NINETY-SECOND REPORT

COMMITTEE ON PUBLIC UNDERTAKINGS (1983-84)

(SEVENTH LOK SABHA)

NATIONAL THERMAL POWER CORPORATION LTD.
MINISTRY OF ENERGY
(DEPARTMENT OF POWER)

Presented to Lok Sabha on . . . .

Laid in Rajya Sabha on . . . . .

LOK SABHA SECRETARIAT
NEW DELHI

April, 1984/Chaitra, 1906 (S)
Price : Rs. 2.40

CORRIGENDA TO NINETY-SECOND REPORT OF COMMITTEE ON PUBLIC UNDERTAKINGS (SEVENTH LOK SABHA)

Page	Para	Line	For	Read
5	2.1	4	add and after	Plan Period
		12	ot	to
9	2.16	13	detalis	details
14	2.29	2 from below	benefit	benefits
15	2.32	8	those	there
16	S.No.2 Col.5		3rd Qr.1988	3rd Qr.1982
17	2.37	6	price	cost
21	2.55	5	calculated	circulated
23	3.1	5	6	7
27	3.18	8	to be a	to a
30	3.34	5	53.6%	55.6%
32	3.39	1	delete Be -	
		2	substitute the existing line :-	
			with	Besides, poor quality of coal resulted in excessive breakdown of equipment.
35	3.55	last	stabilise	stabilised
			doperation	operation
	3.56	3	add for the purpose of tariff fixation after Korba	
37	4.4	last	expanses	expenses
38	6-7	delete	The fixed commitment charge and a variable energy charge	
39	4.11	7	receivd	received
40	4.14	22	in welcome	is welcome
44	2.18	14	6-7 years	6 or 7 years
47	3.7	2	add ranged from 39.8% to 92.7% after seven units	
		4	delete ranged from 39.8% to 92.7%	
		13	bee	been

CONTENTS

PARLIAMENT LIBRARY
Central Govt. Publications
Acc. No. RC 65077(2)
Date 15-6-84

COMMITTEE ON PUBLIC UNDERTAKINGS

(1983-84)

CHAIRMAN

Shri Madhusudan Vairale

MEMBERS

Lok Sabha

2. Shri Kamaluddin Ahmed
3. Shrimati Gurbrinder Kaur Brar
4. Shri Ramnath Dubey
5. Shri Harish Kumar Gangwar
6. Shri Krishna Chandra Halder
7. Shri Nihal Singh Jain
8. Shri Lakshman Mallick
9. Shri D. K. Naikar
10. Shri K. A. Rajan
11. Shri N. Kudanthai Ramalingam
12. Shri Pratap Bhanu Sharma
13. Shri B. D. Singh
14. Shri Krishan Pratap Singh
15. Shri Satyendra Narain Sinha

Rajya Sabha

16. **Shri Hari Shankar Bhabhra
17. Shri Mahendra Mohan Mishra
18. *Shri Narendra Singh
19. **Shri Manubhai Patel
20. Shri M. S. Ramachandran
21. Shri Syed Sibtey Razi
22. *Shri Abdul Rehman Sheikh

SECRETARIAT

1. Shri T. R. Krishnamachari—*Joint Secretary*
2. Shri M. K. Mathur—*Chief Financial Committee Officer*
3. Shri S. C. Gupta—*Senior Financial Committee Officer*

---

*Ceased to be a Member consequent on his retirement from Rajya Sabha on 2 April, 1984.

**Ceased to be a Member consequent on his retirement from Rajya Sabha on 9 April, 1984.

STUDY GROUP—II ON NATIONAL THERMAL POWER CORPORATION LTD., CENTRAL COAL WASHERIES ORGANISATION AND PRODUCTIVITY IN PUBLIC UNDERTAKINGS

1. Shri Satyendra Narain Sinha—*Convener*
2. Shri Pratap Bhanu Sharma—*Alternate Convener*
3. Shri Harish Kumar Gangwar
4. Shri Ramnath Dubey
5. Shri M. S. Ramachandran

INTRODUCTION

I, the Chairman, Committee on Public Undertakings having been authorised by the Committee to present the Report on their behalf, present this Ninety-second Report on National Thermal Power Corporation Ltd.

2. The Committee took evidence of the representatives of the National Thermal Power Corporation Ltd. on 28 and 29 September 1983 and of Ministry of Energy (Department of Power) on 7 and 8 December, 1983.

3. The Committee considered and adopted the Report at their sitting held on 9 April, 1984.

4. The Committee wish to express their thanks to the Ministry of Energy (Department of Power) and National Thermal Power Corporation Ltd. for placing before them the Material and information they wanted in connection with examination of the Company. They also wish to thank in particular the representatives of the Department of Power and the Company who gave evidence and placed their considered views before the Committee.

NEW DELHI :
April 19, 1984
Chaitra 30, 1906 (*Saka*)

MADHUSUDAN VAIRALE
Chairman,
Committee on Public Undertakings.

CHAPTER I

INTRODUCTORY

A. *Historical background*

1.1 The development of the power sector in the country in the post-independence period had, till recently, been predominently through the State Electricity Boards which were created under the Electricity (Supply) Act, 1948. However, to meet the growing demands for power, to promote power development on a regional basis and to enable the optimum utilisation of energy resources, the Government decided to take up a programme of establishment of large regional thermal power stations in the Central Sector in the various power regions of the country with a view to supplement the efforts at the State level. In view of the massive capital outlays, sophisticated technology and high degree of technical and managerial expertise involved in the construction, operation and maintenance of these large size thermal generating stations, the Government decided to establish a corporate form of organisation. Accordingly, National Thermal Power Corporation Ltd. was incorporated on 7th November, 1975 as a thermal power generating company in the Central Sector for construction and operation of large sized thermal power stations with the transmission network associated with each of the projects for evacuation of power.

1.2 The basic objective of the National Thermal Power Corporation is the development of thermal power in all its aspects including :—

(i) Planning and investigation;

(ii) research and design;

(iii) preparation of preliminary feasibility and definite project reports; and

(iv) construction, generation, operation and maintenance of thermal power stations and projects, transmission, distribution and sale of power generated at thermal stations, in accordance with the National Economic Policy and objectives laid down by the Central Government from time to time.

1.3 The Company has presently been entrusted with the establishment of six super thermal power stations with an approved capacity of 9060 MW and 8747 Kms. of associated 400 KV transmission lines and 35 sub-stations. Four of these super thermal power stations namely Singrauli, Korba, Ramagundam and Farakka were identified for the first phase of development. Subsequently Rihand and Vindhyanchal projects were also entrusted to it. All these projects are scheduled to be completed by the end of Seventh Five Year Plan. Since 1st April, 1978, the Company has been managing the Badarpur Thermal Power Station. Besides, it is being assigned the work of setting up of the Central Transmission Project-I comprising 1660 cct. Kms. of E HV transmission lines and associated Sub-stations. The total investment in the company as on 31-3-83 was Rs. 1498.01 crores comprising of Rs. 1180.56 crores paid-up capital and Rs. 317.45 crores loan.

B. *Power Planning*

1.4 The Committee desired to know whether the NTPC had prepared any long term perspective plan for generation of power. The Company informed in a note that NTPC's plans were worked out within the framework of country's long term plans for power development and it did not make any independent assessment of total country's requirements of power in the long term. These assessments were carried out by agencies such as Central Electricity Authority under the Ministry of Energy (Department of Power) and other special committees and Working Groups appointed by the Government from time to time. The Planning Commission also projected the requirements of electricity while finalising the Five Year Plans. Similarly, the share of Central Sector and that of NTPC in the country's projected installed capacity requirements was a policy decision to be taken by the Ministry.

1.5 According to the Sixth Five Year Plan document and its Mid-term Appraisal, the total generating capacity in 'utilities' (i.e. excluding captive power plants) in the country at the commencement of the plan was 28490 MW including 16468 MW of thermal power capacity. Out of this Centre's share was 3399 MW, including about 2500 MW thermal capacity. As per the original targets the total capacity at the end of 6th Plan was expected to reach 48156 MW including 30676 MW of thermal power capacity while the Centre's share was expected to be 7864 MW including about 6100 MW thermal capacity. As against this the actual capacity now expected to be achieved by the end of the plan is 43035 MW including 27266 MW thermal capacity.

1.6 The Committee on Power (Rajadhyaksha Committee) had recommended in September, 1980 that power planning in the immediate future and onwards should be done with the objective of having about 45% of the entire generating capacity in the Central Sector by the year 2000 A.D. The Committee enquired whether, considering the long time taken in setting up of the power projects, any steps had been taken by Government towards evolving a long term plan for power generation in the country. NTPC informed in a note that long term power plan studies were carried out by Central Electricity Authority. In its studies, CEA has projected the electricity requirements upto the year 2000-01. According to this, the electrical energy requirements were projected to increase to 382841 million Kwh by the year 1994-95 and to 592781 million Kwh at the turn of the century assuming growth of value added in the mining and manufacturing sector at 7%. Based on these requirements the CEA had estimated that capacity of 78067 MW comprising 42850 MW of thermal, 32412 MW of hydro and 2805 MW of nuclear power was required to be added during Sixth to Eighth Plan periods. According to Rajadhyaksha Committee, the requirements of installed capacity by the year 2000-01 A.D. were expected to be 1,37,859 MW including 83,859 MW of thermal capacity assuming the present trends in consumption of power to continue.

1.7 The Committee asked whether on the basis of CEA studies, Government had taken any decision in regard to capacity to be added upto 1994-95 in the Central and State Sectors, its break-up into thermal, hydro and nuclear power etc. and the projects to be taken up for execution and whether any precise targets had been laid down for NTPC. The Department of Power in their reply furnished after evidence stated that the CEA

studies were being discussed with various bodies such as the State Electricity Boards and would be utilised for preparation of power programmes for the Seventh and Eighth Plans. The studies themselves were updated from time to time. The Planning Commission had set up a Working Group on Power for the preparation of power programmes for the Seventh Plan. The Working Group was expected to finalise its report by the end of April, 1984. The executing agencies concerned (including NTPC) which were also involved in formulation of the Plans, laying down targets, and identifying the projects to be executed would be formally intimated the details of the thermal, hydro and nuclear capacities to be added, and the projects to be executed, when the Seventh Five Year Plan has been finalised and approved by Government.

C. *Objectives and Corporate Plan*

1.8 In pursuance of the recommendation of the Committee on Public Undertakings contained in their 38th Report (6th Lok Sabha), the Bureau of Public Enterprises issued guidelines in May, 1979, according to which the Administrative Ministries were required to advise the Public Enterprises under their control to spell-out their micro-objectives consistent with the broad objectives spelt out in the Industrial Policy Resolution of December, 1977. The Committee desired to know whether NTPC had prepared any such detailed objectives. The Chairman and Managing Director of the Company stated in evidence :—

> "We have prepared a draft setting out our aims and objectives and we expect to place it before our Board of Directors in the next meeting. After this is deliberated upon by our Board of Directors, this would be submitted to the Government for approval and we expect the entire process may take about three months."

1.9 Asked whether any Corporate Plan had been prepared by the Company, the Committee were informed by NTPC in a note that a Corporate Plan document was under preparation which would define the role of NTPC in the country's power development programme and other aspects of NTPC's operations.

1.10 When the fact of a Corporate Plan and the micro-objectives of NTPC having not been finalised was pointed out to the Secretary, Department of Power, he agreed in evidence that this should have been done earlier. He added :—

> "The explanation which has been advanced is that they were busy implementing the projects that were assigned to them and I think in the initial stages they were treated as implementing agency. But I think, as a corporate organisation they should have finalised these objectives. This defect is acknowledged. We should see that the Corporate Plan is finalised. The Chairman has assured that it would be finalised. We should have finalised this."

1.11 Subsequently, the Committee were informed by NTPC (March 1984) after evidence that the detailed Aims & Objectives of the Company containing Primary objectives and Sub-objectives separately have been approved by the Board of Directors at the meeting held on 5th January,

1984, and submitted to Government. The Corporate Plan document of NTPC has also been approved by the Board and forwarded to Government.

1.12 The National Thermal Power Corporation Ltd. was incorporated in November, 1975 as a thermal power generating company in the Central Sector for construction and operation of large sized thermal power stations with the transmission network associated with each of the projects for evacuation of power. The Committee note that six Super Thermal Power Projects with a capacity of 9060 MW being executed by NTPC are scheduled to be completed by the end of Seventh Five-Year Plan. No targets have been set by Government for the company beyond this period. The projections made by Rajadhyaksha Committee reveal that the requirement of installed capacity by the turn of the century would be 1,37,859 MW as against 43035 MW estimated to be available by the end of the Sixth Plan period. Considering the huge capacity needed to meet the demand and the long gestation period for power projects, the Committee desire that long term plans for the development of power, determining share of different sources of power generation and the role of Central Government therein should be drawn up expeditiously and specific targets laid down for NTPC.

1.13 The Committee find that although NTPC was set up in 1975, it had not defined until recently its detailed aims and objectives nor did it have a Corporate Plan. It is only now that these basic documents have been prepared and submitted to Government. In view of the need to define clearly the role of NTPC in the country's power generation programme, the Committee desire that these documents should be finalised by Government soon.

CHAPTER II

PLANNING AND EXECUTION OF PROJECTS

A. *Approval of Projects*

(i) *Power projects*

2.1 Out of total approved capacity of 9060 MW (excluding Badarpur Thermal Power Station) of the Company units having capacity of 2400 MW (12×200 MW) were targetted to be commissioned during the Sixth Plan period the balance capacity of 6660 MW comprising eight 200/210 MW units and ten 500 MW units were scheduled to be commissioned during the Seventh Plan period. The Committee enquired about the capacity of NTPC for setting up new projects. The Chairman and Managing Director of the Company informed in evidence that NTPC's capacity to undertake projects and to commission new units in each plan period was of the order of 8,000 MW. The Company had identified new projects with a total capacity of about 16800 MW. Most of these projects had already been investigated and their feasibility reports submitted ot Government. Explaining the procedure for clearance of projects, the witness stated that the techno-economic appraisal of the project was made by the Central Eectricity Authority. The Ministry of Energy then recommended the project to the Panning Commission who, after considering the overall requirements of the country and the share to be given to NTPC, approved the project. Thereafter the financial sanction was given. Thus the ultimate decision to take up any project rested with the Government.

2.2 The Committee desired to know the projects for which feasibility reports had been submitted by NTPC and the present position in regard to their techno-economic clearance and investment. They were informed by the Department of Power in a note that NTPC had submitted feasibility reports for Kahalgaon in Bihar (2800 MW), Talcher in Orissa (2800 MW) and Pench (4×210 MW) in Madhya Pradesh in 1980; Farakka Expansion Project (3×500 MW) in 1982 and National Capital Region Power Station (4×210 MW) in 1983. Out of these the Central Electricity Authority had given techno-economic approval to the National Capital Region Power Project and two units of Farakka Expansion Project in October, 1983. These projects were being processed for the approval of Public Investment Board. The Kahalgaon Project had also been accorded techno-economic approval by CEA in March, 1981 and the Planning Commission had agreed to make funds available during 1983-84 and 1984-85 for preliminary work. This project was also being posed for approval by PIB. In regard to Talcher, NTPC was now preparing an updated feasibility report for 2x500 MW capacity in the first stage instead of 4×200 MW envisaged earlier. Planning Commission had agreed to provide funds during 1984-85 to take up preliminary works for this project and Department of Coal had been requested to provide coal linkage for the project. The availability of coal had not been firmly established in the Pench Valley Coal fields to sustain a large sized thermal power station at Pench in addition to supplying coal as per the existing commitments.

2.3 On being enquired about the increase in cost of the Kahalgaon project since its techno-economic approval by CEA, the Department or Power informed the Committee that at that time the estimated cost of Kahalgaon STPP (4×200 MW, Stage I) was Rs. 493.58 crores (excluding associated transmission system). The present revised cost estimate for the project was Rs. 855.31 crores. The reasons for the increase in cost included escalation in prices of plant and equipment and construction materials as well as changes in the scope of the project. The Department added that it was not practicable for various reasons, including financial constraints to undertake simultaneously the execution of several Super Thermal Power Projects. Therefore, Super Thermal Power Projects were being taken up for execution in a planned manner on a priority basis in successive Five-Year Plans and sanctions were being issued accordingly. Thus the increase in project cost could not really be ascribed to delays in sanctioning a project.

