C. P. U. No. 204

COMMITTEE ON PUBLIC UNDERTAKINGS (1971-72)

(FIFTH LOK SABHA)

TWENTY-FIRST REPORT

BHARAT HEAVY ELECTRICALS LIMITED

Ministry of Industrial Development

LOK SABHA SECRETARIAT
NEW DELHI

April, 1972/Vaisakha, 1894 (Saka)
Price: Rs. 4-00

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C_O_R_R_I_G_E_N_D_A

TWENTY-FIRST REPORT OF THE COMMITTEE ON PUBLIC UNDERTAKINGS (5TH LOK SABHA) ON BHARAT HEAVY ELECTRICALS LIMITED.

Page	Para No.	recommendation No.	Line	For	Read
1.	1.1	-	8	Ramachandrauram	Ramachandrapuram
1.	1.2	-	12	Insert "Heavy" after "Bharat".	
5	2.6	-	1	finance	financial
7	2.14	-	1	Ministry of Industry	Ministry of Industrial Development
7.	2.14	-	28	the agreements for suptiations. This was a broad pattern of their agreement and they plies do not include any penalty clause. One of the principles was that solution to all issues would be made by matual negotiations.	the agreements for supplies do not include any penalty clause. One of the principles was that solution to all issues would be made by matual negotiations. This was a broad pattern of their agreement...
11		2.27	13	revised estimates. Parliament	revised estimates, Parliament

Page	Para No.	recommendation No.	Line	For	Read
15	-	2.45	11	non-standard equipment) was revised to December, 1968	non-standard equipment was revised to December, 1968)
16	2.48	-	11	Unofrtunately	Unfortunately
27	-	2.81	13	prepared	prepare
35	-	2.104	8	content	intent
50	2.155	-	2	Add "Bharat" after Chairman.	
54	2.172	-	8	May, 1969. The Project..	May 1969, the Project.
62	-	2.199	7	of cost. The Management	of cost, the Management
64	3.3	-	4	Tiruchi	Tiruchy
66	3.7	-	12	(Rs.589.86)	(Rs.569.86)
68	-	3.10	9	factory	factor
68	-	3.10	9	agroup	a group
70	-	3.15	Sl. No. 4 of table under heading "Civil Works (scheduled Date of completion)"	28.1.66	28.2.66
74	-	3.24	16	dependent	depend

Page	Para No.	recommendation No.	Line	For	Read
74	3.25	-	S.No.1 of the table under heading "Promised date of completing order and delivery"	August 169	August 1969
75	3.25	-	S.No. 5 of the table "Delhi 'C' (60 MW)"	December 169	December 1969
86		3.60	2	Rs.51.81 lakhs. Only	Rs.51.81 lakhs, only
89	4.5	-	13	Project pay	Project would pay
93	4.20	-	S.No.5 of table under heading "Idle Labour hours."	28.77%	8.7%
104	-	5.22	2	53.4	53.9
104	-	5.22	2	48	4.8
104	-	5.22	11	1969	1968-69
104	-	5.23	2	HSL	HEC
109	5.36	-	4	Tiruchi	Tiruchy

Page	Para	recommendation No.	Line	For	Read
112	5.47	-	1	Press	Pressure
112	-	5.50	5	31.3.1971	31.10.71
113	-	5.50	8	Add "worth" after Rs. 53 lakhs.	
121	6.4	-	6	annual	annul
122	6.7(i)	-	12	in the or	in this or
122	6.8(ii)	-	2	Projject	Project
144	8.10	-	7	an	on
149	8.32	-	3	farecast	forecast
161	-	2.46	6	national	rational
162	-	2.80	12	recommended	recommend
163	-	2.82	4	1603 MW	1630 MW
165	-	2.104	9	letter of content	letter of intent
165	-	2.106	9	early. But it..	early, but it..
166	-	2.148	10	year	years
170	-	2.189	13	moors	motors
173	-	3.18	9	n all	in all
174	-	3.24	19	dependent	depend
176	-	3.38	1	Add "in" after "find that"	
177	-	3.42	4	delete ',' after the word 'over'	

Page	Para No.	Recommend-ation No.	Line	For	Read
179	-	4.18	15	ect.	etc.
179	-	4.25	11	both idle labour hours and idle capacity	both idle hours and idle labour capacity
180	-	5.22	3	53.9, 53.9,	53.9,
181	-	5.23	2	under-takngs to	understandings like HEC etc., to
181	-	5.26	5	wait in	waiting
181	-	5.26	6	inspectional	Inspection,
181	-	5.26	13	constitutions	constituting
183	-	5.62	8	had	tend
184	-	-	1	did	do
185	-	7.6	10	or	of
186	-	7.16	3	Board	Boards

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(1971-72)

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Shri Avtar Singh Rikhy—*Joint Secretary*
Shri M. A. Soundararajan—*Deputy Secretary*
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*Elected w.e.f. 11-8-1971 in the vacancy caused on the resignation of Dr. V.K.R. Varadaraja Rao, M.P. on 29-7-1971.

**Ceased to be member of the Committee w.e.f. 3-4-1972 consequent on retirement from Rajya Sabha.

COMMITTEE ON PUBLIC UNDERTAKINGS

(1971-72)

COMPOSITION OF STUDY GROUP III ON ELECTRONICS AND ELECTRICAL UNDERTAKINGS

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2. Shri Amrit Nahata—*Alternate Convener*
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5. Shri S. N. Misra
*6. Shri Kota Punnaiah
7. Dr. Kailas

*Ceased to be member of the Committee w.e.f. 3-4-1972 consequent on retirement from Rajya Sabha.

INTRODUCTION

I, the Chairman, Committee on Public Undertakings having been authorised by the Committee to present the Report on their behalf, present this Twenty-first Report on Bharat Heavy Electricals Limited.

2. This report is based on the comprehensive appraisal of the working of the Bharat Heavy Electricals Limited, done by the Comptroller and Auditor General of India as contained in the Central Government Audit Report (Commercial) 1970 Part IX and also on an examination in depth of the working of Bharat Heavy Electricals Limited upto the year ending 31st March, 1971.

3. The examination of the Bharat Heavy Electricals Limited was taken up initially by the Committee on Public Undertakings in 1970-71. The Committee on Public Undertakings (1971-72) took evidence of the representatives of the Bharat Heavy Electricals Ltd. on the 1st and 2nd December, 1971 and of the Ministry of Industrial Development on the 8th and 9th February, 1972.

4. The Committee on Public Undertakings considered and adopted the report at their sitting held on the 24th April, 1972.

5. The Committee wish to express their thanks to the Ministry of Industrial Development and the Bharat Heavy Electricals Limited for placing before them the material and information they wanted in connection with the examination of Bharat Heavy Electricals Limited. They wish to thank in particular the representatives of the Ministry and the Undertaking who gave evidence and placed their considered views before the Committee.

6. The Committee also placed on record their appreciation of the assistance rendered to them by the Comptroller and Auditor General of India in connection with the examination of the Audit paras pertaining to Bharat Heavy Electricals Ltd.

NEW DELHI;
April 24, 1972
Vaisakha 4, 1894(*S*)

M. B. RANA
Chairman
Committee of Public Undertakings.

I

INTRODUCTORY

The Bharat Heavy Electricals Limited was incorporated on November 13, 1964 as a new company to take over the management and control of the following Units from the Heavy Electricals (India) Ltd., Bhopal:—

(i) Heavy Electrical Equipment Plant (HEEP) at Ranipur near Hardwar in Uttar Pradesh;

(ii) Heavy Power Equipment Plant (HPEP) at Ramachandrauram near Hyderabad in Andhra Pradesh; and

(iii) High Pressure Boiler Plant (HPBP) at Tiruverumbur near Tiruchirapalli in Tamil Nadu.

1.2. The new Company namely, Bharat Electricals Ltd. commenced business with effect from November 17, 1964.

A. Heavy Electrical Equipment Plant, Hardwar

1.3. The Heavy Electrical Equipment Plant at Ranipur near Hardwar, set up in collaboration with M/s. Prommashexport, USSR, will be the largest of all the electrical plants in the country. The construction of this plant was commenced in 1964. This Unit was inaugurated on January 3, 1967 with the manufacture of flame proof electrical motors. The Plant has been set up with a capacity to manufacture yearly 1.5 million KW of steam turbines and turbo-alternators, 1.2 million KW of hydroturbines and generators and 0.515 million KW of large size electric motors and associated control equipment. The steam turbine sets will be initially of 100 MW capacity each and later on sets of 200 MW and 300 MW each will be manufactured. The value of annual output at full rated capacity will be Rs. 968 million.

B. Central Foundry Forge Plant, Hardwar

1.4. Consequent upon the recommendation of the Committee of Experts appointed in November 1960 for setting up of Foundry Forge Plant, the HE(I) L, Bhopal was authorised to prepare a Detailed Project Report for establishing a Foundry Forge Plant at Hardwar. The Project Report which was finalised in October, 1964 envisaged setting up of presses of 1,000 tonnes and 4,000 tonnes capacity at an estimated cost of Rs. 20.57 crores and the township of Rs. 2.5 crores. The Project Report was approved by Government of India in March, 1965 and it was to be treated as a detailed feasibility study pending its examination by Consultants. In May, 1966 the Company entered into a collaboration agreement with M/s. Schneider, a French firm for technical study of the economics of the Project and for providing engineering services and production know-how. On the basis of the technical Report received in February 1967, from the Collaborators, Project capital cost was revised to Rs. 28.36 crores.

C. Heavy Power Equipment Plant, Hyderabad

1.5. The Heavy Power Equipment Plant at Ramachandrapuram, Hyderabad was set up in collaboration with Skodaexport, USSR. The construction of this Plant was commenced in 1963. This plant was inaugurated in December, 1965. The Plant has been designed for an annual output of about 0.9 million KW of steam turbines and generators upto unit sizes of 110 MW capacity, and associated auxiliaries like boiler feed pumps, heaters, condensate pumps, etc. The plant will also manufacture radial and axial turbocompressors with driving turbines for steel plants and chemical plants, small turbosets for industrial use, package power plants and an extended range of industrial and power station auxiliary pumps. The value of annual output at full rated capacity will be Rs. 380 million.

D. Switchgear Unit, Hyderabad

1.6. The need to set up a separate Unit for production of air blast and minimum oil circuit breakers was felt as the circuit breakers manufactured at Heavy Electricals (India) Limited, Bhopal in collaboration with M/s. AEI of England were not generally found acceptable. It was also envisaged that main plant at Bhopal would concentrate its manufacturing activities on transformers, capacitors, traction/industrial motors, water/steam turbo generators etc. thus, gradually discontinuing the manufacture of circuit breakers altogether. Accordingly in July, 1964 a proposal for technical collaboration with M/s ASEA of Sweden for the manufacture of Air Blast Circuit Breakers of 132 KV, 230 KV and 400 KV, was approved by the Government of India. It was also proposed to take up the manufacture of Minimum Oil Contraction Breakers at this Unit at a later stage. The formal agreement of collaboration with M/s. ASEA was finally signed in April, 1965. The total investment for the first stage of this Plant to cover the manufacture of Air Blast Circuit Breakers was estimated at Rs. 227 lakhs. Sanction of Government for the execution of civil engineering works of the factory at an estimated cost of Rs. 82.5 lakhs was received in March, 1965 and site levelling work was taken up thereafter. This project went into production in October, 1966 for the manufacture of air blast circuit breakers.

E. High Pressure Boiler Plant, Tiruchy

1.7. The High Pressure Boiler Plant, Tiruchy has been set up in collaboration with Skodaexport, USSR, designed for an annual output of 30,000 tons of finished boiler house equipment, which will match a power generating capacity of 0.75 million KW. The value of annual output at full rated capacity will be Rs. 250 million. The equipment includes the main stream raising plant, economisers, air-preheaters, mechanical and electrostatic precipitators, vapour and draft fans, coal pulverising mills, high pressure pipings, valves and other fittings etc.

The construction of this Plant was commenced in 1963 and the Plant was inaugurated in May, 1965 when the production of valves was commenced.

1.8. The working of the Bharat Heavy Electricals Ltd. was examined by the Committee on Public Undertakings in 1966-67 in their 39th Report (Third Lok Sabha—March, 1967). Action taken by Government on the recommendations of the Committee is incorporated in their 16th Report (Fourth Lok Sabha—April, 1968).

II

HEAVY ELECTRICAL EQUIPMENT PLANT, HARDWAR

A. **Capital Expenditure**

AGREEMENTS

(a) *Inter-governmental agreement*

2.1. On 12th September, 1959 an agreement was signed between the Government of India and the Government of USSR for rendering technical assistance in the construction of separate industrial, agricultural and other enterprises during the Third Five Year Plan. Out of the total credit of about 1500 million Roubles (repayable in 12 instalments at an interest of 2.5 per cent per annum) available under this agreement, a sum of 29.39 million roubles was allocated to the Heavy Electrical Equipment Plant, Hardwar. The Project placed orders for drawings equipment, etc. valued at 28.53 million Roubles (Rs. 21.16 crores).

(b) *Agreements with consultants*

2.2. (i) The three agreements executed on 23rd May, 1964 with Russian Collaborators—M/s. Prommash-export, in pursuance of the Inter-governmental agreement, envisaged that the Collaborators would deliver the drawings, machinery and equipment for the production of Medium and Heavy Electric Machines (515 MW), Steam Turbine and Turbo Generators (1500 MW) and Hydro Turbine and Generators (1200 MW) in the phased programme as given in the agreements. The Collaborators, however, did not supply equipment and drawings according to the agreed phased programme. The delivery schedules agreed to in the discussions held later (in February, 1968, December, 1968 and March, 1969) were also not followed in some cases with the result that due to non-receipt of machinery, equipment, etc., in time, the erection of certain items has been/is likely to be delayed considerably.

2.3. During the period from October, 1965 to December, 1968 the Company had also entered into with M/s. Prommashexport 16 contracts for the supply of components and 3 contracts for the supply of technological documentation for the manufacture of power equipment, preparation of reports on stage-wise development of production and organisation of production, preparation of Project Report and supply of working drawings for the Stamping Unit. Of these, there has been delay in completion of supplies in respect of 11 contracts.

2.4. During evidence, the Committee desired to know the extent of delay that had occurred in the erection of machinery due to non-receipt of drawings, machinery and equipment in time from the Russian collaborators. The Chairman, BHEL, stated that there were

some cases where delay in supply had been as much as one year to eighteen months. He also brought to the notice of the Committee one specific instance where production of the Undertaking was to some extent hampered due to delay in supply of equipment. He informed the Committee that there was delay in supply of vaccum pumps for making coils and as a result they could not make coil for some of the motors.

2.5. In a written reply after the evidence, the Undertaking furnished an illustrative list (Appendix I) of critical machinery and equipment which were delayed ranging from 6 months to over three years.

As regards steps taken by the Management for expediting the supply of equipment by the collaborators, the Committee were informed that these delays were taken up in several periodical meetings by the senior officers of the Ministry of Industrial Development with the Soviet Economic Counsellor, Delhi during the year 1967 and 1968. Meetings were also held by the Minister of Industrial Development with the Ambassador of the USSR in India and these meetings were attended by all the top executives of the various Soviet-assisted projects. Further these were followed up during the visits of Indian Delegation to USSR, including the visit of the Minister of Industrial Development to USSR in October, 1967 and the visits of Chairman, BHEL in December, 1964 as well as in June, 1967. A similar follow-up was done when Soviet delegations visited India and such visits took place in January, 1966, March, 1967, February, 1968, December, 1968, December, 1969 and July/August, 1971.

2.6. Asked about the finance implications of such delays, Chairman, BHEL, stated that in a large product like BHEL (Hardwar Project) there were many factors which were inter-linked in the completion of and bringing into Commission a particular equipment. It was difficult to pinpoint exactly how much of financial losses occurred because of the delays in the supply of the equipment. Even on the civil engineering side some of the blocks had got delayed as much as 18 months to two years due to the fact that at that particular time, the supply of steel in the country became rather difficult.

2.7. During the evidence of the Ministry of Industrial Development, the representative of the Ministry also stated as follows:—

"It is no doubt true that there was some delay in deliveries by our collaborators in the case of Hardwar Unit. But then, it is not possible exactly to define or delineate what are the financial implications of these delays because, for financial implications, we have to look at the several causes of the delay. After all, this is not the only cause of delay. Delays can be occasioned by the non-availability of matching steel: it can be due to problems in transportation (some damages in transit take place) we have got to get the vital parts which go to complete a particular construction or erection and if it is missing we get held up. So, there have been several causes for the delay.".

2.8 The witness further informed the Committee that delay on the part of Russian collaborators occurred because Russians had to

arrange supplies from 53 plants spread all over their country. Different kinds of items had to come from different plants and co-ordination of supplies at one point for all these 53 plants was a little difficult.

2.9. In the absence of any provision in the agreements with Russian Collaborators for the levy of penalty, no action could be taken by the Company against the Collaborators. The Committee on Public Undertakings in their Thirty-ninth Report (Third Lok Sabha) on BHEL had recommended in para 48 that "in spite of a provision in the agreement regarding the timely supply of foundation drawing, these have not been received according to stipulation in the agreement. The inclusion of a penalty clause in an Agreement might have a salutary effect in preventing delays. Possibility of including such a provision in the future contracts might be examined.

2.10. In reply to this recommendation the Government of India, Ministry of Industrial Development stated (November, 1967) that non-inclusion of penalty clause in the agreements executed with M/s. Prommashexport seemed to be an 'inadvertent omission' and more care would be exercised in future. It is, however, seen that no penalty clause has been incorporated in the agreements entered, with the approval of the Government, even after this date i.e. November, 1967.

2.11. The Management informed the Government in July, 1969 i.e. after about two years, that while the Collaborators had not agreed for inclusion of a penalty clause in the agreement, the suppliers of raw materials had agreed for the same provided the Company accepted the liability for damages due to delay in the establishment of letter of credit and bank guarantee. As the Management were not agreeable to accept this liability, they did not press for inclusion of a penalty clause even in the latter agreements.

2.12. The Ministry then stated (September, 1970) that the penalty clause was not incorporated in the agreements as the equipment had been imported against credit made available by a foreign country in the spirit of mutual goodwill.

2.13. In this connection the Undertaking in their written reply furnished after the evidence stated as follows:--

(a) The question of insertion of a penalty clause was off and on discussed with the collaborators. After November, 67 the question of inclusion of a penalty clause was taken up with the collaborators but they were not agreeable to accept this clause in the agreement.

(b) When the question of penalty clause was raised with the collaborators, they at one time had mentioned that there were delays in opening of letters of credit which result in losses to them on account of storage charges and port charges at the port of despatch and therefore, they would like a counter penalty clause to be included on that account also in the agreement.

The opening of letters of credit involves:—

(i) Allocation of foreign exchange;

(ii) Grant of import licence;

(iii) Attestation of list of goods by the C.C.I.

(iv) Obtaining of Bank guarantee Government guarantee for deferred credit payment.

These processes take quite time, in some cases 3 to 4 months, before a letter of credit is established. The question of streamlining the procedure so that letters of credit can be opened expeditiously is stated to be under consideration of the Ministry.

(c) The agreement provide that the delivery would be completed within a specified period after the opening of letter of credit. As already stated, the collaborators are not agreeable to the inclusion of a penalty clause in the contract/agreement.

2.14. During the evidence of the Ministry of Industry also, the Committee pointed out that although it is the normal business practice to have a penalty clause, there was no such clause in the agreements for Hardwar Plant. The representative of the Ministry of Industrial Development stated as follows:—

"In the beginning, we insisted on a penalty clause being incorporated in the agreement. On this, the Soviets said, "all right, if you want to insert a penalty clause in the agreement, we would be wanting you to give certain guarantee regarding the opening of a letter of credit and if you fail you will have to pay us, in return, that is where this liability for damages arose". When this arose, actually, it was originally felt by the Undertaking that this would be a difficult condition to accept, because sometime we have our own procedural delays in opening a letter of credit to accept a blank commitment that we would also stand liability for damages for delay in opening a letter of credit would be difficult. We did not want to accept this kind of commitment. Later on, however, they did not persist because they changed the stand. They said, "we will not be able to enter into any kind of agreement where you insist on a penalty clause". Ultimately, it was given up, because the Soviet themselves gave up this line of thought.

This matter ultimately came up for discussion and there was finally a protocol drawn up in this regard. This was drawn up in March, 1971 and at that time they re-emphasised the original point that they have been making that they cannot enter into any kind of penalty clause. For instance, in respect of Hindustan Steel, Bhilai and IDPL the agreements for suptiations. This was a broad pattern of their agreement and they plies do not include any penalty clause. One of the principles was that solution to all issues would be made by mutual negowould not like to have a penalty clause brought in because that would cloud the issue of mutual negotiations."

2.15. The Committee wanted to know how it was guaranteed that the goods would be received in time from the Collaborators when

there was no penalty clause in the agreement. The witness replied:—

> "The problem that we had to face was first of all we had to get into these agreements at the time when we needed this equipment and we had to make arrangements under their soft loan agreement. The point was wherever there is a competition from others, it would be possible for us to insist on penalty clause but in cases where we are more or less driven to a wall—as it were—we cannot include this clause. We can no doubt try to get this clause entered into but if they do not agree to it, the mutual negotiation is the only answer to this."

2.16. The Committee were, however, informed that the penalty clause has been included in the agreements executed with Cumbustion Engineering Co. and M/s. Nuovo Pignoe Co. In some other cases also they got this clause entered into the agreement.

2.17. **The Committee note that the delivery schedules were not strictly followed by the collaborator with the result that there was delay in erection of equipment and going into production. The delay ranges from six months to three years and naturally has caused concern to the Committee. The Committee also find that as is usual in such agreements with Russian collaborators, no penalty clause was provided for delay in supply of equipment. One of the reasons advanced for non-provision of the penalty clause is that the Russians desired to have a counter-penalty clause if there was delay in opening of letter of credit. The Committee would suggest that Government may examine the matter in all its aspects to ensure that delays of the nature that occurred in the present undertaking do not recur.**

B. Project Estimates

2.18. The following table indicates the capital investment as per the Detailed Project Report, the revisions made from time to time and the progress of expenditure up to 31st March 1969:—

Sl No.	Particular	As per Detail-Project Report (June, 1963)	First Exercise (July, 1963)	Second Exercise (April, 1964)	Third Exercise (December, 1965)	Fourth Exercise (December, 1966)	Progress of expenditure upto March, 1969	Total expected expenditure
1	2	3	4	5	6	7	8	9
1	Construction works ..	1,530·88	1,385·18	1,369·31	1,337·86	1,350·43	1,258·28	1,482·29
2	Machines and equipment	4,182·23	3,242·87	3,687·13	4,325·51	5,465·29	4,329·52	5,384·20
3	Works for the plant outside plant boundary	90·00	102·00	86·00	86·00	86·62	42·15	101·46
4	Administration and Technical Supervision	285·96	362·95	385·61	397·30	435·40	818·07	1,184·39
5	Contingencies ..	313·06	140·55	165·81	166·00	166·00	*	50·00
6	Outside works other than for plant ..	729·00	779·00	777·00	758·78	758·78	382·34	766·13
7	Deferred revenue expenditure training of operational personnel	266·00	330·00	333·00	317·00	336·75	148·31	203·06
8	Suspense transaction (Advances and stores)	..	..	..	..	..	369·59	..
	TOTAL ..	7,403·13	6,342·55	6,803·86	7,388·45	8,599·27	7,348·26	9,171·53

*Expenditure relating to 'contingencies' stands included in item Nos. 1, 23 and 6.

2.19. The variations between the project estimates given in the Detailed Project Report and the First Exercise were stated to be mainly due to non-adoption of Uttar Pradesh Public Works Department's rates in regard to construction works which were lower, and rough approximation of the deferred revenue expenditure and the value of plant and machinery by the Consultants. However, the project estimates given in the First Exercise were revised in April, 1964 on the basis of fresh assessment of requirement of plant and machinery; and in December, 1965, on the basis of increase in customs duty, general rise in costs and actual position of orders for indigenous and imported machines. Consequent upon devaluation of Indian Rupee, a further revision of project estimates was made and submitted to Government in December, 1966.

2.20. In February, 1970, i.e. after a period of about 3 years from the submission of revised project estimates in December, 1966, Government have accorded sanction for Rs. 8,376.36 lakhs as against the total revised estimates of Rs. 8,599.27 lakhs towards the cost of the Project with the condition that this estimate should not be exceeded. There was, thus, inordinate delay in finalising and sanctioning the project estimates. The Committee on Public Under-taking in para 77 of their 39th Report (3rd Lok Sabha-Mrach, 1967) also commented upon the delay in sanctioning the project estimates of the Hardwar Project and desired that suitable action should be taken against defaulting officials *vide* their 16th Report (4th Lok Sabha-April, 1968).

2.21. The Ministry informed Audit in August, 1970 as follows:—

> "These revised estimates were examined in consultation with the Ministry of Finance and the Bureau of Public Enterprises which took some time. As no particular official was responsible for the delay, the question of punishing any defaulting officer in this connection, does not arise".

2.22. The progressive expenditure as on 31st March, 1969 (given in the above statement on page 14) indicated that even before the receipt of the sanction, the expenditure against administration and technical supverision had far exceeded the amount provided for it in the latest revised estimates. In view of re-scheduling of the production programme and construction schedule, the Management estimated in June, 1969 that the cost of project would further increase to Rs. 9,171.53 lakhs resulting in an increase of Rs. 795.17 lakhs over and above the sanctioned estimates. Out of this increase, Rs. 748.99 lakhs would be under the head 'Administration and Technical Supervisions". The Ministry have attributed (July 1970) the following reasons for excess expenditure under this head:—

(a) "Provision for interests on capital loans and other expenses not provided in the estimates: Rs. 388 lakhs.

(b) Inadequate provision of depreciation: Rs. 90.96 lakhs.

(c) Provision had been made for common departmental expenses upto September, 1967 only in the project estimate whereas it should have been made upto the likely date of the completion of the project including installation of the unique, heavy and special equipments;. This resulted in an underestimate of Rs. 270.03 lakhs.

2.23. Subsequently in a written reply the Committee were informed that the Project Estimates had been further revised in February, 1971. According to the revised estimate as approved by the Board in 51st meeting held on 29-10-1971, the cost of the factory was estimated at Rs. 9040.71 lakhs and of township at Rs. 772.08 lakhs.

Thus as against the first estimates of Rs. 63.43 crores proposed by the Undertakings/Government in July, 1963 the project is now estimated to cost Rs. 98.13 crores i.e. an increase of 55%.

2.24. During the evidence of the Ministry of Industrial Development, the Committee enquired about the normal time taken for sanction of the estimates of the project by the Government, the representative of the Ministry stated that it depends on the size of the project, and no uniform time could be indicated. He, however, admitted that in this case, there was a considerable delay on the part of Government in deciding these estimates. It was contended that the proposal had been examined by the various Departments *viz.* Ministry of Finance, Bureau of Public Enterprises etc. and they took time in deciding the issue. The Ministry have further stated that delay was occasioned by the time taken in the revisions including those on account of devaluation and examination of details which threw-up queries that had to be furnished with answers which at times raised more points calling for clarification.

2.25. The Committee pointed that while the estimates of the Project had been under consideration of Government, major portion of expenditure had already been incurred by Management in anticipation of the sanction. Asked about the control, exercised by the Ministry in this regard, the representative of the Ministry stated as follows:—

> "The actual control on the expenditure was exercised by the Governmnet through the annual sanctions that were being given during this period. Every expenditure that the Undertaking incurred has to be covered by the budget. They come to the Government with the annual budget and this budget was passed by the Government (i.e., the Ministry of Industrial Development) in consultation with the Ministry of Finance. Year after year, the expenditure incurred is based on the year's budget that is approved. So, by and large, the control on the actual expenditure had, in fact, been exercised by the budget sanction. When the budget sanction was given it means we sanction this expenditure. Ultimately, we did impose this kind of clause. But this kind of general clause is imposed occasionally. The expenditure has not been exceeded under the head of "Expenditure" except under one head and that was "Administrative and Technical Supervision". Under this head, again the major excess of expenditure was due to certain interests payable which came up later. Originally, there was an indication that no interest was to be computed. But, subsequently the Government in the Ministry of Finance, as a general principle, had indicated that interest charges amounting to Rs. two crores had to be debited. So, accordingly, this was the liability that suddenly led to that increase of expenditure i.e., "Administrative and Technical Supervision".

2.26. **The Committee take a serious view of the fact that it took Government more than three years to sanction the estimates submitted by BHEL in December, 1966. It is regrettable that in spite of the recommendation of the Committee on Public Undertakings in their 39th Report (1967), that Government should accord its sanction to the estimates without any delay, no serious efforts were made to expedite the sanction of these estimates. It had been admitted that there was considerable delay on the part of Government in sanctioning these estimates. However, no responsibility has been fixed for this delay as suggested by the Committee in their 16th Report (1967-68). According to the Ministry these revised estimates were examined in consultation with the Ministry of Finance and the Bureau of Public Enterprises which took some time. As no particular officer was responsible for the delay the question of punishing any delinquent officer in this connection does not arise.**

The consultation among the various departments of the Government of India can hardly justify the delay of more than three years in sanctioning the estimates. The Committee, therefore, consider that the procedure should be streamlined to avoid such delays in sanction of the estimates.

2.27. **The Committee also regret to note that as against the first estimates of Rs. 63.43 crores for the project prepared by the Undertaking/Government, the project is estimated to cost Rs. 98.13 crores-an increase of Rs. 34.70 crores or about 55% of the first estimates. The Committee have repeatedly observed that frequent revisions and large increase in estimates of a project vitiates parliamentary control. The total commitments on a project should be prepared as realistically as possible in the beginning and should be available to Parliament before a project is approved, instead of making them commit to a project on piece-meal basis from year to year without giving them a true and realistic picture of the project.**

The Committee feel that where the economies of the project are adversely affected as a result of revised estimates. Parliament should be specifically informed of it in time with supporting deta.ls.

C. Delay in completion of the project.

2.28. The Detailed Project Report did not indicate the time schedule for the construction/commissioning of the Project. The Management therefore, framed (October, 1963) a tentative time schedule for construction of the Project according to which the construction of various Blocks of the Project was to be completed by the end of December, 1965. However, after entering into the contracts in May, 1964 for the purchase of machinery, equipment and working drawings from the U.S.S.R, the construction schedule was revised in July, 1964 and thereafter during December, 1966—May, 1967 when the date of completion of the Project excepting installation of heavy, unique special and non-standard equipment, was revised to December, 1968.

2.29. In March, 1967 the Management informed the Committee on Public Undertakings that the Collaborators had also indicated December, 1968 as the date of completion of the Project, but in view of the fact that the financial year of the Project would end in March, the

completion date could be taken as 31st March, 1969. In December, 1967 the Management, however, revised the time schedule owing to delay on the part of the suppliers in regard to despatch of working drawings and equipment (imported and indigenous) and according to the revised schedule, 99 per cent, work of the Blocks was to be completed by March, 1969 and the remaining work excepting installation of heavy and unique machinery, by June, 1969.

2.30. In December, 1968, the delivery schedule in respect of certain working drawings and equipment was further revised by the Consultants. Besides, there was also delay on the part of indigenous suppliers in regard to despatch of machinery *viz.* E.O.T. Cranes, Bed Plates, etc. Keeping in view the progress of work, delay in supply of working drawings including foundations drawings (the last foundation drawings were to be received by the end of the last quarter of 1969) and equipment by the Collaborators and also latest delivery schedule of indigenous machinery, the Management have further revised the target dates according to which the Project would be completed by the end of 1970.

2.31. The target date of completion of the various Blocks and Auxiliary Service Blocks as per various schedules and progress made there against upto 31st March, 1969 are given in Appendix II. As on 31st March, 1969 only 87 per cent of the Project as a whole had been completed.

2.32. The progress of work has been far behind the revised schedule mainly in respect of water supply and sanitary installations, istallation of machinery and equipment, electrical installations, general illumination and electrification works in the Blocks.

2.33. The value of the equipment received up to 31st March, 1968 but not installed till March, 1969 was Rs. 380.75 lakhs as per details below:—

(Rupees in lakhs)

(Rupees in lakhs)

Year	Imported equipment	Indigenous equipment	Total
1964-65 ..	0·19	0·51	0·70
1965-66 ..	0·61	0·40	1·01
1966-67 ..	96·00	3·95	99.95
1967-68 ..	278·42	0·67	279·09
			380·75

2.34. The delay in installation of the machines and equipment has been attributed to:—

(i) non-supply of complete equipment by the Collaborators.

(ii) receipt of equipment in advance of the requirements; and

(iii) delay in the completion of foundations and shops as also services, etc. for installation.

2.35. In this connection, the Management have stated (December, 1969) as follows:—

> "Plant and Machinery is taken up for erection on the priorities allotted considering the needs for phased production i.e. erection programme of relevant year giving lower priority to machinery required at a later stage. The limited task force for erection was utilised to the best advantage for gearing up production by deploying them for erecting such machines as are immediately required for production purposes. It is not also reasonable to suggest that the delay ranged from 1 to 5 years, especially the heavy imported equipment cannot be installed immediately on arrival as the foundations and shops have to be ready as also services etc.".

2.36. In a note furnished by BHEL, the Committee have been informed that Erection of machinery and equipment in all the main Blocks (excluding foundry Block) has been completed excepting the overspeed dynamic balancing equipment in Block I, Metal Coating Section of Block IV and someother unique machines, which were in the process of installation. Besides, there were equipments the erection of which was deferred as they were not immediately required for production purposes. The entire erection work was however, expected to be completed by the end of year, 1970-71.

2.37. In this connection during the course of evidence the Committee asked whether Government were approached to assist in overcoming such difficulties, Chairman, BHEL, stated as follows:

> "There was no specfiic request but I did contact the Commercial Counseller in the USSR Embassy who helps us often. But he pleaded his inability particularly in regard to penalty clause" He further stated: "But I would like to make one point here that while it is true that some of these equipments were delayed, there is other aspect of delay, that is in some cases, there is delay in the completion of the civil works, I would not put down that the whole of cause, for the late completion of the project, is due to the delay in the supply of equipment but in certain fields they have delayed".

