R&M (Power Plants) and generation projects including those based on non-conventional energy sources.
2. The assistance under the AG&SP scheme shall be limited only those States, which perform satisfactorily with respect to the agreed milestones of the reform MOUs entered into with the MOP.
3. Interest subsidy under the scheme is 3%. However, the subsidy for the projects in North-eastern Region would be 4%.

4. Presently, the assistance under the scheme to be limited to only State sector, R&M of thermal power plants and Renovation & Uprating (R&U) of hydro power plants including power plants of Damodar Valley Corporation (DVC) and those generation schemes which are to be commissioned in the 10th plan.
5. Grants under the AG&SP scheme will be provided to SEBs, SGCs and State Power Departments for carrying out the studies, which help to achieve policy objectives of the Government relating to power sector. These include power sector reform and restructuring studies, system studies, R&M studies, life extension studies, retainer consultancy for R&M and environment/social studies.
6. During the financial year, 2002-03, an amount of Rs.1475 crores was disbursed by PFC under AG&SP against which subsidy was received.
7. As on 31st March, 2004 an amount of Rs.1224 crores has been disbursed by PFC under AG&SP towards R&M and R&U of power plants of State sector.

CONSULTANCY SERVICES

ACHIEVEMENTS :-

In the year 2003-04, Consultancy Services Group of PFC has expanded its domain of providing various types of services to Energy Audit assignments for power stations and Transmission & Distribution networks for which the first assignment of its type was carried out for M/s. Dishergarh Power Supply Co. Ltd. (DPSCL).

PFC as part of reducing the interest burden on the State Power Utilities is executing an assignment for Andhra Pradesh Power Generation Corporation Ltd. (APGENCO) for roll over/new issue of private placement of bonds worth Rs.145 crores as Turnkey Advisor, which is likely to result in considerable savings to APGENCO as compared to the current rate of borrowing. This assignment has already been completed. PFC has received assignments worth about Rs.2.66 crores in the current financial year.

The success of PFC Consultancy Services can be primarily attributed to its principal thrust being on client satisfaction and on implementable outputs. With this objective, it endeavours to continue assisting power sector entities in their effort towards commercial operations.

FUTURE AREAS OF THRUST :-

PFC Consultancy Services intends to give emphasis to areas of consultancy assignments such as:

- Energy Audit assignments having impact on cost of Generation & Supply i.e. ultimately Tariff.
- Financial Advisory Services for new Power Plants.
- Development of Business Plans for states/ utilities in the area of Power Sector Growth.
- Financial Re-engineering.
- Emerging regulatory areas of open access and intra-state power trading.

TARGETS & ACHIEVEMENTS

The following is the status of achievement of targets under various parameters agreed under MoU signed between PFC & Ministry of Power.

Parameters	Target for 2003-04	Achievement as on 31.03.04
Sanctions	10500.00	16472.00
Disbursements	6000.00	8975.00
Realization (%)	92.00	99.00
Resource Mobilisation	4670.00	8147.00
Gross Margin	1150.00	2173.00
Net Profit to Closing Networth (%)	16.28	25.80
Operating Ratio (%) (Operating cost to Operating Revenue)	55.13	40.30

Rural Electrification Corporation Ltd. (REC)

Rural Electrification Corporation Limited (REC), which is under the administrative control of the Ministry of Power, Government of India, was incorporated as a company under the Companies Act, 1956, in the year 1969, with the main objective of financing rural electrification schemes in the country. Subsequently, in the year 1992, REC was notified as a public financial institution under Section 4A of the Companies Act, 1956. In 1998. REC was registered as a Non-Banking Financial Company (NBFC) under Section 45 IA of the RBI Act, 1934. The mandate/object clause of REC was expanded in 2002-03 to include financing of all projects including transmission and generation without any restriction on population, geographical location or size.

The current mission of REC is to facilitate availability of electricity for accelerated growth and for enrichment of the quality of life of rural and semi-urban population and to act as a competitive, client-friendly and development oriented organization for financing and promoting projects covering power generation, power conservation, power transmission and power distribution network in the country. REC is thus endeavouring to promote and finance projects aimed at integrated system improvement, power generation, promotion of decentralized and non-conventional energy sources, energy conservation, renovation and modernisation, power distribution with focus on pumpsets energisation, rural households electrification and other related works, and to expand and diversify into other related areas and activities for providing reliable supply of power.

Highlights of Performance

Over the last seven years, REC has recorded substantial growth in all key performance parameters. During the year 2003-04, the profit before tax has crossed Rs.800 crore mark for the first time.

The highlights of performance of REC for the year 2003-04, alongwith the comparative figures for the preceding four years, are given below:-

	1999-2000	2000-01	2001-02	**2002-03**	**2003-04**
Loan sanctioned	4678	6308	6764	**12125**	**15978**
Loan Disbursed	3051	4109	4722	**6607**	**6017**
Recovery of Dues	2716	3582	4064	**6673**	**5003**
Resource Mobilisation	981	1611	3360	**4213**	**4010**
Profit before Tax	426	453	503	**768**	**803**
Profit after Tax	314	337	388	**579**	**612**
Networth	1892	2148	2466	**2862**	**3264**
Dividend	50	67	120	**174**	**183**
Dividend Tax	5.5	6.83	-	**9.25**	**23.45**
Business per employee	6.22	8.29	9.72	**15.07**	**16.55**

Share Capital

The paid-up equity share capital of REC, as on 31st March, 2004, stood at Rs.780.60 crore against the authorised share capital of Rs.1200 crore. There has been no additional subscription to the equity share capital during the year 2003-04.

Mobilisation of Funds

Govt. of India continued to extend Capital Gains Tax benefits under Section 54 EC of the Income Tax Act, 1961 to Bonds floated by REC in addition to the permission already granted for floating Infrastructure Bonds under Section 88 of the

REC work of 33kV Sub-station/DTC at Karanjukheda Dist. Aurangabad (Maharashtra)

Income Tax Act, 1961. The total amount mobilized from the market during the year 2003-04 was Rs.4010 crore which included Rs. 1363 crore by way of Capital Gain Tax Exemptions Bonds, Rs. 67 crore by way of Taxable Bonds, Rs. 17 Crore by way of Section 88 Infrastructure Bonds, Rs.1500 Crore of Term Loans and Rs. 440 Crore Short Term Loans(WCDL).**The debt instruments of REC continued to enjoy AAA the highest rating assigned by CRISIL.**

Progress of Performance during the year 2003-2004.

Sanctions

REC's financing is now mainly focused on investments in rural electrification programme relating to electrification of unelectrified villages/ hamlets/dalit bastis, load development in already electrified areas, system strengthening/ augmentation for improving the quality of supply & bringing in efficiency in distribution systems and also generation projects. The Corporation, during the current year, has sanctioned 1322 projects involving a loan assistance of Rs. 15978 crore.

Disbursements

REC has disbursed till the end of 31st March, 2004 an amount of Rs. 6017 crore for RE Schemes, system strengthening, intensive electrification of already electrified areas, energisation of pumpsets and also for various generation projects.

Kutir Jyoti Programme

During the year 2003-04, under the Govt. of India's Kutir Jyoti programme being channelized through REC, implementing agencies have reported release of 5.09 lakh single point light connections to the households of rural poor below poverty line, and a sum of Rs.60.44 crore has been drawn as grant.

Cumulatively, since launch of the programme in 1988-89, over 62.9 lakh single point light connections are reported as released and the beneficiary States have drawn a grant of over Rs.516 crore upto March 2004.

Interest free schemes of REC

REC introduced in February 2003, new category of schemes for providing loan assistance to State Governments at concessional interest rates of 1% per annum for electrification of dalit bastis and 3% per annum for villages and hamlets. On successful implementation of each project and adherence to stipulated norms, the interest is fully waived. An amount of Rs.232 crore was disbursed by the Corporation against sanction of Rs.1116 crore during the year 2003-04 under these schemes. The implementing states have reported electrification of 119 villages, 5206 dalit bastis and 2965 hamlets during the year.

Debt Refinancing

Under Debt Refinancing Scheme, which came into effect from 16th December 2002, loan assistance of Rs.2062.48 crore was sanctioned during 2003-04. The borrowers have drawn Rs.1671.83 crore during this period.

System Improvement

Thrust on schemes for improvement of power distribution network for reducing T & D losses and improving the quality of power supply was continued. During the year 2003-04, a total of 350 System Improvement Schemes were sanctioned involving loan outlay of Rs.3394.34 crore. This included counterpart funding under Accelerated Power Development & Reforms Programme (APDRP) of Ministry of Power for 39 schemes involving loan outlay of Rs.679.89 crore. The System Improvement Schemes also include 94 schemes involving a loan assistance of Rs.997.46 crore for financing sporadic investments in the distribution system by way of installation of essential equipment like transformers, capacitors, conductors, meters, circuit breakers etc.

Generation Projects

Under its expanded mandate of financing of all power projects, including transmission and generation, the Corporation sanctioned 21 generation projects, with a financial outlay of Rs.8033.78 crore, including consortium financing with other financial institutions during 2003-04. Cumulatively, till 31st March 2004, the Corporation has sanctioned 57 Hydro & Thermal Generation projects involving financial assistance of Rs.8799 crore. This will create additional generating capacity of nearly 4365 MW to cater to the needs of the nation.

Cumulative Performance of REC upto 31.3.2004

Over the last 35 years, REC has cumulatively sanctioned Rs.63456 crore for 40696 projects and disbursed Rs.37110 crore as on 31.3.2004 as financial assistance on relatively softer terms to the SEBs, Electricity Departments of State Government and other Power Utilities. Upto 31st March, 2004, 305064 villages have been reported electrified and 8207482 pumpsets have been reported energized under the projects financed by REC.

Central Institute for Rural Electrification (CIRE) of REC based at Hyderabad.

During the year 2003-04, REC's Central Institute for Rural Electrification (CIRE) located at Hyderabad conducted 18 programmes, which include 14 open programmes, 2 sponsored programmes and 2 in-house programmes. The training programmes are on Power Sector Reforms, Power Purchase Agreement and Information Technology for Power Sector, Trends and Developments in Electricity Metering, pilferage of Electricity- Technical and Legal Remmedies, Power Transformers- Ensuring Optimum Performance, Cyber Laws, Reliable & Energy Efficient Distribution Transformers for Power Utilities, Safety & Conservation, Upgradation of Power Distribution Technologies and System Improvement, Understanding Electricity Regulation in India etc. Officers from State Electricity Board, Regulatory Commissions and various Distribution Companies took part in these training programmes.

CIRE has also designed and organized two Special Training Programmes On "Power Distribution Management and Technologies" for the Engineers of NESCL, sponsored by NTPC. These programmes were of 12 days duration each and 34 participants took part in the programmes.

North Eastern Electric Power Corporation Ltd. (NEEPCO) Shillong.

North Eastern Electric Power Corporation Ltd. (NEEPCO) was constituted in 1976 under the company's act 1956 with the objective of developing the power potential of the North Eastern Region of the country through planned development of power generation projects which in turn would effectively promote the development of the North Eastern Region. Since then NEEPCO has grown into one of the pioneer public sectors with an authorised share capital of Rs. 3500.00Crs. and having an installed capacity of 1130MW (755 MW hydro & 375 MW thermal) meets more than 50% of the energy requirements of the NE Region. The main objectives of Corporation are to add to the power generating capacity in the North Eastern Region by ensuring optimum utilisation of commissioned generation projects, to generate adequate internal resources ensuring justifiable return on investment, to continue sustained efforts to obtain the receivables from State Electricity Boards / Departments and to undertake long term feasibility studies for optimum development of hydro power resources of the North Eastern Region.

1. **CAPACITY ADDITION PROGRAMME FOR THE 10TH PLAN**:
   During 9th Plan, NEEPCO added 754 MW (174 MW Thermal and 580 MW Hydro Power) as per the capacity addition programme. The proposed capacity addition during the 10th Plan has been fixed as 365 MW (280 MW Thermal and 85 MW Hydro). Out of this, Kopili H.E. Power Station – 2nd Stage with one unit of 25MW has already been commissioned.

2. **PROJECTS UNDER OPERATION AND MAINTENANCE :**
   The following completed Projects are under Operation and Maintenance:

Sl No.	Name of the Projects	State	Installed Capacity
1	Kopili Hydro Electric Power Station	Assam	150 MW
2	Kopili H.E. Power Station - Ist Stage Extension.	Assam	100 MW
3	Assam Gas Based Power Station.	Assam	291 MW
4	Agartala Gas Turbine Power Station.	Tripura	84 MW
5	Doyang Hydro Electric Power Station.	Nagaland	75 MW
6	Ranganadi Hydro Electric Power Station.	Arunachal Pradesh	405 MW
7	Kopili H.E Power Station – 2nd Stage.	Assam	25 MW
	TOTAL		**1130 MW**

POWER GENERATION:

During the period from 1st January' 03 to 31st March ' 04, NEEPCO generated 2124 MU from hydro stations against a target of 2343 MU and 2733 MU from thermal stations against a target of 2666.32 MU. The cumulative generation since inception till 31st March ' 04 from NEEPCO Power Stations was 26395 MUs. Station wise target Vs achievement from 1st January ' 03 to 31st March ' 04 are given below.

Sl No	Name of the Power Stations	Generation Target (01.01.03 to 31.03.04)	Actual Generation (01.01.03 to 31.03.04)
A)	**HYDRO**		
i)	Kopili Hydro Electric Power Station (150 MW), Assam.	633 MU	500 MU
ii)	Kopili H.E.Power Station – 1st stage Extension (100MW), Assam.	414 MU	452 MU
iii)	Doyang Hydro Electric Power Station (75 MW), Nagaland	196 MU	167 MU
iv)	Ranganadi Hydro Electric Power Station (405 MW), Arunachal Pradesh.	1100 MU	1005 MU
	Sub – Total (A)	**2343 MU**	**2124 MU**

Sl No	Name of the Power Stations	Generation Target (01.01.03 to 31.03.04)	Actual Generation (01.01.03 to 31.03.04)
B)	**THERMAL**		
v)	Assam Gas Based Power Station (291 MW), Assam.	2003.32 MU	1998 MU
vi)	Agartala Gas Turbine Power Station (84 MW), Tripura.	663.00 MU	735 MU
	Sub – Total (B)	**2666.32 MU**	**2733 MU**
	TOTAL (A+B)	**5009.32 MU**	**4857 MU**

Total earnings is Rs. 797.10 Crs. (Provisional) in terms of sale of Power during 1st January'03 to March' 04. Earnings from Kopili H.E. Project is Rs. 70.20Crs., Assam Gas Based Power Project is Rs. 364.87Crs., Agartala Gas Turbine Project is Rs. 133.98Crs., Doyang H.E. Project is Rs.32.66Crs., Ranganadi H.E Project is Rs.170.81Crs. and UI Charges (Net) is Rs.24.58Crs.

2. PROJECTS UNDER EXECUTION

i) TUIRIAL H.E. PROJECT (60 MW) - MIZORAM: The Tuirial H.E. Project in Mizoram is located in the Border of Cachar District of Assam and Aizwal District of Mizoram and envisages construction of a 77 M high Homogenous Earth fill Dam across the Tuirial river with an installed capacity of 2 x 30 MW, surface Power House on the left bank of the river. The cost of the Project at June' 97 price level is Rs. 368.72Crs.(including IDC) and completion cost of the Project is Rs.448.19Crs. at Jan '97 price level. The project has been taken up as a Central Sector Scheme under loan assistance of JBIC, Japan with 85% of the project cost being financed under JBIC loan assistance and balance 15% from Govt. of India's assistance. The infrastructural work for the project has been completed. All 5 (five) Packages have been awarded and work of the project is in progress. Land acquisition for the project area is completed and for submergence area is in progress.

The project is scheduled to be commissioned in 2006 – 07.

ii) KAMENG H.E. PROJECT (600 MW) - ARUNACHAL PRADESH: The proposed Kameng H.E. Project is located in the West Kameng district of Arunachal Pradesh. The project comprises of construction of a 96.50 M. high concrete gravity Dam across the river Bichom and diverting the water through a 6.70 M. dia., 8.75 km long Tunnel to Tenga reservoir created by constructing a 60.50 M. high concrete gravity Dam across the Tenga river. Water of both these rivers is proposed to be taken through a 7.0 M. dia, 5.86 km long HRT to Kimi Power House with an installed capacity of 4 x 150 MW = 600 MW. Infrastructure works under 2nd Stage are nearing completion and 432.56 Ha of land has been acquired by NEEPCO. Pre- PIB meeting for investment decision was held on 6.10.2003 and the PIB note was circulated. Tender for all Packages have been floated. Techno - Commercial Bids of Package – I, II & III were opened on 30.01.04 and evaluation completed. Price Bid shall be opened on 08.04.04. Techno - Commercial Bids of Packages – IV & V were opened on 27.02.04 and evaluation is under progress. Award of work is in process and construction activities for the plant will start immediately after obtaining CCEA clearance.

iii) TRIPURA GAS TURBINE POWER PROJECT (280MW) - TRIPURA: Tripura Gas Turbine Project is located at Manarchak in Tripura and its phased capacity will depend on availability of gas. Techno – Economic clearance from CEA has been obtained on 25.04.03. All statutory and non-statutory clearances, including MOEF clearances, have been obtained. Pre – PIB meeting was held on 20.06.03 and the project is posed for PIB clearance. The consultancy works of the project has been awarded to CEA and MOU for the same signed on 08.10.03. PTC shall trade the power outside NE Region and the States of Tripura, Assam, Punjab and Haryana have given their consent letters for taking power from the project. NIT for EPC contract was floated on 06.11.03 and the same will be opened on 30.04.04. 80.735 Ha of land has already acquired for the project by NEEPCO. Evacuation of power from this project is being finalised by PGCI. Bilateral power trading agreement between PGCIL &

NEEPCO have been signed. PIB note has been circulated and the major works of the project are proposed to be started after obtaining investment approval.

iv) **Tipaimukh H.E. Project (1500 MW)-Manipur :** This Project was initially investigated by CWC and then by Brahmaputra Board. It has been handed over to NEEPCO for execution. MOU with the Govt. of Manipur has been signed. The revised DPR prepared by NEEPCO at a cost of Rs.5163.86Crs.was Techno - Economically cleared by CEA on 02.07.03. Pre – PIB meeting held on 13.08.03. Pre – qualifying of Bidders through International competitive Bidding (ICB) is under finalisation. Based on the decision arrived at during the Pre- PIB meeting and subsequent meetings held in Ministry of Power, an estimate for Stage – II activities for infrastructure development at a cost of Rs.157.00Crs. has been submitted to CEA on 22.12.03.Various formalities to obtain remaining statutory clearances are under way.

v) **TUIVAI H.E. PROJECT (210 MW) - MIZORAM:**

The proposed Tuivai H.E. Project is located in Aizwal district of Mizoram. The project comprises of construction of a 155 M.high Rock-fill Dam across the Tuivai river. The impounded water is proposed to be taken by one 4.95 km. Long HRT of 6 M. dia. to a surface Power House located in the right bank of the river with installation of 3 (three) units of 70 MW each. The project was initially investigated by CWC. All statutory clearances, including Forest and Environmental clearance, from MOEF & GOI have been received. TEC for the project has also been accorded by CEA on 19/02/99. Pre- construction activities like development of infrastructural facilities and detailed survey and investigation works are in progress. Telecommunication system on the project site has been established. The 2nd stage proposal under the 3 stage clearance procedure for the Hydro Project is under examination. The Project is envisaged to be completed within a period of 66 months from the date of investment approval.