2.4 The Department of Coal were stated to have expressed a view that the requirement of coal for future power projects should be indicated to them about three years before the power project was sacntioned in view of the gestation period for coal mines being longer than that for power projects. Rajadhyaksha Committee had also suggested that a 15 year coal production plan should be drawn up and linkages established from mining areas to power plants. The Committee asked about steps being taken by Government to ensure integrated development of coal mines and the power projects so that the operation of the power projects did not suffer on account of shortage of coal. The Department of Power stated in a written reply that in consultation with CEA, the coal requirements for the projects which were likely to yield benefit during the 8th Plan were being intimated to the Coal Department. Presently, no difficulty was envisaged in this regard and development of coal mines and power projects was generally taking place in a well coordinated manner. It might not always be possible to indicate a 15 year programme for coal requirement for specific power projects, unless projections in regard to availability of funds were also worked out by the Planning Commission. However, the recommendations of the Rajadhyaksha Committee in this regard were being examined by Department of Coal.

(ii) *Transmission Lines*

2.5 From the details of projects of NTPC sanctioned so far the Committee observed that while Singrauli Stage-I was sanctioned in December, 1976, its associated Transmission System was sanctioned in January, 1978. Similarly, Singrauli Stage-II was sanctioned in July, 1979 and its associated Transmisison System was sanctioned in January, 1981. The Committee desired to know whether the time lag between the approval of the power projects and the associated transmission lines in the case of Singrauli did not affect the evacuation of power from these stations. The Chairman and Managing Director, NTPC stated in evidence that by and large all the transmission lines required for evacuation of power were completed as and when the units were constructed and there was no difficulty in the transmission of power from these stations.

2.6 The Committee also noticed that though Stage-I of the Rihand super Thermal Power Project was sanctioned in June, 1982, the associated transmission lines were still to be approved. Asked to state the

reasons for delay in approval of associated transmission lines, the Chairman and Managing Director of NTPC informed the Committee in evidence that this was due to the fact that CEA was working on an integrated transmission system involving the use of both the conventional AC system and the new HVDC system. On a query as to which system was more beneficial, the witness stated that the HVDC system facilitated better control of fixed quantity of power being transmitted and the lines were less costly than AC lines. But the cost of sub-station of HVDC was much higher. Thus for long range transmission lines involving large quantum of power for point to point delivery HVDC was economical. He also added that "in regard to Rihand to Delhi power supply, HVDC will certainly be more economical."

2.7 When the Committee desired to know whether the delay in sanctioning of the associated transmission lines would affect the transmission of power from Rihand Station, the CMD stated as follows :—

> "As far as Rihand is concerned, our schedule for commissioning the first unit is June 1987. Now, we are really in a very tight situation. If there are delays in the sanctioning of the project we will not be able to complete all the transmission lines for evacuation of Rihand power. I have taken up this matter with the Central Electricity Authority, with the present Chairman of the Authority and also the Secretary of Power and urged them that they must immediately give us clearance. Once we get the clearance for the transmission lines, we will have to prepare project estimates. Then I will have to submit it to the Public Investment Board for clearance. The project estimate will have to go to the Planning Commission. All this process will start only after I get the clearance. All that will take nothing less than one year. Then, I will take at least three years to complete the lines."

2.8 On being enquired about the present position in the matter, the Secretary, Department of Power informed the Committee in evidence that the Canadian Consultants had recommended to take up a HVDC line, The recommendation was being considered. An expert team which had gone abroad has just come back. The witness assured the Committee "we will try to expedite the decision."

2.9 On being asked as to why the power projects and transmission lines were not sanctioned simultaneously, the witness stated :—

> "Perhaps, in this case the separation was due to the novelty of the type of transmisison lines. In future, it will not happen....Now we are attempting to sanction transmission lines simultaneously."

2.10 The Committee find that NTPC submitted long back feasibility Reports in respect of several projects with a capacity of 8780 MW. These are, however, yet to be approved by Government. The Committee would stress the need for expeditious approval of these projects to ensure their timely execution and to avoid cost over-runs. They also desire that the linked coal mines for these projects be developed well in time so that the power projects do not suffer on account of shortage of coal.

2.11 The transmission lines associated with the Rihand Super Thermal Power Project have not so far been approved though the power project

was sanctioned in June, 1982. According to NTPC, any further delay in sanctioning of the associated transmission lines would adversely affect the evacuation of power from this station whose first unit is scheduled to be commissioned in June, 1987. The delay was stated to be on account of the system studies being carried out on the desirability of using a new system viz. HVDC system. In the opinion of the Committee this study of HVDC system by the Government has taken an extraordinarily long time. Now that the recommendations of the consultants in the matter have been received, the Committee recommend that a decision on the type of transmission lines should be taken without any further delay so as to ensure the timely completion of transmission lines along with the power station.

B. Construction of Power Projects

2.12 Rajadhyaksha Committee had suggested that from the date of sanction of project to commercial operation, 5 years should be allowed for planning purposes, although State Electricity Boards should attempt to finish the job in four years or less.

2.13 When the Committee desired to know the time taken by NTPC units to commence commercial operation after the date of sanction of the project, the company furnished the following information after evidence :

S. No.	Station	Date of Govt. Sanction	Commencement of commercial operation		Time taken from date of sanction to commencement of commercial operation (months)
			Unit	Date	
1.	Singrauli St. I . .	Dec., 76	Unit—I	1-6-82	66
			Unit—II	1-2-83	74
			Unit—III	1-8-83	80
2.	Singrauli St. II . .	July, 79	Unit—IV	1-2-84	55
3.	Korba St. I . . .	April, 78	Unit—I	1-8-83	64
			Unit—II	1-2-84	70
4.	Ramagundam St. I . .	April, 78	Unit—I	1-3-84	71

2.14 on being enquired as to the reasons for taking longer time for starting of commercial operations in NTPC units as compared to the norms suggested by Rajadhyaksha Committee, the Chairman and Managing Director of the Company stated in evidence :

> ". . . . In our case there is one additional element which gets involved, that is, the World Bank . . . after I get the clearance on a project from the Government, then it is negotiated with the World Bank and that process of negotiation itself takes at least 4 to 6 months and therefore, we can start activities on a project only after the financial tie-up is approved by the World Bank."

2.15 In this connection the Committee were informed by the Secretary, Department of Power in evidence that though the Singrauli Project had

been approved by Government in December, 1976, it was actually approved financially in March, 1977 when the IDA agreement was signed. He was of the opinion that the time reckoned should be from the date on which the source of finance was identified. When the Committee questioned the propriety of sanctioning the projects without making available the resources, the witness stated :

> "Now, we are approving only after the funds are available.... after almost all the formalities of the Bank are over."

2.16 On the question of time lag between the different units of the same project, NTPC stated in a note that this difference was envisaged in the planning stage itself. The note for the Public Investment Board indicated a commissioning programme based on a schedule of 4 years from date of order of main plant equipment for the first 200 MW unit at each project with subsequent 200 MW units following at intervals of 6 months each thereafter. The Commissioning schedule for the 500 MW units envisaged a period of 5 years from the date of order of main plant equipment for the first unit at each project, with subsequent units following at intervals of one year each. The Committee desired to know the actual performance of NTPC in respect of units to be commissioned in 6th plan against this schedule. In a note furnished after evidence, the company gave the following detalis :—

Project	Unit (200 MW)	Commissioning Schedule		Delay (in months)
		As per PIB Note	Actual anticipated	
Singrauli Stage-I	I	2/82	2/82 (actual)	Nil
	II	8/82	11/82 (actual)	3
	III	2/83	3/83 (actual)	1
Singrauli Stage-II	IV	8/83	11/83 (actual)	3
	V	2/84	2/84 (actual)	Nil
Korba Stage-I	I	1/83	3/83 (Actual)	2
	II	7/83	10/83 (actual)	3
	III	1/84	3/84 (actual)	2
Ramagundam Stage-I	I	2/84	10/83 (actual)	4 months ahead of schedule
	II	8/84	8/84	Nil
	III	2/85	2/85	Nil
Farakka	I	5/85 (subsequently revised to 1/85)	1/85	Nil

2.17 According to NTPC, it has introduced several innovative steps in the areas of construction and operations management for the first time in the power sector. The project management systems and procedures being followed by the Company and its performance in the areas of construction and operation have been praised by International Financial

Institutions such as the World Bank. In this connection, the Chairman & Managing Director, NTPC, claimed in evidence that :—

> "We are the only organisation in the power sector in the country, which has been able to execute these thermal projects according to time schedule. The average time that has been taken in the country is of the order of six to seven years; against that we are taking only four years construction time."

2.18 The Committee find that as against a target of 2400 MW capacity to be created during the Sixth Plan Period, the Company has already commissioned units of the capacity of 1800 MW. The remaining 600 MW capacity was also expected to be completed as per the target. However, in respect of construction schedule, Rajadhyaksha Committee had suggested that from the date of sanction of project to commercial operation, 5 years should be allowed for planning purposes, although State Electricity Boards should attempt to finish the job in 4 years or less. The NTPC has been able to put into commercial operation the first unit of 200 MW in 55 to 71 months from the date of Government sanction and the subsequent units at six to eight months interval thereafter as against 6 or 7 years stated to have been taken by the State agencies to commission such projects. The Committee desire that N.T.P.C. should progressively aim to reach the target of 4 years suggested by Rajadhyaksha Committee. They also suggest that the management systems and procedures being followed by NTPC in the areas of construction and operation, which have produced good results should be studied and followed by other agencies in the country entrusted with setting up of power stations to avoid delays in commissioning of projects and to ensure efficiency in the operation.

C. Construction of Transmission Lines/Sub-Stations

2.19 Rajadhyaksha Committee had observed that the benefits from more Central projects and optimised regional planning and operation could not be realised fully unless the high tension (H.T.) transmission system connecticg the Central Projects to the State systems and transmission links of 220 KV and above and their sub-stations which were required to ensure integrated operation of the regional grid were under the ownership and control of the Central Government and recommended that steps to acquire these H.T. circuits be taken forthwith. The Committee desired to know the present position in regard to the ownership and management of such lines and their sub-stations. The Chairman and Managing Director, NTPC informed the Committee in evidence as follows :—

> "The present position of ownership and management of the 400 KV lines is almost a mixed one. What is happening is that those 400 KV lines and substations which had been constructed earlier by the State Electricity Boards in their own States—as UP had constructed, Maharashtra had constructed, Bhakra Management Board had constructed—they are still continuing to be in charge of those States because those lines are basically required for evacuation and transmission of their own power. But, after the Rajadhyaksha Committee recommendations which were received in September, 1980, the Government did take a policy decision that in future all 400 KV high voltage

transmission lines which are required for evacuation of power from the central sector projects to the various States will be owned and operated by the Central Sector. Therefore, in pursuance of that policy now, we in the NTPC, are required to construct almost 10,000 km of 400 KV lines all over the country. In addition, the Neyveli Lignite Corporation is also constructing 400 KV lines which in turn have been entrusted to us for constructing. At the same time, our sister organisation, the National Hydro-electric Power Corporation are also constructing their own transmission lines. Therefore . . . . . there is not one single ownership of the 400 KV lines although the major part of the 400 KV lines has been entrusted to the NTPC."

2.20 On being enquired as to how the power generated by the NTPC stations was to be transmitted to various beneficiary States, the witness stated that in the case of Singrauli Phase I (600 MW) only two lines were approved—one from Singrauli STPS to Obra and the other from Singrauli STPS to Kanpur. It was expected that the power beyond Kanpur to Rajasthan or Haryana or Delhi would be transmitted through the U.P. system itself. But, later on, when NTPC actually started operating such a system, it was found that NTPC was not able to share with the other States their requirements of power. After the Rajadhayaksha Committee's recommendation rethinking was there and further lines were sanctioned and construction work was taken up. On the basis of the policy decision by the Government, at least in the Southern region, the entire 400 KV transmission system was being constructed by the NTPC.

2.21 Asked as to why the construction of 400 KV transmission lines by NTPC itself for transmission of power to all the beneficiary States was not envisaged intitially, the witness stated that it was the CEA who was doing the overall system of planning for the country.

2.22 On a query regarding the ownership of 220 KV lines, the CMD stated that a consensus could not be arrived at with States on this issue Therefore, those lines which had already been constructed were being operated by the States concerned and they were continuing to be with them. In this connection, the Secretary, Department of Power stated in evidence as follows :—

"This is one of the proposals discussed in the Northern Regional Electricity Board, we do not propose to take over 220 KV lines. It is not within our purview. But as far as 400 KV lines are concerned, we have proposed that NTPC will be constructing many of them in future. The exact pattern is under discussion . . . .We will move towards higher voltage transmission lines, so that the Central system gets control of a larger area."

2.23 The Committee enquired whether any delay was anticipated in completion of associated lines as compared to the schedule in respect of Super Thermal Power Stations to be completed during Sixth Five Year Plan and whether there had been matching development of transmission lines and sub-station facilities owned by various agencies. NTPC informed in a note

that the associated 400 KV transmission lines being set up by NTPC for evacuation of power from its generating units at Singrauli, Korba, Ramagundam and Farakka to be commissioned during the 6th Five Year Plan period, were expected to be completed in time to meet the requirements of evacuation of power from these units. Work on the 400 KV sub-stations associated with the Singrauli and Korba projects being set up by the concerned States were also expected to be completed as per requirements. However, with regard to the 400 KV sub-stations associated with the Ramagundam project and the sub-station at Durgapur associated with the Farakka Project, which were to be set up by NTPC, agreements on the basis of Government decision that NTPC would set up, own and operate these sub-stations could be reached with the State Electricity Boards/State Governments only between April, 1982 and August 1982 after which steps were taken by NTPC to acquire land and take up the work. As a result completion of sub-stations at Hyderabad, Nagarjunasagar and Cuddapah associated with the Ramagundam project would not match the transmission lines completion. For the 400 KV/220 KV sub-station at Hyderabad, progress of work by APSEB on the 220 KV side was behind schedule and would need to be expedited to enable evacuation of power through the sub-station which was expected to be completed by NTPC in June 1984. Till the completion of the sub-station, power generated at Ramagundam Station would have to be evacuated over the 132 KV Ramagundam—Ramagundam line of APSEB. Similarly, the 400 KV sub-station at Durgapur for Farakka Project was expected to be completed by December, 1985 against the requirement of June, 1985. Work on the 400 KV sub-station at Jeerhat being set up by WBSEB would also need to be expedited to match the completion schedule of December, 1984 for the Farakka-Jeerhat line.

2.24 The Committee desired to know the system of co-ordination between NTPC and the concerned State Governments in regard to setting up of sub-stations and transmission lines for utilisation of power available or likely to be available from super thermal power stations of the Company. They were informed in a note by NTPC that the transmission lines and sub-stations being established by it along with the Super Thermal Power Stations formed a part of the respective Integrated Regional Systems where the power stations were being established. Under the Electricity (Supply) Act, the responsibility of planning the total regional systems was entrusted to the CEA. The transmission lines and other facilities to be developed by each of the agencies as part of the regional system were identified by the Central Electricity Authority based on the system planning studies conducted by it and in consultation with the concerned State Electricity Boards. The construction activities of transmission lines and sub-stations were also monitored by CEA and the Department of Power which oversaw the matching development of transmission lines and sub-station facilities owned by various agencies. NTPC had also evolved a system of regular meetings with the concerned SEBs wherever its transmission lines and sub-station facilities were being established.

2.25 Asked to state the steps taken by CEA/Department of Power to ensure that the matching facilities for evacuation of power from NTPC stations were completed in time by the State Electricity Boards the Secretary, Department of Power stated in evidence as follows :—

> "In the last few weeks, CEA has been having a series of meetings with State Governments, on how transmission Projects are going

on. Our Member (Transmission) is going round the country. But the first sufferer in any cut in resources is the transmission project. Those who make the cut did not realize the difficulty. Only now when they want power from other State, they have started realising the consequent difficulty, albeit late. We have a Centrally-sponsored scheme for inter-State transmission. We are recommending necessary steps in this regard to the Planning Commission."