2.38. The Committee enquired why there was delay in the civil works. The witness explained that in the early stages, the supply of steel was not continuous and it was rather difficult to get regular supply of steel in the country and secondly in one or two instances the drawings for the foundation details had to come from Russian Collaborators and there was some delay.

The Chairman, BHEL, further informed the Committee that upto the end of the September, 1971, 95 per cent of the main project had been completed. The delay in the case of Foundry occurred because it was thought that the Stamping unit should come within the parameter of the main project and hence it was re-sited during the course of the construction of the project. The Committee were also informed that the machinery was practically complete except one or two which were being erected for which civil work had already been completed. There were, however, a few minor items such as bed plates which had got to be received from the foundry.

The witness assured, "I do not expect that the completion of any of the blocks will be delayed any further. We do have a penalty clause in the case of foundry. As I said earlier, in the inital stages, we did lose a lot of time because of the late supply of the steel and therefore civil work suffered".

2.39. The Committee desired to know, whether the causes of delays were ascertained from the Russian Collaborators, the Chairman, BHEL, stated that the Undertaking had all the time been pressing the collaborators to supply the equipments in time but as sources of supply involved a number of various manufacturing units in the USSR, Bharat Heavy Electricals Ltd: could not get any difinite reply in regard to the delay in the supply of equipment.

The witness stated:—

> "The delay had occurred in 1968 that is in one case it was originally promised in the second quarter of 1968 but the equipment was received only in the second quarter of 1970 and there were also similar other cases the metallic electroplating and electroslide equipment which were to be supplied in 1967, actually came in 1969. Similar other odd types of equipment were also delayed".

2.40. Asked how the Undertaking could set up the equipment without drawings when there had been a delay in the supply of drawings, the General Manager, Hardwar Unit, stated that those drawings were meant to be foundation drawings for machinery. The management had not only been writing to collaborators about the delay, but discussing them with the Soviet Delegation when they visited India. The Chairman, BHEL, stated that in some cases the foundation drawings also were not received in time and the other part of the civil work could not therefore, be completed.

2.41. During evidence the Committee enquired whether they had got a proper schedule of deliveries, the representative of the Ministry replied as follows:—

> "There were schedules, if I may submit, but these have got shifted. On subsequent occasions there were revisions of delivery dates and there were further revisions particularly because on our side, sometimes steel was not available and matching equipment were not available. So, there has been a change in the delivery date".

2.42. The Committee enquired how the Government kept a watch on the progress of completion of a Project. The representative of the Ministry stated that they received monthly progress reports from the Undertaking. There was a quarterly financial statement, explaining the reasons for the various shortfalls, if any. These returns were being carefully scrutinised by the Government. Whenever any shortcomings were found, the Management had been asked to explain the reasons. The Ministry also provided necessary assistance and helped them to expedite matters with Ministry concerned. The Ministry also held periodical meetings with the Management at the level of Secretary and Minister of Industrial Development in compliance with the instructions contained in the Circular of July, 1969 issued by the

Bureau of Public Enterprises. At the Secretary level there had been about six meetings in connection with the BHEL (all units).

2.43. The Committee also wanted to know the latest position regarding erection of machines and equipment of the Hardwar Plant. The witness of the Ministry stated that out of Rs. 380.75 lakhs, the value of equipment not yet installed was worth about Rs. 70 lakhs and these were exepected to be installed by March, 1972.

2.44. Giving the details about the supply of machines, the witness said that there were 2000 odd machines. These machines were coming from 53 different factories which were dependent on their order book position. They had to supply machines according to their own schedule of capabilities and deliveries. In some of the cases machines were not arriving according to the schedules. In certain cases there had been delays of three to four years, and in others cases one to two years.

2.45. **The Committee note with regret that Heavy Electrical Equipment Plant, Hardwar which according to the tentative time schedule drawn up in October, 1963 for construction of the project should have been completed by the end of December, 1966, has not been completed till now. During evidence, the Committee were informed that so far 95% of the project has been completed. In other words, there has been a delay of more than five years in the completion of this project. In July, 1964, the construction schedule was revised. Another revision was made during December, 1966 to May, 1967 when the date of completion of project (excepting installation of Heavy, unique, special and non-standard equipment) was revised to December, 1968. In December, 1967, the Management again revised the time schedule and indicated that 99% of the blocks would be completed by the end of March, 1969. This revision became necessary owing to the delay on the part of the suppliers to despatch working drawings and equipment (imported and indigenous). During evidence of Undertaking/Ministry, it also transpired that out of Rs. 380.75 lakhs of equipment, equipment of the value of Rs. 70 lakhs had not been installed. The Committee were assured that the installation of this equipment would be completed by March, 1972.**

2.46. **The Committee are unhappy at the frequent revision in the date of completion of project and are particularly distressed by the fact that equipment to the tune of Rs. 70 lakhs had not been installed. The Committee feel that had the Management remained alert to their duties towards the Nation, and adopted modern techniques for planning, installation and commissioning of the machinery in the project, such delays could have been obviated. The Committee cannot too strongly stress the need for more scientific and rational, procedure in placing the orders for machinery and equipment two or three years in advance according to schedule so that they are received and installed in proper sequence to yield the best production results at the earliest.**

D. Performance Analysis

(1) *Rated Capacity*

2.47. The rated capacity as envisaged in the Project Report was 515 MW for medium and heavy electric machines, 1500 MW for steam

turbines and turbo generators and 1200 MW for hydro turbines and generators. The Project Report did not indicate any time bound programme for attaining the capacity from year to year. However, the Project Report gave an indication that the rated capacity would be attained in the 8th year of production.

2.48. During the evidence the Committee enquired whether the Hardwar Unit had reached the rated capacity.

The Chairman, BHEL stated as follows:—

> "the Project Reports formulated certain projections of achievement of rated capacity from the commencement of production. This was on the assumption that there would be a steady load on the plant and that the build up of capacity would be on a planned basis. The capacity of a plant of this nature has to be judged from the point of view of the acquisition of technology by the man. This I submit, can be done if the men actually manufacture a certain number of machines. Unofrtunately, in the case of these heavy electrical units both at Hardwar and Hyderabad the assumptions were that there would a steady load to facilitate build up of technology by recruiting adequate number of men, training them and bringing them in position and also to gain the necessary experience by manufacturing a sufficient number of machines. Only then they will be able to get higher levels of production and get confidence of manufacturing more and more. This has not in actual practice been the case".

The witness further stated that as late as in 1970 they had actually no orders except for 6 sets of 100 MW at Hardwar and 5 sets each of 110 MW/60 MW at Hyderabad.

The witness further informed the Committee that it was true the machine might have been brought to position. There was a hiatus in the order book position and in fact at Hardwar they had to hold back the recruitment of men because they just did not know what was going to happen regarding the order book position. The witness reiterated that it was not a question of lapse of certain number of years for achieving the rated capacity but it was definitely the number of machines, which actually the people in these factories manufacture that determined the development of capacity. The full capacity for generators and hydro turbines at Hardwar was expected to be reached as given in the Project Report in the 8th year of production. They had to view the development of capacity of heavy electrical industries in the context of actual order book position.

2.49. Asked whether they had adequate orders for the plant now, the witness stated that they had orders to keep them going till 1975-76 for the thermal sets. They did not have adequate orders for motors. They got orders upto 1972-73. Asked whether it was not a fact that the State Electricity Boards hesitated to place orders because delivery date was uncertain the witness informed the Committee:—

> "The Electricity Board till recently as late as 1970 were reluctant to place orders because they did not know how elect-

ricity plan was progressing at all. It was at my instance that they came forward to place some orders even before the actual inclusion of these schemes in the electricity development scheme. But apart from placing of the orders there are certain connected equipments. In placing of the orders they can place orders for the main turbine but they had to do on their part certain other connected facilities such as layout has to be finalised. They have to give us in case of hydro turbines the technical parameters. These have got to be designed and all this really takes time and merely by placing of the orders or just sending the letter of intent; I cannot give a definite date. I can only say from the date you give me particulars. I take three years to supply the equipment. There is no reluctance on my part to give them definite dates. Even now I say that in the case of thermal units I can supply turbo sets in three years from the date of placing of the orders except the connected piping and other auxiliaries for which they have to give me the data. In the case of hydro sets I can supply equipment in 3½ years from the date they give me full particulars to enable me to proceed with the phasing".

The Committee enquired whether this fact had been brought to the notice of Government by the Management. The Chairman replied in the affirmative. Asked about the reaction of Government, the witness informed the Committee that they had a meeting with the Secretary of the Ministry of Irrigation and Power on 30-11-1971. That Ministry had formulated 10 year plan 'Decade Plan'. On the basis of that plan, they had to phase out the work load and the time of orders to be placed by the State Electricity Boards and also to give the firm, technical data required for the design and the manufacture.

2.50. The Committee wanted to know the justification for taking long period for developing the full capacity of the project. The witness said:—

"There are two aspects; one is the construction phase and other is the development of the full capacity. For the construction phase, certain projections were made, that the construction phase would be over in about this time. In the early preliminary report it was said that it would be finished in three years time. But, as I said, there were delays in the construction and the construction phase has taken longer. But as far as the development of capacity is concerned, even the project report postulates that after effective production, when we start going into prodeduction, it will take 8 years for developing the full capacity of the project. So, these two aspects are different. It is not a question of having no period. There is a definite delay in the construction phase, I admit. And I submitted to the Committee earlier the main reasons why the delay in the construction took place. As far as the development of capacity is concerned. I have been submitting that this is not a time-based factor. I submit with all humility that in the case of heavy electrical industries and in fact in heavy electrical industry as distinct from process industry which could be time-based, it requires definite planning and orders book position must be firm. And this is the secret".

2.51. The Witness stated further that the anticipation of development of power generation and power requirements in the country were taken into account when the project was started and now the plans were being formulated from year to year and in the Fourth Plan itself there was blurring of the requirements of the power generation. Now there is a "Decade Plan" for the power generation and it was expected to get over the difficulties in the power equipment field.

2.52. During evidence of the Ministry, the Committee enquired whether Government were sure that the Hardwar Plant would attain the rated capacity within the stipulated period. The representative of the Ministry said that in activities like this sophisticated equipment which were being produced at Hardwar Plant, they could not really go on the basis of time based production capacity and attainment. They had actually a problem of absorption of skills in a very highly sophisticated field. It also required sufficient orders. In the early stages they could not get sufficinet orders and could not, therefore, achieve the rated capacity in the past. In the case of production of motors, hydro sets and turbo sets, they started production. In the case of bigger capacities-hydro and turbo sets, they expected to achieve the rated capacity in 1977-78. As against the promised delivery of six sets by March, 1972, they had already despatched 3 sets, the 4th was under despatch, 5th under assembly for tests and the 6th would be completed by 1972-73. The Committee were informed that the Hardwar Plant had since attained 13 to 15% rated capacity.

2.53. When the Committee pointed out that their project assessment was wrong, the General Manager, Hardwar Plant stated:

> "No. The project estimate is for four to five years after the completion of the project. But since there were no orders, there was no activity for two to three years. Only now we have a chance to start working".

He further added that:

> "For securing orders I will do my best, but I will require your help. Where advances are necessary, they should be given so that the components and other things can be tied up in time. I would request you to consider the suggestion to let us have an order for four or five sets because we know that we are short of power and we are going to require it".

2.54. **The Committee note that though the Project Report for Heavy Equipment Electrical Plant, Hardwar, did not contain any time bound programme for attaining the capacity from year to year, it gave an indication that the Plant would attain its "Rated Capacity" in the 8th year of production. The rated capacity as envisaged in the Report was 515 MW for medium and heavy electric machines, 1500 MW for steam turbines and turbo generator and 1200 MW for Hydro turbines and generators. During evidence, the Committee were assured by the representative of BHEL that full capacity for generators and hydro turbines was expected to be achieved in the 8th year of production but as Heavy Electrical industry is a sophisticated one this achievement would, however, depend on order book position and absorption of skill. The Committee also note that a 10**

year Plan called the "Decade Plan" has been drawn up for development of power generation in the country. The Committee feel that it should now be possible for Government to give a clear picture to the management as to what orders it was expected to plan for and execute during the next 10 years. The Plant has at present orders for thermal sets only up to 1975-76 and do not have adequate orders for motors. The Committee hope that all out efforts would be made to procure sufficient orders to ensure the achievement of the full rated capacity of the plant.

(II) *Production Performance*

2.55. The Plant went into partial production in January, 1967. In 1966-67, 34 electric machines totalling 3 MW were manufactured. During 1967-68, 46 electric machines totalling 4.2 MW were manufactured as against the revised target of 106 machines totalling 19.9 MW. The following table indicates built-up capacity, the production programme for the year 1968-69 and the actual production:—

Particulars	Stage-wise production Programme				Targets as per Budget Estimates				Actuals	
	Built up Capacity		Targets fixed as per Order on hand		Original		Revised			
	No.	MW	No.	MW	No.	MW	No.	MW	No.	MW
Steam Turbine and Turbo Generators	2	200	2	200	1	100	1	100	—	—
Electric Machines ..	648	163	413	135	225	55·3	206	37·3	178	25·94

The shortfall in production during 1968-69 was due to delay in receipt of components.

2.56. The BHEL in a written reply informed the Committee about the production programme and performance of Hardwar Projects for 1969-70 and 1970-71 alongwith the reasons for shortfall as under:—

1969—70 (Rs. in lakhs)

	Revised Budget	Actual	Shortfall (—)/ Excess (+)
1. Electric Machines ..	309·84	295·41	(—) 14·43
2. Turbo Sets ..	739·11	545·32	(—)193·79
3. Hydro Sets ..	81·02	46·77	(—) 34·25
4. Other jobs ..	60·43	59·40	(—) 1·03
	1,190·40	946·90	(—)243·50

970--71 (Rs. in lakhs)

	Revised Budget	Actual	Shortfall (—)/ Excess (+)
1. Electic Machines ..	297·27	227·12	(—) 70·15
2. Turbo Sets ..	682·14	528·35	(—)153·79
3. Hydro Sets ..	161·17	190·46	(+) 29·29
4. Other Jobs ..	61·69	81.60	(+) 19·91
	1,202·27	1,027·53	(—)174·74

1971-72

1. Electricals Machines ..	142·77	84·66	(—) 58·11
2. Turbo Sets ..	635·45	380·37	(—)255·08
3. Hydro Sets ..	428·17	195·81	(—)232·36
	1,206·39	660·84	545·55

Reasons for shortfall in production of electrical machines and steam turbine during 1969-70 were:—

(1) Out of 253 motors scheduled for production, 225 motors were produced during 1969-70. The reasons for shortfall are as under:—

(a) Design of 4 machines was to be developed at HEEP but these could not be completed in time due to initial technical difficulties.

(b) 4 big machines took a longer production time than estimated.

(c) Stampings for 3 machines to be received from USSR were not received in time.

(d) Remaining machines could not be completed as components for these from USSR were received late.

(2) *Turbo Sets*—One set was planned for completion, another set was to be partly completed and two other sets were expected to be in different stages of completion. It was not possible to achieve the target due to non-receipt in time of components and special steel from USSR, difficulties in obtaining special castings and auxiliaries planned on indigenous sources; and partly over optimistic budgetting. However, some work was done on two other sets not programmed to utilise labour.

Shortfall in 1970-71—In 1970-71 against the planned production of 250 electric machines valued at Rs. 297.22 lakhs, 226 machines valued at Rs. 227.12 lakhs were manufactured. The shortfall of approximately Rs. 70 lakhs in value was largely due to the non-receipt of components of motors from USSR in time.

The shortfall in production of Thermal Sets of Rs. 153.79 lakhs in value was mainly due to the non-receipt of bought-out items from *indigenous suppliers.

The shortfall in production of Turbo Sets was:

(a) Due to rejection of heavy castings and forgings which could not be replaced during the year.

(b) Late receipt of castings for critical assemblies.

(c) Receipt of stampings for starter of turbo generator in rusted conditions from the USSR which could be replaced only in April, 1970. Shortfall in thermal sets was partly made up by additional work done on hydro sets.

2.57. During the evidence of the Undertaking the Committee drew the attention of the witness at page 13 of the Audit Report (Commercial) *viz.* "it will be seen that six sets of Steam turbines of 100 MW are required to be delivered by the end of 1971-72 (2 sets each in 1969-70, 1970-71 and 1971-72)" and at page 14 "A review of the position obtaining in April, 1972 indicates that out of two sets of steam turbines of 100 MW each planned to be delivered in 1969-70; not even one could be delivered complete in all respects by that time".

The General Manager, Hardwar Unit stated as follows:—

"The position today is, up till end of March, 1972, we have to deliver as per programme 6 turbines; four are ready, we will deliver 5th and we are pushing in 6th one, and it will go about upto June. What happened was this. We presumed we will get castings in time, and the castings would be good. But when they came here, we sent them to the machine and we get blow holes. And if they are rejected, it takes time for the establishment of proper source of castings and forgings for this sophisticated industry.....For the 6th turbine, we were in trouble. There was a firm in Bombay who supplied the castings. The castings got rejected after machining in the shop. The firm has gone into liquidation. ..... If I go to a new firm to get the pattern, it will take 8 months. These are the problems. When we have said that it takes normally three years, it means that once we have got into motion, we take three years, now, we have come to the stage where we say that you give us three years time".

2.58. When the Committee desired to know the position about the 6th Machine, the General Manager, Hardwar Plant told that it will be delivered in June, 1972.

2.59. **The Committee find that there has been shortfall in production of electric machines, turbo sets and steam turbines in the Heavy Electricals Equipment Plant, Hardwar which went into partial production in January, 1967. The Committee were informed that the main problem standing in the way of achievement of the targeted production was delay/defective supply of castings and forgings from indigenous and foreign suppliers and non-availability of good quality castings and forgings. Since the problem is faced by the management year after year, the Committee are surprised that no**

*The indigenous supplies were mainly the other sister units (Hyderabad and Tiruchy units) as locally verified by the Chief Auditor, New Delhi.

satisfactory arrangement has been made in this direction by them and due to that the power generation in the country is greatly hampered. The Committee recommend that the Government and the Management of BHEL should tackle this production urgently and evolve a procedure by which the sustained and dependable supply of castings and forgings is ensured.

E. Built-up capacity and projections and utilisation thereof

2.60. The capacity likely to be developed during the Fourth Five Year Plan *viz.*, 1969-70 to 1973-74 was revised on four occasions in January, 1968 July, 1968, April, 1969 and December, 1969 as may be seen from the Appendix III.

6 sets of steam turbines of 100 MW each are required to be developed by the end of 1971-72 (2 sets each in 1969-70, 1970-71 and 1971-72).

2.61. According to the Management in December, 1969 there was an Experts Delegation from USSR which studied the capacity development. The plan up to 1974-75, as envisaged in their report, is given in the enclosed statement Appendix IV.

Briefly in terms of megawatt, these are for

1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
MW	MW	MW	MW	MW	MW
284	324	453	895	1,365	1,630

2.62. This development of capacity was estimated by the delegation on the basis of the following major assumptions:—

(1) It is necessary for HEEP to have order for six turbo sets of 200 MW each and two turbo sets of 100 MW each in order to fully load the available capacity of the Plant within the IV plan period.

(2) In large size machines, there should be orders for 500 numbers of 1971-72, 200 numbers for 1972-73 and 1000 numbers for 1973-74.

(3) Strengthening of the production section with workers is to be carried out as per calculations of the capacities.

(4) Tool Room and Design Division will require to be strengthened.

2.63. Firm orders for 200 MW sets were not available until December, 1970. In respect of Electrical machines, the order with Hardwar Plant was 314, out of which orders for 192 machines were received only after January, 1971. For want of orders it was not then considered advisable to take action for recruitment and training of workers which would have meant a recurring fixed liability and idle hours on the Plant. The lack of orders, therefore, upset the development of capacity envisaged in the Delegations Report. However, the

position of orders for Turbo Sets since improved and action was accordingly taken to recruit additional staff and develop all the facilities for production of the anticipated work load. In view of above, it became necessary to rework the projection of the development of the capacity for the years ahead.

"A review of the position obtaining in April, 1970 indicated that out of the 2 sets of steam turbines of 100 MW each planned to be delivered during 1967-70, not even one could be delivered complete in all respects by that time."

2.64. According to the Production Plan, six Steam Turbine Sets of 100 MW were required to be delivered by end of 1971-72. As against this it was intimated by the undertaking that 2 sets for 1969-70 and one for 1970-71 of Steam Turbine of 100 MW each had been delivered except for minor assemblies (40 per cent of one set) so far (February, 1972).

Indications given to the customers for delivery in respect of 3rd, 4th, 5th and 6th sets were as follows:—

		Latest position
3rd set	.. July, 1971	.. This has been delivered
4th set	.. September, 1971	.. Expected to be delivered by end of March, 1972
5th set	.. December, 1971	.. Do.
6th set	.. March, 1972	.. Expected to be delivered by June, 1972

2.65. The Management further stated that the programme of production and delivery suffered setback mainly due to the delay in receipt of castings and forgings from indigenous and foreign suppliers. In some cases, casting and forging received from indigenous suppliers were defective and were either rejected or needed rectification involving loss of furthr time.

2.66. Asked whether the Plant had to pay any penalty to customers on account of revision of delivery dates the official witness of the Ministry replied in negative. He added that there had been certainly delays but there was no serious lapse on their part which had upset anything.

2.67. It was pointed out that "The manufacturing programme of steam turbines as indicated in December, 1969 did not include any plan for production of steam turbines of a range higher than 100 MW each upto 1972-73. In the meantime, however, on the basis of an agreement entered into with the Collaborators in February, 1966, technical documentations for manufacture of turbines of 200 MW sets were obtained at a total cost of Rs. 13.24 lakhs during 1968-69 and 1969-70. In the absence of any definite production programme for steam turbines of such higher ranges in foreseeable future the reasons for obtaining technical documentations are not clear.

2.68. In this connection, it may be mentioned that a Technical Committee appointed in March, 1965 by the Planning Commission to study the requirement of major electrical equipment came to the conclusion that "in the present stage of development, the largest sizes that may be required in the country may not exceed 300 MW

in the Fifth Plan and 500 MW in the Sixth Plan." This Committee also referred to the findings of another Committee appointed by Government which estimated that the manufacture of steam turbo sets of the size of 200 MW each would be taken up by the Hardwar Unit for the first time in 1970-71. Further, in January, 1970 the Planning Commission also stressed the need to plan future thermal generating capacity of 100/110/120 MW sets and deprecated the tendency to go in for higher capacity sets for the sake of stabilisation of production.

2.69. The Ministry have stated (July, 1970) as follows:—

> "In a meeting recently held in the Ministry of Industrial Development regarding the requirements of 200 MW thermal sets, during the 4th and 5th Plan period, a Committee comprising of the members from Planning Commission, BHEL and the CW&PC noted that 200 MW sets could be located in the near future in Obra (UP), Talchar (Orissa) Korba (M.P.) Koradi (Maharashtra), DVC (Bihar) and Kothagudam (A.P.). It was further felt that 200 MW sets might be needed in Bhatinda and Badarpur, even though the demand in northern region was mostly for peaking capacities. In a meeting to consider the follow-up actions needed in this respect, it was noted that DVC authorities have already got necessary fund with them to order for 200 MW sets. The question has been already taken up with the Planning Commission, Irrigation and Power Department and CW&PC."

2.70. The Committee were informed by the Management that letter of Intent for eight 200 MW sets (3 for UP, 2 for Gujarat and 3 for Maharashtra) have been received. However, the first instalment payment has been received only for 5 sets. Since the technical details have not yet been finalised, no firm delivery dates have yet been committed to the customer.

2.71. The Management also indicated the extent of utilisation of the capacity to be developed as under:—

	1969-70		1970-71		1971-72		1972-73		1973-74	
	No.	MWs	No.	MWs	No.	MWs	No.	MWs	No.	MWs
Thermal Sets	2	200	2	200	2	200	2	400	2	480
Hydro Sets	—	—	—	—	3	64·6	5	120	9	360

2.72. During evidence, the Chairman, BHEL informed the Committee that till late in 1970, they procured components for 7 units of 110 MW, 8 units of 60 MW and 6 units of 100 MW. They had orders only for 6 units of 100 MW for Hardwar and 6 units of 60 MW and 5 units of 110 MW for Hyderabad. Therefore, they thought what would be the financial picture if they just maintain whatever the capacity that would be developed by 1970-71. The viability studies already made thrice were not against the full capacity or the installed capacity for which they had the machines but in the context of the orders they had and the projections made on the basis of other studies undertaken by the N.I.D.C. etc. This is the background of

their capacity studies that they had made with a view to approaching Government to allow them some means whereby they could at least keep up the capacity that they would have developed on the basis of the orders that they had already booked and for future projection also.

2.73. Asked on what basis the capacity likely to be developed was assessed, the witness stated that it was dependent on the orders in hand and the number of men that had got to be recruited to fulfil those orders. There was no common basis in all the studies. In converting these studies into monetary terms they had assumed certain sale values and also cost of production. The frequent revision of the capacity likely to be developed was not likely to have serious repercussions on the delivery schedules.

2.74. The Committee enquired that if these studies included the market potentiality for orders in the country mainly concerning Government and Electricity Boards how these calculations had gone so wrong. The witness stated that their market was practically the State Electricity Boards. Asked about the causes of failure of sales, the witness said that the project was conceived on the basis of a total plan of development of electricity in the country over a period of years and the BHEL was fulfilling their part to the extent to which they were asked to do so. They now expected to get higher orders. At the beginning of Fourth Plan, the position was bleak. They had orders for 18 sets only even though they had components for more sets. Only in 1970 when electricity plan was boosted up, certain orders had came in.

2.75. Asked about the present position of 200 MW sets, the witness informed the Committee that they had now firm orders for five 200 MW sets and letters of intent for three more. They had placed orders for 9 sets of 200 MW with Russian Collaborators and they had spent some money in getting drawing and documentation. The documentation could be used for the manufacture of nuclear generators also. The witness indicated that they had orders for turbo sets of 200 MW upto 1974-75; for Hydro sets upto 1974-75 and for machines upto 1972-73. The Committee wanted to know the number of sets which were expected to be manufactured by 1974-75.

The witness stated:—

> "I expect that by 1974-75 we would be manufacturing five to six sets of 200 MW. So, now is the time when we should take more orders, because the supply of components itself takes about 18 months to two years, because we are tied up with the collaborators. Even on the shop floor I want three years of manufacture. So, I have been pressing the Government to help us by giving some sort of an imprest order for four 200 MW and four 100 MW so that even if, at any point of time, we do not have any definite allocation, we can go ahead with making preliminary arrangements. I say this, taking into account whatever orders I have in hand. I won't automatically operate this imprest order but, as and when required, I can use the imprest more and more. I think Government is considering this suggestion."

2.76. Asked what efforts were being made to get firm orders, the witness stated:—

> "I would submit that the Ministry of Irrigation and Power has formulated a Decade Plan, and forward planning for power recruitment is an obsolute "Must" in the circumstances in which we are now placed. If the Decade Plan is given a firm shape by the Government, it will materialise as orders. It is now only a suggestion of the Ministry of Irrigation and Power, and what I require is that this should be translated into firm orders on the manufacturing units. If that could be done, it would be a concrete help."

2.77. The witness added further that they had all the drawings, specifications and details required and as such they could buy components anywhere in the world (these components are in a sense really raw material) but they were finding it easy to purchase it from their collaborators because the credit facilities are available there. At the present moment, they are placing orders with them because the foreign resources are linked to credit returns.

2.78. During evidence, the Committee asked whether in the opinion of the Government, frequent revision of the capacity likely to be developed did not make the future production planning difficult. The representative of the Ministry stated that one of the important assumptions underlying these studies was the order book position. The other point was the availability of material. The material and components were required to be purchased from outside. Availability of forging and casting had been proving a very difficult problem. Another important aspect was the absorption of skill involved in actual working on the product. Taking into account these factors, Government, it was stated, were reasonably satisfied that these revisions could not have been avoided. The original revisions were "ambitious" but the later revisions were more "realistic".

2.79. The Committee wanted to know what steps were being taken to secure more orders. The General Manager, Hardwar Plant said that they were receiving orders from outside agencies for the motors and control apparatus. There is a Senior Commercial Engineer in the Commercial Department who conducted studies for the requirement of motors. They received one order from a big private section Mill *viz.* Ahmedabad Rolling Mill for supply of motors and control gears. They had secured orders for supply of pumps from other private companies like Greaves and Cotton etc. They had taken another order from Bangalore Municipality for supply of motor pumps worth for Rs. 33 lakhs. They were expecting demand from outside the country also for which they had to develop the capacity.

2.80. **The Committee find that production and delivery schedule of Hardwar Plant has suffered set backs in the past. According to indications given to the customers the Plant was to deliver 3rd set in July, 1971, 4th in September, 1971 5th in December, 1971 and 6th in March, 1972. While the Plant delivered the third set, it hoped to deliver the 4th and 5th sets by the end of March, 1972 and the 6th set by June, 1972. The Committee have been informed that the de-**

livery of these sets had been delayed mainly due to the delay in receipt of castings and forgings from indigenous and foreign suppliers." Castings and forgings were so deffective that either they had to be rejected or rectified. The Committee recommend that this problem of castings and forgings should be tackled expeditiously in coordination with the Heavy Engineering Corporation as otherwise, it will not only seriously affect the Plants build up of capacity to the optimum level but impair the Plant's prospects of attracting more orders for sets.

2.81. The Committee find that capacity likely to be developed at Heavy Electrical Equipment Plant, Hardwar, was determined in October, 1963 but subsequently it was revised as many as four times during a period of two years i.e. in January and July, 1968 and April and December in 1969 generally in a downward manner. Unless the capacity determined in early stages was based on incorrect assumptions, the Committee do not see any other justification for such frequent revisions of capacity likely to be developed. The Committee were informed that the assumptions underlying the studies of development of capacity were order book position, availability of material and components and absorption of skills. Government admitted that the original estimates were more "ambitious" than realistic. The Committee recommend that Hardwar Plant should therefore, prepared, a realistic programme of build up of capacity to end uncertainty and obviate the need for frequent revisions.

2.82. The Committee note that in December, 1969 an experts Delegation from USSR studied the capacity development of Hardwar Plant and estimated that Hardwar Plant's capacity can be developed to 1630 MW by 1974-75 provided orders for 6 turbo sets of 200 MW each and 2 turbo sets of 100 MW i.e. 1400 MW are received within the IV plan Period and Production Sector Tool Room and Design Division are strengthened. The Committee understand that Hardwar Plant has firm orders for 5 sets of 200 MW and letters of intent for 3 more. The Plant is thus fully booked for turbo sets of 200 MW upto 1974-75. The plant is also booked for Hydro sets upto 1974-75 and for Machines upto 1972-73. During evidence the Committee were informed that as supply of components for those sets took about 1½ to 2 years and it took 3 years on the shop floor to manufacture a set, it was high time that the Plant had more orders to plan and go ahead with pre-production preliminaries. In this connection the Committee were also informed that Government were considering the question of providing an imprest order for four 200 MW and four 100 MW sets, so that even if at any point of time the Plant did not have definite allocation it could go ahead with making preliminary arrangements.

2.83. The Committee find that in the Mid-term Plan Appraisal it has been stated that "As against the targetted capacity of 23 million KW, it is now reasonably certain that 21.2 million KW may be achieved in 1973-74". "The reduction is mainly due to slow progress and delay in delivery of plant and equipment from the public sector manufacturing units". Under the heading "long-term measures". it has been stated by the Planning Commission that it is proposed to monitor manufacture of plant and equipment and delivery according to schedule.

The Committee are greatly distressed to find that while on the one hand, mid-term Plan Appraisal places the blame for shortfall in the installation of additional generating capacity on late delivery of plant and equipment by public undertakings, the Bharat Heavy Electricals have emphatically stated before the Committee their difficulties arising out of the non-receipt of firm orders for generating sets and equipment even though they have the capacity, the know-how and the skill to manufacture them. The Committee feel that this difficulty could have been easily got over by having an integrated plan for manufacture of generating sets and their delivery schedule to match the plan requirements. The Committee consider that it should not have been beyond the ingenuity of the Planning Commission/Central Government/State Electricity Boards/Public Undertakings to find means by which firm orders were placed for generating sets and equipment a few years in advance so as to ensure timely delivery as well as full utilisation of the manufacturing capacity developed in the public sector.

F. Idle machines and labour.

2.84. The Project did not work out the idle machine hours and idle labour hours for the year 1967-68. The position of idle machine hours and idle labour hours during the year 1968-69 as compiled by the Management is tabulated below:—

Sl. No.	Reasons	Idle machine hours				Tool Room	Idle labour hours	
		Block I	Block II	Block III	Block IV		Block I	Block II
1.	Want of load	23,254	9,004	24	617	7,791	4,114	32
2.	Want of operator ..	7,245	7,736	1,356	352	30,130	..	..
3.	Want of material ..	581	..		64	..	1,113	1,013
4.	Want of crane, jigs tools and fixtures ..	364		415		644	277	564
5.	Other reasons viz., want of power, technology and inspection	10,784	449	496	291	7,475	469	3,144 5,119*
		42,228	17,189	2,291	1,324	46,040	5,973	9,872
6.	Total available hours	1,49,336	45,224	21,678	6,394	1,86,876	69,571	4,90,410
7.	Percentage of idle hours to total available hours	28·28	38·0	10·6	20·7	24·6	8·6	2·0

*Reasons not specified.