NEW SCHEMES FOR EXECUTION:

The following new schemes have been identified for execution as Central Sector Projects by NEEPCO:

1. **LOWER KOPILI H.E. PROJECT (150 MW) - ASSAM :** The proposed Lower Kopili H.E. Project is located in N.C. Hills district of Assam. The proposal comprises of construction of a 71.35 M. high concrete gravity Dam across the Kopili river in the down stream of the Kopili Power station. The impounded water is proposed to be lead through a 6.8 M dia. (Horse shoe) and 3.56Km long Head Race Tunnel to a semi-under ground Power House with installation of 3 (three) units of 50 MW each. Presently Hydro-meteorological investigation of the project is being continued.

i) Feasibility Report submitted to the CEA during the month of Oct'2002. Based on this, CEA accorded commercial viability of the project in Feb'03.

ii) Notification under Section 18A of the Electricity (Supply) act 1948 has been obtained on 18/10/2002 from MOP. The MOU with the Govt. of Assam for execution of the project and other statutory clearances required for granting TEC could not be obtained yet. Estimate for 2nd Stage activities has been cleared by CEA on 30.09.03 for an amount of Rs.15.11Crs.

2. **RANGANADI H.E. PROJECT -STAGE-II (130 MW) - ARUNACHAL PRADESH :** This Project is located 10KM upstream of the present Ranganadi Diversion Dam. The Project envisages construction of a 134M high concrete Dam with installed capacity of 130MW. The commercial viability of the project has been established based on feasibility report submitted by NEEPCO in Oct' 02. 2nd Stage estimate for infrastructure development cleared by CEA on 11.02.03 for an estimated cost of Rs.15.37Crs. and NEEPCO has submitted the proposal to Ministry of Power for necessary approval and meeting held on 03.09.03.Memorendum for approval of Stage – II activities submitted to Ministry of Power, sanction of which is awaited. Pre- construction activities and infrastructure development under the 2nd stage clearance are continued.

3. **DIKRONG H .E. PROJECT (2 X 55 MW = 110 MW) , ARUNACHAL PRADESH:**

This is a run of the river scheme which envisages utilisation of discharge of Dikrong River together with additional tail water discharge of 60 Cumecs from Hoz Power House of RHEP Stage – I. The Project comprises of a Dam on river Dikrong at 6Km down stream of Hoz Power House.

One 2.50 Km long tunnel with Power House on the right bank of river Dikrong near Choppo Village at a distance of about 12 Km. from Doimukh has been proposed. Cost estimate for Stage – I activities of the project has been approved by CEA in Nov' 02. The amount has been kept to carry out the activities such as observation of Hydro – meteorological data, Discharge data & Silt data . Drilling and Drifting works , access road, temporary road, Environmental impact studies will be continued. Feasibility Report of the project has been submitted to CEA on 22.03.04. Cost estimate for 2nd Stage activities amounting to Rs.7.46Crs.has been submitted to CEA on 02.04.04.

4. SURVEY & INVESTIGATION WORKS: Survey and investigation works of the following schemes are going on.

i. Papumpam H.E.Project (60MW), Arunachal Pradesh.
ii. Hirit H.E.Project (50MW), Arunachal Pradesh.
iii. Kameng Dam H.E.Project (600MW), Arunachal Pradesh.
iv. Bhareli Dam – I H.E.Project (1120MW), Arunachal Pradesh.
v. Bhareli Dam – II H.E.Project (600MW), Arunachal Pradesh.
vi. Tenga H.E.Project (600MW), Arunachal Pradesh.
vii. Papu H.E.Project (200MW), Arunachal Pradesh.
viii. Talong H.E.Project (300MW), Arunachal Pradesh.
ix. Kapak Leyak H.E.Project (160MW), Arunachal Pradesh.

PROJECTS UNDER PRE – FEASIBILITY STUDIES:

Under the 50,000 MW Hydro – electric Initiative launched by the Hon'ble Prime Minister, NEEPCO has been entrusted the work of preparation of 18 Pre – Feasibility Reports of development of hydroelectric projects in the states of Arunachal Pradesh & Nagaland.

The status of submission of PFRs to CEA are as follows:-

Sl. No	Name of Project	State	Installed Capacity (MW)	Remarks
IN THE 1ST PHASE				
1.	Bhareli Dam - II H.E.Project	Arunachal Pradesh	600	Submitted on 30.09.03
2.	Kameng Dam H.E.Project	Arunachal Pradesh	600	
3.	Tenga H.E.Project	Arunachal Pradesh	600	
4.	Papu H.E.Project	Arunachal Pradesh	200	
5.	Talong H.E.Project	Arunachal Pradesh	300	
6.	Kapak Leyak H.E.Project	Arunachal Pradesh	160	
IN THE 2ND PHASE				
1	Pakke	Arunachal Pradesh	110	Submitted on 28.11.03
2	Seba	Arunachal Pradesh	80	
3	Bhareli – I	Arunachal Pradesh	1120	
4	Utung	Arunachal Pradesh	110	Submitted on 30.01.04
5	Chanda	Arunachal Pradesh	110	Submitted on 25.02.04
6	Badao	Arunachal Pradesh	120	Submitted on 27.02.04
IN THE 3RD PHASE				
1.	Yangnyu Storage	Nagaland	135	Will be submitted in April ' 04
2.	Tizu	Nagaland	365	
3.	Dikhu Dam	Nagaland	470	
4.	Kimi H.E.Project	Arunachal Pradesh	535	Assessed as not feasible. The replacement for these schemes will be provided by CEA.
5.	Bichom – II	Arunachal Pradesh	205	
6.	Bichom Storage - I	Arunachal Pradesh	190	
		TOTAL	**6010**	

Chapter - 21.7

Satluj Jal Vidyut Nigam Limited

(Formerly Nathpa Jhakri Power Corporation Ltd.)

A New chapter in the history of the development of hydro-electric power in the country was added on October 14, 2003 when the first 250 MW Unit of the country's largest 1500 MW, Nathpa Jhakri Hydro-electric Power project in Himachal Pradesh was inaugurated by Shri Anant G. Geete, Hon'ble Union Minister of Power. Shri Virbhadra Singh, Hon'ble Chief Minister of Himachal Pradesh presided over the inauguration programme. Smt. Jayawanti Mehta, Hon'ble Union Minister of State for Power, local Hon'ble MPs, and MLAs were the Guests of Honour. Since then Four Units have been declared under commercial generation and all the Six Units have been successfully Test synchronized (Test Loaded)with Test synchronization of last Unit on 31st March 2004 at 15.55 hrs. Commissioning of all units of 250 MW each in a short span of 6 months is a National Record and will be a bench mark for all the future Hydro Projects of the country.

First time since its inception Memorandum of Understanding (MOU) for the year 2004 – 05 was signed between Sh. R. V. Shahi, Secretary (Power), MOP, GOI and Sh. Y. N. Apparao, Chairman & Managing Director, SJVN on March 29, 2004 at New Delhi. With this Satluj Jal Vidyut Nigam Limited (SJVN) entered the august club of selected Central Public Sector Undertakings (CPSU's).

About SJVN

The **Satluj Jal Vidyut Nigam Limited** – **SJVN** (formerly Nathpa Jhakri Power Corporation Limited - NJPC) was incorporated on May 24, 1988 as a joint venture of the Government of India (GOI) and the Government of Himachal Pradesh (GOHP) to plan, investigate, organize, execute, operate and maintain Hydro-electric power projects in the river Satluj basin in the state of Himachal Pradesh.

The present authorized share capital of SJVN is Rs 4500 crores. The debt equity ratio for the Nathpa Jhakri Hydro – Electric Project (NJHEP) is 1 : 1 and the equity-sharing ratio of GOI and GOHP is 3:1 respectively. In addition to the financial assistance from the World Bank, SJVN has also been financed as loan by a Consortium of European Banks and the Power Finance Corporation (PFC).

The Nathpa Jhakri Hydro – Electric Project – NJHEP (1500 MW) is the first project undertaken by SJVN for execution.

The Nathpa Jhakri Hydro – Electric Project – NJHEP (6 X 250 MW)

The 1500 MW, Nathpa Jhakri Hydro - Electric Project – NJHEP (the largest underground hydro - electric power Project) is the first project undertaken by SJVN for execution, which is on the verge of completion.

Prior to formation of SJVN (NJPC), NJHEP was being executed by Himachal Pradesh State Electricity Board (HPSEB). The generation component of 1500 MW NJHEP was sanctioned in April 1989 for execution by SJVN (NJPC). SJVN (NJPC) officially took over NJHEP on August 01, 1991, following an agreement between GOI and GOHP during July 1991. However, the effective takeover of the NJHEP could result only during February 1992, due to an agitation by the employees of HPSEB. The Major Civil Works of NJHEP were awarded during June – Sep. 1993 and the construction works commenced in early 1994.

Location

Nathpa Jhakri Hydro – Electric Project derives its name from the names of two villages in the Project vicinity - Nathpa in district Kinnaur where Dam is located and Jhakri in district Shimla, where Power House is located - in the interiors of Himachal Pradesh. NJHEP envisages to harness the hydro power potential in the upper reaches of river Satluj in the south west

Himalayas. The power house site is about 150 Km from the nearest railhead (narrow gauge), Shimla. The Project stretches over a length of about 50 Km from the Dam site to the Power House site, on the Hindustan-Tibet Road (NH-22), which also connects the rail head to the Project.

Project Salient Features

NJHEP consists of the following:

- A 62.50 m. high concrete Dam on Satluj river at Nathpa to divert 405 cumecs of water through four Intakes.
- An underground De-silting Complex, comprising four chambers, each 525m long, 16.31m. wide and 27.5 m. deep, which is one of the largest underground complexes for the generation of hydro-power in the world.
- A 10.15 m dia. and 27.39 km. long Head Race Tunnel which is one of the longest power tunnels in the world, terminating in a 21.6 m. / 10.2 m dia and 301 m. deep Surge Shaft.
- Three circular steel-lined Pressure Shafts, each of 4.9m. dia. and 571m to 622m. length, bifurcating near the Power House to feed six generating units.
- An underground Power House with a cavern size of 222 m x 20 m x 49 m having six Francis Turbine Units of 250 MW each to utilise a design discharge of 405 cumecs and a design head of 428 m.
- A 10.15 m dia and 982 m long Tail Race Tunnel to discharge the water back into the river Satluj.

Project Benefits

Besides the social and economic upliftment of the people in its vicinity with commissioning of the 1500 MW NJHEP will generate 6950 MU of electrical energy in a 90% dependable year. It would also provide 1500 MW of valuable peaking power to the Northern Grid.

Out of the total energy generated at the bus bar, 12 percent is to be supplied free of cost to the home state i.e. Himachal Pradesh. From the remaining 88% energy generation, 25% is

to be supplied to HP at bus bar rates. Balance power allocated to different states / UTs of Northern Region is as under **:-**

S. No.	State	Allocation (In MW)	Percentage to the installed capacity
1	Haryana	64	4.27
2	Himachal Pradesh *	547	36.47
3	Jammu & Kashmir	105	7.00
4	Punjab	114	7.60
5	Rajasthan	112	7.47
6	Uttar Pradesh	221	14.73
7	Uttaranchal	38	2.53
8	Chandigarh	08	0.53
9	Delhi	142	9.47
10	Unallocated quota at the disposal of the Central Govt. **	149	9.93
	TOTAL	**1500**	**100**

The allocation of Himachal Pradesh includes **:**

(i) *12% free power on account of the distress caused to the State on account of submergence, dislocation of population, and

(ii) *25% share (i.e. 330 MW) in the remaining 88%, corresponding to the State's agreed share of 25% in equity contribution to the Project.

(iii) ** The unallocated quota (15% of power available after taking into account (i) & (ii) above) is to be distributed within the region or outside depending upon overall requirements from time to time.

(iv) * 4.4 % share (i.e. 37 MW) of the State in the remaining power available after taking into account (i) to (iii) above as per the allocation formula based on 'Central Plan Assistance' and "Energy Sale".

The Power Purchase Agreements (PPA) have been signed with the beneficiary States (i.e. Punjab, UT-Chandigarh, Haryana, Rajasthan, Delhi, Jammu & Kashmir and Himachal). The state of Uttaranchal has refused to purchase any power from the Nathpa Jhakri Project. However, the state of the Uttar Pradesh is not responsive to the communications, written as well as telephonic discussions with them regarding signing of the Power Purchase Agreement in addition to the discussions held with them in various NREB meetings. However, states of Punjab, Rajasthan and Delhi have requested for additional allocation of power to the tune of 486 MW, 100 MW & 158 MW respectively, besides state of Haryana also requesting for allocation of additional power.

Besides, indirect benefits would accrue to the region by way of increase in agriculture and indus-trial production. In addition, the project has provided gainful employment to a large number of skilled and unskilled workers and has also opened the landlocked hinterland by providing essential facilities such as schools, hospitals etc. for the people of the area. Thus, NJHEP envisages the social and economic upliftment of the persons living in the vicinity of the Project i.e. of society at large.

Project Cost & Commissioning Schedule

The Revised Cost Estimate (RCE-I) of NJHEP at March, 1993 price level was sanctioned by the Government of India in June, 1993 at Rs 4337.95 crore with the Project completion by December, 1998. The Revised Cost Estimate (RCE-II) of NJHEP at June, 1998 price level was sanctioned by the Government of India in May, 1999 at Rs. 7666.31 Crores at June 1998 Price Level and indicative completion cost at Rs 8058.34 crores with the Project completion by March, 2002.

The revised cost of the Project has now been estimated as 8656.61# crores at September 2002 Price Level, with commissioning of various units progressively between September 2003 to July 2004.

The reimbursement of cost for providing Inter Connection Facility (ICF) at Jhakri Switch Yard to M/s JHPL for Baspa Stage –II HE Project, has been finalized by Central Electricity Authority (CEA) as Rs. 62.86 Crores and has been ratified by the Board of directors of SJVN, which has to

be deducted from the Capital Cost of the Project.

Further, additional cost of Rs. 38.41 crores is to be added to the Capital Cost of the Project for extension of the Cut and Cover Conduit/Tunnel of the Silt Flushing system by about 1021 m (existing Cut & Cover – 450 m, extension of Cut & Cover- 650 m and the Tunnel portion –371 m).

Financing Details

Funding Plan

The Project is being financed on 1 : 1 debt equity ratio. The equity portion is to be shared between the Govt. of India (GOI) and Govt. of Himachal Pradesh (GOHP) in the ration 3 : 1 respectively. The GOI and GOHP has contributed Rs. 3081.61 Crores and Rs. 963.90 Crores as Equity contribution as on end March 2004.

Loans

The World bank had sanctioned a loan of US $ 437 million through Govt. of India for part financing the 1500 MW NJHEP. SJVN had utilized the World Bank loan component to the tune of equivalent INR Rs. 1537.90 Crores till the loan closing date as on end March 2002. The loan carried a high interest rate ranging between 14.5 % to 17 % per annum. Taking advantage of favorable market conditions, SJVN raised the equivalent amount at very low interest rates in the domestic market. The amount so raised has been used by the Company to prepay the World Bank loan and has thus reduced the cost of borrowings by more than 6 % per annum. This would result in a saving of Rs. 90 Crores in the borrowing costs in the very first year and approximately Rs. 500 Crores over the entire loan period. **This is a significant step on the part of the Corporation to reduce the Interest burden and consequently lower the tariff, the benefit of which shall be enjoyed by the large number of consumers.**

Additional commercial foreign currency loans (External Commercial Borrowings – ECBs) equivalent to Rs. 791.99 Crores for Electro-Mechanical Packages from various European Commercial Banks were also raised. The repayment of External Commercial Borrowings (ECBs) loans has also been made to the tune of Rs. 357.36 Crores as on end March 2004.

Besides, first loan of Rs. 1118 Crores was also raised from the Power Finance Corporation (PFC) in addition to the second loan sanction for Rs. 750 Crores, out of which Rs. 320.00 Crores has also been utilized.