Transmission Losses

2.26 The Committee enquired about the transmission losses in the transmission lines being set up by NTPC. The Company informed in a note that the 400 KV transmission system being set up by NTPC was designed for a transmission loss figure of 2.5 per cent. The Company was stated to be providing highly accurate metering arrangements on its transmission lines. However, such metering was also necessary over the entire regional sytem in view of multiplicity of generating agencies and inter-change points. NTPC's involvement in the transmission system was limited to mainly 400 KV lines. The actual transmission losses in the case of 400 KV transmission lines associated with the Singrauli and Korba Super Thermal Power Stations of NTPC was about 2 per cent.

Central Transmission Project

2.27 Apart from the construction of 8747 cct. kms. of 400 KV transmission lines, NTPC was also being entrusted with the implementation of the Central Transmission Project-I which would facilitate evacuation of power from Ramagundam Station as well as transfer of Power between Southern and Western and Western and Northen regions. This involved the laying of an additional 1660 Kms. of EHV transmission lines, construction of sub-station and equipping of grid sub-stations with sophisticated instrumentation facilities. The project also envisaged a 2×250 MW back-to-back high voltage DC link for the first time in the country. The total cost of the project was estimated to be Rs. 354.85 crores. This integrated transmission system was stated to be essential for providing adequate stability in inter-regional exchanges and for optimising the distribution of power to the regional grids and would ultimately evolve into the National Grid thus helping integrate the functioning of the four regional grids. The Public Investment Board recommended the project in April, 1983 for Government approval.

2.28 When the Committee enquired from the Secretary, Department of Power in evidence whether the HVDC system would be adoptd in future for all new projects including those of States, the witness replied :—

"This is a technical issue on which there are two schools of thought. CEA has made a study of this. There is a feeling that in our country, we should not switch over totally to HVDC and higher voltage AC. But HVDC is better where large blocks of power have to be transferred over long distances. We will have to import equipment/technology from countries like Sweden or USA. I think the country has to develop certain internal capability. We are going ahead with this in two areas. It will be decided by an inter-departmental committee we are constituting. There is World Bank credit to finance this project. There is one back to back HVDC system and

another straight-forward HVDC system. In the second phase, we are having a fail-safe system. I think we will acquire enough expertise and be able to proceed further. We cannot recommend this to the States. We are primarily having this for the Central Power system."

Institutional arrangements

2.29 It has been pointed out in the Annual Report of NTPC for the year 1982-83 that in spite of the fact that the Regional Electricity Boards had been created in 1964, fully integrated system operation in the regions were still a far cry. This had raised a number of issues specially pertaining to system discipline. Most of these issues had long-term implications and needed a measure of mutual cooperation and understanding to enable development of a frame-work within which the systems were operated in order to optimally utilise the capacities of NTPC's generating stations as well as those of the States themselves. The present institutional arrangements in the power sector were also not suited to integrated operations. In view of the fact that the region was neither a legal nor an administrative unit like a State, or a commercial entity, many problems in integrated regional operation were being faced. The issues involved had been studied by several expert bodies. It was imperative that suitable measures to bring about institutional changes were formulated soon to ensure that each region for the purpose of electrical operations functioned as one entity. This would ensure that the benefit were equitably shared and the operation was optimal.

2.30 Askd to state the Government's views in the matter, the Secretary, Department of Power stated in evidence :—

> "In regard to the Regional Electricity Boards, and the manner in which they should be changed, the State Government are not fully in favour of surrendering any powers. But if we have to have an integrated management of the power system, there is no alternative but at least to start it managing on a regional basis. I appreciate the region is not an administrative entity. But over time for instance, the Northern Region, the Western Region, the Southern Region have developed certain practices of exchange of power, managing various loads and even inter-regional exchanges of power have now started. In order to make this possible the regional Electricity Boards should be given some authority. An attempt has been made in respect of the northern region board and it is supposed to be one of the most effective boards today. They work very cooperatively. They respect authority and try to exchange power. Chairman, CEA has taken a meeting with the State Governments who have agreed to surrender certain rights. We hope it will finally become a reality. . . . . The details are still in the process of finalization."

2.31 Subsequently the Committee were informed by the Department of Power in a note furnished after evidence that a national grid was a basic requirement for an integrated development and operation of the power system in the country. The process has been initiated with regional grids and the setting up of the Regional Electricity Boards. Government of India has also decided to set up Central Transmission Projects for the integrated development of the power system in the country. It was envisaged that

certain important transmission lines and sub-stations should be owned by the Centre for strengthening the national power grid. The matter was under consideration in consultation with the State Governments concerned. In regard to generation, the power stations in the Central Sector were regarded as regional in character and it was proposed that there should be inter-regional flow of power as well. The setting up of the National Thermal Power Corporation was also a step in this direction.

2.32 The Committee find that the completion of 220/400 KV sub-stations being set up by NTPC at Hyderabad, Nagarjunasagar and Cuddapah associated with the Ramagundam project and Durgapur Sub-station associated with Farakka Project would not match with the construction of the associated transmission lines. This was stated to be on account of the fact that agreements could be signed by NTPC with the concerned State Governments only between April and August, 1982 on the basis of the Government decision that NTPC would set up, own and operate those sub-stations. The Committee regret to note the delay in this regard and would stress the need for proper planning and timely decision by Government in regard to the construction of transmission lines as well as the sub-stations by the NTPC to ensure their completion well in time for evacuation of power from the Super Thermal Power Stations. They hope that every effort would now be made by NTPC to ensure that time lag between completion of transmission lines and the sub-stations is reduced to the minimum.

2.33 The Committee also find that the Jeerhat sub-station being set up by West Bengal State Electricity Board and the sub-station (220 KV) at Hyderabad being set up by Andhra Pradesh State Electricity Board were also likely to be delayed. They desire that the Central Electricity Authority who are entrusted with overseeing the matching development of transmission lines and sub-station facilities owned by various agencies, should continuously monitor the progress of construction of these sub-stations to see that they are completed in time for evacuation of power from NTPC units.

2.34 The Committee would also emphasise the need for an integrated development of the power system in the country. They have been informed that the process has been initiated with the formation of regional grids and setting up of the Regional Electricity Boards. Further, decision has been taken to set up Central Transmission projects as well as to own and operate in future in central sector all 400 K.V. transmission lines required for evacuation of power from the central sector projects to various States. The Committee welcome these steps. However, admittedly still much more remains to be done. NTPC was still depending in certain cases on the State systems for transmission of power from Super Thermal Power Stations. The present institutional arrangements were also not suited to integrated operations. The Regional Electricity Boards need to be given more authority for integrated management of the power system. The Committee therefore desire that steps be taken for construction of additional transmission lines and sub-stations in the central sector as well as to bring about institutional changes as may be necessary for evolving national grid to ensure integrated development and operation of the power system in the country.

D. *Increase in cost estimates*

2.35 The following statement shows the details of original approved cost and latest revised estimates of the projects sanctioned so far :

(Rs. in crores)

Sl. No.	Name of the Project	Generation Projects			Transmission Projects		
		Original Approved Cost	Latest Approved Cost	Latest Revised Estimate	Original Approved Cost	Latest approved Cost	Latest revised estimate
		(Figures in brackets indicate base date of cost estimates)					
1.	Singrauli Stage I (600 MW)	255·66 (early 1976)	303·75 (Aug. 1979)	324·53 (3rd Qr. 1982)	31·64 (Mid 1976)	37·64 (March 1980)	37·64 (3rd Qr. 1982)
2.	Singrauli Stage II (1400 MW)	494·37 (early 1978)	494·37	796·92 (3rd Qr. 1928)	165·41 (April 1980)	165·41	176·07 (3rd Qr. 1982)
3.	Korba St. I (1100 MW)	450·80 (early 1977)	527·62 (early 1979)	749·23 (3rd Qr. 1982)	100·90 (early 1977)	105·1 (early 1979)	130·34 (3rd Qr. 1982)
4.	Korba St. II (1000 MW)	457·98 (early 1979)	457·98	705·67 (3rd Qr. 1982)	47·74 (early 1979)	47·74	50·59 (3rd Qr. 1982)
5.	Ramagundam Stage-I (1100 MW)	459·14 (early 1977)	879·52 (2nd Qr. 1982)	879·52	116·14 (early 1977)	272·68 (2nd Qr 1982)	272·68
6.	Ramagundam Stage-II (1000 MW)	501·89 (March 1981)	501·89	681·88 (3rd Qr. 1982)	48·09 (March 1981)	48·09	51·06 (3rd Qr. 1982)
7.	Farakka St.-I (600 MW)	290·60 (early 1978)	290·60	548·34 (4th Qr. 1981)	30·20 (early 1978)	30·20	62·05 (4th Qr. 1981)
8.	Vindhyachal St. I (1260 MW)	911·57 (March 1981)	911·57	911·57	198·85 (March 1981)	198·85	198·85
9.	Rihand St. I (1000 MW)	1033·00 (early 1982)	1033·00	1033·00	Transmission system has not yet been approved.		
		4855·01	5400·30	6630·66	738·97	905·71	979·28

2.36 It would be seen from the above statement that the increase in cost estimates over the original estimates ranged from 27% to 91% in the case of generation projects and from 6% to 135% in the case of transmission lines. On being enquired about the reasons for steep increase in cost estimates, the company stated in a note that this was mainly due to price escalation and increase due to change in scope. Other reasons were stated to be increase due to customs duty on imported equipment, increase in provision for spares, freight, insurance etc.

2.37 Asked whether price escalation was not taken into account while preparing the cost estimates, the Chairman and Managing Drector, NTPC stated in evidence :—

> "We are preparing estimates on the basis of the current cost. We are not supposed to include any element of cost escalation. As and when the price escalation takes place, we are given certain authority to operate within 10% increase only. The moment, we go beyond that, we are required to submit revised estimates to the Government."

2.38 From the details of increase in cost estimates, the Committee noticed that in the case of Farakka Power Project, the increase in cost due to change in scope alone was 26% of the original approved cost. The Committee desired to know the changes in scope of work found necessary after sanctioning of the project and why these changes could not be visualised at the initial stage when the project was submitted for approval of Government. The Chairman and Managing Director of the company stated in evidence that based on detailed soil investigation, the length and capacity of piles had to be substantially increased. Provision for blast proof design building had also to be made due to defence requirements. Another additional item was the 500 MW training simulator to be located at the Simulator Training Centre at Korba and being funded by the World Bank under the credit agreement for this phase of the Farakka Project. The cost of the coal handling plant at Farakka which was earlier based on that for Singrauli, Korba and Ramagundam had also to be revised upward.

2.39 Subsequently, in a note furnished after evidence, the Committee were informed that additional land acquisition to the extent of 2200 acres was involved as the total land required for the ultimate stage of 2100 MW was acquired during the 600 MW phase of the project itself. The capacity of the coal handling plant had also to be increased on account of the difference in coal characteristics as initially indicated by the coal company and those subsequently provided for design purposes. The contribution of the various factors to the cost increase was given as under :

Preliminary Works	— Rs. 7.68 crores
Civil Works	— Rs. 20.85 crores
Mechanical Works	— Rs. 21.19 crores
Electrical Works	— Rs. 9.51 crores
Training Simulator	— Rs. 9 crores
Engineering, Administration and contingencies	— Rs. 9.62 crores

2.40 The Committee desired to know the total land required for each of the NTPC projects under execution. The Department of Power informed in a note that the land requirements of NTPC's Super Thermal Projects were as follows :—

Singrauli (2000 MW)	4710 acres
Korba (2100 MW)	4720 acres
Farakka (2100 MW)	4580 acres
Ramagundam (2100 MW)	10040 acres.

2.41 The land requirement of a Super Thermal Power Project mainly related to the power house building, switchyard, township area, coal and ash handling plants, water cooling plant, stockyard, merry-go-round railway system, etc.

2.42 Asked to state the reasons for the land requirement at Ramagundam being much higher than that at other projects, the Department stated that this was due to an area of 5622 acres having been acquired on account of a balancing reservoir and associated canal for the cooling water requirements of the project. The construction of the balancing reservoir and canal was necessitated by the need to supply cooling water continuously to the power plant. The existing irrigation canal system from which water was drawn for the power plant was shut down for about 2 to 3 months for maintenance purposes. The water storage in the balancing reservoir would, therefore, meet the cooling requirements of the power plant during the period of shut down of the canal. At the time of approval of the Ramagundam Project various alternatives were considered for the cooling water system and provision of a balancing reservoir with an associated canal was found to be the most viable alternative. The total length of the earthen dam itself to be constructed for this purpose was stated to be about 8.5 Km. The land requirements for the Ramagundam Project, excluding requirements of the balancing reservoir and canal, worked out to 4418 acres which was almost the same as the land required for other STPPs of NTPC. The 9500 acres of land acquired so far at this project included 4722 acres of private land and 4778 acres of Government land. The Committee were informed that the total cost of the Balancing Reservoir including the Power Canal would be of the order of Rs. 20 crores.

2.43 In the case of transmission lines, the increase in cost estimates was 135% and 105% respectively for lines associated with stage I of Ramagundam and Farakka. Out of these the increase due to change in scope was to the extent of 96% and 74% respectively. Asked to state the reasons for such substantial changes in the scope of the projects, the CMD stated that the decision to entrust the ownership and control of the entire 400 KV transmission lines and sub-stations in the Southern region to NTPC led to a major change in scope of the transmission system. The sub-station at Durgapur associated with the Farakka Project was also now to be constructed by NTPC.

2.44 The Committee enquired from the Secretary, Department of Power as to when the decision to enlarge the scope of transmission system was taken, and what was the extent of change in scope. The witness informed that the decision was taken in July, 1981. Originally 1440 cct. km. of transmission lines were approved. This was increased to 2040 cct. km.

2.45 Asked to state how the customs duty affected the original cost estimates, the Company stated in a note that the initial project costs except in the case of Rihand, were based on prevailing prices for indigenous equipment. However, in some of the cases, where equipment had to be imported by NTPC on account of international competitive bidding for World Bank aided projects or other financial tie ups, customs duty had to be paid on these imports and this duty element contributed to an increase in project costs. The impact of customs duty had been particularly significant in the

case of Ramagundam 1100 MW project, wherein the turbine, generator, boilers and some other equipments were of foreign make. The total customs duty to be paid on the imported equipment was estimated to be of the order of Rs. 74.40 crores.

2.46 Elucidating further, the Chairman and Managnig Director, NTPC informed the Committee in evidence that it was the policy of the World Bank that for every equipment which it was financing, NTPC had to go in for international competitive bidding.

Among the bids received from all the international parties including the Indian parties only 15% price preference could be given to the internal bidders. On a query whether the customs duty was not taken into account for comparing the foreign bids with the internal ones, the witness replied in the negative and stated that the foreign bids had to be compared on c.i.f. basis with the ex-works price of internal bids. He also informed the Committee that NTPC was pleading with the Government that it should be exempted from the payment of customs duty.

2.47 The total estimated cost of plant and equipment for NTPC projects was Rs. 5679 crores. The Committee desired to know the value of equipment which had to be imported on account of aid, financial tie-ups etc. NTPC informed the Committee in a note that it was receiving financial assistance from several international agencies namely the World Bank, OPEC Special Fund, KFW (West German Government) and the Governments of U.K. and USSR. The value of equipment contracts awarded to foreign parties from these credits upto end March, 1983 was Rs. 940.89 crores. In the case of contracts finalised under World Bank credits, the value of imports was approximately Rs. 183 crores out of a total of Rs. 1229 crores worth of contracts finalised under these credits. For the setting up of Rihand and Vindhyachal Projects, agreements had been entered into with Governments of U.K. and USSR respectively. As per these agreements, NTPC had to necessarily import equipment worth Rs. 394.24 crores and Rs. 301.35 crores respectively for these projects.

2.48 Asked to state the additional expenditure incurred in importing the equipments compared to the price of similar indigenous equipment, the company stated that the additional expenditure was mainly on account of customs duty. For equipment imports finalised upto end March 1983 under World Bank Credits, the customs duty payable was estimated to be around Rs. 99 crores. For the Rihand and Vindhyachal projects, the prices of equipment to be imported from UK and USSR respectively, were generally comparable with prices of similar indigenous equipments. The additional expenditure burden would, therefore, be limited to the customs duty which was estimated to be Rs. 236.4 crores for Rihand project and Rs. 130.6 crores for Vindhyachal project.