2.85. The position in respect of idle machine hours and idle labour hours during the years 1969-70, 1970-71 and 1971-72 (as on 1-1-1972) is as follows:—

	1969-70		1970-71		1971-72	
	Idle Labour hrs.	Idle Machine hrs.	Idle Labour hrs.	Idle Machine hrs.	Idle Labour hrs.	Idle Machine hrs.
1. Total available Hours	9,41,500	8,77,378	12,90,103	8,80,842	13,37,086	10,89,771
2. Utilised Hrs.	—	—	12,59,628	6,31,642	12,61,594	7,45,525
3. Idle Hours	—	—	30,475	2,49,200	75,492	3,44,246
4. Percentage of idle Hrs. to available Hrs.	—	—	2·4	28·3	5·6	31·6
The reasons for Idleness are:						
(*a*) Want of load	—	—	1,604	25,772	6,906	25,804
(*b*) Want of Operator (on leave or absent)	—	—	—	1,33,276	—	1,74,719
(*c*) Other reasons	—	—	28,871	90,152	68,586	1,43,723

2.86. It would be seen that during 1968-69 idle machine hours due to lack of load and operator amounted to 87,509 *i.e.* 80 per cent of the total idle machine hours. Similarly, idle labour hours due to lack of load amounted to 4146 *i.e.* 26 per cent of the total idle labour hours.

2.87. The financial loss to the Company for idle hours in these Shops has not been worked out by the Management.

The Ministry have stated (July, 1970) as follows:—

(i) ". . . . in 1967-68 production activities had just started in one or two shops and hence no such data was compiled for that year.

(ii) . . . . . The idle hours due to no operators were kept in the interest of overall economy . . . as it was not possible to man all the machines when the load for such types of machines could be catered by manning only a small number of machines in a particular category.

(iii) . . . . . in the present developing stage of the shops the load could not be balanced on each of the equipment giving the production in the plant stabilised.

Also, all the machines are not expected to be run 100 per cent on the available time due to the nature of the operations being performed by such machines. . . . ."

2.88. From the above, it would be seen that the major factors responsible for non-utilisation of machines during 1969-70 were the lack of load and want of operators as was the case during 1968-69.

2.89. The Committee desired to know to what extent the non-utilisation of machines for want of operators has contributed to the delay in the execution of orders within the specified delivery schedules. The Undertaking informed the Committee that this factory was to be equipped with machines with a large ultimate production target and the installation of the machines was progressed. The manning of all the machines depended upon:

(a) the order book position at the time and

(b) the acquisition of experience to achieve the ultimate target of production in value.

2.90. Both these factors had been kept in view in manning the required number of machines. This might result in some of the machines not being manned right from the commencement of their installation. There had been no delay in meeting delivery schedules for want of apparatus in respect of certain machines. Our commitments regarding delivery were maintained suiting the actual requirements of the customers. Therefore, there was no occasion to do any exercise on the comparative economics of keeping the machines idle and of ensuring timely execution of orders. Machines had been installed only recently and action had been initiated to develop norms of maintenance for different types of machines in various blocks. It would take some time before reasonably dependable norms could be established. The entire maintenance work was being done by their Electrical and Mechanical Maintenance Department and no outside agency was employed.

2.91. **The Committee note that percentage of idle machine hours has increased from 24.43 (average of percentage in Blocks I to IV and Tool Room) in 1968-69 to 41.66 in 1969-70 and came down to 31.6 in 1971-72. Percentage of idle labour hours has gone up from 5.3 in 1968-69 (average of Blocks I and II) to 5.6 in 1971-72 although it was only 3 per cent in 1969-70. The main reasons for idleness of machinery were stated to be want of load and want of operator. The Committee find that Hardwar Plant has neither worked out its financial loss on account of idle hours nor has it developed norms of maintenance for different types of machines in various blocks.**

The Committee view this very seriously and recommend that Management should without further loss of time evaluate the financial loss due to idle capacity of men and machinery and assess its effect on the working results. The Undertaking should also fix realistic norms of maintenance and utilisation of machinery.

G. Material Management and Inventory Control

(i) *Material Procurement*

2.92. According to the purchase procedure, purchases are to be made by open tenders except in the cases specified therein.

In the case of purchase of stores on the basis of DGS&D contract rates, the procedure lays down that for reasons to be recorded in writing, the officers of the Purchase Department may place the orders at rates other than the lowest rates without financial concurrence if the difference between the lowest rate and that on which the order is being placed is not more than 10 per cent and the value of the order is within the specified limits.

2.93. Similarly, in the case of purchase of stores by open tenders, the orders can be placed on the firm other than the lowest tenderer without financial concurrence if the difference between the lowest rate and the rate at which the order is placed is not more than 10 per cent and the value of the order is within the specified limits. The cases have to be referred for financial concurrence only if either of these limits are exceeded. It may be mentioned that the Bureau of Public Enterprises in their Office Memorandum dated 31st January, 1969 had advised the public sector undertakings to consult the Finance Branch in cases of purchases where difference between the accepted and the lowest tender was more than 5 per cent subject to overall limits.

2.94. The Committee asked the reasons for not adhering to the limits suggested by the Bureau of Public Enterprises for consulting the Finance Branch. The Undertaking stated that the existing procedure in the Project provided that the cases should be referred to Finance for concurrence if the tender proposed to be accepted exceeds the lowest tender by more than 10 per cent. This procedure was in a way stricter than the one prescribed by the Bureau in that all cases where the tender to be accepted was higher than the lowest tender regardless of whether the lowest tender was technically acceptable or not, had to be referred to Finance for concurrence. However, instructions were issued in August, 1971 to give effect to Bureau's circular for reference of cases where the difference between the accepted and lowest tender was more than 5 per cent for financial concurrence.

2.95. **The Committee note that in January, 1969 the Bureau of Public Enterprises (Ministry of Finance) advised the public sector undertaking to consult the Finance Branch in case of purchases where difference between the accepted and lowest tender was more than 5 per cent subject to over all limits. The Committee find that instructions to give effect to the Bureau's Circular were issued by the Company in August, 1971 i.e. after a period of more than 2½ years. The Committee recommend that reasons for this inordinate delay in giving effect to instructions issued by the Bureau should be investigated and Committee kept informed. The Committee also recommend that Ministry/Bureau of Public Enterprises should ensure through periodical reports that instructions issued by them are being implemented by the Undertakings faithfully.**

(ii) *Inventory Control*

2.96. The following table indicates the comparative position of the inventory and its distribution at the close of the last three years:—

(Rupees in lakhs)

	1966-67	1967-68	1968-69	1969-70
1. Construction stores	241·65	239·80	179·96	158·55
2. Production stores	10·59	15·24	44·60	78·71
3. Miscellaneous stores	17·97	36·47	43·95	45·25
4. Construction stores in transit	28·99	61·16	27·86	2·23
5. Production stores in transit	..	10·63	26·52	72·24
6. Raw Materials	1·43	1·50	25·60	58·92
7. Components	..	18·53	58·36	377·15
8. Components in transit	0·22	301·89	318·49	137·84
9. Works-in-progress	14·47	24·46	197·38	509·49
10. Finished goods in stock	5·65	28·73	217·71	372·49
11. Consumption of raw materials, stores and components during the year	15·13	32·89	461·86	652·82
12. Closing stock of stores (excluding those in transit) in terms of months' consumption ..	23·8	26·2	4·5	10·3

2.97. The Management in a written reply after the evidence stated that they considered their inventory as reasonable, and theirs being a long cycle of production; stores of the value of at least 9 months' cost of production should be in inventory. The Committee enquired as to on what principles levels of inventory were fixed. In reply, it was stated that no levels of inventory had so far been fixed as the production was yet to stabilise.

Surplus and slow moving stores

2.98. The value of surplus and slow-moving items of stores in March, 1970 at the Hardwar Plant is indicated as below:—

Year to which pertains	Slow moving items	Non-moving items
	(Rs. in lakhs)	
1963-64	0·32	0·02
1964-65	6·20	4·20
1965-66	1·47	4·52
1966-67	0·88	2·84
1967-68	0·62	1·42
1968-69	6·59	25·88
1969-70	0·02	1·16
TOTAL ..	16·10	40·04

(Slow moving and non-moving store during 1970-71 was valued of Rs. 25·27 lakhs)

2.99. The Management stated (August, 1969) that in the initial stages of the Project of this magnitude and in the absence of complete detailed drawings from the Collaborators, advance procure-

ment of materials had to be made on the basis of general assessment with a view to carry out the construction activities within the scheduled period. In respect of the production stores it was stated that alloy steel valued at Rs. 17.89 lakhs was imported for the manufacture of special type of tools and hot forgings dies etc. on ad hoc basis as the actual requirement was not known at the time of procurement; further, it was a special type of steel for tools which was not available in India on short notice.

(ii) Besides, a further review of the stores made by the Management also revealed that 44 M. tons of imported steel valuing Rs. 6.81 lakhs, 900 M. tons of indigenously procured steel valuing Rs. 8.13 lakhs and miscellaneous stores valuing Rs. 4.84 lakhs were surplus to the requirement of the project in addition to 1,723 M. tons of steel already sold at Rs. 15.36 lakhs (book value being Rs. 15.10 lakhs). Further examination with a view to declaring items not required by the Project as surplus is still in progress in April, 1970.

2.100. To an enquiry about the latest position regarding disposal of surplus stores it was stated that out of 49.97 lakhs of stores declared surplus, stores of value 7.29* lakhs had already been disposed of leaving a balance of surplus stores of the value of 42.68* lakhs as per details given below:—

(Rs. in lakhs)

Category	Value of stores declared surplus	Already disposed of	Balance
		1969-70	
(1) Indigenous procured steel	8·13	5·01	3·12
(2) Misc. Stores	4·84	0·93	3·91
(3) Alloy steel (imported)	11·08	0·48	10·60
(4) Imported steel	8·08	—	8·08
	32·13	6·42	25·71
		1970-71	
(1) Electrical material and accessories	5·60	@	@5·60
(2) Wires and cables	7·66	—	7·66
(3) Coment, refractory, ACC/RCC materials	1·84	—	1·84
(4) Pipes & Pipe fittings	1·46	0·87	0·59
(5) Misc. stores	1·28	—	1·28
	17·84	0·87	16·97
Grand Total ..	49·97	7·29	42·68

The management stated that further examination of the remaining items was in progress. Lists of surplus stores were circulated to other public undertakings and also advertised in the Lok

*These figures will undergo changes consequent on the changes on page 68 as a result of Audit verification.

@According to verification by Audit, these should be 0·68 and 4·92 lakhs respectively with consequential changes in total.

Udyog. Since the response has not been very encouraging, fresh tenders are being invited for the disposal of these items.

Finished Stock

2.101. The value of finished stock held at the Hardwar Plant was Rs. 217.71 lakhs as on 31-3-1969. The finished stock increased to Rs. 433.58 lakhs as on 31-3-1971 but has again come down to Rs. 212.10 lakhs as on 31-12-1971 as indicated below:—

	(in lakhs)
Hydro Sets ..	14·83
Turbo Sets ..	118·97
Motors ..	78·30
	212·10

2.102. The Management in a written reply have explained the reasons for outstanding finished stock of motors as under:—

"1. *Flame Proof Motors valuing Rs.* 16.91 *lakhs Outstanding since January*, 1968.

MAMC, Durgapur, after placing letter of intent refused to lift the motors and the matter is still under dispute.

2. *Excavator Electrics maufactured for HMBP, Ranchi, valuing Rs.* 20.40 *lokhs—Outstanding since March*, 1971.

The delivery schedule of motors was revised by the Customer after these were manufactured as per their original delivery schedule.

3. Motors valuing Rs. 3.63 lakhs are to be diverted to other customers. Therefore, they are being suitably modified to suit to the revised requirements of new customers.

4. Rest of the motors valuing Rs. 37.36 lakhs have been manufactured during the year 1971-72 and are awaiting despatch due to non-availability of wagons and load tests insisted upon by the customer."

2.103. The Committee enquired to what extent such stock entailed blocking of Company's funds. The representative of the Undertaking said:—

"There are certainly some items pending despatch and this is certainly blocking the funds. There is no doubt about it, and it has to be kept to the minimum. But in respect of those items which have already been despatched but could not be invoiced, it is part of our financing pattern and therefore we could say that it is not blocking the funds."

The witness also stated:—

"According to our term of payment, only when whole of equipment is supplied, the balance (after getting initial advanced payment of 50%) is to be invoiced. We had supplied during the interim period, quite a lot of material, but because of this term of payment we could not invoice it till final delivery to the customer."

2.104. **The Committee note that the closing stock of stores in terms of months consumption held by Hardwar Plant has been brought down from 23.8 in 1966-67 to 10.3 in 1969-70. The Committee expect that this will be further brought down in the near future to avoid blocking of funds. The Committee also note that the Plant had finished stock worth Rs. 212.10 lakhs as on 31st December, 1971. It has been stated that sometimes customers refuse to lift the motors after placing letter of content in the case of Flame Proof Motors valued at Rs. 16.91 lakhs not lifted by MAMCO or revise the delivery schedule as in the case of Excavator Electrics manufactured for HMBP, Ranchi. The Committee recommend that agreements with customers should be reviewed with a view to see whether the terms and conditions can be suitably modified to avoid such contingencies.**

2.105. **The Committee are surprised to find that alloy steel valued at Rs. 17.89 lakhs was imported for the manufacture of special type of tools and hot forgings, dies etc. on 'ad hoc basis'. It was stated that the actual requirement was not known at the time of procurement. The Committee are unable to appreciate why this import of alloy steel was made by Hardward Plant and authorised by Government on an ad basis and that too when even the actual requirement was not known. The result of this hasty procurement action has been that alloy steel of the value of Rs. 10.60 lakhs is living surplus to requirements of the plant. The Committee feel that responsibility for making this ad hoc purchase involving foreign exchange should be fixed and the Committee informed of the action taken.**

2.106. **The Committee note that stores worth Rs. 42.68 lakhs have been declared surplus to requirement. The Management have stated that though the list of surplus stores was circulated to other public undertakings and advertised in Lok Udyog the response was not encouraging and fresh tenders were being invited. The Committee recommend that since non-disposal of surplus stores blocks the capital, vigorous efforts should be made by the Management to dispose of such stores early, but it should not be a distress sale. The Committee also recommend that continuous review of stores should be made to identify the surplus and suitable action taken to divert them for alternate purposes.**

H. Import Substitution

2.107. The Detailed Project Report did not give indication about the extent of import substitution, to be effected from time to time, by indigenously manufactured raw materials and components. In November, 1966 the Project however, fixed the level of components, raw materials and intermediary products to be imported in various stages.

2.108. These levels were revised when the report on stage-wise development of production was prepared by the Soviet Consultants in January, 1968. The following table gives the progress made by

the Project in regard to indigenous substitution till 1968-69 vis-a-vis the programme given in the report on stage-wise development of production:—

A. *Medium size electric machines*

Description	Scope of deliveries in terms of percentage of the total cost, of articles, by years and development stages									
	1967-68						1968-69			
	I		II		III		IV		V	
	Expected to be imported (USSR)	Actual import (USSR)	Expected to be imported (USSR)	Actual import (USSR)	Expected to be imported (USSR)	Actual import (USSR)	Expected to be imported (USSR)	Actual import (USSR)	Expected to be imported (USSR)	Actual import (USSR)
1	2	3	4	5	6	7	8	9	10	11
A.C. Electric Motors (Dasa type) 200 to 950 KW	98·9	95	97·1	85	87·7	75	79·8	70	43·5	
A.C. Electric Motors 250 to 950 KW	98·8	95	86·1	80	74·4	70	58·0	Manufacture not taken up		
D.C. Electric Motors and Generators Up to 925 KW	92·0	90	74·2	75	72·1	70	35·1	35·1	27·8	..

B. *Heavy Electric Machines*

Description		Scope of deliveries in terms of percentage of total cost of articles, by machine Nos.					
		No. 1		No. 2		No. 3	
		To be imported (USSR)	Actual import (USSR)	To be imported (USSR)	Actual import (USSR)	To be imported (USSR)	Actual import (USSR)
1000 to 90000 KW Machines ..	A.C. ..	77·7	95	59·5	No order	47·2	No order
225 to 1000 MW Machines ..	D.C. ..	63·2	No Order	50·9	No Order	32·4	No Order

C. *Turbo Generators*

Description	Scope of deliveries in terms of percentage of total cost, by years and machine Nos.					
	1968-69					
	No. I		No. II		No. III	
	To be imported (USSR)	Actual import (USSR)	To be imported (USSR)	Actual import (USSR)	To be imported (USSR)	Actual import (USSR)
100000 KW Turbo generators TTI 100-2 ..	98·4	100	98·4	100	88·2	76·4

2.109. The Undertaking stated that the import content as taken in products of BHEL in 1969-70, 1970-71 are given below:—

	1969	1970
Turbo	57%	40%
Hydro	—	51%
Motors	47%	20%

2.110. The actual content was the same as anticipated.

The Management stated (September, 1969) that (i) the production of medium size electric machines (250 to 950 KW) in the IVth and Vth stages was not taken up as Block was not ready to undertake the manufacture of winding etc. (ii) the production of 225 to 1000 KW D.C. machines had not been taken up as there was no order in hand, (iii) as the testing of 1000 to 9000 KW AC machines after full manufacture was difficult at the present stage of development, the Plant had to resort to higher percentage of import, and (iv) as regards Turbo generators, it was decided by the Company to get the first two sets from the USSR in a completely finished condition.

2.111. The Committee on Public Undertakings in paras 56 and 63 of their 39th Report (Third Lok Sabha—March, 1967) recommended that the Company should make earnest efforts to obtain detailed drawings and body compositions of spare parts and components of the plant and equipment from Consultants and suppliers to eliminate dependence on foreign suppliers. They further urged that efforts and research should be made to use substitute materials easily available in India, for example, the replacement of copper by aluminium and the procurement of indigenous insulation materials.

2.112. No progress has been made so far (July, 1970) in regard to (i) the replacement of copper by aluminium and (ii) procurement of drawings and body compositions of spare parts for thermal power station equipment although a list of documentation for spare parts required for these equipments was sent to the Collaborators in June, 1969. However, drawings for quick wearing spares for 92 model machines out of 147 machines requisitioned from the Collaborators have been procured so far (February, 1970). As regards the insulation materials, the Project purchased material worth Rs. 19,198 indigenously against the total purchases of Rs. 51,572 during the year 1968-69. The Ministry stated (July, 1970) as follows:—

> ".....substitution of copper with aluminium in the equipment of a highly sophisticated nature, is not possible as copper is mainly used for rotating parts .....Even if such substitution was feasible, it could be tried only after the Company had mastered the technique of production of their collaborators, when they would be in a position to undertake major research and development work relating to substitution of basic materials used by their collaborators."

2.113. The Committee desired to know the latest position regarding replacement of copper by Aluminium. In reply the Management stated that in regard to substitute of copper by aluminium in all types of electrical machines it has been stated that following extensive development done elsewhere, it has been possible to replace copper by aluminium only in the case of Power Transformers and squirrel-case motors of small ranges, both of which are outside the manufacturing range of Hardwar Unit. The smallest size of the machines in our scope of manufacture is 100 KW for AC and such a replacement has been possible only upto 10 or 15 KW, which we do not manufacture. For the higher size of motors, it has not been possible to replace copper by aluminium mainly because the mechanical strength of aluminium conductor is not adequate and the size of the machine will be too big for the same rating, owing to various technical considerations.

2.114. Asked about the procurement of drawings and body compositions of spare parts for thermal power station equipments the BHEL stated that drawings and compositions of spare parts for thermal power station equipment included in our scope of supplies have been received and these have been processed, taking into account the substitution of many of the imported items by indigenously available materials.

2.115 Asked whether the drawings for quick wearing spares for the remaining 55 machines had since been received the Undertaking had stated that these drawings have mostly been received and manufacture of the spare parts had commenced already in accordance with the drawings. Whenever certain drawings were not available, the necessary information had been prepared at the Plant itself and the manufacture was proceeding satisfactorily.

I. Saving in foreign exchange

2.116. From its inception upto 31st March, 1969, the Project manufactured products of the value of Rs. 656.09 lakhs. The net saving in terms of foreign exchange effected as a result of the items manufactured, however, amounted to Rs. 78.71 lakhs only as indicated below.

(Rupees in lakhs)

Expenditure in foreign exchange		Earnings
1. Cost of raw materials and components imported ..	334·46	Value of 656·09 products at selling price
2. Value of the products for which indigenous capacity already existed.	136·79	
3. Depreciation on the value of imported plant and machinery	54·40	
4. Expenditure on foreign technicians etc. (represented by the portion of deferred revenue expenditure charged to Profit & Loss Account).	51·73	
5. Balance representing the saving in foreign exchange ..	78·71	
	656·09	656·09

The effect of creation of a self-reliant manufacturing capacity is not, however, capable of evaluation in precise monetary terms.

NOTES:

1. In computing the above figures the import content in the raw materials and other equipment procured indigenously has not been taken into account.

2. As depreciation represents the extent of utilisation of plant and machinery for production it has been taken into account only on the imported cost thereof.

3. The selling price of the Company's products has not been fixed so far in a number of cases and, therefore, the valuation of products in these cases is provisional.

2.117. The Undertaking subsequently informed the Committee that the savings in foreign exchange effected upto the end of 1970-71 and 1971-72 (as on 1-1-72) amounted to Rs. 477.01 lakhs and Rs. 371.03 lakhs respectively.

2.118. During the evidence, the representative of the Ministry stated that the Hardwar Unit which was still in the process of construction commenced submitting quotations in response to global tenders invited for products in its manufacturing range.

2.119. **The Committee note that the Hardwar Plant has made a beginning in export promotion by submitting quotations for global tenders. The Committee need hardly stress that what is more important is attainment of perfect standards of quality, development of competitive price. Standardisations of products to suit international specifications adherence to delivery schedules which alone will help the Plant to secure orders and earn suitable foreign exchange. The Committee also recommend that the assistance of Research and Development Organisations in the field should be taken in developing the appropriate and adequately qualitative indigenous substitutes for imported content of the products. The Committee feel that the first charge on Hardwar Plant should be that of Electricity Boards of the country which should not suffer in the event of the Plant accepting the global orders.**

J. Profitability

2.120. No profitability study was made before taking a decision for setting up the Project. However, according to the forecast made by the Consultants in the Detailed Project Report (June, 1963) a profit of Rs. 839 lakhs was expected to be made by the Project by attaining the rated production in the eighth year of its operation. The Project started partial production in January, 1967 and should accordingly achieve the above target in 1974-75. In the light of the pattern of load and the selling prices expected from time to time, the Management made various profitability studies. As per the studies made in March, 1969 and June, 1969, the loss during the Fourth Five Year Plan i.e. 1969-70 to 1973-74 works out to Rs. 4,542 lakhs and Rs. 4,049 lakhs respectively.

2.121.The basis for working out the loss of Rs. 4,049 lakhs is indicated in the table below:—

Item	1969-70	1970-71	1971-72	1972-73	1973-74
Thermal sets					
Developed capacity .. MW	200	200	400	800	1,200
Utilised capacity .. MW	200	200	200	160	..
Hydro sets					
Developed capacity .. MW	..	60	185	465	800
Utilised capacity .. MW	..	60	185	465	630
Electric motors					
Developed capacity .. MW	81	214	420	477	515
Utilised capacity (Utilisation based on anticipated orders) MW	81	71	140	160	172
					(Rs. in lakhs)
(*a*) Cost of sale	1,682	1,788	2,286	2,673	2,761
(*b*) Sale value at estimated landed cost	873	979	1,457	1,902	1,930
(*c*) Profit (+) Loss (—) ..	(—)809	(—)809	(—)829	(—)771	(—)831

2.122. As per profitability study made in June, 1969 the extent of fixed expenses (including salaries and wages) forming part of the total cost of production in the various years under projection is as follows:—

(Rs. in lakhs)

	1969-70	1970-71	1971-72	1972-73	1973-74
1. Salaries, allowances and other Provisions for employees ..	181	193	205	223	234
2. Resident consultants charges ..	114	48	33	40	5
3. Administrative expenditure ..	83	91	99	106	109
4. Township	45	55	60	67	72
5. Depreciation ..	149	244	320	365	365
6. Interest	111	241	341	415	443
	683	872	1,058	1,216	1,228

2.123. A comparison of the loss indicated in the projections made by the Company with the quantum of fixed expenses forming part of the cost of Production revealed that during 1969-70 even a part of the variable expenditure was not likely to be recovered, while the extent of recovery of fixed expenditure in the subsequent years would be 7 per cent in 1970-71, 22 per cent in 1971-72, 37 per cent, in 1972-73 and 32 per cent in 1973-74.

2.124. According to a fresh profitability study furnished by the Management in September, 1970, the Unit is likely to make loss up to 1973-74 as indicated below:—

(Rs. in lakhs)

	1969-70	1970-71	1971-72	1972-73	1973-74
Cost of Sales	1,205·88	1,943·10	2,726·29	3,998·10	5,125·75
*Sale value	946·90	1,398·65	2,152·29	3,240·98	4,458·52
Loss	348·98	544·45	574·00	757·12	667·50

*The sale value is based on estimated sale price settled with the customers in the case of motors, interim recommendations of the pricing Committee for thermal sets and approximate landed cost for hydro sets.

The above profitability study is stated to be based on actuals for 1969-70, budget estimates for 1970-71 and Projected development of capacity as assessed by the Plant in December, 1969, in respect of 1971-72, 1972-73.

2.125. The actual loss incurred during 1969-70, however, amounted to Rs. 338.81 lakhs including prior period adjustments to the extent of Rs. 10.79 lakhs. The sale value of products sold or in stock Rs. 944.26 lakhs was stated to be based on realisable value after provision for contingencies.

2.126. The utilisation of developed capacity (based on full utilisation) as assumed in the above study is mentioned below:—

(In MW)

Year	Capacity assumed for utilisation			
	Electric Motors	Turbo sets	Hydro sets	Total
1969-70 ..	76	200	—	276
1970-71 ..	84	200	—	284
1971-72 ..	145	400	119	664
1972-73 ..	185	600	266	1,051
1973-74 ..	370	800	286	1,456

2.127. It may, however be mentioned that the developed capacity as assumed for full utilisation for the above study does not tally in a number of cases with the capacity planned for development as per estimates of December, 1969.

2.128. During evidence, the Chairman informed the Committee, that the developed capacity was dependent upon the orders that they actually executed.

Asked whether their developed capacity was coterminus with the amount of orders they got and anticipated, the witness explained that it was so in the initial years but in the subsequent years there was a gap.

The witness admitted that the developed capacity was not fully utilised unless they got the orders.

To an enquiry about the reasons for the wide variations in the anticipated losses between the two profitability studies, the undertaking explained the reasons for wide variations between losses incorporated in the two profitability studies made in June, 1969 and September, 1970 as follows:—

(1) Firstly the profitability study of June, 1969 was based on the assumption that 1/3rd of the capacity likely to be developed for manufacture of motors would be utilised and in respect of thermal and hydro sets orders in hand will be completed. In the profitability study made in September, 1970 it was, however, assumed that capacity likely to be developed would be fully utilised.

(2) Secondly in the profitability study of June, 1969 price for thermal sets was taken at Rs. 324 per KW the rate which was quoted to their customers. In the study of September, 1970, price of 100 MW thermal sets was taken at Rs. 375/- per KW as per indications then available from the *ad hoc* Pricing Committee set up by the Government of India to settle prices for 100 MW set and that of 200 MW set at Rs. 310/- per KW.

2.129. The above two assumptions accounted for the increase in sale value of production resulting in decrease of losses.

According to Profitability Study done in September, 1970 the Plant was expected to break even in 1975-76 at 65% of the rated capacity.

To make the Plant viable, the following conditions were to be fulfilled:—

(1) Adequate orders on hand;

(2) Absorption of technology and skills by the Officers and workers of the Plant;

(3) Fixation of reasonable price for its products;

(4) Availability of acceptable castings and forgings imported and indigenous in time.

2.130. It was also stated that efforts were being made to obtain adequate orders for the Plant, and as a result thereof, the position of orders had improved. Action for recruitment and training of workers and officers had been taken. A Pricing Committee was appointed by the Government to settle prices of Hydro and Thermal sets wherever there was disagreement over the prices between the customers and the Company. Efforts were also being made to stabilise indigenous casting and forgings and switch over to imported one wherever necessary to fulfil the production plan.

2.131. In a written reply after the evidence, the Ministry stated that utilisation assumed for 1970-71 in the study of September, 1970 and the actual utilisation for 1970-71 were as given below:

	Motors	Thermal sets	Hydro sets
September, 1970 study	84	200	—
Actual production ..	60	200	—

2.132. The orders on hand in respect of Hydro and Turbo sets would give full load right upto 1973-74. As for motors, there were no orders to load the Plant beyond 1972-73 except for traction machines. The projected losses in September, 1970 study would be effected not only by the variation in the actual production against the orders with reference to the assumed utilisation but also by the prices of the products settled with the customers.

2.133. During evidence the representative of the Ministry informed the Committee that no further profitability study was made after September, 1970. However in a written reply, the Ministry informed that a fresh profitability study taking into account the work load on hand, anticipated production during 1972-73, 1973-74 and 1974-75 and prices likely to be received for the products was being taken up by the Company.

2.134. During evidence the Committee asked as to how despite these profitability studies, the losses were there. The witness said that the loss was on the decrease. The main purpose of a profitability study was to evaluate the situation in the context of the orders which they definitely had and those which they were sure of in the foreseeable future. After a considerable probe into the cost of manufacture, incidence of capital charges and efficiency it was assessed that 100 MW set should be priced at Rs. 369.9 lakhs and this was another factor which had some effect on the second profitability study. The principle of pricing adopted by the Price Fixation Committee was to be fair both to the manufacturer and the customer.

2.135. **The Committee note that the Hardwar Project has so far undertaken three profitability studies in March, 1969, June, 1969 and September, 1970. The Committee regret to observe that none of them could actually come true either due to under utilisation of developed capacity or fixation of ad hoc selling prices. The Project intends to undertake another study soon, "taking into account the work load on hand, anticipated production during 1972-73, 1973-74 and 1974-75 and prices likely to be received for Company's products." The Committee hope that a more realistic position would emerge as a result of proposed study and the unit would make all out efforts to procure firm orders for the utilisation of the developed capacity and fix reasonable selling prices competitive but consistent with production costs.**

K. Stamping-unit

2.136. At the time of preparation of the Project Report for the Heavy Electrical Equipment Plant, Hardwar, the Soviet Consultants suggested that stamping could be purchased from M/s Sankeys after examining their capacity to do the jobs. Subsequently, in October, 1963 the Soviet Consultants took the stand that manufacture of stamping should form part of the Hardwar Project itself. In March, 1964 they prepared a preliminary Report giving details of the additional area needed for this Unit and the principle equipment to be installed. Taking into account the then prevaling rates of customs duty and additional equipment and facili-

ties, the Management estimated in October, 1965 the investment on the stamping unit roughly at Rs. 155 lakhs.

2.137. The Comparative cost of the representative types of stampings as envisaged by M/s Sankeys and that worked out on the basis of Preliminary Report by the Company in 1965 is given below:—

(Rupees in lakhs

Quantity	If purchased from M/s. Sankeys, Bombay	If manufactured in the Plant
10,400 tons of stampings per annum ..	90·11 (including a profit margin of Rs. 14 lakhs).	80·12

M/s Sankeys expressed doubts regarding the cost worked out by the Company on the basis of the Preliminary Report. The Management, however, held the view that in the earlier years M/s Sankeys offer might be advantageous but in the long run, the departmentally run stamping unit would be more economical. Accordingly an agreement was executed with the Consultants on 10th November, 1966 for the preparation of a brief Project Report and the working drawings at a cost of Rs. 7.60 lakhs (90,000 Roubles); the supply of the Project Report and working drawings was to be completed by 10th November, 1967. The Consultants delivered the Project Report in January-February, 1968 and the delivery of working drawings, started from August, 1967. On receipt of the Report, the estimates of Rs. 155 lakhs were revised to Rs. 265.23 lakhs in February, 1968 on account of devaluation and provision of certain additional facilities. These estimates were further revised to Rs. 323.11 lakhs in April, 1968 to include the estimated increase in the cost of plant and machinery (Rs. 3.20 lakhs), civil works (Rs. 3.27 lakhs), contingencies (Rs. 2.37 lakhs) and to provide for the cost of the Project Report and the working drawings (Rs. 7.60 lakhs) and incidental expenditure during construction (Rs. 41.44 lakhs) which were not provided for earlier. The return on capital as per revised estimates was worked out at 5.4 per cent in 1970-71, 16 per cent, in 1971-72 and 21 per cent thereafter. The revised estimates were approved by Government in October, 1968. The agreement for the supply of plant and machinery for the Unit has been executed on 20th July, 1970.

2.138. The Unit was planned on the basis of the requirement of 10,400 tons of stampings per annum. The requirement of stampings based on minimum expected orders during the years 1969-70 to 1973-74 will, however, be as follows:—

Year	Requirement (tonnes)
1969-70	75
1970-71	175
1971-72	460
1972-73	1,250
1973-74	2,260

2.139. The Ministry have stated (September, 1970) as follows:—

"A decision was taken by the Government to set up a Staming Unit because of the high estimated demand for stamping from the heavy electrical equipment industry. There is a virtual monopoly of the big private sector unit in this field at the moment in the country. It was, therefore, felt that the demand for electrical stamping consumption from within the units of BHEL being large, there is a scope for such manufacturing unit to meet the demand. The expectation has not been belied. The Hardwar Plant has received letters of intent for manufacture and delivery of 3×200 MW sets during 71-72 and expects to take orders for another 7 to 10×200 MW sets during the 4th Plan period. Further an increase in the manufacture of traction electrics will also increase the demand for electrical stampings. Keeping all these factors in view, it is considered that the plant has been set up on an estimate of realistic demand for this product."

2.140. Complete working drawings for the Stamping Unit have been received from the Russian Consultants. It is proposed to develop the Stamping Unit in phases in keeping with the anticipated requirement of stampings during the 4th and 5th Plan period. Out of 19 items of imported Plant & Equipment needed for this Unit, 6 have been received in the Plant, 8 items procured for the main Factory are proposed to be diverted to this Unit, negotiations for procurement of 4 items are in progress and the procurement of 1 item has been deferred. Out of 33 items to be procured indigenously, 12 are proposed to be diverted from the HEEP, 5 have been ordered, 9 are in the process of procurement and procurement of remaining 7 items has been deferred.