NJHEP Project Execution Status (As on end March 31, 2004) :

Physical :

The first Unit of 250 MW of NJHEP i.e. Unit # 5 was synchronized with the grid at 15:20 hrs on September 20, 2003 and was declared under commercial operation w.e.f. October 06, 2003.

The second Unit of 250 MW of NJHEP i.e. Unit # 6 was also synchronized with the grid at 15:05 hrs on November 23, 2003 and was declared under commercial operation w.e.f. January 02, 2004.

The third Unit i.e. Unit # 4 was also Test synchronized (Test Loaded) with the grid on January 22, 2004 and was declared under commercial operation w.e.f. March 30, 2004.

The Fourth Unit i.e. Unit # 3 was also Test synchronized (Test Loaded) with the grid on February 13, 2004 and was declared under commercial operation w.e.f. March 31, 2004.

The Fifth Unit i.e. Unit # 2 has also been successfully spun on February 24, 2004 and Test Synchronized (Test Loaded) on March 09, 2004.

The Sixth Unit i.e. Unit # 1 has also been successfully spun on March 15, 2004 and Test Synchronized (Test Loaded) with the Grid on March 31, 2004 at 15:55 hrs.

Financial :

Against the Revised Estimate of Rs. 926.30 crores (Rs. 819.39 crores for NJHEP, Rs. 5.10 crores for Rampur HEP / Project Exploration Cell and Rs. 101.81 crores towards repayment of loans - ECBs of NJHEP) for the financial year 2003-04, the total financial expenditure for the financial year 2003 – 04 is Rs. 930.10 crores (Rs. 36.25 Crores have been received on account of ICF facility provided to M/s JHPL and has to be deducted from the total expenditure). The cumulative expenditure incurred as on end March 2004 is Rs. 7995.08 crores in respect of NJHEP, which is about 92.36 % of the proposed Revised Cost Estimate - III (RCE-III) of NJHEP of Rs. 8656.61 * crores at September 2002 price level and has exceeded the approved Revised Cost Estimate – II (RCE – II) of Rs. 7666.31 Crores at June 1998 Price Level.

Till March31,2004 NJHEP has generated 1195.94 MU's (i.e. Firm Power 1116.20 MU plus Infirm Power 79.94 MU) of Energy and Rs. 194.00 Crores have been realized as revenue.

Environment, Rehabilitation & Resettlement
Environment

NJHEP is one of the most eco-friendly Projects in the country. Being a run of the river Project, it has minimum adverse impact on the ecology of the area and least disturbance to the flora and fauna. Afforestation of 246 hectares of forestland is being taken up in comparison to 123 hectares of forestland acquired for the Project. The dumping of excavated material only in pre-identified areas and prevention of its flowing into the river by constructing adequate toe-walls further ensures the Project's harmony with the environment.

Rehabilitation & Resettlement

SJVN (formerly NJPC) as a responsible corporate citizen takes utmost care for the resettlement and rehabilitation of the Project Affected Families (PAFs) whose land or house or shop got affected due to construction of the NJHEP. Further, appropriate compensation to all the PAFs in accordance with the extant policies of the Government and SJVN (formerly NJPC) are being made.

As a result of vigorous pursuit for ensuring a fair Rehabilitation and Resettlement of the Project Affected Families, the World bank has lauded the above efforts as under :

Environment & R&R Policy

SJVN (NJPC) has adopted an environment, resettlement & rehabilitation policy which reiterates company's commitment to sustainable development which is within the carrying capacity of the eco-system and which promotes the improvement of the quality of life.

NEW / FUTURE PROJECTS

A. RAMPUR HYDRO – ELECTRIC PROJECT (RHEP) :

The Rampur Hydro-Electric Power Project (439 MW), utilizing the tail race waters of the ongoing 1500 MW Nathpa Jhakri Hydro-electric Power Project (NJHEP) is a run of the river scheme. GOHP vide its letter dated May 09, 2001 has conveyed its decision for execution of the proposed Rampur Hydro – Electric Project by SJVN (NJPC).

The draft Implementation Agreement duly approved by Govt. of India (GOI) was sent to Govt. of Himachal Pradesh (GOHP) during April 2003 for signing of the same between SJVN and GOHP. In response to this, GOHP has suggested various amendments to be incorporated in the Implementation Agreement during February 2004. The amendments suggested by GOHP and response of SJVN on the same has been forwarded to Ministry of Power (MOP), GOI for approval. In the meanwhile , GOHP have intimated that considering the urgency of Implementation of the Project in public interest, it has been agreed to allow SJVN to start preliminary works on the Project site by updating DPR and setting up of infrastructure etc., during March 2004. A meeting was taken by Secretary (Power), GOI with Chief Secretary, GOHP on March 18, 2004, wherein it has been agreed by GOHP to finalize the Implementation Agreement in respect of Rampur HE Project by May 2004 and accordingly sign the same by July 2004.

B. Other Projects

In the Meeting taken by Secretary (Power), GOI with Chief Secretary, GOHP on March 18, 2004, it has been stated that GOHP, in principle agrees to the execution of the following projects by SJVN :

- Thopan Powari Hydro-electric Power Project (approx. 400 MW)
- Shongtong Karcham Hydro-electric Power Project (approx. 400 MW)
- Jangi Thopan (480 MW)
- Khab (450 MW)

It has also been agreed in the above stated Meeting that the signing of Implementation Agreement of Rampur HEP / MOU's for other Projects as mentioned above could be done in a time based manner by July 2004.

In the adjoining state of Uttranchal, Ministry of Power and CEA have alloted two projects namely Sela Urthing (230 MW) and Bogudiyar - Sirkari Bhayal (170 MW) for preparation of DPR and execution.

Consultancy Assignment

SJVN has established a Consultancy Division and CEA, vide letter no 5/3(SJVNL)/2003-HP&I/ 321 dated Mar 31, 2003, has awarded consultancy to SJVN for preparation of the Preliminary Feasibility Reports (PFRs) for the Khab - I (approx. 1640 MW) and Khab - II (approx. 425 MW) Hydro-electric Power Projects on river Satluj in the Himachal Pradesh. Further, Konkan Railway Corporation have requisitioned our consultants for design of their tunnels in Jammu & Kashmir for extension of the railway line beyond Udhampur. Similarly, Everest Power Company, HP and Bhabha Power Project, HP, have requisitioned SJVN on their hydro power projects ranging from 100 MW to 5 MW.

Tehri Hydro Development Corporation (THDC)

BACKGROUND

THDC, a Joint Venture Corporation of the Govt. of India and Govt. of U.P., was incorporated as a Limited Company under the Companies Act, 1956, in July'88, to develop, operate and maintain the Tehri Hydro Power Complex and other Hydro Projects.

THDC is presently responsible for the implementation of the Tehri Hydro Power Complex (2400 MW), comprising the following components:

- Tehri Dam & Hydro Power Plant (HPP) : 260.5 m high Rock Fill Dam (Stage-I of the Complex), with 1000 MW underground Hydro Power Plant having four conventional Turbine Generator sets of 250 MW each (Stage-I of the Complex); Koteshwar Hydro Electric Project (HEP) : 97.5 m high Concrete Dam and 400 MW Hydro Power Plant at Koteshwar, 22 Km. downstream of Tehri. Koteshwar Project is a run-off-river scheme with minimum diurnal storage. The Koteshwar Project will regulate water releases from Tehri Reservoir for irrigation purposes.
- Tehri Pumped Storage Plant (PSP) :Tehri PSP scheme having four reversible units of 250 MW each has been envisaged to generate 1000 MW of peaking power for enhancing system reliability and also to provide balancing load to the thermal base generation during off peak hours. The reservoir created by the Tehri Dam would function as upstream reservoir for this Project, while the Koteshwar Dam reservoir shall be the lower reservoir.

The Corporation has an authorised share capital of Rs.3000 Cr. The cost of the Project is being shared in the ratio of 75:25 (equity portion) by Govt. of India & Govt. of U.P. for Power Component, while the Irrigation Component (20 of Stage-I cost) is to be entirely funded by the Govt. of U.P. The Govt. in March, 1994 approved the implementation of Tehri Dam & HPP (1000 MW) as Stage-I of Tehri Power Complex; the other components were to be implemented subsequently as per the availability of resources. The Tehri Stage-I is currently at an advanced stage of commissioning.

The 400 MW Koteshwar HEP, was approved by Govt. in April,2000 and the work is in progress.

The updated Detailed Project Report (DPR) for Tehri PSP(1000 MW) has been prepared by M/s EdF and M/s CoB , French Consultants under French Aid. Based on the updated DPR, the updated Cost Estimate prepared by THDC, has been cleared by CEA. The proposal has been recommended for PIB approval in the pre-PIB meeting held on 10.10.2002. The PIB approval is under process.

THDC and Government of Uttaranchal have signed MoU for implementation of 340 MW Vishnu Gad Pipalkoti Project on Alaknanda river. MOEF/MOP has conveyed approval for taking up stage-1 activities viz. Survey & Investigation and preparation of Feasibility Report.

BENEFITS

The benefits from the Tehri Hydro Power Complex are as under:

- Addition to the installed generating capacity in the Northern Region (1000 MW on completion of Tehri Stage-I) : 2400 MW
- Annual energy availability (Peaking) (3568 MU on completion of Tehri Stage-I) Irrigation (additional) 2.70 Lac. ha. : 6200 MU
- Stabilisation of existing irrigation (besides above) : 6.04 Lac. ha.
- 300 Cusecs (162 Million Gallons Per Day) of drinking water for Delhi which will meet the requirements of about 40 Lac. people.
- In addition, 200 Cusecs (108 Million Gallons Per Day) of drinking water for towns and villages of U.P. which will meet the requirement of 30 Lac. people.

Integrated development of Garhwal region, including construction of a new hill station town with provision of all civic facilities; improved communication, education, health, tourism, development of horticulture, fisheries, and afforestation of the region.

TEHRI DAM & HPP, STAGE-1 (1000 MW)

Tehri Dam Project is a multipurpose hydro Project under construction on the river Bhagirathi in Uttranchal State. Tehri Hydro Power Plant (Stage-I) includes the construction of the 260.5m high rockfill Dam, spillway structures, power tunnels and an underground power cavern with an installed

capacity of 1000 MW (4X250MW). CEA has cleared the Revised Cost Estimate amounting to Rs. 6621.32 Cr. at March ,03 PL including IDC & FC of Rs. 560 Cr. The CCEA approval to the Revised Cost Estimate is under process.

STATUS OF THE PROJECT WORKS

The work on Tehri Stage-I is in advance stage of completion. The present status of the Project is as under:

i) Dam

The 260.5 m. high Earth & Rock Fill Dam, which would be the highest Earth &Rockfill Dam in the Asian Region and 4th highest in the world is in progress. Out of the total quantity of 256.67 Lac Cum, a quantity of 234.76 Lac. Cum. has been placed till March'04. The Dam has been raised to an average level of EL.838.30 m. Balance height left to be raised is only 1.20 m.

ii) Spillways

The works at various fronts viz., Chute Spillway, Right Bank Shaft Spillways and Left Bank Shaft Spillways is progressing well. The Open excavation for the entire spillways has been completed. The concreting of 'Approach Channel, Control Structure & Spillway Chute has been completed. The underground excavation of ILO, Gate Shaft of lLO, T-1 & T-2 Shafts, Drainage Galleries around Stilling Basin has also been completed. The completion of ILO circuit viz., ILO, Gate Shaft, Shaft & Tunnel T-3, Stilling basin required for commissioning of 1st unit is in advance stage of completion.

The supply of Embedded parts of ILO Gates and Liners have been completed and erection is in advance stage of completion.

iii) Power House

a. Civil Works

The Civil Works of Power House Complex have been completed except minor finishing works. All works of Intake Structure have been completed. Erection of steel liner and concreting in Lower Horizontal, vertical and lower bends of all the four vertical penstocks have been completed. The concrete lining in Tail Race Tunnels have also been completed.

b) Supplies of E&M Equipment

- Supplies of generating plant and equipment from Russia/Ukraine, with financing arrangements by way of Suppliers Credit, are complete.
- Computerised Control System supplies from ABB, Germany, with financing arrangements by way of Buyers Credit from KfW, Germany, have also been completed.
- All the 4 Nos., 306 MVA Generator Transformers, manufactured by M/s BHEL, have been transported & placed in the Transformer Bay.
- The Supplies under ICB for 420 KV Gas Insulated Switchgear and Busduct, awarded to Siemens, Germany, with financing under Buyers Credit from KfW,

Germany are complete. c) Erection of E&M Equipment Assembly / Erection of Power House Generating Plant and Equipment is in progress. Assembly of Generator Transformer accessories for unit-IV has been completed and is in progress for balance three units.

Unit-IV

- Boxing of unit has been completed.
- Erection of Unit Auxiliaries & Station Auxiliaries have been completed.
- Pre-Commissioning Tests is almost complete.

Unit-III

- The Erection of Spiral Casing, Pit Liner and concreting of Generator Barrel Floor upto EL. 605 m. has been completed.
- Erection of Turbine Operating Mechanism has been completed.
- The Stator has been lowered in the Pit and Winding/HV test has been completed. Rotor has been lowered in the pit and Erection of upper bracket completed. Final unit alignment is in progress.
- Boxing of unit is in advance stage of completion.

Unit-II

- Erection of Spiral Casing, Hydraulic Testing and concreting of Generator Barrel Floor upto EL. 605 M. has been completed.
- Erection of Turbine Operating Mechanism is in advance stage of completion.
- Stator Core Assembly in Service Bay is in progress.
- Rotor Assembly in Service Bay is in progress.

Unit-I

- Erection of Draft Tube Cone, Stay Ring and Spiral casing has been completed.

- Generator Barrel concreting has been completed.
- Erection of Turbine Operating Mechanism is in progress. The Erection of Hydro-Mechanical Equipments is in progress.

Commissioning Schedule

Closure of Diversion Tunnel T-2 would be planned during 2nd quarter of 2004-2005 subject to observance of water discharge in the river for impoundment of reservoir and commissioning of the units.

Expenditure

Total expenditure incurred on Tehri Stage-I (1000 MW) upto March, 2004 is Rs.6009.29 cr. (Provisional).

REHABILITATION

Rehabilitation is being implemented in two phases. The Phase-1 covers those families affected by construction of Coffer Dam, including the Old Tehri Town. In Phase-11, all remaining families to be affected due to impoundment are being rehabilitated.

The Phase-1 Rural Rehabilitation is nearly completed, with 98.5 of the families i.e. all those families who have come forward have been paid compensation and rehabilitated.

In Phase-11, 2463 out of 3365 rural families have been rehabilitated through allotment of land or payment of cash in lieu thereof. Under Phase-11, families residing upto EL 780 m. are being rehabilitated first and balance families above EL 780 m. are planned to be rehabilitated by June,2004.

The Urban affected population has been rehabilitated in New Tehri Town and at

Rishikesh/Dehradun as per their option. The NTT has been developed at a height of

1350-1850 M., and has all modern facilities including a University Campus, Hospital,

Educational and Financial Institutions, Markets, Places of worship and public utility buildings.

The major recommendations of the Hanumantha Rao Committee, approved by the Govt. in Dec., 1998 in regard to rehabilitation of the affected population include definition of family so as to make all major sons and major daughters who attained the age of 21 years, and dependent parent (Mother/Father) of the fully affected entitled land owner on 19.07.1990, eligible for ex-gratia payment of 750 days minimum agricultural wage each, grant of house construction assistance to the urban land owner families, linked with the progress of construction and shifting, allotment of one constructed shop to shop owners not running the shops, recognition of the right of people, living in the villages upstream of Tehri reservoir, over the water from Bhagfrathi and Bhilangna rivers and tributaries for drinking and irrigation purposes.

The responsibility for the Rehabilitation & Resettlement was transferred to the State Govt. in 1999, to be carried out under the overall supervision and control of Commissioner, Garhwal assisted by various State Govt. officials, with funds for R&R to be provided by THDC.

ENVIRONMENT

Environmental clearance was accorded by MOEF vide their letter dated; 19.7.1990.

Various studies as per the Environmental clearance conditions have been completed and Action Plans drawn up wherever required. Action for the protection and upgradation of environment is being actively pursued. THDC is carrying out Catchment Area Treatment in the high and very high credibility classification. An area of 52,204 ha. was to be treated under the Catchment Area Treatment Programme. An area of 46540 ha. has been treated till March'04 and balance of 5664 Ha. in non-forest area shall be treated by June,2004. In accordance with the conditions laid down by the MOEF, Forest Deptt., Govt. of Uttaranchal has set up a Botanical Garden which is located adjacent to the Reservoir in an area of 14.28 Ha. at Koti in Tehri Garhwal. The construction work and plantation of species coming under submergence in the Botanical Garden has already been completed by the Forest Deptt. GOUA at project cost. The consultancy and implementation of the Action Plan for mitigating the possible impact on "Mahseer Fish" due to construction of Tehri Dam has been taken up by the National Research Centre on Cold Water Fisheries, Bhimtal, Distt. Nainital. MOEF granted forest clearance in June, 1987 with stipulation that the project authorities will carry out compensatory afforestation in an area of 3815 ha. of non forest land. An area of 4516 ha. has already been planted in districts ofJhansi and Lalitpur in U.P. The plantation done on non-forest land is being converted into protected forest by State Forest deptt. KOTESHWAR PROJECT(400 MW) The Koteshwar H.E. Project is an integral part of the 2400 MW Tehri Hydro Power Complex. CCEA has approved the execution of Koteshwar H.E Project (4X100 MW), at a cost of Rs.1301.56 Cr. including IDC ofRs.190.04 Cr. at Oct.'99 price level.

