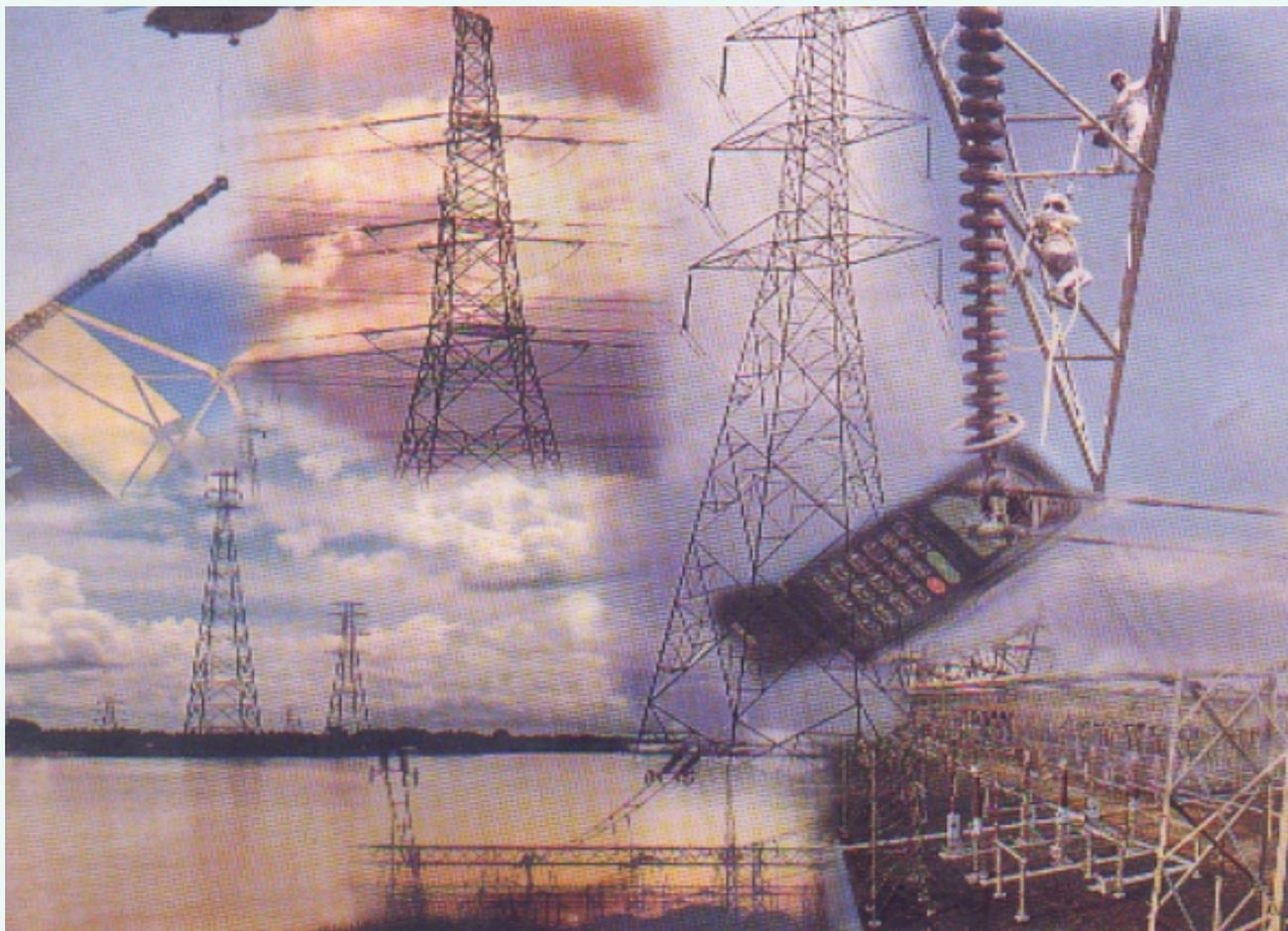


ANNUAL REPORT 1998-99
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POWER GRID CORPORATION OF INDIA LIMITED

MISSION

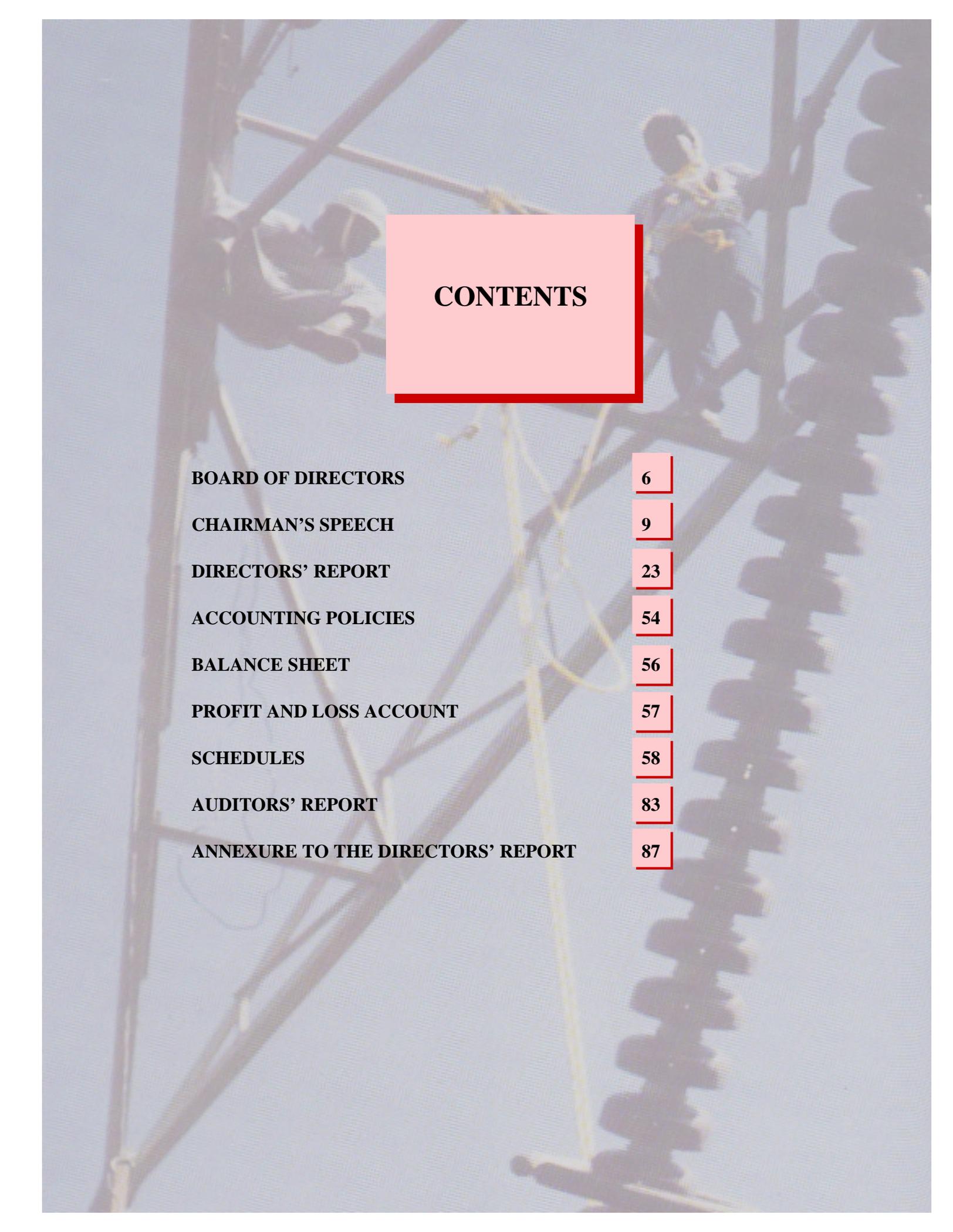
Establishment and operation of Regional and National Power Grids to facilitate transfer of power within and across the Regions with reliability, security and economy, on sound commercial principles.



OBJECTIVES

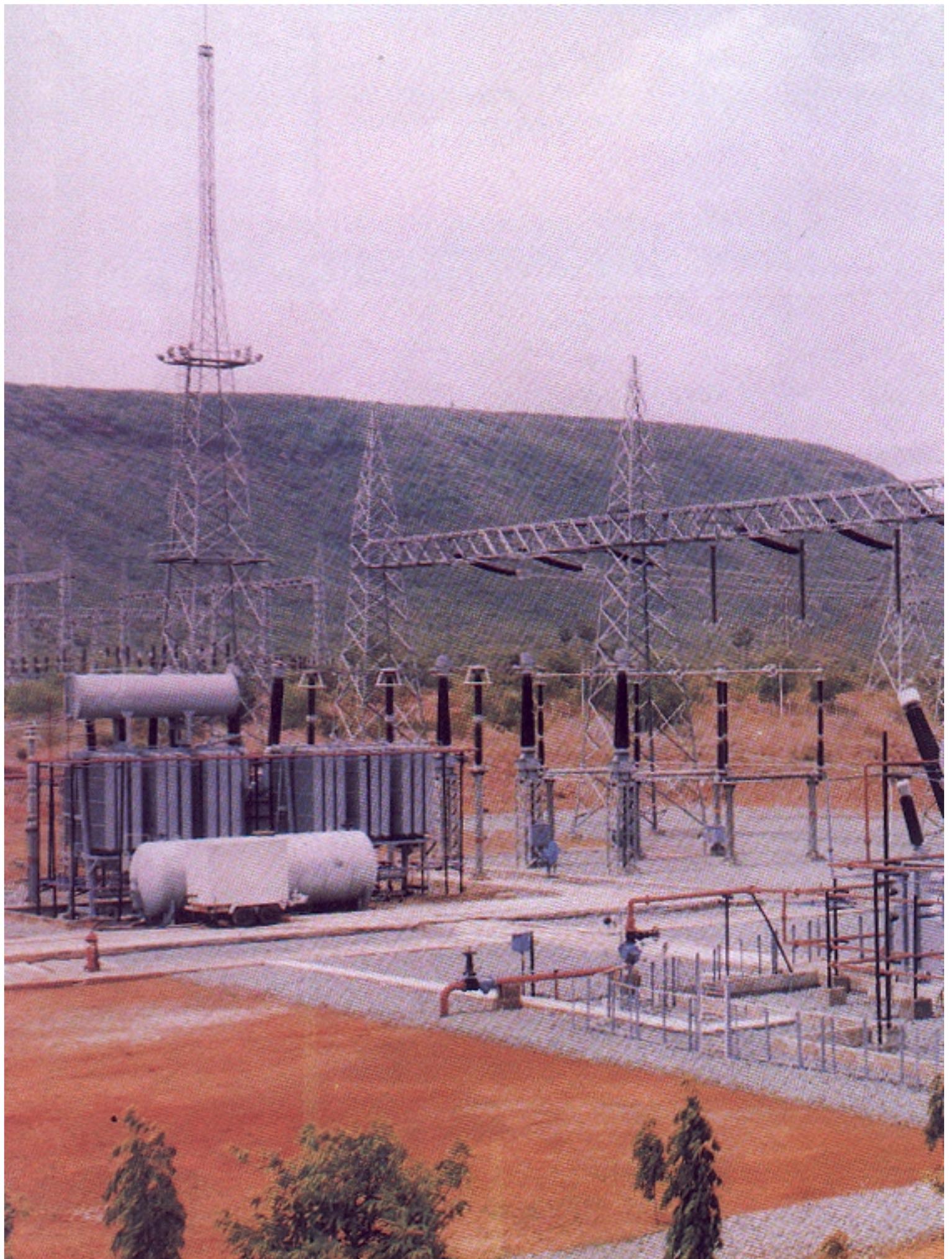
The Corporation has set following objectives in line with its mission :

- Efficient operation and maintenance of transmission systems.
- Strengthen Regional Power Grids and establish Inter Regional links leading to formation of National Power Grid.
- Establish/augment Regional load dispatch centres and communication facilities.
- Introduce rational tariff structure for exchange of power
- Establish Power pools to facilitate exchange of power between States/ Regions leading to formation of National Power Grid.
- Achieve constructive cooperation and build professional relations with stakeholders, peers and other related organizations



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BOARD OF DIRECTOR



Shri R. P. Singh
Chairman and Managing Director
Since 23.08.1997



Shri R. K. Madan
Director (Projects)
Since 20.08.1996



Dr. V. K. Garg
Director (Finance)
Since 17.09.1997



Shri Bhanu Bhushan
Director (Operations)
Since 13.11.1997



Shri Binay Kumar
Director (Personnel)
Since 07.07.1998

Bankers

- Indian Overseas Bank ● Union Bank of India ● Bank of Baroda ● State Bank of Hyderabad
- State Bank of Travancore ● State Bank of India ● State Bank of Patiala ● State Bank of Bikaner & Jaipur
- Central Bank of India ● Corporation Bank ● Canara Bank ● Oriental Bank of Commerce ● Syndicate Bank
- Dena Bank ● State Bank of Mysore ● Punjab National Bank ● Vijaya Bank ● Indian Bank



Dr. S. R. Shivrain
Part-Time Director
Since 11.01.1995



Shri Anil Razdan
Part-Time Director
Since 11.08.1998



Shri R. V. Shahi
Part-Time Director
Since 27.07.1998



Dr. Ramesh Gupta
Part-Time Director
Since 27.07.1998



Shri Ravi Parthasarathy
Part-Time Director
Since 27.07.1998



Shri J. Vasudevan
Part-Time Director
from 28.11.96 to 11.08.98

Company Secretary
Ms. Divya Tandon

Statutory Auditors

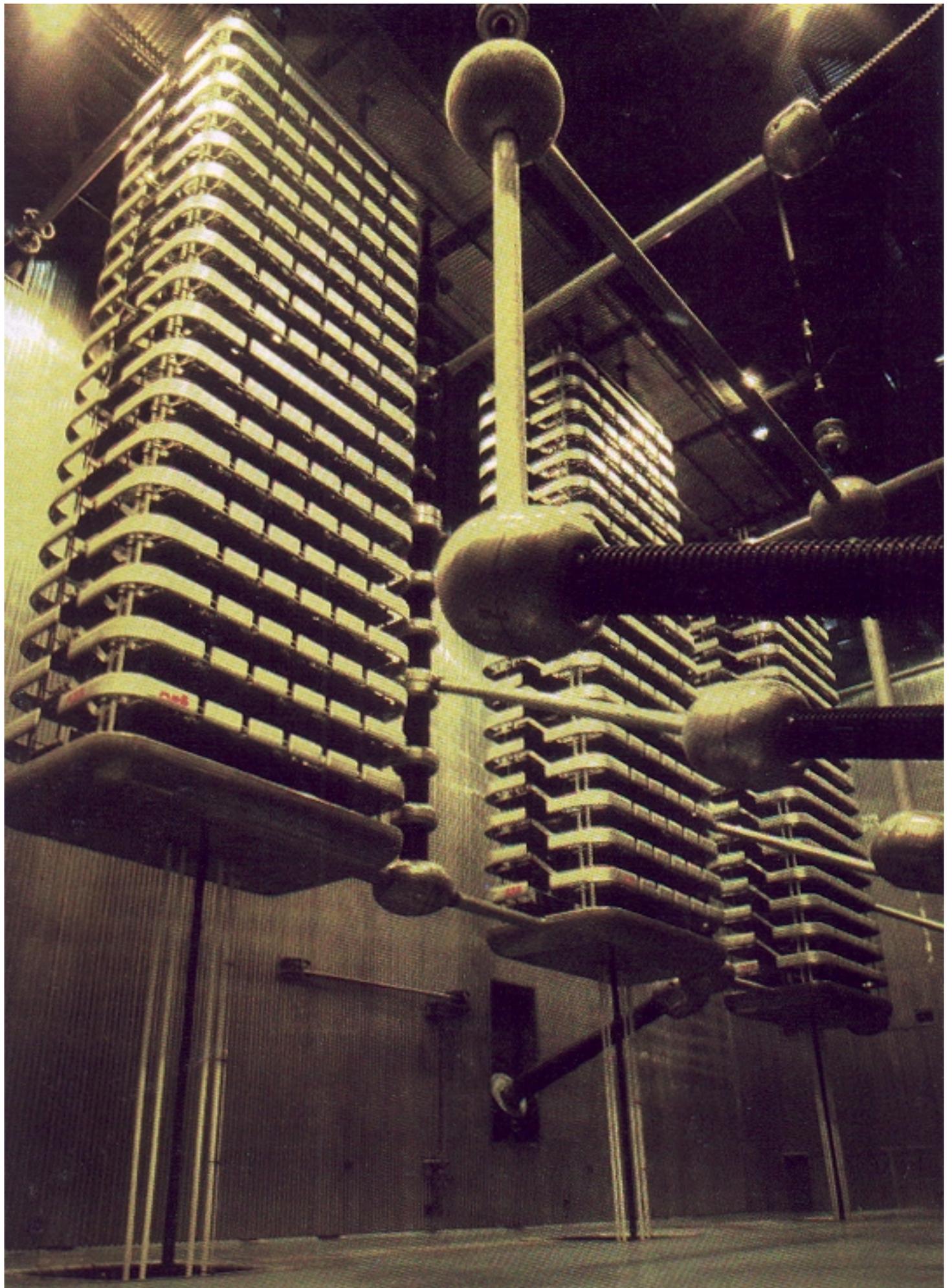
M/s D. P. Sen & Company,
Chartered Accountants
8/2, Karan Shankar Roy Road,
Calcutta - 700 001

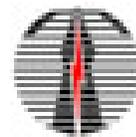
M/s Venugopal & Chenoy,
Chartered Accountants
4-1-889/16/2, Tilak Road
Hyderabad - 500 000

M/s Hingorani M. & Company
Chartered Accountants,
35, Netaji Subhash Marg,
Daryaganj, New Delhi - 110 002

Registered Office

B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi - 110 016





CHAIRMAN SPEAKS

AT THE 10th ANNUAL GENERAL MEETING HED ON 25th AUGUST, 1999



Gentlemen,

With great sense of satisfaction and happiness, I extend warm welcome to all in the 10th Annual General meeting of your Company. The year 1998-99 tested the resilience on Indian economy which witnessed the economic turbulence occurred due to collapse of Asian economies leading to marginal decline in the industrial growth. However, it did not affect the GDP due to improved performance in the agriculture sector. The country's economy was also able to cope with the economic sanctions imposed on India without much adverse affect, which reflects that the basic parameters of Indian economy are reasonably strong.

Since independence, power sector has undergone phenomenal change as the generation capacity has increased from mere 1,362 MW to present level of 90,000 MW. Although the power generation capacity addition and power supply have grown at an average rate of 9% and 9.8% respectively during the past 50 years, the nation is still experiencing shortage to the extent of 11% in peak power and 6% in energy. The per capita consumption of energy in the country presently is just 340 KWh as compared to the developed countries where it ranges between 4000-8000 KWh. **Power**, the basic input and driving vehicle to industrial, agricultural, domestic, transport sector etc. And thus for overall economic development of the country, **has been accorded priority since formulation of the 1st Five Year Plan in 1950s**. Power sector has continually since then has been allocated about 20% of the outlay of the country.

The thrust on this vital sector is still maintained as about 57,000 MW (Which has now been scaled down to 28,000 MW) of capacity addition was planned during conception of IX plan period needing a generation outlay of Rs. 2,00,000 crores and

additional Rs.1,10,000 crores for matching transmission and distribution (T&D) network. **However, as per the norms for investment in power sector the outlay for T&D should be at par with Generation.** POWERGRID is proposing to invest Rs. 11,000 crores in the IX plan period. The generation capacity addition during X and XI is estimated as 50,000 MW AND 60,000 respectively requiring an outlay of Rs. 4,50,000 crores. The matching (T&D) sector requirement shall be to the tune of Rs. 4,50,000 crores as per the norms. **POWERGRID is planning to invest about Rs. 78,000 crores till the end of XI Five Year Plan (2012) for the development of integrated national grid and the balance has to be deployed by State sector as well as private sector.**

Huge resources required, as mentioned above, are not available in the domestic market and today power sector is one the biggest recipient of external aid and total committed aid is around 30% of the assistance to the country. POWERGRID had already carved out its resources mobilisation plan for investment of Rs. 11,000 crores through judicious portfolio mix of multilateral loans, domestic loans and deployment of its internal resources to implement its ongoing and new schemes in committed time from during IX Plan. During this year, POWERGRID has tied up Rs. 850 crores of loan having longer maturity period of 15-20 years through domestic market. The foreign currency loan of US\$ 100 million has been received through Bank of India with 24 years maturity period. In addition, loan worth Rs. 3,500 crores were negotiated which include US\$ 450 million with the World Bank and US\$ 125 million with J-Exim and US\$ 250 million is under negotiation with the ADB.

SECTORAL REFORMS

The Government of India has initiated several policy initiatives and sectoral reforms in the power sector to improve its performance by way of unbundling of vertically integrated State Electricity Boards and inviting private sector participation since 1991. However, the reform process had been quite slow and did not yield desired response from private sector. The unfolding of events in the Indian power sector last year had made it a watershed year in the country. Several landmark policy initiatives were taken by the Government of India including establishment of regulatory framework; recognizing transmission as a distinct entity; opening up of transmission for investment by private sector; introducing the concept of Central and State Transmission Utilities Mega power policy etc.

To enable unbundling of power sector in line with global trend towards restructuring and reform, the Electricity Act, 1910 and the Electricity (Supply) Act, 1948 were amended by the Electricity Laws (Amendment) Act, 1998. Among other things, the Act provides for the formation of Central Transmission Utility (CTU) at the Centre and State Transmission Utilities (STU) at the State level for planning-coordination and undertaking transmission of energy in the respective areas. I am delighted to share with you that Company has been formally notified as CTU by the Union Government. As a CTU, the Company has drawn up a long term "Transmission Plan" for the country as a whole and is taking up the task of formation of National Grid to make the transmission bridge between the generators and consumers



both by way of expansion in its own and by inviting private sector participation. The guidelines for private sector participation have been finalised with the active participation of the Company under aegis of Ministry of Power and shall be circulated shortly.

The enactment of Electricity Regulatory Commission (ERC) Act, 1998 has paved the way for setting up of independent regulatory commissions at the Centre as well as in the States. The Central Electricity Regulatory Commission (CERC) would frame guidelines, formulate tariff policy regulate the tariff and would also arbitrate/adjudicate upon the dispute of central sector power utilities and private licensees involved in interstate power exchange. Similarly, the State Electricity Regulatory Commission (SERC) would regulate the power sector utilities within the respective State. The CERC has since been established and started functioning the SERC's are also established in some of the States and others are in the process of establishing the same.

PRIVATE SECTOR PARTICIPATION IN GENERATION

As a major policy initiative, the government has also formulated mega power projects policy for inviting private sector participation. Host of concessions were accorded to mega

projects to substantially reduce the tariff which includes import of capital equipment free of custom duties, tax holidays for 10 years, requesting State Government to exempt sales tax and local levies etc. This would accelerate much needed investments in the power sector and would bring down the power tariff which otherwise would have been much more for the consumers.

In line with the mandate from GOI to develop mega power projects in private sector, the task of pre-qualification for 2 mega power projects viz. 1000 to 1500 MW coal based project as Cuddalore in Tamilnadu and 2000 MW bifuel project, at Pipavav in Gujarat was launched by POWERGRID through invitation on international competitive bidding process.

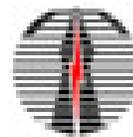
The international developers for Mega power projects were facing lot of difficulties in obtaining various clearances from Government organizations and finalisation PPA's with the beneficiaries. In order to provide comfort to these developers in negotiating the PPA with SEB's which are already having very poor financial health, the Government of India decided to establish a Power Trading Corporation, as a single agency for negotiating PPA's. In line with the Government mandate, **POWERGRID has promoted the Power Trading Corporation (PTC) as a lead partner with 30% equity stake** along with NTPC and PFC which will hold 15% equity stake each. The PTC will be an independent company and will act as a single window for initiating sale and purchase of power on sound commercial principles.

PRIVATE SECTOR INVESTMENT IN TRANSMISSION

The Electricity Laws (Amendment) Act, 1998 has **recognized the transmission as independent business entity and paved the way for entry** of private sector in the transmission area. The private companies can now enter as "Transmission Licensee" under the regulatory umbrellas of CERC/SERC's which should provide comfort and confidence to private investors. POWERGRID as the CTU will identify inter-state transmission lines to be entrusted to private sector and then select the private investors/promoters through competitive bidding for such lines. After evaluation of the bids, POWERGRID will recommend to CERC for issuance of license.

In discharging this responsibility, **POWERGRID is planning to facilitate private participation either through Independent Power Transmission Company (IPTC) or Joint Venture route.** POWERGRID is creating necessary technical, commercial & financial framework within which the private sector will be able to establish transmission lines on Build, Own & Maintain (BOM) basis. The developmental activities like project approvals, forest and environment clearances and other statutory approvals / clearances / permits shall be obtained by POWERGRID and assigned to prospective transmission licensee.





OPERATIONAL PERFORMANCE

At the outset, before I go into the performance of the year 1998-99, I would like to share with you that our Company has been rated as one of the top 10 PSU's for the year 1997-98 to receive "Prime Minister's "MOU Award ". It is the only PSU in the power sector to have such a distinction.

Our Company is once again poised to be amongst the top PSUs by achieving "Excellent Performance" rating for the year 1998-99 for 6th consecutive year since signing its first MOU in the year 1993-94.

EMBARKING INTO TELECOM BUSINESS

In response to change of climate and to make effective utilisation of its transmission infrastructure, **I am extremely delighted to share with you that our Company will be heralding into telecommunication business and its plan into this foray will be taking a concrete shape soon.** Its existing transmission network provides an excellent opportunity to establish national information infrastructure for Long Distance Telecommunication Services .The existing network facilitates a ready-made right-of-way for installation of Overhead Optical Fibre Ground Wires (OPGW) for carrying high speed audio-video and data signals and would provide extremely robust support in a remarkably cost effective manner.

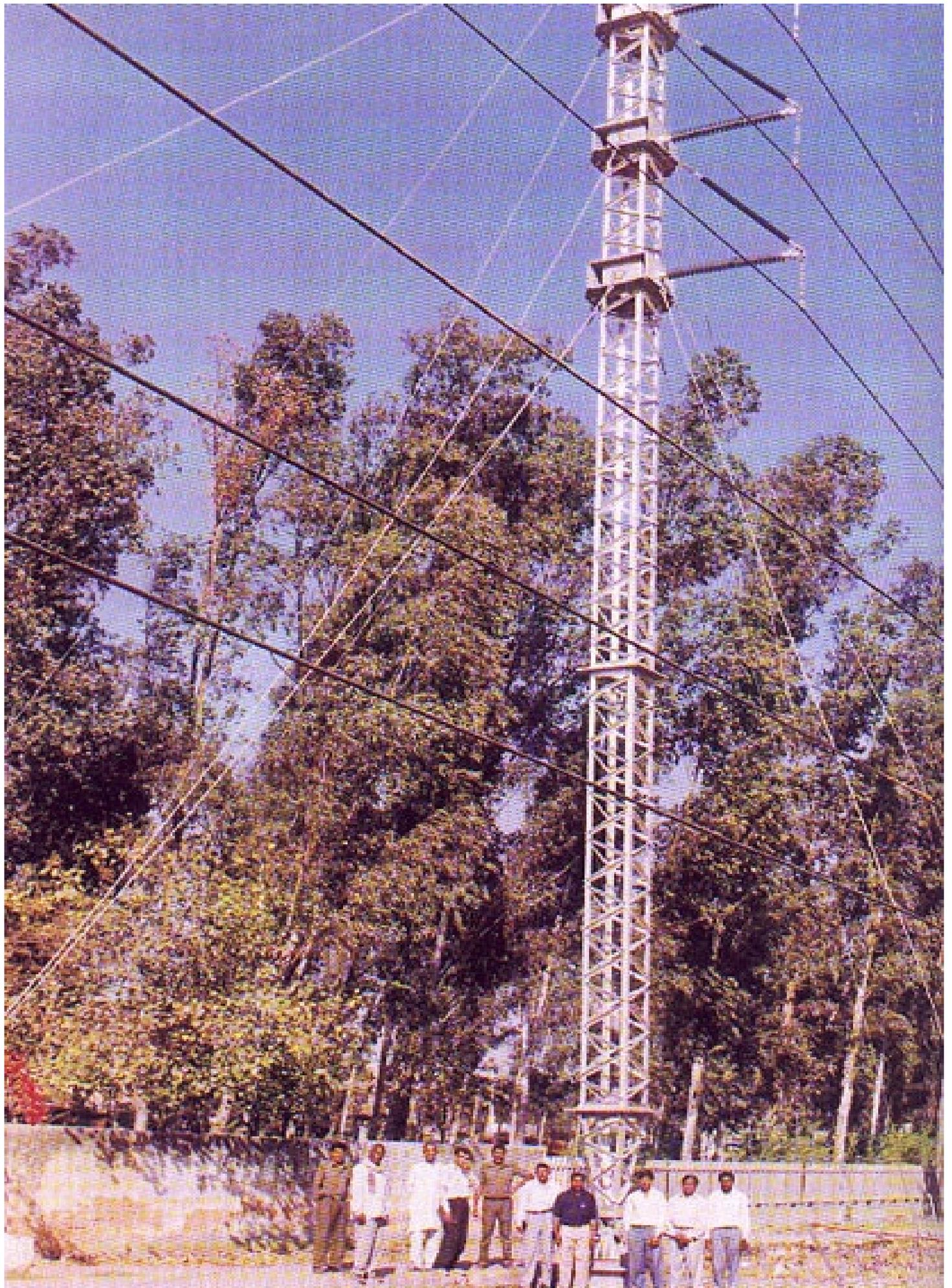
Internationally reputed consultants have been appointed to evolve a viable proposition to facilitate embarking in this area. Various opportunities will be evaluated for POWERGRID's foray into this venture from becoming a "Carrier's Carrier" to a "full service provider". **The Company has already entered into MOU's with major telecom service providers viz. VSNL and BPL Ltd. for utilisation of its capacity.** The organisation is also taking up a pilot project to demonstrate the successful use of its existing optical fibre links under ULDC scheme to connect the remote area(s) which is not yet connected. POWERGRID has also started discussion for entering into Joint Venture with various SEBs like APTRANSCO, KEB, TNEB, MSEB, KSEB, WBSER, RSEB. Towards laying down the optical fibre network ,the organization has already installed 1,600 kms optical fibre. This includes deployment of 115 kms. of optical fibre first time into the country over live transmission line of 400 kV Dadri-Mandola and Dadri-Panipat segment of Northern Region system.

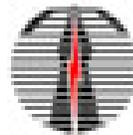
Sitting at the dusk of the present millennium, let me take an opportunity to compare the company's performance from the year 1992-93 when it started commercial operation. Our company has added about 17,000 ckms. of additional EHV transmission lines to the national network during this period and thus has doubled its transmission network to over 35,000 ckms since its inception. The turnover has gone up from a modest Rs. 634 crores to Rs. 1,770 crores registering average annual growth rate of 35%. The asset base has grown from Rs. 3,521 crores to Rs. 8,800 crores showing an average annual growth of more than 25% . Our Company has netted Rs. 444 crores during its financial year and thereby established an annual growth of 15%.

The transmission network of our Company stands at 35,119 ckms.and 60 substations having 26,930 MVA of transformation capacity crisis-crossing the entire length and breadth of the country. The availability of the transmission system during the year was 98.64%, which is comparable with best international standards has been achieved by adoption of the state-of-the-art diagnostic tools, international practices and the development of in-house expertise in O&M area.

The use of Emergency Restoration System (ERS) to restore the power supply system is quickest possible time has now been widely recognised in the country especially in restoration of power supply network in the state of Gujarat. Which was hit by severe cyclone in June 1998. **The efforts received acclaim by all including Hon'ble Members of Parliament.** Hon'ble Minister of Power commended POWERGRID's efforts and said "Expeditious completion of such a herculean task under extremely difficult conditions was possible ,only due to high degree of dedication, sincerity and commitment to the cause, by POWERGRID."