2.141. The economics of the Stamping Unit had been worked out at the time of submission of this Project to the Government in April, 1968. An assessment of the anticipated requirement of the stampings on the basis of the orders now received is being made for the 4th Plan period and the economics of the Unit will be worked out after this assessment is complete.

2.142. During evidence, the Committee desired to know the annual workload on Stamping Unit on the basis of the orders in hand. The Chairman, BHEL informed the Committee that the annual workload on the basis of orders was about 2800 to 3000 tonnes as against the anticipated production of ten thousand tonnes per annum. In the first instance, the plan was to put up three bays of the Stamping Unit, but now they were laying only two bays of this Unit. The original estimated cost of this Unit was Rs. 3.23 crores but it was now proposed to invest only Rs. 1.6 crores.

2.143. Enquired about the present position of orders in hand, the General Manager, Hardwar Plant said that the Stamping Unit depends on the orders on the main manufacturing unit viz. turbo

sets, hydro sets and motors. They planned to instal the presses depending on what orders they would be getting. The total requirement of the big presses were four numbers but they have installed only two presses and the installation of the remaining two had been deferred. They also did not instal all the required number of equipments in each unit. However, they have left space for some presses to be added later on.

2.144. The Committee desired to know the cost of machines for 10,000 tonnes capacity which they had got and the present capacity of the unit. The witness said that the total immediate investment was of the order of Rs. 1.6 crores in the first phase. The present capacity of the unit is 3,000 tonnes per annum. They were expecting the Stamping Unit to go into production by March, 1972.

2.145. During evidence, the representative of the Ministry informed the Committee that it is the general practice all over the world for such huge plants to set up a Stamping Unit in the plant itself.

2.146. In a written reply, the Ministry informed the Committee as follows:—

After the project was sanctioned in October, 1968 the question of procurement of Dies was further examined when the Soviet Delegation came to India in December, 1968. Hitherto the thinking was that dies could be brought from outside parties until such time as Company's own tool room facilities were developed. It was meanwhile, ascertained that dies were not available indigenously and, therefore, the need arose for having a long-time arrangement which involved the setting up of a new tool-room Section for the Stamping Unit. This decision required re-examination of the lay-out of the Block and assessment of additional equipments needed to set up the Section. It was also felt that the requirement of stampings for the Plant in the initial years will be of the order of about 4,000 tonnes with a possibility of increased requirements thereafter. Therefore, it was considered advisable to set up the Stamping Unit in two phases (1st phase to establish capacity of 4,000 tonnes and 2nd phase to establish capacity beyond that if found necessary) keeping the requirements of the Plant in view, so as to avoid blocking of funds in setting up of the Unit and to save unnecessary expenditure on capital based charges, depreciation and interest. These factors required re-assessment of requirement of plant and equipment of the Unit which took about two years after the date of sanction.

2.147. The General Manager, Hardwar Unit further informed the Committee during the evidence of the Ministry that they had tried to save expenditure which was avoidable. In the plan figures of 1967-68 all their requirements virtually finished during that period, and if they installed the machinery of stamping unit at that time, then losses would be heavier because of depreciation and interest charges. They had to reconsider the idea for installing stamping unit. There were enquiries again made from M/s Sankeys and if there was extra capacity at Bhopal or Hyderabad. One or two

years were lost in taking these enquiries. When Russian submitted their final report for putting the Stamping Unit, their estimates which was approved by Government was Rs. 3.23 crores. Since they did not get orders, they thought that it was not the right time to get Government's sanction for the said amount. Thereafter they had changed their planning and they planned the stamping unit to be completed into two phases. The first phase is the establishment of all the plants according to the planning. In such places where there is a need for two or three presses, they will put one press. There was a very big press of 1,600 tonnes-capacity which had been differed. First phase Stamping Unit will be ready for working by March, 1972. They have placed orders with the HMT taking into consideration the present requirements. The supply of machinery would be worth about Rs. 1.17 crores. They purchased from USSR machinery worth about Rs. 19 lakhs (Approx.).

The second phase was to meet their future requirements when their load capacity would go up to 70 or 80 per cent.

2.148. **The Committee are not happy at the way the planning for setting up a stamping unit which was considered so essential to the Unit, was handled. The Committee find the proposal to set up a stamping unit as part of Hardwar Project was mooted by the Consultants in October, 1963, estimates of expenditure (revised) were approved by Government in October, 1968, agreement for supply of plant and machinery was executed in July, 1970 and the Unit was expected to go into Production by March, 1972. It is really a sad commentary that it should have taken more than 8 years to set up and commission this Unit which was conceived as early as in 1963.**

According to the estimates prepared by the Management in October, 1965, the Stamping Unit with a capacity of 10,400 tonnes of stamping per year was to involve investment of Rs. 155 lakhs. On receipt of Project Report from the Consultants, the estimates were revised to Rs. 265.23 lakhs in February, 1968 on account of devaluation and provision of certain additional facilities. These estimates were again revised to Rs. 323.11 lakhs in April, 1968 to include estimated increase in cost of plant and machinery, civil work, contingencies incidental expenses during construction and to provide cost of the Project Report and working drawings which were not provided for earlier.

The unit was planned on the basis of requirement of 10,400 tonnes per annum but according to estimates based on minimum expected orders it was clear that the requirement which would be 75 tonnes in 1969-70 which may rise to 2,260 tonnes only by 1973-74. Consequently the Unit is now proposed to be set up in two phases, the first phase being of 4,000 tonnes capacity and the second phase to be undertaken if and when necessary. The Committee have been informed that economics of the Unit will be worked out after the assessment being made for Fourth Plan of anticipated requirement of the stampings on the basis of the orders now received is completed.

The Committee recommended that such delays which result in increase in estimated cost and thereby add to the financial burden of the undertaking as has happened in this case should be avoided in future.

2.149. **The Committee are also surprised to find that common items like cost of the Project Report, working drawings and incidental expenses during construction which are usually included in any Project Estimates, had been omitted from the Project Estimate and the estimates had to be revised on this account.**

The Committee regret to note that even without working out economics of the Plant, not only a decision was taken to erect the bays but imported equipment and machinery worth Rs. 19 lakhs (Appx.) was purchased and orders for Rs. 98 lakhs worth of machinery were placed with HMT.

The Committee recommend that in matters of planning or purchasing, the Plant should prepare realistic estimates of costs and benefits before making any investment. The Committee also recommend that the Plant should quickly assess its requirements of Stampings to ensure that the capacity of the first phase of this Plant is fully utilised.

L. Central Foundry Forge Plant, Hardwar

2.150. Consequent upon the recommendation of the Committee of Experts appointed in November, 1960 for the setting up of Foundry Plant, preliminary Feasibility Report was prepared by Heavy Electricals (India) Limited, Bhopal in August, 1962. In February, 1964 the Heavy Electricals (India) Limited, Bhopal was authorised to prepare a Detailed Project Report for establishing a Foundry Forge Plant at Hardwar. The Project Report which was finalised in October, 1964 envisaged setting up of presses of 1,000 tonnes and 4,000 tonnes capacity at an estimated cost of Rs. 20.57 crores and the township at Rs. 2.50 crores. In March, 1965, Government approved the Project Report subject to the condition that the same should be treated as a 'detailed feasibility study, until the Technical Consultants had examined it, and accorded sanction of Rs. 40 lakhs (July, 1965) for expenditure on preliminary works.

2.151. In May, 1966, the Company entered into a Collaboration agreement with M/s. Schneider, a French firm for the technical study of the economics of the Project and for providing engineering services and production know-how. The agreement inter alia provides that:—

(i) Within two months after the submission of the Technical Report, the Company would communicate its decision about the implementation of the Project and its formal approval of the Technical Report;

(ii) in consideration of the engineering services and for the production know-how, the Collaborators would be paid 15 lakh Francs (net) and 42 lakh Francs (net) respectively (total Rs. 88.24 lakhs); and

(iii) if for any reason the parties did not agree to proceed with the collaboration agreement with the period specified at item (i) above, the Collaborators would be entitled to retain the sum of 4,50,000 Francs (Rs. 7 lakhs) paid as advance payment for services rendered up to that time.

2.152. The Technical Report was received in February, 1967. On receipt of the Report, the capital cost of the Project was revised to Rs. 28.36 crores. A Joint Report prepared by the Consultants and the Company was then submitted to Government in the first week of April, 1967 for approval. The Company simultaneously approached the Collaborators to extend to 1st week of June, 1967 the period for the approval of the Technical Report which was to expire in April, 1967.

2.153. In January, 1967, i.e. before the receipt of the Technical Report from the Collaborators, the Planning Commission stated that there would be little justification for adding a 4000/5000 tonnes press at Hardwar. The matter was then referred to National Industrial Development Corporation Limited, New Delhi in March, 1967 for examination which came to the conclusion that the Foundry Forge Plant at Hardwar should go ahead as planned with the provision that the light castings bay in the foundry section should be put up only after enquiries from the trade revealed the financial benefits thereof. Keeping in view the spare capacity available with the Heavy Engineering Corporation Limited, Ranchi the Government of India asked the Company on 17th June, 1967 to send the following cable to the Collaborators:—

"Government have approved implementation of Hardwar Foundry Forge Project in principle. Light castings bay will be dropped for the present and further investigations made whether 4000 tonnes press or 2600 tonnes press would be adequate, as well as the timing for its installation."

2.154. In the meeting of the Planning Commission held on 12th February, 1969, the following decisions were taken:—

"(i) The entire scope of the Central Foundry Forge Project, Hardwar may be deferred for the present. This would be further examined sometime in 1971-72.

(ii) The Ministry of ID&CA would, in the meantime, examine the entire scope of the Project in detail, particularly the question of 4000 tonnes press on techno-economic considerations in the light of the present indications of the power and steel targets and the size of turbo sets likely to be required during the next two Plan periods.

(iii) The Ministry of ID & CA should examine the possibility of Schneiders giving in the necessary technical know-how at HEC, in respect of forgings and castings which could not be manufactured with the existing know-how available at Ranchi.

(iv) In the meantime, BHEL/HE(I)L should continue to send the drawings and other details of forgings and castings required by them to the Foundry Forge, HEC so that the latter may try and manufacture the same. In this respect

HEC, should also try to improve upon its delivery schedule."

2.155. From the minutes of the meeting between the Chairman, Heavy Electricals Limited and the Chairman, Heavy Engineering Corporation Limited, Ranchi held on 13th May, 1969, it, however, appears that the Foundry Forge Plant at Hardwar would not be required in the next ten years or so.

2.156. The Planning Commission on 27th August, 1969 decided to set up a Committee to assess the capacity of the Heavy Engineering Corporation Limited, Ranchi to meet the requirements of castings and forgings for steel projects, iron ore programmes, etc.

2.157. On receipt of the Report of the Committee, the Planning Commission decided on 3rd January, 1970 that this case might be deferred for the present and that in the meantime, Bharat Heavy Electricals Limited should take up with M/s Schneider the question of postponement of the payment of the next instalment which is due on 10th November, 1970.

2.158. Meanwhile, the Project has paid Rs. 51.76 lakhs to the Collaborators on account of instalments due to them for engineering and technical services to be rendered under the agreement. It has also incurred an expenditure of Rs. 36.62 lakhs on the preparation of construction site, factory works, land improvement, administration, etc. up to 31st March, 1969. In addition, it has made commitments for Rs. 36.76 lakhs, of which Rs. 36.48 lakhs are payable to the Collaborators after commissioning of the Plant.

2.159. It has been stated by the undertaking that the postponement of the payment of the instalment due on 10-11-1970 has been agreed to by the Collaborators and the payment of instalment has been deferred for one year.

The Ministry have stated (September, 1970) as follows:—

"The decision of the Company to enter into a collaboration agreement with M/s. Schneiders of France was arrived at on the presumption that H.E.C. would not be able to meet the entire requirements of the country leave alone the total requirements of this Company. It would be too early to say that this expenditure has been infructuously incurred."

2.160. During evidence, the Chairman, BHEL stated that the Government had approved in principle the setting up of a foundry plant at Hardwar to meet the requirements of heavy electricals industry in the country and had authorised an initial expenditure. An agreement had been entered into with a French firm (M/s. Schneiders of France). The clearance at that time was for initial installation of 1000/1500 tonnes presses but the question of larger presses shall also be taken up. Meanwhile, the development of steel industry was scaled down and the surplus capacity became available at Ranchi Plant. After consulting the concerned parties and the Planning Commission it was decided that the Foundry Plant at Hardwar should be held in abeyance till a final decision could be taken regarding the performance of Ranchi Plant. There was also a meeting between the Chairman of H.E.C. and Chairman BHEL when

a review was made about the capacity available in Ranchi. Subsequently when the picture regarding the development of steel industry changed, BHEL pressed for setting up their Foundry Plant at Hardwar. It was indicated that BHEL need not go in for the heavy presses but only smaller presses. The witness said that the proposal was still under the consideration of Government.

2.161. In a note furnished after the evidence, the Ministry stated that at the time of the meeting held between the Chairman, BHEL and the Chairman, HEC in early 1969, it had been felt that the requirements of forgings and castings in the heavier ranges could be met by the facilities that has been set up at the HEC, Ranchi, for some years to come. Subsequently, however, it was found that HEC was not able to undertake timely supply of the forging and castings of the type, quality and sophistication required by the BHEL, partly because their capacity was getting booked up for meeting other urgent demands placed on them such as for the Bokaro Steel Plant. It also emerged clear that the castings and forgings required by BHEL were a speciality requirement not necessarily repetative in all respects, that they were of high and sophisticated quality and that they were of a larger size range than the range covered by most forging and foundry units other than HEC. In these circumstances, Ministry was satisfied that there was a clear need for setting up a foundry forge plant for manufacture of forgings and castings of the type required by BHEL. This matter, however, had to be pursued through discussions with the Ministry of Steel and Mines as also the Planning Commission which naturally, took some time. After all when there was an apparent availability of capacity in broad terms with the HEC, the decision to set up a Central Foundry Forge Plant at BHEL, Hardwar could not have been steamrollered without consideration of all aspects of the matter in due consultation with HEC, the Ministry of Steel and Mines and the Planning Commission. A case with detailed justification for setting up a foundry Forge Plant for manufacture of Castings and forgings has now been prepared and referred to the Planning Commission with a request to take an inter-departmental meeting to settle this matter finally.

2.162. **The Committee find that it was first decided to set up a foundry Forge Plant consisting of Presses of 1,000 tonnes and 4,000 tonnes capacity at a capital cost (revised) of Rs. 28.36 crores. In January, 1967, the Planning Commission indicated that there would be little justification for adding a 4,000/5,000 tonnes press at Hardwar. NIDC, however, was of the view that the Plant should go ahead as planned except for light castings bays which should be put up after the financial benefits are worked out. In the meeting of the Planning Commission held on 12th February, 1969 it was** *inter-alia* **decided that "the entire scope of the Central Foundry Forge Project, Hardwar may be deferred for the present". The position was reviewed in a meeting between the Chairman BHEL and HEC on 13-5-1969 and it appeared that Foundry Forge Plant at Hardwar would not be required in the next 10 years or so. On the basis of a Report of the Committee constituted to assess the capacity of HEC, Ranchi, the Planning Commission decided on 3rd January, 1970 that case for setting up a Foundry Forge Plant at Hardwar**

must be deferred. Meanwhile, the Project paid Rs. 51.76 lakhs to the Collaborator on account of instalments due for providing engineering and technical services. It also incurred an expenditure of Rs. 36.62 lakhs on the preparation of construction site, factory works, land improvement, administration, etc. upto 31st March, 1969. Government consider that "it would be too early to say that this expenditure has been infructuously incurred". It is hard for the Committee to believe that the surplus capacity available at the FFP of HEC was not known to Government when it gave a green signal for the setting up of Foundry Forge Plant at Hardwar. It is also not clear why planning Commission was not consulted in the beginning itself so that their views were available to Government before coming to a decision. The Ministry of Industrial Development have stated that a case with detailed justification for setting up the Foundry Forge Plant has been prepared and sent to the Planning Commission. The Committee would like to be kept informed of the final decision of the Planning Commission in the matter.

M. Pricing Policy—Sales Performance

(i) *Pricing Policy*

2.163. According to the guidelines issued by Government in December, 1968 the prices in respect of "monopolistic" and "semi-monopolistic" goods manufactured by public enterprises are to be fixed with reference to the landed cost ceiling. It was, however, seen that out of 30 orders (26 from Government Departments/Companies and 4 from private parties) placed on the project during the period 1965-66 to 1968-69 for the supply of electric machines (excluding flame proof electric motors), steam turbines and generators hydro-turbines and generators orders have been cancelled and sale prices had not been settled in respect of 9 orders up to July, 1970. The manufacture of 65 flame proof electric motors was also undertaken without settling the price.

2.164. The delay in settling the sale price in 9 cases (hydro and steam generating sets) was due to non-availability of comparable landed cost in the absence of any tender for composite equipment from foreign suppliers in the recent past. It was stated by the Management (August, 1969) that a High Powered Committee had been set up in March, 1969 by Government to go into the pending cases of price fixation and it was hoped that a suitable basis would be evolved. However, only one case out of these 9 cases was referred to the High Powered Committee up to February, 1970. The Ministry have stated (July, 1970) that the price to be fixed in the case of one set mentioned above would be applicable to the thermal sets of 100 MW each, wherein identical equipment was being supplied. As regards the remaining hydro generating sets, the Management decided that the Pricing Committee might again be approached for the rest of the items after it had fixed the price in the case of thermal sets and the policies and principles of price fixation were laid down.

2.165. Asked as to why the two orders were cancelled, the Management stated that orders for 7 Nos. increased Safety Motors

for Fertiliser Corporation of India and one Motor 320 KW for U.P. S.E.B. Kasimpur Power House had to be cancelled as the collaborators could not supply technical documentation for the manufacture of these motors.

2.166. Asked about the position regarding fixation of prices for Hydro-Generating sets, the undertaking stated that the price was based on the guidelines given by the Pricing Committee on 100 MW sets which has since been finalised by the Committee and approved by the Government, the price of Giri Bata Hydro Sets was under negotiation with the Himachal Pradesh State Government. The price of other Hydro Sets would be settled on the basis of the price for Giri Bata Set.

2.167. During evidence, the Committee desired to know whether the Undertaking enjoyed a monopoly position so that they could charge a price which is always cost plus. The witness informed the Committee that:—

> "We do not want that the pricing should be a 'cost plus'. And in fact, the Ministry of Finance and the Bureau of Public Enterprises which went into the cost structure of 100 MW sets for over a period of 8 to 9 months took the view that, you are utilising only 20 to 30 per cent of your capacity. Therefore, you cannot load all the overheads of interest and depreciation on this 20 per cent."

2.168. Subsequently in a written reply the Management stated that "the prices are fixed on the estimated cost of production at the optimum capacity of the Plant. Therefore the actual cost of production when the load on the plant is low (10 per cent capacity) in the initial stages of production will not give any useful basis for comparison. The prices have been fixed with reference to the likely cost of manufacturing of the turbosets after the batch of 6 sets has been completed in all respects. The price estimate of Giribata sets has been prepared and is under negotiation with the customer. The price of Bhatgar set is also under negotiation with the customer."

2.169. During the evidence, the Committee enquired whether the Committee which was to fix the sale price, had submitted their recommendations. The representative of the Ministry stated that the Committee settled the same on 23-4-71. For 100 MW set which had been supplied to Badarpur/Obra was settled at Rs. 369.90 lakh per set. The witness admitted that there had been some delay in settling the sale price. When asked to indicate the delay involved, the witness said that this Committee was constituted in March, 1969, but it took two years to fix the price. First of all, there were certain changes. The Chairman of that Committee was not available. He was transferred to the Pay Commission. Another Chairman was appointed. The original thesis was that it should be based on landed cost. This theory could not exactly be analysed because some other countries wanted to capture our market by quoting low price. They did not quote a price as the landed cost could not be the main deciding factor particularly when an item was in demand. There was

no method of arriving at a price by adopting the landed cost principle, which was the original assumption. The Committee had to go in for a very detailed examination which naturally took some time.

2.170. The Committee observed that they took 2 years to decide the sale price which was not reasonable in a commercial company like the BHEL. The Committee also wanted an assurance from Government on this point.

The witness stated as follows:—

"I admit that there has been some delay which we will take note of. We will endeavour to do this."

2.171. **The Committee find that in March, 1969 a high powered Committee was set up by Government to go into the pending cases of price fixation of hydro and steam generating sets. Only one out of nine pending cases was referred to that Committee up to February, 1970. The Committee settled the price of 100 MW set only on 23rd April, 1971. It thus took Government two years to settle the sale price of a 100 MW set. Further the Committee are not aware of the position regarding the fixation of price in respect of remaining 8 sets. Hardwar Project even undertook manufacture of 65 flame proof electric motors without settling the price.**

If Hardwar Project is to improve its sales performance and create a favourable image inside the country and abroad to be successful to give global tenders, it must see that prices of all ranges of its products are determined and are available with them.

The Committee recommend that the Government should issue clear guidelines for the fixation of prices in cases which are not covered by the existing guidelines in order to enable the Company to settle the prices with the customers before undertaking the jobs so as to avoid disputes later on or uncertaintity regarding financial implication thereof. Where the fixation of prices cannot be brought under the guidelines already laid or to be laid down, Committee recommend that such cases should be settled if necessary in consultation with expert bodies in the field within a fixed time limit so that neither the customer nor the manufacturer remains in dark in regard to its liability/entitlements.

(ii) *Sales Performance*

2.172. As mentioned earlier, while there was revision in the developed capacity from year to year and idle time of labour and machines on account of lack of load, there was also set-back in delivery. The extent of orders in hand at the end of 1969-70 for execution during 1971-72 to 1972-73 is indicative of non-utilisation of developed capacity. It was also noticed that out of 545 enquiries for the sale of electric machines processed by the Sales Department during the period from May, 1967 to May 1969. The Project could secure orders in respect of 29 cases only and a few cases were under

negotiation. The non-finalisation of other cases is stated to be due to the following reasons:—

(i) In majority of cases, the delivery period offered by the Project was not favourable to the customers;

(ii) the prices quoted by the Project for low voltage motors were high in a few cases;

(iii) the equipment conforming strictly to customers' specifications could not be offered; and

(iv) in many cases customers either shelved the Project or did not have actual requirements.

2.173. The Committee desired to know the number of enquiries received after May, 1969 and how many out of them ultimately turned into firm orders. The undertaking stated that the enquiries received for electrical machines during the period June, 1969 to January, 1972, was 650. Of these, 80 turned into firm orders.

2.174. On a further enquiry about the reasons pointed out above the Management gave the following information:—

(i) Break-up of enquiries received from various parties:

From Government Departments	90 Nos. approx.
From Public Sector Undertakings	160 Nos. „
From other agencies	400 Nos. „

(ii) The number of enquiries which did not materialise are given below:—

Government Departments	85 Nos. approx.
Public Sector Undertakings	141 Nos. „
Other Agencies	394 Nos. „

2.175. BHEL were not in a position to give further details in this respect as customers normally do not disclose the exact reasons for not accepting offers/proposals. However, the reasons were generally as stated before.

2.176. Asked as to why the Plant could not offer suitable delivery to the prospective customers, the Management stated that they were trying to meet the delivery schedule indicated by the customers to the maximum extent possible. The Committee were also informed that there was no specific case where the Government Department or Public Undertakings had not placed orders with them because of high prices only and therefore, the question of taking the case to the Ministry did not arise.

The management further explained "There are at present requirement of large varieties and types of electric machine covering wide applications and development was taking place, constantly in this field. Since this unit is a new organisation, it is neither feasible nor practicable to be in a position to manufacture and supply all varieties and types of electric machines. Therefore, to start with we have concentrated on some types and ranges of electric machines

and slowly preparing and building up capacities for other types of machines. In case customers' requirements are beyond these ranges and are of special nature and where the requirement is only 1 or 2 or for few machines of different types, we are not in a position to meet their requirement at present because it will not be economical to accept these orders.

2.177. The Committee were also informed that following steps had been taken to increase the sale of our products:

(i) Strengthening of commercial organisation.

(ii) Assessment of market requirement and market surveys.

(iii) Sales promotion and keeping close contacts with the customers.

(iv) To modify existing designs and to meet customers' specifications wherever possible and take up new designs, at stages where the demand is substantial.

(v) To keep buffer stock of certain raw material/components for which deliveries are long for standard machines, in order to improve upon the delivery schedules.

2.178. **The Committee note that out of 650 enquiries received for electrical machines during June, 1969 to January, 1972, only 80 turned into firm orders. The Committee also note that out of 250 enquiries from Government/Public Undertakings, 226 enquiries did not materialise. According to the management one of the reasons for non-finalisation of cases was that the price quoted by the Project for low voltage motors were high. The Committee are surprised at the statement that there was no specific case where Government/Public Undertakings had not placed orders because of high prices only. The Committee were informed that the plant had started taking certain steps to increase the sale of their products e.g. assessment of market requirements, market surveys, modification of certain existing designs to meet customers' specifications etc. The Committee recommend that the Government should undertake a comprehensive study in depth to identify the causes for the poor sales performance and to devise ways and means for formulating standardising design with reference to market requirements and adopt a suitable pricing policy.**

Flame proof electric motors:—The manufacture of flame proof motors was undertaken on the basis of a letter of intent received from the Coal Mining Machinery Project of Heavy Engineering Corporation Limited, Ranchi (later on incorporated as Mining and Allied Machinery Corporation Limited) on 27th June, 1964, *inter alia* stipulating that on the settlement of technical details, delivery position and prices, it would be confirmed by a formal supply order. However, before the letter of intent was confirmed, the Company entered into a Protocol on 28th January, 1965 with M/S Prommashexport, Moscow for the supply of components for the manufacture of all the 65 flame proof motors.

2.179. On 9th March, 1965, the Mining and Allied Machinery Corporation Limited revised their requirements for the motors as under:—

Type	Capacity	Speed	Quantity originally assessed		Quantitiy as per revised requirement.*	
			1965-66	1966-67	1965-66	1966-67
	KW	RPM				
MA-36-42/6	75	985	10	10	..	26
„ 51/6	100	985	10	10	50	28
„ 42/4	100	1,480	10	10	10	35
„ 51/8	75	735	10	10	1	3
„ 52/8	100	735	15	15	..	2
„ 61/8	125	740	5	5	..	..
„ 62/8	160	740	5	15	..	..
					61	94

*Note—Later, the Mining and Allied Machinery Corporation Ltd. agreed to take 65 motors instead of 61 motors on account of the commitment already made by the Company to M/s. Prommashexport.

2.180. On 1st August, 1966 the Mining and Allied Machinery Corporation Limited cancelled the order on the ground that the price and delivery terms had not been settled and that the motors could not be fitted with control gears. However, in a meeting held on 26th and 27th November, 1966 the Mining and Allied Machinery Corporation Limited agreed to take 20 motors with 10 controlgears subject to the condition that the remaining 55 control gears should be supplied alongwith the balance number of motors.

2.181. When the Company despatched 8 motors in January, 1967 the Mining and Allied Machinery Corporation Limited pointed out on 10th April, 1967 that as these motors were without controlgears, there was no possibility of their utilisation. When the Company despatched another lot of 8 motors on 19th April, 1967 the Mining and Allied Machinery Corporation Limited intimated on 3rd June, 1967 that they would not accept the motors without controlgears and till it was made clear that these had been adequately tested alongwith controlgears.

2.182. In July, 1967 the Company supplied 9 controlgears to the Mining and Allied Machinery Corporation Limited and requested the Ministry of Industrial Development and Company Affairs on 19th July, 1967 to intervene and make the Mining and Allied Machinery Corporation Ltd. agree to accept the remaining motors without controlgears as these had been specially designed for them. On 2nd April, 1968 the Ministry advised the Company to dispose of the motors through the coal Controller, Chief Inspector of Mines, the National Coal Development Corporation Limited and Singareni Collieries Limited. No payment has been made by the Mining and Allied Machinery Corporation Limited in respect of supplies made to them although the motors (alongwith controlgears) are still lying with them.

2.183. The Company has been able to secure orders for only 14 motors so far (February, 1970) at the same selling price as was quoted to the Mining and Allied Machinery Corporation Limited. The remaining 51 motors have not been disposed of so far.

2.184. Failure to settle the terms and conditions with the Mining and Allied Machinery Corporation Limited before undertaking the manufacture of these motors, has, thus, resulted in blocking up of funds to the extent of Rs. 24.39 lakhs (position as on 31st March, 1969) and loss of interest thereon.

2.185. The Management have stated (December, 1969) as under:—

"(1) Customer had given a firm commitment.

(2) Customer had fully accepted the specifications according to which motors had been manufactured.

(3) Though initially some motors were supplied without controlgears, later on nine controlgears were supplied. Mining and Allied Machinery Corporation Ltd. had at one state, in fact, agreed to accept motors without controlgears, Later, when they went back on this stand and wanted Bharat Heavy Electrical Limited to supply the controlgears, Bharat Heavy Electrical Limited agreed; but despite the Mining and Allied Machinery Corporation Limited did not lift the motors. The earlier supply of motors without controlgears did not play any important role in the transaction. The basic fact is that Mining and Allied Machinery Corporation Limited after having made a commitment have tried to resile from their commitment".

2.186. The Ministry have stated (July, 1970) that "the protocol signed by the Unit was in the nature of a Letter of Intent placed on M/s. Prommashexport, which in any case had to precede finalisation of prices and delivery details with the customers".

2.187. The Committee enquired as to why firm Commitments for the import of Components were made without having a firm order from the MAMC Ltd. It was stated by the undertaking that letter of Intent for Flame Proof Motors was received in June, 1964, which was taken more or less as firm order especially as this was from another Public Sector Undertaking and import of Components was ordered in October, 1965 to meet the deliveries.

The Committee enquired the difficulty experienced by BHEL in supplying controlgear along with the Motors as settled with the M.A.M.C. Ltd., in November, 1966. The undertaking stated that Controlgears required by M/s M.A.M.C. were of three different types i.e. direct on line starting, reduced voltage starting, and resistance starting. Offers were obtained from Poland for the supply of first type of Control Gear in low range which were eventually supplied. Global tenders were invited for higher ranges of first and other two types. In response to global tenders, offers were received from U.K., Australia and Poland. These offers could not be accepted firstly because the parties were not prepared to send the controlgears for testing in

India as required under Indian Mines Safety Act and secondly because the number of starts per hour in control gears required by M.A.M.C. could not be met by the control gears offered by these firms. These offers were, therefore, rejected and efforts were made to develop starters in our own Plant to meet the requirement.

2.188. As regards disposal of flame proof motors the Committee were informed that attempts were made to dispose of Flame Proof Motors on the lines advised by the Ministry. All the 16 motors and 9 controlgears had been supplied to M.A.M.C. and, therefore, would be assumed to be at their risk and cost as M.A.M.C. had not rejected the supplies. According to the latest position regarding disposal of these motors out of 49 Flame Proof Motors lying with the Unit 12 motors had been sold off at the same prices which were quoted to M.A.M.C. There had been no loss on these sales compared to prices quoted to M.A.M.C.

2.189. **The Committee regret to note that the BHEL took up the manufacture of the flame proof electric motors without settling the terms and conditions of the sale and without obtaining a firm order from the M.A.M.C. The result has been that there was avoidable import of components for these motors from USSR and there was blocking up of funds to the extent of Rs. 24.39 lakhs (as on 31st March, 1969) and loss of interest thereon.**

The Committee also fail to understand the reasons for which the Ministry instead of asking the M.A.M.C. to accept the motors which had been specifically manufactured for them, advised the Company to dispose of the motors. (Out of the 65 motors, 49 motors have not been disposed of so far). The Committee recommend that the entire deal with M.A.M.C. should be investigated in detail and the results thereof intimated to them.

The Committee also recommend that BHEL should at least take a lesson from this transaction not to proceed with the execution of any demands on simple letters of intents without settlement of terms and conditions and specifications.

The Committee would also like to be kept informed about the disposal of the remaining motors, and the ultimate settlement made with the M.A.M.C. in regard to the 16 motors supplied (with 9 controlgears) and still lying with them.

N. Costing System and Analysis of Actual Costs

Cost system

2.190. The Company is following job/process costing. According to the manufacturing programme the import content of materials and components etc. in the finished product is expected to be gradually reduced on a pre-determined scale. Depending on the extent of import content in the finished product, the manufacturing processes are termed as stages of production. A plant/job order is, however, issued for each individual equipment in the case of hydro and thermal sets and for a batch of items to be manufactured in the case of motors irrespective of the extent of the import content. The ordres for raw materials and components for the entire batch are placed on the foreign collaborators for a stated amount and the cost of each type of components or each type of raw materials is not separately ascer-

tained for booking in cost accounts. Issues of raw materials and components, both from the imported stock and indigenously procured stocks, are made from time to time against the engineering lay outs. Labour hours are booked similarly against the jobs on the actual basis. Overhead expenditure is allocated at a predetermined rate on the basis of combined labour and machine hour rate, having regard to the level of production. These are reviewed by the Management at the end of each quarter and the rates revised, if necessary.

2.191. The job is not closed till all the times in a particular batch are completely manufactured. Items completely manufactured out of a job are transferred from time to time to the finished stock accounts at a provisional cost pending reconciliation and adjustment on closure of the job. No linking is, however, made between the quantum of materials as forming part of the finished product and transferred to finished stock account plus the material remaining in works-in-progress for the manufacture of the remaining number of items in the batch, with the total requirement in the engineering lay-outs.

The Ministry have stated (July, 1970) as follows:—

> ".....the Collaborators in USSR.....are unable to quote separately for each type of component or material".

2.192. The Committee enquired whether for progress of work against a job/batch order was reviewed periodically and if not how control was exercised on consumption of raw materials and components and timely completion of job. The Management in a written reply stated that the progress of work against a batch was reviewed periodically indents floated by the shops for raw material required for production were being examined by the Production Control with reference to the group specifications already supplied to them by the Design Department. It was only after the indents were checked and counter signed by the production Control Department that material were issued from stores to the shops. A monthly report indicating the items lying in work-in-progress for long was also being sent to the Production Department for review.