STATUS OF PROJECT WORKS

a) Infrastructure Works

- Necessary access to the Project in the

form of the all-weather road, accommodation and communication facilities, and construction power for the project is available.

- Infrastructural facilities viz., roads, field hostel, some residential buildings, primary school, CISF quarters, Bank, Post office, Police Post and shopping complex have been constructed.
- The 33 KV line from Chamba and Bhagirathi Puram to Project site has been constructed. The 33 KV sub-station and 11 KV line to Project site is in operation.

b) Civil Works

- The Diversion Tunnel has been constructed and Bhagirathi River diverted in Dec.,2003. Construction of u/s Coffer Dam is in progress and has been raised to EL 550 m.
- The main Civil Works package has been awarded to M/s PCL Intertech-Lenhydro Consortium JV in August'02. The work is in progress.
- The Open Excavation for Dam, Spillways and Surface Power House is in progress. Out of total Open Excavation of 49.86 Lac. cum., a quantity of 26 Lac. Cum. has been executed for Dam, Spillways and Power Intakes.

c) HM Works

- Hydro-Mechanical Packages for Diversion Tunnel Gate has been awarded to M/s TSPL. Fixing of second stage Embedments for Diversion Tunnel Gate has been completed.
- Award for other packages of Hydro-Mechanical Equipment is under process.

d) E&M Works

- The Electro-Mechanical Equipment package has been , awarded to M/s BHEL in Feb.'03 & work is in progress. Model testing of turbine is in progress.

COMMISSIONING SCHEDULE

The Project is scheduled for commissioning in the year 2006-07. EXPENDITURE Total expenditure incurred on Koteshwar HEP (400 MW) upto March.2004 is Rs.221.05 cr. (Provisional). TEHRI PUMP STORAGE PLANT (PSP) 1000 MW The Pump Storage Plant envisages 4 reversible units of 250 MW each. The main feature of the Project is the large variation of about 90 m between the maximum and minimum head, under which the reversible units shall operate. Certain essential works of PSP were taken up alongwith the execution of Stage-I works. The HRT & Intakes for Head Race Tunnels for PSP are being constructed alongwith the Stage-I works. The Transformer Hall constructed in Stage-I would also serve for PSP. Thus, major Civil Works to be taken up in PSP involve only the Machine Hall, Tail Race Tunnels, Upstream & Downstream Surge Shafts and Penstocks. The updated Cost Estimate for Rs. 1799.67 Cr. at March,02 Price Level prepared by THDC has been cleared by CEA. Pre - PIB meeting has already been held and the Proposal for PIB approval for implementation of Project is under process. COMMISSIONING SCHEDULE The Project is scheduled for commissioning in $4^{1}/_{2}$ years after the investment approval.

NEW PROJECTS

Vishnu Gad Pipalkoti (340 MW)

Govt. of Uttaranchal have entrusted the 340 MW Vishnu Gad Pipalkoti Project to THDC for implementation. MOEF has accorded site clearance for undertaking Survey & Investigation and for collection of environmental data for preparation of feasibility report, and necessary funds for the Survey & Investigation have been released by the Ministry.

CONSULTANCY

THDC and Engineers India Limited (EIL) have signed a Memorandum of Understanding (MOU) to Co-operate and Leverage their respective strengths and competencies for getting New Projects in the field of Hydro Power Development in India and abroad.

Damodar Valley Corporation (DVC)

Damodar Valley Corporation (DVC) came into existence by an act of the Central Legislature on 7th July 1948 as the first Multi-purpose Integrated River Valley Project in India. At the time of its inception, the objectives were flood control, providing water for irrigation and other uses, generation, transmission and distribution of electricity, eco-conservation and afforestation and socio-economic well being of the people residing in and around DVC Projects.

With the passage of time and shift in National priorities, power generation with associated transmission and bulk distribution gained priority in DVC in view of its locational advantage and today DVC is considered as one of the major power utility in the Eastern Region. Other objectives of DVC, however, received due importance as part of its overall responsibility.

INFRASTRUCTURE AT A GLANCE

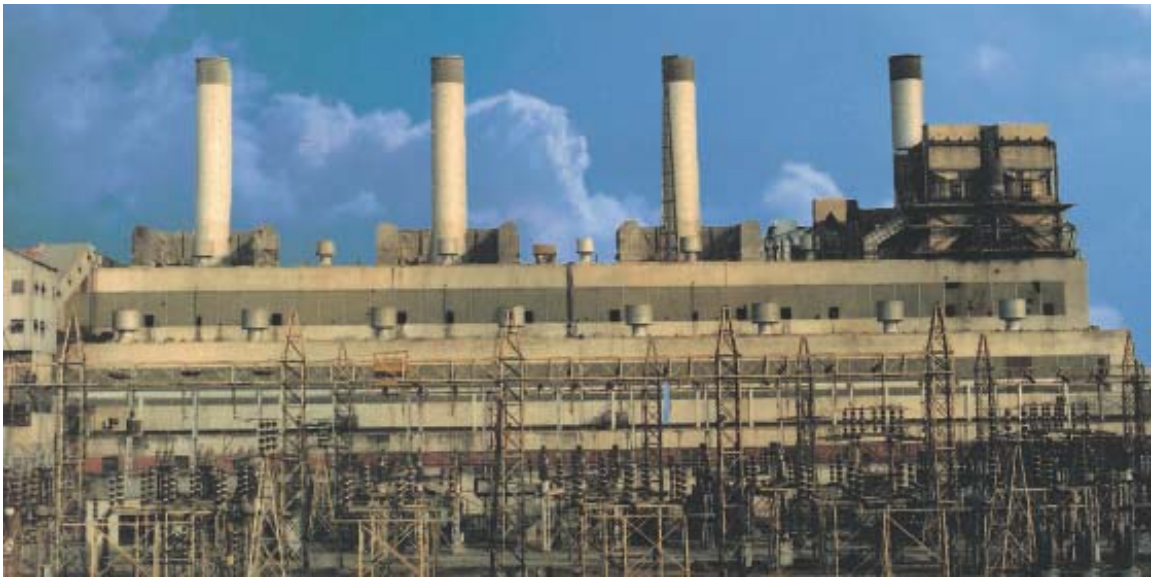
POWER	
Current total installed capacity	2761.5 MW
Thermal Power Stations/ capacity	**Five** Total Capacity 2535 MW
Hydel Power Stations/ capacity	**Three** Total Capacity 144 MW
Gas Turbine Station/ capacity	**One** Capacity 82.5 MW
Substations & Receiving Stations	220 KV-8 nos. 132 KV-33 nos. 33 KV-15 nos.
Transmission Line	220 KV-1242 ckt km 132 KV-3177 ckt km 33 KV-1504 ckt km

WATER MANAGEMENT	
Major Dams & Barrages	**Dams:** Tilaiya, Konar, Maithon & Panchet. **Barrage:** Durgapur.
Irrigation Command Area	5.69 lakh hectares
Irrigation potential Created	3.64 lakh hectares
Flood Reserve Capacity	1292 MCM
Canals	2494 kms.

OPERATIONAL PERFORMANCE HIGHLIGHTS (2003-04)

Generation of electricity during 2003-04 compared to 2002-03 are:

Records	Records achieved during 2002-03	New Records achieved during 2003-04
Highest Daily Thermal Generation	34.067 MU on 6th March 2003	**36.481 MU** on 10th January 2004
Highest Daily System Generation	34.218 MU on 6th March 2003	**36.735 MU** on 10th January 2004
Highest Monthly Thermal Generation	932.127 MU in March 2003	**1045.009 MU** in January 2004
Highest Monthly System Generation	950.208 MU in March 2003	**1052.674 MU** in January 2004
Highest Annual Thermal Generation	8653 MU in 2002-03	**9704.003** in 2003-04
Highest Annual System Generation	8956 MU in 2002-03	**10014.73** in 2003-04



DVC's 175 MW Bokaro 'A' Thermal Power Station

In addition, DVC's Mejia Thermal Power Station (MTPS) achieved the following records during 2003-04.

- MTPS recorded highest daily generation of 15.411 MU (PLF 101.93%) on 31st March 2004
- MTPS recorded highest monthly Station Generation of 439.908 MU (PLF 93.85%) in January 2004 superseding previous record of 419.317 MU created on March 2003
- MTPS achieved highest annual generation of 4026.063 MU (PLF 72.75%) in 2003-04 superseding previous record of 3338.47 MU (PLF 60.49%) achieved during 2002-03.

OVERALL OPERATING PARAMETERS OF DVC PLANTS

Major operating parameters attained by DVC Generating Plants during the period under report with respect to the corresponding figures achieved during previous year, are as under:

THERMAL		
Particulars	**2002-03**	**2003-04**
Generation (MU)	8653.054	9704.003
Plant Load Factor (%)	41.86	46.81
Sp. Oil consumption (ml/kwh)	10.90	7.14
Sp. Coal consumption (kg/kwh)	0.751	0.744
Aux. Power consumption (%)	12.66	11.62
HYDEL		
Generation (MU)	294.190	304.109
GAS TURBINE		
Generation (MU)	8.332	6.614

ENVIRONMENTAL MANAGEMENT & POLLUTION CONTROL

Bulk of DVC's generation comes from coal based thermal units. Thermal Power Plants at Bokaro (BTPS'A' & BTPS'B'), Durgapur (DTPS) and Chandrapura (CTPS) were constructed and commissioned before the stringent pollution control norms came into force and the plants were not equipped to meet the present norms. DVC, however, has taken steps in this regard and new ESPs at all six units of CTPS, additional ESPs in all two units of DTPS and

unit #3 of BTPS 'B' have been installed. Installation of additional ESPs in balance units of BTPS'B' unit #1&2 are in advanced stage. Further, in order to reduce emission level in all 210 MW units, it has been planned to introduce Ammonia Condition System. At the initial phase, the system will be implemented in one unit each at MTPS and BTPS'B' and will progressively be implemented in other 210 MW units of DVC, subject to its satisfactory performance and fruitful results.

Beside Stack emission, effluents from the plants are also monitored and reported to the respective Pollution Control Boards on regular basis. With a view to arrest suspended solids of plant drains, action has been initiated for construction of two surge ponds at CTPS and one surge pond at BTPS 'B'. The Effluent Treatment Plant at MTPS is nearing completion.

As regards solid waste management, ash from the thermal plants is being discharged in slurry form in ash ponds and evacuated from the ponds at Bokaro, Chandrapura and Durgapur to the abandoned coal mines of CCL, BCCL and ECL respectively. For utilization of generated fly ash from MTPS, a MOU has been signed with M/s Lafarge India Ltd. for setting up of a fly ash based cement plant of 1 MTA capacity.

RENOVATION & MODERNISATION

DVC undertook number of R&M Projects under Phase-I (7th Plan), Phase-II (8th Plan) and Phase-III (9th Plan) Schemes. All projects taken up in Phase-I and Phase-II have been completed except one transferred to Phase-III Scheme. While most of the projects under Phase-III Schemes are completed, a few of the balance projects are in different stages of completion.

All the above plan activities were taken up in piecemeal manner. Although there was improvement in respective areas but improvement in overall performance of the plants upto the desired level could not be achieved.

In line with thrust given by Government of India on R&M with Life Extension (LE) of old power generating units in 10th Plan, DVC planned for comprehensive R&M/LE of all its old thermal and hydel units based on Residual Life Assessment (RLA) studies, to be started during 10th plan for completion in 11th plan period. The details are indicated below.

THERMAL UNITS

- 10 old units of vintages ranging from 51 to 25 years viz. BTPS 'A' Units # I to III, DTPS Unit # III and CTPS Units # I to VI have been taken up for RLA based comprehensive R&M/LE. NTPC has been engaged as consultant for the project.
- RLA studies of four units namely CTPS Unit # II & IV, DTPS Unit # III and BTPS 'A' Unit # III are completed. RLA/CA study for CTPS Unit # I & III, based on specifications received from NTPC on 09.02.2004, is under process of tendering.
- On review of DPR and Techno-economic Feasibility Report, CEA advised to restrict the overall R&M cost per MW to Rs.1.20 crores.
- Considering the high R&M cost of NTPC's proposal and advice of CEA to restrict the overall DVC prepared a shelf of proposal for R&M of these units based on the revised scope of work and submitted the same to CEA & NTPC. After a joint review meeting among CEA, NTPC & DVC on the R&M proposals, CEA vide letter dt. 07.01.04 & 23.01.04 recommended –
  1. To carry out the initial activities like installation of new ESPs, overhauling, etc. for revival of BTPS 'A' units I, II & III and to conduct PET for formulating the R&M activities to be taken up subsequently. The estimated cost for revival is Rs.50 crores.
  2. To proceed ahead for R&M of CTPS Units # I,II&III and DTPS Unit # III.
- Proposal of tendering for installation of new ESP and revival of BTPS 'A' Units I, II & III is under process. Consent to operate the units for trial run is expected from JSPCB shortly.
- Draft Technical Specification for R&M/ LE of DTPS Unit # III has been received from NTPC on 19.02.04. Final Specification/ Bid document for R&M/ LE of CTPS Units # I, II & III is awaited from NTPC. Tendering Proposal for R&M of DTPS Unit # III and CTPS Units # I, II & III has been initiated.
- Regarding R&M/ LE of CTPS Units # IV, V & VI, it has been decided in a joint meeting of CEA, DVC, NTPC & BHEL on 26.02.04 that BHEL would check the feasibility of conversion of front firing to tangential/corner firing in the boilers with a view to reduce high oil consumption using low V.M. Coal. BHEL experts have not visited Chandrapura site, as committed. CEA has been requested to expedite the matter with BHEL.

HYDEL UNITS

- 4 old units viz. 3 units of Maithon Hydel Station and 1 unit of Panchet Hydel Station, of vintages ranging from 47 years, have been

identified for R&M/LE and PHS Unit # II and PHS Unit # I.

- The RM&U work of MHS Unit # II by ALSTOM – BHEL consortium is in advanced stage of completion. A portion of additional imported items have reached site. Balance materials are yet to be delivered by Consortium. Completion date has been further extended upto 30.06.2004.
- For RLA study of PHS Unit # I, re-tendering has been done after inclusion of additional vendors, as suggested by the consultant.
- Action for R&M/LE of MHS units # I & III will be taken after observing the performance of MHS unit # II.

Capacity Addition Programme during 10th Plan

DVC has taken up capacity addition of 2210 MW during 10th Plan, brief status of which is indicated below:

Sl No	Project	Capacity	Target COD	Brief Status
1	Mejia TPS Extn. Unit # IV	1x210 MW	Sept 2004	**EPC Contractor**: M/s BHEL**. Major activities completed:** Lifting of Boiler Drum, Hydro test (drainable), TG Casting etc. **Activities in progress:** Boiler, TG erection etc. BHEL is being pursued for supply of balance plant & equipment, which are delayed.
2	Mejia TPS Extn. Unit # V & VI	2x250 MW	2006-07	All clearances obtained. EPC contract through negotiation with BHEL & PPA with beneficiaries under finalisation.
3	Chandrapura TPS Extn. Unit # VII & VIII	2x250 MW	2006-07	MOEF clearance awaited.Engagement of Consultant for EPC contract through ICB route: Techno-commercial bids opened on 27.01.04 are under scrutiny. COD is likely to slip.
4	Maithon Right Bank TPS*	4x250 MW	2006-07	Land acquisition in progress. The consultant is being appointed for finalization of EPC contract through ICB route.

* Implementation through Maithon Power Ltd (MPL), presently a wholly owned subsidiary of DVC after exit of erstwhile partner BSES (presently Reliance Energy). DVC is currently on the look out for another strategic joint venture partner for MPL.

TRANSMISSION & DISTRIBUTION

Matching with generation capacity addition, expansion of existing T&D network of DVC during 10th Plan has been taken up as per the programme detailed below.

T&D addition programme during 10th Plan	
220 KV Sub-stations	11 nos
220 KV Lines	1686 ckt km
132 KV Sub-stations	4 nos
132 KV Lines	74 ckt km

FLOOD CONTROL & WATER RESOURCE MANAGEMENT

FLOOD CONTROL

As per the unified development scheme of Damodar basin submitted by Mr. W.A. Voorduin in August 1944, eight Storage Reservoirs viz, Maithon, Deolbari (near Balpahari), Tilaiya, Aiyar (near Tenughat), Bermo, Bokaro, Konar and Solanpur (near Panchet) were to be built on river Damodar and its tributaries with the main objectives of flood control, irrigation, domestic and industrial water supply and hydel power generation.

At the first stage of implementation, four multi-purpose Dams at Maithon, Panchet, Tilaiya and Konar have been constructed. But the designed storage levels could not be achieved due to constraint in acquiring the required land from the State Governments in respect of Maithon and Panchet reservoirs. In the first phase, total flood reserve capacity of 1.05 million acre-ft. could be arranged.

However, even with the partial implementation of the scheme, DVC over the years has been able to play a vital role in moderation of the floods to a great extent.

Bhakra Beas Management Board

Bhakra Management Board (BMB) was constituted under Section 79 of the Punjab Re-organisation Act, 1966 for administration, maintenance and operation of Bhakra Nangal Project w.e.f. 1st October, 1967. The Beas Project works, on completion, were transferred by the Government of India from Beas Construction Board (BCB) to BMB as per Section 80 of the Act and Bhakra Management Board was renamed as Bhakra Beas Management Board (BBMB) w.e.f. 15.5.1976.

FUNCTIONS

The Bhakra Beas Management Board is responsible for administration, operation and maintenance of Bhakra Nangal Project, Beas Satluj Link Project and Pong Dam including Power Houses and a network of transmission lines and grid sub-stations. The functions of Bhakra Beas Management Board are:

- To regulate the supply of Satluj and Ravi-Beas waters to the States of the Punjab, Haryana, Rajasthan and Delhi.
- To distribute power from Bhakra Nangal and Beas Projects to the States of Punjab, Haryana, Rajasthan, Himachal Pradesh and U.T. of Chandigarh.