Other transmission systems affected by landslides, floods, heavy storms, rains etc. restored through deployment of ERS includes

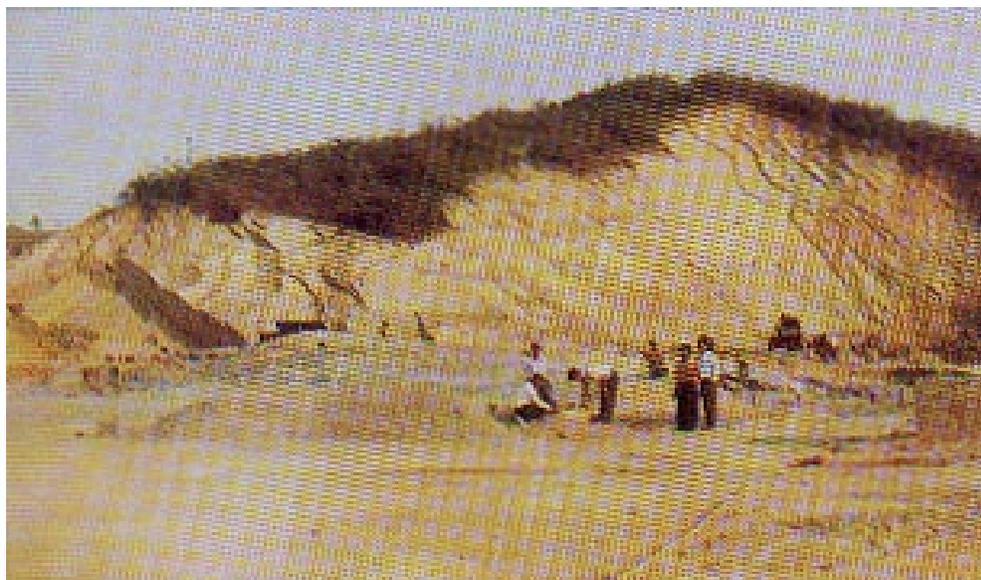




400 kV Ramagundam-Chandrapur as well as APTRANSCO's lines in 10 days, 400 kV Jabalpur-Itarsi line within 2 weeks, 400 kV Farakka-Durgapur S/C in 3 days time, 220 kV Kakrapar-Haldarwa D/C in 10 days, 220 kV transmission line feeding BALCO within a week and 132 kV Gohpur - Etanagar within 3 weeks despite hilly and forest congested terrain in North Eastern Region. The 66 kV distribution line of DVB at Magolpuri area was restored within a record time of 10 hours.

CONSTRUCTIONAL PERFORMANCE

The major milestones and accomplishments during the year include completion of POWERGRID's prestigious 500 MW HVDC Back-to-Back project at Gazuwaka in March 1999 interconnecting Eastern and Southern Regions. January 16, 1999 would be remembered as a golden day in the history of POWERGRID, as on this day, Hon'ble Prime Minister dedicated to the nation the 400 kV Gas Insulated Sub-station and associated Transmission System of Kayamkulam. On construction front, organization has once again achieved the distinction of surpassing the construction targets in the MOU and has constructed 3,240 ckt kms of transmission lines



against the MOU target of 2,681 ckt kms. **The associated transmission system for 2,200 MW of generation projects were commissioned last year not only on schedule but in few instances ahead of schedule despite extremely difficult terrain, facing insurgency and law & order problems.** The employees in the North-Eastern Region are functioning under constant threats, abduction and extortion notices from extremist organizations. Undeterred by such situations, POWERGRID employees have completed the construction of Kathalguri transmission system, the backbone of North-Eastern Regional powergrid.

In conformance to the aforementioned facts, I take this

opportunity to inform you that our Company has implemented transmission systems of Kayamkulam and Faridabad gas based projects as per schedule matching with commissioning of generation projects. POWERGRID have also successfully implemented large transmission systems associated with Vindhychal Additional and Vindhychal stage II projects comprising of about of about 3,500 ckms. within committed schedule of 4 years. All these accomplishments have been feasible due to POWERGRID's in-house expertise developed in design, construction procurement etc. which is a matter of prestige and honour. I assure you that the massive transmission system associated with Talcher-II STPP comprising of over 3,000 ckms of HVDC and 700 ckms of AC transmission system passing through treacherous forests and hilly terrain shall be completed in a time frame matching with generation project.

As you are aware, POWERGRID has undertaken the gigantic task of augmenting Regional Load Despatch & Communication (RLDC) facilities in each region. Two such RLDC's are under execution in Southern and Northern Regions. Each project being setup is one of the largest in the world. I am confident that inspite of the initial setbacks, we will be able to accomplish the task of setting up of unified Load Despatch schemes in each region in the committed time frame through untiring and dedicated efforts of one and all.

DEVELOPMENT OF NATIONAL GRID

There is a need to transfer power across the length and breadth of the country from the resources enriched areas to power demand areas, thus necessitating formation of integrated National Grid. In line with the mandate, POWERGRID has initiated actions to integrate various regional grids in a systematic manner. Initially, the National Grid shall facilitate limited controlled exchange of power under varied system operating conditions mostly through asynchronous connections. Towards this earlier 500 MW HVDC link at Vindhychal between Western & Northern

Regions and 1,000 MW HVDC link at Chandrapur between Western & Southern Regions we commissioned and these have been used extensively for exchange of power between the regions to have economy in operation. Recently in March 1999, 500 MW HVDC link at Gazuwaka between Eastern & Southern Regions has been commissioned. Besides this, a number of AC transmission lines connecting various regions in radial mode have been commissioned. With the result, power exchange of the order of 3,700 MW across various regions can take place.

Another HVDC link of 500 MW capacity at Sasaram for exchange of power between Eastern and Northern Region is under execution and likely to be commissioned by 2001-02.



POWERGRID has also drawn a blue print of long term transmission plan to further strengthen the National Grid, which envisages strong interconnection between the regions through high capacity HVDC bipoles and high capacity EHVAC 400 kV as well as 765 kV lines. This would ultimately lead to the synchronised operation of North-Eastern, Eastern, Western and Northern Regions while Southern Region shall be connected through asynchronous links to limit the size of synchronous grid. The development of the proposed National Grid will be flexible enough to accommodate any uncertainty in generation planning as well as to facilitate transfer of power from neighbouring countries.

TOWARDS SAARC GRID & BEYOND

SAARC countries, in general have very low per capita energy consumption, in spite of the fact most of them are endowed with abundant resources. The harnessing of these resources, so far, have been done in a limited way mainly due to low level of domestic demand which does not justify the development of large sized projects that could take full advantage of economies of scale. India with its huge requirement can provide requisite demand to facilitate development of large projects in these countries. POWERGRID is playing a catalytic role in development of SAARC grid for exchange of power and harnessing the vast potential of diversified resources available beyond the national boundary. POWERGRID plans to initially exchange power with neighboring countries like Bangladesh & Pakistan and strengthening the existing links with Nepal & Bhutan for establishment of SAARCH grid for exchange of power. POWERGRID is also examining the feasibility of extending the boundaries of SAARC grid to connect to other

neighbouring countries like Myanmar, Thailand, Malaysia, Kazakhstan etc.

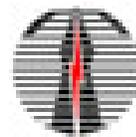
Two rounds of discussion with Pakistan were held in December, 1998 and February, 1999, 1999 to consider proposal for import of 400-500 MW OF POWER FROM Pakistan to India. With the assistance of Ministry of Power, the discussions were aimed at finalizing administrative, technical and commercial arrangements. In the long term, exchange of upto 2,000 MW is being envisaged.

Interconnection of India and Bangladesh is on the anvil as the proposal is under active consideration for interconnection at 220 kV level for initial exchange of power to the tune of 150 MW. In the near future, 400 kV interconnections are envisaged between the two countries to evacuate power from the large size gas based projects to be set up by IPP's in Bangladesh.

Towards, forging ties and reaching to a consensus on this subject, in a regional workshop held in Dhaka Bangladesh in August 1998. POWERGRID played a pioneering role for endorsing the agenda that creation of SAARC Grid should be kept high for assuring quality power supply and to catalyse economic resurgence in the region. With this resolution, the development South Asian Electricity Grid is now seen as a reality.

IN-HOUSE EXCELLENCE

To achieve the objective of establishment of Regional and National Power Grids to facilitate transfer of power with reliability, security and economy, POWERGRID from time to time, has taken guidance from the expertise available round the



organisations which results in efficient handling of disputes and smooth execution of the contract. This process facilitates resolution of disputes during the execution of project and reduces the prolonged process of resolution through arbitration. Adoption of DRP has enabled POWERGRID to arrest the inordinate delay in execution of its contract for 1st 800 kV Kishenpur-Moga line. Similar procedure is being adopted for other projects to resolve the disputes before invocation of arbitration proceedings with the contractors, for minimising the delays in execution of contract.

globe. However, this does not undermine the expertise developed in-house over the years. POWERGRID has developed standardisation of tower designs which would result in reduction of implementation period of the projects by one year or more. Standardisation of major equipment for 400/220 kV substations has helped in reducing the implementation time and cutting down of costs. Similarly adoption of modern O&M practices and inventory control techniques have contributed in liquidation of inventories, yielding a benefit of Rs. 150 crores. In addition, efforts towards import substitution have saved about Rs. 100 crores through development of indigenous suppliers. With the expertise developed over the years, POWERGRID is providing consultancy worth over Rs 50 crores. Its capabilities are being utilised by various State Electricity Boards, Independent Power Producers etc. in Planning, Design, Construction of transmission system. Further, POWERGRID's expert manpower has been associated in the World Bank funded projects like reform process in GRIDCO, development of bid documents for Haryana Vidhut Parishad Nigam (HVPN).

Gentlemen, I am glad to inform you that our Company has further strengthened the contracts management system thereby reducing the average award time from five and half months to four and half months. POWERGRID as a member of Task Force appointed by Government of India in association with NTPC is also finalizing the standard bidding documents for "Supply-cum-Erection" contracts which shall be used by all PSU's under Ministry of Power.

I would also like to share with you the commendable achievements made by POWERGRID in resolution of contractual dispute through utilisation of provision of Disputes Resolution Panel (DRP). DRP is an intermediate step to resolve contractual disputes before referring the matter to arbitration for minimising the long process of settlement.

The concept of DRP has been introduced for the first time in power sector and can be used as a model by other

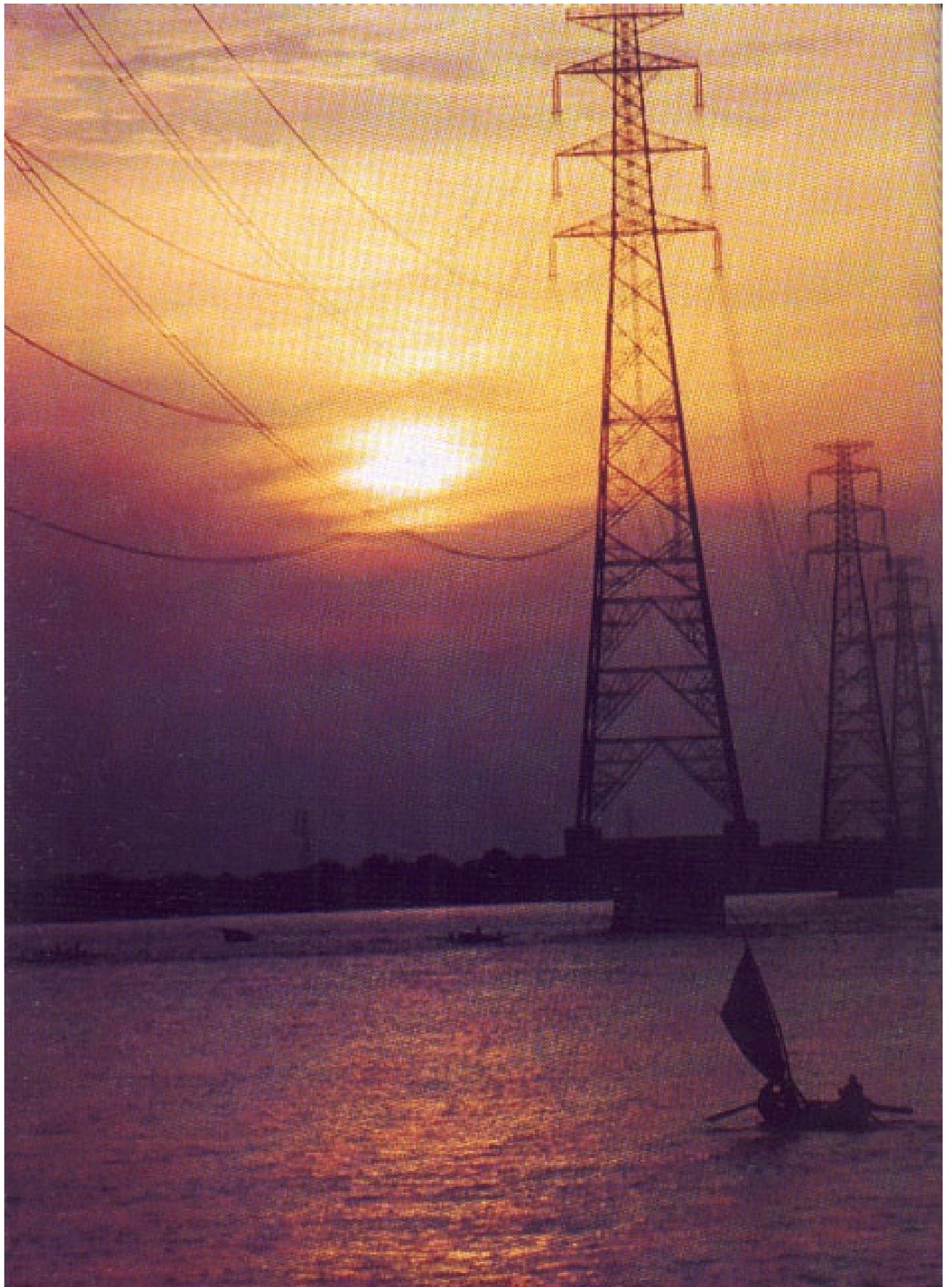
POWERGRID attaches equal importance to the environmental issues and is **the first PSU which has finalised its Policy on Environmental and Social Policy & Procedures (ESPP), in consultation with Public Bodies, Project Affected Persons etc.** Based on the concept of "Avoidance, Minimisation & Mitigation", ESPP will address and minimise the environmental and social impact. The company also undertook socioeconomic survey of Sasaram, Allahabad, Purnea and Kolar sub-stations and developed the Rehabilitation Action Plan (RAP) in accordance with ESPP and in consultation with consultants and premier National Institutes.

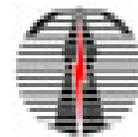
POWERGRID witnessed congenial industrial relations environment during the year. **The man-hour loss and grievances were minimal.** To enhance the knowledge and performance of its human resource, POWERGRID conducts regular training programmes. During the year, training programmes of about 70,550 mandays were conducted for various categories of employees. The National HRD Network conferred "National HRD Award 1998" on the company in recognition of commendable efforts made in the field of HRD.

IMPROVING GRID EFFICIENCY

Efficient grid management is essential for optimal utilisation of available resources and for reliable and quality power supply. As a CTU, POWERGRID is responsible to operate the Regional Load Dispatch Centers (RLDCs) effectively. To achieve the above objective, it is imperative that the grid is equipped with latest technologies. As mentioned earlier, POWERGRID is already implementing the state-of-the-art Load Dispatch and Communication Centres (RLDCs) in Northern and Southern Regions. Proposals to implement the same in other regions are in advanced stage of discussion with the beneficiaries for finalising various technical and commercial aspects.

As another step towards effective grid operation and management, POWERGRID is already using modern techniques like Hot Line Maintenance, Emergency Restoration System





(ERS), Thermo Vision Scanning, on line DGA monitoring of transformers etc in its day to day operation . However, a need is being felt to cater to the growing diverse requirement of construction, operation and maintenance in difficult terrain of hilly areas, dense forests etc. POWERGRID is planning to reinforce its capabilities in these areas by inducting helicopters.

Besides implementing the transmission schemes associated with generation projects and development of National Grid, POWERGRID identified the bottlenecks in the existing transmission network affecting the efficient operation of the regional grids and crystallised several system improvement schemes across the country. 22 such projects have already been approved. The projects commissioned during the year includes 4 transmission lines of 132 kV in the North-Eastern Region for benefit of Southern Assam, Mizoram and Tripura which will improve the reliability of the grid. In addition, series capacitors were installed on 220 kV D/C Pampore-Kishenpur transmission line to enhance the power transfer capacity of the transmission corridor between Kashmir & rest of the Northern Grid and to help in evacuation of full power of Uri HEP.

As you are aware, Indian power system is facing a peculiar scenario of surplus power in Eastern Region while all the other regions are facing power shortage. Exchange of power amongst various regions has thus been kept high on the agenda of POWERGRID for meeting the unserved demand of power served regions and efficient utilisation of available generation capacity. In this direction, concerted efforts were made by POWERGRID to impress upon SEB's to utilize the existing inter-state line linking the regions effectively for exchange of power in radial mode. To enhance the power exchange capacity, POWERGRID commissioned two vital links connecting Eastern with Western and Northern Region through Korba-Budhipadar 220kV S/C and Dehri-Karamnasa 132 kV S/C respectively in a record one and a half year time. As a result of combine efforts of POWERGRID & SEB's , energy to the tune of 3,404 MU was transferred from Eastern Region to other regions against energy transfer of 2,392 MU , an increase of 43%, over last year.

Rising to the expectations of Government of India, POWERGRID has also undertaken maintenance of Delhi Vidyut Board Sub-stations on Management basis form May 1998. The sub-stations included Okhla 220 kV , Mehrauli 220kV and Masjid Moth 33 kV. Further , capacitors to the tune of 550 MVAR had been installed in 33 substations of DVB which has substantially improved the voltage and reduced the losses.

SHARING EXPERTISE FOR NATIONAL BENEFIT

POWERGRID is consciously working in disseminating its experience and expertise in various facets of transmission system management to various SEB's and other utilities through regular conferences, and tailor-made training workshops directed towards addressing specific technological and O&M areas. The programmes arranged at Ballabgarh, Delhi and Hyderabad were attended by representatives from various SEBs as well as from neighboring countries like Malaysia, Nepal, Bhutan, Mauritius etc. Specialized testing facilities available at POWER Grid's Central Oil Testing Laboratory at Hyderabad and developmental activities carried out have evinced considerable interest in neighboring countries to seek cooperation/support from POWERGRID . Moreover, our testing facilities are being regularly utilized by various SEB's , Generating Companies and Railways.

BRINGING CLOSER THE INSTITUTIONS & INDUSTRY

POWERGRID has also endeavoured to establish and strengthen the long felt missing link between premier technological institutions and industry. In this direction, POWERGRID has established Chair at IIT, Delhi for undertaking research activities and exchange of expertise for mutual benefit. Towards dovetailing R&D activities into practice, for the first time in India , Flexible AC Transmission System (FACTS) is proposed to be applied on 400 kV Kanpur-Ballabgarh corridor in Northern Region. The project is being taken up as an R&D activity in association with CPRI, BHEL and CEA. Real Time Digital Simulator is also being developed indigenously in association with IIT, Kharagpur to simulate behaviour of power system in real time operation.





RALLYING EMPLOYEES

Human resource policies of the company are aimed to enhance the skills of its employees and to provide better opportunities for personal and career development. The concept of participative management through open house interaction between top management and employees of all ranks has been adopted. This forum provides a platform to the employees to interact with the management to exchange views and offer suggestions on vital policy matters and other areas of concern for improved performance of the organisation. The organisation is also finalising a comprehensive and attractive wage package encompassing various perquisites and incentives, which shall be amongst the best in the industry, aimed at inducting young blood and to retain the talent already available with us. The package will also help in maintaining the moral and motivation of its rich human resources.

CHALLENGES AHEAD

The organization has although achieved commendable overall performance with the support of Ministry of Power/other administrative agencies and dedication of its employees but have been facing a few constraints enumerated below and needs immediate attention for achieving more and more successes in times to come.

TRANSMISSION PLANNING PROCESS

The power sector has been witnessing a trend of ambitious planning impinging on need based power supply demand. During formulation of VIII Five Year Plan, a target of 50,000

MW of additional generation capacity was envisaged. However, the nation could see the capacity addition of about 16,400 MW only which was just 1/3rd of what was planned. Similarly, during conceptualisation of IX Five Year Plan, addition of 57,000 MW was envisaged which has now been pruned to about 28,100 MW which is less than 50% of what was contemplated. The transmission plans thus being evolved are seriously affected by these frequent and drastic changes leading to suboptimal planning and its usage. There is a need to relook in our planning process to chalk out realistic targets which should consider all aspects including mobilisation of financial resources, project to execution constraints, crystallizing the responsibilities to executing agencies, strategies for exigencies & effective project monitoring for avoiding cost and time overruns. Planning process needs a departure from the present process of establishing transmission system link to a particular generation project and should focus on creation of transmission corridors based upon location of generation resources and major load centres. The organisation has carved out its long-term transmission plan for development of national grid for inter-regional exchange of power.

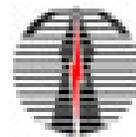
BUILDING LONG TERM CAPITAL MARKET FOR POWER SECTOR

The lack of domestic market for providing funds with long term (15-20 years) maturity period required for capital intensive power sector has been compelling the utilities for resorting to external commercial borrowings which are of 7-8 years maturity period and are also subjected to fluctuations of exchange rates making it a costlier option. **To improve the accessibility of the funds for power sector for tapping the domestic borrowings of very high magnitude and of long maturity period there is a need to consider tax benefits for power sector bonds and loans.** Deployment of provident funds and similar other funds should be explored to enhance resource mobilisation in power sector.



OUTSTANDING DUES

The Government of India had notified transmission tariff for assets of over Rs. 5,400 crores based on new norms which includes enhanced Return on Equity of 16% as against 12% SEB's have accepted the revised tariff and POWERGRID realised Rs. 1,453 crores during the year, an increase of 22% over last year. However many of the SEB's due to financial constraints are unable to clear their arrears on account of revised tariff.



To liquidate the arrears, the organisation has taken up concrete steps for strengthening the recovery mechanism. The monthly payment through revolving Letter of Credit has been enhanced to Rs. 92.15 crores from Rs. 72.90 crores last year. The Central Plan Assistance has been sanctioned from Government of India of Rs. 345.96 crores and Rs. 80.27 crores has already been received. It has also been decided that separate **Bulk Power Transmission Agreement (BPTA)** will be signed with beneficiary SEBs for every new investment to be made in any region. The BPTA will have a provision for payment through Letter of Credit and additional security for their payment obligations in the form of opening of Escrow account and State Government guarantee. On this front, POWERGRID signed the BPTA for 2,000 MW Talcher-II HVDC project with various beneficiaries and have also signed the transmission agreements for 5 years block (1997-2002) in Western and Southern Regions.

MISMATCH BETWEEN TRANSMISSION AND GENERATION PROJECTS

POWERGRID is committed to provide associated transmission system of central generation projects for evacuation of power to identified beneficiaries. There have been instances where transmission systems are ready for commissioning, however, the generation projects are delayed due to some reason all the other. The transmission system costing over Rs. 1,560 crores on present cost basis for 1500 MW Nathpa-Jhakri Hydroelectric Power project (NJCP) will be completed by March, 2000. However, the generation project is likely to be completed by March, 2002. The loss of revenue to POWERGRID due to mismatch is likely to be about Rs. 712 crores. POWERGRID, being a commercial organization will be severely affected as it would affect its internal resource generation and repayment of loans from its lenders. As the organization does not get any budgetary support from Government of India, its planned investment shall continue to depend on borrowed funds. It will be difficult for the organisation to absorb the deficit arising out of large investment without any revenue from this project. To

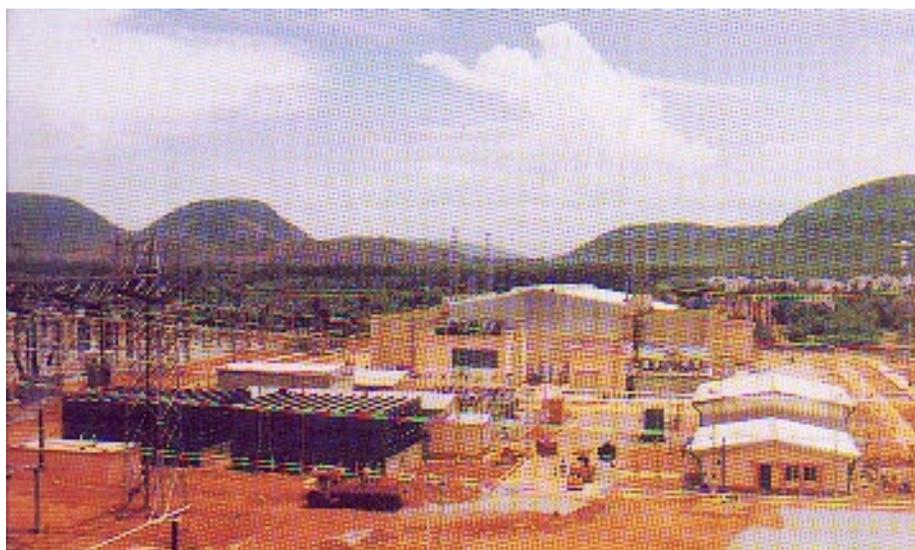
offset the above deficit, POWERGRID is pursuing **compensation revenue loss through upfront payment from NJPC.**

To avoid reoccurrence of such situations of revenue loss due to mismatch of transmission vis-à-vis generation, **the organization shall be seeking indemnification for its future transmission projects from generation companies.** In line with the international practice, Generation Company should indemnify the transmission company in an equitable manner. The origination is evolving the compensation package to be paid by generator for delay by paying some penalty against the accrued revenue from transmission system and viceversa.

REVENUE LOSS FROM TRANSMISSION PROJECTS IN NORTH-EASTERN REGION

Similarly in North-Eastern Region, POWERGRID is in a dilemma for continuing its investment in the region as per the Government directives to uplift the economy of the region as a whole. POWERGRID has already made investment of over Rs. 400 crores worth of projects are in pipeline. However, POWERGRID is unable to recover the cost of its projects due to poor economic health of North-Eastern State. The transmission tariff has been pegged at 35 paise as against varying between 60-95 paise per unit for the assets to be commissioned progressively till the year 2000. POWERGRID is seeking a one time upfront grant of Rs. 790 crores from Government of India to enable to discharge its debt servicing liabilities.

To mitigate the impact on its balance sheet, POWERGRID has decided to sign a **Bulk Power Transmission Agreement** for each new investment with a provision for payment through revolving LC and additional security **by opening an escrow account** for payment obligation and **guarantee from the State Government.** Alternatively, POWERGRID is also contemplating to undertake new investments only if Government of India provides capital grant-in-aid.





ENHANCED POWERS AS A MINI-RATNA PSU

POWERGRID has been recognised as Mini Ratna (category-I) PSU and was delegated enhanced powers for investment in new projects and establishment of joint ventures, subsidiaries as well as entering into technological joint ventures, and strategic alliances etc. However, the organizations is unable to exercise the enhanced powers. POWERGRID has been taking multilateral loans from World Bank, ADB etc. To fund its projects, which require Government, guarantee and is likely to continue to tap such sources of funding. This feature is peculiar to almost all PSU's in the power sector. Though PSUs are paying for such government guarantee, this phenomenon is termed to be treated as a "contingent liability" on the government. As such, POWERGRID is unable to exercise delegated powers of Mini-Ratna in approving projects having such guaranteed loans. **There is an urgent need to re-examine the issue and to waive off the stipulation for considering payment of guarantee fee as a "contingent liability" for power sector PSUs.**

SECURITISATION OF OUTSTANDING DUES

To address the problem of realisation of dues from SEBs for Central Sector Organisations in power sector, a scheme of Securitisation of outstanding dues was proposed by Government of India. In this scheme, organisations like POWERGRID, NTPC etc. were to sell their debt to Special Purpose Vehicle which will float tax free bonds guaranteed by the government. **The scheme needs to be expeditiously implemented to provide much needed funds to central sector organisations with attached financial leverage which will help them to deploy the same for execution of their schemes.**

TAXES AND DUTIES IN TRANSMISSION SECTOR

The Union budget for 1999-2000 proposed various tax structures for furthering the reform process. However, the new custom duty rates adversely affected the transmission sector as the total incidence of custom duty have gone up from 39% to 53% for transmission sector and **the difference between duty paid by generators/distributors as against paid by transmission activity has widened to 32% which was 17.57% prior to the budget.** This will slacken the reform process in progress in the State sector wherein the SEB's are being unbundled into separate generation, transmission and distribution entities, as the high



incidence of taxes on transmission sector will have adverse impact on the cost of transmission projects.

Denial of equal treatment at par with Generation companies under section 115JA of Income Tax Act 1961 has resulted in payment of Minimum Alternative Tax (MAT) by the company. **The “Infrastructure status” was mooted for power transmission sector to bring it at par with Generation in the Union Budget.**

These issues need immediate attention and are to be addressed suitably to bring the taxes and duties applicable to transmission sector at par with generation.

CONCLUSION

As the organizations enters the next millennium, entrusted with responsibilities and objectives of Central Transmission utility, it will be playing a vital role in improving the efficiency of the Indian Power System for providing reliable & quality power across the nation.

It commits itself for playing a pivotal role in economic growth

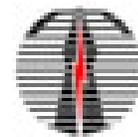
of the country by continuing to act as a dominant force in change management and as a facilitator to motivate and catalyse development in all facets of power sector. Before concluding, I sincerely thank all my Board Members, who through their professional skills and guidance have helped the organization to undertake many vital decisions in the best interest of the organisation. I also appreciate the efforts put in by one and all in enhancing the performance of the organisation. In future, we have to cross many more milestones and achieve bigger targets, for which I hope we all will work with the same enthusiasm, dedication and motivation.

(R.P.Singh)
Chairman & Managing Director

Date : 25th August, 1999
Place : New Delhi







DIRECTORS' REPORT

AT THE 10th ANNUAL GENERAL MEETING HELD ON AUGUST 25, 1999

To
The Members,
Gentlemen.

It gives me pleasure to present on behalf of the Board of Directors, the 10th Annual Report on the performance of Power Grid Corporation of India Limited (POWERGRID), together with the Audited Statements of Accounts for the financial year 1998-99.

At the outset, I take this opportunity to convey that our persistent efforts in development of transmission sector have been fully recognised and accorded the deserved priority, when in August 1998 the Electricity Laws (Amendment) Act, 1998 took place and our company has been conferred the statutory status of 'Central Transmission utility' (CTU). This has rendered on POWERGRID the vital responsibilities to undertake transmission of energy, exercising supervision and control as well as planning and coordination related to inter-state transmission systems; to recommend the issuance of license to Central Electricity Regulation Commission for construction & maintenance of interstate transmission lines by private agencies.

As a reinforcement of the role already being played by POWERGRID, the Amendment Act has vested the responsibilities to operate the regional load despatch centres, which shall be the apex body for ensuring integrated operation of the power systems for achieving maximum economy and efficiency.

Befitting to the national recognition and confidence placed in the organisation, your company has excelled in various facets of its business operation during the financial year (FY) 1998-99.

PERFORMANCE DURING THE YEAR 1998-99

MOU PERFORMANCE

Based on the provisional result for the FY 1998-99 POWERGRID is slated once again to achieve 'Excellent Performance' rating as per its MOU with Ministry of Power.

OPERATIONAL

As on March 31, 1999, POWERGRID operates a total of 35,119 ckms transmission lines consisting of 26,293 ckms of 400 kV, 5,931 ckms of 220 kV, 1,265 ckms of 132 kV, 1,630 ckms of HVDC system and 60 Sub-stations with 28,820 MVA transformation capacity. The operational performance of

POWERGRID's transmission system has been impressive in all the five power regions. Overall average availability of transmission lines during the year was 98.64% which is comparable with best international standards.

During the year, POWERGRID has commissioned 1,589 CKMs of 400, 220 and 132 kV transmission lines along with 945 MVA of transformation capacity. The major accomplishments include completion of POWERGRID's prestigious 500 MW HVDC Back-to-Back project at Gazuwaka ahead of schedule in March 1999 interconnecting Eastern and Southern Regions. This link has moved the nation a step closer to realize the dream of national grid.

The other accomplishments include commissioning of 400 kV D/C Jeypre-Gazuwaka line, 9 months ahead of schedule; 220 kV hi-tech Gas Insulated Substation at Kayamkulam including 220 kV D/C Kayamkulam-Edamon line, 6 months ahead of schedule which was dedicated to the nation by Hon'ble Prime Minister in January 1999; 220 kV Unchahar-II transmission system, 9 months ahead of schedule; 220 kV D/C RAPP (B) Chittorgarh and RAPP (B) - Udaipur line; 132 kV Dehri-Karamnasa line for inter-regional exchange of power between Eastern and Northern Regions and 220 kV S/C Budhipadar-Korba was commissioned in June, 1999 which enabled transfer of about 150 MW additional power from Eastern region to Western region which can be further transferred to Southern region.