Analysis of actual costs

2.193. The following table indicates the actual cost of manufacture of various items completed during the period from January, 1967 to March, 1969, the sale prices thereof based on the quotations given by the Company and the loss incurred:—

Item			Cost of Production	Sale Price	Loss	Percentage of loss to sale price
Flame proof motors		Nos.	Rs.	Rs.	Rs.	
Type MA 36—42/6	.. ..	10	2,81,850	2,16,570	65,280	30
51/6	.. ..	10	3,47,270	2,90,670	56,600	19
42/4	.. ..	10	2,67,980	2,58,570	9,410	4
51/8	.. ..	10	6,01,380	3,85,180	2,16,200	56
52/8	.. ..	15	9,93,330	6,31,305	3,62,025	57
61/8	.. ..	5	3,84,740	2,54,750	1,29,990	51
62/8	.. ..	5	4,50,690	3,45,965	1,04,725	30
		65	33,27,240	23,83,010	9,44,230	

Item		Cost of Production	Sale Price	Loss	Percentage of loss to sale price
	No.	(Rs.)	(Rs.)	(Rs.)	
Exacavator electric motors					
Type 2000-T	14	13,96,590	10,61,508	3,35,082	31·6
„ 1000-T	14	7,23,840	4,51,290	2,72,550	60·4
„ 542½-T	14	3,89,424	1,79,060	2,10,364	117·5
„ 400-T	14	4,91,592	3,12,789	1,78,804	57·2
„ 82-T	10	15,97,522	10,16,900	5,80,622	57·1
„ 52-T(S) ..	13	6,13,262	4,12,906	2,00,356	48·5
„ 52-T(D) ..	13	6,54,365	4,16,234	2,38,131	57·2
„ 113-4-T ..	14	8,93,507	6,06,396	2,87,111	47·3
„ 52-T	27	13,22,439	9,14,733	4,07,706	44·6
	133	80,82,541	53,71,815	27,10,726	

Note—Sale prices mentioned in the case of flame proof motors represent those quoted by the Project to the customers but not yet finally accepted by them.

2.194. It will be seen that the cost of production was higher than the sale price by 4 per cent to 117.5 per cent. While no investigation was made in individual cases to ascertain the reasons for variations between the actual cost and the sale price, the Management have stated (July, 1969) as follows:—

> "No detailed cost estimates can be prepared in these cases in the absence of sufficient experience in manufacturing these set type of motors. It should be appreciated that this Unit has only now started production and the items are also new items.
>
> The reasons for excessive cost incurred in the Plant is mainly due to the fact that the workers of the Plant as a whole have yet to gain sufficient experience to achieve the desired level of efficiency in production which is possible only with larger volume of regular production of the same type of items".

2.195. The Ministry have stated (July, 1970) that ".....that the plant has reached nowhere near the break-even point and it cannot be expected to meet its cost fully out of the sale price which is determined by the market forces and the cost is necessarily higher in the initial stages where the total overheads cannot be absorbed by the volume of production in the initial stages."

2.196. The Committee desired to know whether there were any items manufactured by heavy Electrical Equipment Plant, Hardwar during 1969-70 and 1970-71 where cost of production was higher than the sale price.

2.197. The Undertaking informed the Committee that in almost all the cases of motor production, the cost of production was higher than the sale price. "This is precisely for the reason that because of small production in the initial stages it is not possible to recover fully

fixed charges particularly depreciation and interest elements on the cost of capital employed. This being a new line of production for our workers, the efficiency in the initial stages is low which also partly accounts for the higher cost of production. In the initial stages detailed price estimates were not prepared for want of full data. The position, however, is not so now and price estimates are being prepared in sufficient detail. For giving particulars to the parties, Engineering estimates for motors were prepared on the basis of whatever data was available. While preparing the price estimates, the prevailing market rates of the motors of the same range are also taken into account. Cost Estimates are now being prepared and the actual production cost being compared with the sale estimates prepared at the time of giving quotations to the customers."

2.198. Asked how control is exercised on the consumption of raw materials and components and timely completion of job, the Ministry stated that it has to be appreciated that as this unit started production only recently the import content in raw materials and components was on the high side. Control was being exercised through group specifications drawn up by the Design Department. The Unit has already been working towards the introduction of further linking and checks and plant-wise control in regard to consumption of raw materials and components as also the timely completion of jobs assigned.

2.199. **The Committee note that the Management have worked out cost in respect of motors only and in almost all the cases of motor Production, the cost of production is higher than the sale price. The Committee were informed that such higher cost of production was due to low production in the initial stages and low labour efficiency. The Committee recommend that keeping in view the analysis of cost. The Management should take steps to improve the labour efficiency by stricter control and supervision, proper deployment of labour of productive purposes and avoiding over staffing.**

O. Internal Audit

2.200. The internal Audit Department was established in July, 1966 under the control of the Financial Adviser and Chief Accounts, Officer. The scope and functions of internal audit were laid down in a circular dated 22-12-1966 but the detailed manual was finalised only in June, 1969. The Company Auditors in their Supplementary Report for 1968-69 submitted in pursuance of the directions issued under section 619(3) of the Companies Act have stated that the internal audit conducted did not cover all the branches of the plant.

2.201. The Committee on Public Undertakings in their 15th Report (4th Lok Sabha) on 'Financial Management in Public Undertakings' recommended that the functions of the Internal Audit should include a critical review of the systems, procedures and the operations as a whole. The Ministry of Finance (Bureau of Public Enterprises) while accepting the above recommendation directed the public enterprises in September, 1968 to introduce such a system. The Internal Audit Department has, however, not conducted any appraisal of the performance of the Project on the above lines so far (December, 1969).

2.202. In a written reply, the Management stated that as far as Hardwar Plant is concerned "critical review of the systems, procedures and operations as a whole is being done by the Finance and Accounts Department though not by Internal Audit Section. The plant is in the initial stages of production and continual review as directed by the Committee on Public Undertaking will be ensured."

2.203. **The Committee regret to note that in spite of the recommendation made by the Committee on Public Undertakings in their 15th Report on Financial Management (April, 1968) and the instructions issued by the Bureau of Public Enterprises for the Internal Audit to undertake a critical review on the lines of the systems, procedures and operations, no such appraisal was conducted. The Committee are constrained to observe that the Internal Audit has not been effective in discharging the functions expected of it and recommend that it should be intensified so that the management can take advantage of its reports in plugging loop-holes.**

III

HEAVY POWER EQUIPMENT PLANT, HYDERABAD

A. **Capital Expenditure**

(a) *Inter-Government Agreement*

3.1. On 24th November, 1959 an agreement was signed between the Government of India and the Government of Czechoslovakia for rendering technical assistance and delivery of machinery and industrial equipment for construction of various plants in India. Under the agreement, the Government of Czechoslovakia agreed to give a long-term credit up to Rs. 33.20 crores (post-devaluation) repayable in 8 instalments at an interest of 2.5 per cent. per annum. Out of this, a sum of Rs. 11.30 crores was allocated to the High Power Equipment Plant, Hyderabad for which orders have since been placed.

3.2. Another agreement was concluded between the two Governments on 11th May, 1964 under which a second long-term credit of Rs. 40 crores (Rs. 63 crores after devaluation) was given by the Government of Czechoslovakia for import of components, etc. A part of this credit was allocated to H.P.E.P., Hyderabad for its expansion and for the import of components against which contracts for the import of components valued at Rs. 11.84 crores have been placed.

3.3. In a written reply, the Company stated (April, 1972) that a total sum of Rs. 32 crores was allocated to the three projects together *viz.* High Power Equipment Plant, Hyderabad; High Pressure Boiler Plant, Tiruchi and Heavy Engineering Corporation, Ranchi.

An amount of Rs. 15.29 crores has been utilised by HPEP, Hyderabad upto 31-1-1972 against the second Czech credit.

(b) *Agreements with Consultants*

3.4. (i) In pursuance of the Agreement executed in November, 1959, the Czechoslovak experts submitted a preliminary project report in November, 1960. The Agreement for the preparation of the Detailed Project Report for the manufacture of 12 MW and 25 MW turbo generator sets at a cost of Rs. 52 lakhs was entered into with M/s. Technoexport, Prague (later on designated as Skodaexport) in June, 1961 and the Report was completed by them in September, 1962. In the meantime, the range of the equipments to be manufactured was revised from 25 MW to 60 MW in June, 1962 and then to 100 MW in August, 1962. The collaborators thereupon submitted a Supplementary Report in February-March, 1963, bringing out the changes in the construction and technological part of the Detailed Project Report for the manufacture of 100 MW units by utilising the equipment already proposed to be installed in the Plant. The Government accepted the Project Report in July, 1963. The Committee on Public Undertakings in para 35 of their 39th Report

(Third Lok Sabha—March, 1967) came to the conclusion that there was no crystalized thinking regarding the range of the equipments to be manufactured and the entire project was conceived and proceeded without basic data or exact knowledge of the future requirements.

In view of the changes in the scope of manufacture, the Company agreed (as per Agreement entered into in April, 1965) to pay an additional sum of Rs. 130 lakhs (Rs. 170.92 lakhs—post-devaluation) over and above Rs. 52 lakhs, thus bringing the total payment to Rs. 182 lakhs (Rs. 222.92 lakhs—post-devaluation) to the collaborators for the preparation of Detailed Project Report, and the supply of design and technical documentations, etc. for the manufacture of turbo-sets of 25 MW, 60 MW and 100 MW.

3.5. During evidence, the Committee enquired whether the Hyderabad Unit had received any order for the manufacture of turbo sets of 25 MW each. The Chairman, BHEL stated that the 25 MW set was included in the earlier profile of the Hyderabad Plant and the smaller sets were also there. No order for 25 MW set had been received by them. They had received an order for 18.2 MW for Bokaro. Now the capacity of turbo sets had greatly increased all over the world. The Chairman admitted:—

> "It is true that we have not manufactured exactly the 25 MW set but we have been receiving orders for the smaller turbo sets required for the chemical industry etc."

They could not say whether they could directly utilise sets of 25 MW. They had paid Rs. 93,000 for the 25 MW turbo set documentation. The cost of documentation of 12.5 MW set was not split but it was included in the general provision that they had made for the setting up of the plant.

The Committee enquired whether for the manufacture of 12 MW and 25 MW sets, payment to the extent of 52 lakhs was to be made in accordance with the agreement entered into in June, 1961; the witness stated:

> "That was for the general project report and the complete setting up of that factory including the listing of all the machinery. Subsequent payment was to be made for the project as a whole. For documentation of 25 MW sets, we have paid Rs. 93,000 only.
>
> We have paid 130 lakhs for the technical documentation for 12, 60 and 110 MW when we expanded capacity for Hyderabad Plant. For 25 MW set, for partial documentation we paid Rs. 93,000/-".

3.6. **The Committee find that a sum of Rs. 130 lakhs was paid to the collaborators for the technical documentation for manufacture of 12, 60 and 110 MW turbo generator sets for expanding the capacity of the Hyderabad Plant, over and above a sum of Rs. 52 lakhs paid to them for the preparation of Detailed Project Report in connection with the manufacture of 12 MW and 25 MW turbo-generator sets. A sum of Rs. 93,000 was paid for design documentation for 25 MW sets. The Committee note that the Plant has not received**

any order for the manufacture of 25 MW sets and there is hardly any likelihood of the plant receiving any such order because the present trend all over the world appears to be for turbo sets of higher capacity. The expenditure of Rs. 93,000 incurred on obtaining documentation of 25 MW sets has proved to be infructuous. The Committee would like to reiterate their earlier conclusion given in para 35 of 39th Report of Committee on Public Undertakings (March 1967) that there was no crystalized thinking regarding the range of the equipments to be manufactured and the Project was conceived and proceeded without basic data or exact knowledge. The Committee note with concern the undue haste in taking important decisions on such projects for manufacture of capital machinery without a proper demand survey and without carefully analysing and understanding the design trends in the size of turbo-generators which have such vital bearing on the economics of generation of power.

(c) *Recovery of Liquidated Damages*

3.7. According to the Project Report submitted in September, 1962, the cost of the factory for the production of 12 MW and 25 MW turbo-sets was estimated at Rs. 3,417 lakhs. Taking into consideration the revised scope of manufacture covering 55 MW and 100 MW turbo-sets, the total cost of the Project (including Rs. 599.03 lakhs for township, training and deferred revenue expenditure) was estimated at Rs. 3,345 lakhs (Rs. 72 lakhs less than the earlier estimates) in July, 1963. The reduction in the total cost of the Project was the net result of the provision for certain items not included in the original estimates (Rs. 599.03 lakhs) and the decrease in the estimated cost of civil construction works (Rs. 101.07 lakhs) and machinery and equipments, etc. (Rs. 589.86 lakhs) due to the following reasons:—

(a) Modification of specifications and adoption of current rates in the case of civil works.

(b) Adoption of more realistic prices for the machinery and equipment and changes in the machinery consequent upon the modifications in the design of the plant.

(ii) Apart from the above, the Company entered into a contract with M/s. Technoexport (later on designated as Skodaexport) in July, 1963 for the delivery of machinery, equipment and documentations, etc. at a cost of Rs. 3.43 crores (pre-devaluation). 31 other contracts were also entered into with the same firm during the period from July, 1963 to February, 1969 for the supply of machinery, equipment, instruments, jigs, tools and components as well as for importing technical know-how for the manufacture of turbo-sets.

3.8. The above contracts included a clause for the recovery of liquidated damages at 1 per cent of the FOB price of the machinery and equipment for every 30 days of delay in supply by the suppliers subject to the limit of 4 per cent. of the FOB price. There was delay in the completion of supplies in respect of 19 contracts, and the liquidated damages recoverable worked out to Rs. 4.41 lakhs (approx.).

In June, 1967 the Project preferred a claim on M/s. Skodaexport for the recovery of liquidated damages amounting to Rs. 0.54 lakh in respect of the main contract dated 10th July, 1963 and addendum-I dated 18th November, 1964 thereto. In addition, the Project has also preferred certain claims for the recovery of liquidated damages without indicating the value.

The Ministry have stated (July, 1970) as follows:—

> ".....the claims have been primarily lodged with the purpose of ensuring that they were not time-barred. One cannot, however, go merely by period of delay for levying the liquidated damages. One has also to substantiate that there had been a production loss. Therefore, only in such cases where the Company are able to substantiate that there has been a production loss can we levy the liquidated damages."

3.9. In a written reply, the Corporation indicated that the matter had been taken up with the Skodaexport but they were not agreeable to entertain the claim.

In reply to the claims lodged by BHEL, Skodaexport had stated that the deliveries had been made according to the production programme at HPEP. The Corporation intimated that the extent of production loss, if any, only due to delayed supplies from Skodaexport was being investigated.

In a subsequent reply, the Corporation stated that the delays in respect of some of the contracts ranged from 1 to 2 months only. Over and above the 19 contracts there were delays in the completion of supplies in respect of the following contracts.

1 .Addendum 3(d) dt. 14-11-68—Castings for 110 MW sets.

2. Addendum 6(d) dt. 17-1-69—Components for Tata Iron and Steel Company.

3. Addendum 7(d) dt. 6-2-69—Components for Boiler Feed Pump.

3.10. **The Committee note that there have been delays in the completion of supplies of machinery, equipment etc. in respect of 19 out of 32 contracts entered into by the Company with M/s. Technoexport (later designated as Skodaexport) from July 1963 to February, 1969. The contracts with the suppliers provided for recovery of liquidated damages for delay in the supply at 1% of the F.O.B. price of equipment and machinery. The Committee find that against a claim of Rs. 4.41 lakhs recoverable as liquidated damages for the delays, the Hyderabad Plant preferred a claim in June, 1967 on the supplier for recovery of liquidated damages amounting to Rs. 0.54 lakh only in respect of the Main Contract of July, 1963 and Addendum I of 18th November, 1964. In addition, the Plant preferred certain other claims but without indicating any value "with the purpose of ensuring that they were not time-barred." The Committee are surprised to find that claims for liquidated damages had been filed without indicating the value thereof and without the extent of production loss having been determined. The Management stated (April, 1972) that "the extent of production loss, if any, only due to delayed supplies from Skodaexport is being investigated". The Committee are surprised at the dilatory manner in which the**

Plant has taken 5 years to determine the value of production loss due to delayed supplies of machinery, equipment, etc. for supporting the claim and regret to note the non-maintenance of suitable records in this connection.

The Committee recommend that the Plant should lose no time in working out the details and completing the formalities expeditiously. The Committee also recommend that a suitable system should be devised and records maintained whereby production loss due to each factory or agroup of factories can be readily assessed and claims where necessary are filed in time with complete details and followed up till the amounts due are recovered.

B. Project Estimates

3.11. The table below indicates the original estimates, the revised estimates and the actual expenditure incurred up to 31st March, 1969:—

(Rupees in lakhs)

Serial No.	Particulars	Original Estimates	Estimates as revised in March, 1969	Actual Expenditure up to March, 1969
1	Factory civil works and other services	1148·90	1148·90	1093·76
2	Machinery, equipment, cost of Project Report, etc.	1596·80	2125·80	1867·31
3	Township (including consultants accommodation)	406·26	387·88	378·84
4	Training department	64·10	57·83	57·83
5	Deferred revenue expenditure ..	128·67	117·20	117·02
6	Preliminary expenses	..	1·00	1·00
7	Technical documentations	..	22·92	21·50
8	Interest	..	63·72	63·72
	Total ..	3344·73	3925·25	3600·98

The increase in the revised estimates over the original estimates was attributed mainly to devaluation (Rs. 175 lakhs), increase in custom duty, freight and insurance (Rs. 345 lakhs), non-inclusion of interest for the period up to 31st March, 1967 on loan capital (Rs. 63.72 lakhs) and technical documentation fee (Rs. 22.92 lakhs).

3.12. During evidence, the Committee were informed that a total expenditure of Rs. 36.69 crores had been incurred on Hyderabad Plant upto 31-12-71. When the original estimate of this plant was prepared in 1963, the interest on loan capital had not been included, because for the period of construction the project had expected to utilise the equity capital and not the loan capital and they proceeded on the assumption that they would get sufficient equity capital. But somehow when the capital was released, it was not only for equity but also for loan. To take this into account, the Board of Directors had to include interest also on the loan portion that was utilised.

3.13. The witness further stated that the revised estimates were submitted to Government in April, 1969 but had not been approved by Government. In a reply furnished after the evidence the Ministry stated that when the revised estimates were examined in consultation with the Ministry of Finance, that Ministry had asked for certain clarifications. After scrutiny of the estimates it was observed that Commitments for expenditure to the extent of Rs. 185.10 lakhs were yet to be made and the management was therefore, asked in November, 1969 to furnish the information required by the Ministry of Finance and to examine whether there was any scope for reduction in the expenditure yet to be committed. Meanwhile, a long time projection for the Fourth Plan was found difficult because the country's power development plans had got blurred until the end of 1970. The Plant had no orders for turbo sets even upto the end of second half of 1970-71. It was only recently when there was a spurt of orders and the order book position improved, that a reasonable projection could be made. Because of the earlier lack of orders on the Plant, the management had decided to defer placement of orders for certain machinery and equipment to the extent of Rs. 150 lakhs. Certain number of machines were also declared as surplus to the then requirements and their disposal was also under their consideration. The question whether the revised estimates should be modified to exclude these deferred and surplus items was also to be considered before the Government could be approached for sanction of the revised estimate. Subsequently, the order book position changed considerably and it was found that the equipment provided for in the Detailed Project Report would be necessary and that, in fact, these machines could be made use of also for the diversified production, like the industrial turbines and centrifugal compressors, it was felt that the provision made in the revised estimate would, therefore, be justified. The BHEL, have since furnished the viability statement to Government in February, 1972. The Ministry have expressed the view that the delay in sanctioning the revised estimates was unavoidable in the above circumstances.

It has also been stated by the Ministry that a formal sanction can be given only after the concerned authorities viz. Bureau of Public Enterprises and the Finance Ministry have completed their examination of the estimates. However, control on expenditure is maintained through scrutiny on annual capital budget and reports on progress of expenditure received from the Plant. The sanction when given would serve as a clear authority for the expenditure incurred or to be incurred.

3.14. **The Committee find that though the Hyderabad Plant had submitted revised project estimates to Government as early as April 1969 for approval the same have not been approved till now because the "question whether the revised estimates should be modified to exclude deferred and surplus items of machinery and equipment was also to be considered before the Government could be approached for sanction of the revised estimate". With the improvement in order book position, it was felt that the equipment provided for in the DPR could be made use of and that it would**

also cater for diversified items of production such as industrial turbines and centrifugal compressors and hence provision made in the revised estimates would be justified. The Project is stated to have furnished the viability statement to Government in February, 1972.

The consideration of revised project estimates by Government has thus taken more than three years.

The Committee would like to point out that the project authorities had sent the Revised Project estimates to Government only in April, 1969 and that too in an incomplete shape only after the actual expenditure (March, 1969) had already exceeded by about Rs. 260 lakhs of the original estimates. The Committee stress that the Plant authorities should have prepared the Revised estimates complete in all respects, and with full supporting details about their effect on economic viability of the Plant in order to obtain the approval of Government in time before incurring additional expenditure. The Committee deprecate such inordinate delays in submission and sanction of revised project estimates.

C. Progress of Construction

3.15. The Project Report did not indicate the scheduled dates of completion of the various civil works and erection of plant and machinery. The scheduled dates of completion of various blocks were, however, indicated in the monthly progress report to serve as a guideline for follow up action. The table below indicates the scheduled dates and the actual dates of completion of civil works and erection of plant and machinery in the main production blocks of the factory:—

S. No.	Shops	Civil Works		Delays	Erection of plants and machinery		Remarks
		Scheduled Date of compotion	Actual date of comple-tion		Scheduled date of completion	Position as on 31st March, 1969	
				Y M			
1	Steam turbine ..	28-2-1966	10/67	1—8	3/67	97·5%	Completed
2	Turbo alternators ..	28-2-1966	9/67	1—7	12/67	97·5%	Do
3	Grey Cast Iron Foundry	28-2-1966	8/67	1—6	10/66	100%	Do.
4	Casting, cleaning shop (non-ferrous foundry) ..	28-1-1966	10/67	1—8	9/66	96·6%	Do.
5	Welding shop ..	31-12-1965	10/67	1—10	3/66	96·5%	Do
6	Auxiliary workshop tool room maintenance of machinery & equipment	28-2-1966	8/66	0—6	3/66	97%	Do.
7	Common workshop ..	28-2-1966	3/67	1—1	4/66	In progress	
8	Wood working shop and pattern shop ..	31-7-1965	8/66	1—1	6/66	Do	
9	Gas producer Plant ..	August,1966	12/68	2—4		Do.	
10	Pump assembling and testing	..	9/67	..	..	Do	

The Management have intimated (December, 1969) that "the works have been practically completed and put into use though technically completion reports may not have been finalised."

The Management have attributed the delays in completion of the civil works and the erection of plant and machinery to the following factors:—

(1) Non-receipt of steel in time;

(2) foreign exchange restrictions;

(3) belated receipt of 100 MW study, necessitating re-examination of machine loading and processes;

(4) delay in execution of works by contractors/sub-contractors; and

(5) inadequacy of equipment with contractors.

3.16. In a written reply, it was stated that the scope of the project as envisaged in the original Detailed Project Report had under-gone considerable change and the Consultants had to prepare fresh project studies for machinery and equipment for the manufacture of 60 & 110 MW sets in addition to 2.5, 9.5 & 12.5 previously contemplated with emphasis on the bigger sets and schedules were prepared locally by the local management in consultation with the Czech experts.

3.17. During evidence the Committee wanted to know whether it was not the normal practice to indicate the scheduled dates of completion of various civil works etc. in the Detailed Project Report and whether the reasons for not indicating them ascertained from the collaborators. The representative of the Ministry stated that "the practice varied in different agreements. In the case of Hyderabad Project, the Detailed Project Report which was originally for 12.5 MW and 25 MW was changed to accommodate the higher sizes of turbo sets of 60 MW and 100 MW. As regards the Civil Works, there was an indication of date in most of the cases. But in this particular case, originally, the indications were for the lower range. Cvil works also had to be according to what they were going to instal in it."

Asked about the procurement of steel the witness stated as follows:—

> "In the procurement of steel we have often had difficulties. But the Undertaking has been coming up to Government and we have been pursuing this with the Ministry of Steel because there is Steel Priority Committee, there is also the Steel Joint Plant Committee. We have been pursuing this at various levels and the Steel Priority Committee also is doing whatever is possible. We have been partly successful because when the position was very grave, we have been able to arrange special imports required for this particular plant and on many occasions we have been getting special quotas from the reserves of the steel Ministry. We have been able to secure, but the demand being of a very big order, it has not been possible to meet all of it through the reserve etc.".

The Committee observed that difficulty for foreign exchange should not have arisen when the Hyderabad Plant was to be financed out of the Czechoslovakian credit, the witness explained

that the procurement of machinery was not merely envisaged from Czechoslovakia, but also from Britain, Italy and West Germany.

3.18. **The Committee note that the Detailed Project Report did not indicate the scheduled dates of construction of various works of the Project as the profile for manufacturing programme had undergone change. However, the management had fixed some target dates for completion of civil works and with reference to such schedules, there had been delays in completion of the civil works of shops—ranging from 6 to 28 months. It is a moot point whether the works have been completed in all respects even now as no technical completion report has been finalised. The Committee need hardly stress the importance of preparing and finalising the completion Reports without loss of time for ascertaining the technical deviations and financial excesses. The Committee also find that erection of plant and machinery in the main production blocks of factory ran behind schedule. These delays are stated to have occurred due to non-receipt of steel in time, foreign exchange restrictions, belated receipt of 100 MW study necessitating re-examination of machine loading and processes, delay in execution of works by Contractors/Sub Contractors and inadequacy of equipment with contractors. The Committee recommend that Government should allocate high priority for steel to important development projects and ensure adequate and timely supply of steel either from indigenous plants or by imports so that civil works and schedule for erection of plant and machinery do not suffer a set back. The Committee need hardly point out that delay in a plant for manufacture of capital goods has wide and far reaching effects on the programme for development envisaged in the Plan.**

D. Performance Analysis

Production Performance

3.19. The following table gives the targets as per budget estimates and the actual production during the years 1966-67 to 1968-69:—

Year	Targets as per budget estimates	Actuals
1966-67	1st set (12 MW)	
1967-68	1st set (60 MW)	1 set (12 MW)
	2nd set (60 MW)	
1968-69 ..	3rd set (60 MW)	
	4th set (60 MW)	2 sets (60 MW)
	5th set (60 MW)	

The following reasons have been attributed by the Management for the shortfall in production:—

1966-67

(i) Delay in receipt of imported and indigenous materials;

(ii) delay in erection of spot welding plant and commissioning of foundry and varnishing machines; and

(iii) non availability and non-receipt of certain materials.

1967-68

(i) Non-supply of forgings by Heavy Engineering Corporation Limited, Ranchi;

(ii) failure of certain suppliers to supply various castings ordered and rejections of castings due to manufacturing defects;

(iii) non-receipt of certain M.S. Plates planned on J.P.C.; and

(iv) delay in receipt of pipes.

1968-69

Delay in supply of castings and forgings by Heavy Electricals (India) Limited, Heavy Engineering Corporation Limited, Ranchi and others.

3.20. The Committee wanted to know the production targets in the years 1969-70 to 1970-71 and the reasons for short-falls in actual production if any.

The Company stated as follows:—

Year	Target of production (based on revised budget estimates)	Actual Production
	Physical Lakhs *CSN hours	Physical Lakhs *CSN hours
1969-70 ..	4·20	2·42
1970-71 ..	4·60	2·67
1971-72 ..	6·00	3·16 (Upto 16-12-71)

3.21. The Management explained that the main reasons for short-fall in production were the non-availability of basic raw materials like forgings, castings, press tools etc. and non-attainment of the expected labour efficiency. Production for the year 1970-71 had been further adversely effected by strike/lock-out during December, 70/ January, 71.

3.22. However there has been progressive increase in the value of production at Hyderabad Plant.

Year	Value of production (Rs. in lakhs)
1966-67	195·41
1967-68	815·33
1968-69	1350·12
1969-70	1462·36
1970-71	**1313·10
1971-72 (upto February, 1972)	1268·03

*Czech Standard hours

**The reduction in value of production in 1970-71 is due to strike and lock out during December, 1970 and January, 1971.

3.23. During evidence, the Committee enquired whether Government had looked into causes of shortfalls in the achievement of targets of production in the Hyderabad Plant. The representative of the Ministry stated that there had been shortfalls in the production during the years 1966-67 and 1967-68 because that plant was mostly under construction during the year 1966-67. During that period of construction they had undertaken certain production which was within the capability of the plant to the extent it had been installed. The targets for the manufacture of two sets of 60 MW and later three sets of 60 MW were fixed by them only on the basis of dates indicated by the customers. Actually when the plant was well under construction they were able to produce only one set of 12 MW in first year and two sets of 60 MW in the next year (1968-69). There was therefore, no real shortcoming on the part of the plant. Though the shortfall was not due to delay, certain items like essential condenser tubes which were to come from abroad, came late at the plant. They also found the difficulty of casting and forging which took an unduly long time to get.

3.24. **The Committee find that in the year 1966-67, Hyderabad Plant had set a target to produce one set of 12 MW but produced none. During 1967-68 it produced one set of 12 MW against the target of 2 sets of 60 MW. In 1968-69, the target was for 3 sets of 60 MW each but the actual production was 2 sets of 60 MW each. The plant failed to achieve targets of production in the subsequent years as well. The Committee find that by and large the same deficiencies and obstacles, which hampered the production in the previous years, had continued to prevail during the year 1969-70 to 1971-72** viz., **delays in the supply of alloy steel castings and forgings, both indigeneous and imported and non-attainment of expected labour efficiency. The Committee are surprised that non-supply of forgings/castings continues to be the major bottleneck in many of the Undertakings in achieving their production targets. The Committee feel that unless this problem is tackled with all seriousness and promptitude, the production performance of the Undertakings dependent on such castings and forgings cannot be expected to improve. The Committee recommend that Government should find out a solution by deploying a high powered Task Force of technical experts so that this difficulty is overcome.**

Delay in Delivery of Equipment

3.25. As a result of shortfall in production and also to suit the Customers' requirements the delivery dates of certain items were revised as indicated in the table below:—

Particulars	Date of Order	Delivery date originally quoted	Revised delivery date	Promised date of completing order and delivery	Extent to which delivery has been completed by March 1970
M.S.E.B., Ennore (60 MW)	3-6-1966	December, 1967	December, 1968	August 1969	delivered in January, 1970.
M.S.E.B., Ennore II (60 MW)	3-6-1966	March, 1968	April, 1969	August, 1969	Delivered except some minor items.

1	2	3	4	5	6
U.P.S.E.B. Harduaganj I (60 MW)	15-2-1967	September, 1968	June, 1969	October, 1969	94·3%.
U.P.S.E.B. Harduaganj II (60 MW)	15-2-1967	December, 1968	September, 1969	October, 1969	80·0% ·
Delhi 'C' (60 MW) ..	3-3-1967	March, 1969	..	December, 1969	94·9%.
Kothagudam I (110 MW)	3-8-1967	September, 1968	September, 1969	March, 1970	likely to be completed in March, 1971.
Kothagudam II (110 MW)	3-8-1967	September, 1968	December, 1969	June, 1970	Do. in 1971-72.
Pathrathu I (110 MW) ..	8-8-1967	June, 1969,	September 1969	June, 1970	Do.
Pathrathu II (110 MW)..	8-8-1967	December, 1969	September, 1970	June, 1971	Likely to be completed in 1972-73
Bhatinda (110 MW) ..	28-2-1969	May, 1972	..		Order recently received.
Faridabad I (60 MW) ..	17-12-1968	Not available			
Faridabad II (110 MW	10-12-1969	Not available			

3.26. The Committee pointed out during evidence that it would not be in the interest of the producer to make promise to deliver on a date which was not adhered to. The representative of Ministry stated that in certain cases they had been ready to deliver but the customers were not ready to receive the sets. The Chief, Planning and Development, BHEL further informed the Committee that in certain cases, dates were fixed by the Planning Commission and that by and large, deliveries of main equipment had always been kept up. The original date was contemplated for the incomplete supply but the revised delivery date was fixed for the complete supply. They were, however, not able to do so as the layout and construction details had to be finalised by customers.

3.27. It was pointed out that in two cases, one in Kothagudam and the other in Pathrathu there were some delays locally and the parties concerned had not been able to receive what the Plant had produced. At Badarpur also their set was lying ready but the party was not able to receive it. The U.P. Government had been asking them to release that set for them.

The Ministry have stated (July, 1970) as follows :—

> "in the case of Kothagudam and Pathrathu, the Andhra Pradesh and Bihar Electricity Boards had themselves stalled deliveries as the site was not ready to receive the equipment. The production for Pathrathu is likely to be diverted to Bhatinda because of the delays on the civil engineering works at Pathrathu."

3.28. The Ministry further explained that the turbo sets manufactured by BHEL consist of three major items of main equipment viz. condenser, turbines and alternator. The first item which is needed by the customer for commencement of the erection is the condenser. After this follows the erection of turbine and alternator, and accessories. Normally these equipment are sent to site progressively to suit the needs of the erection at site. If the civil foundation for erecting the equipment is not ready at site, the customer will have to make necessary facilities for storing the parts at site. The alternator parts have to be stored in such a way that there is no absorption of moisture by the windings.

The erection work can commence only when the foundation has been checked and approved by BHEL. For facilitating the erection work, the customer will have to make the necessary cranes available. In the case of Ennore, Harduaganj and Delhi Thermal Power Stations, all the equipment for the turbo sets had been sent to the site to suit the commencement of the erection at site. For Kothagudam, Pathrathu, Guru Nanak and Faridabad Power Stations BHEL have been able to manufacture the components well before they were needed at site. Actually in certain cases the completed equipment is being stored by BHEL since the customers have not been able to arrange for receiving them at site.