Keeping in view the technical expertise available with BBMB, the Govt. of India through a notification in April, 1999 has also entrusted additional functions to Bhakra Beas Management Board of providing and performing engineering and related technical and consultancy services in various fields of Hydro Electric Power and Irrigation Projects and to carry on all kinds of business related thereto either independently or as a joint venture with any Central/State/Public Sector Undertaking(s) or Establishment(s) under the administrative control of Ministry of Power or as a joint venture with any other Agency/Organization with the approval of Government of India.

The works being managed by BBMB are broadly grouped as three large multi-purpose projects viz. Bhakra Nangal Project, Beas Project Unit-I (BSL Project) and Beas Project Unit-ll(Pong Dam).

The Bhakra Nangal project comprises Bhakra Dam, Bhakra Left Bank and Bhakra Right Bank Power Houses, Nangal Dam, Nangal Hydel Channel and Ganguwal and Kotia Power Houses. Bhakra Dam is a majestic monument across the river Satluj. It is a high straight gravity concrete Dam rising 225.55 m above the deepest foundation and spanning the gorge with 518.16 m length at the top. The Gobind Sagar Lake created by the Dam has 168.35 sq.km. area and a gross storage capacity of 9621 million cubic metres. The two powerhouses, one on the Left Bank and the other on the Right Bank have a combined installed capacity of 1325 MW. The Ganguwal and Kotia Power Houses fed from Nangal Hydel Channel have an installed capacity of 168.15 MW.

The Beas Project Unit-I(BSL Project) diverts Beas water into the Satluj Basin, falling from a height of 320 metres and generating power at Dehar Power House having an installed capacity of 990 MW. This project comprises a diversion dam at Pandoh, 13.1 km long Pandoh Baggi Tunnel having capacity of 9000 Cusecs, 11.8 km. long Sundernagar Hydel Channel, Balancing Reservoir at Sundernagar, 12.35 km. long Sundernagar Satluj Tunnel, 125 metres high Surge Shaft and Dehar Power Plant.

The Beas Dam at Pong is an earth fill (earth core, gravel shell) Dam , 132.6 metres high with a gross storage capacity of 8570 million cubic metres. The capacity of Pong Power Plant is 396 MW (6x66 MW).

The total installed generating capacity of the BBMB Power Houses is 2879.15 MW as detailed under-

Installed Capacity	**MW**	
Bhakra (Right Bank)	5x157	785.00
Bhakra (Left Bank)	5x108	540.00
Ganguwal	1x29.25+1x27.63+1x26.70	83.58
Kotia	1x29.25+1x27.20+1x28.12	84.57
Dehar	6x165	990.00
Pong	6x66	396.00
	Total	**2879.15**

GENERATION AND TRANSMISSION SYSTEM

BBMB's hydro power stations are sources of cheap electrical energy, which also provide scarce peaking power and assistance in case of a contingency to Northern Grid. BBMB machines also help in primary regulation of frequency of Northern Grid.

During 2003-2004 the generation from the BBMB Power Houses has been 11,441 MU against the target of 9650 MU laid down by CEA, Government of India. BBMS achieved an all time high peak generation of 2861 MW in the year 2003-04. The plant availability of BBMB Power Stations during 2003-04 has been 88.77%. All the machines at Bhakra Left and Right Power Houses and Pong Power House with installed capacity of over 1700 MW were put on free governor operation w.e.f October, 2003 to help in regulation of frequency of the Northern Regional Grid.

The power generation at BBMB Power stations is being evacuated through BBMB Power evacuation system running into 3735 ckt km. length of 400KV, 220KV, 132KV and 66KV transmission lines and 24 EHV Sub-stations. The BBMB Power evacuation system operates in an integrated manner in the Northern grid with its transmission network spreading over the States of Himachal Pradesh, Punjab, Haryana and Delhi. The system is interconnected with transmission system of POWERGRID and the States of Uttar Pradesh, Rajasthan and Delhi. The availability of transmission system during the year 2003-04 has been 98.32%.

IRRIGATION

At the time of partition of India, about 80% of the irrigated area of Punjab went to West Pakistan leaving India with very meagre irrigation resources. The mighty Bhakra-Nangal and Beas Projects changed the scenario and turned Northern India into granary of the Nation.

The Bhakra-Nangal and Beas Projects have not only brought Green Revolution to the States of Punjab, Haryana and Rajasthan, but also White Revolution by way of record production of milk and Industrial Revolution by way of providing cheap electrical energy. The States of Punjab, Haryana and Rajasthan are being supplied average about 34537 million cubic metres of water per year from Satluj , Ravi and Beas rivers which irrigates 1 crore 20 lac acres of land.

RENOVATION. MODERNISATION AND UPRATING (RM&U)

All the five units of Bhakra Right Bank Power Houses, which were commissioned during the year 1966 to 1968, have been uprated from original capacity of 120MW to 157MW each.

The RM&U of two units each at Ganguwal and Kotia Power Houses has already been completed. RM&U of all the six units of 60 MW to 66 MW of Pong Power House has already been completed which has resulted in additional capacity of 36 MW increasing the installed capacity from 360 MW to 396 MW.

BBMB plans to undertake the RM & U works of Bhakra Left Bank Power House machines (5x108 MW) which are in operation for a period of about 40 years. All the five units are proposed to be uprated from 108 MW to 126 MW each. The R M & U of Bhakra Left Bank Power House is expected to provide additional capacity of 90 MW to the system and is expected to generate additional 88 MU annually due to improved efficiency. This work shall be carried out in Xth and Xlth plans. The capacity addition is expected to be 18 MW during Xth Plan and 72 MW during XI Plan.

One unit each of Ganguwal and Kotia Power Houses which were supplied by M/S Hitachi, Japan, have been planned for RM&U. With the proposed RM&U of one machine each at Ganguwal and Kotia Power Houses, the derated capacity of the machines shall be uprated by 4.44 MW which will result in additional annual generation of 36 MU. During renovation, replacement of major components like runner, governor, stator, unit transformer and other associated equipment is envisaged. The work on this scheme is proposed to be undertaken during Xth Plan and is expected to be completed in the year 2006-07.

The RM&U work on the old Power Houses has given new lease of life to the machines and is a significant step towards meeting the aspirations of the Nation for adding low cost peaking power to the system through Renovation, Modernization & Uprating of old power plants as per the National Hydro Policy.

UPKEEP OF DAMS AND HYDEL CHANNELS

The upkeep of Dams and Hydel Channels by BBMB has been of high standards, which are considered as benchmarks for other hydro projects in the region. Monitoring of the health and behaviour of dams with the help of instruments installed in and around the body of the dams shows the normal behaviour. Under water inspections of dams also do not indicate any abnormality.

Nangal Hydel Channel is running continuously since its year of commissioning i.e. 1954. Inspection, repair and maintenance of Nangal

Hydel Channel are being carried out online without any closure. Sand grouting of lining is done regularly and under water repairs are done with the help of divers. This has not only helped in maintaining an uninterrupted supply of water to the partner States but has also helped in continuous operation of Ganguwal and Kotia Power Houses for the last 50 years.

ENVIRONMENT MANAGEMENT PLAN

Under the plantation programme, 39,609 trees and shrubs have been planted during the year 2003-04. The programme for planned plantation on vacant land at project sites has been taken up and at Talwara it has already been started on a 50 acre plot.

EMP for Beas Satluj Link Projects : Concerns have been expressed regarding the environmental impact of disposal of silt from Balancing Reservoir into Suketi Khad for onward transmission to river Beas. In order to carry out Environmental Impact Assessment for BSL Project, BBMB engaged the services of National Environmental Engineering Research Institute (NEERI) Nagpur. NEERI submitted its report recommending short-term and long-term measures. BBMB in its 176th meeting held on 12.11.2001 approved the implementation of short-term measures at an estimated cost of Rs. 182.80 lacs and decided to explore most techno-economic option for long-term measures.

CONSULTANCY SERVICES

In an endeavour to synergise the exising potential of BBMB to boost the interests of its partner States, BBMB Consultancy Services were introduced.

The following works have been executed/are under execution by the Consultancy Services:-

- Consultancy on procurement of Switchgear equipments by HVPNL.
- Preparation of Feasibility and Detailed Project Reports for own Projects viz. Baggi PH (2×20 MW) and small Hydro Projects on Bhakra Main Line Canal (around 19.18 MW).
- Preparation of Hydro Power Studies (inhouse and for other SEBs viz. TNEB, MPSEB).
- Thermovision scanning, Hot Line maintenance and recommendation for upgradation of 220 KV Ring Main of DVB.
- Execution of work for Delhi Metro Rail Corporation for providing adequate clearance at Delhi Metro Rail Crossing.
- Providing ISO 9001-200 and 14001-1996 (or latest) Certification for Operation and Maintenance of Hydro Power Stations, Sub-stations/Switchyards, Transmission Lines, Dams and Canals/Water Conductor System for the works under the jurisdiction of BBMB with the assistance of M/s RITES Ltd.
- Providing Hydrostatic Stretch Testing Services for hydrogen gas cylinders for PSEB.
- Turnkey execution of 66KV Substation in Sector-47, Chandigarh under U.T. administration on cost plus basis. The MOU has been signed with Chandigarh U.T. Administration and the execution of work is going as per schedule.
- The work of providing one additional bay at 66 KV Sub Station Sector-1 and two additional bays at 66KV Substation, Indl. Area Phase-I, U.T. Chandigarh has been received on turnkey basis by BBMB from Chandigarh U.T. Administration.

A view of Bhakra Dam

Bureau of Energy Efficiency (BEE)

Considering vast potential of energy and its conservation in the Indian economy, the Government of India enacted the Energy Conservation Act, 2001. Under the provisions of this Act, the Government established the Bureau of Energy Efficiency (BEE) from 1st March, 2002 for implementing the various provisions of the EC Act. BEE is responsible for spearheading improvements in energy efficiency in different sectors of the economy through various regulatory and promotional instruments.

Mission of BEE

The mission of Bureau of Energy Efficiency (BEE) is to develop policy and strategies with a thrust on self-regulation and market principles, within the overall framework of the Energy Conservation Act, with the primary objective of reducing energy intensity of the Indian economy.

Action Plan

The Hon'ble Prime Minister of India, Shri Atal Behari Vajpayee, pronounced energy conservation strategies for the country and released the Action Plan of BEE while inaugurating an International Conference on Strategies for Energy Conservation in the New Millennium on 23rd August 2002. The Prime Minister provided a clear focus to the Action Plan with specific five-year target of 30 percent reduction in energy conservation in Government organisations. He also urged the private sector to ensure 20 percent energy savings over the next five years. The Action Plans serves as a road map for BEE in charting out its activities for the first five years. Thrust areas identified for the implementation of the Energy Conservation Act include identified activities for designated consumers, standard and labeling for equipment and appliances, energy conservation building codes, Demand Side Management programme on pilot scale building energy efficiency and Awareness creation, especially among school children.

Projects and Programmes

During the year, BEE initiated actions on the thrust areas and moved forward in establishing institutional mechanisms and infrastructural facilities under the mandate of the EC Act and took steps to involve industries, equipment manufacturers, financial institutions and other stakeholders for implementing the provisions of the EC Act. The key activities included launching of the preparatory activities for holding of national level professional examination for certification of energy managers and energy auditors on 22nd and 23rd May, 2004, launching of an interactive dedicated website **www.energymanagertraining.com** to support capacity building of Energy Managers and Energy Auditors; initiation of preparatory activities of minimum energy performance standards and labeling system; and initial activities relating to Energy Conservation Building Codes. In addition, BEE has also taken up the Indian Industry Programme for Energy Conservation (IIPEC) for eight sectors of the industry, a forum for cooperation between government and industry for exchange of information and best practices on energy efficiency, initiated the process of specific energy consumption norms for Cement and Pulp & Paper Sectors, energy efficiency programmes in central government establishments, which also introduces the concept of energy services companies (ESCOs), including preparation of relevant model contractual documents.

Bureau of Energy Efficiency has completed the Energy Audit of 9 Government Buildings in Delhi wherein energy savings potential, ranging from 23%-46% has been identified. The implementation of the recommendations of the energy audit is being planned to be implemented on Energy Service Companies (ESCOs) model by the respective departments.

The activities envisaged in the Action Plan have been pursued in a participatory manner with full involvement of all stakeholders. The approach has been self-regulatory, as a result of which, industry and other stakeholders have been evincing keen interest on a voluntary basis in promoting energy efficiency and its conservation in their plants.

Central Power Research Institute

The Central Power Research Institute (CPRI), an autonomous Society, serves as a National Laboratory for undertaking applied research in electric power engineering besides functioning as an independent National Testing and Certification Authority for electrical equipment and components to ensure reliability and improve, innovate and develop new products. The Head Office of the Institute is at Bangalore and its other units are located at Bhopal, Hyderabad, Nagpur, Ghaziabad, Thiruvananthapuram and Raichur.

The CPRI continued to play a vital role in quality assurance to ensure reliability of power equipment through testing and certification in accordance with National and International standards. The laboratories of CPRI are accredited as per latest ISO/IEC 17025 standards by National Accreditation Board for Testing & Calibration Laboratories (NABL). The Institute has been meeting its non-plan expenditure through revenue generated by testing and consultancy for the last fifteen years and the revenue has been increasing over the years.

During the year 2003-04, the Institute's revenue collection has touched an all time high level of Rs.35.8 crores (unaudited) including the foreign exchange earnings of US$2.35 lakh from clientele across the middle-east and south-east nations.

The CPRI is provided grant-in-aid for its Plan projects which includes the R&D Plan projects of the Institute and the coordination work on funding of Research schemes on power of various power utilities and power sector organizations.

The capital Plan projects of CPRI entitled "Center for Software Engineering & Training"; "Establishment of Equipment Vibration Testing Centre"; and "Establishment of Real Time Digital Simulator" facility sanctioned during the later years of 9th Five Year Plan have been successfully commissioned and completed in the year under report. During the 10th Five Year Plan, the CPRI have so far been sanctioned five capital projects which are in various stages of implementation.

CPRI has been entrusted with assisting 9 distribution circles in the state of Karnataka, Kerala & Andhra Pradesh in improving the distribution network under APDRP prpogramme. CPRI has established Site Offices with all infrastructure facilities at these places and 9 Nodal Officers have been posted at these places. Based on the detailed Project Reports for these states funds have been released and the implementation of APDRP works is ongoing in all the nine circles.

The Institute has stepped up its marketing activities by participating in various exhibitions in India and abroad with a view to project the facilities / expertise available with them to the prospective customers. Within the country, emphasis was laid on marketing of third party inspection services for power equipment procured by Utilities. As a result of this, the Institute got repeat orders for third party inspection services from Utilities such as KPTCL, BESCOM, TNEB, J&K Electricity Board, UHBVN, DHBVN, HVPNL, Delhi Vidyut Board, APTRANSCO., APEDCL etc.

Real time digital Simulator Facility at CPRI, Bangalore

National Power Training Institute (NPTI)

National Power Training Institute, an ISO 9001:2000 Organisation is a National Apex Body set up as a registered society under the Ministry of Power, for development of Human Resources for the Power Sector. With the main Institute at Faridabad (Haryana), NPTI operates on all India basis through its Regional Institutes located at Neyveli (Tamil Nadu), Durgapur (West Bengal), Badarpur (Delhi), Nagpur (Maharashtra), Guwahati (Assam) besides Power Systems Training Institute (PSTI) & Hot Line Training Centre (HLTC) at Bangalore. The Institute has a Centre for Advanced Management and Power Studies (CAMPS) and a proposed Hydro Training Unit at Faridabad.

NPTI has excellent infrastructural facilities for conducting different courses on technical as well as management subjects catering to the needs of Thermal, Hydro, Nuclear Power Plants, Transmission & Distribution systems as well as other fields of the Indian Power and allied Energy sectors. It has over 38 years of professional expertise in the field of education, training and HRD.

Since its inception, NPTI has shared its engineering and technology expertise with more than 80,000 Power Professionals besides over 66,000 persons in its mass education programs on Energy Conservation, Power Reforms, Electrical Safety, Energy-Environment interface across the country. NPTI launched the First Ever two-year MBA program in Power Management in 2002. All the students of the first batch of this programme were picked up through campus recruitment by renowned companies.

The Institute recorded an all time high revenue receipts of Rs.10.20 crores (unaudited) in the year 2003-04. The number of trainees crossed ten thousand mark and the trainee weeks achieved was 64308 including 7004 trainee weeks

A view NPTI at Faridabad

of programs on Energy Environment Linkage.

The year 2003-04 had also seen the following significant achievements of NPTI

- The Power Training Centre of NPTI for the North Eastern Region was flagged off by the Hon'ble Minister of State at Guwahati in September,2003.
- The website **powertrainingindia.com** developed as the Training Management Information system for the Power Sector was launched by Hon'ble Minister of Power in December,2003. It gives comprehensive data on Training Institutes and their courses to cater to the varied requirements in technical, managerial, commercial, and attitudinal areas of human resources in the Power Sector.
- Keeping in mind that training is a very important component of human resources development and cost effective method of improving competencies to instill positive attitude amongst the manpower of any organization, the NPTI instituted two Awards - one for organizations adopting best training practices and the other for best trainers who have made significant contribution in the field of training.
- NPTI attracted 52 foreign-national trainees from Bhutan, Iraq, Myanmar, Phillippines, Cambodia, Zambia, Nigeria, Kenya, Mexico and Sudan under its training programs.
- Besides the regular training programs of the Institute, several specialized long term and short term training programs on topics like Power Distribution Management Power Plant Technology/ Operation, Maintenance of Switchgear/transformer/Valves, etc. were conducted.
- 26 Technical/Management Papers were presented by the Institute's Faculty Members in different National/International Conferences / Journals in India and abroad.
- In order to sensitise the user community on Energy Environment Linkage, NPTI conducted public awareness programmes covering more than 35,000 participants, spreading awareness amongst the masses in different parts of the country.
- The Institute also bagged consultancy assignment recruitment of Assistant Engineers/ Jr. Engineers for Uttaranchal Jal Divyut Nigam Ltd.