CONSTRUCTION

Timely implementation of its projects is the key factor to demonstrate our efficiency in the area of Construction Management, which is one of the key performance area, required to sustain the growth of the organisation. POWERGRID has adopted an effective integrated Project Management Concept involving rigorous monitoring for projects under implementation at various levels in the region as well as at Corporate office. By way of proficient management of the construction activities, POWERGRID completed stringing of 3,240 ckms of transmission lines this year surpassing the MOU target of 2,681 Ckt. Kms.

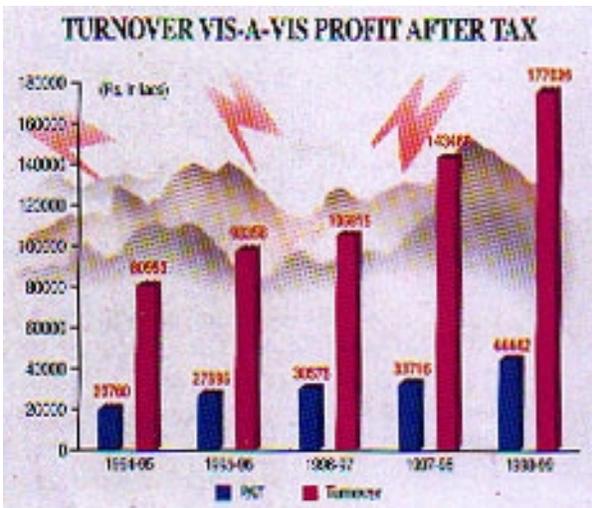
Further, about 5,479 ckms of transmission lines with voltage levels varying from 132 to 800 kV and 9 substations including associated bays, are under construction which are expected to be completed in the coming years.



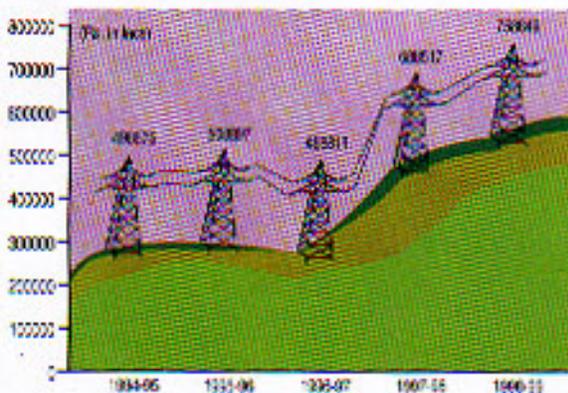


FINANCIAL

Financial performance of the organisation has also been commendable. During the year, organization has earned a net profit of Rs. 444.42 crores after tax vis-à-vis total Turnover of Rs. 1770.26 crores including miscellaneous income. POWERGRID has made a provision of Rs. 52.61 crores towards income tax. At the end of this financial year the capital employed by the organisation stands at Rs. 7,588.49 crores.



CAPITAL EMPLOYED



Paid-up capital of the company as on 31 st March,1999 stands at Rs. 3041.54 crores including Share Capital Deposits as against Rs. 3,036.54 crores as on 31 st March 1998.

Dividend

The Directors recommended a lump sum dividend of Rs. 20 crores of the year ended 31 st March, 1999. Accordingly, a provision of Rs. 20 crores towards proposed dividend for the financial Year 1998-99 has been made in the books of account. The dividend shall be paid to the President of India, after its approval by the shareholders in the Annual General Meeting. Further, as per the Income Tax Act, 1961 a provision of Rs. 2.2 crores being tax on proposed dividend has also been made.

Transfer of Profit to Reserves

An amount of Rs. 425 crores has been transferred to General Reserve and Rs. 111.15 crores to Bonds Redemption Reserve.

BUDGET UTILIZATION

During the financial year, POWERGRID invested an amount of Rs. 1,301 crores.

COMMERCIAL

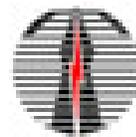
In pursuance of notification of norms for transmission tariff including increase in Return on Equity from 12% to 16%, GOI had notified the transmission tariff for assets of Rs. 5,431 crores till 31.3.99 and for assets of Rs. 2,670 crores thereafter till date. As a result, State Electricity Boards/Power Departments have now accepted the revised tariff and started making the payment accordingly. This has helped in increased realisation of Rs. 1,453% crores, an increase of 22% over the previous year. Value of monthly revolving letter of credit has also gone up from Rs. 72.90 crores as on 31.3.98 to Rs. 92.15 crores as on 31.3.99. However, due to their financial constraints many of the SEBs could not clear the arrears due to tariff revision and the accumulated arrears have gone upto Rs. 1,012 crores. To liquidate the arrears, GOI had sanctioned Central Plan Assistance of Rs. 345.96 crores out of which Rs. 80.27 crores has already been received and the balance Rs. 265.69 crores is yet to be received. Many SEBs have assured to liquidate the arrears in due course.

In order to strengthen the recovery mechanism, it has been decided to sign separate Bulk Power Transmission Agreement for each new project with a provision for payment through Letter of Credit and additional security for their payment obligations in the form of opening of Escrow Account and State Government Guarantee. On this front, POWERGRID have already signed BPTA with Southern Regional beneficiaries for Talcher-II transmission system with provision of the above mentioned additional securities.

AVAILABILITY TARIFF STRUCTURE

Significant progress has been achieved in implementation of Availability Tariff for rationalisation of bulk power tariff structure on national basis. A mock exercise has been successfully completed and Special Energy Meters have been installed in Southern Region. Eastern and North-Eastern regions. The actual implementation will follow after approval of the tariff by Central Electricity Regulatory Commission (CERC) in a phased manner.

The needful actions for procurement of metering facilities for Western and Northern regions has also been initiated.



BUSINESS DEVELOPMENT

Based upon in-house expertise developed in the areas of engineering, contracting, project management, financial & personnel management in the transmission sector, POWERGRID has bagged various assignments amounting to Rs. 50 crores.



While our ongoing works like Consultancy to WBPDC for Bakreshwar; Review Consultancy of WBSEB; Sub-Consultancy to Merz and McLellan; Consultancy to Pondichery Electricity Department, Karnataka Electricity Board etc. are progressing to the satisfaction of the clients, many new clients like Chandigarh Administration, Government of Goa, Northern Railways, Kerala State Electricity Board approached POWERGRID and awarded Consultancy Assignments for turnkey execution in the field of Transmission.

On the basis of our performance, many of our clients have awarded new works to us. POWERGRID for the first time was awarded the work of O&M of 400 kV/220 kV lines for five years by KEB at a cost of Rs. 2.0 crores per annum. Pondichery Electricity Department has awarded new Consultancy Assignments worth Rs. 2.5 crores. WBSEB is entering into another agreement with POWERGRID for the Review Consultancy for Engineering and Project Management for Transmission System associated with Purulia Pump Storage scheme at a Consultancy fee of Rs. 2 crores .

POWERGRID also provided Consultancy Services to the new entrants in the field of Power Sector by conducting power system feasibility & Load Flow Studies such as Price Waterhouse, Indian Oil Corporation, Occidental India Inc., Cochin Refineries, Madras Refineries etc.

We have International Clients & Collaborators such as Merz and McLellan, EPDCI, TEPESCO, Price Waterhouse, Occidental India Inc. etc.

POWERGRID PROJECTS

The project undertaken by POWERGRID are broadly classified as i) Generation Linked projects, ii) Grid Strengthening Projects, iii) Inter-regional links and iv) Unified Load Despatch & Communication Schemes.

Further, in view of entry of various large Independent Power Producers/Mega Power Projects in the Power Sector, POWERGRID is contemplating possible investments towards implementation of transmission projects associated with such type of projects. In addition, POWERGRID is also entrusted upon assisting various SEBs in their transmission and distribution network.

Generation Linked Projects

To meet the power evacuation requirement, major projects under execution by POWERGRID are kathaluri transmission system, Ranganadi transmission project in North Eastern region, kanpur-Unchahar transmission line, RAPP-B transmission

system in Northern Regions, Vindhyachal-II transmission system in Western Region. The other Transmission projects on the anvil are Talcher-II, Anta-II, Auraiya-II, Gandhar-II, Kawas-II, Rihand-II, Ramagundam-III etc.

Inter-Regional Links

One of the last link under execution to complete the framework of national grid is 500 MW HVDC Back-to-Back inter-regional at Sasaram between Northern and Eastern Regions.

Grid Strengthening Projects

Due to weak sub-transmission and distribution system load growth is severely hampered in some states leading to suboptimal utilization of available generation and EHV grid. POWERGRID conducted intensive system studies to diagnose the deficiencies in the transmission system, which have been hindering the efficient operation of the regional grids. In pursuance to above, the following such schemes were commissioned during the year:

4 out of 8 transmission lines of 132 kV under augmentation in the NER were commissioned to benefit Southern Assam, Mizoram and Tripura. This scheme shall reduce the overloading of transmission system during peak hours.

Series capacitors were installed on 220 kV D/C Pampore-Kishenpur transmission line which enhanced the power carrying capacity by 150 MW.



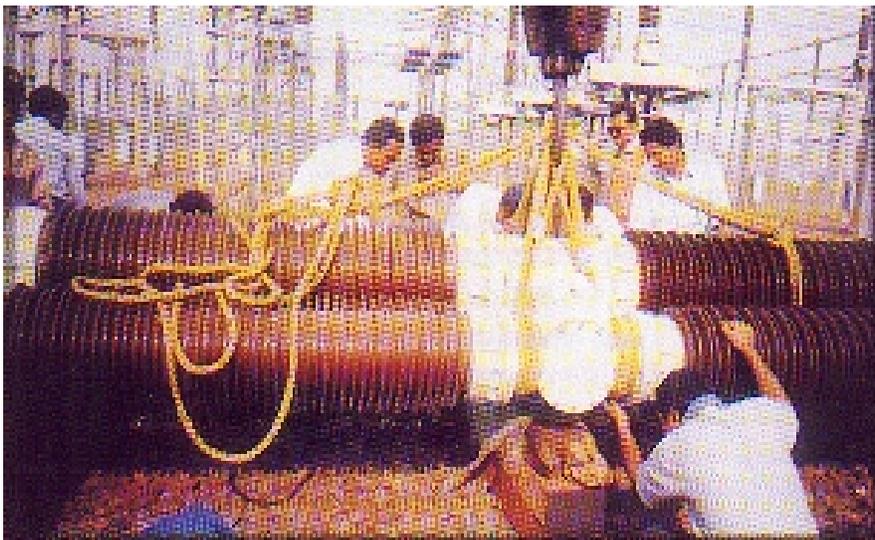
POWERGRID has also identified several new system improvement schemes across the country out of which 22 projects have been approved and are under different stages of construction. This includes 800 kV transmission lines between Kishenpur-Moga, 400 kV Substation at Jalandhar in Northern Region. In Eastern Region, grid strengthening schemes include 400 kV D/C Talcher-Meramundli, 400 kV S/C Meramundli-Jeypore, 315 MVA, 400x220 kV transformers at Jeypore and Biharshariff, Hathidah river crossing of 220 kV D/C Biharshariff-Begusarai, LILO at Purnea of 132 kV S/C Dalkhola-Purnea and 440/220 kV Substation at Kalabaria. In North-Eastern Region, 400 kV Substation at Siliguri and Purnea by loop-in and loop-out of the 2 ckts of 400 kV D/C Bongaigaon-malda line. In Southern Region another system strengthening scheme comprising of 400 kV D/C Vijaywada-nellore-Chennai is also being taken up. It would enable transfer of power to be imported from neighbouring Eastern and Western regions to the different beneficiaries in a reliable manner.

REGIONAL HIGHLIGHTS

For efficient operation, POWERGRID has segregated its business into six regions. The Major achievements of these regions during the year are as follows:

Northern Region-I (NR-I)

This region has a total of 7,954 ckms of transmission system under operation, consisting of 4,546 ckms of 400 kV, 1,778 ckms of 220 kV and 1,630 ckms of HVDC system with line availability of 99.71%. During the year, a total of 546 ckms of 220 kV transmission lines and extension of Kanpur 400/220 kV substation were commissioned. In addition, 486 ckms of 220 kV Transmission lines are under implementation are transmission schemes associated with generation projects viz. Unchahar Stage-II, RAPP-B Faridabad etc. Further, the region undertook operation and maintenance of three substations of Delhi Vidyut Board (DVB) and installed Shunt Capacitors of



150 MVAR in (DVB). The region also played vital role in restoring the transmission network in Gujarat affected by cyclone by deputing its team along with Emergency Restorations System.

Northern Region-II (NR-II)

The region has a total of 2,785 ckms of transmission system under operation, consisting of 1,735 ckms of 400 kV, 1,050 ckms of 220 kV. The availability of line was maintained at 99.24% during the year. Some of the important ongoing projects in this region including Nathpa-Jhakri (400 kV), Kishenpur-Moga (800 kV), Jhallandhar-Hamirpur (220kV) etc. Presently, 2,517 ckms of transmission lines are under construction, consisting of 560 ckms of 800 kV, 1,616 ckms of 400 kV and 341 ckms of 220 kV transmission line along with 6 Sub-stations. The region undertook hotline maintenance for the first time on 220 kV D/C Kishenpur-Udhampur, Salal Kishenpur-III. A VSAT terminal was commissioned Headquarter in Jammu paving the way for communication link with RLDC, Corporate Centre and all other Regional headquarters of the company. The region also played vital role in restoring the transmission network in Gujarat affected by cyclone by deputing its team along with Emergency Restoration System.

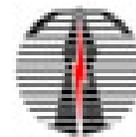
Eastern Region (ER)

The Eastern Region has a total of 4,393 ckms transmission system under operation, consisting of 3,242 ckms of 400 kV and 1,151 ckms of 220 kV and 147 ckms of 132 kV transmission system. The line availability was 99.38% this year.

During the year, 132 kV S/C Dehri-Karmnasa transmission line of 86 ckms was commissioned. This work was completed in a record period of 11 months only. The line is a vital link between Eastern and Northern Region that would facilitate evacuation of surplus power available in the Eastern Region. In addition to the above, extension of 400 kV Jeypore substation, 220 kV Budhipadar Substation, 132 kV Dehri Substation and 132 kV

Karmnasa Substation were completed. Further, power flow to Sikkim through 132 kV D/C Rangit-Siliguri line and 66 kV S/C Rangit-Melli was effected since January 1999. During the year, the important task of land acquisition for 500 MW HVDC back-to-back substation at Sasaram and 400/220 kV Binaguri substation have been completed in a very short time despite many constraints.

Due to heavy storm, five nos. of towers of 400 kV S/C Faraka-Durgapur line-II collapsed. The line was restored in a very short time using Emergency Restoration System (ERS). For construction of a new railway line section under 220 kV D/C



Dalkhola – Malda transmission line, ERS was used for diversion of the said transmission lines. This not only saved North Bihar and North Bengal from a total blackout for about 20 days but also saved energy loss to the tune of about Rs. 30 crores to the nation.

For the first time in POWERGRID, a social-economic survey of the project affected people of Pusawali village under Sasaram HVDC back-to-back project was undertaken in association with A.N. Sinha institute of Social Studies and a comprehensive rehabilitation action plan (RAP) was formulated and furnished to the World Bank.

Western Region (WR)

The Western Region has a total of 7,698 ckms of transmission system under operation, consisting of 6,870 ckms of 400 kV and 828 ckms of 220 kV transmission system with an average line availability of 97.42%.

One of the landmark events during the year was dedication by Hon'ble Union Power Minister to the nation the HVDC back to back station at Bhadrawati and Vindhychal (additional) Stage-I transmission system at Itarsi. 552 ckms of Satna-Bina 400 kV transmission line was completed along with 400 kV Satna substation of 315 MVA capacity. In addition 1,132 ckms of 400 kV lines associated with Vindhayachal-Satna, Satna-Bina

Southern Region (SR)

The Southern Region has a total of 6,349 ckms of transmission system under operation, consisting of 5,974 ckms of 400 kV and 375 ckms of 220 kV transmission system. The average availability of the transmission system was maintained at 99.47%.

During the year, 442 ckms of 400 kV lines and 156 ckms of 220 kV D/C transmission lines were commissioned. This includes 400 kV Jeypore-Gazuwaka line and 220 kV D/C kayamkulam-Edamon line. Some of the important ongoing projects in this region include Kaiga-Sirsi (400 kV), Neyveli-Bahoor (220 kV) and Kayamkulam (220 kV) transmission system. The foundation stone for Kolar HVDC station was laid jointly by the Hon'ble Chief Minister of Karnataka and Hon'ble Union Power Minister. Hotline maintenance was carried out on 400 kV Gooty-Banglore and Nagarjansagar Cuddapah transmission lines. Modification of SOREL distribution recorders were taken up to convert imported paper to plain paper printer. The task was accomplished for four nos. of recorder. Restoration work of Ramagundam-Chandrapur line due to collapse of two nos. of suspension towers was taken up on war footing using ERS.

Villianur-Bahoor 230 kV S/C line as well as 132/11 kV Yenam substation taken up on a turnkey basis, as consultancy assignments from Pondichery Electricity Department were test



charged. Moreover, the region has also bagged the award for construction on new 110 kV transmission lines and substations of Pondichery Electricity Department. The estimated value of this contract is about Rs. 15 crores.

An O&M conference was conducted from 11.6.98 to 13.6.98 for the benefit of various Electricity Boards and other power utilities. All public consultations enroute the Talcher-II transmission project was conducted successfully as per ESPP guidelines.

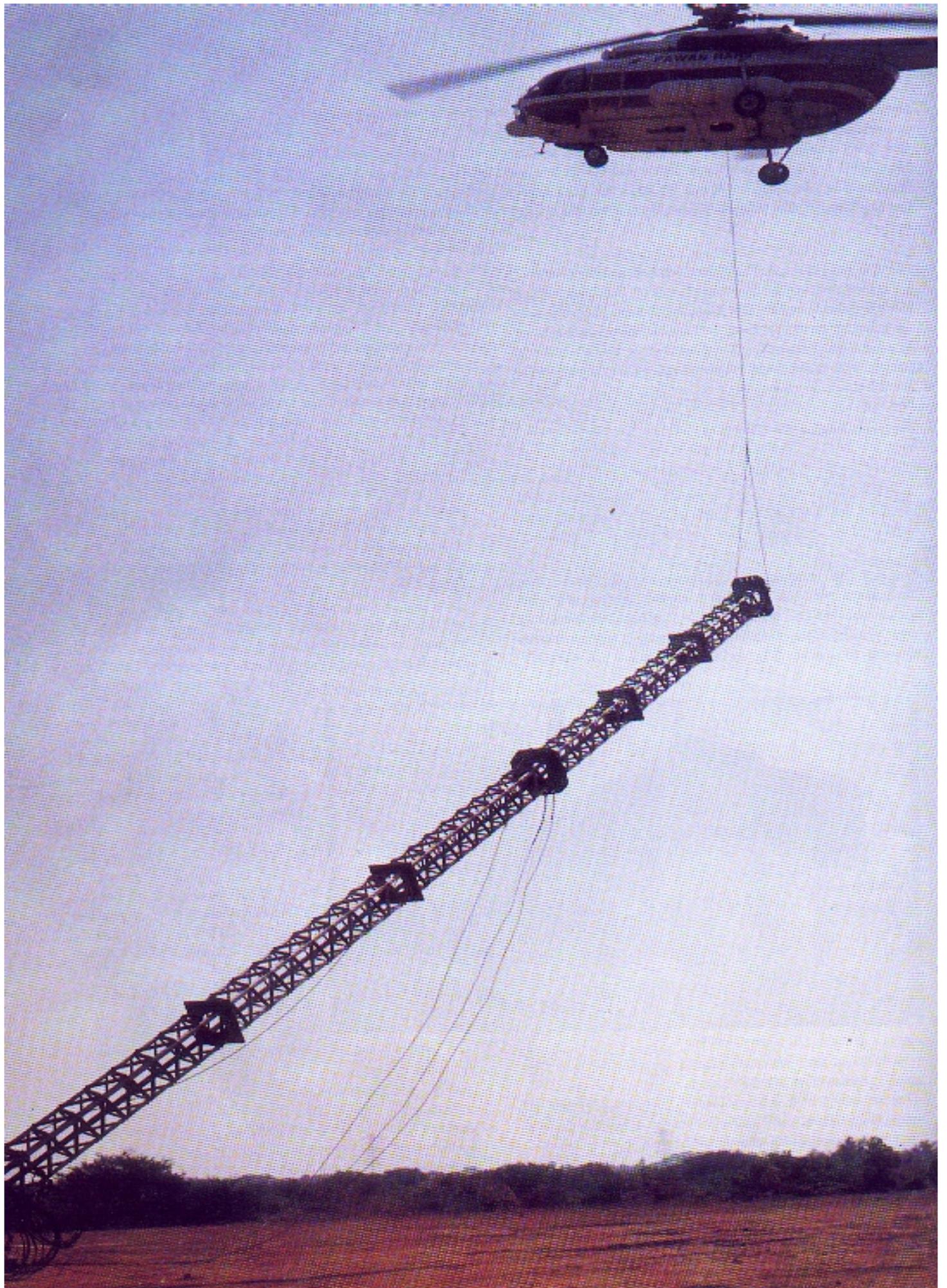
North-Eastern Region (NER)

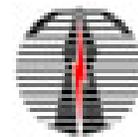
The North-Eastern Region has a total

and Korba-Raipur were strung against the MOU target of 700 ckms. In the region, 400/220 kV Raipur and Satna substations are under construction. The region also contributed its might towards restoration of cyclone affected transmission and distribution system in Gujarat and specifically in Kandla Port using Emergency Restoration System (ERS).

of 2,550 ckms of transmission lines under operation, consisting of 958 ckms of 400 kV, 466 ckms of 220 kV and 1,126 ckms of 132 kV transmission system. The average availability of transmission system was maintained at 98.2%.

POWERGRID has been facing acute law & order problems while implementing its projects in North-Eastern Region. The





consideration of the Government of India.

RESEARCH & DEVELOPMENT

Towards dovetailing R&D activities into practice, POWERGRID has undertaken many initiatives. Detailed simulator studies were conducted at GEC Alstom, U.K. to verify that there is no adverse interaction between the Chandrapur HVDC Back-to-Back project of POWERGRID and Chandrapur Padghe HVDC bipolar project of MSEB. These studies were

employees are functioning under constant threats, abduction and extortion notices including kidnappings. Despite all these difficulties, during the year 130 ckms of transmission lines and 4 substation work commissioned. POWERGRID completed 4 transmission lines for augmentation in the region viz 132 kV S/C Badarpur-Badarpur, 132 kV S/C Khandong-khleiriat, 220kV Kopili-Misa, 132kV S/C Khandong-Khleiriat (LILO), 132 kV S/C Badarpur-Jiribam. In addition, 400kV sub-station at Bongaigaon and 132kV substation at Khleiriat and Badarpur were commissioned along with extension of 220 kV sub-station at Misa.

Presently, the stringing for 400 kV Rowta-Bongaigaon D/C line, 132 kV S/C lines covered under augmentation of transmission system in North-Eastern Region is in progress. It is quite pertinent to mention that in the face of severe law & order problem as well as insurgency particularly in the states of Assam, Tripura, Manipur and Nagaland where POWERGRID projects are located, project implementation is under progress. The year witnessed many an unfortunate event of kidnapping of POWERGRID employees.

In the 42nd NEREB meeting held in November 1997, it was decided that Uniform Common Pooled Transmission Tariff will be 35 paise per unit w.e.f. 1.4.98 as against the admissible tariff of about 65-90 paise per unit for the assets to be commissioned progressively by the year 2000. This is resulting in substantial revenue loss to POWERGRID. The issue was raised during the Conference of Power Ministers of North-Eastern States held in May, 1998 wherein it was decided that POWERGRID shall be compensated suitably by Government of India as a special dispensation to the North-Eastern states.

In this regard, a proposal to recover the capital investment against the assets commissioned till the year 1999-2000, has been submitted for release of one time revenue grant of Rs. 790 crores to the organisation. The proposal is under active

carried out using the Real Time Digital Simulator (RDS), the latest tool which was used to perform large scale simulation of Electrical Power System of Western and Southern regions and implemented actual control hardware of Chandrapur Back-to-Back and Chandrapur-Padghe HVDC bipole. This was the first time in the world, that such extensive studies involving two HVDC projects located were conducted using RTDS. M/s GEC Alstom, ABB, HQI, BHEL, MSEB and POWERGRID were involved in these studies.

POWERGRID has taken up study of measurement of A/C DC fields under UHV transmission lines and in the substations in association with CPRI, Bangalore. A study on possible biological effects of electric field has also been taken up. The resulting data have confirmed the suitability of various design parameters in use in POWERGRID.

For the first time in India, Flexible AC Transmission System (FACTS) is proposed to be applied on 4000 kV system. Towards this, Kanpur-Ballabgarh corridor in Northern region has been identified and the project is being taken up as R&D project in association with CPRI, BHEL and CEA.

Real Time Digital Simulator (RTDS) is being developed indigenously in association with IIT, Kharagpur which will be capable of simulating the behavior of power system under normal and contingency conditions, and contribute toward efficient and reliable system operation as well as to train the system dispatcher/operation and other personnel. POWERGRID has taken initiative to install on an experimental basis composite insulators on a small section of Ramagundam Hyderabad transmission line to reduce the problem of flashovers and tripping of lines due to contamination.

POWERGRID has actively contributed at International forums



in formation of IEC standards for insulation coordination of HVDC convector stations. POWERGRID has also contributed in CIGRE Working Groups for various topics in the area of HVDC. Such participation keeps POWERGRID team abreast with the latest trends. These forums also help to reflect POWERGRID's know how potential.

Measurement of Pollution level in Transmission Lines

Performance of insulators is seriously affected by pollution, which has shown increasing trend and resulting into increasing line outages. For the first time in the country, POWERGRID

has started pollution survey so that insulators of correct specifications are installed based on real field data.



Trial of Polymer Insulators in HVDC Line

POWERGRID has installed composite (Polymer) insulators at three locations in HVDC Rihand-Dadri line on trial basis to study the behavior of polymer insulators in reducing outages of the line against normal disc type insulators under pollution conditions.

Establishing Oil Testing Laboratory

In addition to the Hyderabad Oil Testing Laboratory, another oil testing laboratory of similar standard has been set up at Durgapur to cope up with the ever-growing transmission network. This laboratory shall cover both POWERGRID network and other power utilities located in Eastern and North-Eastern States. So far, POWERGRID is able to save equipment worth about Rs. 60 crores through oil testing. POWERGRID also earned revenue of about Rs. 11 lakhs through testing of oil samples of other utilities at Hyderabad laboratory.

Sharing of Technical Expertise with other Utilities

POWERGRID has organized 5 workshops, which were attended by SEBs and representatives of SAARC countries. The feedback from the participants has been excellent and these workshops have provided a useful platform for sharing expertise in O&M and Design area. These workshops were organized at no profit no loss basis for disseminating knowledge acquired by POWERGRID in various areas with other power utilities in India and neighbouring countries. The response has been increasing as more and more delegates from different organizations are attending these workshops.

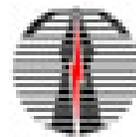
New State-of-the-art Techniques Adopted by POWERGRID

POWERGRID is committed to adopt state-of-the-art technologies and technological know-how. POWERGRID employs state-of-the-art techniques like Hotline maintenance, Condition monitoring of the transmission equipment, Maintenance of Double circuit lines with one circuit live, on line DGA monitoring of Power Transformers, Thermo vision Scanning.

With the adoption of above techniques, it has been possible to increase the availability and reliability of transmission lines. As many as 844 outage hours of line have been saved by adopting Hot Line Maintenance Techniques.

STANDARDISATION OF DESIGN

Finalisation of tower designs have been posing a great challenge to POWERGRID arising out of repeated failures of towers designed by contractors multiplicity of tower design and limited numbers of test beds available in the country. In order to overcome this situation, POWERGRID has decided to use its in-house expertise and experience acquired over the years to standardize towers and foundation designs for transmission line for 400 kV and above voltage levels.



INTER-REGIONAL EXCHANGE OF POWER

POWERGRID has give utmost priority for exchange of power between various regions, so as to utilise the available energy in optimum manner. This has helped on one hand to meet the unserved demand in power starved states while on the other hand, plan load factor of generating plants in the exporting regions has improved.

This has helped POWERGRID in getting more competitive prices in the recently opened bids for 500 kV bipole towers for HVDC line and 400 kV S/C line associated with Talcher-II transmission system and 400 kV D/C tower for Kawas-II transmission system. This will reduce the execution time considerably as design and testing of towers will not be required. This will also facilitate interchangeability of towers among various projects and thus reduce the inventory level.

To optimise the space occupation for transmission projects, studies were undertaken by POWERGRID for evolving designs for compact 400 kV transmission lines by optimisation of clearances and physical dimensions utilizing new technologies. After extensive studies and taking into consideration the insulated cross-arms, phase to phase spacers and adoption of innovative structural configurations, POWERGRID has evolved the design for compact 400 kV transmission line. Right-of-way requirement for this compact line shall be around 40 meters against 52 meters for conventional 400 kV transmission line. Further, the surge impedance loading of the compact line will increase by about 10% and will also be cheaper as compared to conventional transmission line.

Y2K COMPLIANCE

POWERGRID accorded specific thrust on Year 2000 compliance of all its office systems and applications, transmission system equipments and RLDC Systems. The company took effective steps to deal with Y2K related issues. Dedicated task forces at Corporate and regional level were formed to tackle the Y2K issues of POWERGRID Systems. The critical components were identified, tested and corrective measures are being carried out. The software developed in-house and out-source as well as hardware acquired from suppliers are tested and certified to be Y2K compliant. The total Y2K compliance will be achieved by end of November 1999.

Surplus Power in Eastern Region

Of late, in Eastern Region, substantial energy surplus has been observed, as load has not grown commensurate with the capacity addition. Thus substantial amount of power remains unutilised which need to be exported to neighbouring regions for meeting their deficits. The feasible transfer capacity from this region has now been increased from 850 MW to 1,550 MW. Energy to the tune of 3,404 MU was transferred from surplus Eastern Region to power starved regions against energy transfer of 2,392 MU, an increase of 43% over last year.