Apart from the main equipment described above, the plant was called upon to supply piping and valves after the finalisation of the layout by the customers and in all the cases this was done very much later by the customer or his consultant engineers.

3.29. **The Committee note that Hyderabad Plant had not been able to adhere to dates of delivery of sets quoted by it to its customers.**

While the Committee appreciate that certain delays are inevitable due to the customers not being ready to receive the sets on account of delays in Civil Engineering works at the site or lack of handling facilities, etc., the Committee stress that the Plant should strictly adhere to the delivery schedules accepted by it. The Committee need hardly impress that non-adherence to due dates of the delivery and consequential delays have far reaching implications in as much as they accentuate the power shortage which adversely affects the industrial development.

E. **Built up capacity and projection for utilisation thereof**

3.30. In July, 1968 the Management reported to the Board of Directors the position relating to the capacity likely to be developed and utilised till the end of the Fourth Five Year Plan i.e. 1969-70 to 1973-74. The capacity likely to be developed was, however, revised downwards in April, 1969. The following table gives the capacity likely to be developed and expected to be utilised, on the basis of orders in hand, as indicated in April, 1969 and December, 1969:—

Item	Capacity likely to be developed as estimated in April 1969 and December, 1969		Capacity expected to be utilised			
			April, 1969		December, 1969	
	No.	MW.	No.	MW.	No.	MW.
Steam Turbines and Generators						
1968-69	..	..	..	..	..	..
1969-70	3	300	3	300	..	230
1970-71	..	550	..	475	..	390
1971-72	..	660	..	..	..	280
1972-73	..	880	..	..	..	..
1973-74	..	880	..	..	..	..

Note—The Project has intimated (September, 1970) that orders have since been received for 3 sets of 110 MW each and 2 sets of 60 MW each to be delivered during 1972-73 and 1973-74.

3.31. During evidence, the Committee enquired the reasons for downward revision of the expected utilisation of the developed capacity during 1969-70 when there were sufficient orders in hand in Hyderabad Plant. The Chairman of BHEL replied that the reason for downward revision was the difficulty in getting castings and forgings.

The Committee desired to know as to why there had always been only downward and never an upward revision of the expected utilisation of the developed capacity, the witness explained that they were still learning the job and hence there were only downward revisions.

Asked whether there had been any revision of capacity since December, 1969 the witness stated as follows:—

> "There has been no revision of the developed capacity. The production programme that we had for 1970-71 was 280 MW. This was the developed capacity also. We could not produce anything more than these 280 MW even if we had orders. For the next year, 1971-72, we had programme for 390 MW i.e. three of 110 MW and one of 60 MW. And we have been able to keep up this. For the next year, 1972-73, we have programme for 4 of 110 MW, and I am sure we will keep up this. For the next year, we have got programme for 5 of 100 MW and one of 60 MW. And for onwards, we have programme to keep at that level unless I get more orders in which case, I can step it up."

3.32. The expected utilisation as compared with the actual utilisation of this unit was as follows:—

	Expected utilisation		Actual utilisation	
	In osn. hrs.	Rs. in lakhs	In osn. hrs.	Rs. in lakhs
1969-70 ..	.. 4·2 lakhs	1,475	2·42 lakhs	1,296
1970-71 ..	.. 4·6 lakhs	1,268	2·67 lakhs	1,075
1971-72 ..	.. 6·0 lakhs	1,455	3·16 lakhs (upto 16th Dec. 1971)	675

3.33. Asked as to what were the reasons for downward revision of the expected utilisation of the developed capacity during 1969-70 and in 1970-71 when there were sufficient orders in hand, BHEL gave the following reasons.

(i) The delay in receipt of castings and forgings as already explained did not permit necessary manufacturing experience to reach the developed capacity envisaged.

(ii) The order book position became satisfactory only in the last quarter of 1970 vis-a-vis the manufacturing cycle of 36 months for these turbo sets.

(iii) During 1970-71, there was a strike and lockout for five weeks.

It has been stated by BHEL that on the basis of a further study made in September, 1970 the utilisation of capacity in the future

years is anticipated to meet a production of 5 x 110 MW turbo sets by 1973-74 which will suit the orders on hand and thereafter depending on the orders received.

3.34. **The Committee note that according to the studies made by the Management in April, 1969, capacity expected to be utilised at the Hyderabad Plant during 1969-70 and 1970-71 was 300 MW and 475 MW respectively, but in the study made in December, 1969 the capacity expected to be utilised was reduced to 230 MW and 390 MW respectively even though there was no paucity of orders to be executed during these years. A further study made in September, 1970 revealed that the Plant plans to utilise capacity to the extent of 390 MW (3 x 110 MW and 1 x 60 MW) in 1971-72. 440 MW (4 x 110 MW) in 1972-73 and 560 MW (5x100 MW and 1 x 60 MW) in 1973-74.**

The Committee were informed that utilisation of capacity depended on three main factors viz **(1) order book position (ii) availability of special castings and forgings and (iii) development of skills. The Committee find that though Hyderabad Plant went into production in 1965-66 and had more than 6 years experience in the line, yet inadequate development of skill continue to be advanced as one of the factors coming in the way of fuller development and utilisation of capacity. This means adequate efforts have not been made in this direction so far. The Committee, therefore, recommend that Management should draw up a well coordinated and time bound training programme for development of skills at all levels of workers and supervisors, in order to utilise the capacity of the plant at optimum level.**

The Committee have else-where made recommendation for an advance co-ordinated planning for the supply of forgings and castings by the indigenous manufacturers both in the Public and Private Sector.

F. Labour Utilisation

3.35. Hyderabad Unit commenced partial production in December, 1965 but no analysis of labour utilisation was made till July, 1966. The following table indicates the total hours available and the idle hours of labour due to various factors during the years 1967-68 and 1968-69:—

Serial No.	Reasons for idleness	1967-68	1968-69	1969-70
1.	Want of work	47,828	35,440	46,691
2.	Want of material	19,272	60,067	45,900
3.	Want of crane, tools, fixtures and machines	30,778	40,018	29,692
4.	Other reasons viz. power failure, want of inspection, instruction, etc. ..	41,002	53,502	61,253
	TOTAL ..	1,38,880	1,89,027	1,83,544
5.	Total available hours	7,38,000	18,39,000	20,99,846
6.	Percentage of idle hours to available hours	18·8	10·3	8·7
		Cost of idle hours during 69-70 worked out to Rs. 3·76 lakhs.		

During the years 1967-68 and 1968-69, the idle labour hours (1,62,607 hours) for want of material and work represented about 50 per cent of the total idle hours. The Management have worked out the cost of idle labour at Rs. 1.68 lakhs during 1967-68 and Rs. 2.39 lakhs during 1968-69.

The Ministry have stated (July, 1970) that in the initial one or two years of production "the labour force drafted would be in excess of the actual requirements for the output in the year, partly because they would be under training and partly because they would be absorbing the skills."

3.36. The Undertakings in a written reply, have stated that the reason for labour remaining idle for want of work when there were sufficient orders in hand was due to the delay in the receipt of critical castings and forgings and other material with consequential delay in the flow of the assemblies from one work-centre to another and also due to defects noticed during the process of manufacture. Idle time on this account was unavoidable to a certain extent in Heavy manufacturing Industry. The non-utilisation of labour for want of instructions and tools was stated to be due to the fact that in the initial stages, instead of waiting for special tooling and fixtures, specified by the collaborators these were merged into the manufacturing process in the shop and sometimes these had to await further clarifications from the Engineering and Inspection Departments. The defects in the materials like blow holes etc. also called for rectification by using special welding techniques and other metallurgical aspects which also called for such consultations and consequential non-utilisation of direct labour. In the initial stages of manufacture in a heavy Engineering Factory, a certain amount of discussions on the manufacturing technique suitable to the Plant and tooling was inevitable resulting in some loss of direct labour hours.

3.37. The Committee desired to know the latest percentage of idle hours to available hours in Hyderabad Plant. The Management stated that the percentage of idle hours to total available hours in 1970-71 was 15.1 and this increase was due to the strike and lockout preceded by go-slow tactics. The main reason for labour remaining idle for want of work in certain work centres when there were several orders on hand was ascribed to defects in the castings and forgings noticed during the course of machining and delay in receipt of critical castings and forgings and other materials with consequential delay in the flow of assemblies from one work-centre to another. In the initial stage of manufacture a certain amount of deviation in the manufacturing techniques and tooling was inevitable. There is however, a downward trend on the idle time with the stablization of methods and processes.

3.38. **The Committee note that percentage of idle hours to available hours at Hyderabad Plant was 18.8 in 1967-68, 10.3 in 1968-69, 8.7 in 1969-70 and 15.1 in 1970-71. The cost of total idle hours was Rs. 1.68 lakhs in 1967-68, Rs. 2.39 lakhs in 1968-69 and Rs. 3.76 lakhs in 1969-70. The Committee were informed that the main reasons for labour remaining idle for want of work in certain work centres when there were several orders on hand were the defects noticed in the**

castings and forgings during the course of machining, delay in receipt of critical castings and forgings and other materials with consequential delay in the flow of assemblies from one work centre to another and that in the initial stage of manufacture a certain amount of deviations in the manufacturing techniques and tooling was inevitable. Normally as the plant grows in experience and absorbs new skills, labour utilisation should improve. The Committee however, find that Hyderabad Plant idle labour hours have increased from 8.7 per cent in 1969-70 to 15.1 per cent in 1970-71. This steep increase has been attributed by the Management to strike and lock-out preceded by go-slow tactics by employees.

The Committee stress the need for coordinated action by Management specially in the field of procuring orders well in advance and arranging the supplies of materials and quality castings and forgings so as to make for optimum utilisation of labour and machinery and reducing the percentage of idle hours to available hours of work.

The Committee have made horizontal studies on Personnel Policies and Labour Management Relation in Public Undertakings. The Committee have no doubt that if implementation of recommendations contained in that Report is done in letter and spirit, will promote healthy relation with labour and avoid strikes and lock outs in future.

G. Profitability of the Project

3.39. (a) In the Detailed Project Report, the consultants had forecast losses up to the 8th year from the commencement of construction or the 4th year from the commencement of production. The Project went into production in December, 1965 and showed losses during 1966-67 to 1968-69. The profitability study made by the Project in March, 1969 indicated losses during the period from 1969-70 to 1973-74 as well. The position was re-assessed in June, 1969 but the resultant losses were the same as indicated in the profitability study made in March, 1969.

3.40. In December, 1969 a fresh exercise was made on the basis of the price under discussion by H.N. Ray Committee. On this basis, the loss/profit for the period from 1969-70 to 1971-72 was expected to be as under:—

Particulars	1969-70	1970-71	1971-72
	MW	MW	MW
Planned developed capacity	300	550	660
Utilised capacity ..	230	390	280
		(Rs. in lakhs)	
Cost of sales	1,694	1,793	1,311
Sale value at landed cost	1,560	1,874	795
Profit (+)/Loss (—) at landed cost ..	(—)134	(+)81	(—)516

If the prices are ultimately fixed at levels lower than those taken into consideration in the above profitability study, there will be corresponding change in the results of working.

(b) The element of fixed expenses included in the cost of sales are given below:

(Rupees in lakhs)

Serial No.	Particulars	1969-70	1970-71	1971-72
1	Salaries and Wages	173	181	200
2	Consultants, expenses	85	66	66
3	Depreciation	203	223	236
4	Interest	241	310	310
5	Share of DRE	35	40	42
6	Other expenses	101	112	112
		838	932	966

3.41. It has been stated that "in view of the uncertain position of the utilisation of capacity and the manufacturing programme no definite idea as to the extent of loss likely to be sustained on account of non-utilisation of the developed capacity can be formed at this stage."

The Committee were informed that the H. N. Ray Committee which was appointed in March, 1969 had not taken up the question of settling the price for 110 MW Turbo set manufactured in the Heavy Power Equipment Plant, Hyderabad.

3.42. **The Committee find that according to the exercise done by the undertaking in December, 1969 on the basis of the price under discussion by H. N. Ray Committee, Hyderabad Project was expected to incur loss (at landed cost) of Rs. 134 lakhs in 1969-70, profit of Rs. 81 lakhs in 1970-71 and loss Rs. 516 lakhs in 1971-72. As against this, the Project has actually incurred net losses of Rs. 331.01 lakhs in 1969-70 and Rs. 101.00 lakhs in 1970-71. The Committee recommend that the reasons due to which the Project had continued to incur losses even though Consultants had forecast losses upto the 4th year from the commencement of production should be thoroughly investigated. The production in Hyderabad Project commenced in 1965-66 and accordingly there should have been no losses in the year 1969-70 and thereafter.**

The Committee are surprised at the statement that "in view of the uncertain position of the utilisation of capacity and the manufacturing programme, no definite idea as to the extent of loss likely to be sustained on account of non-utilisation of the developed capacity can be formed". When the undertaking has already worked out the programme of production and utilisation of capacity to end of 1973-74, the Committee feel that it is high time that the management apply their mind to this important question, estimate the Losses/Profit and accordingly take adequate precautionary measures and reduce their standing expenses with a view to develop competitive prices for the products and reach break even point at the earliest. The Committee would also like Government to settle without further delay the price which the undertakings is to be allowed to charge for their 110 MW generating sets and other plants and equipments.

H. Costing System

3.43. The Project has adopted job costing system for compilation of costs. The cost relating to each job is compiled under the following heads:—

(1) Direct material

(2) Direct labour

(3) Stores overheads

(4) Factory overheads.

Stores overheads representing the storage and handling expenses of the stores department are charged as a percentage on the direct material cost and the factory overheads as a percentage on the direct labour cost. Direct labour being a very small part of the total cost, the percentage of factory overheads to direct labour cost during the year 1968-69 worked out to 2000 per cent approximately. Thus, under the present system, a wrong or incorrect allocation of direct labour cost can result in a complete distortion of the job costing. In this connection, the Company's Auditors in their special report on the accounts for the year 1968-69 observed as under:—

> "Direct labour forms very small part of the total costs. From a review of the Manufacturing Account, it is seen that direct labour was Rs. 11.54 lakhs whereas indirect labour was Rs. 110 lakhs. The element of direct labour being small, the percentage of factory overheads to direct labour works out to approximately 2000 per cent. It will, therefore, be appreciated that a slight wrong or incorrect allocation of direct labour would result in a complete distortion of the job costs. In industries of this type which are capital intensive, the selection of direct labour as a basis of allocation of overheads has to be considered in the light of the circumstances of each case. Wherever the machine forms the predominating factor in production unit, the question of allocation of overheads on the basis of machine hour rate should, therefore, be considered."

3.44. The Ministry have stated (July, 1970) that "as the plant is operating below its optimum capacity it is considered that the introduction of machine hour rates will not yield any useful results at this juncture. However, the introduction of machine hour rates is under active consideration and will be introduced at the opportune moment."

3.45. The Company in a written reply (April, 1972) have informed the Committee that the Plant was still operating below its optimum level and the production was increasing at a rapid pace from year to year. Diversification of production was also being introduced. Machine hour rates had not yet been introduced as production had not yet been stabilised at an optimum level. Efforts were continuously being made to reach the optimum capacity as early as possible and the question of introducing machine hour rates was stated to be still under active consideration."

3.46. **The Committee are surprised to find that though as back as in July, 1970 it was stated by the Ministry that the introduction of machine hour rates was under "active consideration", the same**

had not been introduced as yet in the Hyderabad Plant. The Committee were informed by the Management in April, 1972 that this matter was "still under active consideration". The Committee recommend that a decision on this question should be arrived at early and the Management should ensure that scientific system of cost control is adopted by the unit.

I. Import Substitution

3.47. The Detailed Project Report did not give an indication of the phased development of indigenous manufacture. In April, 1967, the Project, however, laid down the level of components and raw materials to be imported as under:—

		Components to be imported (including castings and forgings from Consultants)	Raw materials to be imported
I	year of production	%	%
	1st and 2nd sets of 60MW	75—78	8
II	year of production		
	3rd and 4th sets of 60 MW ..	55—60	12
	5th and 6th sets of 60 MW ..	26—28	15
III	year of production		
	7th set of 60 MW and onwards	12	25
	1st set of 110 MW	70	10
IV	year of production		
	2nd set of 110 MW	54	15
	3rd set of 110 MW..	25	15·18
	4th set of 110 MW	15	20
	5th set of 110 MW	5	Lower, if castings and forgings become available indigenously.

According to Audit Report the actual achievement could not be compared against the above expectations as Project had not worked out the actual cost of the first two sets of 60 MW each. Besides, the materials had also not been analysed to determine the percentage of imported raw materials consumed.

3.48. The Committee asked why Hyderabad Project had not worked out the actual cost of the first 2 sets of 60 MW each. Besides, materials had also not been analysed to determine the percentage of imported raw materials consumed. In reply the undertaking stated that "the manufacture of 2x60 MW sets was completed only during the year 1969-70. In 1968-69 they were not 100 per cent completed. The actual cost of production of these two sets has been computed and no difficulty was felt. During the year 1970-71 two

more sets of 60 MW capacity have been treated as sales and the cost of production for these sets has also been computed." It was also stated that the import of components was regulated on the basis of the agreement which was finalised on M/s Skoda Export and hence there was no difference between the percentage laid-down and the actual imported content.

3.49. The undertaking has also intimated that the indigenous work content as measured in CSN hours for each set has been steadily increasing.

3.50. **The Committee note that the Detailed Project Report had not given any indication of the phased development of indigenous manufacture and the Plant has been regulating the import of components and raw material according to certain levels based on the Agreement entered with M/s. Skoda export in April, 1967. The Committee have been informed that indigenous work content as measured in Czech Standard Hours for each set has been steadily increasing so that the Plant would be able to achieve self-sufficiency soon. The Committee recommend that the Plant should intensify its efforts to identify indigenous manufacturers who could feed the Plant with components/raw materials of required specifications in substitution of the imported components and raw material.**

J. Inventory Control

3.51. The following table indicates the comparative position of the inventory and its distribution at the close of the last four years:—

(Rs. in lakhs)

	1966-67	1967-68	1968-69	1969-70
1. Construction stores	88·35	39·26	29·25	17·91
2. Production stores	59·32	68·06	77·27	97·99
3. Construction stores in transit ..	25·12	0·74	1·02	..
4. Production stores in transit ..		2·62	5·63	12·75
5. Raw materials	199·38	111·73	141·41	197·64
6. Components		170·78	290·76	206·63
7. Raw materials in transit ..	344·66	13·68	25·34	20·41
8. Components in transit		201·39	68·49	36·17
9. Works in-progress	156·31	722·85	1334·12	1285·04
10. Consumption of raw materials, stores and components	140·45	436·45	725·18	659·01
11. Closing stock in terms of months, consumption (exoluding those in transit and construction stores). ..	22·1	9·6	8·4	9·1

3.52. As on 31st March, 1968, the Project declared construction stores valued at Rs. 17.08 lakhs as surplus. Of this, stores worth Rs. 4.94 lakhs (approximately) have so far been disposed of (March, 1969). In addition, production stores worth Rs. 14.55 lakhs procured during the year 1966-67 were not issued till March, 1969.

3.53. The accumulation of components was due to the fact that in December, 1964 and March, 1965 the Company placed orders on the Collaborators for the supply of components for 8 sets of 55/60 MW and 7 sets of 110 MW respectively without getting allocation for the manufacture of these sets at the Project. Up to March, 1969 it had received final allocation for 5 sets of 55/60 MW and four sets of 110 MW only.

The Ministry have stated (July, 1970) as follows: —

> "Earlier, there were indications from Government of allotment on the HPEP Plant of 8 x 60 MW sets and 7 x 110 MW sets. Owing to revision in the Plant the immediate allotment was for 6 x 60 MW sets and 6 x 110 MW sets. The allotment is also expected shortly for the remaining sets."

3.54. In a written reply, the Undertaking informed the Committee in March, 1972 that formal allotment of two sets of 60 MW and one set of 110 MW were to be covered. Orders for these sets have since been received.

In a note after evidence the Ministry have further stated that in judging the level of inventory at these plants, it has to be remembered that in the heavy electrical industry, the products involved are highly sophisticated and have a very long manufacturing cycle varying from 30 to 37 months or even more. Again, quite a number of components as also certain raw materials have to be imported and the uncertainties of such imports as well as the delays involved would necessitate the keeping of an inventory level which is sufficiently high to ensure uninterrupted production. Government agree with the Management that in this industry, an inventory representing upto even 12 months consumption is not excessive particularly in the context of the lead time for imports and the prevailing scarcity condition as in the case of indigenous steel.

On 31-3-1968, the Unit declared construction stores valued at Rs. 17.08 lakhs as surplus. Further surplus was declared in 1969-70 for Rs. 4.58 lakhs. Out of the above stores worth Rs. 16.34 lakhs (approx.) (July, 1971) been disposed off, leaving a balance of Rs. 5.32 lakhs (Surplus construction stores).

3.55. The position as on 1-1-72 of surplus construction stores was stated to be as under:—

Value as on 31-3-68			17·08
Declared during :			
1968-69	Nil		
1969-70	4·58		
1970-71	Nil		
1971-72 (Upto 31-12-71) ..	Nil	4·58	
		21·66	
Disposed during :			
1968-69	4·94		
1969-70	8·13		
1970-71	3·27		
1971-72	0·72	16·41	
Balance as on 1-1-1972		5·25	

Note—At the time of factual verification Audit pointed out that out of the above, stores worth Rs. 16·34 lakhs (approx.) have so far been disposed of leaving a balance of Rs. 5·32 lakhs (surplus construction stores).

Since Compressor Project has started, some of these items are being drawn against the requirements of the Compressor Project construction, and subsequent to this the balance items shall be taken up for disposal."

Surplus machinery

3.56. In October, 1968 the Project declared the following machinery valued at Rs. 51.81 lakhs purchased during the period from 1962-63 to 1967-68 as surplus to its requirements on the basis of future expected load:—

Serial No.	Year of purchase	Particulars of machinery	Country of origin	Value
				(Rs. in lakhs)
1	1965-66	Horizontal Boring Machine WD/160-A/4000	Czechoslovakia	12·00
2	1965-66	Do. WD/200-A/6000	Do.	21·92
3	1965-66	Centre Lathe SRs 2000/6000	Do.	7·70
4	1967-68	E.O.T. Crane 30 T × 24M	Yugoslavia	3·17
5	1965-66	Bailing Press	Czechoslovakia	4·79
6	Copying	Miling Machine FKT30	Do.	0·39
7	1963-64	Lathe MKP1 Horizontal Grade 1—204 nos. ..	India	0·87
8	1962-63	Horizontal Milling Machine M2H 4 nos. ..	Do.	0·97
			Total ..	51·81

3.57. The Management have intimated (December, 1969) that "the machinery was ordered on the basis of the recommendations made by the Consultants for the anticipated loads on the factory. With a view to reduce the capital outlay as far as possible, the Unit had made a review of the requirements of machinery and considered that the load now expected can be dealt with without the number of machines . . . .".

3.58. The Ministry have stated (July, 1970) as follows:—

(i) The machine at item 1 has since been found necessary for future production whereas those shown at items 6, 7 and 8 are now required for diversification of production since taken up.

(ii) The machine at item 2 has been sold whereas that at item 4 has been transferred to the Company's unit at Tiruchy.

(iii) The sale of the machines at items 3 and 5 is being pursued with other undertakings.

3.59. In a reply furnished after evidence, the unit informed the Committee that the data of anticipated load was based on the advice of the CW&PC the consultants cannot be blamed for having recommended the requirements of machinery on the above basis.

3.60. **The Committee note that out of surplus machinery worth Rs. 51.81 lakhs. Only machinery of the value of Rs. 12.49 lakhs was**

awaiting disposal in July, 1970. The Committee would like to be kept informed of the latest position. The Committee also recommend that a review of the inventory of machinery should be done periodically with a view to identifying surpluses and to deploy them to other fields suitably. Committee also recommend that management should ensure that purchase of machinery is undertaken only after a thorough assessment of anticipated power load in close coordination with the Government.

K. Internal Audit

3.61. The Internal Audit Cell is working under the Financial Adviser and Chief Accounts Officer. The Statutory Auditors have, however, made the following observations in regard to the working of the Cell:—

> "The programme for Internal Audit although covered the entire organisation but in some cases actual work done by internal audit could not be considered adequate. These relate to the audit of foreign exchange section, costing records, foreign purchases, valuation of inspection-cum-receipt reports, verification and valuation of work-in-progress and finished goods and review of Sundry Creditors balances."

3.62. In a written reply, the Undertaking informed the Committee that the scope of Internal Audit is being extended to cover all the aspects of the Company's operations. The appraisal of the performance of the project is being regularly conducted by the Finance and Accounts branch and periodical reports are being put up to different levels of management.

3.63. **The Committee hope that the Management will conduct performance appraisal on the same lines as indicated in their 15th Report on Financial Management.**

The Committee need hardly stress that internal audit report being an indicator to the Management about the efficiency or otherwise of the working of the undertaking should receive adequate and prompt attention so that deficiencies and lapses are rectified in time and the working of the undertaking toned up.

IV

SWITCHGEAR UNIT, HYDERABAD

A. Introductory

4.1. In July, 1964, a proposal for technical collaboration with M/s ASEA of Sweden for the manufacture of Air Blast Circuit Breakers of 132 KV, 230 KV and 400 KV, was approved by the Government of India. It was proposed to take up the manufacture of Minimum Oil Contraction Breakers also at this unit at a later stage.

4.2. The Ministry stated (September, 1970) that "the Government has already reappraised the need for the capacity of the production of switchgear in the public sector. We have asked H.E.I.L. to reassess the need for continuing the production of switchgears". At present, however, the circuit breakers are being manufactured at Bhopal as well as at Hyderabad.

4.3. During evidence, the representative of the Ministry informed the Committee that there were certain circuit breakers that were produced both at Hyderabad and in Bhopal. These were not of the same kind but of different kinds. For instance, bulk oil circuit breakers for 33 KV and 66 KV were manufactured at HE(I) Bhopal. Their rupturing capacity was very high. In the oil range at Hyderabad, they were producing not bulk oil circuit breakers but Minimum Oil Circuit Breakers. The rupturing capacity in Hyderabad Unit was less and also cheaper. Bhopal Plant was also producing air circuit breakers of 132 KV and 220 KV. Hyderabad was producing Air Blasts of only 220 KV. That was the only place where there might be some overlapping bacause Air-blast of 220 KV were being produced both at Bhopal and Hyderabad. However, it was stated that the continuous production of circuit breakers at Bhopal would not affect the load of Hyderabad unit.

4.4. **The Committee find that at present Air-Blasts of 220 KV are being manufactured both at the Heavy Electricals (I) Ltd., Bhopal and Switchgear Unit, Hyderabad. The Committee are not happy that manufacture of the same type of products should be undertaken in two different undertakings in the public sector. Overlapping in the product-mix involves creation of production facilities at two different centres, leads to duplication of effort and loss of benefits of economy of scale. The Committee, therefore, recommend that Government should explore the possibility of restricting the manufacture of the Air-Blasts to the Undertaking best suited to it in order to secure uniformity of quality and derive maximum benefit from economics of scale.**

B. Appraisal of Capital Expenditure Decision

Agreements with Collaborators

4.5. (i) In April, 1965 the Company entered into a collaboration agreement with M/s. Allmanna Svensake Electriska Aktiebolaget

(A.S.E.A.) of Sweden, for setting up a Switchgear Unit for the manufacture of air blast circuit breakers. The agreement provided for the supplier's credit to the extent of 29 million Swedish Kronors, which was later on increased to 54.2 million Swedish Kronors under a Supplementary Agreement concluded in June, 1967 to cover the manufacture of minimum oil circuit breakers, subject to the condition that the maximum amount of the credit outstanding would not exceed 29 million Sw. Kr. including accrued interest. The credit which was repayable in a period of 10 years was to cover import of capital equipment and components required for the progressive production of air blast circuit breakers and the minimum oil circuit breakers.

(ii) In terms of the licence agreement dated 2nd April, 1965 with M/s. ASEA of Sweden, the Project pay to them the following lump sum amount in 10 equal half-yearly instalments for the services rendered and the information furnished for the manufacture of HVH 145, 245 and 420 air blast circuit breakers:—

(a) In respect of HVH 145 and HVH 245 breakers—one million Sw. Kronor (Rs. 14.69 lakhs).

(b) In respect of HVH 420 breakers—three hundred thousand Sw. Kronor (Rs. 4.41 lakhs).

4.6. In pursuance of the above agreement, the Company has paid technical fee amounting to Rs. 12.15 lakhs in respect of HVH 145 and 245 breakers and Rs. 4.41 lakhs in respect of HVH 420 breakers. Thouh nearly 5 years have elapsed since the agreement was entered into, the Company is yet to secure orders for HVH 420 breakers in respect of which the technical fee amounting to Rs. 4.41 lakhs has been paid to M/s. ASEA.

4.7. In a written reply, BHEL have stated that inclusion of these breakers in the Licence Agreement was based on the overall power plan in the country made by the Central Water and Power Commission which envisaged 400 KV transmission Grids in the country. This, however, did not materialise due to general scaling down of the power plan in the country due to pruning of the plan targets. The introduction of 400 KV transmission system was therefore held up but, however, the present trend is towards the introduction of 400 KV transmission system for bulk transmission of power and these are being included in the present Fourth Five-Year Plan. No orders have been received so far for HVH 420 Air-blast breakers. However, there are indications that BEAS Design Directorate would place an order with us for 8 Nos. of breakers required from January, 1975.

4.8. **The Committee note that though the Unit entered into a collaboration agreement with M/s. ASEA of Sweden in April, 1965 for setting up a Switchgear Unit for the manufacture of 145, 245 and 420 air-blast circuit breakers, the Company had not been able to secure orders for the last 6 years for HVH 420 breakers in respect of which a technical fee amounting to Rs. 4.41 lakhs had been paid to the collaborators. It has been explained that inclusion of these breakers in the licence agreement was based on the "overall power plan in the country made by the CWPC which envisaged 400 KV transmission**

grids in the country. This did not materialise due to general scaling down of the power plan in the country due to pruning of the plan targets." The Committee have, however, been assured that BEAS Design Directorate might place an order with BHEL for 8 breakers from January, 1975. The Committee regret to note the undue haste in widening the scope of the Unit to include manufacture of 420 Air Blast Circuit Breakers without a proper demand survey for the products to be manufactured and hope that in future Government would exercise utmost care before entering into such financial commitments with foreign collaborators.

C. Project Estimates

4.9. The following table indicates the original estimates, the revised estimates and the actual expenditure incurred up to 31-3-1970:

(Rs. in Lakhs)

	Original Estimates (July, 1965)	Revised Estimates (Nov. 1966)	Revised Estimates (May, 1968)	Actual Expenditure upto 31-3-69	Actual Expenditure upto 31-3-70
I. Air Blast Circuit Breakers					
(i) Land development ..	5·00	5·00	5·00	4·52	4·17
(ii) Buildings	54·53	54·53	53·00	50·58	51·73
(iii) Factory services ..	18·41	18·41	20·00	10·20	10·00
(iv) Plant and machinery	125·70	154·92	68·00	61·24	62·65
(v) Other equipment ..	6·00	6·00	6·00	5·92	6·08
(vi) Engineering and administrative charges	17·93	23·93	22·70	22·40	22·47
	227·57	262·79	174·70	154·86	157·10
II. Minimum Oil Circuit Breakers ..	..	..	15·30	4·94	16·01

4.10. The increase in the revised estimates of November, 1966 was attributed mainly to devaluation of Rupee in June, 1966. The considerable reduction in the estimates as revised in May, 1968 was attributed to the following reasons:—

(i) The decision taken by the Company to reduce capital investment of the Project (particularly under machinery) in view of the fall in demand and keep competition from other private and public sector units, and

(ii) The decision to utilise some of the manufacturing facilities available at Heavy Power Equipment Plant.

The variation between the revised estimates (May, 1968) and the actual expenditure incurred up to 31st March, 1969 were stated to be due to:

(i) postponement of purchases of machinery and equipment for factory services to 1969-70, and

(ii) delay in receipt of test equipment for minimum oil circuit breakers.

4.11. In a written reply, BHEL have stated that, as on 31st March, 1971, the actual expenditure on accrued basis on Switchgear Unit was Rs. 183 lakhs. The project has almost been completed and has gone into production.

D. Performance Analysis

Production Performance

4.12. No specific targets for completion of the Project were laid down. The Project, however, went into production in October, 1966 for the manufacture of air blast circuit breakers. The table below gives the targets of production and actual production there against during the three years ending 31st March, 1969:

(Value in lakhs of rupees)

	Year	As per original budget estimate		As per revised budget estimates		Actual Production		Remarks
		No.	Value	No.	Value	No.	Value	
Air Blast Circuit Breakers	1966-67	40	134·21	20	76·44	3	33·69	245 KV breakers
	1967-68	80	237·27	83	264·41	90	173·98	145 and 245 KV breakers.
	1968-69	132	348·51	60	228·27	65	154·84	Do.
	1969-70	40	97·90			33	70·80	
	1970-71				302·00		238	
	1971-72				332·00		175 (Upto 31-12-71)	

4.13. Keeping in view the delay in shipment of components by M/s. ASEA, the Company decided to manufacture only 20 air blast circuit breakers during 1966-67, out of which 10 breakers were to be imported in complete knocked down condition. The actual achievement fell short of the revised target on account of short receipt of the breakers in completely knocked down condition and delay in indigenous assembly due to non-receipt of test equipment.

4.14. During the year 1968-69, the production budget was reduced from 132 air blast circuit breakers to 60 breakers due to cancellation of an order for 72 breakers by the West Bengal State Electricity Board. It was understood that the cancellation of the orders by the West Bengal Electricity Board was due to revision in the power plan of West Bengal by the Government due to financial and other reasons. The Company has actually produced 65 breakers including 8 converted from last year's stock. Thus, it would appear that the shortfall in production during 1968-69 was due to lack of orders for

air blast circuit breakers. As on 31st March, 1969, the Project had orders for 15 air blast circuit breakers only. But Management stated (in February, 1972) that orders would fill the capacity upto 1973-74.