2.49 On being enquired about the action taken by Government on the request of NTPC for exemption of customs duty on equipment which it was obliged to import on account of financial tie-ups with other countries or World Bank, the Secretary, Department of Power stated in evidence :

> "We have strongly supported the idea that we should not have customs duty on imported equipment because of the cascading effect, but the Ministry of Finance is looking at it from the revenue angle."

2.50 Subsequently the Department stated in a note that in case of equipment imported through World Bank Credit, no sales tax or excise duty was payable by NTPC. Further the indigenous bidders were given a 15 per cent price preference over their foreign competitors. These factors would offset to some extent the additional expenditure on account of customs duty for import through World Bank Credit. Customs duty was not a net outgo from the country.

2.51 According to the Annual Report of BHEL for 1981-82, the outlook for loading plant facilities beyond 1984-85 for power generating equipment was not satisfactory. The overall capacity utilisation during 1985-86 to 1993-94 was likely to be around 50%. The Study Group of the Committee were informed in June, 1983 during their tour to BHEL, Hardwar that quality-wise BHEL products were quite competitive. But because of a general recession in the world foreign manufacturers were trying to palm off their products by offering all sorts of inducements including arrangement of easy credit from their national Government agencies. This put BHEL at a disadvantage.

2.52 The Committee enquired from the Secretary, Department of Power in evidence about the number of cases in which the BHEL had bid against global tenders and in how many cases its tenders were rejected. The witness informed that in the case of tenders upto Rs. 5 crores, BHEL lost 38 out of 54 tenders in which it participated. In the case of tenders between Rs. 5 crores and Rs. 10 crores, its participated in 5 tenders and lost 2. But out of 12 tenders each above Rs. 10 crores, BHEL lost only 2 tenders. He added :

> 'The international power equipment manufacturers have nearly 100,000 MW capacity available, I understand and so, they are dumping. It we have a very competitive bidding situation, we may find BHEL not being able to bid at all.. Recently we had a discussion and we have decided that we will have a committee with which the CEA Chairman is to be associated. Of late, I am told that BHEL prices are getting a little out of line and we have to see what goes into their costs and why they are putting the prices so high. We will find a way out."

He also agreed that if BHEL was under-utilised, its costs might become still higher.

2.53 On the question of increasing the 15% price preference being given to internal bidders, the witness stated that this was decided in the early seventies after a lot of persuation with the IBRD.

2.54 The Committee enquired whether the BHEL and the administrative Ministry concerned were consulted at the time of negotiating foreign credit for NTPC. The Secretary stated that BHEL and administrative Ministry (Heavy Industry) were consulted at the time of negotiating foreign credits. They did object that we should not import this equipment.. But for overall resources consideration it had to be agreed to.

2.55 The Committee enquired whether approval of Govt. to the revised estimates in all cases had been obtained. They were informed that out of 17, revised approval has been obtained in 6 cases *viz* first stages of

Singrauli, Korba and Ramagundam and their transmission lines. The Committee desired to know as to why approval for revised cost was not obtained in other cases. The Department of Power in a note stated that the revised estimates for Singrauli Stage II Project and Farakka Stage I Project were received in December 1982 and were calculated to the scrutinising agencies for appraisal. The suggestions given by the scrutinising agencies, including Ministry of Finance were being incorporated in the updated cost estimates of the Projects by N.T.P.C. In regard to other projects, the representative of NTPC informed the Committee in evidence that they were in the process of preparing the revised estimates (for submission to Govt.)

2.56 On being enquired about the time taken by Government in approval of the revised estimates for the 6 projects, the Department of Power furnished the following information :—

Project	Date of Submission by NTPC.	Date of approval by Govt.
1. Singrauli Stage-I	Feb., 80	Jan., 81
2. Singrauli Trans. Line Stage-I	June, 81	Nov., 82
3. Korba Stage-I	Jan., 80	Jan., 81
4. Korba Trans. Line Stage-I	Jan., 80	Jan., 81
5. Ramagundam Stage-I	April, 81	Sept., 83
6. Ramagundam Trans. Line Stage-I	April, 81	Sept., 83

The estimates in respect of Ramagundam Stage I and the associated transmission lines were stated to be again revised in April, 1982 on the suggestion of scrutinising agencies.

2.57 The Committee note that as against the original estimated cost of Rs. 4855.01 crores for generation projects, the latest revised cost was Rs. 6630.66 crores representing an increase of 36%. Similarly in the case of transmission lines the estimated cost has gone up from Rs. 738.97 crores to Rs. 979.28 crores i.e. an increase of 32%. The escalations have varied from 27% to 91% in the case of 9 generation projects and 6% to 135% in the case of 8 transmission lines. Apart from the price increase, the main reasons for the cost escalations were stated to be change in scope and payment of customs duty on import of equipment on account of international competitive bidding for World Bank aided projects or bilateral agreement with other countries.

2.58 The total value of equipment contracts awarded to foreign parties upto the end of March, 1983 was Rs. 940.89 crores, out of which value of equipment which had to be necessarily imported against bilateral financial arrangements with the U.K. and USSR Governments amounted to Rs. 695.59 crores. The customs duty payable on these imports amounted to Rs. 417 crores. While on the one hand this resulted in additional capital cost to NTPC, there was no gain to the economy as the price of equipment imported was not lower than the prices of similar indigenous equipment. The Committee, therefore, desire that the Government should avoid as far as possible entering into bilateral agreements with foreign countries involving necessarily the import from them of equipment which are available within the country at comparative prices.

2.59 The import of equipment not only resulted in increased capital cost for NTPC but also affected the capacity utilisation of indigenous

producers of power equipment like BHEL for want of adequate orders. The overall capacity utilisation of BHEL during 1985-86 to 1993-94 was likely to be around 50% only. It has been stated that even in the case of World Bank aided projects, in spite of 15% price preference on c.i.f. value of imported equipment, BHEL could not secure several orders in global tendering. The factors affecting their cost efficiency should be analysed with a view to taking necessary remedial measures to improve their competitiveness. At the same time, the indigenous industry needs to be protected against unfair international competition. The whole matter, therefore, needs serious consideration by the Government.

2.60 The Committee find that out of 17 projects the revised estimates for 6 projects only have been approved by Government. Even in regard to these projects in two cases (Korba Stage I and its associated Transmission lines), the latest estimates show an increase of more than 10% of the approved cost and would therefore again require the approval of Government. In respect of remaining 11 projects, the final revised estimates are yet to be submitted to Government. The Committee desire that these estimates should be finalised early and the approval of Government obtained. There should be no occasion for the Company to incur expenditure in excess of sanctioned estimates. The Committee also find that the time taken by Government in approval of the revised estimates for the six projects ranged from 11 to 17 months. They desire that approval of Government to the revised estimates in all cases should be given within a reasonable time.

2.61 Incidentally the Committee find that the land acquired for the Ramagundam Super Thermal Power Project was 9500 acres out of which 4722 acres was private land. The land acquired was about double of that in the case of other projects under execution. The need for larger area of land in this case has been sought to be justified on the ground that 5622 acres of additional land was required for construction of a balancing reservoir to ensure continuous supply of cooling water to the power plant. The total length of the earthen dam itself to be constructed for this purpose was about 8.5 Km. The Committee desire that while deciding upon the location of a project the proximity of not only the source of coal but also of water supply required for cooling purposes should be kept in view in order to avoid unnecessary acquisition of private land resulting in avoidable displacement of public and undue inflation of capital expenditure on the project.

CHAPTER III

GENERATION OF POWER

A. *NTPC Owned Units*

3.1 The Central Electricity Authority has laid down the norm of plant load factor as 61% in stabilised operation for 100 MW units and 57% after one year for 200/210 MW units. NTPC has set an objective of operating its generating units at a plant load factor of about 62.8%. The plant load factor of the 6 NTPC units of 200 MW each from the dates these started commercial operation was as under :—

Station	Unit No.	PLF		
		1982-83	1983-84	Period unit under commercial operation during 1983-84 (months).
Singrauli . . .	I	67·40	76·3	12
	II	44·12	39·8	12
	III	—	51·4	8
	IV	—	92·7	2
Korba . . .	I	—	67·3	8
	II	—	61·1	2
Ramagundam . .	I	—	68·8	1

3.2 The Committee desired to know the reasons for the plant load factor being lower than targetted in Units II and III at Singrauli and Unit II at Korba. NTPC stated in a note that the PLF at Korba Unit II and Singrauli Unit III were well above the CEA norms which were 28.5% for the first six months and 46% for the next six months of operation.

3.3 In regard to Unit II at Singrauli, the Director (Technical) stated in evidence that this Unit had been under repair because of the failure caused by hydrogen leakage in the generator. Subsequently, the Committee were informed in a note that the unit was shut down for a total period of nearly six months during 1983-84. This problem was stated to have occurred in some other Units in the country as well. Asked to state by whom the generator was supplied, the Secretary, Department of Power stated in evidence :—

> "The generator was supplied by the BHEL. It has been replaced and the cost has to be borne by the BHEL, but the loss of production of power during that period has to be borne by the NTPC."

3.4 In reply to a query by the Committee, the Chairman and Managing Director, NTPC stated in evidence that BHEL has also supplied generating sets for Korba and Farakka. When the Committee desired to know whether defects were noticed in equipment supplied by BHEL in other cases also, the Secretary, Department of Power stated that out of about 30 plants of

210 MW capacity now in operation, 15 were out of commission at one time or other. On being enquired whether the matter had been brought to the notice of BHEL, the witness stated :—

> "BHEL....admits that it is because of design defect and also the lack of experience in quality....Unfortunately, the power sector is paying the price for indigenisation and self-reliance which I don't think we should regret....There is no immediate miracle solution. As long as we have to depend on the BHEL and because they are in the process of learning we have to live with it....Recently, there have been a number of seminars organised by BHEL in which this problem has been discussed. One view is that BHEL is a monopoly which knows that it will get orders whether we like or not. The Chairman of CEA and BHEL are making a number of efforts. A continuous inter-action is taking place. The recent meetings are a continuation of the meetings of the last 2 or 3 years in which BHEL has come into closer contact with its customers....The Chairman (BHEL), myself and our experts have gone into each case. I think BHEL can come upto the international level in respect of its quality. We have tried to make a number of suggestions. In the next one or two years, if we follow them, I think, some improvement could be made. Over the next few years, I think, we can sort it out."

3.5 Subsequently, the Department of Power stated in a note furnished after evidence that Task Forces and roving teams had been set up in the CEA which visited thermal stations of various State Electricity Boards and NTPC and wherever necessary took up the matter regarding performance of generating units with BHEL so that improvement in generation could be achieved. In this connection, the Committee were informed by the CMD, NTPC in evidence that certain modifications had been carried out by BHEL in the 200 MW sets installed later, on the basis of feed backs given from the earlier sets, and their performance was better.

3.6 The Secretary, Department of Power also expressed the view that the power sector should have its own maintenance organisation and repair workshops which was the practice in other countries also. In the Soviet Union, where power was generated in the central and State owned undertakings as in India, they had a repair workshop with every 10 to 20 thousand megawatt capacity, which took care of the problems as and when they arose.

3.7 The Committee find that the plant load factor in respect of seven units ranged from 39.8% to 92.7% from the dates these started commercial operation as against the objective of 62.8% set by the company. The performance of unit II at Singrauli which went into commercial operation in February, 1983 had not been satisfactory. The plant load factor of this unit in 1983-84 was only 39.8%. The poor performance of this unit was attributed to the problem caused by hydrogen leakage in the generator due to which the unit had to be shut down for nearly six months during the year resulting in heavy loss of power. The Committee have been informed that the generator has since been replaced by BHEL and there has been improvement in performance of the unit. They hope that the unit would now work satisfactorily.

3.8 The Committee have been informed that there had been design defects in the power equipment supplied by BHEL. But as a result of certain design modifications carried out by the Company, the performance of the equipment is stated to have improved. They would however, stress the need for stricter quality control in the manufacture of power equipment by BHEL to bring it upto the international standards. At the same time there should be continuous interaction between the power generating agencies and BHEL so that the feed-back from the generating sets in operation is transmitted speedily to BHEL for information and taking corrective measures in the sets to be manufactured in future. The Committee would also stress the need for adopting proper operating practices and standard of maintenance of equipment to ensure better performance of the plants.

B. *Badarpur Thermal Power Station*

Background

3.9 The Badarpur Thermal Power Project taken up for construction in 1967 was projected for implementation in three stages made up of 3 units of 100 MW in Stage I and one unit each of 210 MW in Stage II and III. Initially the responsibility of its execution was given to Badarpur Thermal Project Construction Organisation with its overall control and management vested in the Badarpur Thermal Power Project Control Board. From 1st April, 1978 the management of the BTPS has been assigned on agency basis to the NTPC. At that time three units of the first stage had been commissioned. Subsequently Stage II was commissioned in December, 1978 and Stage III in December, 1981.

Plant Load Factor

3.10 The plant load factor of Badarpur Thermal Power Station during the last five years was as given below :—

	PLF in percent					
	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84
Stage—I (3×100 MW)	40·0	48·0	49·0	52·0	53·7	49·9
Stage—II (210 MW)		14	42·0	46·0	47·1	39·9
Stage—III (210 MW)	—	—	—	—	43·7	55·6

The norms of PLF laid down by the Central Electricity Authority were stated to be 61% in stabilised operation for the 100 MW units and 57% after one year for 200/210 MW units.

3.11 The Committee desired to know the reasons for NTPC not being able to achieve plant load factor upto CEA norms in Stage I even after 5 years of its take over. The Chairman & Managing Director of NTPC informed in evidence as follows :—

> "What is happening in these units is that they are not able to give full 100 MW each. Their generation is restricted to about 80-90 MW."

3.12 In this connection, the Committee were informed by the Company in a note that the 3X100 MW units comprising the first stage of Badarpur were among the first such sets designed and manufactured by BHEL and had been in operation since 1973, 1974 and 1975 respectively. During the course of operation, a number of design and manufacturing defects were observed in these units. The major problems affecting the performance were identified in the form of a report prepared by the Badarpur Management in September, 1977 entitled "Performance of Indigenous Equipments supplied by BHEL and ILK". The Ministry of Energy and others concerned were appraised of these problems, the major among which were :—

(i) Frequent Boiler Tube failures;

(ii) Problems in Boiler Auxiliaries including ID fans, PA fans, FD fans;

(iii) Problems in Turbine Auxiliaries;

(iv) Leakages of H.P. Valves/Drum gauge glasses, etc.

(v) Burners wearing out and leaking after short duration.

Modifications/renovation

3.13 Based on the problems identified in the report, the Central Electricity Authority were asked by the Ministry of Energy to identify the areas needing renovation. The CEA after involving BHEL and Instrumentation Ltd., Kota identified the following major modifications for implementation :—

(i) Replacement of Economiser;

(ii) Replacement of convection superheater;

(iii) Replacement of Air Pre-heaters;

(iv) Replacement of High Pressure valves.

3.14 On being enquired as to when the renovation scheme was approved, the Chairman & Managing Director of NTPC informed the Committee in evidence that the scheme was approved by the Central Electricity Authority at the end of October, 1977. On the question of the progress made so far in effecting the modifications, the NTPC stated in a note (August 1983) that the replacements of the Economiser, the convection superheater and the Air Pre-heaters had already been carried out on Unit-II. The procurement action for high pressure valves, which were earlier to be supplied by BHEL, has now been taken up on a global tender basis. Certain other minor modifications had been carried out on all the three units.

3.15 Asked whether Unit-II could now be taken on full rated load, the CMD, NTPC stated in evidence as follows :—

> "..... first of all, we did renovation work in Unit-II and completed it. But, later on we found that the new economiser does not have enough heat transfer capacity due to which, although the Unit is now operating much more satisfactorily than the other two units, its total generating capacity is limited to about 90 MW. This matter has been referred to BHEL. They have come up with further modifications in the economisers which we shall do in the next planned maintenance."