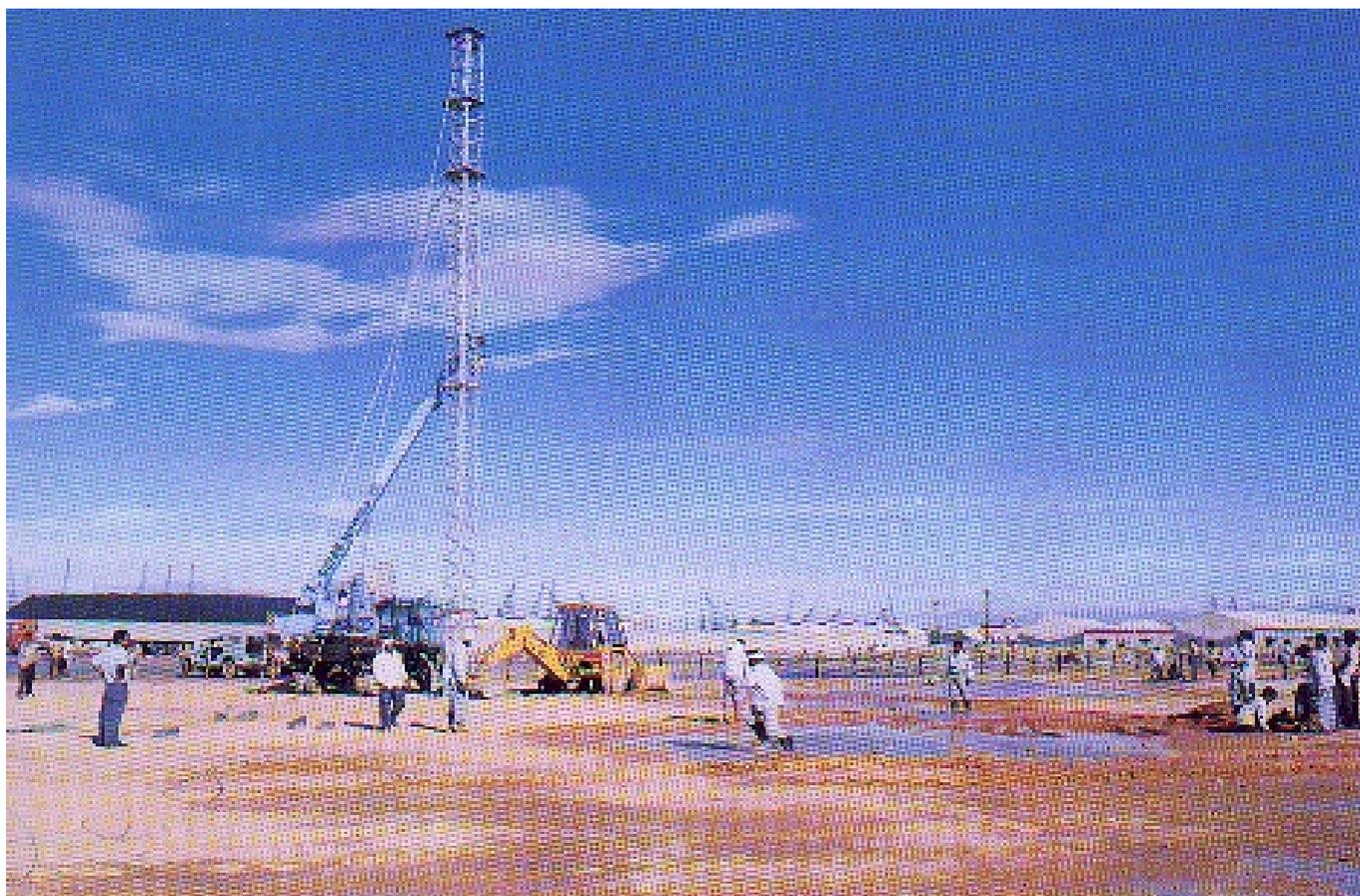
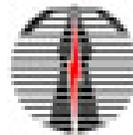
At present about 170-180 MW is being transferred from Eastern Region to Southern Region through existing 220 kV Balimela (Orissa)-Upper Sileru (Andhra Pradesh) line. In addition, up to 500 MW of power can flow on radial mode through Jeypore-Gazuwaka 400 kV D/C AC line, a part of Gazuwaka HVDC Back-to-Back project.

There exist two state owned links between Eastern and Northern region i.e. Dehri-Mughalsarai 220 kV D/C and Karamnasa-Mughalsarai 132 kV D/C and recently a 132 kV S/C transmission line was commissioned which has been used to transfer power from Eastern to Northern region. Necessary strengthening of Eastern regional grid near Bodhgaya has also been carried out by POWERGRID to effect power transfer on the above line via Bihar transmission system and upto 100 MW has been transferred to Northern region, from where the same has been further transferred to Tamil Nadu via Western Region.

An exchange of power to the tune of 350 MW is taking place from Eastern to Western Region by utilising Budhipadar - Korba 220 kV D/C line on radial mode. With completion of the third line, the capacity has increased to 450-500 MW.

Flow of power to the tune of 200 MW from Eastern to North-Eastern Region is taking place through Birpara-Salakati 220 kV D/C. At present, both the regions are interconnected with 220 kV and 132 kV lines and are being operated in synchronous mode.





DISASTER MANAGEMENT

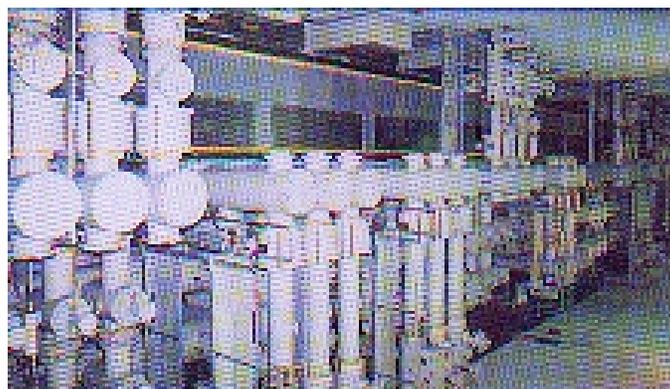
During the year, POWERGRID has demonstrated its capabilities in restoring the power supply in quickest possible time during natural disasters like cyclone, heavy rains, floods and storms which have struck the various States viz. Gujarat, Andhra Pradesh, etc. POWERGRID has developed dedicated teams for expeditious deployment of Emergency Restoration System (ERS) for restoration of damaged lines.

One of the recent examples is the active support provided by POWERGRID in managing the disastrous situations in the state of Gujarat caused by the cyclone in June, 1998. Immediately after receipt of request of help, POWERGRID move men and machines toward Gujarat. Both the circuits of the collapsed 220 kV D/C Anjar-Panandru line were restored through deployment of ERS by POWERGRID. The work on first circuit was started on June 13, 1998 and was restored on June 18, 1998. The work on second circuit was started June 19, 1998 and was restored on June 23, 1998. Further, one circuit of 220 kV Anjar-mehsan line where 16 towers collapsed in 5 different locations were restored by POWERGRID on July 6, 1998. The assistance from POWERGRID also covered restoration of distribution network of the State including re-commissioning of their LT sub-stations which was completed by July 9, 1998 and thereby vital power supply to Kandla Port, GAIL, IOL etc. was restored. The restoration of Gujarat system resulted in

immediate evacuation of the capacity of 225 MW of power to Gujarat thereby saving of energy cost to the tune of Rs. 25 to 30 crores per month to the nation.

Hon'ble Minister of Power Commended POWERGRID's efforts in restoration of the transmission lines in Gujarat, the urgency its deserved and stated 'Expeditious completion of such a herculean task under extremely difficult conditions, was possible only, due to high degree of dedication, sincerity and commitment to the cause, by POWERGRID'. The efforts also received acclaim by all including Hon'ble Members of Parliament.

The vital experience gained by POWERGRID and the facilities available has not only been instrumental in quick restoration of its damaged system but also has been made available to cater to





the need of other utilities and SEBs in the country. POWERGRID has successfully deployed ERS on number of occasions to restore damaged transmission system in various regions. 400 kV Ramagundam-Chandrapur as well as APSEB's lines which collapsed due to heavy wind were restored in 10 days. The power supply was restored in 400 kV Jabalpur-Itarsi line where in towers collapsed due to stormy weather. The other transmission systems restored were 400 kV Farakka-Durgapur S/C & 220 kV transmission line feeding BALCO within a week, DVB's 66 kV line at Mangolpuri within 10 hours and 132 kV Gohpur-Itanagar within 3 week despite hilly and forest congested terrain in North-Eastern Region.

ASSISTING SEBs

POWERGRID, as a part of its commitment to improve the nationwide transmission sector, has extended its expertise to assist the interested State Electricity Boards in improving their transmission and distribution networks.

Inadequate shunt compensation in the distribution network of State utilities has been a perpetual problem faced in the country. This leads to higher T&D losses, degradation of voltage profiles, under-utilisation of EHV transmission network and has been a primary reason for unsatisfactory regional grid operations. SEBs, on account of financial constraints, have not been able to accord a high priority and are also not in a position to raise funds from multilateral/international lenders.

Capacitors to the tune of 550 MVAR have already been installed in 33 substation of Delhi Vidyut Board, which will substantially improve the voltage and regular supply of power being fed, by these substations. Rising to the expectations of Government of India, POWERGRID has undertaken maintenance of Delhi Vidyut Board Sub-stations on Management basis from May 1998. The substations include Okhla 220 kV, Mehrauli 220 kV and Masjid Moth 33 kV.

While Shunt Capacitors shall continue to be under the domain of SEBs POWERGRID, as a facilitator has extended its services to various SEBs on 'no profit-no loss basis' to overcome the prevailing backlog.

TOWARDS DEVELOPMENT OF NATIONAL GRID

To realise the ultimate national vision of establishing an integrated National Grid, POWERGRID has taken up series of steps to establish inter-regional links connecting various regions. In the first step, the regional grids would be interconnected through asynchronous links, facilitating controlled exchange of power under varied system operating conditions of the connecting regions. The grid would be further strengthened with the large inter-regional links planned with mega size multi-state

projects. In addition to the above, small schemes which can be completed in short time with low investment have also been taken up.

INTER-REGIONAL PROJECTS UNDER OPERATION

HVDC Back-to-Back Station at Vindhyachal

500 MW HVDC Back-to-Back Station at Vindhyachal connecting Northern and Western Region, is under operation since 1990 and at times 400-500 MW of power is exchanged in off-peak hours.

HVDC Back-to-Back Station at Chandrapur

2x500 MW HVDC Back-to-Back Station at Chandrapur connecting Western and Southern Region has also been commissioned and has enabled transfer of about 600-700 MW of power to Southern Region from Western, Eastern and Northern Region.

400 kV D/C Malda-Bongaigaon line

This line has been constructed under Kathalguri Transmission System and connects Eastern and North-Eastern Region. This line can enable exchange of power upto 800 MW between the two regions.

HVDC back-to-back Station at Vizag:

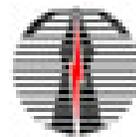
POWERGRID has achieved yet another milestone in the formation of National Grid by commissioning Vizag 500 MW HVDC back to back project. This project will facilitate inter-regional power transfer between Eastern & Southern Region up to 500 MW in controlled manner and shall help in increasing the utilisation of the two regions and thus benefiting the states of both Eastern and Southern regions. The project incorporates state of art technology and most of modern features of HVDC technology.

Dehri-Karamnasa 132 kV S/C Line

The line was commissioned in February, 1999 and would enable transfer of about 100 MW from Eastern Region to Northern region from where power can be transferred to Western region & Southern region.

Budhipadar-Korba 220 kV S/C Line

This line has been commissioned in June, 1999 .this would enable transfer of about 150 MW additional power from Eastern region to Western region which can be further transferred to Southern region.



Transmission System for Mega Size multistate Generation Projects in Eastern Region

In Eastern region several mega size projects are planned while the beneficiaries will be located in Northern, Southern and Western Regions. The transmission system planned with these projects shall cross the regional boundaries and strengthen the National Grid. The major projects are :

- Talcher-Kolar HVDC Bipole
The 2,000 MW Talcher-Kolar HVDC bipole has been planned to evacuate power from Talcher II Project (2000 MW) from Orissa to Southern Region constituents.

MEDIUM TERM PLAN

During the next four to five year, the inter-regional links taken up shall complete the first phase of formation of National Grid. Further, several mega size multi state projects are also being planned for execution in next five to seven year time. Transmission system for these projects will strengthen the National Grid and will be integrated well within the regional grids. The major projects include:

Sasaram HVDC Back-to-Back

500 MW HVDC Back-to-Back link between Eastern and Northern Region shall soon enter the construction phase and is expected to be commissioned by 2001-02.

East-West Interconnection through Raipur-Rourkela 400 kV AC Lines

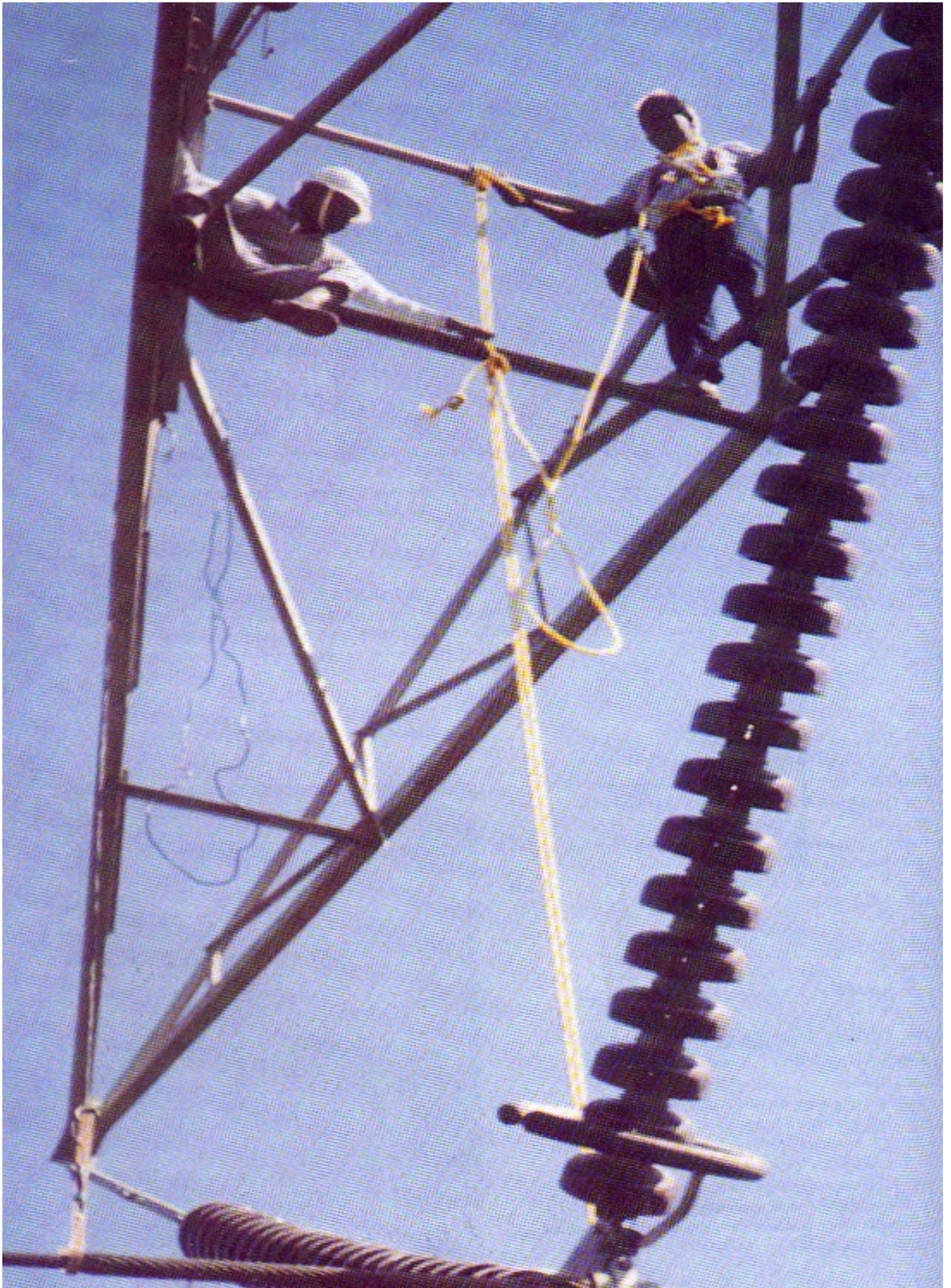
Raipur – Rourkela 400 kV D/C line has been proposed from strong interconnection between Eastern and Western Region expected to be commissioned by 2000-03. It would enable transfer of additional power up to 800 MW of Western region.

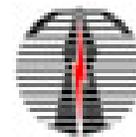
400 kV lines from Purnea to Lucknow along Himalayan Foothills

North-Eastern region (NER) is likely to have surplus power after commissioning of Ranganadi and Doyang HEPs by the end of 9th Plan. For evacuating this power, it is necessary that 400 kV line is constructed from Purnea (Bihar) where surplus power of NER can be pooled to Lucknow (U.P.) Via Muzaffarpur and Gorakhpur. The commissioning of these system would coincide with the hydro electric project.

- Hirma – Jaipur HVDC Bipole
- The 3,000 MW HVDC bipole from Hirma in Orissa to Jaipur in Rajasthan has been planned to evacuate the power from proposed generating projects at Hirma (6x660 MW) to Northern Region.
- 400 kV AC network from Hirma in Orissa to Raipur and beyond in Eastern Regions for evacuating power from Hirma project (6x660 MW).







- 765 kV Inter connection between Eastern and Northern region.

765 kV lines are planned between Eastern and Northern Region as a composite transmission system for evacuation of power from Kahalgaon II (1,500 MW), Maithon RBC (1,000 MW), Farakka III (500 MW), generating station in Eastern Region to Northern Region. These High capacity lines shall ultimately be a part of the synchronous National Grid planned for future.



The above schemes planned will act as high capacity power transmission highway across the country so as to provide flexibility in locating various power stations. It would also help in dispersal of power that may be imported from neighboring countries like Bhutan, Bangladesh etc.

The above plans would ultimately lead to a synchronized operation of North-Eastern Region, Eastern Region, Western Region and Northern Region while Southern Region shall be operated in asynchronous mode.

UNIFIED LOAD DESPATCH & COMMUNICATION FACILITIES

POWERGRID has undertaken implementation of state-of-the-art Unified Load Despatch and Communication (LD&C) facilities throughout the country. These RLDCs supported by SLDCs are prerequisite for maintaining integrated operation of grid at regional level, which is the prime responsibility of POWERGRID, which it has to discharge as per, recent amendment to Electricity (Supply) Act. Unified LD&C facilities is one of the basic prerequisites for economic despatch of power between Regions/State leading to effective and efficient on-line management of Grids. POWERGRID will be investing around Rs. 2,000 crores for augmentation of LD&C facilities in all the five power regions.

Transmission System for Coastal Projects

Several coastal projects are planned in Southern Region and in Gujarat where the fuel can be conveniently transported. The projects are:

- Pipavav Project (2000 MW) in Gujarat
The power from this project is proposed to be allocated to Western Region constituents and Rajasthan. 400kV lines in Western Region and between Western & Northern Region are planned for evacuation of power from the project.
- Projects in Southern Region
Cuddalore (1,000 MW) in Tamil Nadu, Krishnapatnam (1,500 MW) in Andhra Pradesh, Kayamkulam II (2,000 MW) in Kerala, South Madras (1,000 MW) in Tamil Nadu etc. are being planned for the Southern Region constituents. Transmission system for these projects shall comprise number of 400 kV lines from the generation projects to various load centres in Southern Region.

LONG TERM PLAN

A long-term plan has been evolved by POWERGRID, considering the huge hydro potential in North-Eastern Region and concentration of coal reserves in the states of Orissa, Bihar and Madhya Pradesh. The perspective plan is under discussion and finalisation with CEA, MOP and other agencies. The plan includes establishment of high capacity AC lines, HVDC bipoles/substations and 765 kV AC ring interconnecting different regions.





At present with completion of major design and engineering activities, the implementation of Unified LD&C schemes for Northern and Southern Region are in advanced stage. On the basis of progress achieved in past 15 months after award of contract, the World Bank has commended the progress made by POWERGRID has adopted 'Project Manager' concept to have single source responsibility for the execution of these projects in a timely manner. POWERGRID will endeavor to complete these projects as per schedule by January, 2002.

The field implementation of various facilities has also begun in full swing in all the major packages for Northern and Southern Region LD&C projects including live-line installation of OPGW for the first time in the country on Dadri-Mandola transmission line. Considering the state-of-the-art technology in the implementation of these projects, comprehensive training and technology transfer programme for various SEBs and POWERGRID representatives are participating in technology transfer workshops/training in India and abroad. Other such projects for North-Eastern, Eastern and Western Regions shall be commissioned progressively.

POWERGRID engineers have introduced a new concept of energy metering with a very high degree of accuracy capable of measuring electrical energy consumption (both real and reactive) at very short intervals. This new metering system known as Special Energy Meters in micro electronic, solid state, tamper proof and have already been installed in Southern, Eastern and North Eastern, shall play a crucial role in enforcing regional grid discipline.

POWERGRID CHAIR

POWERGRID is establishing a chair of Professor in IIT Delhi, which shall go a long way in the collaboration of industry and academics. This will act as a link between IIT Delhi and POWERGRID in the field of evolving new technology in the field of power system Engineering. It is expected that, this step will help POWERGRID in reaping the benefits of laboratory research through practical implementation.

For this purpose POWERGRID allocated an endowment of Rs. 30 lakhs. Further modalities concerned with the regulation, administration, remuneration etc. shall be decided by POWERGRID in consultation with IIT, Delhi.

CONTRACTS MANAGEMENT

POWERGRID has evolved its procurement strategy based on the latest market trend in the industry. Financial parameters have been introduced as a part of the qualifying requirements to encourage companies with sound financial capability. However, while switching over to international trend in procurement, interest of indigenous industry is being well protected. Both

the World Bank and Asian development Bank have lauded POWERGRID's performance in procurement and POWERGRID has been recommended to be consultant to some of the SEBs for such activities. Commending POWERGRID's efforts in this field Asian Development Bank had stated, "Development of Contract Documents and loan negotiations are a 'model case' recommended to be followed by other utilities of power sector."

During the financial year 1998-99, POWERGRID has placed 36 orders aggregating to Rs. 538 crores under multilateral as well as domestic funding. POWERGRID has reduced the average time of awarding the contract from 5.5 months to 4.5 months. It is a matter of pride that in case of 3 complex packages for 500 MW HVDC substation (erection on turnkey basis), the contracts were awarded in a record time of 3.5 months. This commendable feat could be achieved by improving and streamlining systems and procedures of contract management.

PROJECT EXECUTION

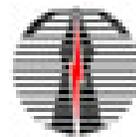
POWERGRID has developed an Integrated Project and Construction Management System to endure availability and optimal utilisation of input resources resulting in elimination of time and cost over-run. A three tier detailed network developed with site contractors, Regional offices, and at Corporate level is monitored at scheduled intervals to integrate all project activities and exercise control measures at every stage of implementation, resulting in completion of projects on schedule.

Streamlined computer data based systems to accommodate all necessary input from related resources including vendor's etc. have been developed and regular monitoring at all level along with exception reporting to the top management level is carried out throughout the project implementation cycle resulting in eliminating chances of slippages.

HUMAN RESOURCE MANAGEMENT

Human resource policies of the organization are aimed at attracting, retaining and maintaining the best of the talent available in the country besides maintaining the moral and motivation of the existing human resource, Various schemes and incentives have been implemented to facilitate their career growth with a view to 'Putting People First.

The innovative practice of participative management through open house interaction, initiated in the year 1997 by the present Chairman, is being continued highly acclaimed. All the employees including the top management, executives, supervisors and workers are brought at one platform and are given full opportunity to exchange their views and offer suggestions on policy issues & areas of concern to the organization for improved performance.



POWERGRID's core strength lies in its human resource consisting of over 7,000 professional spread all over the nation withstanding various geographic and climatic conditions from hilly terrain of plain and desert to forests and rivers, daring sub-zero temperatures.

It is the policy of the company to protect the interest of SC/ST in recruitment and service matters. During the year 1998-99, the organisation had recruited 10 executive trainees including 6 SCs and 4 STs. The organisation has been constantly pursuing the interest of SCs/STs in recruitment, promotion and service matters in order to ensure better compliance of government reservation policy/orders. To acquaint employees, a training programme was organized in February, 1999 at all the Regions/ RLDC with new directives on maintenance of roster. POWERGRID has also formed SC/ST cell in each Region/ RLDC including Corporate Centre under the control of nominated liaison officer. It has also been the Company's endeavor that no backlog of SC/ST exists and special recruitment drive has also been launched accordingly in past. Grievances register for SC/ST employee is maintained to settle their grievances, which are investigated as per the relevant rules. None of such grievances is pending as on date.

POWERGRID witnessed most cordial and congenial industrial relations environment during the year. There was zero man hour loss and grievances were minimal. The grievances were kept to minimum and functioning of Grievances Redressal Machinery was commended by Controller of Public Grievances.

Towards Human Resource development, innovative and effective steps were taken to boost up the employee morale. During the year, 886 workmen, 328 supervisor and 1307 executives were trained through various programmes amounting to total mandays training of about 70,553 days. The National HRD Network conferred 'National HRD

Award 1998' on the company for recognition of commendable efforts made in the field of HRD.

In continuation of its policy of encouraging positive and vibrant socio culture, inter-regional cultural meet and fine arts exhibition was organized in Patna. 11 different teams from various regions participated in the programme and a huge gathering of about 2000 persons witnessed a grand exhibition of varied culture and life style from different corners of the country.

To integrate itself with mission and long term objectives of the organization and future organizational needs, POWERGRID has initiated an exercise to evolve Human Resource Vision – 2007 for formulation of strategies and action plans.

A seminar on Women in Power Sector with the theme of 'Challenges in next Millennium' was held in Shimla in May 1998 participated by the women from various organization. As a part of Silver Jubilee celebration of our Independence, POWERGRID organised a 'National Conference on Corporate Governance' on July 23, 1998, which was participated by eminent personalities in Public and Private sector. The issues confronted by the decision makers for marching ahead in the liberalised environment were deliberated in depth. It is a matter of pride that POWERGRID grabbed first position in all India Power Sports Control Board Cultural Meet.





The integrated culture of POWERGRID is a unique feature not only in the country but also in the world wherein people living in small units in remote areas meet together and participate in cultural unification.

Rajbhasha

Government of India policy to promote Rajbhasha in day-to-day working is being implemented by POWERGRID in letter and spirit. Its efforts on this front earned the organisation Rajbhasha Trophy by Ministry of Power and Ministry of Home Affairs for securing second position. POWERGRID has



designated one nodal officer in each unit of the company including Sub-stations widely dispersed across the length and breadth of the country to inculcate the culture of working in Rajbhasha. During the year, POWERGRID employees bagged 6 positions out of top 10 in the national level competition organized by Government of India.

SOURCING OF FUNDS

POWERGRID envisages to invest Rs. 11,000 crores during the 9th Plan for its identified ongoing and new schemes and may make additional investment towards construction of transmission systems associated with mega project/IPPs in keeping pace with them.

The International Financial Institutions have actively supported POWERGRID since its very inception. They have already committed around Rs. 6,000 crores and have earmarked

additional similar amount for financing its new projects. Some of the major ongoing projects contributing to the 9th Plan outlay substantially are Nathpa-Jhakri Transmission System, Vindhyaachal Stage-II Transmission System, Jeypore Gazuwaka HVDC Back-to-Back system, Regional LD&C schemes in Southern and Northern region etc. Likewise major new projects during this plan period are North-East HVDC inter-connector, Talcher-II transmission system including 2000 MW HVDC bi-pole line from Talcher to Bangalore, transmission schemes associated with Gas Power Projects (extension stages) of Kawas, Anta, Auraiya and Gandhar, LD&C schemes for NER, ER, & WR etc.

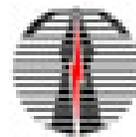
POWERGRID during the current year has accomplished significant success in tying-up financial resources. Towards this, Rs. 850 crores of longer maturity period (15-20 years) loans were contracted through domestic borrowings. The Bonds of the company from second issue onwards are listed at National Stock Exchange, Mumbai and Delhi Stock Exchange, New Delhi. A Foreign Currency Loan of US \$ 100 million has also been received through Bank of India with maturity period of 24 years. In addition, loans worth Rs. 3,500 crores were negotiated which includes US \$ 450 million with the World Bank and US \$ 125 million with J-Exim & US \$ 250 million is under negotiation with the ADB.

During 9th Plan period, POWERGRID has chalked out its plan to mobilize the necessary funds to undertake the planned investment programme. POWERGRID already possess committed funds to the tune of Rs. 3,000 crores through multilateral agencies. The organisation proposes to deploy about Rs. 2,200 crores from its internal resource generation, Rs. 3,000 crores to be tapped from domestic market and remaining would be mobilised by way of multilateral loans and ECBs.

REDEFINING THE GREEN BOUNDARIES

The growth of Indian power sector since independence has undergone a phenomenal change accompanied with serious impact on environment. Virtually everyday, concerned citizen and NGOs complain that power projects have indiscriminately degraded the natural resources or have been insensitive to socio-cultural issues. However, it is noteworthy that





POWERGRID's business activities are nonpolluting in nature and have negligible environmental impact restricted to Right-of-Way only. Another crucial feature is the inherent flexibility available in routing of power transmission lines and locating substations, which help to great extent in avoiding environmentally sensitive areas such as fragile ecosystems with their inherent bio-diversity, dense human habitats and areas of cultural significance.

POWERGRID has evolved its Environmental and Social Policy & Procedures (ESPP) for its project by studying environmental issues and social concerns within the broad framework of laws, policies, constitutional commitment and responsibilities. POWERGRID is the first PSU which has finalised its ESPP Policy in consultation with public. The key principle of POWERGRID ESPP to address & minimize various environmental impacts are Avoidance, Minimization & Mitigation. The formulation of ESPP developed by POWERGRID has been accepted by World Bank and have been highly appreciated by other multilateral agencies also like ADB and OECF etc.

Out of total 15 nos . Forest proposal submitted to MOE & F during the year, approval for 14 cases were obtained and another was recommended by Advisory Committee of MOE & F for approval on Hon'ble Minister of Environment & Forest, Government of India.

For the first time in the history of transmission sector, POWERGRID made a presentation before Environmental

experts of MOEF for taking environment clearance under Environment (Protection) Act, 1986 for one of our line viz. 400 KV LILO of Ballabgarh-Bassi at Bhiwadi. This was essentially required due to passing of this line through environmentally sensitive and degraded Arawali range in Alwar District of Rajasthan. MOE & F while granting approval appreciated POWERGRID's concern towards environment and the measures adopted to minimise possible environmental impact.

After formulation of ESPP, we have taken up socio-economic survey for forthcoming Sasaram, purnea, Allahabad & Kolar HVDC Sub stations and development of Rehabilitation Action Plan (RAP) in line with ESPP in consultation with various consultants/institutes of national repute like A.N.Sinha Institute, Patna; Xavier Institute, Jabalpur and Indian Institute of Management, Bangalore. Finalisation of an agency for socio-economic survey of Bhiwadi Sub stations is in process. Social Assessment and Management Plan (SAMP) for Siligur & Hosur sub-stations are also in progress. Public consultation enroute of East-North Interconnector and Talcher-II project already done at various locations (Plate-I) is a step towards adding transparency in POWERGRID operations and participation of people in decision-making, which is basis of ESPP.

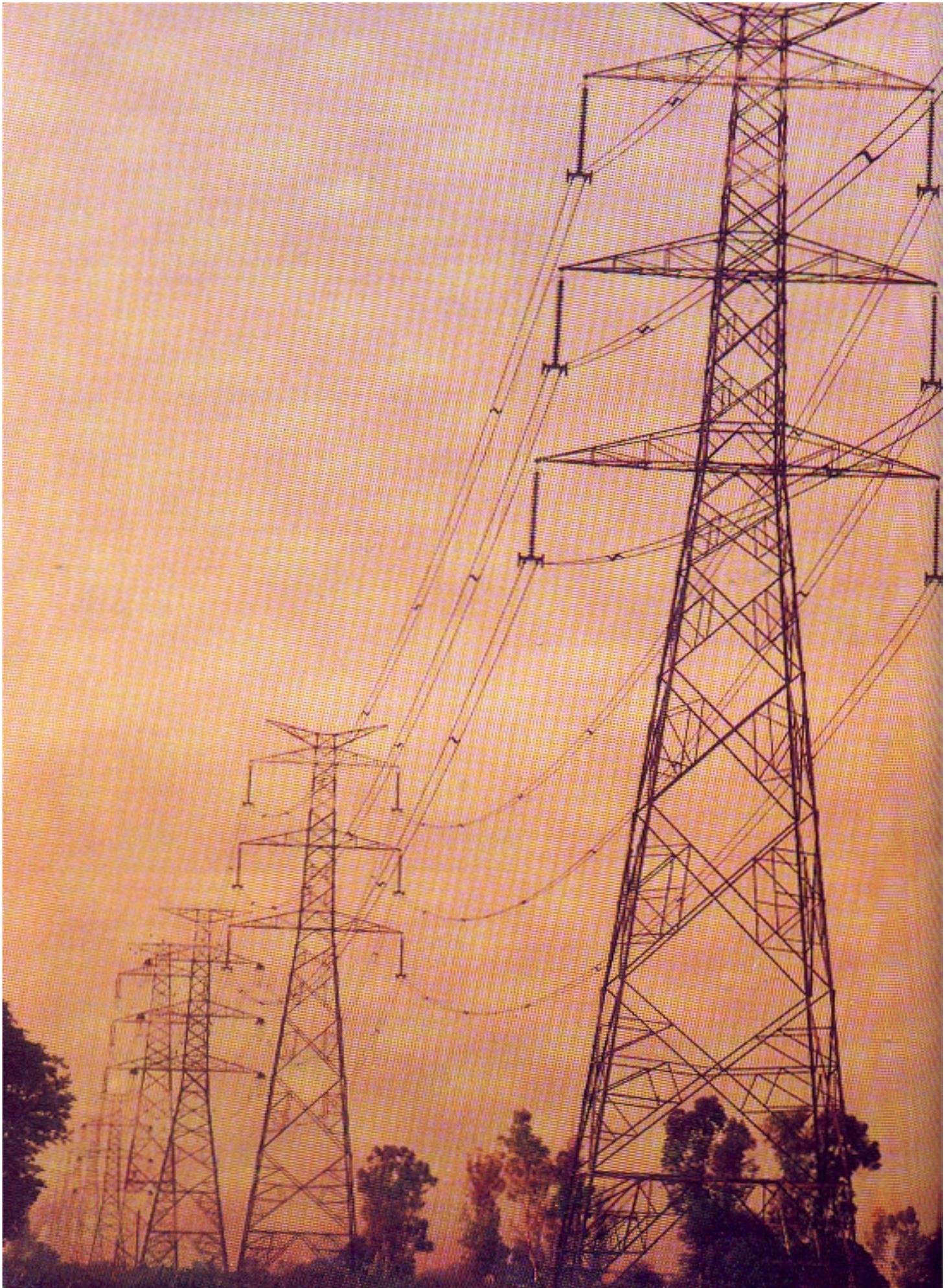
ASSURING QUALITY

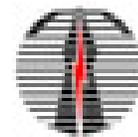
In POWERGRID, quality is a way of life. The Corporation is fully committed to assure the best possible time-bound quality services in all areas of its operations. The organization's quality vision encompasses design, engineering, execution, operation & maintenance and related management functions.