The NPTI have been entrusted the responsibility of Capacity Building in the Distribution sector under APDRP. The first training of Trainers Program under this scheme was successfully completed in August,2003 for 50 Executives from different organizations, SEBs, PSUs, etc. The second pilot Training Program under APDRP for 31 Chief Engineers / Supdtg. Engineers from various SEBs of NE Region was conducted at Guwahati.

Other Important Activities

Power Trading Corporation of India Ltd.

Power Trading Corporation of India Ltd. was set up in April 1999 with the main objective of catalyzing development of Mega Power Projects and other power projects by acting as a single entity to enter into Power Purchase Agreements (PPAs) with Independent Power Producers (IPPs) on the one side and Multipartite PPAs with users/SEBs under long term arrangement on the other, thus insulating the IPPs from protracted negotiations with multipartite SEBs and receivable risks. PTC has also been mandated for power trading to optimally utilize the existing resources in the country as also promoting exchange of power with neighbouring countries. Government of India has identified PTC as a nodal agency to deal with matters relating to exchange of power between India and its neighbouring countries.

The capital structure of PTC has been restructured to raise the authorized capital to Rs. 750 Crores. The four Central Power Sector companies namely NTPC, PFC, PGCIL and NHPC are the initial promoters with individual contribution of 8% each of the total paid up capital. The share holders in PTC include Tata Power, DVC, LIC, GIC, IFCI, IDFC and IDBI. PTC has undertaken an Initial Public Offer of its equity shares at a price band of Rs.14 - Rs.16 which has been oversubscribed more than 42 times. Thus around Rs. 93.5 Cr. has been raised from the market, taking up its paid-up capital to Rs. 150 Cr. The paid-up capital will be raised to the authorized level of Rs. 750 Crores over a period of 3-4 years.

PTC has set the following statement of purpose for itself, which acts as the vision for the company:

"To Be a Front Runner in Power Trading By Developing a Vibrant Power Market and Striving To Correct Market Distortions"

PTC has also set the following mission for itself:

- Promote Power Trading to optimally utilize the existing resources.
- Catalyze development of Mega and other Power Projects including Hydro Projects.
- Promote exchange of power with neighbouring countries.
- Develop power market in not too distant a future.

Identification of probable sellers and buyers (for short term and long term), coordination with various agencies for dispatch, metering and billing, revenue realization, energy accounting, co-ordination with REBs, RLDCs, SLDCs etc. and finding alternative buyer(s) are among the major services offered by PTC.

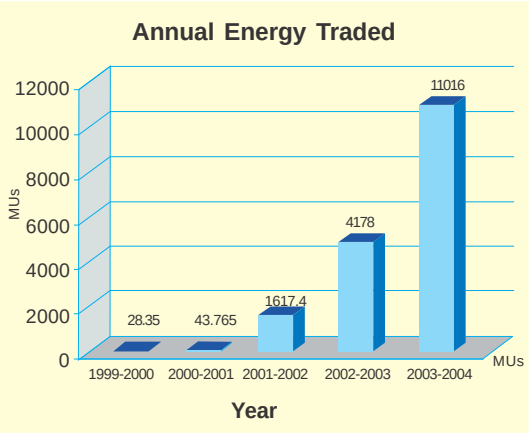
Development of Projects

PTC has shifted its focus from Mega-Power Projects to small and medium sized projects which are being promoted by IPPs. PTC has recently initialed a Power Purchase Agreement with developers of 750 MW West Seti Hydro Power Plant in Nepal. MoUs with developers have also been signed in a number of cases like Lower & Middle Kolab, Samal hydro power projects etc.

A few project developers approach PTC with indicative proposals for large, medium and small sized hydropower projects in the Himalayan Range (including some from Nepal), Jammu & Kashmir, Himachal Pradesh, Uttaranchal, North-Eastern States and other states like Orissa as also less costly thermal power projects. These proposals are under discussions.

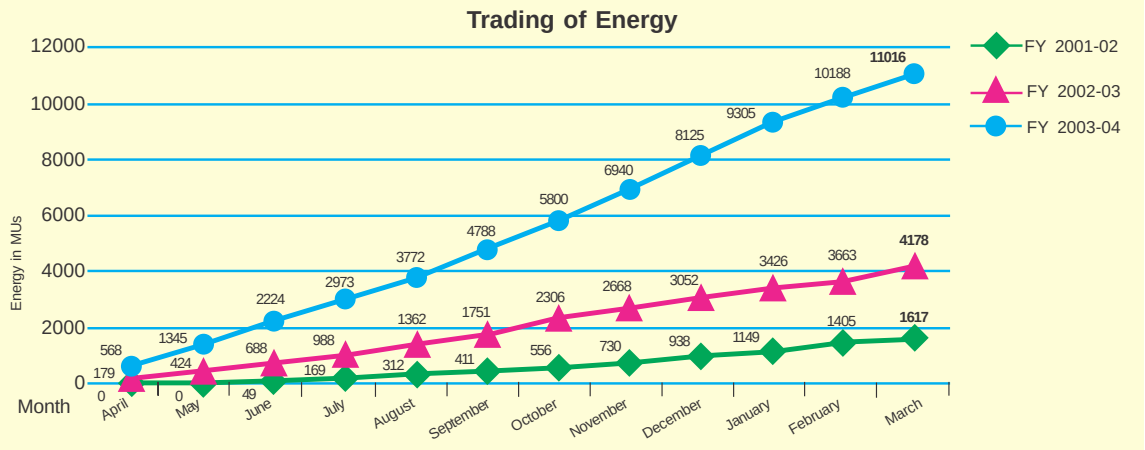
Trading of Power

PTC has embarked upon trading by organizing purchase of power from surplus locations and selling to deficit states. Seasonal diversity in generation and demand of different power utilities gives ample opportunities for short term trading.



PTC started trading with limited transactions during 1999-2000 (28.35 MUs) but **trading on sustained basis commenced from June 2001 which has grown to a figure of 1617.4 MUs**

for the financial year 2001-02 and 4178 MUs for the FY 2002-03. In FY 2003-04 PTC has been able to trade a total of 11016 MUs (provisional), surpassing all targets that had been set.



PTC's major trading partners include West Bengal, DTL, DVC, Haryana, Malana, Goa, UPCL, Andhra Pradesh etc. PTC is also entering into deals with timeframes varying from as low as 1 day to 3 years. PTC has also introduced 'differential pricing' concept for 'round the clock' and 'off-peak power'. Due to this, customers can sell and buy power in the same time frame i.e. one can buy power in peaking period when it is power deficit and can sell power during off-peak hours when it is surplus in power and thus the vision of developing a dynamic power market is progressively taking shape.

PTC has approached regulatory authorities for creation of enabling environment and is also working on framework agreements to catalyse electricity trading and development of projects. To increase its trading activities in future, PTC has set its eye on the surplus power available with captive power plants (CPPs) and also pooling power from distributed generation viz., wind and small hydro power plants. With new captive power policy announced by GOI wherein it would be easy for CPPs to trade their power freely, PTC hopes to get a major share of captive surplus capacity for trading.

In addition to inter-state exchange of power within the country, there is scope for trade of electricity with neighbouring countries for which PTC has been identified as the nodal agency. PTC has successfully traded surplus power from 336 MW of Chukha and 60 MW of Kurichhu Hydro Power Projects from Bhutan for over a year now and future trading opportunities include purchase of power from Tala Hydro Power Project (1020 MW) in Bhutan and some power projects in Nepal.

Opportunities and Constraints

The present level of inter-state exchange is still quite limited and the constraints for enhancing the same is inadequate transmission capacity, lack of proper market mechanism (absence of tariff structure to promote merit order operation and encourage trading of power), Grid Indiscipline and continuing concerns about financial unviability of some SEBs.

With the implementation of the Availability Based Tariff (ABT), the prospects and volume of trade have increased greatly. ABT, which has already been implemented for the inter-state Generating Stations in all electricity regions of the country, has encouraged the trading of electricity by providing the right commercial signals. The greatest benefit which may be derived from such trading is that it will help not only in achieving better economic efficiency and improved reliability but also in converting unscheduled interchanges to scheduled interchanges of power between the States, thereby improving the quality of power supply.

The Electricity Act 2003 has provided for establishment of a bulk electricity market, setting up of generating stations without license, non-discriminatory access to the transmission system and gradual introduction of open access for the distribution system. Along with this, the promotion of competition from multiple suppliers has also been envisaged, as also the recognition of Power Trading as a distinct commercial activity. This comprehensive legislation is expected to pave the way for encouraging power trading in the country and also to provide for a vibrant power market in the country.

CONSULTATIVE COMMITTEE OF MEMBERS OF PARLIAMENT

During the year 2003-2004, the Ministry of Power coordinated and organized Five meetings of the Consultative Committee of Members of Parliament for the Ministry of Power. The subjects for discussion at these meetings were (i) "TRAINING AND DEVELOPMENT IN POWER SECTOR" (ii) "CAPACITY ADDITION PROGRAMME DURING THE TENTH FIVE YEAR PLAN" (iii) "POWER FINANCE CORPORATION LTD." (iv) "BHAKRA BEAS MANAGEMENT BOARD" and (v) "DAMODAR VALLEY CORPORATION".

CONTROLLER OF ACCOUNTS (COA)

The Secretary is Chief Accounting Authority of Ministry of Power . The office of Controller of Accounts functions under overall supervision of JS & FA. It has Controller of Accounts with one Deputy Controller of Accounts and 7 Pay & Accounts Officers including one outstation Pay and Accounts Officer in Bangalore having cheque drawing powers and one for Internal Audit. The monthly accounts of all the PAO's are submitted regularly to the Principal Accounts Office every month who is responsible for consolidation and submission of Accounts in Detailed Classified Form to Controller General of Accounts in a floppy. The Principal Accounts Office is also responsible for the preparation of Appropriation Account, Statement of Central Transactions (SCT) and Finance Account on annual basis for submission to the Controller General of Accounts (CGA). Which is then compiled for the Govt. of India Accounts.

The Office of Controller of Accounts also bring out an annual accounting booklet called 'Accounts at a Glance ' which contains total transactions of the Ministry and its various organisations . It gives a brief overview of Accounting trends . The office of the Controller of Accounts is also responsible for preparing the Receipt Budget of the Ministry.

Computerisation

The Office of the Controller of Accounts is generating Computerised Accounts through two packages namely INTEGRATED MODULAR FOR PROCESSING VOUCHER (IMPROVE) for accounts of PAO and CONTROLLER'S ACCOUNTING (CONTACT) for monthly accounts of Pr. Accounts Office. The new Package named COMPACT (Pre-check, Compilation, GPF etc. Modules) for Pay and Accounts Offices and CONTACT(ORA) for Principal Accounts Office has been working properly.

A Pay package has been developed using Microsoft Excel and pay slips and other reports are being generated through this package. The major achievement has been on computerization of loans given to Public Sector undertakings. The Public Deposit Account of concerned Public Sector undertaking has also been computerised.

Internal Audit Wing (IAW)

The Internal Audit Wing ensures adoption of sound procedure, regularities and financial propriety of transactions of accounts. This Wing advises the DDOs and their staff for correct implementation of rules and maintenance of proper records. IAW also pursues the settlement of objections raised by Statutory Audit.

GRIEVANCE CELL

MINISTRY OF POWER

The Grievance Cell in Ministry of Power deals with redressal of grievances relating to various grievances pertaining to Public Sector Undertakings, Autonomous bodies, Statutory bodies and attached office under the administrative purview of Ministry of Power. The status of redressal of grievances is being monitored on monthly basis.

The status of grievance redressal for the period ending on 31.03.2004 is as under:-

Total number of grievances dealt	Number of grievances disposed off	Number of grievances pending
49	33	16

There is an **'Information and Facilitation Center'** of the Ministry which is functioning at Ground Floor of the Sharam Shakti Bhavan, New Delhi. The Website of the Ministry is accessible on NIC Web server at the address of **www.powermin.nic.in**.

CENTRAL ELECTRICITY AUTHORITY

To implement the instructions of Department of Administrative Reforms and Public Grievances, Shri R. Dahiya, Chief Engineer has been designated as Director (Grievances) at CEA. A Committee of 6 (Six) CEA Officers consisting of Director (A-1), Director (A-2), Under Secretary (Welfare), Under Secretary (Personnel), Under Secretary (A) and Section Officer (Welfare)

assist the Director (Grievances). The Committee is appointed to deal with grievances related to pension, service matters as well as general grievances of the present and ex-employees of CEA. 10 nos.of grievance petitions / complaints received during the period from 1.1.2003 to 31.3.2004 were disposed off after appropriate action / decision.

NTPC

NTPC has a public grievance redressal mechanism in place for dealing with grievances of public at large. The Company Secretariat Department is the nodal point for redressal of Public Grievances and the Company Secretary has been designated as Director (Grievances) for the Corporation. Grievance Officers have also been appointed in all Projects/Regional Offices. Grievances received from the public are being processed as per guidelines issued by Department of Administrative Reforms and Public Grievances and monthly report is furnished regualrly to the Department. Grienvances from employees are being dealt as per staff grievance procedure framed in this regard.

THDC

Organisation has a Grievance Redressal system in place. At frequent interval meetings are organized with Staff Associations/Trade Union so that employees' grievances are reduced effectively. Organisation follows the policy of open door for well being of the employees.

DVC

The Public Grievance Cell headed by a senior officer of the rank of Jt. Secretary is functioning at the HQRs. of the Corporation to attend and redress the grievances of the public. Grievance Cell for attending grievances of the employees are also functioning at various stations of the Corporation.

WELFARE OF SC/ST&OBC

MINISTRY OF POWER

An SC/ST Cell has been functioning in the Ministry, since the early nineties, under the direct control of the Deputy Secretary (Administration) who is also the Liaison Officer for SC/ST. The SC/ST Cell also assists the Liaison Officer for OBC. The Cell monitors the implementation of reservation policies of the Government of India in respect of Scheduled Castes, Scheduled Tribes physically handicaped, Ex-servicemen and Other Backward Classes, in the Ministry as well as the CPSUs/ Organizations under the administrative control of the Ministry of Power.

Periodical reports/ returns on the subject are obtained from the CPSUs/ Organizations under the Ministry which are then consolidated and sent in the prescribed format to the Department of personnel & Training, Department of Public Enterprises, Ministry of Social Justice & Empowerment, and National Commission for SC /ST.

With a view to ensuring proper implementation of reservation policy, annual inspections of reservation rosters maintained by the Ministry (Proper) and the CPSUs/ Organizations under the administrative control of the Ministry are carried out by the Liaison Officers. During the period upto 31.03.2004, 13 inspections have been carried out. During the inspections, the LO (SC/ST) also had interactions with some of the employees and representatives of the SC/ST Associations of the concerned Organizations. These interactions helped to obviate many of their misconceptions/ misapprehensions and in better understanding of the reservation policy of the government.

Implementation of reservation policy for the Physically Handicapped persons in Ministry of Power, its attached/subordinate offices, etc is also monitored by the Liaison Officer (SC/ST). Periodical reports and returns on the subject are sent to the concerned Departements as stated above.

CENTRAL ELECTRICITY AUTHORITY

There is a Liaison Officer to look after the welfare of SC/ST/OBC employees of the organisation. Each & every complaint is attended to immediately.

NTPC

It is the policy of the company to promote the interest of SCs/STs/OBCs in the recruitment and service matters. There was a backlog in recruitment of SC/ST category. Therefore, six special recruitment drives were launched from 1989-90 to 1996. These were dis-continued from 1997 as per Govt. instructions. However, the same has been restored since July'2000. NTPC again launched two special recruitment drives during the period from July'2000 to 31.12.2001 and one in the year 2002. The following efforts have been made to fill the reserved vacancies

for SC/ST wherever required:-

i) Exclusive advertisement/notifications covering populous belts of SC/STs.

ii) Notification of vacancies to recognized SC/ ST Association.

iii) Announcement of vacancies on Doordarshan/ All India Radio.

iv) All major vacancies involving All India Competitive selection tests, circulated to all accredited SC/ST Associations as prescribed under the relevant Government Directives.

v) Intimation of reserved vacancies to Director of Social Welfare Boards in States/Union Territories.

vi) Award of Annual Scholarship to SC/ST students pursuing Degree/Diploma in Engineering courses.

vii) NTPC Gold medal award with XISS, Ranchi for one student each topping the merit list of SC/ST candidates in Personnel Management course and Rural Development course.

viii) NTPC has also decided to institute gold medals with Xavier Institute of Management, Bhubaneswar for one student each topping the merit list of SC/ST candidates in Personnel Management course and Rural Development course.

With a view to increase the awareness of employees dealing with reservation aspects at various Projects in the Company and to ensure better compliance and the implementation of various directives of the Government, Liaison Officers for SC/ST have been nominated at each project/RHQ with assigning the responsibilities of handling grievances for SC/ST employees. They have been advised to spare one day in a week to hear in person the grievances of SC/ST employees and to take suitable steps immediately for redressal of the same. A grievance register is also to be maintained.

All Projects/offices of NTPC have been advised to nominate SC/ST employee for training in each programme. Pre-promotion training to these employees arranged with a view to enhance their competency and better performance in the interview. Awareness programme are organized at each project/RHQ at least once in a year so that they may acquire knowledge about the reservation matters.