3.16 The Committee desired to know the reasons for the economiser not coming upto the mark even after carrying out modifications as suggested by BHEL itself. The witness stated as follows :—

> ".....when they suggested a modified economiser, some theoretical calculations were done by them and they imported these (modified) economisers..of a different design. This was installed here. But after installation, it was found that keeping in view the quality of coal that we are getting, certain further modifications—not very major ones—were to be done. Apart from a shut down, some more tubes were to be put on the economiser. Our theoretical calculation has got to be proved in practice. This is what has happened.

3.17 On being enquired whether any time schedule was laid down for completion of the scheme, the CMD informed the Committee that there was no specific schedule of completion of work because the completion of the work required long shut-downs of each of the three units of Stage I. In this connection, the Department of Power stated in a note that lack of firm delivery schedules of equipment necessary for renovation made it difficult for a firm renovation programme to be drawn up and implemented. However, the renovation scheme was now expected to be completed on all the three units by early next year (1985).

3.18 Asked to state the reasons for such a long delay in completing the renovation scheme, the witness stated that the running of Badarpur Thermal Power Station had to be matched with the power supply requirements of Delhi and, therefore, whenever there was a long shut down of a unit for carrying out major renovation work, it had to be seen that other units were available to meet the power supply requirements. Shutting down of all the three units at a time could not be afforded because things would come to be a stand-still then. The modifications had to be carried out piecemeal and not in one long shut down. Besides, it was felt that one of the units should be renovated first and its performance should be watched in order to carry out any further modifications deemed necessary so that when renovation of the other two units was taken up, the required modifications could be carried out at one go. So, it was decided to complete the renovation of Unit II, assess its performance and then carry out exactly identical modifications in Units I and III.

3.19 In reply to a question about the cost of the renovation scheme, the CMD informed the Committee in evidence that the estimated cost of the scheme was Rs. 4 crores out of which Rs. 3.26 crores had already been incurred. On being enquired whether, due to the delay in completion of the scheme, any increase in cost of the scheme was expected, the witness stated :—

> "We expect that we can complete the work within the estimated cost because we have got all the materials with us to carry out the renovation work. We do not expect any major variation of this estimate of Rs. 4 crores."

3.20 The Committee desired to know as to why the commissioning of Stages II and III of BTPS could not facilitate shutting down of Stage I units for expeditious completion of the renovation scheme. The Chairman &

Managing Director informed that Stages II and III comprising of one unit of 210 MW each had also not been working very stable due to which long shut-downs were required. The witness added :—

> "In Unit No. V, last year we had a problem with the generator windings which had to be replaced by BHEL. The BHEL agreed that this was due to manufacturing defect. As regards unit No. IV also, we had problem with the turbine. Therefore, we had to have a long shut-down.....Once a major breakdown takes place, it becomes very difficult to get shut down of the remaining units."

3.2.1 Subsequently, the Committee were informed in a note furnished by NTPC after evidence that the performance of unit IV was adversely affected during 1983-84 also and it had to be shut down for nearly 5 months on account of bent rotor.

Maintenance of Plant and Equipment

3.22 The Committee desired to know the system of maintenance of plant and machinery in NTPC. The company stated in a note that it has developed maintenance systems for plant and machinery at its operating stations with the objective of (i) maximising availability of generating units (ii) ensuring optimum level of maintenance cost (iii) ensuring safety during operation and (iv) meeting statutory requirements wherever applicable.

3.23 The figures of number and duration of outages as percentage of total available hours during the last 5 years at Badarpur Thermal Power Station were as under :—

	1978-79	1979-80	1980-81	1981-82	1982-83
Stage I					
Number . .	199	260	183	261	198
Duration . .	42·7%	31·2%	30·8%	21·7%	19·6%
Stage II					
Number . .	—	116	117	112	106
Duration . .	—	60·7%	29·5%	30·8%	30·1%
Stage III					
Number . .					90
Duration . .					35·5%

3.24 On being enquired whether in view of the large number of outages, the maintenance system could be said to be satisfactory, the Chairman and Managing Director, NTPC stated in evidence :—

> "In Badarpur, we are faced with higher incidence of break-downs primarily because of bad quality of coal....Wear and tear that is taken place here is also more."

3.25 In this connection, the Committee pointed out that the Public Accounts Committee in their 82nd Report (1981-82) had observed that "overhauling and maintenance of the plant and equipment at Badarpur Thermal Power Station has not been carried out as per prescribed time schedule. They have no doubt that this delay has contributed to the frequent trippings in the power station and reduced generation. The Committee

would like to point out that the postponement of overhauling of equipment to meet immediate demand is a shortsighted policy as it may cause serious damage to equipment resulting in closure of power station for long periods and higher forced outages." Upon this, the witness admitted that :—

> "The Badarpur Power Station plus the Indraprastha Power Station of DESU meet the requirements of Delhi's power supply. It is a fact that the maintenance sometimes gets delayed because of the power situation in Delhi and we have to obtain the permission of the Northern Region Electricity Board before we can take up the plan maintenance. Lately, we have been able to persuade the NREB and the Ministry of Energy to give shut down according to our requirements."

3.26 The Committee asked the Secretary, Department of Power, whether the non-maintenance of the plant according to schedule which resulted in more loss of power in the long run was a sound policy. The witness replied as follows :—

> "This is because they (Northern Region Electricity Board) have to take into account the total availability..... If adequate power is not available, they may have to request a particular unit to delay its maintenance. Of course, I agree that this is not good."

3.27 In this connection, the company stated in a note that system of tripping analysis has been introduced at BTPS which goes into the details of each tripping, identifying its cause and suggesting remedies. A separate Maintenance Planning section has also been set up to reduce the time of different outages and overhauls.

Ownership of BTPS

3.28 The construction and operation of Badarpur Thermal Power Project and Station was entrusted on agency basis to NTPC pending formal transfer of ownership. The agreement for management provided for payment to NTPC of a management fee calculated at 1/8% of the net annual sale proceeds of energy (excluding-excise duty) subject to a ceiling of Rs. 5 lakhs per year. In case of generation profits, NTPC was also entitled to a share of 10% of the net annual profit so earned, after adjusting for depreciation and interest.

3.29 The Committee desired to know the amount received by the NTPC by way of share of profit or management fee in respect of Badarpur Thermal Power Station during the year 1978-79 to 1982-83. The Director (Finance) of NTPC stated that Badarpur Station did not generate any profit during these years. The management fee received by NTPC was Rs. 2.26 lakhs during 1978-79, Rs. 3.74 lakhs during 1979-80 and Rs. 5.00 lakhs each during the years 1980-83.

3.30 On a query whether the management fee received by NTPC was commensurate with the efforts put in by the Company for improving the performance of BTPS, the witness stated :—

> "No, Sir.....the management fee was fixed as a consideration for the contract. It does not represent the amount of efforts and the management supervision which we have put in".

3.31 Asked to state as to why the ownership of BTPS was not transferred to NTPC, the Company stated in a note that it was the intention of Department of Power to transfer the Badarpur Thermal Power Station (BTPS) to NTPC. Under Section 282(1) of Delhi Municipal Corporation Act, 1957, however, it was necessary for any agency before establishing or acquiring a new generation station or extending or replacing any major unit of plant or works pertaining to the generation of electricity in a generating station to obtain the permission in writing of the Delhi Municipal Corporation on an application made in this behalf. Since the Delhi Municipal Corporation did not agree for transfer of BTPS to NTPC, it was decided to transfer the management of BTPS to NTPC on an agency basis. The ownership of the BTPS could be transferred to NTPC after Delhi Municipal Corporation agreed to grant the permission for such transfer under Section 282(1) of Delhi Municipal Corporation Act, 1957 or if Section 282(1) of the Act was amended to the extent that such permission was not necessary.

3.32 Asked to state his views on the question of transfer of ownership of BTPS to NTPC, the Secretary, Department of Power stated in evidence as follows :—

> "The present arrangement has been working, by and large, satisfactorily. NTPC has got a reservoir of competent people.....since according to the Act any change will require the consent of the MCD, we are now trying to proceed on the agency arrangement. We will continue with this till the status of DESU is finally decided."

3.33 In reply to Unstarred Question No. 621, the Minister of Energy stated in Lok Sabha on 28 February, 1984 that though MCD/DESU had been requesting for transfer of BTPS, it was not possible to transfer it as this was a Regional Power Station.

3.34 The management of Badarpur Thermal Power Station was assigned to NTPC on agency basis from 1st April, 1978. The Committee find that the performance of the station is still not satisfactory. The plant load factor in 1983-84 for stage. I (3×100 MW) was 49.9% and for Stages II and III (210 MW) 39.9% and 53.6% as against the norms of 61% set by CEA for 100 MW units and 57% for 200 MW units. The main reason for poor performance of Stage-I of BTPS was stated to be some inherent design and manufacturing defects in the equipment supplied by BHEL for Stage-I. A renovation scheme finalised by Central Electricity Authority after involving BHEL and Instrumentation Ltd., Kota and approved as far back as in October, 1977 has, however, not been completed so far even in one out of three units. Surprisingly, no time schedule for the implementation of the scheme was laid down. The Committee have been informed that the renovation was expected to be completed on all the three units by early next year (1985).

3.35 The Committee feel that the renovation scheme could have been completed early had the Units IV and V (Stages II and III) performed well thereby facilitating shut down of units of Stage-I. Unfortunately this was not so. While Unit IV had problem with the turbine etc., the generator windings of Unit V had to be replaced. The Committee need hardly emphasise the desirability of completing the renovation scheme expeditiously in view of the importance of Badarpur Station in supply of power to the capital

and in order to avoid heavier expenditure on repairs and replacement of equipments in the long run. They hope that as assured by the Chairman and Managing Director, NTPC there would be no increase in the cost of the renovation scheme on account of the delay in its completion. The Committee desire that the defects in units IV and V should be rectified early.

3.36 There were a large number of outages in Badarpur Station. During 1982-83, there were 394 outages and the percentage of duration of outages to total available hours was 19.6 in Stage I, 30.1 in Stage II and 35.5 in Stage III. Though the large number of break-downs were attributed primarily to bad quality of coal and wear and tear, it transpired during evidence that the Northern Region Electricity Board had till recently not been giving permission for taking down the units for overhauling according to schedule due to the power supply situation in Delhi.

3.37 The Committee hope that with the setting up of the Maintenance Planning Section, NTPC would undertake planned maintenance as per schedule. The Committee are of the opinion that the postponement of necessary overhauling of equipment resulted in more loss of power in the long run due to heavy outages and was not a sound policy. While agreeing with the observations of the Committee on Public Accounts (1981-82) that postponement of overhauling of equipment may result in greater number of forced outages, which have come out true, this Committee would like the Government to impress upon the Northern Region Electricity Board the necessity of making such arrangements with the electricity producing agencies with whom it has reciprocal agreements for supply of power to Delhi so that the various units of BTPS are allowed to undertake overhauling of equipment at prescribed intervals without adversely affecting the power supply to the Capital City.

3.38 Although the management of Badrarpur Thermal Power Station was entrusted to NTPC on 1st April, 1978 on agency basis pending formal transfer of ownership, no decision has so far been taken on this issue. It was stated that under the Delhi Municipal Corporation Act, 1957 it was necessary to obtain permission of the Corporation for such transfer of ownership. Alternatively, the Act itself would have to be amended to the extent that such permission was not necessary. From the reply to a question given to Lok Sabha, the Committee note that the Government are not inclined to transfer BTPS to the Delhi Municipal Corporation/Delhi Electric Supply Undertaking. The Committee, therefore, urge the Government to take steps to obtain formal approval of the Delhi Municipal Corporation for transfer of ownership of BTPS to the National Thermal Power Corporation or have the necessary amendments made in the Delhi Municipal Corporation Act as may be considered proper. They suggest that expeditious action may be taken in this regard to enable transfer of ownership at an early date which they hope will go a long way in improving the functioning and management of this Thermal Power Station.

C. *Supply of Coal*

3.39 One of the constraints in the better performance of Badarpur Thermal Power Station was stated to be that of coal. The coal supply position remained critical throughout last year (1983), reaching as low

levels as 4-5 days reserve except during November-December, 1983. Be-
levels as 4-5 days reserve except during November-December, 1983. Be-
with consequential increase in maintenance cost and loss of generation and thus hampered the normal functioning of the plant.

3.40 Asked to elucidate, the Chairman and Managing Director, NTPC informed the Committee in evidence that the requirement of coal at Badarpur was 6000 to 7000 tonnes per day. He added :—

> "Badarpur gets coal from 12 collieries of Bharat Coking Coal Ltd. and 3 collieries of Central Coalfields Ltd. . . Quality is not consistent. High and low calorific value coal is there. Lot of shales and rocks are there. . . if the coal supplied contains more ash content and sometimes even stone in abundance, then the power generation goes down, because there are more break-downs in the boiler; its capacity gets limited. It also does not generate enough heat."

3.41 When the Committee desired to know as to how the supply of quality coal to Badarpur Thermal Power Station could be ensured, the witness stated that the number of collieries linked with BTPS should be reduced to 3 or 4 for the supply to be consistent in quality. Besides the coal companies should have a mechanised coal handling plant and screening plant for screening out stones etc. At present this was being done by hand picking.

3.42 Asked to state whether the matter was taken up with the Department of Coal and if so the results thereof, the Secretary, Department of Power stated :

> "They have agreed to reduce the number."

3.43 The Committee desired to know the present arrangement of supply of coal to NTPC power stations. The Department of Power stated in a note furnished after evidence that the price of coal was fixed grade-wise by Government and supplies paid for accordingly. However, the prices of Singareni coal was fixed on a uniform, not gradewise basis. 95% of the payment was released by NTPC on the basis of grade of coal indicated in the railway receipts. The balance 5% payment was regulated/adjusted after assessing the actual quality of coal received. Joint sampling by NTPC and coal suppliers was undertaken at the loading end. Asked to state whether the present arrangement was satisfactory, the Secretary, Department of Power stated in evidence :—

> "It's not to our full satisfaction."

3.44 Asked to state the improvements considered necessary for supply of better quality coal, the Secretary stated that they would prefer to take samples at the power station end in all cases. Only then they would be able to ensure that proper coal was coming. On a query about the reaction of Department of Coal in this regard, the witness stated :—

> "The Coal Department did not reject sampling at the power station end. But they feel it too much of burden to do it on all types of power stations. That is why they say where loading points are more than five or six, it should be done."

3.45 The Committee were informed by the representative of NTPC in evidence that sometimes due to the bad quality of coal, the unloading of

wagons got delayed. On a query whether there were instances where the power station had to pay demurrage, the Secretary, Department of Power stated as follows :—

> "Some cases have been there. We discussed it in the recent meeting. Where the demurrage takes place as a result of delay in unloading due to bad quality of coal, the responsibility should be shifted to the Coal India Ltd. But that is not easily accepted."

3.46 On being enquired as to the arrangements for coordination between the Department of Power and the Department of Coal, the witness informed that a Coal Linkage Committee was there. A number of meetings were also being held with Coal India Ltd. A number of changes had been introduced by Coal India Ltd. However, at the operational level there were some difficulties. The coal supplied contained a lot of abrasive material which affected the power station. The matter had been taken up with the Coal Secretary and the need to have coal handling plants emphasised.

3.47 The Energy Ministry was reportedly working out a package proposal suggesting higher prices for better quality coal and penalty prices for sub-standard coal supplied to thermal power stations. It wanted NTPC to enter into long term payment agreements with the collieries on these lines to improve the quality of coal supplied to its power stations. Asked to state the progress made in this regard, the Chairman and Managing Director, NTPC stated in evidence (September, 1983) as follows :—

> "We discussed this with Coal Department. Settlement is expected on this matter soon. More or less we have finalised long term agreement with Coal India. There are one or two issues which will be settled within a short time....One is what type of incentive is to be given for better quality of coal. The other is about sampling of coal, that is joint sampling at mine mouth itself for determining the rate at which payment will be made."

3.48 In this connection, the Committee were informed by Secretary, Department of Power in evidence as follows :

> "There is no agreement at present.....NTPC has been discussing in detail with Coal India Ltd. and we are hopeful that an agreement will be entered into very soon."