POWERGRID was the first Indian power utility to get ISO 9001 Quality Systems Certification. During the year Quality System of POWERGRID has been revalidated conforming compliance to ISO-9001 Standards by NQA-QSR on behalf of Electricity Association Quality Assurance, U.K. for turnkey execution of Transmission Line and Sub-station projects up to 400 KV inclusive of design, engineering, procurement, construction, operation and maintenance.

PROMOTING PRIVATE SECTOR INVESTMENT

The Government of India has entrusted POWERGRID to undertake the pre-qualification and selection of IPPs/Mega projects on competitive bidding basis and to provide escort and facilitator services. In line with the mandate from Government of India to develop mega power projects in power sector, the task of pre-qualification and selection of developers etc. was launched for 2 projects viz 1000 to 1500 MW coal based project at Cuddalore in Tamilnadu and 2,000 MW bifuel project at





Pipavav in Gujarat. The response has been encouraging. POWERGRID is also involved in appointment of consultants, on behalf of Power Trading Corporation for finalisation of Request For Proposal (RFP) and other project documents viz. PPAs, security mechanism etc. for selection of developers through international bidding etc.

In Transmission sector, the private investors can now enter as 'Transmission Licensee' under the regulatory umbrella of CERC/SERCs which should provide comfort and confidence to private investors. POWERGRID has been designated as the CTU and will be identifying the transmission projects to be established at National/Regional levels as well as selection, of private investors/promoters through competitive bidding for such projects. After evaluation of the bids, POWERGRID will recommended to CERC for issuance of license.

In discharge of this responsibility, POWERGRID is planning to facilitate private participation both through Independent Power Transmission Company (IPTC) and Joint Venture routes.

POWERGRID is creating necessary technical, commercial and financial framework within which the private sector will establish transmission lines on Build, Own & maintain basis. POWERGRID envisages that the developmental activities like project approvals forest and environment clearances and other approvals/clearances/permits shall be obtained by POWERGRID and assigned to prospective transmission licensee.

DEVELOPMENT OF MEGA IPPs AND POWER TRADING

POWERGRID has played a lead role in establishment of Power Trading Corporation (PTC) in accordance with Government of India policy decision to promote establishment of mega power projects in power sector. Being a prime national utility playing a facilitator role in power sector development, POWERGRID becomes a natural vehicle for development of trade of power. A major equity stake of 30% is held by POWERGRID, supplemented by 15% stake each by NTPC and PFC which had given the much needed thrust for early establishment of PTC.

PTC will be an independent company which will act as a single window for negotiating sale and purchase of power on sound economic basis. The institutionalisation of power Trading Corporation will provide the much needed confidence to investors in this field. It shall also be playing an

instrumental role in development of Mega IPPs and elimination of the institutional barriers for power trading and transferring the surplus power to deficit regions in most economic, efficient and reliable manner.

POWER TRANSFER TO NEIGHBOURING COUNTRIES

India, which is in a strategic position in the South Asian region can play a vital role in developing a sound power sector in the overall region. Countries like Nepal and Bhutan connected to India grid are already being assisted for the past many years.

POWERGRID being a Central Transmission Utility is playing a catalytic role in development of SAARC Grid for mutual exchange of power and harnessing the vast potential of diversified resources and loan patterns. Towards forging ties and reaching to a consensus, a regional workshop was held in Dhaka, Bangladesh in August, 1998 participated by POWERGRID and a paper entitled 'SAARC Power Grid - Inevitable for optimal development of the Region' was presented. The workshop endorsed that agenda for creation of SAARC Grid shall be kept high for assuring quality power supply and to catalyse economic resurgence in the region.

Bangladesh

Both India and Bangladesh are endowed with resource potential, while India has coal and hydro resources, Bangladesh has huge gas reserves which besides other uses can be utilised for power generation. POWERGRID is considering 2 interconnections between the two countries by providing a 220 kV AC inter-links between Eastern Region of India and Western Bangladesh and another between Eastern Bangladesh and North-Eastern Region of India which require comparatively low investments. The system would enable exchange of about 150 MW of power.

The success by and large, depends upon a sound institutional





and commercial arrangement which is being taken up under the agencies of ADB. The arrangement would facilitate preparation of the commercial aspects that need to be covered in the power purchase/sale agreement between the two countries and assist in arriving at a settlement on the basis of international commercial practices.

Bhutan

POWERGRID had been purchasing power from Chukha HEP in Bhutan for the past few years to sell the same through a 220kV transmission network. During the year 1998-99, sale of power to the tune of over Rs. 184 crores has been made.

Nepal

The Mahakali Treaty [Article (2b)] between Governments of India and Govt. of Nepal provides that Nepal shall have the right to receive 70 million units of energy on a continues basis annually, free of cost, from the date of entry into force of the Treaty. For this purpose, India is required to construct a 132 kV transmission line upto Mahendra Nagar, Nepal on the Indo-Nepal Border from the Tanakpur Power Station. A 132 kV transmission line from Tanakpur upto this point will be constructed by POWERGRID. The capital cost is being borne by Government of India. The project is likely to be executed soon.

Pakistan

Two rounds of discussion with Pakistan in December, 1998 and February, 1999 were held to consider a proposal for import of 300 MW of power from Pakistan to India. With the assistance of Ministry of Power, the discussions were aimed at finalising administrative, technical and commercial arrangements. We are now awaiting further response from Pakistan.

VENTURING INTO TELECOM BUSINESS

POWERGRID plans to diversify its operations into telecommunication business in a phased manner as its existing transmission network provides an excellent opportunity to establish national information infrastructure for Long Distance Telecommunication Services. The existing network facilitates a ready-made right-of-way for installation of Overhead Optical Fibre Ground Wires (OPGW) for carrying high speed audio-video and data signals and would provide extremely robust support in remarkably cost effective manner.

A consultant of international repute has been appointed to study the long distance market for data, voice and video communication. The consultant shall analyse the various opportunities available to POWERGRID to enter the telecom business from becoming a 'Carrier's Carrier' to a full service

provider and recommend the entry strategy for POWERGRID. Simultaneously, work has been taken of a pilot project to utilise the existing optical fibre links under ULDC schemes to connect distant villages with the DOT network so that such villages which are still not on the DOT network can benefit from adjacent optical fibre network of POWERGRID.

POWERGRID has already entered into MOUs for utilisation of capacity with VSNL and BPL Ltd. This reflects the confidence the organisations have in POWERGRID's capability to provide telecom network matching their requirement. The organisation has started negotiations for entering into Joint Ventures with various SEBs like APTRANSCO, KEB, TNEB, MSEB, KSEB, WBSEB, RSEB. Towards laying down the optical fibre network, the organisation has already installed optical fibre of about 1,600 kms. This incudes deployment of 115 kms. of optical fibre first time in the country over live transmission line of 400 KV Dadri-Mandola and Dadri-Panipat.

EVOLVING ROLE OF POWERGRID

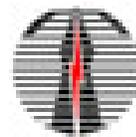
In its brief but significant appearance in the Indian Power Sector, POWERGRID has opened up new vistas ushering in 'Change' in every facet of Electric Power Utility Services in the country. POWERGRID is evolving as a Facilitator-cum-Change Agent' to oversee the manifestation of change in redefining and restructuring the Indian Power Sector. The future perspective of POWERGRID thus entails multiple role of POWERGRID, with various business areas, such as, provider of Transmission Services System Operator, Energy Accounting and System Administrator and Facilitator in Energy Trading. Further, POWERGRID also plans to diversify in the areas of Distribution, Telecommunication, etc., through Joint Ventures besides providing its expertise as Consultancy Services in all aspects of Transmissions & Distribution of power.

PARTICULARS OF EMPLOYEES

The particulars of employees of the Corporation who were in receipt of remuneration in excess of the limit prescribed under Section 217 (2A) of the Companies Act, 1956 is given in Annexure-I to this Report.

CONSERVATION OF ENERGY, TECHNOLOGY ABSORPTION AND FOREIGN EXCHANGE EARNINGS AND OUTGO.

As regards the requirement of the disclosure under Section 217(1) (e) of the Companies Act, 1956 read with Rule 2 of the Companies (Disclosure of Particulars in the Report of Board of Directors) Rules, 1988 relating to conservation of energy, technology absorption and foreign exchange earnings and outgo



information is given in Annexure-II to this Report.

COMPTROLLER AND AUDITOR GENERAL'S COMMENTS

Review of the accounts for the year ended 31st March, 1999 by the Comptroller and Auditor General of India u/s 619 (4) of the Companies Act, 1956 along with Director's comments on the points raised by the CAG is given in Annexure-III of the Report.

POWERGRID'S BOARD

Many changes took place in the Board of Directors of the company during the year and part time professional Directors were inducted in line with Mini-Ratna status granted to the corporation. Shri Binay Kumar was inducted to the Board as Director (Personnel) w.e.f. July 7, 1998. Shri Anil Razdan, Joint Secretary (Systems), Ministry of Power was appointed on the POWERGRID Board in place of Shri J. Vasudevan, Joint Secretary, Ministry of Power w.e.f. August 11, 1998. Board of Directors wish to place on record the contribution and the guidance received from Shri J. Vasudevan. In addition, three part time professional Directors were appointed to the Board w.e.f. July 27, 1998 viz. Shri R. V. Shahi, CMD, BSES Ltd., Shri R. Parthasarthy, MD, ILFS and Dr. Ramesh Gupta, Professor, IIM, Ahmedabad.

ACKNOWLEDGMENTS

The Directors place on record their grateful thanks for the guidance and cooperation extended all through by Ministry of Power, Central Electricity Authority, Ministry of Home Affairs,

Central Electricity Regulatory Commission, Deptt. of Economic Affairs, Ministry of Finance and other concerned Govt. departments/ agencies at the Central and State level without whose active support the achievements by the Corporation during the year under review would not have been possible.

The Directors take this opportunity to thank the Principal Director of Commercial Audit and Ex-Officio Member Audit Board -III for the cooperation during the year. Your Directors also acknowledge the valuable suggestions and guidance received from the statutory auditors vis. M/s D.P. Sen & Co. during the audit of accounts of the company for the year under review.

Your Directors further wish to place on record their sincere thanks to the various national/international financial institutions/bank for the continued trust and confidence reposed by them by rendering the continuous timely assistance and patronage for successful implementation of the various projects by the company.

Last but not the least, the Board of Directors place on record the valuable contribution and appreciation for the support and the cooperation extended by each member of the POWERGRID family in the affairs of the company.

On behalf of the Board

(R. P. Singh)
Chairman & Managing Director

Dated : 25th August, 1999
Place : New Delhi



POWERGRID ORGANISATION CHART

R.P. SINGH
C.M.D.

VIGILANCE

R.R.P.N. SAHI
C.V.O.

DIVYA TANDON
COMPANY SECY.

FINANCE

DR. V.K. GARG
DIRECTOR (FIN.)

A. MANGLIK
A.G.M.

S.SACHDEV
A.G.M.

R.S.TSAI
D.G.M.

A.K. NAGPAL
D.G.M.

OPERATION

BHANU BHUSHAN
DIRECTOR (OPN.)

SO & OS

A.K. KAPUR
EXE. DIR.

OPN SERV.

S.M. JAIN
A.G.M.

SYS. OPR.

S.K. AGARWAL
D.G.M.

LD&C

A.K. DHATNAGAR
EXE. DIR.

OPN SERV.

R.N. NAVAK
D.G.M.

B.S. PANDEY
D.G.M.

A. DAS GUPTA
D.G.M.

V.K. GUPTA
D.G.M.

IPTC

ARUN KUMAR
D.G.M.

PERSONNEL

BINAY KUMAR
DIRECTOR (PERS.)

HR

D.K. NANDI
EXE. DIR.

LD&C

CORP. PLNG.

S. MAJUMDAR
G.M.

S.K. CHATURVEDI
A.G.M.

**LAW, ARBITRATION,
CORP. COMMUN.
GURGAON PROJ.**

KALASH SINGH
EXE. DIR.

LAW

T.S.P. RAO
D.G.M.

**ARBITRATION
CORP. COMM.**

GURGAON PROJ.

PROJECTS

R.K. MADAN
DIRECTOR (PROJ.)

**ENGG. AND
QA & I**

S.C. MISRA
EXE. DIR.

QA & I

K.S. RAGHUNATHAN
G.M.

ENGG.

A. MOHAN
G.M.

COST ENGG.

T.C.A. TAHLIVAN
D.G.M.

**BDD &
MATLS.**

V. KUMAR
EXE. DIR.

BDD

S.B.C. MISHRA
G.M.

CMG

B.S. KANWAR
G.M.

MATLS

V. GOPALA RAO
A.G.M.

COMMERCIAL

M. KUMAR
G.M.

**ENV. & SOCIAL
MGMT. CONST.**

MGMT.

V.C. AGARWAL
A.G.M.

IPP

VL. DUA
D.G.M.

**CONTRACT
SERVICES**

R.D. KAKKAR
EXE. DIR.

I.C. JAISWAL
A.G.M.

ERTS

B.K. BAVERJEE
EXE. DIR.

R.G. YADAV
G.M.

WRTS

D.K. NANDI
EXE. DIR.

K. SATYAM
G.M.

NERTS

A.R. AGARWAL
EXE. DIR.

M.G. DWIVEDI
A.G.M.

NR-IITS

U.C. MISRA
EXE. DIR.

R.P. CHAUDHARY
A.G.M.

SRTS

J. HAQUE
G.M.

S.P.L. NARSHIMAN
A.G.M.

D.G. SOHONY
A.G.M.

R.K. MISHRA
A.G.M.

R.K. VOTUA
A.G.M.

N.R. CHANDA
A.G.M.

R.K. VOTUA
A.G.M.

R.P. CHAUDHARY
A.G.M.

NERLDC

PANKAJ KUMAR
D.G.M.

NERLDC

ALOK ROY
D.G.M.

NERLDC

R.D. PRADHAKER
A.G.M.

NERLDC

S.K. SINHA
A.G.M.

NERLDC

K.K. DAS
G.M.

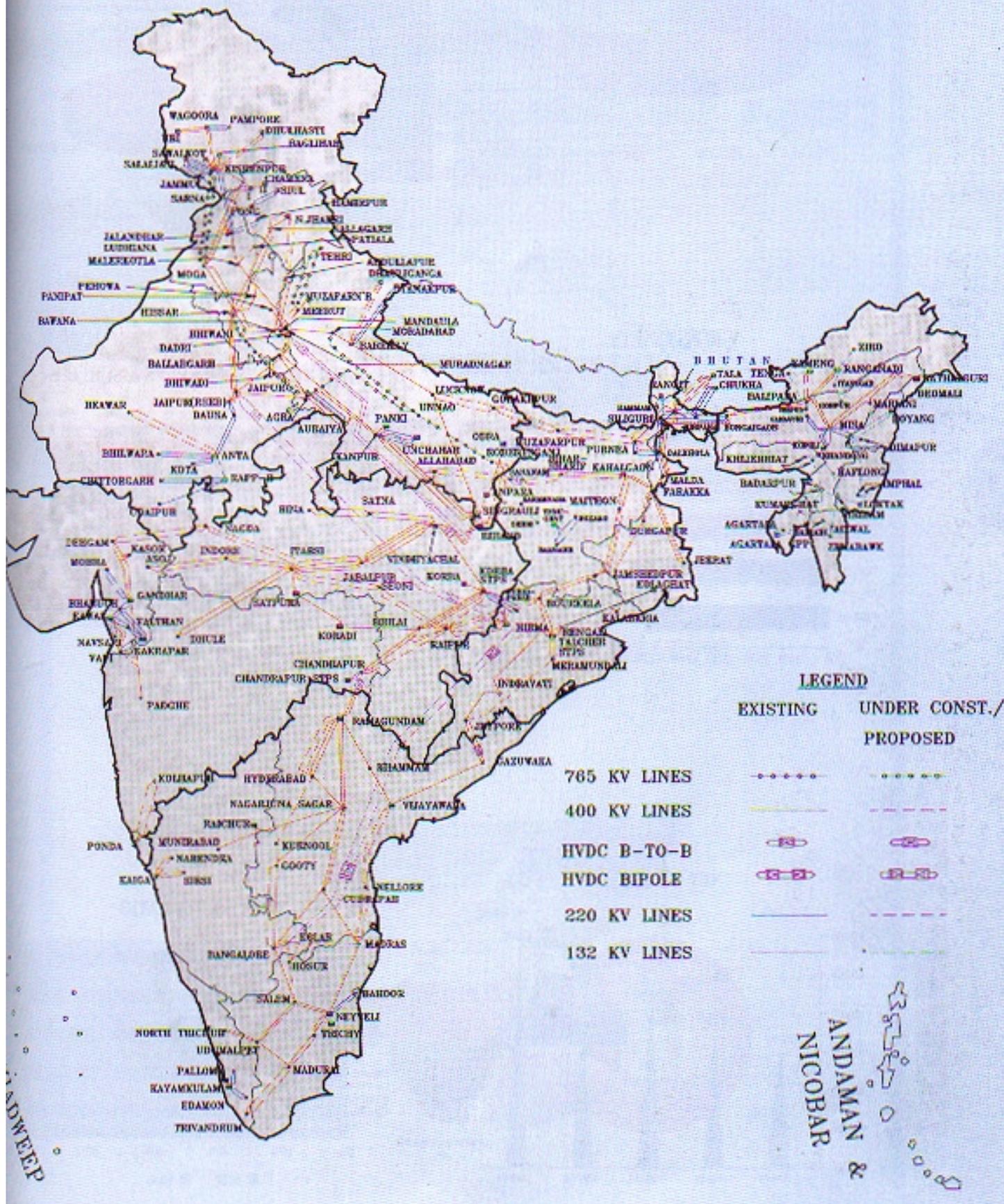
NERLDC

S.K. SINHA
A.G.M.

NERLDC

S.K. SINHA
A.G.M.

POWER MAP OF INDIA (POWERGRID LINES)



LEGEND

EXISTING UNDER CONST./
PROPOSED

- 765 KV LINES
- 400 KV LINES
- HVDC B-TO-B
- HVDC BIPOLE
- 220 KV LINES
- 132 KV LINES



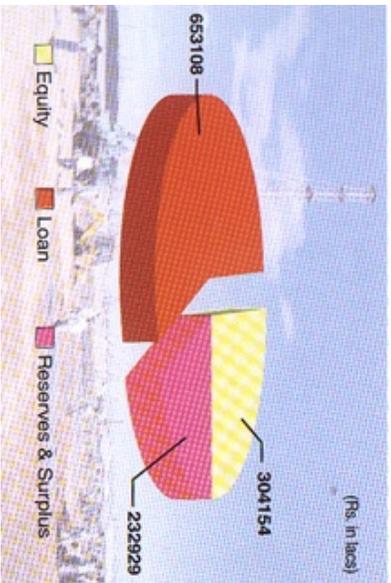
ANDAMAN &
NICOBAR

ANDWEEP

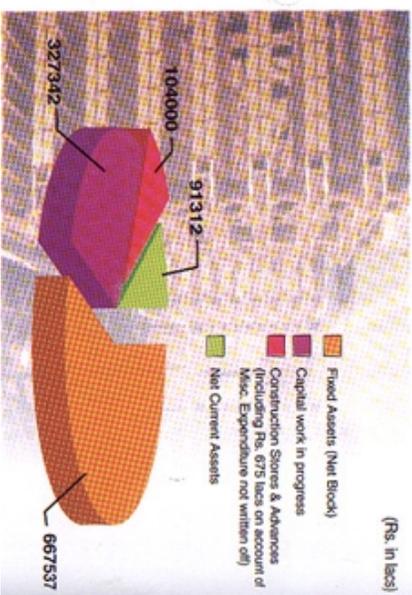
POWERGRID



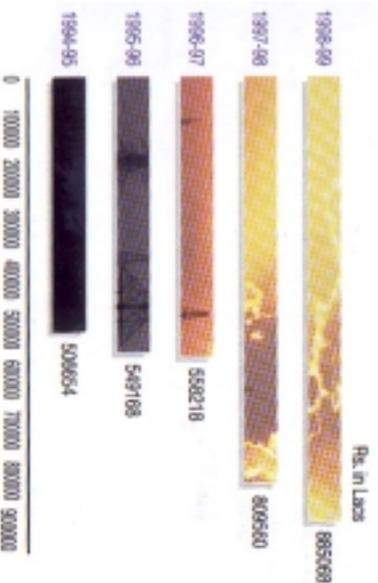
SOURCES OF FUNDS



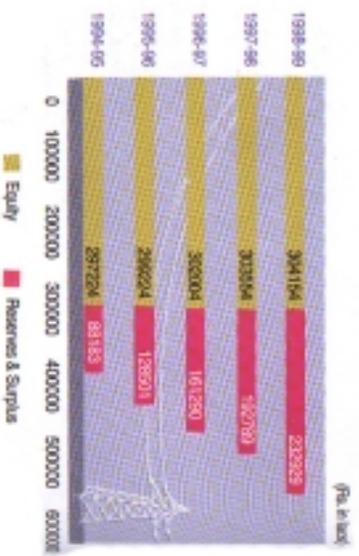
APPLICATION OF FUNDS



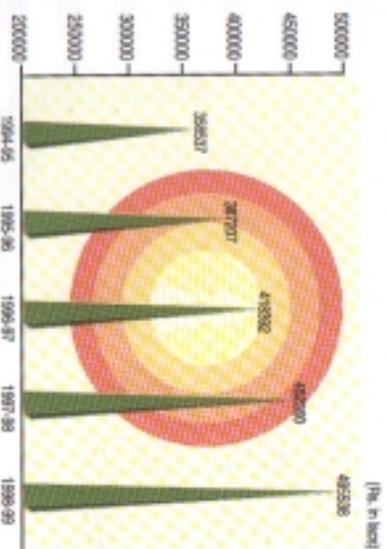
GROSS ASSETS



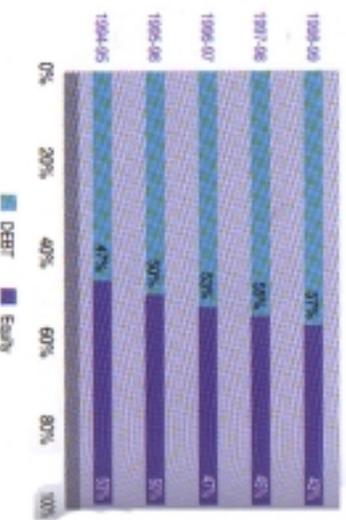
EQUITY VIS-A-VIS RESERVES & SURPLUS



NET WORTH

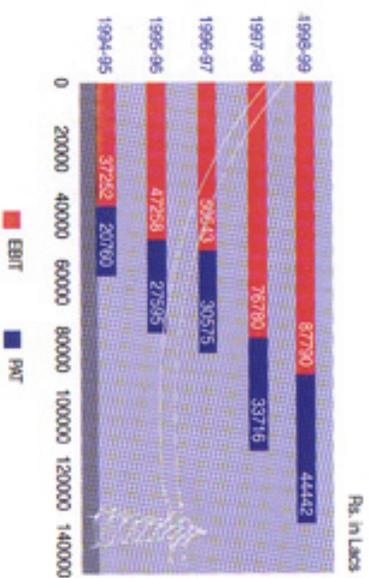


DEBT EQUITY RATIO

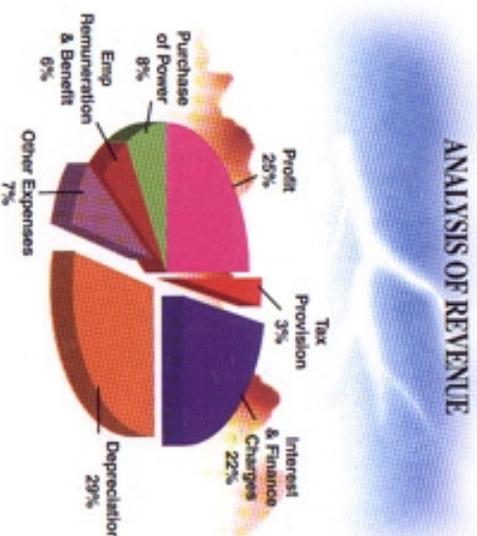
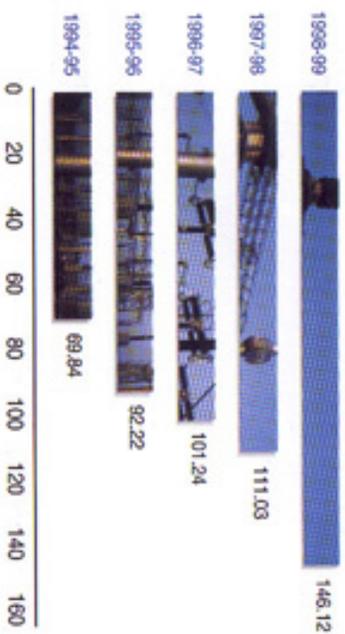


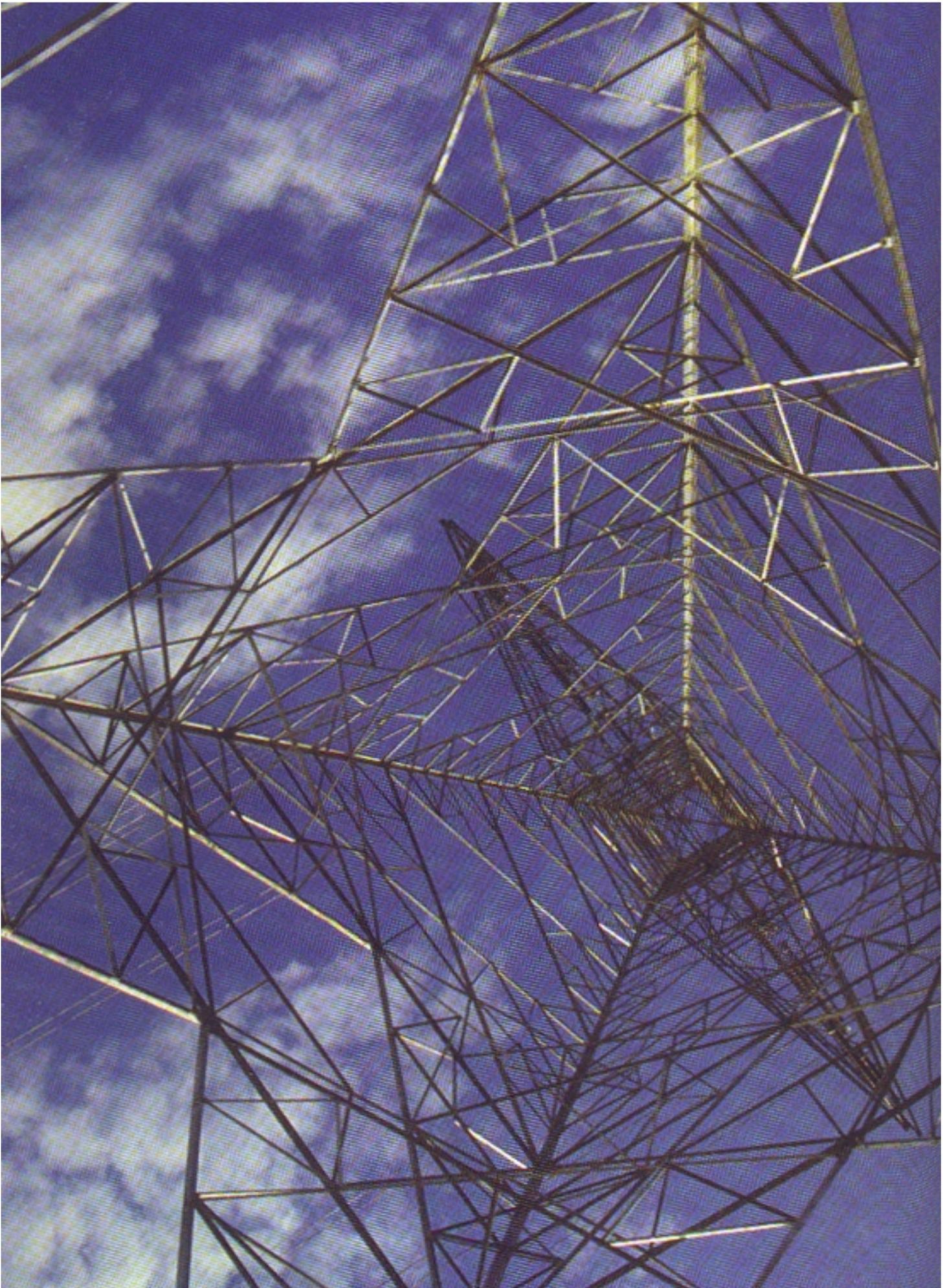


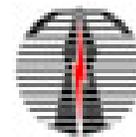
EBIT VIS-A-VIS PAT



EPS ON SHARE OF RS. 1000 EACH





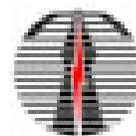


FIVE YEAR SUMMARY

FINANCIAL POSITION

(Rs. in lac)

	1998-99	1997-98	1996-97	1995-96	1994-95
(A) WHAT THE COMPANY OWNED:					
Gross Fixed Assets	885068	809560	558218	549168	506654
Less : Depreciation	217531	165348	128348	95076	63002
Net Fixed Assets	667537	644212	429870	454092	443652
Capital Work-in-Progress & Construction Stores & Advances	430667	366536	451046	308152	197906
Current Assets, Loan & Advances	162746	127169	116060	110946	97110
TOTAL (A)	1260950	1137917	996976	873190	738668
(B) WHAT THE COMPANY OWED:					
Borrowings From :					
- Govt of India	165026	145622	117559	88517	57703
- Financial Institutions	1326	16901	17579	18357	17146
- Foreign Currency Loans	266526	215326	169545	140935	123887
- Cash Credit	602	-	-	-	-
- Others Loans/Bonds	219628	181196	172488	142153	113151
Current Liabilities & Provisions	71434	82864	57119	56141	42087
TOTAL (B)	724542	641909	534290	446103	353974
(C) NETWORTH OF THE COMPANY REPRESENTED BY :					
i) Equity capital (including Deposit)	304154	303654	302004	299224	297224
ii) Free Reserves and surplus	192059	149141	116996	88621	62026
iii) Less : Misc. Exp. to the extent not written off	675	435	608	638	713
TOTAL (C)	495538	452360	418392	387207	358537
(D) COMMITTED RESERVES :					
i) Capital Reserves	11206	11206	11827	11206	11206
ii) Grants in Aid	29664	32442	32467	28674	14951
TOTAL (D)	40870	43648	44294	39880	26157
TOTAL (B+C+D)	1260950	1137917	996976	873190	738668
CAPITAL EMPLOYED (Net Fixed Assets+Net Current Assets)	758849	688517	488811	508897	498675
(E) RATIOS					
Net Profit to Capital Employed (%)	5.86	4.90	6.25	5.42	4.16
Net Profit to Net Worth(%)	8.97	7.45	7.31	7.13	5.79
Net Worth per Rupee of Paid-up Capital (in Rs.)	1.63	1.49	1.39	1.29	1.21
Debt/Equity ratio	1.32.:1	1.24:1	1.14:1	1.01:1	0.87:1
Liquidity Ratio	2.28:1	1.61:1	2.03:1	1.98:1	2.31:1

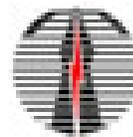


FIVE YEAR SUMMARY

OPERATING RESULTS

	(Rs. in lac)				
	1998-99	1997-98	1996-97	1995-96	1994-95
(A) EARNED FROM :					
Transmission Charges	157701	124653	93422	86119	71686
Sale of Power	13259	16535	10127	10736	7947
Consultancy & other income	6066	2280	2266	1503	1360
Total Earnings	177026	143468	105815	98358	80993
(B) PAID & PROVIDED FOR :					
Purchase of Power	13305	13114	7158	7566	5037
Employees Remuneration & Benefits	10601	8534	6338	5616	4219
Transmission Expenses	4696	4013	2944	2339	1863
Administration Expenses	6578	5885	4234	3774	2980
Other Expenses (Including Prior Period Adj.)	1554	-2116	244	-455	514
Deffered Revenue Expenditure	233	179	181	159	136
Provisions	155	453	1169	61	84
Total Expenditure (Excl. Depr.&int.)	37122	30062	22268	19060	14833
Profit before Depreciation & Intt	139904	113406	83547	79298	66160
Depreciation	52114	36626	33004	32040	28908
Interest & Finance Charges	38087	34574	19967	19662	16492
Net Profit after Interest & Depreciation but before Tax	49703	42206	30576	27596	20760
Provision for tax	5261	8490*	1	1	-
Net Profit after Tax	44442	33716	30575	27595	20760
Dividend	2000	2000	2000	1000	500

*Income Tax of Rs. 3951 lacs for the year 1996-97 has also been provided during 1997-98.