Annual conference of Liaison Officers is organized every year to make them aware with latest development in reservation policy so as to ensure implementation of the same properly. Appropriate infrastructural assistance in organizing Ambedkar Jyanti is provided.

PGCIL
Detail of Reserved category employees

Group of service	Total No. Emp. (*)	Gen.	SC	ST	OBC
A	2663	2202	187	58	216
B	1335	1015	158	44	118
C	2383	1694	337	125	227
D	447	257	75	67	48
Total	**6828**	**5168**	**757**	**294**	**609**

(*) Includes employees Recruited in POWERGRID since date of inception i.e. October, 1989 and employees Transferred and Absorbed in POWERGRID from various constituent organizations viz. NTPC, NHPC, THDC, NEEPCO, CEA, NLC etc. POWERGRID had no control to ensure representation of percentage prescribed for SC, ST & OBC persons in the said mass transfer. However POWERGRID has made all efforts to maintain the percentage reservations in recruitments since its inception .In the recruitment of Executive Engineer (Trainees) - (EET) in Group 'A' posts during the year 2003, due consideration has been given to this aspect. The detail of such 83 EETs recruited including backlog and current vacancies is as follows:

TOTAL RECRUITMENT	GENERAL	SC	ST	OBC
83	32	15	08	28

As a result of said effort the status of recruited person since inception is as follows:

Group	Total Rectt. Since inception	General	SC	ST	OBC	
					Total Rectt. made from 8.9.1993 (date of reservation for OBC)	Number of OBC recruited
A	713	451	88	44	497	130
B	47	42	02	03	Nil	Nil
C	215	157	25	07	97	26
D	37	32	04	Nil	02	01
TOTAL	**1012**	**682**	**119**	**54**	**596**	**157**

- 'Awareness Programmes' for SC/ST/OBC employees in each of the Sub stations, Offices, Regional & Corporate Centre have been conducted to clear their doubts on reservation policy.
- Adequate representation of SC/ST employees in internal training.
- A 'Workshop' exclusively for SC/ ST was conducted at HRD Centre, Kishenpur Sub Station on 27-28 September 2003 on reservation matters.

The Corporation has implemented the Govt. directives to take care of the interests of Scheduled Castes, Scheduled Tribes and Other Backward Classes. For monitoring the same, POWERGRID has nominated Liaison Officers in the Corporate Centre and Regional Establishments. Appropriate funds have been earmarked for the welfare of the SC/ST community and a number of welfare schemes have been implemented in the SC/ST populated villages near its establishments.

PFC

In PFC the percentage representation of SC/ST employees are comfortable. In the cases of recruitment and promotions, Government directives on Reservation Policies are being followed and rosters are maintained to monitor the status. A status report as on 31st March 2004 across various group of posts are indicated below:-

Group	SC employees strength	Percentage of overall	ST employees strength	Percentage of overall	OBC employees strength	Percentage of overall
A	26	16.45	8	5.06	5	3.16
B	5	17.24	1	3.44	4	13.79
C	14	19.71	6	8.45	7	9.85
D	4	36.36	1	9.09	2	18.18
TOTAL	**49**	**18.21**	**16**	**5.94**	**18**	**6.69**

Compendium on reservation policy consolidating instructions and Presidential Directives including Swamis handbook on Reservation Policy have been kept for reference in the library for information to all concerned. Employees interested to attend awareness programme on SC/ST/OBC being organized outside the organization are nominated from time to time.

REC

Class	Total No. of Employees	SCs	STs	OBCs
I	162	15	4	3
II	202	24	8	-
III	182	32	1	3
IV	120	37	6	-
TOTAL	**666**	**108**	**19**	**6**

NEEPCO

Represntation of SCs/STs/OBCs as on 31-03-2004

Group	Total Number of employees	SCs	STs	OBCs
A	630	60	75	52
B	890	47	144	33
C	1465	68	453	38
D	251	26	123	23
Total	**3236**	**201**	**795**	**146**

SJVNL

Reservation Policy of Govt. of India for SC/ST/ OBC in the matters of employment has been duly implemented in SJVN. As on 31st March, 2004, out of 628 total manpower on regular rolls of the organisation, the strength ofSC/ST and OBC employees is 137, 29 and 64 respectively which constitutes about 37 of the total manpower strength.

Responsibility of implementation of Reservation Policy functionally lies with Director (Personnel) at the Corporate level and Head of the Department at Project/Regional Offices. However, officers belonging to reserved category in the middle level management have been nominated as Liason Officer separately for SC/ST and OBC to supervise the implementation of the Reservation Policy.

Two awareness programmes on Reservation matters were also conducted by Ex-Director, DPE, during the financial year 2003-04.

THDC

Govt. of India's directives for welfare of SC/ST and OBCs has been observed in respect of recruitment and others service matters. Special attention has been given for imparting training to employees belonging to SC/ST/OBCs.

DVC

The projects of the Corporation have been constructed in remote area in the States of West Bengal and Jharkhand. The population of the villages in and around the projects belongs to mainly SC, ST, OBC and minority category. With a view to give impetus to socio-economic upliftment of the adjacent villages, the Corporation takes up many socio-economic development programmes in villages located within a radius of 10 Kms. of its projects viz. Bokaro Thermal Power Station, Chandrapura Thermal Power Station, Durgapur Thermal Power Station, Mejia Thermal Power Station, Maithon, Konar, Pachet and Tilaiya for welfare of the people of the area. The development programmes include infrastructural development of villages, such as construction of Roads, Culvert, Drinking water Well/Pumps/Tube well, irrigation facilities like Ponds & Wells, construction of School Building, Immunization Centre, Community building, Burning Ghat, Passenger Shelters, Microlift irrigation schemes etc. Besides, DVC also provides financial assistance and training to the rural unemployed youth for setting up of their own firms like piggeries, goateries, poultries, sewing centres, knitting wool making, fisheries etc. through income generating schemes.

An amount upto 2% of the Corporation's profit is allocated every year for the aforesaid developmental activities. About 317 Villages covering a large number of population belonging to SC, ST, & OBC and minority category are being covered under the said schemes.

Apart from above, villagers are also provided with medical facilities, such as supply of medicine, treatment by the DVC Doctors, family planning, immunization programmes and awareness programme for prevention of deadly diseases etc.

BBMB

BBMB discharges its functions as laid down in Section 79(1) of the Punjab Re-organisation Act, 1966 for which staff for the operation & maintenance of BBMB work is provided by partner State Govts./SEBs on transfer basis. However, in the event of inability of partner States/SEBs, BBMB resorts to direct recruitment & promotion in respect of Class III & IV

employees only, as officers of Class I & II category are being provided by partner States/ SEBs. BBMB Class III & Class IV Employees (Recruitment & Conditions of Service) Regulations, 1994 were approved by the Central Govt. & published in Part-III Section 4 of the Gazette of India dated 8.10.1994. As per Regulation 11 of these Regulations, the members belonging to SC, ST, OBC, Ex-servicemen, Physically handicapped persons and the dependents of deceased employees in service shall have the reservation in service and all other concessions as prescribed by the Punjab Govt. from time to time. Accordingly, in view of provisions of Rule 6 of BBMB Rules, 1974 & Regulations 11 of BBMB Class III & Class IV Employees (Recruitment & Conditions of Service) Regulation, 1994, BBMB is following the reservation policy of Punjab Govt. issued from time to time in regard to implementation of provision of reservation in jobs for SC/ST. The prescribed percentage of reservation applicable in BBMB in favour of SC as per Punjab Govt. instructions is as under:-

i) Posts filled by direct recruitment = 25%

ii) Posts filled by promotion = 20%

There is no reservation for ST category in Punjab Govt. Therefore, no reservation of posts is being given to the ST category in BBMB.

For providing general welfare measures for SC employees, the instructions have been issued to all field offices requesting them to provide the following facilities, if so demanded by the Members of SC on the occasion of Birthday of Dr.B.R.Ambedkar, Maharishi Balmiki Ji and Sri Guru Ravi Dass Ji:-

i) Bus facilities for Shobha Yatra at token charges of Re. 1 per km.

ii) Auditorium for function on above occasions, free of charge.

In addition to above, BBMB has given representations to the members of the Scheduled Castes by nominating one SC member of the rank of Addl. SE/Senior Executive Engineer in all Selection Committees.

NPTI

One SC candidate has been promoted to the grade of Steno. Gr.II and one SC candidate has been appointed as Driver (Ordinary Grade) during 2003-04.

WELFARE OF MINORITY

MINISTRY OF POWER

Separate schemes do not exist in the Ministry of Power for welfare of the minorities. However, the schemes if any recommended for their welfare from time to time by the Government agenicies concerned are implemented.

CENTRAL ELECTRICITY AUTHORITY

Though there is no liaison officer or cell specially to see the welfare of minority no discrimination is made in the organization with any person on the basis of caste/creed or religion.

THDC

Prime Minister's 15th Point Programme for the welfare of the Minorities was implemented during the year and progress made was communicated to the Govt.

DVC

The programmes and facilities applicable in respect of SC/ST and OBC are equally extended to the minority community as well residing in adjacent villages. The facilities for pursuing their cultural and literary interests are also provided to them.

Statement - I

INSTALLED CAPACITY (IN MW) OF POWER UTILITIES IN THE STATES/UTS LOCATED IN NORTHERN REGION INCLUDING ALLOCATED SHARES IN JOINT & CENTRAL SECTOR UTILITIES AS ON 31.03.2004

State	Ownership Sector	Total	Modewise breakup						
				Thermal			Total		
			Hydro	Coal	Gas	Diesel	Thermal	Wind	Nuclear
Delhi	State	932.40	0.00	320.00	612.40	0.00	932.40	0.00	0.00
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	2391.00	208.00	1797.00	207.00	0.00	2004.00	0.00	179.00
	Sub-Total	**3323.40**	**208.00**	**2117.00**	**819.40**	**0.00**	**2936.40**	**0.00**	**179.00**
Haryana	State	1990.32	883.90	1102.50	0.00	3.92	1106.42	0.00	0.00
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	1137.00	276.00	299.00	534.00	0.00	833.00	0.00	28.00
	Sub-Total	**3127.32**	**1159.90**	**1401.50**	**534.00**	**3.92**	**1939.42**	**0.00**	**28.00**
Himachal	State	323.80	323.67	0.00	0.00	0.13	0.13	0.00	0.00
	Private	386.00	386.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	2055.00	1925.00	54.00	62.00	0.00	116.00	0.00	14.00
	Sub-Total	**2764.80**	**2634.67**	**54.00**	**62.00**	**0.13**	**116.13**	**0.00**	**14.00**
Jammu	State	495.63	311.69	0.00	175.00	8.94	183.94	0.00	0.00
&	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kashmir	Central	738.00	429.00	114.00	129.00	0.00	243.00	0.00	66.00
	Sub-Total	**1233.63**	**740.69**	**114.00**	**304.00**	**8.94**	**426.94**	**0.00**	**66.00**
Punjab	State	4528.94	2398.94	2130.00	0.00	0.00	2130.00	0.00	0.00
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	1127.00	406.00	406.00	264.00	0.00	670.00	0.00	51.00
	Sub-Total	**5655.94**	**2804.94**	**2536.00**	**264.00**	**0.00**	**2800.00**	**0.00**	**51.00**
Rajasthan	State	3511.82	971.62	2420.00	113.80	0.00	2533.80	6.40	0.00
	Private	54.30	0.00	0.00	0.00	0.00	0.00	54.30	0.00
	Central	1472.00	179.00	453.00	221.00	0.00	674.00	0.00	619.00
	Sub-Total	**5038.12**	**1150.62**	**2873.00**	**334.80**	**0.00**	**3207.80**	**60.70**	**619.00**
Uttar	State	4658.60	556.60	4102.00	0.00	0.00	4102.00	0.00	0.00
Pradesh	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	2944.00	273.00	1983.00	550.00	0.00	2533.00	0.00	138.00
	Sub-Total	**7602.60**	**829.60**	**6085.00**	**550.00**	**0.00**	**6635.00**	**0.00**	**138.00**
Uttranchal	State	954.15	954.15	0.00	0.00	0.00	0.00	0.00	0.00
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	332.00	61.00	186.00	69.00	0.00	255.00	0.00	16.00
	Sub-Total	**1286.15**	**1015.15**	**186.00**	**69.00**	**0.00**	**255.00**	**0.00**	**16.00**
Chandigarh	State	2.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	62.00	27.00	15.00	15.00	0.00	30.00	0.00	5.00
	Sub-Total	**64.00**	**27.00**	**15.00**	**15.00**	**2.00**	**32.00**	**0.00**	**5.00**
	Central - unallocated	884.00	26.00	533.00	261.00	0.00	794.00	0.00	64.00
Total	State	17397.70	6400.57	10074.50	901.20	14.99	10990.70	6.40	0.00
Northern	Private	440.30	386.00	0.00	0.00	0.00	0.00	54.30	0.00
Region	Central	13142.00	3810.00	5840.00	2312.00	0.00	8152.00	0.00	1180.00*
	Grand Total	**30979.96**	**10596.57**	**15914.50**	**3213.20**	**14.99**	**19142.69**	**60.70**	**1180.00**

Note- -* Based on derated capacity of 2 units each of 220 MW of Narora Atomic Power Station in U.P & that of RAPP Unit No.1 as 100MW, Unit2 as 200MW in Rajasthan.

Statement - II

INSTALLED CAPACITY (IN MW) OF POWER UTILITIES IN THE STATES/UTS LOCATED IN WESTERN REGION INCLUDING ALLOCATED SHARES IN JOINT & CENTRAL SECTOR UTILITIES AS ON 31.03.2004

State	Ownership Sector	Total	Modewise breakup						
				Thermal			Total		
			Hydro	Coal	Gas	Diesel	Thermal	Wind	Nuclear
Goa	State	0.16	0.05	0.00	0.00	0.00	0.00	0.11	0.00
	Private	48.00	0.00	0.00	48.00	0.00	48.00	0.00	0.00
	Central	406.60	0.00	357.00	34.60	0.00	391.60	0.00	15.00
	Sub-Total	**454.76**	**0.05**	**357.00**	**82.60**	**0.00**	**439.60**	**0.11**	**15.00**
Daman & Diu	State	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	14.20	0.00	8.00	4.20	0.00	12.20	0.00	2.00
	Sub-Total	**14.20**	**0.00**	**8.00**	**4.20**	**0.00**	**12.20**	**0.00**	**2.00**
Gujarat	State *	5210.30	563.00	4179.00	433.72	17.28	4630.00	17.30	0.00
	Private	2226.00	0.00	640.00	1430.00	0.20	2070.20	155.80	0.00
	Central	1538.30	0.00	829.00	424.30	0.00	1253.30	0.00	285.00
	Sub-Total	**8974.60**	**563.00**	**5648.00**	**2288.02**	**17.48**	**7953.50**	**173.10**	**285.00**
Madhya Pradesh	State	3203.01	1044.91	2157.50	0.00	0.00	2157.50	0.60	0.00
	Private	22.00	0.00	0.00	0.00	0.00	0.00	22.00	0.00
	Central	1495.20	375.00	854.00	196.20	0.00	1050.20	0.00	70.00
	Sub-Total	**4720.21**	**1419.91**	**3011.50**	**196.20**	**0.00**	**3207.70**	**22.60**	**70.00**
Chhatisgarh	State	1400.00	120.00	1280.00	0.00	0.00	1280.00	0.00	0.00
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	498.00	0.00	414.00	61.00	0.00	475.00	0.00	23.00
	Sub-Total	**1898.00**	**120.00**	**1694.00**	**61.00**	**0.00**	**1755.00**	**0.00**	**23.00**
Maharastra	State	9772.57	2427.17	6425.00	912.00	0.00	7337.00	8.40	0.00
	Private	3409.80	447.00	1650.00	920.00	0.00	2570.00	392.80	0.00
	Central	2027.90	0.00	1339.00	391.90	0.00	1730.90	0.00	297.00
	Sub-Total	**15210.30**	**2874.17**	**9414.00**	**2223.90**	**0.00**	**11637.90**	**401.20**	**297.00**
Dadra & Nagar Haveli	State	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	15.50	0.00	9.00	4.50	0.00	13.50	0.00	2.00
	Sub-Total	**15.50**	**0.00**	**9.00**	**4.50**	**0.00**	**13.50**	**0.00**	**2.00**
	Central - Unallocated	891.30	0.00	650.00	175.30	0.00	825.30	0.00	66.00
Total western Region	State	19586.00	4155.13	14041.50	1345.72	17.28	15404.50	26.41	0.00
	Private	5705.80	447.00	2290.00	2398.00	0.20	4688.20	570.60	0.00
	Central	6887.00	375.00	4460.00	1292.00	0.00	5752.00	0.00	760.00*
	Grand Total	**32178.80**	**4977.13**	**20791.50**	**5035.72**	**17.48**	**25844.7**	**597.01**	**760.00**

Note- -* Based on derated capacity of 2 units each of 160 MW of Tarapore Atomic Power Station in Maharashtra.