3.49 The Committee on Power (Rajadhyaksha Committee) had suggested that future power stations should be designed to burn high ash coals and made as flexible as possible. On the other hand, the ash content itself could be brought down by setting up beneficiation plants provided the power sector was able to pay a higher price for clean coal. The Committee desired to know the relative economics of the two options—improving the design of boilers vis-a-vis using high priced clean coal. The Chairman and Managing Director and the Director (Technical) of NTPC informed in evidence that beneficiation could be dry type or wet type. The former was yet to be proved adequate for large power stations and the latter according to Coal India Ltd. was very expensive. Therefore, for the new power stations which were being constructed near the coal pit heads and were linked to captive coal mines it was econmical for NTPC to design its boilers to suit the coal of those mines. Boilers were designed

according to the maximum ash content of the linked mine and could take care of wide fluctuations in ash content. It was only in Badarpur where this exercise had not been carried out at initial stage. For the mine-mouth power stations no beneficiation of coal was needed as boilers which could take upto 50% ash content had already been designed by NTPC and were working satisfactorily so far.

3.50 The Coal supply position to Badarpur Station is far from satisfactory. The supply remained critical throughout last year, reaching as low level as 4-5 days reserve except during November-December, 1983. Not only there was problem of quantity but of the quality as well. Badarpur is linked to as many as 15 collieries which gives rise to wide variation in the calorific value of coal received. It also contains a lot of shale and stone resulting in excessive breakdown of the coal handling equipment with consqeuential increase in maintenance cost and loss of generation. Obviously such irregular supply of coal and that too of inferior grade had adversely affected the normal functioning of the plant. The Committee were informed by the Secretary of the Department of Power that the Department of Coal had agreed to reduce the number of collieries linked to Badarpur Power Station. They hope that immediate action would be taken in this regard and the power station would be linked to the minimum number of collieries to ensure supply of coal consistent with the design parameters of its boilers.

3.51 The Committee would also like to observe that in order to ensure continuous supply of power to Delhi and smooth functioning of Badarpur Station it is necessary to keep in reserve stocks of coal sufficient to meet requirements for at least six weeks. The Government Departments and other authorities concerned should make concerted efforts in this direction.

3.52 The Committee find that at present there is no formal agreement between NTPC and coal companies in regard to supply of coal. In order to ensure that the coal supplied to power stations is of the desired quality, it was proposed to enter into long term agreements with the collieries providing for incentive by way of higher prices for better quality coal than contracted for and penalty for lower quality coal. There were however, stated to be certain difficuties in this regard, particularly in regard to joint sampling of coal. While the NTPC preferred to take samples at the power station end in all cases, the Coal Department was not agreeable for joint sampling at the power station end in all cases and would like this to be done at the collieries end. The Committee desire that the points of difference in this regard should be resolved soon and the long term agreements entered into with the collieries for ensuring supply of required quality of coal to the power stations. They would also like to emphasise the need for having time bound programme for installing proper coal handling plants at the mines. The Committee desire that important issues like joint sampling at Power stations or coal mines head, incentives or penalities for quality of coal, setting up of beneficiation Plants etc. should be resolved speedily by the Ministry of Energy in consultation with the parties concerned as on these factors will depend the efficiency of thermal plants in the long run.

D. *Cost of production*

3.53 Standard costs for production of electricity at NTPCs power stations have not so far been fixed. It was stated that this would be done

once sufficient data on actual operating costs after stabilisation were available. However, the tariff for sale of power from Singrauli STPS incorporated in the Memorandum of Undertaking with UPSEB and other SEB's in the Northern Region was based on norms for coal and oil consumption, O&M expenses, depreciation and interest, and worked out to 29.26 paise per kwh after providing for fuel price adjustment without any element of return and excise duty. Against this, the actual cost of production of power during the period the units were under commercial operation at Singrauli during 1982-83 was 29.94 paise per Kwh. During April 1983 to February 1984 the cost of production was 28.06 paise per Kwh at Singrauli and 29.25 paise per kwh at Korba.

3.54 The Committee desired to know how the norms for consumption of various inputs had been fixed. NTPC stated in a note that based on the technical and operating parameters of the equipment furnished by the suppliers, NTPC has worked out the norms for coal consumption. For oil consumption, the Central Electricity Authority (CEA) had fixed certain norms based on the performance of 210 MW units in the country. These norms have been adopted by NTPC. Regarding make-up water consumption, there were no formal norms fixed by the CEA. They have however indicated that the All India average was about 5% of MCR. NTPC has however adopted a norm of 3% during stabilised operation (5% during initial period).

3.55 Asked to state how the actual consumption of these inputs compared with the norms, the company furnished the following information in regard to Singrauli and Korba STPS for the period the units were under commercial operation during April 83 to February 84.

Station			Consumption of inputs		
			Oil	Coal	Make up water
			(ml/kwh	(Kg/Kwh)	%MCR
Singrauli (200 MW units)	*Norms**		15	0·53	3
	Actuals	I	1.5	0.522	3.03
		II	3.86	0.533	6.57
		III	3.41	0.548	4.04
		IV	0·6	0·510	4.79
Kobra (200 MW units)	*Norms**		15	0.731	3
	Actual	I	10.68	0.757	4·52
		II	7.74	0.718	4.35

*Under stabilise doperation

3.56 The Committee noticed that in the case of Korba the cost of Coal included in the energy charge was 7.32 P Kwh whereas it was 9.95 P/Kwh in the case of Singrauli, though the consumption of coal at Korba had been taken to be more (0.666 kg./Kwh) than that at Singrauli (0.62 kg./Kwh). Asked to explain this anomaly, the Chairman and Managing Director, NTPC stated in evidence that the coal received at Korba was classified as grade F (3400 to 4100 Kcal/Kg.). The cost of this grade of coal was Rs. 98.96 per tonne. The coal originally linked to Singrauli was of Grade B (4100 to 4900 Kcal/kg). The cost of this coal was Rs. 144.47 per tonne. The quantity of coal burnt per Kwh of power produced being dependent on the actual calorific value of coal, some sort of an anamolous situation did arise depending upon the actual calorific value of coal received. Getting a better quality of coal did not necessarily give the company any economic benefit as it had to pay heavily for it.

3.57 Subsequently, NTPC informed the Committee in a note furnished after evidence that the consumption of coal at Singrauli and Korba had been based on average gross calorific value of 4400 Kcal/kg. and 3600 Kcal/kg. respectively. Thus while the price of coal in the case of Singrauli was 46% higher than in the case of Korba, the average gross calorific value was only 22% higher.

3.58 On a query as to why the consumption of coal in the case of Singrauli had been taken as 0.62 kg/Kwh when the actual consumption during 1982-83 was 0.53 kg/Kwh, the Secretary, Department of Power stated in evidence :

> "0.53 kg./Kwh of actual coal consumption is really based on quality of coal which we are getting whereas 0.62 kg/kwh is ..... on the basis of the grade of coal envisaged earlier".

3.59 The Department of Power stated in a note that the price of coal should be based on the useful heat value of various grades of coal. On being enquired whether fixing the price of coal in terms of the calorific value of coal had been accepted by Government, the witness stated :

> "The Coal Ministry has not accepted the principle that the price should be based on the calorific value, because they feel it is very difficult for them. In the grade there can be a wide range about the calorific value. They have not accepted it in principle to relating it to the calorific value ..... Strictly speaking they should go on the basis of calorific value, but that will mean a big loss to Coal India ... They say that they are already showing concession to power sector by reducing the price."

3.60 The Committee notice that though the consumption of coal per kwh at Singrauli was less than that at Korba, the cost of coal included in the energy charge was more in the case of former. The reason for this was stated to be that while the price of coal was fixed grade-wise its consumption depended upon the actual calorific value. Thus while the average gross calorific value of coal received at Singrauli was only 22% higher than that at Korba, its price was 46% higher. This gave rise to anomalous position in as much as in spite of the Company getting better quality coal, the cost of coal incurred per unit of power produced was higher. NTPC wants that the price of coal should be based on useful heat value of various grades of coal. The Committee desire that the matter be examined with a view to rationalising the price structure for coal supplied to the power stations.

3.61 The Committee find that as against the norm of 15 ml/Kwh of consumption of oil, the actual consumption in various units ranged from 0.6 to 10.68 ml/Kwh. The norm of oil consumption is stated to have been fixed by CEA based on the performance of 210 MW units in the country. The Committee desire that the norms for various inputs should be periodically reviewed on the basis of the actual performance and the achievable targets fixed so that these norms can actually serve as a yardstick for measuring the operational efficiency.

CHAPTER IV

DISTRIBUTION SYSTEM

A. *Commercial Agreements*

4.1 As per the understanding given to the World Bank by the Government of India and NTPC, the latter was required to enter into commercial agreements with each of beneficiary State Electricity Boards six months prior to commencement of operations. As per this, the agreements between NTPC and the beneficiary States of the Northern Region were to be signed in 1981. However, a Memorandum of Understanding with the UP State Electricity Board based on an interim tariff for supply of power from Singrauli STPS was signed only in July, 1983 which would be operative till 31st March, 1985. Thereafter, similar Memoranda of Understanding have been signed with other beneficiary States of Power from Singrauli (Punjab, Haryana, Rajasthan and DESU) and the beneficiary States of Power from Korba (Gujarat, Maharashtra, Madhya Pradesh and Goa). These memoranda are stated to have been signed as an interim arrangement so as to gain experience of integrated operation of Central Sector Power Stations for a year or two after which regular multiparty commercial agreements would be entered into.

4.2 Asked to state the reasons for not entering into agreements so far with the State Electricity Boards, the Chairman and Managing Director, NTPC stated in evidence that the Company prepared a draft agreement in April, 1978 and submitted it to the Government. The clearance to the draft agreement from the Ministry was received in October, 1981. After this, it was forwarded to the State Governments for comments who raised a number of issues.

4.3 In this connection, the Department of Power stated in a note that the unusually long time taken in the finalisation of the draft agreement was necessitated by the fact that such an agreement was the first of its kind and required detailed examination of all its implications so as to be acceptable to State Governments/SEB. The intention also was that it should be workable arrangement. The draft agreement was circulated by NTPC to all concerned in April, 1978. It was examined in the CEA in detail and certain suggestions were made in July, 1978. A revised draft submitted by NTPC in October, 1978, was again examined by CEA from the financial angle and in December, 1979, the Department of Power organised a meeting to consider the draft agreement and it was decided that Member (E&C), CEA, and Director (Finance), NTPC, would examine the merits of various alternative tariff principles and prepare a note for consideration. The three alternatives proposed by Member (E&C) in this regard were discussed in a meeting held in the Department of Power in January, 1980. A revised agreement submitted by NTPC in May, 1981 after consultation with CEA was discussed in the Department in September, 1981 when some modifications were suggested. Accordingly, the draft was further modified and circulated to the beneficiary SEBs in October, 1981.

4.4 The Committee desired to know the points raised by the State Electricity Boards. NTPC informed in a note that the issues raised were with regard to the operation and maintenance expanses, return on capital,

transmission losses, and wheeling charges. Some States also asked NTPC to give a firm commitment regarding delivery of power in case they were required to pay commitment charges. The Memorandum of Understanding entered into now provides for a flat energy charge. The beneficiary SEBs have however accepted in principle a two-part tariff for NTPC projects a fixed commitment charge and a variable energy charge. The fixed Commitment charge and a variable energy charge. The fixed Commitment charge consists of 75% of the fixed cost and will be recoverable in proportion to the allocated capacity for a generation level of 5,000 Kwh per KW per annum and above. The variable energy charge consists of 25% of the fixed cost and the variable cost and will be recoverable on the basis of the energy received by the States. Agreement has also been reached with regard to the wheeling charges, transmission losses and the mode of ensuring supply of allocated shares of other beneficiary States.

4.5 One of the main objections of the State Electricity Boards was in regard to rate of return on equity allowed to NTPC. When the Committee desired to know the specific objections of the SEBs and whether any agreement has been reached in this regard, the Company stated in a note that "no agreement has been reached with regard to the rate of return on equity." The Venkataraman Committee recommended a return of 9.5% on the capital base of State Electricity Boards, made of interest charges of 6%, net profit of 3% and general reserve of 0.5%. In the case of NTPC the Government directive dated 19-12-82 required the Company to fix its tariff after allowing for a return of 12% on equity and the prevailing rate of interest on loan capital. While agreeing to interest at the prevailing rate (presently 12.5% per annum) on the average loan capital as outstanding from year to year, UPSEB have taken the stand that as per the minutes of the meeting held in December, 1976 in Ministry of Energy with the Beneficiary States to decide the allocation of capacity and principles for formulation of tariff for supply of power from Singrauli station, the tariff would be based on a return of 10% on the total capital employed (equity and loan). This question was stated to be under consideration with the Government since February, 1983. After the Government decision on this issue was received, the matter would need to be further discussed with the Beneficiary States.

4.6 When the Committee enquired from the Secretary, Department of Power about the Government's views on this issue, he stated in evidence :—

> "In the case of NTPC we are committed to a return of 12% on the equity because that is the rate of return which the external financing institutions expect. On the other hand, the State Governments want a lower return. The matter is with the Planning Commission."

4.7 On a query regarding the interim tariff fixed in the Memorandum of Understanding, NTPC stated in a note that the provisions for return on equity as well as the interest on loan capital have been made at the rate of 10% in view of UPSEB's insistence on adopting a return of 10% on the total capital employed (equity and loan).

4.8 The Committee desired to know the position in respect of power from Ramagundam. They were informed by NTPC that the draft agreement for supply of power from Ramagundam STPP was circulated to the beneficiary States in the Southern Region in May, 1983. The process of negotiations with the beneficiaries has commenced .

4.9 As per the understanding given to the World Bank, NTPC was required to enter into commercial agreements with each of beneficiary State Electricity Boards six months prior to commencement of operations. As per this the agreements between NTPC and beneficiary States of the Northern Region were to be signed in 1981. No formal agreements have, however, been entered into with the beneficiary States so far. Admittedly, the finalisation of these agreements has taken an unusually long time. Recently Memoranda of Understanding have been entered into with the beneficiary States of power from Singrauli and Korba STPS as an interim arrangement. Regular multiparty agreements are contemplated to be entered into after gaining experience of integrated operation of Central Sector Power Stations. The Committee hope that this would meet the requirements of the World Bank.

4.10 The Committee find that one of the main issues concerning the commercial agreements viz. the rate of return to be allowed to NTPC still remains unresolved. While the Government directive of December, 1982 required NTPC to fix its tariff after allowing for a return of 12% on equity, the States insist that the tariff should be based on a return of 10% on the total capital employed (equity and loan) as agreed to in the meeting held in December, 1976 to decide the principles for formulation of tariff. The Government stand is that a return of 12% on equity was fixed as this was the rate of return which the external financing institutions expected. The Committee desire that this issue should be resolved early.

4.11 The Memorandum of Understanding for the present provides for a flat energy charge. The beneficiary SEBs have however, accepted in principle fixation of tariff in two parts, a fixed commitment charge and a variable charge. The fixed commitment charge consisting of 75% of the fixed cost will be recoverable in proportion to the allocated capacity. The variable energy charge consisting of 25% of the fixed cost and the variable cost will be recoverable on the basis of the energy receivd by the States. The Committee had been informed that certain States had asked NTPC to give a firm commitment regarding delivery of power in case they were required to pay commitment charges. This according to the Committee seems to be a reasonable demand. The Committee, therefore, desire that the feasibility of working out an overall rate covering both fixed and variable costs should be examined. The Government should also consider the question of having uniform tariff rate for power produced at different Super Thermal Power Stations of NTPC to facilitate inter-regional transfer of power.

B. *Supply of power to Central Undertakings*

4.12 85% of the capacity of the NTPS's Super Thermal Power Stations is allocated among the beneficiary states and 15% is set apart at the disposal of the Central Government to meet emergency requirements of individual states from time to time. The Committee had come across cases where the Central Government Undertakings had not been supplied the committed power by the State Governments. For instance, the Bharat Aluminium Co. Ltd. which is very near to Korba Super Thermal Power Station of NTPC could not get adequate power for its plant from Madhya Pradesh Government.