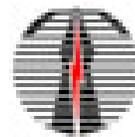


REVENUE EXPENDITURE ON SOCIAL OVERHEADS

FOR THE YEAR ENDED 31ST MARCH, 1999

(Rs. in lac)

Sl. No.	Particulars	Township	Education & School Facilities	Medical Facilities	Subsidised Transport	Social & Cultural Activities	Subsidised Canteen	Total	Previous Year
1.	Payment to Employees		34	1026	62	93	128	1343	800
2.	Material Consumed	18						18	15
3.	Rates & Taxes	7						7	2
4.	Welfare Expenses	12	39	143	7	398	34	633	393
5.	Others including Repair & Maintenance	249						249	226
6.	Depreciation	404						404	411
7.	Sub-total (1 to 6)	690	73	1169	69	491	162	2654	1847
8.	Less : Recoveries	37						37	29
9.	Net Expenditure (7-8)	653	73	1169	69	491	162	2617	1818
10.	Previous year	626	76	652	19	304	141	1818	



ACCOUNTING POLICIES

1.0 CAPITAL RESERVE

Grants-in-aid received from the Central Government or other authorities towards capital expenditure for Projects and betterment of transmission systems are shown as grants -in-aid under 'Reserves and Surplus' till the utilisation of grant. However, grants received for specific depreciable assets are shown under 'Reserve and Surplus' while the same are under construction. On capitalisation, such grants recognized in the profit and loss account over the period and in proportion in which the depreciation on these assets is provided.

2.0 FIXED ASSETS

2.1 In the case of commissioned assets, deposit works/cost plus contracts where final settlement of bills with contractours is yet to be effected, capitalisation is made on provisional basis subject to necessary adjustments in the year of final settlement.

2.2 Assets and Systems common to more than one Transmission System are capitalised on the basis of engineering estimates and / or assessments.

2.3 The cost of land includes provisional deposits, payments/liabilities towards compensation, rehabilitation and other expenses but does not include the deposits/advance/expenditure incurred wherever possession of land is still to be taken.

2.4 Capital expenditure on assets not owned by the company, reflected as a distinct item in capital work in progress, pending completion, is thereafter shown as a distinct item in fixed assets.

3.0 MANDATORY SPARES

3.1 Mandatory spares in the nature of sub-station equipments/capital spares i.e. stand-by/ service/ rotational equipment and unit assemblies either procured along with the equipments or subsequently are capitalised and depreciation charged as per relevant rates.

3.2 Mandatory spares of consumable nature, transmission line items are treated as inventory items, after commissioning of the line.

4.0 TREATMENT OF EXPENDITURE DURING CONSTRUCTION

4.1 i) Expenses of Corporate Office for the year, common to operation and construction activities are allocated to Profit and Loss Account and incidental expenditure during construction in proportion of Transmission charges to annual capital outlay.

ii) Expenses of the projects for the year, common to operational and construction activities are allocated to Profit and Loss Account and incidental expenditure during construction in proportion of Transmission charges to accretions to capital work-in-progress.

4.2 Incidental expenditure during construction (net) including Corporate Offices expenses allocated to the projects pro-rata to the annual capital expenditure for the year is apportioned to capital work-in-progress on the basis of accretions there to. Interest during construction is apportioned on the closing balance of capital work-in-progress.

4.3 Deposit work/cost plus contracts are accounted for on the basis of statement of account received from the contractors.

4.4 Claims for price variation/exchange rate variation in case of contracts are accounted for on acceptance.

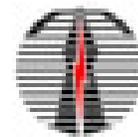
5.0 CONVERSION OR TRANSLATION OF FOREIGN CURRENCY ITEMS

Foreign Currency loans/deposits/liabilities are translated/converted with reference to the rates of exchange ruling at the year end difference is transferred to capital work-in-progress/fixed assets in case of capital assets and is charged off to revenue, in case of current assets.

6.0 VALUATION OF INVENTORIES

6.1 Inventories, other than scrap, are valued at cost on weighted average basis.

6.2 Steel scrap and conductor scrap are valued at estimated realizable value or book value whichever is less. Other scrap is accounted for as and when sold.



7.0 RECOGNITION OF INCOME

- 7.1 Transmission charges are accounted for based on tariff rates notified by Government of India under the Electricity Supply Act, 1948. In case of transmission projects where tariff has not been notified, transmission charges are being billed as per Bulk power transmission agreements or as decided by the concerned regional electricity boards or on norms and parameters followed by Government of India for fixation of tariff.
- 7.2 Sale of power purchased from M/s Chukha Hydel Power Corp. Ltd., Bhutan is billed & accounted for on the basis of power tariff as notified by Government of India from time to time.
- 7.3 Surcharge recoverable from debtors is accounted for on receipt basis.
- 7.4 Liquidated damages/warranty claims and Interest on advances to suppliers, are accounted for on acceptance/settlement.
- 7.5 Income from Consultancy/Contract Services is being accounted for on the basis of actual progress/technical assessment of work executed except in cases where contracts provide otherwise.
- 7.6 The Incentives/Disincentives are accounted for based on tariff notification wherever availability is certified by the respective Regional Electricity Board as required vide MOP letter No.F No.2/3/Powergrid/Tariff/98 Dtd. 04.02.99

8.0 EXPENDITURE

- 8.1 a) Depreciation is provided on straight line method as per rates laid down under the Electricity (Supply) Act, 1948. In respect of assets, where rates have not been laid down under the aforesaid Act, depreciation is provided on straight line method as per rates prescribed under the Income Tax Act, 1961.
- b) Depreciation on fixed assets is being provided from the year following that in which the assets become available for use, in accordance with the Electricity (Supply) Act, 1948.
- c) Where the cost of depreciable assets has undergone a change during the year due to increase/decrease in long term liabilities on account of

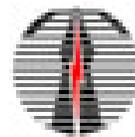
exchange fluctuation, price adjustment, change in duties or similar factors, the unamortized balance of such asset is depreciated prospectively over the residual life determined on the basis of the rate of depreciation.

- d) Capital expenditure on assets not owned by the company is amortized over a period of the company is amortized over a period of 4 years from the year following the year in which the first line/sub-stations of the project comes into commercial operation and thereafter from the year following the year in which the relevant assets have been completed and become available for use.
- 8.2 In the case of transmission system, assets of National Thermal Corporation Limited (NTPC), National Hydro-Electric Power Corporation Limited (NHPC) transferred w.e.f. 01.04.92, Jammu & Kashmir Lines w.e.f. 01.04.93 and Tehri Hydro Development Corporation Limited (THDC) w.e.f. 01.08.93, depreciation has been charged based on gross block as indicated in transferors books with necessary adjustments so that the life of the assets as laid down under Electricity (Supply) Act, 1948 is maintained.
- 8.3 Plant & Machinery, Loose Tools and items of scientific appliances included under different heads of assets, costing either Rs. 5000/- or less as at the beginning of the year are charged off to revenue.

- 8.4 Insurance reserve is created @ 0.1% on gross value of Fixed Assets as at the close of the year in respect of future losses which may arise from uninsured risks except for machinery breakdown for value halls of HVDC and fire risk for HVDC equipments & SVC sub-stations.
- 8.5 Expenses on Training and Recruitment, Research and Development are charged to revenue.
- 8.6 Pre-paid/prior -period items upto Rs. 5,000/- are accounted to natural heads of accounts.
- 8.7 Bonds issue expenses/front-end fees are being amortised over the tenure of bonds/loans.

9.0 TREATMENT OF RETIREMENT BENEFITS

The liability for gratuity, leave encasement and post retirement medical benefit of employees is accounted for on actuarial valuation basis.



BALANCE SHEET

As at 31st March, 1999

	Schedule No.		As at 31st March, 1999	As at 31st March, 1998
(Rs. in lacs)				
SOURCES OF FUNDS				
Shareholder's Funds				
Capital	1		304,154	303,654
Reserves and Surplus	2		<u>232,929</u>	192,789
			537,083	496,443
Loan Funds				
Secured loans	3		294,683	243,844
Unsecured loans			<u>358,425</u>	315,201
			653,108	559,045
			<u>1,190,191</u>	1,055,488
APPLICATION OF FUNDS				
Fixed Capital Expenditure				
Fixed Assets				
Gross Block		885,068		809,560
Less : Depreciation		<u>217,531</u>		165,348
Net Block			667,537	644,212
Capital Work-in-Progress	5		327,342	218,175
Construction stores and advances	6		<u>103,325</u>	148,361
			1,098,204	1,010,748
Current Assets, Loans & Advances				
Inventories		13,466		13,529
Sundry debtors		101,274		73,417
Cash and Bank balances		16,478		6,939
Other current assets		<u>12,874</u>		14,592
Loans and Advances		18,654		18,692
			162,746	127,169
Less : Current Liabilities & Provisions				
Liabilities		<u>62,575</u>		69,901
Provisions		8,859		12,963
			<u>71,434</u>	82,864
Net current Assets			91,312	44,305
Miscellaneous expenditure (to the extent not written off or adjusted)				
	9		<u>675</u>	435
			<u>1,190,191</u>	1,055,488
Contingent liabilities	10		134,197	85,883
Notes on accounts	17			

Schedule 1 to 17 and Accounting Policies form integral part of Accounts

(Mrinal Shrivastava)
Company Secretary

(Dr. V.K. Garg)
Director (Finance)

(R.P.Singh)
Chairman & Managing Director

As per our report of even date

For Hingorani M. & Co.
Chartered Accountants

For Venugopal & Chenoy
Chartered Accountants

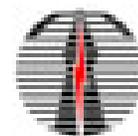
For D.P.Sen & Co.
Chartered Accountants

(J.P. Dhamija)
Partner

(P.V. Sri Hari)
Partner

(Rahul Roy)
Partner

Place : New Delhi
Date : 1st July, 1999



PROFIT AND LOSS ACCOUNT

For The Year Ended 31 st March, 1999

(Rs. in lacs)

Schedule No.		For The Year Ended 31st March, 1999	For The Year Ended 31 st March, 1998
INCOME			
		157,701	128,114
		13,259	13,074
	11	1,297	767
		4,769	1,513
		<u>177,026</u>	<u>143,468</u>
EXPENDITURE			
		13,305	13,114
	12	27,921	23,766
		52,228	36,832
	16	<u>1,563</u>	-2,295
		81,772	58,303
	15A	<u>6,229</u>	5,548
		75,543	52,755
	13	233	179
		155	453
		-	187
		89,236	66,688
	14	72,667	76,780
	15B	<u>34,580</u>	68,895
		38,087	<u>34,321</u>
		49,703	34,574
		5,261	42,206
		-	4,539
		44,442	3,951
		2,496	33,716
		-	180
		2,000	800
		220	2,000
		11,115	200
		14,340	11,115
		42,500	12,500
		<u>5,443</u>	17,500
			<u>2,496</u>

(Mrinal Shrivastava)
Company Secretary

(Dr. V.K. Garg)
Director (Finance)

(R.P.Singh)
Chairman & Managing Director

For Hingorani M. & Co.
Chartered Accountants

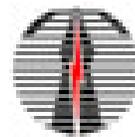
As per our report of even date
For Venugopal & Chenoy
Chartered Accountants

For D.P.Sen & Co.
Chartered Accountants

(J.P. Dhamija)
Partner
Place : New Delhi
Date : 1st July, 1999

(P.V. Sri Hari)
Partner

(Rahul Roy)
Partner



SCHEDULES

SCHEDULE 1 - CAPITAL

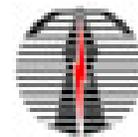
	(Rs. in lacs)	
	As at 31st March, 1999	As at 31st March, 1998
AUTHORISED		
5,00,00,000 (Previous year 5,00,00,000) equity shares of Rs. 1000/- each	5,00,000	5,00,000
ISSUED, SUBSCRIBED AND PAID-UP		
288,36,540 386,36,540 (Previous year 287,86,540) equity shares of Rs. 1000/- fully paid up	288,365	287,865
Share capital deposit	15,789	15,789
	<u>304,154</u>	<u>303,654</u>

SCHEDULE 2 - RESERVES AND SURPLUS

	(Rs. in lacs)			
	Balance As 31 st March, 1998	Additions	Deductions	Balance As 31 st March, 1999
Capital Reserve	11,206	-	-	11,206
Grants in aid	32,442	-	2,778	29,664
Insurance Reserve	629	696	-	1,325
General Reserve	110,000	42,500	-	152,500
Bonds Redemption Reserve	36,016	11,115	14,340	32,791
	<u>190,293</u>	54,311	17,118	227,486
	<u>2,496</u>			5,443
	<u>192,789</u>			<u>232,929</u>

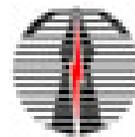
SCHEDULE 3 - LOAN FUNDS

	(Rs. in lacs)	
	As at 31st March, 1999	As at 31st March, 1998
SECURED LOANS		
Cash Credit/Working Capital Demand Loan (Secured by Hypothecation of stores spares, book debts and other current assets)	602	
BONDS I SERIES		
a. 16.75% / 17% Taxable 7 years Secured Redeemable non-cumulative non-convertible Bonds of Rs. 1000/- each redeemable at par on 10th /13th March, 1999		3,680
b. 9% Tax-Free 10 years Secured Redeemable non-cumulative non-convertible Bonds of Rs. 1000/- each redeemable at par on 10th March, 2002	3,900	3900
Secured by equitable mortgage of immovable properties and hypothecation of movable properties of Korba & Singrauli Transmission System	<u>3,900</u>	7,580
BONDS II SERIES		
a. 15% Taxable 5 years Secured Redeemable non-cumulative non-convertible Bonds of Rs. 1000/- each redeemable at par on 11th February, 1999		23,600
b. 10.5% Tax free 5 years Secured Redeemable non-cumulative non-convertible Bonds of Rs. 1000/- each redeemable at par on 11th February, 1999		1,400
Secured by equitable mortgage of immovable properties and hypothecation on movable properties of Ramagundam Stage-I and II Transmission System & Nagarjuna Sagar- Gooty Transmission Line.		25,000



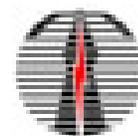
SCHEDULE 3 - LOAN FUNDS (CONTD.)

	(Rs. in lacs)	
	As at 31st March, 1999	As at 31st March, 1998
BONDS III SERIES		
a. 13.5% Taxable 7 years Secured Redeemable non-cumulative non-convertible Bonds of Rs. 1000/- each redeemable at par on 28 th February, 2002	1,600	1,600
b. 9.75% Tax free 7 years Secured Redeemable non-cumulative non-convertible Bonds of Rs. 1000/- each redeemable at par on 28th October, 2001	10,000	10,000
c. 16.25% Taxable 5 years Secured Redeemable non-cumulative non-convertible Bonds of Rs. 1000/- each redeemable at par on 1st September, 2000	13,400	13,400
Secured by equitable mortgage of immovable properties and hypothecation of movable properties of Auraiya and Moga-Bhiwani Transmission System . In case of above 16.25% bonds further additionally secured by equitable mortgagage of immovable properties and hypothecation of movable properties of CTP-I Transmission System (except Vijaywada Sub-Station)	25,000	25,000
BONDS IV SERIES		
a. 17% Taxable 5 years Secured Redeemable non-cumulative non-convertible Bonds of Rs. 1000/- each redeemable at par on 8th January, 2001	10,686	10,686
b. 17.5% Taxable 5 year Secured Redeemable non-cumulative non-convertible Bonds of Rs. 1000/- each redeemable at par on 29th March, 2001	3,626	3,626
c. 17.75% Taxable 5 years Secured Redeemable non-cumulative non-convertible Bonds of Rs. 1000/- each redeemable at par on 16th July, 2001	20,688	20,688
Secured by equitable mortgage of immovable properties and hypothecation of movable properties of Doyang and Farakka transmission Systems and Anta Transmission Line	35,000	35,000
BONDS V SERIES		
15.75% Taxable 5 years Secured Redeemable non-cumulative non-convertible Bonds of Rs. 1000/- each redeemable at par on 24th February, 2002	20,000	20,000
Secured by hypothecation of movable properties and Equitable mortgagage of immovable properties of Chamera - Moga Transmission System		
BONDS VI SERIES		
13% Taxable Secured Redeemable non-cumulative non-convertible Bonds of Rs. 1000/- each redeemable at par in 10 annual equal instalments from 6th Dec. 2002	10,000	
Loan From Life Insurance Corporation of India		
a. Secured by equitable mortgage of immovable properties of Kathalguri Transmission System	936	1,111
b. Secured by equitable mortgage of immovable properties and hypothecation of movable properties of CTP-I Vijayawada Sub-station	390	790
	1,326	1,901



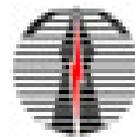
SCHEDULE 3 - LOAN FUNDS (CONTD.)

	(Rs. in lacs)	
	As at 31st March, 1999	As at 31st March, 1998
Loan from Unit Trust of India		
Secured by equitable mortgage of immovable properties and hypothecation of movable properties of Kahalgaon Transmission System		15,000
Loan from Indian Overseas Bank		
a. Secured by Hypothecation of Immovable assets of Chandrapur HVDC Transmission System and 400 kV Chamera-Kishenpur Transmission System	1,875	3,125
b. Secured by a floating charge on the fixed assets of the Corporation	10,000	
	11875	3,125
Loan from State Bank of India		
a. Secured by first paripassu charges on fixed assets of the company	20,000	20,000
b. Secured by first paripassu charges on fixed assets of the company	25,000	-
	45,000	20,000
Loan from Corporation Bank		
Secured by a floating charge on the fixed assets of the corporation .	10,000	-
Loan from Punjab National Bank		
Secured by a floating charge on the fixed assets of the corporation.	20,000	-
Loan from International Bank for Reconstruction and Development		
Secured by equitable mortgage of immovable properties and hypothecation of movable properties of Vindhychal and Rihand Transmission system and further guaranteed by Government of India	90,623	72,522
West Merchant Bank, UK		
(Guaranteed by consortium of Bankers, which is secured by hypothecation of Plant Machinery of Jeypore-Gajuwaka HVDC transmission system and further to be secured by equitable mortgage of immovable properties of Indravati Substation)	17,808	15,167
PENDING FINALISATION OF TRIPARTITE AGREEMENT BACK TO BACK AGREEMENT, AMOUNT PAYABLE TO GOVERNMENT OF INDIA ON ACCOUNT OF		
NLC Purchase Consideration		
9% E series 10 years Bonds of Rs. 1000/- each redeemable at par in December, 1999/ March, 2000	3,549	3,549
Secured by equitable mortgage of immovable properties of Neyveli-Salem-Madras Line	—	
Total Secured Loans	294,683	243,844



SCHEDULE 3 - LOAN FUNDS (CONTD.)

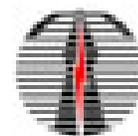
	(Rs. in lacs)	
	As at 31st March, 1999	As at 31st March, 1998
UNSECURED LOANS		
BONDS VI Series		
13% Taxable Secured Redeemable non-cumulative non-convertible Bonds of Rs. 1000/- each redeemable at par in 10 annual equal installments from 6th Dec. 2002		10,000
Secured by Equitable mortgagage of immovable properties and hypothecation of movable properties of Gandhar Stage-I Transmission System		
Bonds VII Series		
13.5% Taxable Secured Redeemable non-cumulative non-convertible Bonds of Rs. 1000/- each redeemable at par in five annual equal installments from 4 th August. 2003	20,000	-
Loan from Government of India	165,026	145,622
Syndicated loan from ING Bank, Japan	7,100	6,046
Loans Guaranteed by Govt. of India		
West Merchant Bank UK & State Bank of India, London	21,546	20,810
Natexis Banque (Credit National), France	11,101	9,857
Credit Agricole Indosuez (banque Indosuez), France	9,577	9,367
Skandinorviska Enskilada Banken I, Sweeden		908
Skandinorviska Enskilda Banken II, Sweeden	3,407	9,328
Asian Development Bank	63,858	31,664
Industrial Bank of Japan and Nippon Life Insurance	4,554	3,878
Syndicated Loan from Industrial Bank of Japan & Other Japanese Banks/Financial Institutions	11,600	12,347
Overseas Economic Corporation Fund	141	-
European Investment Bank	1,210	-
	126,994	98,159
PENDING FINALISATION OF TRIPARTITE AGREEMENT/BACK TO BACK AGREEMENT AMOUNT PAYABLE TO GOVERNMENT OF INDIA ON ACCOUNT OF		
A. NTPC Purchase Consideration		
1. Loans from		
a. Syndicated loan from Industrial Bank of Japan	11,251	9,581
b. Syndicated loan from Sumitomo Bank	10,001	10,648
2. Bonds Issued By NTPC	10,729	15,270
	31,981	35,499
B. NHPC Purchase Consideration		
a. Export Development Corporation, Canada	2,749	3,203
b. Bonds issued by NHPC	2,374	10,380
	5,123	13,583
C. NLC Purchase Consideration		
Bonds issued by NHPC	2,201	2,201
Unsecured Loans from others		
Neyveli Lignite Corporation	-	4,091
Total unsecured loans	358,425	315,201
Grand Total (Secured + Unsecured)	653,108	559,045



SCHEDULE 4A - FIXED ASSETS - TRANSMISSION LINES

(Rs. in lacs)

	Gross Block				Depreciation			Net Block		
	As at 31/3/98	Additions during the year	Adjustments during the year	As at 31/3/99	As at 31/3/98	Additions during the year	Adjustments during the year	As at 31/3/99	As at 31/3/98	
LAND (including Development)										
a) Freelold	130	-	-	130	-	-	-	-	130	130
b) Leasehold	19	10	-	29	-	-	-	-	29	19
Roads, bridge, culverts & helipads	1	-	-	1	-	-	-	-	1	1
BUILDINGS										
Others	4	-	-	4	-	1	-	1	3	4
Temporary Erection	9	-	-	9	6	2	-	8	1	3
Plant & Machinery	450,505	39,473	-9,709	499,687	82,876	24,930	-11	107,817	391,870	367,629
Construction and workshop equipment	531	51	-104	686	81	51	1	131	555	450
Vehicles	8	-	-	8	6	-	1	5	3	2
Total (A)	451,207	39,534	-9,813	500,554	82,969	24,984	-9	107,962	392,592	368,238



SCHEDULE 4B - FIXED ASSETS - SUB-STATIONS

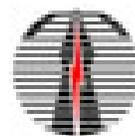
(Rs. in lacs)

	Gross Block				Depreciation			Net Block		
	As at 31/3/98	Additions during the year	Adjustments during the year	As at 31/3/99	As at 31/3/98	Additions during the year	Adjustments during the year	As at 31/3/99	As at 31/3/99	As at 31/3/98
LAND (Including Development)										
a) Freehold	4,819	318	-189	5,326	-	-	-	-	5,326	4,819
b) Leasehold	965	93	-	1,058	77	17	-	94	964	888
c) Unclassified	28	-	10	18	-	-	-	-	18	28
Roads, bridges, culverts & helipads	2,034	129	-5	2,168	241	63	-	304	1,864	1,793
BUILDINGS										
a) Main Plant	5,746	383	-10	6,139	1,031	356	-	1,387	4,752	4,715
b) Others	1,096	17	40	1,073	363	42	4	401	672	733
Temporary Erection	136	-	-	136	117	6	8	115	21	19
Water Supply Drainage and Sewerage	776	4	-1	781	113	32	-	145	636	663
Plant & Machinery	318,574	15,582	-6,171	340,327	75,284	25,532	122	100,694	239,633	243,290
Construction and workshop equipment	436	16	-	452	171	35	-	206	246	265
Electrical Installation	811	36	-18	865	319	70	-6	395	470	492
Vehicles	189	-	3	186	136	17	2	151	35	53
Aircraft/Aero engines, Boats	2	-	-	2	1	-	-	1	1	1
Furniture Fixtures & Others equipment	506	51	-10	567	228	57	-	285	282	278
EDP & WP Machines	193	24	-	217	99	17	-2	118	99	94
Laboratory and Workshop equipment	1,363	52	-11	1,426	760	138	-	898	528	603
Capital Expenditure on Assets not owned by the company	119	1	-29	149	71	28	-	99	50	48
Total (B)	337,793	16,706	-6,391	360,890	79,011	26,410	128	105,293	255,597	258,782

SCHEDULE 4C - FIXED ASSETS - RESEARCH & DEVELOPMENT

(Rs. in lacs)

	Gross Block				Depreciation			Net Block		
	As at 31/3/98	Additions during the year	Adjustments during the year	As at 31/3/99	As at 31/3/98	Additions during the year	Adjustments during the year	As at 31/3/99	As at 31/3/99	As at 31/3/98
LAND (including Development)										
BUILDINGS										
Others	74	-	-	74	10	2	-	12	62	64
Total (C)	74	-	-	74	10	2	-	12	62	64



SCHEDULE 4D - FIXED ASSETS - OFFICE COMPLEX

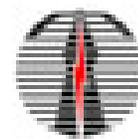
(Rs. in lacs)

	Gross Block			Depreciation			Net Block			
	As at 31/3/98	Additions during the year	Adjustments during the year	As at 31/3/99	As at 31/3/98	Additions during the year	Adjustments during the year	As at 31/3/99	As at 31/3/99	As at 31/3/98
LAND (Including Development)										
a) Freehold	1,135	-	-	1,135	-	-	-	-	1,135	1,135
b) Leasehold	815	7	-	822	13	1	5	9	813	802
BUILDINGS										
Others	2,639	1,154	-97	3,890	372	89	-10	471	3,419	2,267
Temporary Erection	198	12	-3	213	160	14	-3	177	36	38
Water Supply Drainage and Sewerage	7	-	1	6	1	-	-	1	5	6
Electrical Installation	29	-	-	29	7	2	-	9	20	22
Vehicles	92	19	-	111	57	12	-	69	42	35
Furniture Fixtures & Other equipment	1,569	369	11	1,927	724	190	5	909	1,018	845
EDP & WP Machines	1,129	262	-1	1,392	395	149	2	542	850	734
Total (D)	7,613	1,823	-89	9,525	1,729	457	-1	2,187	7,338	5,884

SCHEDULE 4E - FIXED ASSETS - TOWNSHIP ASSETS

(Rs. in lacs)

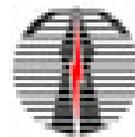
	Gross Block			Depreciation			Net Block			
	As at 31/3/98	Additions during the year	Adjustments during the year	As at 31/3/99	As at 31/3/98	Additions during the year	Adjustments during the year	As at 31/3/99	As at 31/3/99	As at 31/3/98
LAND (Including Development)										
a) Freehold	391	184	-	575	-	-	-	-	575	391
b) Leasehold	343	-	-	343	10	5	-5	20	323	333
Roads, bridges, culverts & helipads	826	28	-11	865	112	26	-	138	727	714
BUILDINGS										
Others	9,030	740	-106	9,876	1,002	283	-6	1,291	8,585	8,028
Temporary Erection	62	2	-	64	46	6	-	52	12	16
Water Supply Drainage and Sewerage	1,273	22	-5	1,300	178	39	-	217	1,083	1,095
Electrical Installation	562	37	8	591	185	42	-1	228	363	377
Vehicles	16	-	-	16	11	1	-	12	4	5
Furniture Fixtures & Others equipment	362	27	2	387	82	31	-1	114	273	280
Hospital equipment	1	-	-	1	-	1	-	1	-	1
School equipment	3	-	-	3	1	-	-	1	2	2
Capital expenditure on assets not owned by the company	4	-	-	4	2	1	-	3	1	2
Total (E)	12,873	1,040	-112	14,025	1,629	435	-13	2,077	11,948	11,244



SCHEDULE 4 - FIXED ASSETS

(Rs. in lacs)

	Gross Block			Depreciation			Net Block			
	As at 31/3/98	Additions during the year	Adjustments during the year	As at 31/3/99	As at 31/3/98	Additions during the year	Adjustments during the year	As at 31/3/99	As at 31/3/99	As at 31/3/98
LAND										
(Including Development)										
a) Freehold	6,475	502	-189	7,166	-	-	-	-	7,166	6,475
b) Leasehold	2,142	110	-	2,252	100	23	-	123	2,129	2,042
c) Unclassified	28	-	10	18	-	-	-	-	18	28
Roads, bridges , culverts & helipads	2,861	157	-16	3,034	353	89	-	442	2,592	2,508
BUILDINGS										
a) Main Plant	5,746	383	-10	6,139	1,031	356	-	1,387	4,752	4,715
b) Others	12,843	1,911	-163	14,917	1,747	417	-12	2,176	12,741	11,096
Temporary Erection	405	14	-3	422	329	28	5	352	70	76
Water Supply Drainage, Sewerage	2,056	26	-5	2,087	292	71	-	363	1,724	1,764
Plant & Machinery	769,079	55,055	-15,880	840,014	158,160	50,462	111	208,511	631,503	610,919
Construction and workshop equipment	967	67	-104	1,138	252	86	1	337	801	715
Electrical Installation	1,402	73	-10	1,485	511	114	-7	632	853	891
Vehicles	305	19	3	321	210	30	3	237	84	95
Aircraft/Aero engines Books	2	-	-	2	1	-	-	1	1	1
Furniture Fixtures & Others equipment	2,437	447	3	2,881	1,034	278	4	1,308	1,573	1,403
EDP & WP Machines	1,322	286	-1	1,609	494	166	-	660	949	828
Laboratory and Workshop equipment	1,363	52	-11	1,426	760	138	-	898	528	603
Hospital equipment	1	-	-	1	-	1	-	1	-	1
School equipment	3	-	-	3	1	-	-	1	2	2
Capital Expenditure on Assets not owned by the company	123	1	-29	153	73	29	-	102	51	50
Grand Total	809,560	59,103	-16,405	885,068	165,348	52,288	105	217,531	667,537	644,212
Previous year	558,218	248,927	-2,415	809,560	128,348	36,699	-301	165,348	644,212	



SCHEDULE 5A - CAPITAL WORK IN PROGRESS - TRANSMISSION LINES

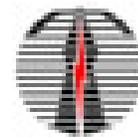
(Rs. in lacs)

Description	Balance as at 31.3.98	Additions during the year	Adjustments	Capitalised during the year	Balance as at 31.3.99
Plant and Machinery (Including associated civil works)					
a. On own A/C & on supply- cum-erection contract	175,336	99,865	-589	39,032	236,758
Survey, Investigation, Consultancy & Supervision charges	3,921	871	416	173	4,203
Difference in Exchange on foreign Loans	17	7986	709	6421	873
Total (A)	179,274	108,722	536	45,626	241,834