Statement - III

INSTALLED CAPACITY (IN MW) OF POWER UTILITIES IN THE STATES/UTS LOCATED IN SOUTHERN REGION INCLUDING ALLOCATED SHARES IN JOINT & CENTRAL SECTOR UTILITIES AS ON 31.03.2004

State	Ownership Sector	Total	Modewise breakup						
				Thermal			Total		
			Hydro	Coal	Gas	Diesel	Thermal	Wind	Nuclear
Andhra	State	6628.84	3571.94	2952.50	99.00	0.00	3051.50	5.40	0.00
Pradesh	Private	1137.40	0.00	0.00	1013.40	36.80	1050.20	87.20	0.00
	Central	2001.00	0.00	1857.00	0.00	0.00	1857.00	0.00	144.00
	Sub-Total	**9767.24**	**3571.94**	**4809.50**	**1112.40**	**36.80**	**5958.70**	**92.60**	**144.00**
Karnataka	State	4523.07	2922.55	1470.00	0.00	127.92	1597.92	2.60	0.00
	Private	739.40	31.20	260.00	220.00	106.50	586.50	121.70	0.00
	Central	674.00	0.00	544.00	0.00	0.00	544.00	0.00	130.00
	Sub-Total	**5936.47**	**2953.75**	**2274.00**	**220.00**	**234.42**	**2728.42**	**124.30**	**130.00**
Kerala	State	2031.60	1795.00	0.00	0.00	234.60	234.60	2.00	0.00
	Private	207.84	12.00	0.00	174.00	21.84	195.84	0.00	0.00
	Central	804.00	0.00	398.00	350.00	0.00	748.00	0.00	56.00
	Sub-Total	**3043.44**	**1807.00**	**398.00**	**524.00**	**256.44**	**1178.44**	**2.00**	**56.00**
Tamil Nadu	State	5415.55	1995.15	2970.00	431.00	0.00	3401.00	19.40	0.00
	Private	1963.06	0.00	250.00	330.50	411.66	992.16	970.90	0.00
	Central	2389.00	0.00	2031.00	0.00	0.00	2031.00	0.00	358.00
	Sub-Total	**9767.61**	**1995.15**	**5251.00**	**761.50**	**411.66**	**6424.16**	**990.30**	**358.00**
Pondichery	State	32.50	0.00	0.00	32.50	0.00	32.50	0.00	0.00
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	142.00	0.00	130.00	0.00	0.00	130.00	0.00	12.00
	Sub-Total	**174.50**	**0.00**	**130.00**	**32.50**	**0.00**	**162.50**	**0.00**	**12.00**
	Central - Unallocated	610.00	0.00	530.00	0.00	0.00	530.00	0.00	80.00
Total	State	18631.56	10284.64	7392.50	562.50	362.52	8317.52	29.40	0.00
Southern	Private	4047.70	43.20	510.00	1737.90	576.80	2824.70	1179.80	0.00
Region	Central	6620.00	0.00	5490.00	350.00	0.00	5840.00	0.00	780.00*
	Grand Total	**29299.26**	**10327.84**	**13392.50**	**2650.40**	**939.32**	**16982.22**	**1209.20**	**780.00**

Note- -* Based on derated capacity of 2 units each of 170 MW at Madras Atomic Power Station in Tamil Nadu.

Statement - IV

INSTALLED CAPACITY (IN MW) OF POWER UTILITIES IN THE STATES/UTS LOCATED IN EASTERN REGION INCLUDING ALLOCATED SHARES IN JOINT & CENTRAL SECTOR UTILITIES AS ON 31.03.2004

State	Ownership Sector	Total	Modewise breakup						
				Thermal			Total		
			Hydro	Coal	Gas	Diesel	Thermal	Wind	Nuclear
Bihar	State	598.40	44.90	553.50	0.00	0.00	553.50	0.00	0.00
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	2460.76	13.26	2357.50	90.00	0.00	2447.50	0.00	0.00
	Sub-Total	**3059.16**	**58.16**	**2911.00**	**90.00**	**0.00**	**3001.00**	**0.00**	**0.00**
Jharkhand	State	1390.00	130.00	1260.00	0.00	0.00	1260.00	0.00	0.00
	Private	240.00	0.00	240.00	0.00	0.00	240.00	0.00	0.00
	Central	185.89	85.89	100.00	0.00	0.00	100.00	0.00	0.00
	Sub-Total	**1815.89**	**215.89**	**1600.00**	**0.00**	**0.00**	**1600.00**	**0.00**	**0.00**
West	State	3582.87	164.71	3305.00	100.00	12.06	3417.06	1.10	0.00
Bengal	Private	1201.52	0.00	1201.38	0.00	0.14	1201.52	0.00	0.00
	Central	1594.53	84.43	1510.10	0.00	0.00	1510.10	0.00	0.00
	D.V.C.*	171.92	11.92	160.00	0.00	0.00	160.00	0.00	0.00
	Sub-Total	**6550.84**	**261.06**	**6176.48**	**100.00**	**12.20**	**6288.68**	**1.10**	**0.00**
Orissa	State	2304.49	1883.00	420.00	0.00	0.00	420.00	1.49	0.00
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	2101.99	0.00	2101.99	0.00	0.00	2101.99	0.00	0.00
	Sub-Total	**4406.48**	**1883.00**	**2521.99**	**0.00**	**0.00**	**2521.99**	**1.49**	**0.00**
Sikkim	State	37.90	32.90	0.00	0.00	5.00	50.00	0.00	0.00
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	22.90	8.50	14.40	0.00	0.00	14.40	0.00	0.00
	Sub-Total	**60.80**	**41.40**	**14.40**	**0.00**	**5.00**	**19.40**	**0.00**	**0.00**
	Central - Unallocated	1303.51	0.00	1303.51	0.00	0.00	1303.51	0.00	0.00
Total	State	7913.66	2255.51	5538.50	100.00	17.06	5655.56	2.59	0.00
Eastern	Private	1441.52	0.00	1441.38	0.00	0.14	1441.52	0.00	0.00
Region	Central	7841.50	204.00	7547.50	90.00	0.00	7637.50	0.00	0.00
	Grand Total	**17196.68**	**2459.51**	**14527.38**	**190.00**	**17.20**	**14734.58**	**2.59**	**0.00**

Note: * Total of shares allocated to DVC from central sectors (NTPC's/Power Stations).

Statement - V

INSTALLED CAPACITY (IN MW) OF POWER UTILITIES IN THE STATES/UTS LOCATED IN NORTH-EASTERN REGION INCLUDING ALLOCATED SHARES IN JOINT & CENTRAL SECTOR UTILITIES AS ON 31.03.2004

State	Ownership Sector	Total	Modewise breakup						
				Thermal			Total		
			Hydro	Coal	Gas	Diesel	Thermal	Wind	Nuclear
Assam	State	597.19	2.00	330.00	244.50	20.69	595.19	0.00	0.00
	Private	24.50	0.00	0.00	24.50	0.00	24.50	0.00	0.00
	Central	522.80	344.80	0.00	178.00	0.00	178.00	0.00	0.00
	Sub-Total	**1144.49**	**346.80**	**330.00**	**447.00**	**20.69**	**797.69**	**0.00**	**0.00**
Arunachal	State	45.43	29.55	0.00	0.00	15.88	15.88	0.00	0.00
Pradesh	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	117.00	96.00	0.00	21.00	0.00	21.00	0.00	0.00
	Sub-Total	**162.43**	**125.55**	**0.00**	**21.00**	**15.88**	**36.88**	**0.00**	**0.00**
Meghalaya	State	188.76	186.71	0.00	0.00	2.05	2.05	0.00	0.00
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	97.20	71.10	0.00	26.10	0.00	26.10	0.00	0.00
	Sub-Total	**285.96**	**257.81**	**0.00**	**26.10**	**2.05**	**28.15**	**0.00**	**0.00**
Tripura	State	127.36	16.01	0.00	106.50	4.85	111.35	0.00	0.00
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	93.10	60.10	0.00	33.00	0.00	33.00	0.00	0.00
	Sub-Total	**220.46**	**76.11**	**0.00**	**139.50**	**4.85**	**144.35**	**0.00**	**0.00**
Manipur	State	48.61	3.20	0.00	0.00	45.41	45.41	0.00	0.00
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	105.50	79.40	0.00	26.10	0.00	26.10	0.00	0.00
	Sub-Total	**154.11**	**82.60**	**0.00**	**26.10**	**45.41**	**71.51**	**0.00**	**0.00**
Nagaland	State	30.36	28.20	0.00	0.00	2.00	2.00	0.16*	0.00
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	71.10	52.10	0.00	19.00	0.00	19.00	0.00	0.00
	Sub-Total	**101.46**	**80.30**	**0.00**	**19.00**	**2.00**	**21.00**	**0.16**	**0.00**
Mizoram	State	37.20	8.26	0.00	0.00	28.94	28.94	0.00	0.00
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	49.10	33.00	0.00	16.10	0.00	16.10	0.00	0.00
	Sub-Total	**86.30**	**41.26**	**0.00**	**16.10**	**28.94**	**45.04**	**0.00**	**0.00**
	Central - Unallocated	179.20	123.50	0.00	55.70	0.00	55.70	0.00	0.00
Total	State	1074.91	273.93	330.00	351.00	119.82	800.82	0.16	0.00
North-Eastern	Private	24.50	0.00	0.00	24.50	0.00	24.50	0.00	0.00
Region	Central	1235.00	860.00	0.00	375.00	0.00	375.00	0.00	0.00
	Grand Total	**2334.41**	**1133.93**	**330.00**	**750.50**	**119.82**	**1200.32**	**0.16**	**0.00**

@ :- Under the column "Coal" which signifies Steam Turbine Gen. Sets in general, 2x30MW ST units at Chandrapur and 1x30 MW ST unit at Namrup are using Natural
Gas fuel in their boilers.
Note - * Bio Mass Gassifire.

Statement - VI

INSTALLED CAPACITY (IN MW) OF POWER UTILITIES IN THE ISLANDS AS ON 31.03.2004

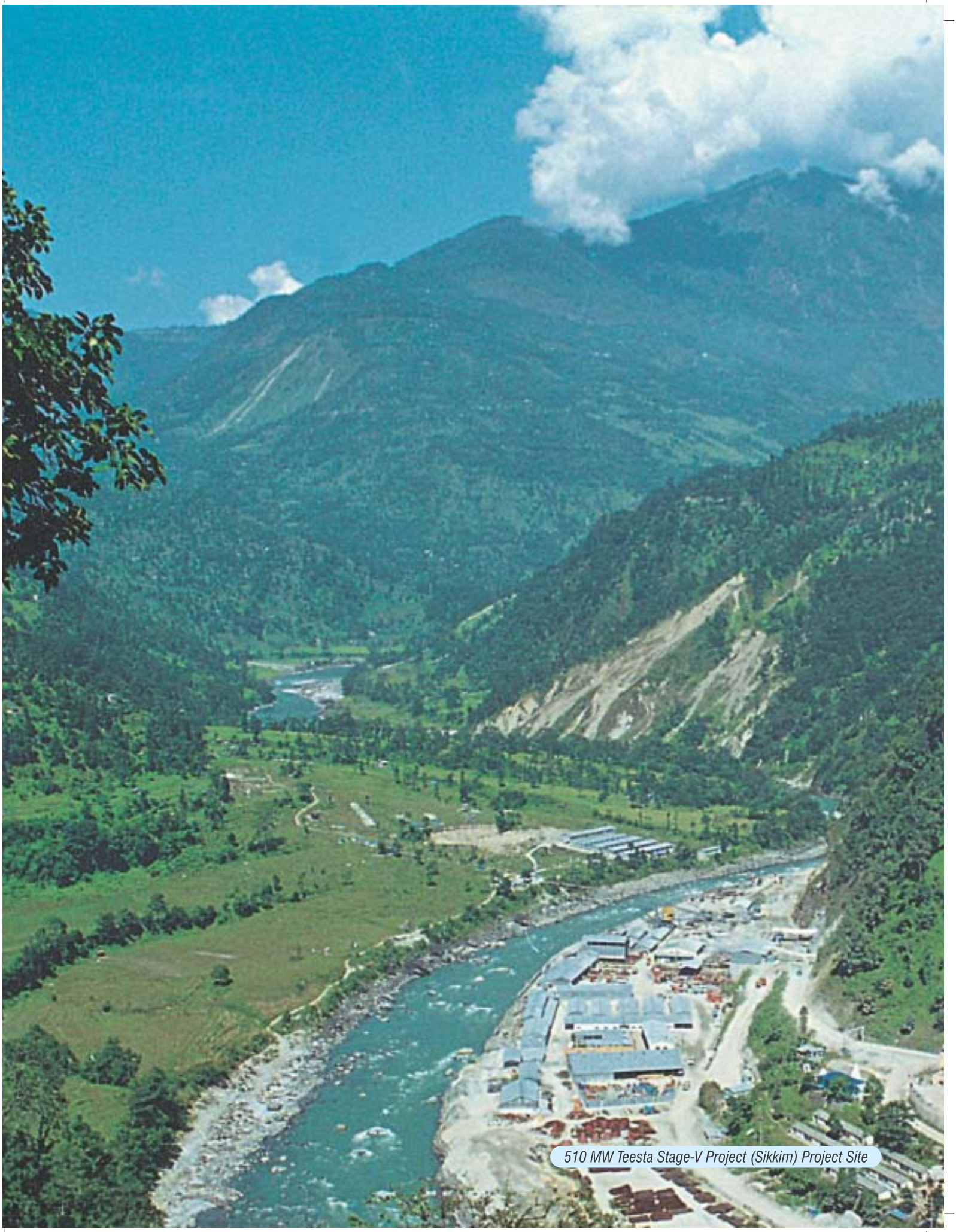
State	Ownership Sector	Total	Modewise breakup						
				Thermal			Total		
			Hydro	Coal	Gas	Diesel	Thermal	Wind	Nuclear
Andaman & Nicobar	State	39.30	5.25	0.00	0.00	34.05	34.05	0.00	0.00
	Private	20.00	0.00	0.00	0.00	20.00	20.00	0.00	0.00
	Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Sub-Total	**59.30**	**5.25**	**0.00**	**0.00**	**54.05**	**54.05**	**0.00**	**0.00**
laksha-dweep	State	9.97	0.00	0.00	0.00	9.97	9.97	0.00	0.00
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Sub-Total	**9.97**	**0.00**	**0.00**	**0.00**	**9.97**	**9.97**	**0.00**	**0.00**
Total Islands	State	49.27	5.25	0.00	0.00	44.02	44.02	0.00	0.00
	Private	20.00	0.00	0.00	0.00	20.00	20.00	0.00	0.00
	Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grand Total	**69.27**	**5.25**	**0.00**	**0.00**	**64.02**	**64.02**	**0.00**	**0.00**

Statement - VII

ALL INDIA INSTALLED CAPACITY (IN MW) OF POWER STATIONS LOCATED IN THE REGIONS OF MAIN LAND AND ISLANDS AS ON 31.03.2004

State	Ownership Sector	Total	Modewise breakup						
				Thermal			Total		
			Hydro	Coal	Gas	Diesel	Thermal	Wind	Nuclear
Northern Region	State	17397.70	6400.57	10074.50	901.20	14.99	10990.70	6.40	0.00
	Private	440.30	386.00	0.00	0.00	0.00	0.00	54.30	0.00
	Central	13142.00	3810.00	5840.00	2312.00	0.00	8152.00	0.00	1180.00
	Sub Total	**30979.96**	**10596.57**	**15914.50**	**3213.20**	**14.99**	**19142.70**	**60.70**	**1180.00**
Western Region	State	19586.04	4155.13	14041.50	1345.72	17.28	15404.50	26.41	0.00
	Private	5705.8.00	447.00	2290.00	2398.00	0.20	4688.20	570.60	0.00
	Central	6887.00	375.00	4460.00	1292.00	0.00	5752.00	0.00	760.00
	Sub Total	**32178.84**	**4977.13**	**20791.50**	**5035.72**	**17.48**	**25844.70**	**597.01**	**760.00**
Southern Region	State	18631.56	10284.64	7392.50	562.50	362.52	8317.52	29.40	0.00
	Private	4047.7.00	43.20	510.00	1737.90	576.80	2824.70	1179.80	0.00
	Central	6620.00	0.00	5490.00	350.00	0.00	5840.00	0.00	780.00
	Sub Total	**29299.26**	**10327.84**	**13392.50**	**2650.40**	**939.32**	**16982.22**	**1209.20**	**780.00**
Eastern Region	State	7913.66	2255.51	5538.50	100.00	17.06	5655.56	2.59	0.00
	Private	1441.52	0.00	1441.38	0.00	0.14	1441.52	0.00	0.00
	Central	7841.50	204.00	7547.50	90.00	0.00	7637.50	0.00	0.00
	Sub Total	**17196.68**	**2459.51**	**14527.38**	**190.00**	**17.20**	**14734.58**	**2.59**	**0.00**
North Eastern Region	State	1074.91	273.93	330.00	351.00	119.82	800.82	0.16	0.00
	Private	24.50	0.00	0.00	24.50	0.00	24.50	0.00	0.00
	Central	1235.00	860.00	0.00	375.00	0.00	375.00	0.00	0.00
	Sub Total	**2334.41**	**1133.93**	**330.00**	**750.50**	**119.82**	**1200.32**	**0.16**	**0.00**
Islands	State	49.27	5.25	0.00	0.00	44.02	44.02	0.00	0.00
	Private	20.00	0.00	0.00	0.00	20.00	20.00	0.00	0.00
	Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ALL INDIA	**Sub Total**	**69.27**	**5.25**	**0.00**	**0.00**	**64.02**	**64.02**	**0.00**	**0.00**
	State	64653.10	23375.03	37377.00	3260.42	575.69	41213.11	64.96	0.00
	Private	11679.82	876.20	4241.38	4160.40	597.14	8998.92	1804.70	0.00
	Central	35725.50	5249.00	23337.50	4419.00	0.00	27756.50	0.00	2720.00
	Total	**112058.40**	**29500.23**	**64955.88**	**11839.82**	**1172.83**	**77968.53**	**1869.66**	**2720.00**

The small units in Hydro,Diesel and wind modes of power generation are excluded in the above table as these are not monitored on monthly basis,however their capacites are furnised by utilities in the annual electricity statistics which will be taken into account in the General Review of the fiscal year.



510 MW Teesta Stage-V Project (Sikkim) Project Site

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