4.13 As per the constitutional provision 'Electricity' is a concurrent subject. The amendment in 1976 of Electricity (Supply) Act, 1948—a Central Legislation—has enabled the setting up of generating companies in the

Central sector. However, the responsibility for distribution of power still vests in the State Electricity Boards. In this background, the Committee desired to know whether it was possible for the NTPC to supply power direct to Central Government Undertakings wherever it became necessary on account of failure of the concerned State Governments to provide power to them as per their earlier commitment. The Chairman and Managing Director, NTPC stated in evidence as follows :—

> "We don't supply power directly to any industry, whether it is a central sector industry or any industry. We supply power in bulk to the State Electricity Boards and they in turn supply to the industries within their own States. So, we have no mandate to supply power to any industry directly....there are a large number of central sector, public sector undertakings apart from BALCO. There are steel, there are other aluminium industries, there are fertilisers and other industries...It is not possible for us to supply power direct to all those industries, unless we construct direct transmission lines, which will be very costly. In the case of BALCO which is very close, it is physically possible to supply it. If Government directs us to supply power directly to BALCO, we shall certainly do so."

4.14 Subsequently the Committee were informed by NTPC in a note furnished after evidence that if the Government of India authorised the NTPC to supply power directly to any Central Government undertakings located in proximity of an NTPC power station, there would be no technical difficulty in complying with the directive. In such a case the best alternative would be to make a capacity allocation from the generating station to the concerned undertaking on the basis of proportionate cost sharing by that undertaking. They would also have to meet the full cost of the transmission line and sub-station required for supply of power to them. On being enquired whether Government have considered the desirability of amending the Electricity (Supply) Act to enable NTPC and other central power undertakings to supply power direct to central undertakings in States wherever necessary and possible, the Secretary, Department of Power stated in evidence as follows :—

> "We have to ensure that central thermal power generation should become available to certain central undertakings on priority... we can do it much more effectively if, while generating power, we can transmit power directly, if possible.. we cannot say that it should become available to every single unit because in that case, it becomes very difficult to administer it. The difficulty arises when these industries are widely dispersed. Then we may not be able to transfer power. The suggestion that has been made in welcome to us. We intend to proceed further in respect of units in the proximity of the central power system. We would prefer to add to the central capacity instead of the units setting up their captive power station... even to put up captive power...the unit has to be given money by Government....This is our general view. If the Electricity Act has to be amended for this purpose, we should not hesitate to amend it..For power intensive industry there must be some linkage to a power generation station as is done in the case of collieries in DVC areas. It should be the first charge. Otherwise, it is much better to incorporate the total captive capacity, into our power planning."

4.15 On the question of supplying power from Korba Super Thermal Power Station to BALCO on a priority basis, the witness stated "this point

I have already taken up with NTPC. From the existing 210 MW we can give some to BALCO so that it can run better."

4.16 Subsequently the Committee were informed by the Ministry of Steel and Mines (Department of Mines) that a tripartite agreement between NTPC, BALCO and MPEB was being entered into for making available additional power to the extent of 30 MW from February and 45 MW from September, 1984 to BALCO from Korba STPS through the existing Korba (West)—BALCO transmission line. This power to be allocated through MPEB would be in addition to the share of MP from Korba STPS.

4.17 As per the constitutional provisions 'Electricity' is a concurrent subject. Though the amendment in 1976 of Electricity (Supply) Act, 1948 has enabled the setting up of generating companies in the Central Sector the responsibility for distribution of power still vests in the State Electricity Boards. The Committee have come across cases where in spite of the fact that the States were getting power from Super power stations set up by the Centre, the Central Government Undertakings have not been supplied the power committed by the State Governments. For instance, Bharat Aluminium Company which is very near to Korba Super Thermal Power Station of N.T.P.C. could not get adequate power for its plant from Madhya Pradesh Government. The shortage of power results in huge loss of production with its all consequences. The Committee, therefore, desire that wherever necessary and feasible, power should be made available to Central Undertakings on priority basis from the 15% share set apart at the disposal of Central Government out of power generated at the Super Thermal Power Stations of N.T.P.C. For this purpose, tripartite agreements could be entered into between N.T.P.C., the concerned undertakings and the State Electricity Boards as is being done in the case of Bharat Aluminium Co. Ltd. If found necessary, the Government should consider the question of amending the Electricity (Supply) Act to empower the Central power generating companies to supply power direct to Central undertakings whenever situation demands so.

4.18 The Committee also find that various Public Undertakings have been allowed to set up their own or are demanding captive power plants to meet their power requirements. They would like the Government to examine the possibility of creating additional capacities at their Super Power Stations to meet the requirements of Central Undertakings from such stations wherever it is physically possible and economical to supply power direct to them, before allowing them to set up captive power plants.

C. *Outstandings*

4.19 The total outstandings due to NTPC as on 31st March, 1983 were Rs. 177.53 crores comprising Rs. 152.09 crores for sale of power from Badarpur Thermal Power Station and Rs. 25.44 crores for sale of power from Singrauli. The main defaulters were stated to be DESU (Rs. 121.89 crores) and UPSEB (Rs. 18.77 crores).

4.20 The Committee desired to know the steps taken by NTPC to recover the dues. In regard to DESU, the Director (Finance) NTPC stated in evidence :—

> "We have been pressing DESU from the level of the Chairman to settle these outstandings. They have been expressing their difficulty that they do not have financial resources. We took up this matter with the Secretary of our Ministry. The Chief Secretary of the Delhi Administration has replied to our Secretary that they cannot

spare more than Rs. 50 lakhs per month against our monthly bill of Rs. 8 crores. The present position of outstanding is Rs. 180 crores, out of which DESU alone has to pay Rs. 161 crores...We want that this money should be treated as loan to DESU so that it cleared from our books."

4.21 On being enquired whether this suggestion of NTPC has been considered by Government, the Secretary Department of Power stated in evidence :—

"Unless DESU's finance are improved, we will not be able to recover the money. The only thing is at present we are suggesting an accounting adjustment-giving advances to DESU (by Home Ministry) and recover (the outstandings) from DESU. That cannot be a long-term solution. We will have to find another solution...We have placed the matter before the Government. A decision is still awaited."

4.22 About the outstandings relating to power supplied from Singrauli, the Director (Finance), NTPC informed the Committee that the issue had been resolved recently by having a provision for letter of credit in the Memoranda of Understanding entered into with the State Electricity Boards of the beneficiary States. The payments would be arranged by the SEBs through an irrevocable revolving letter of credit opened in favour of NTPC.

4.23 On a query whether any interest was being charged on the outstandings, Chairman and Managing Director of NTPC stated that as per the Memoranda of Understanding, for prompt payment, NTPC shall allow a rebate of 1% on the bills negotiated and on the outstandings a surcharge calculated at the rate of 2% per month would be recovered from the SEBs.

4.24 The Committee find that an amount of Rs. 177.53 crores as on 31.3.1983 was due to NTPC from the beneficiary States. There were heavy outstandings particularly from U.P. (Rs. 18.77 crores) and DESU (Rs. 121. 89 crores) in respect of power supplied from Singrauli STPS and Badarpur Thermal Power Station respectively. While the issue is stated to have been resolved in the case of power supplied from Singrauli by having a provision for letter of credit opened in favour of NTPC in the Memorandum of Understanding signed with the beneficiary States, the position in regard to DESU continues to be very unsatisfactory. As on 31.3.1983 out of total outstandings of Rs. 121.89 crores an amount of Rs. 77. 33 crores were outstanding for more than six months. The Committee were informed in evidence (September, 1983) by the representative of NTPC that the total outstandings against DESU had gone up to Rs. 160 crores. The fact that as against a monthly bill of Rs. 8 crores, DESU has expressed its inability to pay more than Rs. 50 lakhs shows that the position would become worse in future unless immediate steps are taken to solve this problem. The matter, therefore, deserves serious consideration at the highest level. In this connection, the Committee would also like the Government to examine the suggestion made to them that as a temporary measure, an advance could be given by the Government to DESU to cover its outstanding amounts to enable it to clear its outstandings with N.T.P.C.

NEW DELHI;
April 19, 1984
Chaitra 30, 1906 (*S*)

MADHUSUDAN VAIRALE,
Chairman,
Committee on Public Undertakings.

APPENDIX

STATEMENT OF CONCLUSIONS/RECOMMENDATIONS OF THE COMMITTEE ON PUBLIC UNDERTAKINGS CONTAINED IN THE REPORT

Sl. No.	Reference to Para No. in Report	Statement of Conclusions/Recommendations
(1)	(2)	(3)
1	1·12	The National Thermal Power Corporation Ltd. was incorporated in November, 1975 as a thermal power generating company in the Central Sector for construction and operation of large sized thermal power stations with the transmission network associated with each of the projects for evacuation of power. The Committee note that six Super Thermal Power Projects with a capacity of 9060 MW being executed by NTPC are scheduled to be completed by the end of Seventh Five-Year Plan. No targets have been set by Government for the company beyond this period. The projections made by Rajadhyaksha Committee reveal that the requirement of installed capacity by the turn of the century would be 1,37,859 MW as against 43035 MW estimated to be available by the end of the Sixth Plan period. Considering the huge capacity needed to meet the demand and the long gestation period for power projects, the Committee desire that long term plans for the development of power, determining share of different sources of power generation and the role of Central Government therein should be drawn up expeditiously and specific targets laid down for NTPC.
2	1·13	The Committee find that although NTPC was set up in 1975, it had not defined until recently its detailed aims and objectives nor did it have a Corporate Plan. It is only now that these basic documents have been prepared and submitted to Government. In view of the need to define clearly the role of NTPC in the country's power generation programme, the Committee desire that these documents should be finalised by Government soon.
3	2·10	The Committee find that NTPC submitted long back feasibility Reports in respect of several projects with a capacity of 8780MW. These are however, yet to be approved by Government. The Committee would stress the need for expeditious approval of these projects to ensure their timely execution and to avoid cost over-runs. They also desire that the linked coal mines for these projects be developed well in time so that the power projects do not suffer on account of shortage of coal.

(1)	(2)	(3)
4	2·11	The transmission lines associated with the Rihand Super Thermal Power Project have not so far been approved though the power project was sanctioned in June, 1982. According to NTPC, any further delay in sanctioning of the associated transmission lines would adversely affect the evacuation of power from this station whose first unit is scheduled to be commissioned in June, 1987. The delay was stated to be on account of the system studies being carried out on the desirability of using a new system *viz.* HVDC system. In the opinion of the Committee this study of HVDC system by the Government has taken an extraordinarily long time. Now that the recommendations of the consultants in the matter have been received, the Committee recommend that a decision on the type of transmission lines should be taken without any further delay so as to ensure the timely completion of transmission lines along with the power station.
5	2·18	The Committee find that as against a target of 2400 MW capacity to be created during the Sixth Plan period, the Company has already commissioned units of the capacity of 1800 MW. The remaining 600 MW capacity was also expected to be completed as per the target. However, in respect of construction schedule, Rajadhyaksha Committee had suggested that from the date of sanction of project to commercial operation, 5 years should be allowed for planning purposes, although State Electricity Boards should attempt to finish the job in 4 years or less. The NTPC has been able to put into commercial operation the first unit of 200 MW in 55 to 71 months from the date of Government sanction and the subsequent units at six to eight months interval thereafter as against 6-7 years stated to have been taken by the State agencies to commission such projects. The Committee desire that N.T.P.C. should progressively aim to reach the target of 4 years suggested by Rajadhyaksha Committee. They also suggest that the management systems and procedures being followed by NTPC in the areas of construction and operation, which have produced good results should be studied and followed by other agencies in the country entrusted with setting up of power stations to avoid delays in commissioning of projects and to ensure efficiency in the operation.
6	2·32	The Committee find that the completion of 220/400 KV sub-stations being set up by NTPC at Hyderabad, Nagarjunasagar and Cuddapah associated with the Ramagundam project and Durgapur Sub-station associated with Farakka Project would not match with the construction of the associated transmission lines. This was stated to be on account of the fact that agreements could be signed by NTPC with the concerned State Governments only between April and August, 1982 on the basis of the Government decision that NTPC would set up, own and operate these sub-stations. The

(1)	(2)	(3)
		Committee regret to note the delay in this regard and would stress the need for proper planning and timely decision by Government in regard to the construction of transmission lines as well as the sub-stations by the NTPC to ensure their completion well in time for evacuation of power from the Super Thermal Power Stations. They hope that every effort would now be made by NTPC to ensure that time lag between completion of transmission lines and the sub-stations is reduced to the minimum.
7	2·33	The Committee also find that the Jeerhat sub-station being set up by West Bengal State Electricity Board and the sub-station (220 KV) at Hyderabad being set up by Andhra Pradesh State Electricity Board were also likely to be delayed. They desire that the Central Electricity Authority who are entrusted with overseeing the matching development of transmission lines and sub-station facilities owned by various agencies, should continuously monitor the progress of construction of these sub-stations to see that they are completed in time for evacuation of power from NTPC units.
8	2·34	The Committee would also emphasise the need for an integrated development of the power system in the country. They have been informed that the process has been initiated with the formation of regional grids and setting up of the Regional Electricity Boards. Further, decision has been taken to set up Central Transmission projects as well as to own and operate in furure in central sector all 400 K.V. transmission lines required for evacuation of power from the central sector projects to various States. The Committee welcome these steps. However, admittedly still much more remains to be done. NTPC was still depending in certain cases on the State systems for transmission of power from Super Thermal Power Stations. The present institutional arrangements were also not suited to integrated operations. The Regional Electricity Boards need to be given more authority for integrated management of the power system. The Committee, therefore, desire that steps be taken for construction of additional transmission lines and sub-stations in the central sector as well as to bring about institutional changes as may be necessary for evolving national grid to ensure integrated development and operation of the power system in the country.
9	2·57	The Committee note that as against the original estimated cost of Rs. 4855·01 crores for generation projects, the latest revised cost was Rs. 6630·66 crores representing an increase of 36%. Similarly in the case of transmission lines the estimated cost has gone up from Rs. 738·97 crores to Rs. 979·28 crores i.e. an increase of 32%. The escalations have varied from 27% to 91% in the case of 9 generation projects and 6% to 135% in the case of 8 transmission lines. Apart from the price increase, the main reasons for the cost escalations were stated to be change in scope and payment of customs duty on import of equipment on account of international competitive bidding for World Bank aided projects or bilateral agreement with other countries
10	2·58	The total value of equipment contracts awarded to foreign parties upto the end of March, 1983 was Rs. 940·89 crores, out of which value of equipment which had to be necessarily imported against bilateral financial arrangements with the

(1)	(2)	(3)
		U. K. and USSR Governments amounted to Rs. 695·59 crores. The customs duty payable on these imports amounted to Rs. 417 crores. While on the one hand this resulted in additional capital cost to NTPC, there was no gain to the economy as the price of equipment imported was not lower than the prices of similar indigenous equipment. The Committee, therefore, desire that the Government should avoid as far as possible entering into bilateral agreements with foreign countries involving necessarily the import from them of equipment which are available within the country at comparative prices.
11	2·59	The import of equipment not only resulted in increased capital cost for NTPC but also affected the capacity utilisation of indigenous producers of power equipment like BHEL for want of adequate orders. The overall capacity utilisation of BHEL during 1985-86 to 1993-94 was likely to be around 50% only. It has been stated that even in the case of World Bank aided projects, in spite of 15% price preference on c.i.f. value of imported equipment, BHEL could not secure several orders in global tendering. The factors affecting their cost efficiency should be analysed with a view to taking necessary remedial measures to improve their competitiveness. At the same time, the indigenous industry needs to be protected against unfair international competition. The whole matter, therefore, needs serious consideration by the Government.
12	2·60	The Committee find that out of 17 projects the revised estimates for 6 projects only have been approved by Government. Even in regard to these projects in two cases (Korba Stage 1 and its associated Transmission lines), the latest estimates show an increase of more than 10% of the approved cost and would, therefore, again require the approval of Government. In respect of remaining 11 projects, the final revised estimates are yet to be submitted to Government. The Committee desire that these estimates should be finalised early and the approval of Government obtained. There should be no occasion for the Company to incur expenditure in excess of sanctioned estimates. The Committee also find that the time taken by Government in approval of the revised estimates for the six projects ranged from 11 to 17 months. They desire that approval of Government to the revised estimates in all cases should be given within a reasonable time.
13	2·61	Incidentally the Committee find that the land acquired for the Ramagundam Super Thermal Power Project was 9500 acres out of which 4722 acres was private land. The land acquired was about double of that in the case of other projects under execution. The need for larger area of land in this case has been sought to be justified on the ground that 5622 acres of additional land was required for construction of a balancing reservoir to ensure continuous supply of cooling water to the power plant. The total length of the earthen dam itself to be constructed for this purpose was about 8·5 Km. The Committee desire that while deciding upon the location of a project the proximity of not only the source of coal but also of water supply required for cooling purposes should be kept in view in order to avoid unnecessary acquisition of private land resulting in avoidable displacement of public and undue inflation of capital expenditure on the project.