4.15. To an enquiry about the steps taken by the Unit to safeguard against cancellation of orders by consumers and to maintain order position of its products, it was explained that BHEL have been taking 10 per cent down payment with orders.

4.16. On being asked to state the reasons for non-achievement of targets in 1970-71 and 1971-72 the Management stated that this was mainly due to strike and lock-out in HPEP, Hyderabad operations and non-supply of critical castings during 1970-71 and more time having been taken in establishing indigenous castings of 33 and 66 KV breakers during 1971-72.

4.17. During evidence the Committee desired to know the latest position regarding the receipt of further orders and date upto which these orders would ensure the utilisation of the installed capacity. The representative of the Ministry stated that the order book position was complete for the last year and "we have booked orders upto 1973-74. We have got an order for 886 circuit breakers as against our capacity of only 600 for that period. (In other words, we have more orders than we can manage during that period). This is the demand for 1973-74. There are the demands for 1974-75 also. So we are confident that the capacity for circuit-breakers both at Bhopal and Hyderabad are fully going to be utilised. So there is no need to go further into the question whether we should stop production." To a question as to why the plant was not producing to the full capacity when there were so many demands, the Ministry replied that in Bhopal they were producing to the full capacity. But in Hyderabad they had reached up to 70 per cent rated capacity.

4.18. **The Committee find that no specific targets for completion of the switchgear project were laid down. The Project, however, went into production in October 1966. During 1966-67 the Project had fixed a target to produce 40 Air Blast Circuit Breakers. This target was reduced to 20 breakers out of which 10 breakers were to be imported in completely knocked down condition. The Committee note that the Project however, actually produced only 3 breakers due to short receipt of the breakers in completely knocked down condition and delay in indigenous assembly due to non-receipt of test equipment. The production performance during 1967-68, however improved but the position deteriorated during 1968-69 and 1969-70 due to lack of adequate orders. During 1970-71 and 1971-72 targets could not be achieved due to strikes and lockouts etc. and delay in establishing indigenous castings. Though the unit has been able to secure orders upto 1973-74 enough to utilise the full capacity of the Plant; the Committee note that the Unit could produce only upto 70 per cent of the rated capacity.**

4.19. **The Committee recommend that since the unit is in a position to book orders regularly, steps should be taken to gear up the machinery to full working capacity by ensuring timely supply of indigenous forgings and castings through sister undertakings like HEC etc.**

E. Idle Time

4.20. The following table indicates the total labour and machine hours available and the idle hours due to various factors during the years 1967-68 and 1968-69:

Sl. No.	Reasons for idleness	Idle machine hours			Idle labour hours		
		1967-68	68-69	69-70	67-68	68-69	69-70
1	Want of work	12,037	10,350	15,534	2,511	1,049	3,995
2	Want of materials	54	78	70	1,116	5,519	3,374
3	Want of tools and crane	1,044	807	1,530	651	399	819
4	Other reasons viz. power failure, want of instructions, inspection and maintenance, etc. ..	16,385	25,026	57,370	3,823	4,261	12,420
	Total ..	29,520	36,261	74,504	8,101	11,228	20,608
5	Total available hours	103,732	1,33,449	2,50,383	93,011	1,24,360	1,96,511
	Percentage of idle hours to available hours	27·15 %	27·17 %	29·76 %	28·77 %	9·02 %	10·49 %

It will be seen that the idle machine hours due to lack of load worked out to 22,387 hours during 1967-68 and 1968-69; i.e. 34 per cent of the total idle machine hours. Similarly, the idle labour hours due to lack of load amounted to 3,560 hours during these two years i.e., 18 per cent of the total idle labour hours.

4.21. The Ministry have stated (July, 1970) that "in the years 1967-68 and 1968-69 there was a very keen competition with the private sector and offers of the Company based on actual cost of production were not competitive enough. The pricing policy was changed and adequate orders have been secured for the production in 1970-71 and 1971-72. Therefore, idle hours due to lack of load will be eliminated".

4.22. The Committee wanted to know the break up of the different elements constituting "other reasons for idle machine hours and idle labour hours" of Switchgear Unit, Hyderabad in respect of the year 1969-70 and the percentage of idle hours to available hours in 1970-71 and 1971-72 in that unit.

4.23. In a written reply, the Company gave the break-up of the reasons for the year 1969-70 and 1970-71 as follows: —

Idle man hours		Idle machine hours	
1969-70			
	%		%
(*i*) Breakdown of machines ..	3·23	(*i*) Break-down	13·97
(*ii*) Maintenance	1·18	(*ii*) Maintenance	5·91
(*iii*) Power failure	0·35	(*iii*) Power failure	0·55
(*iv*) Inspection and other reasons	1·56	(*iv*) Others	0·85
	6·3		22·82
1970-71	10		27·9

4.24. The Committee desired to know the justification for idleness of machines and labour for want of instructions and inspection. The Committee were informed that idle hours due to want of instructions and inspection was only 1.56 per cent and this was considered reasonable in the development stage. The idle man power and idle machine hours for 1970-71 have shown a downward trend being 10 per cent and 27.9 per cent respectively.

4.25. **The Committee note that percentage of idle machine hours to available hours has been increasing from 27.15 in 1967-68 to 27.9 in 1970-71 and touched a peak in 1969-70 to 29.76 per cent. The Committee are concerned to note that there has been no significant improvement in this direction. The idle machine hours due to lack of load worked out to 34 per cent of the total machine hours in 1967-68 and 1968-69 and 20 per cent in 1969-70. Since the Committee has been informed that the order book is now complete upto 1973-74, it should be possible for the Unit to work in full capacity and ensure that all measures are taken to avoid both idle hours and idle labour capacity in machinery.**

F. Operating Results

4.26. The operating results of the Project during the last three years are given below:—

(Rs. in lakhs)

	1966-67	1967-68	1968-69	1969-70
Sales	..	43·33	256·63	203·18
Other income	0·17	2·61	7·27	2·85
Jobs done for internal use ..	..	1·67	2·33	1·96
Accretion to stock of finished goods and works in progress	33·69	128·01	(—)53·31	(—)36·82
Total ..	33·86	176·52	212·92	171·17
Cost of production ..	50·43	208·57	262·55	199·11
Profit (+)/Loss(—) ..	(—)16·57	(—)32·05	(—)49·63	(—)27·94
Adjustment relating to previous years	..	..	0·01	1·75
Net profit (+)/Loss(—) ..	(—)16·57	(—)32·05	(—)49·64	(—)26·19

4.27. The main reason for the loss was under-utilisation of the capacity resulting in non-recovery of the overhead expenditure.

4.28. In a written reply, BHEL have stated that in the year 1969-70 the actual loss was Rs. 28 lakhs against anticipated loss of Rs. 18 lakhs. This was mostly due to product shortfall attributable to failure of S.G. iron castings supplies and the late receipt of imported components, received only in January, 1970.

4.29. The profitability study made by the Project in March, 1969 indicated that it would earn profit after 1970-71. The position was re-assessed in June, 1969 but the results of working were the same as indicated in the profitability study made in March, 1969. The Management made another study in December, 1969 taking into account the budget estimates for the years 1969-70 and 1970-71, the present trends and the projections made by the Indian Electrical Manufacturers' Association for the years 1971-72 to 1973-74.

4.30. The following table gives the profits/losses as worked out in the study made in December, 1969:—

(Rupees in lakhs)

	1969-70	1970-71	1971-72	1972-73	1973-74
1. Cost of Production	300	373	377	424	491
2. Sale value of landed cost ..	282	411	403	454	532
3. Profit (+) Loss (—)	(—) 18	(+)38	(+)26	(+)30	(+)41

The above profitability study is subject to the basic assumption that there will be adequate orders to attain the anticipated turn over.

4.31. A revised profitability study has already been made in September, 1970. The Committee wanted to know the extent of utilisation of installed capacity assumed in the profitability study.

4.32. It was stated that though there was no significant variation in the sale value of Production there was some variation in the product-mix. The study of utilisation and profitability indicated that full utilisation would be achieved in 1973-74.

4.33. After the evidence the Ministry have, in a written reply, stated that the study of March, 1969 was undertaken at the instance of the Chairman to analyse the causes of losses sustained by Switchgear Unit at that time. After doing the study in March, 1969 a reassessment was undertaken in June, 1969 in order to fall in line with the other Units of BHEL, who all undertook such studies in June, 1969. In fact the results of the working were the same as indicated in the March, 1969 study. After this during the year 1969-70, the order book position changed substantially by December, 1969. In order to take this into account, the study of December, 1969 was undertaken at the instance of the Bureau of Public Enterprises. In the Government's view, the apparent frequency of this series of studies would be justified by the genesis and the changing circumstances mentioned above.

4.34. **The Committee understand that profitability studies were undertaken from time to time and, according to the latest report in December, 1969, full utilisation would be achieved by 1973-74 resulting in profits from 1970-71. If the anticipations according to profitability studies are to be achieved, it is necessary that adequate orders are booked by the Unit from now onwards. The Committee recommend that the Project should make all-out efforts to ensure an even flow of orders according to the anticipations in the profitability study report.**

V

HIGH PRESSURE BOILER PLANT, TIRUCHY

A. Agreement

5.1. On 7th June, 1961 an agreement was entered into with M/s. Technoexport of Czechoslovakia for preparing a Project Report for setting up of the High Pressure Boiler Plant with the main intention of providing the matching boiler for turbo-sets manufactured in the country. Originally it was envisaged in the Project Report that the manufacture of boilers of the range of 50 MW each and valves would be undertaken, but later on the scope of the Project was enlarged having regard to the future requirements of power stations in the country so as to bring within its coverage the manufacture of standard boilers of the capacity of 60 to 100/110 MW.

B. Project Estimates

5.2. The table below indicates the estimates as per the Project Report, the revised estimates and the actual expenditure incurred thereagainst up to 31st March, 1969:—

(Rs. in Lakhs)

	Estimates as per project Report (August, 1962)	Revised estimates (May, 1963)	Revised estimates (September, 1968)	Actual expenditures upto (31st March, 1969)
1. Civil construction ..	793·73	675·99	610·76	602·27
2. Power and gas services ..	216·36	181·70	..	183·94
3. Machinery and equipment	924·34	630·92	..	827·29
4. Office and other equipment	69·96	45·96		40·78
5. Common and operational tools	61·60	61·60		68·92
6. Spares	28·66	65·15	(Included in item 3).	1309·21
7. Customs duty	..	56·20		125·21
8. Unforeseen cost ..	32·54	25·78		12·00
9. Erection charges ..	111·71	44·25		35·25
10. Cost of Project Report	26·00	26·00	Distributed in items 1 to 3	
11. Administration and general charges	(Distributed in item 1 to 3.)		17·11	9·09
12. Township	*385·00	420·12	420·12	350·42
13. Training school ..	*90·00	90·00	77·35	76·05
14. Field erection equipment	*—	67·00	67·00	21·08
	2,739·90	2,390·67	2,501·55	2,352·30

*Note—The estimates of expenditure on Township, Training School and Field erection equipment as given above were not included in the Detailed Project Report.

The reduction in revised estimates (May, 1963) was attributed to the following factors:—

	(Rs. in lakhs)
1. Expected reduction in civil construction costs	92·19
2. Reduction of administration and general charges from 10 per cent. to 7½ per cent	25·55
3. Procurement of gas producers from Hungary instead of from the U. K. and reduction of the estimate for external and internal distribution of power, gas etc.	34·66
4. Reduction in the cost of machinery both of Czechoslovak and Indian origin, based on the then ruling prices, etc. (Rs. 391·64 lakhs) offset by increase in the provision for spare (Rs. 36·49 lakhs) and inclusion of provision for customs duty (Rs. 56·20 lakhs)	298·95
5. Increase in the cost of construction of township (Rs. 35·12 lakhs) and purchase of field erection equipment (Rs. 67 lakhs) not provided in earlier estimates	(—)102·12
TOTAL ..	349·23

5.3. After taking stock of the requirements, the Management, however, further revised the estimates to Rs. 2,501.55 lakhs in September, 1968. The break-up of the net excess of Rs. 110.88 lakhs in these estimates over the revised estimates of May, 1963 is as follows:—

	(Rs. in lakhs	
	Savings	Excess
1. Civil Services, buildings, and electrical services	65·23	..
2. Machinery and equipment	..	171·65
3. Interest during construction (not provided for in the original estimates)	..	17·11
4. Training School	12,65	—
TOTAL ..	77.88	188·76
Net excess ..		110·88

5.4. The increase in the estimated cost of machinery and equipment by Rs. 171.65 lakhs has been attributed by the Management to the following factors:—

	(Rs. in lakhs)
(*i*) Effect of devaluation	38·00
(*ii*) Increase in the cost of imported machinery on actual basis	21·00
(*iii*) Increase in custom duty	77·00
(*iv*) Increase in the cost of indigenous machinery due to additions and other factors viz. actual cost of machinery, enforcement of wage escalation clause etc.	54·76
(*v*) Provision of sales tax	10·00
TOTAL ..	200·76
Loss : Savings in other items	29·11
TOTAL ..	171·65

Out of the total revised estimate of Rs. 2501.55 lakhs, Government have sanctioned an amount of Rs. 2435.44 lakhs in May, 1970.

5.5. In a written reply, the Undertaking informed that the Project has been practically completed except for a small expenditure of Rs. 19.51 lakhs (to be incurred on Field Erection Rs. 10.87 lakhs, Machinery and equipment Rs. 2.25 lakhs, Civil Construction Rs. 1.68 lakhs. Power and gas services Rs. 3.12 lakhs and Training School Rs. 1.59 lakhs) expected to be incurred in the year 1971-72 to complete the project.

5.6. Against the September, 1968 estimate of Rs. 2,501.55 lakhs Government have sanctioned in May, 1970 an amount of Rs. 2,435.44 lakhs after restricting the number of quarters to be constructed to 2364 instead of 3000 quarters provided for in September, 1968 estimate. Government subsequently sanctioned in October, 1970 an amount of Rs. 69.56 lakhs for the construction of 636 quarters (not included in the Government sanction of May, 1970) thus bringing the total amount sanctioned to Rs. 2,505.00 lakhs.

The actual expenditure incurred upto 31st March, 1971 was Rs. 2,432.83 lakhs including Rs. 4.90 lakhs incurred on 636 quarters. The expenditure incurred upto October, 1971 was Rs. 2,455.27 lakhs (including Rs. 20.11 lakhs on 636 quarters.)

Upto the end of 1970-71 the Project has been completed except for some minor items costing Rs. 22.67 lakhs. On the 636 quarters sanctioned an amount of Rs. 68.51 lakhs is expected still to be incurred to complete the quarters. There is likely to be a small excess of Rs. 15.16 lakhs over the sanctioned estimate in respect of the main project and an excess of Rs. 3.85 lakhs over the sanctioned estimate for 636 quarters.

The main project is expected to be completed in 1971-72 and the construction of 636 quarters is expected to be completed in 1972-73.

C. Infructuous Expenditure due to Wrong Assessment

5.7. In pursuance of the recommendations made by the expert Committees appointed by the Planning Commission in 1964 and 1965, an agreement was entered into by the Company with M/s. Skodaexport, Czechoslovakia on 15th January, 1967, with the approval of the Government, for the supply of project documentation covering detailed capacity calculations and revised layout for the expansion of the High Pressure Boiler Plant from 750 MW to 2,000 MW at a fee of Rs. 14.58 lakhs. The project documentation was received in October, 1967 and the total fee was paid in November, 1967 and January, 1969.

5.8. At the same time the Government asked M/s Combustion Engineering Inc. of USA. in June, 1966 to undertake the survey for setting up of another boiler manufacturing Plant (even after the proposed expansion of this unit). The report was submitted by the firm in September, 1968 and was examined by a Technical Committee which came to the conclusion (March, 1969) that the revised outlook for power generation did not warrant the expansion of the Plant from

750 MW to 2,000 MW. The Committee, however recommended the expansion of the capacity of the plant upto 1,200 MW with the addition of some balancing equipment. Consequently, the scheme of expansion was not pursued further.

5.9. Out of the total expenditure of Rs. 19.22 lakhs incurred on the procurement of project documentation (Rs. 14.58 lakhs) the travelling allowance and other miscellaneous items (Rs. 1.09 lakhs) purchase of vehicles construction of Railway siding (Rs. 3.55 lakhs) upto 31st March 1970, an amount of Rs. 14.58 lakhs representing the cost of the project documentation was written-off in the accounts for 1969-70 with the approval of the Board of Directors. Thus due to incorrect assessment of demand for boilers, a sum of Rs. 15.67 lakhs has proved infructuous (assuming that the vehicles and the Railway siding on which a sum of Rs. 3.55 lakhs has been spent will be used for other purchases).

5.10. In written reply, BHEL have stated that the Undertaking do not consider that the expenditure incurred on the Project Documentation has proved infructuous merely because the expansion plans were not proceeded with at that time. It is because of the detailed studies undertaken jointly by the Indian Engineers and C.S.S.R. Experts regarding the capacities of the different work centres and the facilities needed for the manufacture of larger capacity boilers, that BHEL has been able to plan its activities of production more confidently anticipating areas of bottlenecks and maximising production in work centres which are found to have the necessary potential. The vhicles and Railway siding are being utilised for more effective operation of the Plant and have not become infructuous.

5.11. It has also been stated that the D.P.R. envisaged only repeat-manufacture of twelve 50 or 60 MW boilers. The actual position is, however, different and the production during 1970-71 for instance, has been predominently of 100 MW and 110 MW boilers besides a variety of industrial boilers. With such a change in production pattern, normally the output targets of D.P.R. would have become unattainable. This plant has been able to keep to the D.P.R. rated capacity outputs due to a number of factors, one of which is that the studies made by our Engineers with Czech Experts have enabled them to plan for higher output in certain work centres than even the maximum capacity envisaged by the D.P.R. for those work centres (such as drums, tubular parts etc.)

5.12. During evidence the Committee enquired whether Government agreed that the expenditure amounting to Rs. 15.67 lakhs incurred on procurement of project documentation including travelling and other miscellaneous items had proved to be infructuous. The representative of the Ministry stated as follows:—

> "This particular agreement for Skodaexport was for certain detailed capacity calculations and lay out, etc. So whatever was received from them has in fact, been useful and in fact the joint study that was done by our engineers with the Czech engineers regarding capacity of different equipment, has been put there and these studies have been very useful in the Planning of production. This has not been wasted. Certain bottlenecks were located with the result that those bottlenecks were

also rectified to maximise production. I do not think there has been any infructuous expenditure.

As regards 3.35 lakhs which has been specifically pointed out in para 'D', it has been on site levelling and vehicles. Site levelling has been used because site is in use and vehicles are being used by Plant. There is no infructuous expenditure on this".

5.13. Asked by the Committee whether this expenditure of Rs. 14 lakhs constituted a part of original agreement, the witness stated that they wanted detailed calculation in the original agreement they were to give only the basic capacity indications etc. but when the detailed break-up of capacities of different work centres, were required more engineers had to come, and therefore it was not covered by original agreement.

5.14. **The Committee note that Tiruchy Plant obtained in October, 1967 "project documentation" from M/s. Skodaexport Czechoslovakia for the expansion of the Plant from 750 MW to 2,000 MW. The Plant paid a fee of Rs. 14.58 lakhs to the supplier and incurred an expenditure of Rs. 1.09 lakhs on travelling allowance and other miscellaneous items in connection therewith. In March, 1969, a Technical Committee after a study of report submitted by M/s. Cumbustion Engineering Inc. of U.S.A. in connection with survey for setting up another boiler manufacturing plant concluded that the revised outlook for power generation did not warrant the expansion of the Plant to 2,000 MW. BHEL, are of the view that though the expansion did not take place, the expenditure of Rs. 15.67 lakhs incurred towards documentation, travelling allowance etc. cannot be regarded as infructuous because detailed study undertaken jointly by the Indian Engineers and C.S.S.R. Experts had helped the Company "to plan its activities of production more confidently anticipating areas of bottlenecks and maximising product in work centres which are found to have the heavy potential." The Committee are unable to share this view. The Committee feel that had the technical examination of the outlook for power generation been done earlier and the demand assessed correctly, the expenditure of Rs. 15.67 lakhs could have been avoided. The Committee would hardly stress the clear need for greater coordination between the Ministries/Departments to ensure that Plans and Programmes for power generation in the country are based on some firm indications.**

D. Production Performance

5.15. As per the scheduled dates of completion for various items given in the Detailed Project Report, the Project was to be completed by December, 1965 and was to attain the installed capacity of 30,920.7 tonnes of High Pressure Boilers after 6th year of production and 2,562 tonnes of valves after 9th year of production The Project was completed in August, 1966 but the partial production commenced in May, 1965. The table below indicates the production programme as per the Detailed Project Report,

budget estimates and the actual production during the years 1965-66 to 1968-69:—

(Rs. in lakhs) (Quantity in tonnes)

	Production programme as per DPR		Production programme as per budget estimates		Actual Production		Shortfall in percentage	
	Qty.	Amount	*Original* Qty.	Amount	*Revised* Qty.	Amount	Qty.	Amount
1	2	3	4	5	6	7	8	9	10
1965-66									
(*i*) High Pressure Boilers including Pressure Vessels	2,192	131·50	850	35·36	450	20·00	400	7·00	52·9
(*ii*) Boiler fittings—valves	380	56·70	..	75·00	..	20·00	..	24·00	68
1966-67									
(*i*) High Pressure Boilers including Pressure Vessels	5,257	270·60	7,000	587·00	3,600	381·00	3,230	313·50	53·9
(*ii*) Boiler Fittings valves	787	141·90		75·00	..	39·00	190	52·51	30·0
1967-68									
(*i*) High Pressure Boilers including Pressure Vessels	11,701	565·40	11,350	1398·00	10,500	1011·00	10,800	955·34	4·8
(*ii*) Boiler fittings valves	1,267	157·80	..	175·00	300	50·00	316	85·37	51·2
1968-69									
(*i*) High Pressure Boilers including Pressure Vessels	16,792	796·05	16,596	1750·00	16,596	1486·00	14,850	1396·80	10·5
(*ii*) Boiler fittings valves	1,398	179·20	..	82·00	..	122·00	412	141·36	..
1969-70									
(*i*) High Pressure Boilers including Pressure Vessels	22,719	1050·61	20,000	1914·00	17,000	1663·00	18,050	1938·00	9·75
(*ii*) Boiler fittings valves	1,575	224·03	750	150·00	600	176·00	431	105·57	42·5
1970-71									
Boilers Valves	22,719	224·43	22,000 (MT)	175·00			21,934	205·68	0·3
High Pressure Boilers including pressures vessels	2,7034	1275·83	20,000	1980·00	22,000	2345·00	20,769		2286·66
Jobbings	..	..					11,67		89·00
Boiler fittings valves	1,820	244·78	1,000	175·00	750	175·00	751		205·68

NOTES—1. The percentage of shortfall has been worked out with reference to physical targets in the case of boilers and with reference to value in the case of valves as envisaged in the original budget estimates

2. In the Detailed Project Report, 1st year has been assumed to be of 9 months, 2nd year of 11 months and 3rd year onwards of 12 months.

5.16. The following reasons have been attributed for the shortfall in production:—

1965-66

This year was treated as year of trial production. The Project Report, however, did not envisage year of trial production.

1966-67

Difficulty in procurement of raw materials, particularly seamless steel tubes and high tonsile plates.

1967-68

The original targets were fixed in October, 1966 when the Fourth Five Year Plan power programme were not finalised and were based on the assumption that over 6,000 tonnes of equipment had to be manufactured during 1967-68 for the thermal power stations to be set up in Obra. Amarkantak and Pathrathu. Since priliminary field data and technical details of boiler particulars had not been finalised, the targets fixed had to be revised.

1968-69

Due to large scale failure of seamless tubes procured indigenously and the difficulty in procurement of structural sections, quality sheet steel and piping billets.

5.17. In a written reply the undertaking explained that the D.P.R. visualised the start of the Project in September, 1962 and the completion of the Project in December, 1965.

The Government, however, sanctioned the project only by May, 1963 and the project was completed in August, 1966 within three years and four months allowed in Detailed Project Report.

5.18. The Committee enquired as to when the defects in the indigenous seamless tubes came to notice for the first time and when the alternate arrangement for procurement was made. The Management in a written reply stated that the defects came to notice for the first time in the first quarter of 1968-69 (June, 1968). Attempts were made in association with the supplier to retrieve atleast some of the supplies. However, by the end of the year, the supplier regretted his inability to conform to the prescribed quality standards. Alternative action to import the pipes was taken in March, 1969.

5.19. In regard to the action taken to overcome the technological problems faced in the manufacture of valves the Management explained that the problem faced include in the non-availability of quality castings from the Foundries, the choice of the right type of electrodes and the development of necessary fixtures and skill to manufacture leak proof valves. During the period the quality of castings from suppliers was not good. and the Boiler Plant had to resort to destructive and non-destructive tests before acceptance of

supplies and a large amount of repair work at different stages of manufacture to overcome blow-holes and other defects in the castings had to be undertaken in the shops. Indigenous electrodes used for hard facing gave erratic results for a number of reasons, including non-adherence to quality standards by the Electrode suppliers. A number of alternatives had to be tried to fix the correct type of electrodes for hard facing. The advice from the Czechoslovak Consultants regarding jigs and fixtures were not complete and it was left to the Boiler Plant to evolve the most suitable fixtures on the basis of experience. It has been assured that by and large customers requirements at sites have been fully complied with. Regarding the completion of the Project the Ministry have stated (July, 1970) that there was no delay. The D.P.R. which visualised the acceptance of the project by Government in September, 1962 and commencement of civil works in the same month, placed the target for completion of the project as December, 1965.

520. The Government, however, communicated sanction to the project by the end of May, 1963 and applying a period of 3 years and four months allowed in the DPR, the completion target is September, 1966 whereas the project was actually completed in August, 1966.

5.21. The Ministry have further stated that the shortfall in production as compared with the targets set by the Management is due to the fact that these targets were pitched deliberately high so as to activate the organisation to greater performance and the Management were fully aware that these targets would not ordinarily be achieved.

5.22. **The Committee note that the production in the H.P. Boiler Plant in Tiruchy fell short of physical targets by 52.9, 53.4, 48, 10.5 and 9.75 per cent in the years 1965-66 to 1969-70. The Committee were informed that the reasons for shortfall in production were the difficulties in procurement of raw materials, particularly seamless steel tubes, quality sheet steel, and piping billets etc. The Committee are surprised to find that while the Management complained about the difficulties of procurement of seamless tubes, it had not cared to verify whether the seamless tubes procured by them were of proper quality and specifications. The defects in seamless tubes came to the notice of the Management in the first quarter of 1969 almost after one year of its procurement. Because of the inability of the Management to retrieve the position, alternate action had to be taken by the Management to import the pipes in March, 1969. The Committee would like to be kept informed as to how the seamless tubes which were procured through indigenous manufacturers were utilised and if not utilised whether they had been disposed of in the best interest of the unit.**

5.23. **The Committee feel that the Unit should have made use of sister undertakings like HSL etc. to procure indigenous seamless tubes for their use.**

The explanation of the Management for the shortfall in production that the targets were pitched deliberately high even though it was known that the targets could not have been fully achieved is

not very convincing. The Committee recommend that the Management should take steps to fix realistic targets for production consistent with the production capabilities of the plant and the known demands for the products.

E. Utilisation of Men and Machines

5.24. The following table indicates the total hours available and the idle hours of labour due to various factors for the years 1966-67, 1967-68 and 1968-69:—

	1966-67	1967-68	1968-69
1. Total hours available	13,37,514	21,50,891	23,80,727
2. Idle time due to :—			
(a) Lack of materials ..	5,222	10,636	12,729
(b) Lack of work	1,40,893	81,692	53,175
(c) Machine breakdown	14,325	14,311	14,222
(d) Other causes	32,204	64,531	91,915
	1,92,644	1,71,170	1,72,041
3. Percentage of idle time to hours available	14·4	8·0	7·2

It would be seen that although overall percentage of idle hours has been on the decline, the idle time due to other causes has registered a sharp increase. There was, however, no system of recording idleness of the machines in the factory.

5.25. In a reply the Company informed the Committee that there was a declining trend of idle hours due to 'other causes' as could be seen from the following statement for 1969-70, 1970-71 and 1971-72 (Upto September, 1971):—

% age of idle hours due to 'other causes' to total idle time.		%age of idle hours due to 'other causes' to total hours available.	
1969-70	68%	1969-70	3%
1970-71	67%	1970-71	2·6%
1971-72	58%	1971 72	1·8%

'Other causes' includes a variety of causes like; non-availability of cranes, power failure, crane breakdown, non-availability of electrodes, preventive maintenance, lack of special tools, lack of standard tools, waiting for clarification, from production engineering, designs, inspection, non-availability of gas, and/or compressed air, etc.

The Committee enquired whether there is any system of recording of idleness of machine in the factory. They have been informed that machine utilisation for major machines in Building, No. 1 Main Production Shop had been recorded with effect from December, 1970.

5.26. **The Committee note that in Tiruchy Plant "Idle Time" due to 'lack of materials' has increased from 2.7 per cent in 1966-67 to 7.4 per cent in 1968-69 in terms of total available hours. Idle time due to 'other causes' such as non-availability of cranes, electrodes, gas and/or compressed air, waiting for clarification from production engineering, designs, inspection, lack of special and standard tools etc. had also increased from 16.7 per cent in 1966-67 to 68 per cent in 1969-70. The Committee find that 'other causes' have been the major contributory factor for idle hours. The Committee were informed that the percentage of idle time due to other causes to total idle time has decreased from 68 per cent in 1969-70 to 58 per cent in 1971-72. The Committtee feel that the elements constiuting 'other causes' are such as could be controlled by the Management with proper planning and adequate preventive maintenance and stricter inspection. The Committee also feel that idle time due to 'lack of materials' should be minimised by more efficient material planning and management.**

F. Projections for the Fourth Five Year Plan

5.27. In July, 1968, the Management reported to the Board of Directors that the Unit would be manufacturing boilers to match the turbosets for Hardwar and Hyderabad Units and had work-load up to March, 1970. In April, 1969, the Management, however, estimated the capacity developed and expected to be utilised. The position was further reviewed in December, 1969. The following table indicates the capacity developed and expected to be utilised on the basis of the review made in April, 1969 and December, 1969:—

(Figures in tonnes)

Year	As per estimates of April, 1969		As per estimates of December 1969		
	Capacity developed	Capacity expected to be utilised	Capacity developed	Capacity expected to be utilised	Spare capacity
1	2	3	4	5	6
1969-70	16,626	18,000	18,500	18,500	..
1970-71	22,547	19,400	20,500	20,500	..
1971-72	27,577	..	24,000	22,547	1,453
1972-73	30,616	..	30,000	..	30,000
1973-74	30,616	..	30,000	..	30,000

5.28. Taking the revised expectations into account, the Project would not be able to utilise 6.05 per cent. of the developed capacity in 1971-72 while the extent of utilisation during the years 1972-73 and 1973-74 would depend upon the receipt of orders in future.

The production in the Unit requires long-term planning because the products are manufactured to suit the requirements of individual customers and 2 to 3 years are required for completion of an

order. There are, however, no orders at present (December, 1969) to enable the Unit to plan manufacturing programme for the year 1972-73.

5.29. To utilise the surplus capacity, the Unit is exploring the possibility of exports and has diversified production by entering into industrial boiler field. The Unit has also secured orders for 23 industrial boilers valued at Rs. 1135.07 lakhs for installation in the fertilizer and chemical plants, etc. The production of industrial boilers during the years 1967-68 and 1968-69 amounted to 219 tonnes valued at Rs. 21.55 lakhs and 849 tonnes valued at Rs. 115.62 lakhs respectively.

5.30. The Ministry have stated (September, 1970) that the latest position of the orders received is as follows:—

(Figures in tonnes)

1969-70	1970-71	1971-72	1972-73	1973-74
18,500	25,750	29,000	30,000	30,000

5.31. The Committee desired to know the installed capacity for the different types of Boiler and with the diversification of production to what extent the capacity would be utilised. The Committee were informed in a written reply that the installed capacity for all types of boilers including jobbings was 30,000 tonnes per year. The installed capacity for different types of boilers could not be stated as all types of boilers and jobbings were taken up for manufacture at a time and common facilities used for their manufacture.

Upto 1973-74, the capacity developed would be fully utilised by the orders on hand. The Committee also enquired about the development of capacity for the manufacture of valves and its expected utilisation. The Management stated that Market surveys were conducted and the requirements of major customers like Petro Chemical Industries, Fertiliser Industries and Steel Plants have been projected and the valves production programme framed accordingly. Further, the linear Programming Technique had been used with a view to maximise profitability in formulating the production programme. Based on all this, the plans for 1971-72 and forecast for 1972-73 were drawn up for full utilisation of all work centres based on existing efficiency of the operators, except for four automatic machines. The Management felt that for utilisation of capacity, this approach would be preferable to the 'tonnage approach' because different types, sizes and varying market requirements would yield different tonnages in different years for a given value.

5.32. **The Committee note that while on the basis of orders upto 1973-74, the developed capacity of the Boiler Plant would be utilised, in the case of Boiler fitting valves, it is not so. Although the Management have planned for utilisation of the capacity except for four automatic machines on the basis of market surveys, the Committee are not aware of the extent of orders firmly secured to ensure full utilisation of the machinery. The Committee would like**

to be kept informed of this and recommend that the management should arrange to secure long term and firm orders for valves production so that no portion of the developed capacity may remain idle.

G. Import substitution

5.33. The Project Report gave an indication of the level of components to be imported from foreign countries. These levels were revised in November, 1966 by the Management. The table below indicates the levels of import contents as per the Detailed Project Report and those indicated by the Management in November, 1966:—

Year	Particulars	Percentage of imported components as per programme given in Project Report	Percentage of imported contents as per programme finalised in November, 1966	
			Components	Raw materials
1965-66 ..	1st 60MW boiler	26	38	20
	2nd 60MW boiler	..	16	25
1966-67 and	3rd and 4th 60MW boiler	20·8	8	30
	5th to 8th 60 MW boiler		7	30
1967-68 ..	1st 100 MW boiler	17·0	10	28
1968-69 ..	..	14·1	5	30

5.34. The actual import content of components and raw materials has, however, not been worked out by the Management to enable a comparison with the targets.