SCHEDULE 5B - CAPITAL WORK IN PROGRESS - SUB-STATIONS

(Rs. in lacs)

Description	Balance as at 31.3.98	Additions during the year	Adjustments	Capitalised during the year	Balance as at 31.3.1999
Development of land	443	150	-12	338	267
Roads, bridges, culverts & helipads	389	119	36	61	411
Buildings (others)	937	1,086	1	551	1,471
Temporary erection	12	19	9	-	22
Water supply, drainage and sewerage	18	14	1	3	28
Plant and Machinery (including associated civil works)					
a) On own account & on supply cum-erection contract	29,669	59,926	-812	15,962	74,445
b) Others	-	172	-	-	172
Electrical Installations	59	44	16	27	60
Furniture, fixture & other office equipment	253	10	138	16	109
Survey, Investigation, Consultancy & Supervision Charges	1,519	319	323	-	1,515
Difference in Exchange on foreign Loans	1442	13107	5925	5142	3,482
Total (B)	34,741	74,966	5,625	22,100	81,982



SCHEDULE 5C - CAPITAL WORK IN PROGRESS -RESEARCH AND DEVELOPMENT

(Rs. in lacs)					
Description	Balance as at 31.3.98	Additions during the year	Adjustments	Capitalised during the year	Balance as at 31.3.99
Buildings (others)	-	4	-	-	4
Total (C)	-	4	-	-	4

SCHEDULE 5D - CAPITAL WORK IN PROGRESS -OFFICE COMPLEX

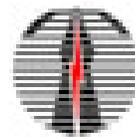
(Rs. in lacs)					
Description	Balance as at 31.3.98	Additions during the year	Adjustments	Capitalised during the year	Balance as at 31.3.99
Roads bridges, culverts & helipads	3	-	3	-	-
Buildings (other)	1,019	1,271	1,337	162	791
Temporary Erection	1	31	1	10	21
Water Supply, Drainage & Sewerage	1	1	-	-	2
Furniture Fixtures & Other Office Equipment	63	-	63	-	-
Total (D)	1,087	1,303	1,404	172	814

SCHEDULE 5E - CAPITAL WORK IN PROGRESS -TOWNSHIP ASSETS

(Rs. in Lacs)					
Description	Balance as at 31.3.98	Additions during the year	Adjustments	Capitalised during the year	Balance as at 31.3.99
Development of land	1	2	-	-	3
Roads, bridges, culverts & helipads	77	39	25	30	61
Buildings (others)	901	252	236	395	522
Temporary Erection	2	-	-	2	-
Water supply, drainage and sewerage	120	64	3	13	168
Electrical Installations	76	38	66	32	16
Furniture & fixtures & other Office Equipments	3	1	3	-	1
Total (E)	1,180	396	333	472	771

SCHEDULE 5F - CAPITAL WORK IN PROGRESS - INCIDENTAL EXPENSES DURING CONSTRUCTION

(Rs. in Lacs)					
Description	Balance as at 31.3.98	Additions during the year	Adjustments	Capitalised during the year	Balance as at 31.3.99
Incidental Expenditure during Construction	1,893	39,594	-	-	41,487
Less : Allocated to Capital Work in Progress	-	39,550	-	-	39,550
Total (F)	1,893	44	-	-	1,937

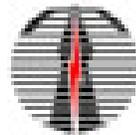


SCHEDULE 5 - CAPITAL WORK IN PROGRESS

Description	(Rs. in Lacs)				
	Balance as at 31.3.98	Additions during the year	Adjustments	Capitalised during the year	Balance as at 31.3.99
Development of land	444	152	-12	338	270
Roads , bridges, culverts & helipads	469	158	64	91	472
Buildings (others)	2,857	2,613	1,574	1,108	2,788
Temporary erection	15	50	10	12	43
Water supply drainage and sewerage	139	79	4	16	198
Plant and Macinery (including associated civil works)					
a) On own account & on supply-cum-erection contract	205,005	159,791	-1,401	54,994	311,203
b) Others	-	172	-	-	172
Electrical Installations	135	82	82	59	76
Furniture fixtures & other Office Equipment	319	11	204	16	110
Survey Investigation, Consultancy & Supervision Charges	5,440	1,190	739	173	5,718
Difference in Exchange of Foreign Loans	1,459	21,093	6,634	11,563	4,355
Incidental Expenditure during Construction	1,893	44	-	-	1,937
Total	218,175	185,435	7,898	68,370	327,342
Previous Year	365,567	99,746	5,596	241,542	218,175

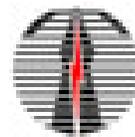
SCHEDULE 6 - CONSTRUCTION STORES & ADVANCES

	(Rs. in lacs)	
	As at 31st March, 1999	As at 31st March, 1998
Construction Stores (at cost) (As certified by the Management)		
Steel	1,303	1,968
Cement	54	60
Others	76,193	122,976
	<u>77,550</u>	125,004
Less : Provision for likely shortages	945	917
	<u>76,605</u>	124,087
ADVANCE FOR CAPITAL EXPENDITURE		
Secured		105
Unsecured considered good		
a) Against Bank Guarantees	14,848	4,987
b) Others	11,848	19,182
Considered doubtful	70	-
	<u>26,766</u>	24,169
Less provisions for Bad and Doubtful Advances	70	-
	<u>26,696</u>	24,169
		<u>26,720</u>
		103,325
Construction Stores Includes Materials in Transit under Inspection and with Contractors		55,788



SCHEDULE 7 - CURRENT ASSETS , LOANS & ADVANCES

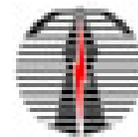
		(Rs. in lacs)	
		As at 31st March, 1999	As at 31st March, 1998
CURRENT ASSETS			
Inventories (Valued at cost as certified by management)			
Loose tools	37		82
Consumable stores	46		62
Components, Spares & other spare parts	<u>13,479</u>	13,562 96	13,442 13,586 57
Less : Provision for Shortages		13,466	13,529
Inventories includes stores in transit Rs. 12 Lacs (Previous Year Rs. 35 lacs)			
SUNDRY DEBTORS			
Outstanding			
For a period exceeding Six Months	47,723		41,409
Other debts	<u>53,551</u>	101274	32,394 73,803 386
Less : Provision for bad and doubtful debts		<u>-</u>	73,417
Particulars of Sundry Debtors	31.03.1999	31.03.1998	
Unsecured considered good	101,274	73,417	
Considered doubtful	-	386	
CASH & BANK BALANCES			
Cash, Stamps and Imprest		11	12
Drafts/Cheques in Hand		2,118	477
Remittance in transit		171	14
Balance with scheduled banks on			
Term Deposits		2,771	2,756
Current Accounts		<u>11,407</u>	3,680
			16,478
OTHER CURRENT ASSETS			
Term Deposit with Subsidiaries of Schedules Banks		9,973	11,550
Public Deposit Account with Government of India		712	1,370
Interest accrued		2,161	1,619
Others		<u>28</u>	53
			12,874
LOANS AND ADVANCES			
Loans To			
Employees	7,108		4,872
Others	<u>49</u>		46
		7,157	4,918



SCHEDULE 7 - CURRENT ASSETS, LOANS & ADVANCES (Contd.)

		(Rs. in lacs)	
		As at 31st March, 1999	As at 31st March, 1998
ADVANCES			
Advances Recoverable in Cash or in Kind For Value To Be Received			
From Contractors & Suppliers including			
Material issued on loan	209		600
Employees	810		406
Claims recoverable	1,327		566
Others	1,829		1,888
	<u>4,175</u>		<u>3,460</u>
Less : Provision for bad and doubtful Advances and Claims	341		323
		3,834	3,137
Deposits with customs, Port trust and other authorities		1,483	389
Advance Tax Deposits and TDS		<u>6,180</u>	10,248
		<u>11,497</u>	13,774
		18,654	18,692
		<u>162,746</u>	<u>127,169</u>
Particulars of Loans And Advances			
Secured		5,656	3,602
Unsecured considered good		12,998	15,090
Considered doubtful		341	323
		<u>18,995</u>	<u>19,015</u>
Less Provision made		341	323
		<u>18,654</u>	<u>18,692</u>
Due from Directors & Officers of the company	Maximum amount 1998-99	Maximum amount 1997-98	
Directors	8	2	7
Officers	415	176	363

(Term Deposit includes Rs. 2000 lacs FDR pledged with consortium of Banks led by State Bank of India as margin money for Overseas Bank Guarantee issued in favour of West Merchant Bank and Rs. 700 lacs FDR pledged with Chief Conservator Forest, Shimla against compensatory afforestation)

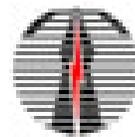


SCHEDULE 8 - CURRENT LIABILITIES & PROVISIONS

	(Rs. in lacs)	
	As at 31st March, 1999	As at 31st March, 1998
Current Liabilities		
Sundry Creditors		
For capital expenditure	9,142	13,177
Other goods and services	12,113	9,638
Book overdraft (Banks)	1,362	222
	22,617	23,037
Deposits retention money from Contractors and others	23,013	26,111
Less : Investments held as security	70	54
	22,943	26,057
	4,873	9,215
Interest Accrued But Not Due On Loans From		
Government of India	4,486	4,350
Foreign Bank & Financial Institution	4,338	3,129
Secured/Unsecured redeemable Bonds	3,279	3,438
Other Loans	39	675
	12,142	11,592
	62,575	69,901
Provisions		
Taxation	5,272	9,772
Proposed Dividend	2,000	2,000
Tax on Proposed Dividend	220	200
Others	1,367	991
	8,859	12,963
	71,434	82,864

SCHEDULE 9 - MISCELLANEOUS EXPENSES(TO THE EXTENT NOT WRITTEN OFF OR ADJUSTED)

	(Rs. in Lacs)			
	Balance As at 31st March, 1998	Additions	Deductions	Balance As At 31st March, 1999
Deferred Revenue expenditure	435	473	233	675
	435	473	233	675



SCHEDULE 10 - CONTINGENT LIABILITY

(Rs. in lacs)

	As at 31st March, 1999	As at March, 1998
Claims against the Company not acknowledged as debts	62,804	54,979
	<u>71,393</u>	<u>30,904</u>
Others	<u>134,197</u>	<u>85,883</u>

SCHEDULE 11 - OTHER INCOME

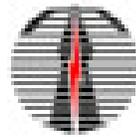
(Rs. in lacs)

	For the Year Ended 31st March, 1999	For the Year Ended 31st March, 1998
Hire charges for equipment	3	7
Interest from		
Indian Banks	723	593
Others	<u>1,282</u>	1,796
	2,005	2,389
Profit on sale of fixed assets	2	12
Deferred Income (transfer from Grants-in-aid in Capital Reserve)	2,502	-
Provision Written Back for doubtful debts	386	-
Miscellaneous income	<u>1,086</u>	367
	5,984	2,775
Less : Income transferred to incidental expenditure during construction-Sch 15C		<u>1,262</u>
	<u>4,769</u>	<u>1,513</u>

SCHEDULE 12 - TRANSMISSION, ADMINISTRATION & OTHER EXPENSES

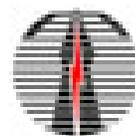
(Rs. in lacs)

	For the Year Ended 31st March, 1999	For the Year Ended 31st March, 1998
EMPLOYEE COST		
Employees - Remuneration and Benefits		
Salaries, wages, allowances & benefits	10,664	9,492
Contribution to provident and other funds	1,171	732
Welfare expenses	<u>2,457</u>	1,487
	14,292	11,711
TRANSMISSION EXPENSES		
Repairs & Maintenance		
Buildings	406	397
Plant & Machinery		
Sub Station	1,199	859
Transmission lines	1,150	1,321
Construction equipment	12	18
Others	<u>226</u>	188
	2,993	2,783
Power charges	1,890	1,541
Stores consumed	3	1
Water charges	14	11
Wheeling charges	<u>1</u>	-
	4,901	4,336



SCHEDULE 12 - TRANSMISSION, ADMINISTRATION & OTHER EXPENSES (CONTD.)

			(Rs. in lacs)
		For the Year Ended 31st March, 1999	For the Year Ended 31st March, 1998
ADMINISTRATION EXPENSES			
Training & Recruitment expenses	232		229
Less : Fees for training and application	<u>8</u>		5
		224	224
Legal expenses		87	69
Professional charges (including TA/DA)		44	45
Consultancy expenses (including TA/DA)		195	138
Communication expenses		1,111	1,055
Travelling & Conv. exp. (excluding foreign travel)	2,056		1,794
Foreign travel	<u>107</u>		81
		2,163	1,875
Tender expenses	72		102
Less : Sale of tenders	<u>9</u>		38
		63	64
PAYMENT TO STATUTORY AUDITORS			
Audit Fee	4		4
Tax Audit Fee	1		1
In other Capacity	2		-
Expenses	<u>30</u>		22
		37	27
Advertisement and publicity		158	89
Printing and stationery		238	230
EDP hire and other charges		41	39
Entertainment expenses		65	62
Brokerage & Commission		3	6
Donations		35	-
Rent		501	473
Directors' Sitting fee		1	-
Miscellaneous expense		2,459	1,812
Insurance		1,223	1,430
Rates and taxes		53	31
Non operating expenses		13	36
Expenses for Guest House	17		15
Less : Income from Guest House	<u>3</u>		1
		<u>14</u>	14
		8,728	7,719
		<u>27,921</u>	<u>23,766</u>
Stores consumption included in repair and maintenance		636	332

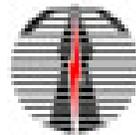


SCHEDULE 13 - PROVISIONS

	(Rs. in lacs)	
	For the Year Ended 31st March, 1999	For the Year Ended 31st March, 1998
Shortage in stores	39	13
Doubtful debts , loans and advances	1	386
Doubtful claims	17	-
Material issued to Contractors	28	54
Doubtful Advances for Construction	70	-
	<u>155</u>	<u>453</u>

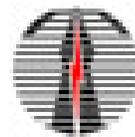
SCHEDULE 14 - INTEREST AND FINANCE CHARGES

	(Rs. in lacs)	
	For the Year Ended 31st March, 1999	For the Year Ended 31st March, 1998
Interest on Loans From		
Government of India	23,416	20,223
Cash Credits Availed from Scheduled Banks	30	-
Indian Banks and Financial Institutions	6,697	3,365
Foreign Banks and Financial Institutions	13,949	10,123
Secured/Unsecured redeemable Bonds	22,257	22,644
Other (Including interest u/s 234C of I.T. Act)	<u>137</u>	2,787
	66,486	59,142
Finance Charges		
Rebate to Customers	2,660	1,908
Commitment charges	417	351
Other Finance charges (including difference in exchange of foreign loans)	<u>3,104</u>	7,494
	6,181	9,753
	<u>72,667</u>	<u>68,895</u>



SCHEDULE 15 - INCIDENTAL EXPENDITURE DURING CONSTRUCTION

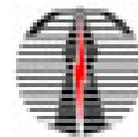
		(Rs. in lacs)	
		For the Year Ended 31st March, 1999	For the Year Ended 31st March, 1998
A. EXPENSES			
Employees' Remuneration and Benefits			
Salaries, wages, allowances and benefits	2,796		2,606
Contributions to provident and other funds	298		215
Welfare expenses	<u>597</u>		356
		3,691	3,177
Repairs & Maintenance			
Buildings	58		68
Construction equipment	1		2
Others	<u>41</u>		56
		100	126
Power charges		103	194
Water charges		<u>2</u>	3
		205	323
Administration Expenses			
Legal expenses		40	28
Professional charges		15	18
Consultancy expenses		83	71
Communication expenses		213	209
Travelling Expenses (including foreign Travel)		624	554
Tender expense	51		61
Less : Income from sale of tenders	<u>4</u>		20
		47	41
Payment to Auditors (including expenses)		13	11
Advertisement and Publicity		75	47
Printing and stationery		79	87
EDP hire and other charges		11	10
Entertainment expenses		22	27
Rent		210	236
Miscellaneous expenses		694	470
Insurance		7	11
Rates and taxes		15	7
Depreciation		174	206
Guest House Expenses	3		3
Less Income from Guest House	<u>1</u>		-
		2	3
Non Operation Expenses		<u>-</u>	4
		2,324	2,040
Prior Period adjustment (net)		9	8
Total (A)		<u>6,229</u>	<u>5,548</u>



SCHEDULE 15 - INCIDENTAL EXPENDITURE DURING CONSTRUCTION (CONTD.)

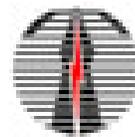
(Rs. in lacs)

		For the Year Ended 31st March, 1999	For the Year Ended 31st March, 1998
B. INTEREST AND FINANCE CHARGES			
Interest on loan from			
Government of India		13,746	13,082
Indian Banks and Financial Institutions		3,791	1,856
Foreign Banks and Financial Institutions		5,803	5,951
Secured/Unsecured Redeemable Bonds		<u>9,637</u>	11,552
		32,977	32,441
Finance Charges			
Commitment charges		316	319
Other Finance Charges		<u>1,287</u>	1,561
		1,603	1,880
Total (B)		<u>34,580</u>	<u>34,321</u>
C. LESS OTHER INCOME			
Hire charges		-	1
Interest From			
Indian Banks	403		56
Others	<u>700</u>		1,139
		1,103	1,195
Profit on fixed assets sold/discarded		-	1
Miscellaneous income		<u>112</u>	65
Total (C)		1,215	1,262
Grand Total (A + B - C)		<u>39,594</u>	<u>38,607</u>



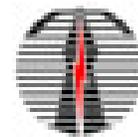
SCHEDULE 16 - PRIOR PERIOD ADJUSTMENTS (NET)

	(Rs. in lacs)	
	For the Year Ended 31st March, 1999	For the Year Ended 31st March, 1998
INCOME		
Depreciation written back-others	139	147
Excess provision written back	-	146
Transmission charges	132	2,797
Interest written Back-Others	-	5
Others	<u>195</u>	87
	466	3,182
EXPENDITURE		
Salary, wages, allowances & benefits	9	26
Power charges	6	11
Rates and taxes	3	2
Insurance	-	3
Depreciation	53	379
Transmission charges written back	1,362	21
Interest	-	19
Others	<u>596</u>	426
	2,029	887
Priour period expenditure/income (Net)	<u>1,563</u>	<u>-2,295</u>



SCHEDULE-17 NOTES ON ACCOUNTS

1. The Transmission System situated in Jammu & Kashmir associated with National Hydroelectric Power Corporation (NHPC) has been taken over w.e.f. 01.04.93 as mutually agreed upon by NHPC and the company but regularisation is pending on account of completion of legal formalities.
2. The Regional Load Depatch Centre (RLDCs) of Central Electricity Authority were transferred to the company alongwith with associated manpower as per the orders of Ministry of Power, Government of India from time to time. The assets of RLDC's are being used by Power Grid pending transfer of ownership and determination of cost of assets so taken over. Vide member CEA letter No. 10/PG/SHE/GM-97/1618 dt. 15.07.98 a basis of sharing of RLDCs expense has been proposed. Pending acceptance of proposal by the constituent, the operational expenses amounting to Rs. 1713 lacs (previous year Rs. 1504 lacs) have been charged to profit and loss account. During the year company has also incurred capital expenditure of Rs. 65 lacs (previous year Rs. 171 lacs).
3.
 - a) The land owned by the company has been classified into free hold and leasehold to the extent possible, based on available documentation and the balance has been shown as unclassified.
 - b) The conveyancing of the title to the freehold land and execution of lease agreement in certain cases (value not ascertained) in favour of the company are awaiting completion of legal formalities.
 - c) Leasehold land includes Rs. 764 lacs (previous year Rs. 756 lacs) relating to land acquired in Katwaria Sarai, New Delhi on perpetual lease. As the land is acquired on perpetual lease and its does not have a limited useful life, no depreciation has been charged in accounts.
 - d) Building includes Rs. 722 lacs (previous year Rs. 722 lacs) for 28 flats at Mumbai, possession of which was taken but registration is pending in favour of the company.
4. Pending reconciliation, materials amounting to Rs. 981 lacs (previous year Rs. 1071 lacs) in commissioned lines is shown as construction stores lying with contractors. However, an amount of Rs. 28 lacs (previous year Rs.54 lacs) has been provided during the year for likely shortages.
5. Fixed assets include company's share of Rs. 562 lacs (previous year Rs. 562 lacs) in common services and facilities of 400 KV sub-station of Uttar Pradesh State Electricity Board (UPSEB) and Rajasthan State Electricity Board (RSEB) pending execution of formal agreements for joint ownership.
6. Materials in transit/under inspection/with contractors are subject to confirmation/reconciliation and consequential adjustments.
7. During the year :
 - a) An amount of Rs.20914 lacs being exchange rate difference (previous year Rs. 11439 lacs) in respect of Fixed Assets and Capital Work in Progress has been adjusted in the carrying amount.
 - b) An amount of Rs. 270 lacs being exchange rate difference on current assets had been accounted for in the Profit and Loss Account in other Finance Charges (previous year an amount of Rs. 12 lacs was accounted for in miscellaneous income).
8. Balances shown under loan, advances, sundry debtors, and sundry creditors are subjected to confirmation/reconciliation and consequential adjustments. In the opinion of the management, the value of current assets, loans and advances on realisation in the ordinary course of business, will not be less than the value at which these are stated in the Balance Sheet.
9. **CANBANK FINANCIAL SERVICES LIMITED (CANFINA)**
 - a) During the year 1991-92, pursuant to a contract with CANFINA, the company allotted Bonds worth Rs. 12000 lacs and placed a deposit of Rs. 11080 lacs with them (net of front-end fee of Rs. 920 lacs) as a condition of the same contract. CANFINA defaulted on deposit repayment after making repayment of Rs. 1680 lacs. Pursuant to such default in 1993-94, the company initially forfeited bonds worth Rs. 10319.82 lacs against deposit of Rs. 9400 lacs and write-back of front-end fee of Rs. 920 lacs. Subsequently, during 1994-95, the company resorted deposits of Rs. 9400 lacs by credit to Capital Reserve in accordance with legal advice.
 - b) The company has neither accounted for interest tincome of Rs. 1117 lacs (previous year Rs. 1128 lacs cumulative Rs. 7953 lacs) on deposits with CANFINA, nor has accounted for interest of Rs. 252 lacs (previous year Rs. 268 lacs cumulative Rs. 1876 lacs) payable on bonds worth Rs. 1576.66 lacs held by CANFINA.

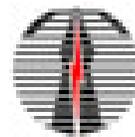


- c) During 1998-99, on maturity of Rs. 1680 lacs worth bonds not forfeited, the company has repaid Rs. 103.34 lacs to third parties duly recognised by the company as holders and has, in exercise of its lien on balance Rs. 1576.66 lacs, set it off against deposits with CANFINA.
- d) Matters referred to in para (a) above are pending for settlement with the High Power Committee on Disputes, Govt. of India.

ANDHRA BANK FINANCIAL SERVICES LTD. (ABFSL)

- e) During the year 1991-92, pursuant to a contract with ABFSL, the company allotted Bonds worth Rs. 2500 lacs and placed a deposit of Rs. 2150 lacs with them (net of front-end fee of Rs. 350 lacs) as a condition of the same contract. ABFSL defaulted on deposit repayment. Pursuant to such default in 1993-94, the company initially forfeited bonds worth Rs. 2100 lacs by adjustment of deposit of Rs. 1806 lacs and write-back of front-end fee of Rs. 294 lacs. Subsequently, during 1994-95, the company restored deposits of Rs. 1806 lacs by credit to Capital Reserve in accordance with legal advice.
 - f) The company has neither accounted for interest income of Rs. 296 lacs (previous year Rs.296 lacs cumulative Rs. 2088 lacs) on deposits with ABFSL, nor has accounted for interest of Rs.36 lacs (previous year Rs.36 lacs cumulative Rs. 252 lacs) payable on bonds worth Rs. 400 lacs held by ABFSL.
 - g) Matters referred to in para(e) above are pending for settlement with the High Power Committee on Disputes, Govt. of India.
- 10. Share Capital Deposit of Rs. 15789 lacs (previous year Rs.15789 lacs) represents the value of shares to be allotted against purchase consideration payable to Government of India for lines situated in Jammu Kashmir.
 - 11. Estimated amount of capital commitments is Rs. 117230 lacs (previous year Rs. 140418 lacs).
 - 12. Liability for gratuity, leave enhancement & post retirement medical benefit upto 31.3.99 has been provided as per Actuarial Valuation vide certificate dt. 27.2.99, 27.03.99 & 19.04.99.
 - 13. No payment is overdue for the purchases made from small scale/ancillary industries. Hence, no provision of interest is made in the accounts.
 - 14. Provision has not been made for entry tax and sales tax on works, contracts and materials issued to contractors for which appeals are pending and/or the amounts are not ascertained.
 - 15.
 - a) Pending final Notification of tariff in respect of some Transmission Lines, the Transmission charges including recovery on account of foreign exchange variation has been accounted for provisionally as per the norms and factors defined in notification No. F.No. 2/3/powergrid/Tariff/97 dated 16.12.97. Transmission Tariff for NER has been accounted for at the UCPTT rate upto 35 paise per unit as frozen in 43rd NEREB meeting.
 - b) Consequent to receipt of tariff notification, for previously non-notified lines, a net reduction of Rs. 5831 lacs pertaining to earlier years, in transmission charges has been accounted for.
 - c) Impact of decrease in interest rate, as per notification, for Transmission Charges, for swapping of Foreign loans with lower rates of interest, is Rs. 1754 lacs for the period 1998-99 to 2001-2002. An amount of Rs. 689 lacs, pertaining to current year, has been considered.
 - 16. In terms of Accounting policy No. 7.3 total surcharge on outstanding dues from State Electricity Boards upto 31.03.99 amounting to Rs. 31263 lacs (previous year Rs.29049 lacs) has not been accounted for.
Rs. 7971 lakhs of surcharge has been sanctioned to be recovered through the Central Plan Appropriation. Surcharge income of Rs. 502 lacs, recovered through CPA, has been considered as income for the year 98-99 in terms of Accounting Policy no. 7.3 Considering certain significant uncertainties of recovery, balance amount has not been recognised as income.
 - 17. During the year, the company has changed/discontinued certain accounting policies. The consequential impact of the same on the accounts for the year are as under :-
 - a) Income Tax recoverable from debtors which was hitherto accounted for on receipt basis is now accounted for on accrual basis.

Some of the SEB's have not reimbursed the Income Tax Recovery billed. On evaluation and consideration of this aspect of significant uncertainty of recovery, revenue arising in respect of such SEB's on account of Income Tax Recovery amounting to Rs. 4053 lacs (grossed up amount Rs.4527 lacs) has not been recognised as income.



The change in accounting policy has resulted in increase in profit by Rs.6014 lacs (excluding consequential effect on allocation of expenses).

- b) Depreciation to give effect of foreign exchange fluctuations etc. relating to fixed assets which was hitherto being provided retrospectively is being provide prospectively.

The change in accounting policy has resulted in increase in profit for the year by Rs.3893 lacs.

- c) Post Retirement medical benefit of employees which was earlier accounted for on cash basis is now accounted for on the basis of actuarial valuation.

This change in accounting policy has resulted in decrease in profit for the year by Rs.191 lacs and increase in capital work in progress by Rs. 141 lacs.

- d) Sale of Power purchased from M/S Chukha Hydel Power Corp. Ltd., Bhutan which was hitherto billed and accounted for on the basis of a composite rate is being billed and accounted for separately as sale of power and transmission charges as per tariff notification.

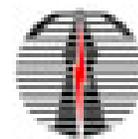
However, there is no change in profitability due to change of policy.

18. Pay revision for Directors, Executives, Supervisors and workers is due w.e.f. 01.01.97. Pending final settlement provision of Rs.2514 lacs (previous year Rs. 1152 lacs) has been made during the year.
19. Other income includes Rs. 2502 lacs being transferred from Capital Reserve (Grants in Aid) as per accounting policy No. 1.0.
20. Tariff Notifications provide for availability based incentive to be recovered from the SEB's. In the absence of avail ability being certified by the REBs (as required in MOP letter noF. NO.2/3/Powergrid/Tariff/98 Dt.4/2/99), no amount has been accounted for.
21. Income from Consultancy, Project Management and Supervision fees include Rs. 202 lacs (previous year Rs.195 lacs) for management fee for Mandola sub-station and GRIDCO for which the agreement is yet to be finalised with SEBs.
22. The Company has taken effective steps to deal with year 2000(Y2K) related issues. Most of the information technology systems and other equipment in Company's offices and operating units are Y2K complaint. The total Y2K compliance will be achieved by the of November, 1999. The software developed in house and out sourced as well as hardware acquired from suppliers are tested and certified to be Y2K compliant. The cost of addressing the Y2K issues has been met fully from in ternal resources. An effective contingency plan would be formulated by 30.11.99 to take care of any break down or failure in future. Hence, the Company does not foresee any possible risk in this regard.
23. a) Figures have been rounded off to nearest rupees in lacs.
b) Previous year's figures have been regrouped/rearranged wherever necessary.
24. a) Employees remuneration and benefits include the following for the Directors including Chairman &Managing Directors:

	Current year	Previous year (Rs. in lacs)
Salaries & Allowances	26*	9
Contribution to Provident Fund & other Funds, Gratuity & Group Insurance	1	1
Other benefits	5	3

* Including provision for pay revision arrears of Rs. 14 lacs w.e.f 1.1.97.

- b) In addition to the above remuneration, the Whole Time Directors have been allowed to use the staff car (including private journeys) on payment of Rs.600/- p.m. As contained in the Ministry of Finance (BPE) Circular No.2(18)/pc/64 dt. 29.11.64 as amended.



25. Quantitative informatoin in respect of Purchase & Sale of Power

	Current Year	Previous Year		
a) Purchase of Power (Million Units)	1331	1311		
b) Sale of Power (Million Units)	1316	1296		
(Rs. in lacs)				
	Current Year	Previous Year		
26. a) Value of imports calculatd on CIF basis:				
i) Capital goods	6352	29298		
ii) Spare Parts	156	-		
b) Expenditure in foreign currency:				
i) Professional and Consultancy fees	643	135		
ii) Interst	13949	10035		
iii) Others	503	10895		
c) Value of Components, Stores and Spare parts consumed:				
	% age	Current	% age	Previous
		Year		Year
i) Imported	20	130	-	-
ii) Indigenou (including fuel)	80	506	100	332
d) Earnings in foreign exchange				
	Current Year	Previous Year		
i) Interest	392	107		
ii) Others	150	114		

27. Additional information as required under part IV of Schedule VI of the Companies Act, 1956, as certified by the management.

i) Registration Details;

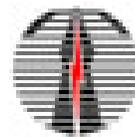
Registration No.	55-38121
State Code	55
Balance Sheet Date	31st March, 1999

ii) Capital raised during the year

	(Rs. in lacs)
Public Issue	-
Rights Issue	-
Bonus Issue	-
Private Placement (Issued t Govt. of India)	500

iii) Position of mobilisation and deployment of funds

	(Rs. in Lacs)
Total liabilities	1190191
Total Assets	1190191

**Sources of funds**

Paid up capital	304154
Reserves & surplus	232929
Secured Loans	294683
Unsecured Loans	358425

Application of Funds

Net Fixed Assets	667537
Capital work-in-progress (including Construction, Stores & advance)	430667
Investments	91312
Net Current Assets	
Miscellaneous Expenditure	675

iv) Performance of Company	
Turnover/Income	170960
Other Income (including consultancy & Transfer from Grants in Aid)	6066
Total expenditure	127323
Profit before tax	49703
Profit after tax	44442
Earning per share (Rs.)	146.12
Dividend Amount	2000

- v) Generic names of Principal product/service of company
Item code No.
Product description : Transmission and sale of power

(Mirinal Shrivastava)
Company Secretary

(Dr. V.K. Garg)
Director (Finance)

(R.P. Singh)
Chairman & Managing Director

As per our report of even date

For **Hingorani M. & Co.**
Chartered Accountants

For **Venugopal & Chenoy**
Chartered Accountants

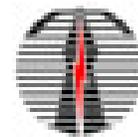
For **D.P. Sen & Co.**
Chartered Accountants

(J.P. Dhamija)
Partner

(P.V.Sri Hari)
Partner

(Rahul Roy)
Partner

Place : New Delhi
Date : 1st July, 1999



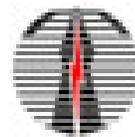
AUDITORS' REPORT

The Members

Power Grid Corporation of India Limited,
B-9, Qutab Institutional Area, Katwaria Sarai,
New Delhi-110016

We have audited the attached Balance Sheet of Power Grid Corporation of India Limited as at 31.3.1999 and the profit & Loss Account for the year ended on that date annexed thereto and report that :-

- 1) The Company is governed by the Electricity (Supply) Act, 1948. The provisions of the said Act have prevailed, wherever the same have been inconsistent with the provisions of the Companies Act, 1956, as provided vide section 616 of the Companies Act, 1956.
- 2) As required by the Manufacturing and Other Companies (Auditors' Report), Order, 1998, issued by the Company Law Board in terms of Section 227 (4A) of the Companies Act, 1956, we enclose in the Annexure a statement on the matters specified in paragraphs 4 and 5 of the said Order.
- 3)
 - (i) Restoration of deposits of Rs. 11206 lacs as referred to vide note no. 9(a) & (e) (Schedule 17) has resulted in overstating capital reserve and understating loan fund to such extent. In our opinion, the methodology of write back of front end fee, restoration of deposit and showing external liability as capital reserve is not appropriate.
 - (ii) Rs. 9973.34 lacs are deposit with CANFINA and ABFSL, as referred to vide note nos. 9(a) & (e) (Schedule-17), which though according to the management are good and recoverable, we are unable to express an opinion about the extent of recoverability.
 - (iii) Set-off of maturity value of bonds Rs. 1576.66 lacs during the year as referred vide note no. 9(c) (Schedule 17), against deposits with CANFINA has resulted in understatement of liabilities and current assets to such extent.
 - (iv) Non accountal of interest payable on bonds, as referred to vide Note No. 9 (b) & (f) (Schedule 17), has resulted in overstatement of profit for the year by Rs. 288 lacs. Interest due on deposits with CANFINA and ABFSL has not been accounted for.
 - (v) Surcharge receivable against Central Plan Appropriation during the year, amounting to Rs. 7430 lacs, not accounted for as per Note No 16 (Schedule -17), has resulted in understatement of Sundry Debtors, Other Income, and Profit to the extent of Rs. 7430 lacs.
 - (vi) Incentives/Disincentives receivable/payable by the Company, as referred to in Accounting Policy 7.6, the amounts of which are not ascertainable, have not been accounted for.
 - (vii) The confirmation/reconciliation of balances shown under Advances, Sundry Debtors, Sundry Creditors and Loans, and confirmation/reconciliation/verification of material in transit/under inspection/with contractors is pending. The impact of the above on assets & liabilities and on the profit cannot be ascertained.
- 4) Change in Accounting Policies :
 - (i) Re :- Income Tax recoverable from Sundry Debtors (Ref Note No 17(a)- Schedule 17) has resulted in increase in Profit and Sundry Debtors by Rs. 6014 Lacs.