(1)	(2)	(3)
14	3·7	The Committee find that the plant load factor in respect of seven units from the dates these started commercial operation as against the objective of 62.8% set by the company ranged from 39·8% to 92·7%. The performance of Unit II at Singrauli which went into commercial operation in February, 1983 had not been satisfactory. The plant load factor of this unit in 1983-84 was only 39·4%. The poor performance of this unit was attributed to the problem caused by hydrogen leakage in the generator due to which the unit had to be shut down for nearly six months during the year resulting in heavy loss of power. The Committee have been informed that the generator has since been replaced by BHEL and there has bee improvement in performance of the unit. They hope that the unit would now work satisfactorily.
15	3·8	The Committee have been informed that there had been design defects in the power equipment supplied by BHEL. But as a result of certain design modifications carried out by the Company, the performance of the equipment is stated to have improved. They would, however, stress the need for stricter quality control in the manufacture of power equipment by BHEL to bring it upto the international standards. At the same time there should be continuous interaction between the power generating agencies and BHEL so that the feed back from the generating sets in operation is transmitted speedily to BHEL for information and taking corrective measures in the sets to be manufactured in future. The Committee would also stress the need for adopting proper operating practices and standard of maintenance of equipment to ensure better performance of the plants.
16	3·34	The management of Badarpur Thermal Power Station was assigned to NTPC on agency basis from 1st April, 1978. The Committee find that the performance of the station is still not satisfactory. The plant load a factor in 1983-84 for Stage-I (3 x 100 MW) was 49·9% and for Stages II and III (210 MW) 39·9% and 55.6% as against the norms of 61% set by CEA for 100 MW units and 57% for 200 MW units. The main reason for poor performance of Stage-I of BTPS was stated to be some inherent design and manufacturing defects in the equipment supplied by BHEL for Stage-I. A renovation scheme finalised by Central Electricity Authority after involving BHEL and Instrumentation Ltd., Kota and approved as far back as in October, 1977 has, however, not been completed so far even in one out of three units. Surprisingly, no time schedule for the implementation of the scheme was laid down. The Committee have been informed that the renovation was expected to be completed on all the three units by early next year (1985).
17	3·35	The Committee feel that the renovation scheme could have been completed early had the Units IV and V (Stages II and III) performed well thereby facilitating shut down of units of Stage-I. Unfortunately this was not so. While Unit IV had problem with the turbine etc., the generator windings of Unit V had to be replaced. The Committee need hardly emphasise the desirability of completing the renovation scheme expeditiously in view of the importance of Badarpur Station in supply of power to the capital and in order to avoid heavier expenditure on repairs and replacement of equipments in the long run. They hope that as assured by the Chairman and Managing Director, NTPC there would

(1)	(2)	(3)
		be no increase in the cost of the renovation scheme on account of the delay in its completion. The Committee desire that the defects in Units IV and V should be rectified early.
18	3·36—3·37	There were a large number of outages in Badarpur Station. During 1982-83, there were 394 outages and the percentage of duration of outages to total available hours was 19·6 in Stage I, 30·1 in Stage II and 35·5 in Stage III. Though the large number of break-downs were attributed primarily to bad quality of coal and wear and tear, it transpired during evidence that the Northern Region Electricity Board had till recently not been giving permission for taking down the units for overhauling according to schedule due to the power supply situation in Delhi. The Committe hope that with the setting up of the Maintenance Planning Section, NTPC would undertake planned maintenance as per schedule. The Committee are of the opinion that the postponement of necessary overhauling of equipment resulted in more losss of power in the long run due to heavy outages and was not a sound policy. While agreeing with the observations of the Committee on Public Accounts (1981-82) that postponement of overhauling of equipment may result in greater number of forced outages, which have come out true, this Committee would like the Government to impress upon the Northern Region Electricity Board the necessity of making such arrangements with the electricity producing agencies with whom it has reciprocal agreements for supply of power to Delhi so that the various units of BTPS are allowed to undertake overhauling of equipment at prescribed intervals without adversely affecting the power supply to the Capital City.
19	3·38	Although the management of Badarpur Thermal Power Station was entrusted to NTPC on 1st April, 1978 on agency basis pending formal transfer of ownership, no decision has so far been taken on this issue. It was stated that under the Delhi Municipal Corporation Act, 1957 it was necessary to obtain permission of the Corporation for such transfer of ownership. Alternatively, the Act itself would have to be amended to the extent that such permission was not necessary. From the reply to a question given to Lok Sabha, the Committee note that the Government are not inclined to transfer BTPS to the Delhi Municipal Corporation/Delhi Electric Supply Undertaking. The Committee, therefore, urge the Government to take steps to obtain formal approval of the Delhi Municipal Corporation for transfer of ownership of BTPS to the National Thermal Power Corporation or have the necessary amendments made in the Delhi Municipal Corporation Act as may be considered proper. They suggest that expeditious action may be taken in this regard to enable transfer of ownership at an early date which they hope will go a long way in improving the functionihg and management of this Thermal Power Station.
20	3·50	The Coal supply position to Badarpur Station is far from satisfactory. The supply remained critical throughout last year, reaching as low level as 4—5 days reserve except during November-December, 1983. Not only there was problem of quantity but of the quality as well. Badarpur is linked to as many as 15 collieries which gives rise to wide variation in the calorific value of coal received. It also contains a lot of shale and stone resulting in

(1)	(2)	(3)
		excessive breakdown of the coal handling equipment with consequential increase in maintenance cost and loss of generation. Obviously such irregular supply of coal and that too of inferior grade had adversley affected the normal functioning of the plant. The Committee were informed by the Secretary of the Department of Power that the Department of Coal had agreed to reduce the number of collieries linked to Badarpur Power Station. They hope that immediate action would be taken in this regard and the power station would be linked to the minimum number of collieries to ensure supply of coal consistent with the design parameters of its boilers.
21	3·51	The Committee would also like to observe that in order to ensure continuous supply of power to Delhi and smooth functioning of Badarpur Station it is necessary to keep in reserve stocks of coal sufficient to meet requirements for at least six weeks. The Government Departments and other authorities concerned should make concerted efforts in this direction .
22	3·52	The Committee find that at present there is no formal agreement between NTPC and coal companies in regard to supply of coal. In order to ensure that the coal supplied to power stations is of the desired quality, it was proposed to enter into long term agreements with the collieries providing for incentive by way of higher prices for better quality coal than contracted for and penalty for lower quality coal. There were, however, stated to be certain difficulties in this regard, particularly in regard to joint sampling of coal. While the NTPC preferred to take samples at the power station end in all cases, the Coal Department was not agreeable for joint sampling at the power station end in all cases and would like this to be done at the collieries end. The Committee desire that the points of difference in this regard should be resolved soon and the long term agreements entered into with the collieries for ensuring supply of required quality of coal to the power stations. They would also like to emphasise the need for having time bound programme for installing proper coal handling plants at the mines. The Committee desire that important issues like joint sampling at Power stations or coal mines head, incentives or penalties for quality of coal, setting up of benefication Plants etc. should be resolved speedily by the Ministry of Energy in consultation with the parties concerned as on these factors will depend the efficiency of thermal plants in the long run.
23	3·60	The Committee notice that though the consumption of coal per kwh at Singrauli was less than that at Korba, the cost of coal included in the energy charge was more in the case of former. The reason for this was stated to be that while the price of coal was fixed grade-wise its consumption depended upon the actual calorific value. Thus while the average gross calorific value of coal received at Singrauli was only 22% higher than that at Korba, its price was 46% higher. This gave rise to anomalous position in as much as in spite of the Company getting better quality coal, the cost of coal incurred per unit of power produced was higher. NTPC wants that the price of coal should be based on useful heat value of various grades of coal. The Committee desire

(1)	(2)	(3)
		that the matter be examined with a view to rationalising the price structure for coal supplied to the power stations.
24	3·61	The Committee find that as against the norm of 15 ml/kwh of consumption of oil, the actual consumption in various units ranged from 0·6 to 10·68ml/kwh. The norm of oil consumption is stated to have been fixed by CEA based on the performance of 210 MW units in the country. The Committee desire that the norms for various inputs should be periodically reviewed on the basis of the actual performance and the achievable targets fixed so that these norms can actually serve as a yardstick for measuring the operational efficiency.
25	4·9	As per the understanding given to the World Bank, NTPC was required to enter into commercial agreements with each of beneficiary State Electricity Boards six months prior to commencement of operations. As per this the agreements between NTPC and beneficiary States of the Northern Region were to be signed in 1981. No formal agreements have, however, been entered into with the beneficiary States so far. Admittedly, the finalisation of these agreements has taken an unusually long time. Recently Memoranda of Understanding have been entered into with the beneficiary States of power from Singrauli and Korba STPS as an interim arrangement. Regular multiparty agreements are contemplated to be entered into after gaining experience of integrated operation of Central Sector Power Stations. The Committee hope that this would meet the requirements of the World Bank.
26	4·10	The Committee find that one of the main issues concerning of the commercial agreements *viz.* the rate of return to be allowed to NTPC still remains unresolved. While the Government directive of December, 1982 required NTPC to fix its tariff after allowing for a return of 12% on equity, the States insist that the tariff should be based on a return of 10% on the total capital employed (equity and loan) as agreed to in the meeting held in December, 1976 to decide the principles for forumulation of tariff. The Government stand is that a return of 12% on equity was fixed as this was the rate of return which the external financing institutions expected. The Committee desire that this issue should be resolved early.
27	4·11	The Memorandum of Understanding for the present provides for a flat energy charge, The beneficiary SEBs have, however, accepted in principle fixation of tariff in two parts, a fixed commitment charge and a variable charge. The fixed commitment charge consisting of 75% of the fixed cost will be recoverable in proportion to the allocated capacity. The variable energy charge consisting of 25% of the fixed cost and the variable cost will be recoverable on the basis of the energy received by the States. The Committee had been informed that certain States had asked NTPC to give a firm commitment regarding delivery of power in case they were required to pay commitment charges. This according to the Committee seems to be a reasonable demand. The Committee, therefore, desire that the feasibility of working out an overall rate covering both fixed and variable costs should be examined. The

(1)	(2)	(3)
		Government should also consider the question of having uniform tariff rate for power produced at different Super Thermal Power Stations of NTPC to facilitate inter-regional transfer of Power.
28	4·17	As per the constitutional provisions 'Electricity' is a concurrent subject. Though the amendment in 1976 of Electricity (Supply) Act, 1948 has enabled the setting up of generating companies in the Central Sector the responsibility for distribution of power still vests in the State Electricity Boards. The Committee have come across cases where in spite of the fact that the States were getting power from Super power stations set up by the Centre, the Central Government Undertakings have not been supplied the power committed by the State Governments. For instance, Bharat Aluminium Company which is very near to Korba Super Thermal Power Station of N.T.P.C. could not get adequate power for its plant from Madhya Pradesh Government. The shortage of power results in huge loss of production with its all consequences. The Committee, therefore, desire that wherever necessary and feasible, power should be made available to Central Undertakings on priority basis from the 15% share set apart at the disposal of Central Government out of power generated at the Super Thermal Power Stations of N.T.P.C. For this purpose, tripartite agreements could be entered into between N.T.P.C., the concerned undertakings and the State Electricity Boards as is being done in the case of Bharat Aluminium Co. Ltd. If found necessary the Government should consider the question of amending the Electricity (Supply) Act to empower the Central power generating companies to supply power direct to Central undertakings whenever situation demands so.
29	4·18	The Committee also find that various Public Undertakings have been allowed to set up their own or are demanding captive power plants to meet their power requirements. They would like the Government to examine the possibility of creating additional capacities at their Super Power Stations to meet the requirements of Central Undertakings from such stations wherever it is physically possible and economical to supply power direct to them, before allowing them to set up captive power plants.
30	4·24	The Committee find that an amount of Rs. 177·53 crores as on 31-3-1983 was due to NTPC from the beneficiary states. There were heavy outstandings particularly from U.P. (Rs. 18·77 crores) and DESU (Rs. 121·89 crores) in respect of power supplied from Singrauli STPS and Badarpur Thermal Power Station respectively. While the issue is stated to have been resolved in the case of power supplied from Singrauli by having a provision for letter of credit opened in favour of NTPC in the Memorandum of Understanding signed with the beneficiary States, the position in regard to DESU continues to be very unsatisfactory. As on 31-3-1983 out of total outstandings of Rs. 121·89 crores an amount of Rs. 77·33 crores were outstanding for more than six months. The Committee were informed in evidence (September, 1983) by the

(1)	(2)	(3)
		representative of NTPC that the total outstandings against DESU had gone up to Rs. 160 crores. The fact that as against a monthly bill of Rs. 8 crores, DESU has expressed its inability to pay more than Rs. 50 lakhs shows that the position would become worse in future unless immediate steps are taken to solve this problem. The matter, therefore, deserves serious consideration at the highest level. In this connection, the Committee would also like the Government to examine the suggestion made to them that as a temporary measure, an advance could be given by the Government to DESU to cover its outstanding amounts to enable it to clear its outstandings with N.T.P.C.

MGIPF—19LSS/84-1155-24-4-84

LIST OF AUTHORISED AGENTS FOR THE SALE OF LOK SABHA SECRETARIAT PUBLICATIONS

Sl. No. — *Name of Agent*

BIHAR

1. M/s. Crown Book Depot, Upper Bazar, Ranchi (Bihar).

GUJARAT

2. The New Order Book Company, Ellis Bridge, Ahmedabad-6.

MADHYA PRADESH

3. Modern Book House, Shiv Vilas Palace, Indore City.

MAHARASHTRA

4. M/s. Sunderdas Gian Chand, 601, Girgaum Road, Near Princess Street, Bombay-2.
5. The International Book Service, Decan Gymkhana, Poona-4.
6. The Current Book House, Maruti Lane, Raghunath Dadaji Street, Bombay-1.
7. M/s. Usha Book Depot, Law Book Seller and Publishers' Agents Govt. Publications, 585, Chira Bazar, Khan House, Bombay-2.
8. M&J Services, Publishers, Representative Accounts & Law Book Seller, Mohan Kunj, Ground Floor, 68, Jyotiba Fuele Road, Nalgaum-Dadar, Bombay-14.
9. Subscribers Subscription Services India, 21, Raghunath Dadaji St., 2nd Floor, Bombay-1.

TAMIL NADU

10. The Manager, M. M. Subscription Agencies, No. 2, 1st Lay Out Sivananda Colony, Coimbatore-641012.

UTTAR PRADESH

11. Law Publishers, Sardar Patel Marg, P.B. No. 77, Allahabad, U.P.

WEST BENGAL

12. Mrs. Manimala, Buys and Sells, 128, Bow Bazar Street, Calcutta-12.

DELHI

13. Jain Book Agency, Connaught Place, New Delhi.
14. J M Jain & Brother, Mori Gate, Delhi.
15. Oxford Book & Stationery Co., Scindia House, Connaught Place, New Delhi-1.
16. Bookwell 4, Sant Nirankari Colony, Kingsway Camp, Delhi-9.
17. The Central News Agency, 23/90, Connaught Place, New Delhi.
18. M/s. Rajendra Book Agency, IV-D/59, IV-D/50, Lajpat Nagar, Old Double Storey, Delhi-110024.
19. M/s. Ashoka Book Agency, BH-82, Poorvi Shalimar Bagh, Delhi-110033.
20. Venus Enterprises, B-2/85, Phase-II, Ashok Vihar, Delhi.

C. P. U. No. 548

© 1983 BY LOK SABHA SECRETARIAT

Published under Rule 382 of the Rules of Procedure and Conduct of Business in Lok Sabha (Sixth Edition) and Printed by the Manager, Government of India Press, Faridabad