- (ii) Re :- Depreciation on Foreign Exchange fluctuation (Ref Note No 17(b) -Schedule 17) has resulted in increase in profit by Rs. 3893 Lacs.
- (iii) Re :- Post retirement medical benefit of employees (Ref Note No. 17(c) -Schedule 17) has resulted in decrease in profit for the year by Rs. 191 lacs and increase in capital work-in-progress by Rs. 141 lacs.
- (iv) Re :- Bifurcation of Sale of power & transmission charges (Ref Note. 17(d) -Schedule 17) has resulted in increase in transmission charges and decrease in sale of power by Rs. 1819 lacs.

5) Further to our comments in the Annexure referred to in paragraph 2 above, we state that :

- a) We have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purpose of our audit.
- b) In our opinion, proper books of account as required by Law have been kept by the Company so far as appear from our examination of such books.
- c) The Balance Sheet and the Profit & Loss Account referred to in this report are in agreement with the books of account.
- d) In our opinion, subject to our observations vide paragraph 1 above, the Profit & Loss Account and the Balance Sheet comply with the Accounting Standards referred to in Sub-Section (3C) of section 211 of the Companies Act, 1956.
- e) In our opinion and to the best of our information and subject to our observations vide paragraph 3 above, and according to the explanations given to us, the said Balance Sheet and the Profit and Loss Account, read together with the Notes on Accounts given in Schedule 17 and Accounting Policies, give the information required by the Companies Act, 1956, in the manner so required and give a true and fair view :
 - i) In so far as it relates to the Balance Sheet, of the State of Affairs of the Company as at 31.3.1999, and.
 - ii) In so far as it relates to the Profit & Loss account, of the profit of the Company for the year ended on that date.

For **Hingorani M. & Co.**
Chartered Accountants

For **Venugopal & Chenoy**
Chartered Accountants

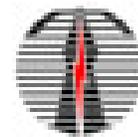
For **D.P. Sen & Co.**
Chartered Accountants

(J.P. Dhamija)
Partner

(P.V. Sri Hari)
Partner

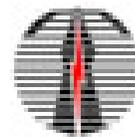
(Rahul Roy)
Partner

Place : New Delhi
Date : 1st July 1999



ANNEXURE TO THE AUDITORS' REPORT

- i) The company has generally maintained record of Fixed assets. However, such records do not, in all cases, show full particulars including location of Fixed Assets. The Assets are not comprehensively numbered and identified. The Assets have been physically verified by external agencies at reasonable intervals and in a number of cases, discrepancies noticed on such verification have not been reconciled/adjusted. The materiality of discrepancies, if any, between book records and physical inventory could not be ascertained in the absence of proper book records.
- ii) None of the fixed assets of the company has been revalued during the year.
- iii) Physical verifications of material lying with contractors/in transit/under inspection is not undertaken. Physical verification of other stores and spares are conducted at reasonable intervals.
- iv) Material lying with contractors/in transit/under inspection are not physically verified. The stores are physically verified by the management through external agencies. However, a perusal of verification reports indicate that at the time of verification, in most cases, priced stores ledgers are not update.
- v) Material discrepancies have been noticed in the stock of spares and stores for which provision to the extent necessary is made and held in the accounts. Discrepancies of stores not verified as noted in iv) above and adequacy of provision held there against is not ascertainable.
- vi) In our opinion and on the basis of our examination of the stock records, the valuation of stocks is fair and proper in accordance with the normally accepted accounting principles, and is on the same basis as in the last year, subject to our comments in paragraph (v) above regarding discrepancies in stores not verified and further subject to identification of the obsolete stock/shortages and consequential effect on valuation whereof, which is not ascertainable.
- vii) The Company has not taken any loan to from Companies, firms or other parties listed in the register maintained under Section 301 of the Companies Act, 1956. There is no Company under the same management.
- viii) The Company has not granted any loan to any parties listed in the register maintained under section 301 of the Companies Act, 1956.
- ix) The Company has given deposits, as stated in note no. 9 (Schedule-17), to Canara bank Financial Services Ltd. and to Andhra Bank Financial Services Ltd., who have not repaid the principal amount and interest there on. The Company has informed us that they are taking reasonable steps for recovery of principal and interest.
- x) In our opinion and according to the information and explanations given to us, there are adequate internal control procedures commensurate with the size of the company and the nature of its business with regard to purchase of stores, components, plant and machinery, equipment and other assets, and for the sale of power.
- xi) According to the information and explanations given to us, there are no transactions of purchase/sale of goods, materials and services made in pursuance of contracts or arrangements entered in the register maintained under section 301 of the Companies Act, 1956, aggregating during the year to Rs. 50,000/- (Rupees Fifty Thousand only) or more, in respect of each party.
- xii) No unserviceable or damaged stores have been determined. Consequently, no provision has been made on this account.
- xiii) The company has not accepted any deposits from the public, hence the question of compliance to the necessary guide lines issued by the Reserve Bank of India and the provisions of section 58-A of the Companies Act, 1956 and rules framed thereunder, does not arise.
- xiv) The company does not have any by-product. In our opinion, reasonable records have been maintained by the company for the sale and disposal of scrap.



- xv) The company has a system of conducting Internal Audit by external agencies. In our opinion, the scope, terms of reference and coverage requires to be further strengthened to render such system commensurate with the size and nature of its business. The follow up at the present level of audit appears adequate.
- xvi) The Central Government has not prescribed maintenance of cost records under section 209(1)(d) of the Companies Act, 1956 in respect of the company.
- xvii) The Company is regular in depositing Provident Fund dues with appropriate authority. As informed, the provisions of the Employees State Insurance Act are not applicable to the Company.
- xviii) According to the information explanation given to us, there were no undisputed amounts payable in respect of Income Tax, Wealth Tax, Sales Tax, Customs Duty and Excise Duty which have remained outstanding as at 31st March, 1999, for a period of more than six months from the date they became payable.
- xix) According to the information and explanations given to us, no personal expenses have been charged to revenue account, other than those payable under contractual obligations or in accordance with generally accepted business practices.
- xx) The company is not a sick industrial company as defined in Section 3(1)(0) of the Sick Industrial Companies (Special Provisions) Act, 1985.
- xxi) In regard to the company's activities relating to transmission, project management, supervision and contracts;
- a) The Company has a reasonable system of recording receipts, issues and consumption of materials, stores, and allocating material consumed to the relative jobs (including construction of infrastructure for providing transmission services) commensurate with its size and nature of its business.
- b) The Company has a reasonable system of allocation of man-hours consumed on the respective activities.
- c) The company has a reasonable system of authorisation at proper levels, and adequate system of internal control on issue and allocation of stores and labour to jobs.
- d) The company has a reasonable system of recording receipts, issues and consumption of materials and stores commensurate with the size and the nature of its business.
- xxii) In regard to the company's activities relating to trading;
- a) Since the company does not deal with tangible goods, the question of determination of damaged goods does not arise.

For **Hingorani M. & Co.**
Chartered Accountants

For **Venugopal & Chenoy**
Chartered Accountants

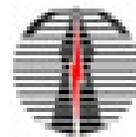
For **D.P. Sen & Co.**
Chartered Accountants

(J.P. Dhamija)
Partner

(P.V. Sri Hari)
Partner

(Rahul Roy)
Partner

Place : New Delhi
Date : 1st July 1999



ANNEXURE TO DIRECTORS' REPORT

ANNEXURE - I

PARTICULARS OF EMPLOYEES PURSUANT TO SECTION 217 (2A) OF THE COMPANIES ACT, 1956 FOR THE YEAR 1998-99

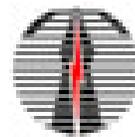
Sl. No.	Name	Designation	Qualification	Remuneration Rs.	Experience (Years)	Date of commencement of employment	Age (Years)	Last Emplt. held
EMPLOYED FOR THE FULL YEAR								
1.	Asthana A.K.	Chief Manager	B.E.(Civil	736277	26 Years	16.08.91	52 Years	N.T.P.C
2.	Jouhri D.	Sr. A.O.	B.Com., C.A.	1011847	9 Years	16.08.91	34 Years	N.T.P.C
3.	Kar S.	Chief Manager	BA (H) English	695656	12 Years	16.08.91	43 Years	N.T.P.C
4.	Ketker Dhananjay	Dy. Manager	BE (Elect.& Telcomm) ICWA	1571822	10 Years	18.02.93	32 Years	N.T.P.C
5.	Madan R.K.	DIR (Proj)	BSC (Engg.)Elect.	676413	20 Years	19.11.91	58 Years	N.H.P.C
6.	Mishra B.	DGM	BSC (Engg.)Diploma in Business Management	665968	19 Years	16.08.91	43 Years	N.T.P.C
7.	Mondal J.B.	Chief Manager	B.Tech	624509	18 Years	16.08.91	41 Years	N.T.P.C
8.	Ragunathan K.S.	GM (QA&I)	BE(Elect & Comm)	817020	21 Years	16.08.91	55 Years	N.T.P.C
9.	Rath G.K.	Chief Manager	B.SC. (Engg.) Elect.	675827	22 Years	16.08.91	46 Years	N.T.P.C
10.	Singh Jagdish	DGM	BE (Elect)	650826	18 Years	19.11.91	54 Years	N.H.P.C
11.	Vindal S.S.	Chief Manager	B.SC (Eng.) Mech	931585	15 Years	16.08.91	38 Years	N.T.P.C

Employed for the part year

1.	Chaudhary D.K.	DGM	BE (Elect)	149634	20 Years	16.08.91	52 Years	NEEPCO
2.	Gupta M.R.	DGM	B.SC.(Elect Engg.)	589747	16 Years	16.08.91	50 Years	N.T.P.C

Notes : 1) Remuneration includes Salary, Salary dues to revision, Allowances, Leave encashment, Leave travel concession, Payment for Subsidised leased accomodation, reimbursement of medical expenses to employees and employer's contribution to Provident funds and other funds. In addition employees are entitled to Gratuity/Group Insurance in accordance with Company's rules.

2) None of the employees listed above is related to any Director of the Company.



ANNEXURE - II

PARTICULARS REQUIRED UNDER THE COMPANIES (DISCLOSURE OF PARTICULARS IN THE REPORT OF THE BOARD OF DIRECTORS) RULES, 1999 READ WITH SECTION 217 (I) (e) OF THE COMPANIES ACT, 1956.

A. CONSERVATION OF ENERGY

- a) Energy Conservation Measures taken and on hand.

The POWERGRID transmission system is designed in an optimal manner such that the losses in the transmission system are minimised. The various equipment parameters and types are so chosen such that the losses are optimised.

- b) Additional investment and proposals, if any, being implemented for reduction of consumption of Energy.
- c) Impact of measures at (a) and (b) above for reduction of Energy consumption and consequent impact on the cost of production of goods.

Overall optimisation is achieved as described above.

- d) Total Energy consumption and energy consumption per unit of production as per form "A" of the Annexure in respect of industries specified thereto.

This is not applicable for POWERGRID since it does not fall under any of the industries mentioned in the schedule.

B. TECHNOLOGY ABSORPTION

RESEARCH & DEVELOPMENT

- i) Application of series compensation/FACTS on POWERGRID's Kanpur-Ballabgrah 400 kV line has been finalised to improve the stability and to increase the load carrying capability of line.
- ii) POWERGRID in association with IIT Kharagpur is developing a Real time Digital Simulator (RTDS) for power system analysis in real time operation.
- iii) POWERGRID has successfully carried out the simulator studies to ensure that the controllers of HVDC back-to-back at Chandrapur (POWERGRID) Chandrapur-Padghe HVDC bipole of MSEB act in unison to help the system under normal and dynamic conditions. The studies were carried out in U.K. utilising the actual controllers of ABB and GEC.

C. FOREIGN EXCHANGE EARNINGS AND OUTGO

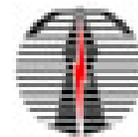
FOREIGN EXCHANGE EARNINGS :

(Rupees in lacs)

i)	Interest	392
ii)	Others	150
	Total	542

FOREIGN EXCHANGE OUTGO :

i)	Capital Goods & Spares Parts	6508
ii)	Professional & Consultancy Fees	643
iii)	Interest	13949
iv)	Others	503
	Total	21603



ANNEXURE-III

COMMENTS OF THE COMPTROLLER AND AUDITOR GENERAL OF INDIA UNDER SECTION 619 (4) OF THE COMPANIES ACT, 1956 AND MANAGEMENT REPLIES THEREON FOR THE YEAR ENDED 31ST MARCH, 1999.

COMMENTS OF THE COMPTROLLER AND AUDITOR GENERAL OF INDIA

MANAGEMENT REPLY

A. BALANCE SHEET

Reserve and Surplus (Schedule 2)

(i) Capital Reserve : Rs. 11206 lakh

A reference is invited to para 3 (i) and (ii) of the Auditors' Report read with item 9 of Notes on Accounts (Schedule 17). The deposit of Rs. 11206 lakh placed with Andhra Bank Financial Services Limited (ABFSL) and Canara Bank Financial Services Limited (CANFINA) out of proceeds of 1st bonds issue was not paid on due dates by ABFSL/CANFINA. With a view to protect its financial interest, the company forfeited bonds of Rs. 12420 Lakh by crediting to Capital Reserve (Rs. 11206 lakh) and to front end fee (Rs. 1214 lakh). The subject matter of dispute between the company, ABFSL/ CANFINA, Canara Bank etc. was referred to Committee on Disputes of Government of India. Pending decision on reference, provision for interest payable of Rs. 1847 lakh on bonds (cumulative interest Rs. 13527 lakh) and interest income of Rs. 1413 (cumulative interest Rs. 10041 lakh) on the deposits has not been accounted for. Showing an external liability as Capital Reserve is a distortion of accounts, as pointed out in the successive comments of the Comptroller and Auditor General of India on the accounts of the Company for the last four years ended 31 March 1998.

The Company considers the accounting of forfeited value of Bonds under "Capital Reserve" as appropriate.

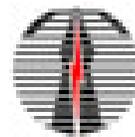
Fixed assets (Schedule 4)

(ii) Gross Block : Rs. 885068 lakh

This includes Rs. 76.59 lacs being the value of transmission line material returned back by the contractor on completion of work of Kopili-Misa Transmission line, which in terms of accounting policy No. 3.2 should have been shown under current assets, loans and advances (Schedule 7).

Noted. Necessary rectification will be carried out in the current financial year i.e 1999-2000.

This has resulted in overstatement of Fixed assets (Schedule 4) and understatement of current assets, loans and ad vances (Schedule 7) to the extent of Rs. 76.59 lacs.



B. PROFIT AND LOSS ACCOUNT

(iii) Income : Rs. 177026 lacs.

(a) This is overstated by Rs. 578.26 lacs due to inclusion of amount of Rs. 3290 lakh on account of cost of optical fibre ground wire (OPGW) in the capital cost of Vindhyachal Additional Transmission System (VATS) for the purpose of calculation of traffic instead of cost of earth-wire of Rs. 88.40 lacs as was contemplated in the approved feasibility report. Consequently the profit for the year and Sundry Debtors stand overstated by Rs. 578.26 lacs.

Adjustments, if any, shall be carried out after receipt of Traffic Notification from Ministry of Power.

(b) This is understated by Rs. 218 lacs due to non accounting of income on account of recovery of regional load despatch centre expenses despite their acceptance in 44th NEREB Meeting and also apportionment of such expenses by North Eastern Regional Electricity Board among the constituents of North Eastern Region for reimbursement to the company. Consequently the profit for the year as well as sundry debtors stands understated by Rs. 218 lacs.

The reimbursement of Regional Load Despatch Centre (RLDC) expenses in respect of NER, though agreed in NEREB, have not been accepted by the constituents. As stated in a Note No. 2, Schedule-17, in the Notes on Accounts, pending acceptance of reimbursement by the constituents the RLDC expenses have not been accounted for in income and have been charged to profit & loss accounts.

For and on behalf of the Board

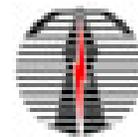
Sd/-
(**T.K.Sanyal**)

Principal Director of Commercial Audit
Ex-Officio Member, Audit Board-III
New Delhi

Sd/-
(**R.P.Singh**)
Chairman & Managing Director

Place : New Delhi
Dated : August 18, 1999.

Place : New Delhi
Dated : August 25, 1999.



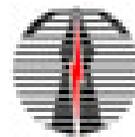
“REVIEW OF ACCOUNTS OF POWER GRID CORPORATION OF INDIA LIMITED, NEW DELHI” FOR THE YEAR ENDED 31ST MARCH 1999 BY THE COMPTROLLER & AUDITOR GENERAL OF INDIA

Note : This Review of Accounts has been prepared without taking into account comments under Section 619(4) of the Companies Act, 1956 and qualifications contained in the statutory Auditor's Report.

1. FINANCIAL POSITION

The table below summarises the financial position of the Company under broad headings for the last three years:

	(Rs. in Crores)		
	1996-97	1997-98	1998-99
LIABILITIES			
a) Paid-up capital			
i) Government (including share application money pending allotment)	-3020.04	3036.54	3041.54
ii) Others	-	-	-
b) Reserves and Surplus			
i) Free Reserves and Surplus	1169.96	1491.41	1920.59
ii) Share Premium Account	-	-	-
iii) Capital Reserves	442.94	436.48	408.7
c) Borrowings			
i) From Government of India	1175.59	1456.22	1650.26
ii) From Financial Institutions	175.79	169.01	13.26
iii) Foreign Currency Loans	1695.45	2153.26	2665.26
iv) Cash Credit	-	-	6.02
v) Others	1724.88	1811.96	2196.28
d) i) Current Liabilities & Provision	570.76	828.64	714.34
ii) Provision for Gratuity	-	-	-
Total	9975.41	11383.52	12616.25
ASSETS			
e) Gross Block	5582.18	8095.60	8850.68
f) Less : Depreciation	1283.48	1653.48	2175.31
g) Net Block	4298.70	6442.12	6675.37
h) Capital Work-in-Progress & Construction Stores & Advances	4510.46	3665.36	4306.67
i) Investments	-	-	-
j) Current Assets , Loans and Advances	1160.17	1271.69	1627.46
k) Misc. Expenditure not written off	6.08	4.35	6.75
l) Accumulated loss	-	-	-
Total	9975.41	11383.52	12616.25
m) Working Capital [j-d(i)]	589.41	443.05	913.12
n) Capital Employed (g+m)	4888.11	6885.17	7588.49
o) Net Worth (a+b(i)-b(ii)-k)	4183.92	4523.60	4955.38
p) Net Worth per rupee of paid-up Capital (In Rupees)	1.39.	1.49	1.63



2. SOURCES AND UTILISATION OF FUNDS

Funds amounting to 1921.17 crores from internal and external sources were realised and utilised during the year as

detailed below :

(Rs. in Crores)

SOURCES OF FUNDS

a) Funds from operations			
Profit after tax		444.42	
Add : Depreciation		521.83	
Add : Misc. Expenditure written off		2.33	
Add : Increase in Insurance Reserve		6.96	975.54
b) Increase in paid-up capital			5.00
c) Increase in Borrowed funds			940.63
Total			1921.17

UTILISATION OF FUNDS

a) Net increase in Fixed assets		755.08	
Less : Increase in Capital Work In Progress	1091.67		
Decrease in Construction Stores & Advances	(-450.36)	641.31	1396.39
b) Increase in working capital			470.07
c) Grant Utilised			27.78
d) Dividend paid (including Tax on Proposed Dividend)			22.20
e) Increase in Misc. expenditure			4.73
Total			1921.17

3) WORKING RESULTS

The working results of the Company for the last three years ending 31st March 1999 are given below:

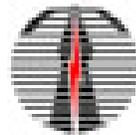
	1996-97	1997-98	1998-99
			(Rs. in Crores)
i) Sales	1041.27	1419.55	1722.57
ii) Profit before tax	305.76	422.06	497.03
iii) Provision for tax	0.01	84.90	52.61
iv) Profit after tax	305.75	337.16	444.42

4. RATIO ANALYSIS

Some important ratios on the financial health and working of the Company at the end of last three years

ending 31st March 1999 are as under:

	1996-97	1997-98	1998-99
A. Liquidity Ratio			
Current Ration [j/d(i)]	2.03	1.53	2.28
B. Debt Equity Ratio			
Long term debt to Net Worth	1.14	1.24	1.32
[c(i to v) but excluding short term loans]			



C. Profitability Ratios

(In percentage)

a) Profit after tax to			
i) Capital Employed	6.25	4.90	5.86
ii) Net Worth	7.31	7.45	8.97
iii) Sales	29.36	23.75	25.80
b) Profit after tax to Equity	10.12	11.10	14.61
c) Earning per share (In Rupees)	101.24	111.03	146.12

5. INVENTORY LEVELS

The inventory levels at the close of the last three years ending 31st March 1999 are as under:

	1996-97	1997-98	1998-99
			(Rs. in Crores)
Stores and Spares and Loose tools	107.96	135.29	134.66

6. SUNDRY DEBTORS

The Sundry Debtors and Sales in the last three years ending 31 st March 1999 ar as follows:

As on 31 st March	Sundry Debtors			Sales (including Elecricity duty)	Percentage of Sundry Debtors to Sales
	Considered good	Considered Doubtful	Total		
1997	510.67	-	510.67	1041.27	49.04
1998	734.17	3.86	738.03	1419.55	51.99
1999	1012.74	-	1012.74	1722.57	58.79

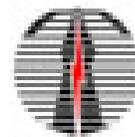
The agewise break up of Sundry Debtors at the end of 1998-999 is as under:

Debtors outstanding for	Amount (Rs. in Crore)
Less than 6 months	535.51
6 months to 1 year	271.59
1 year to 3 years	55.20
More than 3 years	150.44
Total	1012.74

(T.K. SANYAL)

Place : New Delhi
Dated : 18th August, 1999

Principal Director of Commercial Audit and
Ex-Officio Member, Audit Board -III,
New Delhi



CURRENT COST ACCOUNTS

In the context of persistent inflation in the Indian economy, the corporation has attempted to perceive the impact of price changes on its financial position and working results. The current cost accounts shown hereunder reflect the current values of assets of the Corporation which mainly comprise fixed assets. We believe that current cost accounting assumes special importance in the case of a public utility like the Corporation, the prices of whose service are determined by reference to the related costs rather than by the market forces of demand and supply as in the case of other business enterprises. If the prices of the services rendered by a public utility are determined on the basis of costs as indicated by the historical cost-based accounts, they would not cover the current cost depreciation and other current costs being incurred. Over a period of time, the enterprise will not be able to maintain its operating capability even though it may show profit as per conventional historical cost based accounts. on the basis of current cost accounting.

Basis of Accounting under current Cost Accounting for the Corporation

1. The exercise has been conducted on the basis of the principles enunciated in the Guidance Note on Accounting for Changing prices issued by the Institute of Chartered Accountants of India.
2. The current cost adjustments have generally been made on the basis of specific indices for various items. These indices have been computed by the Corporation as below.

Plant and Machinery constitute about 95% of the total fixed assets of the corporation. Further, out of the various items of plants and machinery, ten specific items constitute about 95% of the total value of plant and changes in prices of these items. The indices for various items of plant and machinery have been worked out on the basis of appropriate combination of :-

- i) Details indices comprising the wholesale price index published by the Office of the Economic Association, Ministry of Industry, Govt. of India, and
- ii) Indices of specific items as circulated by the Indian Electrical and electronic manufactures Association.

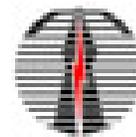
FIXED ASSETS

Fixed Assets are stated at their gross current replacement cost by applying the relevant specific indices to the gross book value of each category of fixed assets. The net current replacement cost has been arrived at by charging depreciation on the gross current replacement caused at the rate specified under the Electricity (Supply) Act. 1948.

The lives of fixed assets acquired from other enterprises have been worked out on the basis of the original cost, rate of depreciation and the written down value.

CAPITAL WORK IN PROGRESS

Since the gestation period is 3-5 years for the each project, capital work-in-progress has also been stated at its current replacement cost.



INVENTORIES

Since inventories comprise mainly machinery spares, they have been restated on the basis of the indices used for the relevant items of plant and machinery.

OTHER ASSETS AND LIABILITIES

Cash, sundry debtors, loans and other liabilities have not been revalued since these are already expressed in current monetary terms.

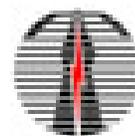
DEPRECIATION ADJUSTMENT

The depreciation adjustment represent the difference between the amount of depreciation computed on the current cost of fixed assets and the amount of depreciation charged in the historical cost accounts.

GEARING ADJUSTMENT

As a part of the operating assets of the Corporation is financed through borrowings which are to be repaid in the same monetary irrespective of changes in prices, the full impact of prices changes as reflected by the depreciation adjustment has reduced by adding back a proportionate amount while determining the current cost profit attributable to shareholders.

The current cost reserve represents, unrealised revaluation surplus on fixed assets, adjustment in respect of depreciation and the gearing adjustment.



CURRENT COST BALANCE SHEET

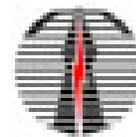
As at 31st March, 1999

	(Rs. in Lacs)	
	As at 31st March, 1999	As at 31st March, 1998
NET ASSETS EMPLOYED		
Gross Block	1535318	1405812
Less : Accumulated Depreciation	400621	344975
Net Block	1134697	1060837
Capital Work-in-Progress	388640	270159
Construction Stores and Advances	107593	154789
NET CURRENT ASSETS		
Inventories	13686	13694
Other Current Assets	149280	103392
	162966	117086
	<u>71434</u>	72616
Less : Current Liabilities and Provisions	91532	44470
Miscellaneous Expenditure (to the extent not written off or adjusted)	675	435
	<u>1723137</u>	<u>1530690</u>
FINANCED BY		
SHAREHOLDERS FUNDS		
Share Capital	304154	303654
Current Cost Reserve	559110	499569
Other Reserves and Surplus	206765	168422
	1070029	971645
LOAN FUNDS		
Secured Loans	294683	243844
Unsecured Loans	<u>358425</u>	315201
	653108	559045
	<u>1723137</u>	<u>1530690</u>

CURRENT COST PROFIT AND LOSS ACCOUNT

For the Year ended 31st March, 1999

	(Rs. in Lacs)	
	For the Year ended 31st March, 1999	For the Year ended 31st March, 1998
Profit before Interest and Finance charges and Taxation (On Historical Cost basis)	87790	76780
Less : Depreciation Adjustment	39525	36139
Current Cost operating Profit	48265	40641
Add : Gearing Adjustment	13361	11772
	61626	52413
Less : Interest and Finance Charges	38087	34574
Provision for Taxation	5261	8490
	43348	43064
Current Cost Profit Attributable to Shareholders	<u>18278</u>	<u>9349</u>



CASH FLOW STATEMENT

Pursuant to clause 32 of the Listing Agreement with Stock Exchange

	For the year ended 31st March, 1999 (Rs. in Lakhs)	For the year ended 31st March, 1998 (Rs. in Lakhs)
A. CASH FLOW FROM OPERATING ACTIVITIES		
Net profit before tax and extraordinary items	49703	42206
Adjustment for :		
Depreciation	52028	36858
Amortised Expenditure	233	179
Provisions	465	1082
Interest	38087	34574
Operating Profit before Working Capital Changes	140516	114899
Adjustment for		
Trade and other Receivables	-27471	-22736
Inventories	24	-2746
Trade payables and other liabilities	-6939	17298
Other current assets	1718	12207
Deferred Revenue Expenditure	-473	-6
Cash generated from operations	-33141	4017
Interest paid	-38087	-34574
Direct taxes paid	-5704	-10248
Net Cash from operating Activities	63584	74394
B. CASH FLOW FROM INVESTING ACTIVITIES		
Purchase of fixed assets	-7138	-10420
Capital work-in-progress	-177382	-94009
Advance for Capital Goods	44938	-62936
Loans and Advances	-4048	-924
Net cash used in Investing Activities	-143630	-168289
C. CASH FLOW FROM FINANCING ACTIVITIES		
Proceeds from issue of Share Capital	500	1650
Proceeds from Long Term Borrowings	94063	81874
Proceeds from Grants in Aid	-2778	-25
Dividend paid	-2200	-2200
Net Cash from Financing Activities	89585	81299
D. Others		
Net Increase/Decrease in Cash and Cash equivalents	9539	-12896
Cash and cash equivalents (Opening Balance)	6939	19835
Cash and cash equivalents (Closing balance)	16478	6939

Note : Cash and Cash Equivalents consist of Cash in hand and balance with banks.

(Mrinal Shrivastava)
Company Secretary

(Dr. V.K.Garg)
Director (Finance)

(R.P.Singh)
Chairman & Managing Director

For Hingorani M. & Co.
Chartered Accountants

For Venugopal & Chenoy
Chartered Accountants

For D.P.Sen & Co.
Chartered Accountants

(J.P.Dhamija)
Partner

(P.V.Sri Hari)
Partner

(Rahul Roy)
Partner

Place : New Delhi
Date : 1st July, 1999



AUDITORS' CERTIFICATE

To
The Board of Directors,
Powergrid Corporation of India Limited,
New Delhi

We have examined the attached Cash Flow Statement of Power grid Corporation of India Limited, for the period ended March 31, 1999. The statement has been prepared by the Company in accordance with the requirements of listing agreement Clause-32 with Stock Exchanges and is based on and is in agreement with the corresponding Profit & Loss Account and Balance Sheet of the Company covered by our report of 1st July, 1999 to the Members of the Company.

For **Hingorani M. & Co.**
Chartered Accountants

(J.P.Dhamija)
Partner

For **Venugopal & Chenoy**
Chartered Accountants

(P.V.Sri Hari)
Partner

For **D.P.Sen & Co.**
Chartered Accountants

(Rahul Roy)
Partner

Place : New Delhi
Date : 1st July, 1999