The Management have, however, stated that the import content had been worked out for the completed boilers and the percentage of import content for the first five 60 MW boilers were as follows. Production was also started recently for the sixth 60 MW boiler but not yet completed:—

	Percentage of imported components content to contract price	Percentage of imported raw materials content to contract price	Percentage of total imported raw materials and components content to contract price
Ennore—I	40·6	5·5	46·1
Ennore—II	12·3	12·7	25·0
Hardwaganj—I	5·2	11·0	16·2
Hardwaganj—II	4·2	10·8	15·0
Delhi—C	6·9	12·1	19·0

N.B. The import figures represent the landed cost and includes customs duty.

H. Export Orders

5.35. The export orders received upto 31-12-1971 are as under:—

Orders from West Germany for Valves received in 1967-68 ..	Rs. 0·49 lakh
Orders from Poland received in 1969-70	Rs. 3·93 lakhs
Orders from Malaysia for Boiler received in 1969-70 ..	Rs. 226·43 lakhs
Orders from Malaysia for Boiler received in 1971-72 ..	Rs. 913·77 lakhs

5.36. After evidence, the Ministry informed the Committee that one of the biggest orders for engineering goods that has been secured by any Indian manufacturer in recent times is the order bagged by the Tiruchi Unit of the BHEL in 1971-72 for supply of boilers worth Rs. 913.77 lakhs to Malaysia against a global tender. The Tiruchy Unit is already executing the export order for boilers of the value of Rs. 226.43 lakhs to Malaysia which had been bagged in the year 1969-70. The Unit has also made progress with the delivery of orders booked in 1967-68 for supply of valves to West Germany to the tune of Rs. 0.49 lakhs and the order booked in 1969-70 for supplies to Poland to the tune of Rs. 3.93 lakhs.

5.37. The Committee desired to know whether Malaysian order for export of engineering goods from this plant was going well and the plant was keeping to the targets. The representative of the Ministry has stated that they had initially some difficulties in getting clearance of foreign exchange arrangements but they had now been able to use special devices and got clearance.

Asked whether there were any other orders which were expected the witness stated that they were constantly submitting tenders. Still they had not been able to secure any more orders for big valves. They had, however, booked smaller orders. The Committee were informed that Indian Consortium for Power Project had also been booking orders for BHEL. They were getting orders from African countries.

Asked whether they were getting orders through agents or by way of foreign advertisements, the General Manager, Hardwar Plant informed the Committee that the Deputy Chairman of BHEL periodically visited the foreign countries. He was visiting Singapur, Malaysia and other places. Japanese and Britishers were also stated to be in the market. They were hopeful that slowly when their plant came up they could deliver things in time. It was stated that steps were being taken to appoint agents etc. in foreign countries.

5.38. The representative of the Ministry further informed the Committee:—

> "From the Ministry we are able to watch what is happening. In regard to the export prospects we have deliberately given this particular task to the Indian Consortium for Power Projects which has been specifically created for the purpose of securing orders not only within the country but also from outside. So, this Indian Consortium for Powers Projects has appointed agents even in the African countries for

securing orders. This is why we have secured orders in Malawi and one or two other African countries. We are exploring prospects of more agencies elsewhere. We do not want to start agencies all over without prospects because it will be incurring unnecessary expenditure."

5.39. **The Committee are glad to note that the Tiruchy Plant of BHEL has been able to secure large orders totalling over Rs. 11 crores for export of boilers to Malaysia. The Committee would like BHEL and Indian Consortium for Power Projects to intensify their export efforts so as to secure larger orders from Malaysia and other developing countries. The Committee have no doubt that Government would extend all necessary assistance to BHEL in order to sustain and step up the exports.**

As regards valves, the Committee are glad to note that some orders have been secured from such advanced countries as Germany. The Committee would like BHEL/Government to explore the possibility of stepping up exports of valves.

I. Inventory Control

5.40. (i) The following table indicates the comparative position of the inventory and its distribution at the close of the last four years:—

(Rupees in lakhs)

	1966-67	1967-68	1968-69	1969-70
Raw materials and components ..	270·73	520·94	911·23	988·19
Raw materials and components in transit	73·42	24·66	40·90	16·28
Miscellaneous stores	110·68	189·70	234·50	215·64
Miscellaneous stores in transit ..	51·29	55·42	165·07	80·66
Construction stores	44·30	35·29	12·45	5·82
Construction stores	*0·40	0·19	..	..
Works-in-progress	172·78	153·86	261·55	361·88
Finished goods in stock	41·62	293·41	275·46	329·62
Finished goods with customers .. *transit	166·24	908·30	..	..
	931·46	2181·77	1901·16	1998·09
Consumption during the year	242·15	461·66	629·36	849·32
Closing stock (excluding the stores etc. in transit) in terms of months' consumption	18·1	18·5	21·8	17

(ii) *Finished stock*—

5.41. Out of the finished stock valued at Rs. 329.62 lakhs as on 31st March, 1970, stock worth Rs. 280.58 lakhs was held against specific orders and letters of intent.

5.42. The Management have attributed the following reasons for not despatching the finished goods before 31st March, 1970:—

(a) Lack of instructions from customers.

(b) Non-availability of right type of wagons for heavy and bulky consignments.

5.43. The Committee wanted to know how much of the stock was held for lack of instructions from customers and what was the remedy provided in the agreements against such holdings. In a written reply, the Undertaking informed the Committee that Rs. 280.58 lakhs comprise of stock of boiler components to the tune of 2,593 tonnes and the balance of Rs. 49.04 lakhs represent mainly valves. Out of the 2,593 tonnes (which included 1,551 produced in March, 1970), 858 tonnes were held up due to the delayed start of despatch for Bhatinda, Badarpur and Barauni which arose in the following circumstances. For Bhatinda, the production started in August, 1969. 1,100 tonnes were held up when despatch instructions came on 11-3-70. Out of this, and the subsequent production of 348 tonnes 642 tonnes were left over on 31-3-70. For Barauni the production started in March, 1969. 809 tonnes were held up when despatch instruction came on 16-2-70. Out of this and the further production of 71 tonnes upto the end of March, 1970, a quantity of 141 tonnes were left over on 31-3-70. As for Badarpur, the drum weighing 75 tonnes was held up from September, 1969 due to inability of the Badarpur Thermal Power Project to receive it in the absence of the Railway Siding (under construction) and for heavy haulage equipments.

Except in one case the agreements so far entered into (6 agreements in all) did not provide for recovery of storage charges in case of accumulation of such holdings. Individual cases of prolonged hold-up were, however, taken up with the customers for getting payment for the locked up material. The agreements so far entered into did not provide for recovery of full payments in such cases of hold-ups of stock.

5.44. It was also stated that often there was difficulty in getting the special type of wagons and in such cases the matter was taken up with the Railways as best as possible.

(iii) *Slow-moving Stores*—

5.45. The Value of stores which have not moved for one year and more amounted to Rs. 98.34 lakhs as on 31-3-1969 as per details given below:—

Date from which not moved	No. of Items	Value Rs.
1-1-1963	3	1,946
1-1-1964	298	33,640
1-1-1965	799	1,91,077
1-1-1966	1,854	6,81,123
1-1-1967	3,625	19,70,464
1-1-1968	4,118	69,55,450
		98,33,700

5.46. In April, 1969, the Management instituted a special review for reducing the inventories to the minimum level consistent with the quantum of orders for the major products that will be available in the Fourth Five Year Plan. Upto December, 1969, items valued at Rs. 97.76 lakhs were found surplus (including 84 varieties of seamless tubes valued at Rs. 60 lakhs and construction stores valued

at Rs. 9.83 lakhs). The seamless tubes were stated to be surplus due to non-receipt of orders for Faridabad I and II and Amarkantak power stations.

5.47. It was pointed out that as on 31-3-70 High Press Boiler Plant had stores worth at Rs. 67.27 lakhs which had not moved for over 1 years. Besides the Unit had stores worth Rs. 92.04 lakhs surplus to requirements including seamless tubes of the value of Rs. 53 lakhs and construction stores valued at Rs. 2.58 lakhs. The Committee enquired as to what action was taken for disposal of surplus stores and whether review of slow moving parts was conducted to ascertain whether they were not surplus. The Committee were informed that the stock of Rs. 92.04 lakhs on 31-3-70 has been reduced to Rs. 58.14 lakhs as on 31-10-71 by disposals and by transfer back to Stores for utilisation with suitable redesign of current boilers. But there has been no significant improvement in the stock of Rs. 2.58 lakhs representing construction stores items.

Slow-moving stores are currently under review. Out of Rs. 67.47 lakhs which did not move for over one year as on 31-3-70, the stores that did not move till 31-3-71 amounted to Rs. 44.90 lakhs. Materials Management is identifying high value items for active follow up and possible utilisation.

5.48. The details of stores which have not moved for over one year as on 31-3-1971 are indicated below:—

(Value : Rupees in lakhs)

Construction Stores	2·33
Township Stores	0·41
Training Stores	0·65
Factory Stores	134·36
	137·75 lakhs

5.49. In a reply furnished after the evidence the Ministry have stated that "in judging the level of inventory at these Plants, it has to be remembered that in the heavy electrical industry, the products involved are highly sophisticated and have a very long manufacturing cycle varying from 30 to 37 months or even more. Again, quite a number of components as also certain raw materials have to be imported and the uncertainties of such imports as well as the delays involved would necessitate the keeping of an inventory level which is sufficiently high to ensure uninterrupted production. Government agree with the Management that in this industry, an inventory representing upto even 12 months consumption is not excessive particularly in the context of the load time for imports and the prevailing scarcity condition as in the case of indigenous steel."

5.50. **The Committee note the offers made by Tiruchi Unit to bring down their inventory from 21.8 months consumption in 1968-69 to 11.4 months in 1970-71. The Committee also note that the stock of slow moving stores had been reduced from Rs. 92.04 lakhs on 31-3-1970 to Rs. 58.14 lakhs on 31-3-1971 by disposal and by transfer back to stores for utilisation with suitable re-design of boilers.**

It has, however, been admitted by the Management that there has been no significant improvement in the stock of Rs. 2.58 lakhs representing construction stores items. The Committee recommend that Management should keep the level of inventory under check and concentrate on exploring avenues for disposal of construction stores item.

The Committee note that the unit was having Rs. 92.04 lakhs worth slow-moving stores including Rs. 53 lakhs of seamless tubes. The Committee deprecate that seamless tubes had been procured and lying surplus due to non-receipt of orders for Faridabad I and II and Amarkantak Power Stations. Since orders for Faridabad Plant had been received, the Committee hope that the surplus seamless tubes would now be diverted to profitable use.

J. Profitability of the Project

5.51. In the Detailed Project Report, the Consultants had forecast loss upto the 7th year from the commencement of construction or the 4th year from the commencement of production. The Project went into production in May, 1965. According to the Project Report, a cumulative loss of Rs. 702.8 lakhs was anticipated upto the end of 1968 (i.e. corresponding to the financial year 1968-69). The Project sustained a loss of Rs. 398.02 lakhs upto 1966-67 i.e. second year of production but started earning profit from the third year of production in 1967-68. The total profit earned during 1967-68 and 1968-69 was Rs. 301.26 lakhs. The cumulative loss was, therefore, reduced to Rs. 96.76 lakhs at the end of 1968-69.

5.52. The profitability study made by the Project in March, 1969 indicated profit during 1969-70 and 1970-71 also and losses thereafter, assuming that there will be no orders after 1970-71. The position was reassessed in June, 1969 but the results were the same as indicated in the profitability study made in March, 1969.

A study was again made by the Project in December, 1969 on the basis of the latest expectations for utilisation of the capacity.

5.53. The position of profit/loss on the basis of the revised estimates is given below:—

(Figures in tonnes)

Particulars	1969-70	1970-71	1971-72	1972-73	1973-74
Planned capacity ..	18,500	20,500	24,000	30,000	30,000
Capacity expected to be utilised	18,500	20,500	22,547	..	..
			(Rupees in lakhs)		
Cost of sales	1,458	1,633	1,765	761	801
Sale value at landed cost	1,916	2,156	2,285	..	..
Profit (+)/Loss (—)	(+)458	(+)523	(+) 520	(—)761	(—)801

5.54. The above profitability study is based on the assumption that there will be no orders for execution after 1971-72 and consequently, the losses will be equivalent to the fixed expenses (inclusive of payment to and provision for employees) amounting to Rs. 761 lakhs in 1972-73 and Rs. 801 lakhs in 1973-74.

5.55. According to a fresh profitability study furnished to Audit by the Management in October, 1970, the Unit is likely to make profit upto 1973-74 as indicated below:—

		1969—70 (Actuals)	1970—71 (As per revised estimates)	1971—72 (Fore-cast)	1972—73 (Fore-cast)	1973—74 (Fore-cast)
1. Target (in M. tons)	Boilers	18,800	25,000	30,000	30,000	30,000
	Valves	431	750	1,000	1,250	1,500
TOTAL :		19,231	25,750	31,000	31,250	31,500
2. *Sale Value (Rs. in lakhs)	Boilers..	1,993	2,645	3,080	3,200	3,250
	Valves	105	175	230	300	365
		2,098	2,820	3,310	3,500	3,615
3. Cost of Sales (Rs. in lakhs) ..		1,609	2,275	2,719	2,914	3,041
4. Profit before tax (Rs. in lakhs) ..		489	545	591	586	574

*Sale value is based on the current price level at which sale has been agreed upon. No escalation in the current sale price levels towards sales to be effected in the 2nd half of the 5 year-period has been made. In respect of valves, escalation has been made at 2½% per annum from 1972-73.

5.56. It may be mentioned that the production of boilers and valves during 1971-72, 1972-73 and 1973-74 as assumed for the above profitability study is more than the orders received as intimated by the Ministry in September, 1970. Further, as the accounts for 1969-70 have not so far been audited, the figures for that year which are stated to be based on actuals, are not susceptible of verification in Audit.

5.57. The Committee enquired whether further orders for Boilers and valves were received to match the production assumed in the profitability study of October, 1970. BHEL stated that further orders had been received to match the production assumed in the profitability study of October, 1970. Total orders for boilers received to date (15-7-1971) were about 1,71,300 tonnes and out of these quantities completed upto 31-3-1971 were 68,099 tonnes. In respect of valves, orders outstanding for execution as on 31-3-1971 amounted to Rs. 230.26 lakhs.

5.58. The Committee desired to know as to how the cost of production as envisaged in the DPR from year to year compared with the actual cost of production.

5.59. The Ministry explained that the actual cost of production from year to year varied from the cost of production as envisaged in the DPR, depending on the change in the product mix, the costs going up due to devaluation, the change in material cost, the increase in wages after the Engineering Wage Board award and similar other factors.

The Committee wanted information about the variation of cost from year to year as compared with the cost envisaged in the Project Report and also the selling price actually charged *vis-a-vis* that

anticipated in making the profitability study in the Project Report. The Management in a written reply gave following information about the figures of total cost of production and selling value as per D.P.R. (submitted to the Cabinet *vide* letter No. UO No. CO/HE/40 dated 28-10-1962 and approved by Government):

(Rs. in lakhs)

	Cost of Production	Sale Value
1965—66	546	29
1966—67	721	400
1967—68	985	779
1968—69	1,125	1,128
1969—70	1,334	1,475
1970—71	1,464	1,835
1971—72	1,567	2,199

The actual production costs and sale values are as under:

	Cost of Production	Sale Value
1965—66	166	38
1966—67	666	396
1967—68	1,101	1,143
1968—69	1,333	1,592
1969—70	1,630	2,111
1970—71	2,135	2,652
1971—72	2,315	2,914 (Revised Estimate)

K. Working Results

5.60. The working results of the Unit for the last three years were stated to be as given below:—

(Rs. in lakhs)

	1966—67	1967—68	1968—69
1. Sales	14·68	795·14	1,431·48
2. Other Income	13·80	7·42	33·34
3. Jobs done for internal use	53·51	115·08	176·29
4. Accretion to stock of finished goods and works in progress	380·66	232·85	89·74
TOTAL :	462·65	1,150·49	1,730·85
5. Cost of production	731·79	1,099·28	1,475·94
6. Profit (+)/Loss(—)	(—)269·14	(+)51·21	(+)254·91
7. Adjustments relating to previous years	(—) 0·68	(—) 8·84	(+) 3·98
8. Net Profit (+)/Loss (—)	(—)269·82	(+)42·37	(+)258·89

5.61. Asked whether profits earned by Tiruchy Plant were due to high selling price, BHEL stated that this was not so since many of the prices charged were on the basis of tenders from other competitors in the country.

5.62. **The Committee note that in the detailed Project Report, Consultants had forecast that Tiruchy Plant would incur losses upto the 4th year from the commencement of production (i.e. upto 1968-69). The Committee find that the Plant started earning profit even from 1967-68 the 3rd year of production and the profit earned upto 1968-69 was Rs. 3.06 crores. The Committee hope that a close watch will be kept on factors which tend to raise the cost of production and affect economies wherever necessary to improve the profitability of the Plant in the years to come.**

The Committee also note that on the basis of the profitability study made in October, 1970, the Unit is likely to make profit upto 1973-74. While this position may be feasible with reference to the orders for Boilers on hand the Committee feel that the same cannot be said in regard to valves. At present the orders outstanding on 31-3-71 were for only Rs. 230 lakhs which may cover only one year i.e. upto 1971-72. The Committee, therefore, recommend that the unit should make all-out efforts to procure more orders for valves which would ensure full utilisation of the machinery and the anticipated result according to the profitability studies.

L. Costing System and Cost Analysis

Costing System

5.63. The Unit has adopted job costing for boilers and batch costing for valves. The following deficiencies have been noticed in the costing system (vide para 8.5 of Audit Report (c) (1970):—

(i) Norms of rejection/loss in different processes of manufacture have not been fixed.

(ii) Machine utilisation statements showing the percentage of utilisation and idle time of machines are not being prepared.

(iii) Pre-determined estimates prepared for consumption of materials and labour are not compared with actuals and variations investigated.

In this connection, the Management have stated as follows:—

(i) Since the plant is in the initial stages of production, no norms for rejections/losses in the different process have been fixed.

(ii) The factory has not reached even 70 per cent of the rated capacity and hence optimum utilisation of the machines does not arise at the moment. Machine availability is not a bottleneck in the Unit's production. The operations of the Unit being mainly fabrication work, are labour intensive. Taking all these factors into account detailed booking of machine utilisation is not considered necessary.

(iii) The Unit has not yet completed its first 60 MW boiler and also its first industrial boiler at Durgapur is still to be commissioned. As soon as these are completed the actuals will be compared with the estimates for guidance in future.

5.64. BHEL stated in a written reply that they recently (March, 1971) entered into a collaboration agreement with M/s. Combustion Engineering Inc., USA and the processes of manufacture would consequently undergo changes in the immediate future. The norms of rejections/loss would be fixed based on the experience gained in the new process.

5.65. Machine utilisation for major machines in Building No. 1 (Main Production Shop) was being compiled from December, 1970. Utilisation factor was 69 per cent for the four months ending 31-3-1971, 75 per cent upto 31-8-71 and 74 per cent upto 31-10-71.

The total of material cost and labour cost had been compared with corresponding figures in the estimates. Detailed comparison like quantities and costs of individual assemblies etc. could not be made in the case of the first few boilers which were based on rough assessment in the absence of detailed design particulars.

(ii) *Analysis of Cost*

5.66. The Unit has not completed its first power boiler and also its first industrial boiler and hence their complete cost is not known.

In respect of the production of valves, the Unit is incurring loss. The Management have attributed the following reasons for the loss in the production of valves:—

(1) "The stepping of production in the case of valves was not as fast as in the case of boilers. This has been due to:—
   (i) demand for a large number of types/sizes of valves with comparatively small off-take in each type is the general trend in the market; and
   (ii) the slow development of indigenous foundries to supply quality castings.

(2) The selling prices of valves are determined with reference to the market conditions."

5.67. The Committee enquired whether the complete costs of Power Boiler and industrial boiler were worked out and also whether the Unit suffered heavy losses in production of valves during 1969-70 and if so, the reasons therefor.

In a written reply, BHEL stated the complete cost of the first Power Boiler and the first Industrial Boiler which had been completed, was worked out and found that the completed costs of Ennore-I and Madras Fertilizers Ltd.-I were Rs. 357.94 lakhs and Rs. 47.74 lakhs respectively. The contract prices of Ennore-I and M.F.L.-I were Rs. 301.43 and Rs. 33.62 lakhs respectively and the resultant losses were Rs. 56.51 lakhs and Rs. 14.12 lakhs respectively.

There was also loss in valve production during 1969-70, due to lower production of valves resulting from non-availability of matching valve components, technological problems faced in the manufacture (particularly on smaller size high pressure valves) and the difficult supply position of quality steel castings and forgings. These were overcome to a great extent in 1970-71 and a profit of Rs. 6.30 lakhs was made in that year.

5.68. The Committee find that for sometime past the costing system followed by Tiruchy Unit suffered from deficiencies like absence of norms of rejection/loss in different processes of manufacture, absence of record showing percentage of utilisation and idle time of machines, absence of comparative study of actual consumption of materials and labour with predetermined estimates. It has been stated by the Management that in March, 1971 the Company has entered into a collaboration Agreement with M/s Combustion Engineering Inc. USA and process of manufacture were expected to undergo changes in the near future. It has also been stated that "norms of rejection will be fixed based on experience of the new processes". The Committee are surprised to find that the Tiruchy Plant which went into production of Boilers in 1965 did not upto 1971 consider fixing norms for rejections/losses in different processes. The Committee do not see why the question of evolution of norms of rejection/loss should be deferred till new processes emerge. In these days of rapid advancement of technology processes of manufacture undergo changes every now and then and therefore this can hardly be accepted as a valid plea for putting off the question of evolving norms of rejection and loss. The Committee recommend that the unit should on the basis of the experience gained so far, fix norms for rejections/losses for different processes of manufacture and review and revise them if necessary on the basis of such changes in the manufacturing processes that may be made for time to time. The Committee also recommend that the management should maintain suitable cost-records for ascertaining actual labour costs and consumption of materials as compared to estimates in order to ensure effective cost control and correct fixation of prices of the products.

M. Internal Audit

5.69. An internal Audit Cell has been set up under the control of Financial Adviser and Chief Accounts Officer. The manual of internal Audit Department defining its scope and functions has not been finalised so far (December, 1969).

The Management have stated (December, 1969) as under:—

> "While no manual has so far been made out of Internal Audit, the scope, procedure, quantum and programme of work have been clearly laid down in office orders issued by the heads of departments. The formal publication of the manual has been deferred as the Plant is in the formative stage and the system and procedures are undergoing revisions and the plant is also mid-way in the process of machanising accounting procedures. In about a year's time when these factors would stabilise, a manual which would not need constant revision, will be brought out."

5.70. There is no system of consideration of the report of the Internal Audit Department at top managerial level and the level of the Board of Directors.

Besides, the Internal Audit Cell of the Unit has not conducted any appraisal of the performance of the Unit on the lines indicated by the Committee on Public Undertakings in their 15th Report (4th Lok Sabha)—April, 1968.

5.71. The BHEL in a written reply explained that a beginning has been made in August, 1970 by the Internal Audit in conducting appraisal of the performance of a department of the Unit. Since then appraisal of the performance of two more departments has been conducted. The Internal Audit is also preparing reviews of the annual and half-yearly accounts of the Unit with effect from the accounts of the Unit for the year 1969-70 on the lines of the reviews published by the Indian Audit and Accounts Department on the accounts of the Companies. Monthly reports on inventory, labour utilisation, actual expenditure as compared to the budgeted estimates, progress of actual performance as compared to the targets etc. are also submitted both to the local management as well as to the Board.

The main internal Audit Manual has since been finalised. The details of checks to be applied for auditing the various books and documents in each of the departments of the Unit have to be compiled.

The Internal Audit Reports are put up to Units' top management i.e. FA&CAO and General Manager.

5.72. **The Committee regret to note that it should have taken Tiruchy Unit so long to streamline the procedure for internal audit and bring it in the form of a Manual. The Committee are surprised to find that the Management have not cared to conduct any appraisal of the performance of the unit till 1970 and note that a beginning has been made only in August, 1970 that too in respect of one Deptt. The Committee hope that the Internal Audit Cell of the Plant would be activised to discharge the functions and responsibilities expected of it so that the Management can take advantage of the reports of internal audit in setting right the defects in working and improving its efficiency.**

VI

ORGANISATION

6.1. Bharat Heavy Electricals Ltd. was incorporated on the 13th November, 1964 with its registered office at New Delhi. It is engaged in the manufacture of the following major products:—

(1) Heavy Electrical Equipment Plant, Hardwar ..	Turbo sets.
(2) Heavy Power Equipment Plant, Hyderabad	Turbo sets.
(3) Switchgear Unit, Hyderabad	(i) Air Blast Circuit Breakers. (ii) Minimum Oil Circuit Breakers
(4) High Pressure Boiler Plant Tiruchirapalli ..	Boiler components.

A. Principal Functionaries

6.2. The Undertaking is managed by a Board of Directors. The Directors (including Chairman) are appointed by the President under articles 66 & 67 (1) of the Articles of the Association of the Bharat Heavy Electricals Ltd. Unless otherwise determined by the Company in a general meeting, the number of Directors shall be not less than 2(two) and not more than 15 (fifteen). The Directors are not required to hold any qualification shares.

Chairman/Directors

6.3. Under *Articles 81 (a) & (b) of the Articles of Association of the Company the Chairman shall reserve for the decision of the Central Government any proposals or decision of the Board of Directors or any matter brought before the Board which raises in the opinion of the Chairman, an important issue and which is on that account fit to be reserved for the decision of the Central Government and no decision on such an important issue shall be taken in the absence of the Chairman appointed by the President.

In respect of matters reserved by the Chairman for decision of the Central Government, if the Central Government's views be not received within a period of two months, the Directors shall be entitled to act in accordance with the proposal or decide without further reference to the Central Government.

Without prejudice to the generality of the above provision, the Directors shall reserve for the decision of the President:—

(i) Creation of and appointment to all posts carrying an ultimate salary above Rs. 2,250/- per mensem and in the case of a re-employed Government servant above Rs. 3000/- per mensem inclusive of pension or pensionary equivalent. (This will not apply to the appointment of foreign technicians.)

*At the time of factual verification, BHEL have stated that Arts. 81 (a) & (b) have been amended on the basis of Government's decision on ARC recommendation.

(ii) Any matter relating to the sale, lease, exchange, mortgage and or disposal otherwise of the whole or substantially the whole of the undertaking of the Company or any part thereof; and

(iii) Any matter relating to

(a) the promotion of company/companies;

(b) entering into partnership and/or arrangement for sharing profits;

(c) formation of subsidiary company/companies;

(d) taking or otherwise acquiring and holding share in any other company; and

(e) division of capital into different classes of shares.

(iv) Appointment of the Financial Adviser of the Company.

Under article 82 of the Articles of Association of the Company the Directors may, subject to the provisions of Sections 292 and 297 of the Act, delegate any of the powers to a Committee consisting of such member or members of their body as they think fit and may, from time to time, revoke such delegation. Any Committee so formed shall, in the exercise of the powers so delegated, conform to any regulations that may be imposed on it by the Directors. The proceedings of such a Committee shall be placed before the Board of Directors at its next meeting.

Right of the President of India

6.4. Article 116 of the Articles of the Association of the Company provide that "notwithstanding anything contained in any of these Articles the President may, from time to time, issue such directive as he may consider necessary in regard to the conduct of the business of the Company or Directors thereof and in like manner may vary and annual any such directive. The Directors shall give immediate effect to directives so issued."

Number of Directors

6.5. As already stated under Article 66 of the Articles *ibid* until otherwise determined by the Company in a general meeting, the number of Directors shall be not less than 2 (two) and not more than 15 (fifteen). The Directors are not required to hold any qualification shares.

Appointment of Directors

6.6. Under Article 67 of the Articles *ibid*

(i) The Directors (including the Chairman) shall be appointed by the President and shall be paid such salary and/or allowances as the President may from time to time determine.

(ii) At every Annual General Meeting of the Company every Director appointed by the President shall unless he has been appointed to any office under Article 70 hereunder, retire from office. A Director appointed under Article 70 shall retire on his ceasing to hold the office thereof. A retiring Director shall be eligible for re-appointment.

General Powers of the Board of Directors

6.7. The business of the Company shall be managed by the Board of Directors who may pay all the expenditure incurred in setting up and registering the Company.

(1) Subject to the provisions of this Act, the Board of Directors of the Company shall be entitled to exercise all such powers, and to do all such acts and things, as the Company is authorised to exercise and do;

Provided that the Board shall not exercise any power or do any act or thing which is directed or required, whether by this or any other Act or by the Memorandum or Articles of the Company or otherwise, to be exercised or done by the Company in general meeting;

Provided further that in exercising any such power or doing any such act or thing, the Board shall be subject to the provisions contained in that behalf in the or any other Act, or in the Memorandum or Articles of the Company, or in any regulation not inconsistent therewith and duly made thereunder, including regulations made by the Company in general meeting.

(2) No regulation made by the Company in general meeting shall invalidate any prior act of the Board, which would have been valid if that regulation had not been made.

6.8. In addition to the General powers stated above, the Directors have the following specific powers conferred under article 69 of the Articles of Association to:—

(i) Acquisition of Property.

(ii) Invite and accept tender relating to works included in the approved Detailed Propject Report.

(iii) Authorise the undertaking of works of a capital nature not exceeding Rs. 50 lakhs .

(iv) Pay for property in Debentures or other securities.

(v) Secure contracts by mortgage.

(vi) Appoint officers etc. to a post in the scale not exceeding Rs. 2,250/- p.m.

(vii) Appoint trustees.

(viii) Defend action (including legal action) by or against the Company or its officers.

(ix) Refer any claims or demands by or against the Company to arbitration.

(x) Make and give receipt, release and other discharges for money payable to the Company.

(xi) Authorise acceptance of documents etc.

(xii) Appoint attorney.

(xiii) Invest money as approved by the President.

(xiv) Make bylaws of the Company.

(xv) Award or any bonus.

(xvi) Creation of provident fund, Establishment of local award for managing any of the affairs of the company.

(xvii) Enter into negotiations/contracts etc.

(xix) Sub-delegation of powers.

(xx) Borrow or raise or secure the payment of money with the approval of the President.

B. Staff

6.9. During 1970-71, the staff strength of BHEL increased from 16840 in 1969-70 to 18682 in 1970-71. Details are given below:—

	Hardwar		Hyderabad		Tiruchirapalli		Total	
	1969-70	1970-71	1969-70	1970-71	1969-70	1970-71	1969-70	1970-71
Technical Officers ..	387	416	286	297	247	293	920	1006
Non-Technical Officers	68	73	37	40	61	62	166	175
Technical staff (including 4407 Industrial workers) ..	2,844	3,596	3,561	3,849	4,407	4,742	10,812	12,187
Non-Industrial staff	2,118	2,405	1,276	1,276	1,548	1,633	4,942	5,314
	5,417	6,490	5,160	5,462	6,263	6,730	16,840	18,682

NOTE : This excludes 76 Nos. and 89 Nos. employed at Head Office during 1969-70 and 1970-71 respectively.

C. Foreign Personnel

6.10. The position of the Foreign Personnel in the BHEL since 1967-68 was as follows:—

1967-68	..	..	..	..	..	245
1968-69	..	..	..	..	..	187
1969-70	..	..	..	..	..	177
1970-71	..	..	..	..	..	147

The number of Foreign Personnel in each Unit of BHEL their financial burden on the Undertaking (as on 31-3-72) is given as under:—

	HARDWAR UNIT	HYDERABAD UNIT	TIRUCHY UNIT	TOTAL
(i) No. of Foreign Personnel.	82 (Excluding 13 Foreign Personnel like Interpretors, Doctors, Teachers & representative of M/S Prommashexport who are not paid by BHEL).	24	11	107
(ii) Financial burden on BHEL during 1971-72	Rs. 41·30 lakhs	17·38 Lakhs	·72 Lakhs	59·40 Lakhs

The Foreign technical consultants/experts are usually engaged in accordance with the provisions laid down in the agreements entered into with the concerned Foreign Collaborators.

It has been stated that necessary measures are being taken by the Undertaking to replace the foreign personnel by Indians. The position in this regard of each unit is as follows:—

(i) *Hardwar Unit*:—Indian Engineers and Technicians are attached with the Foreign Experts so that they may pick up the work and gain confidence in course of time and gradually replace them.

(ii) *Hyderabad Unit*:—Necessary action has been taken to attach Indian Counterparts to Foreign Personnel in the respective fields to obtain necessary expertise and number of foreign personnel has been gradually reduced resulting in the reduction of number of experts from 126 (during 1967-68) to 24 as on 31-3-72.

(iii) *Tiruchy Unit*:—All have been repatriated as early as 1969 except one erection expert who will also be returned before the end of year 1972.

6.11. **The Committee understand that necessary measures have been taken by the different units of BHEL to replace the foreign personnel by Indians, for which purpose the Indian Engineers/Technicians are attached to the foreign experts for picking up work and thereby gain confidence. The Committee hope that the Undertaking will soon be able to build up the expertise necessary for running the plants independently.**

D. Trainees

6.12. A total of 805 trainees including Graduate Engineer Apprentices, Chargemen Apprentices, Artisans Act Apprentices, etc. were under-going training during the year in the various Technical Training Institutes at the Units, as compared to 1,075 during the previous year. The total number of engineers and other categories of technical staff trained in the foreign countries, stood at 644, comprising 160 at Tiruchirapalli Unit, 249 at Hyderabad Unit and 235 at Hardwar Unit.

E. Recruitment

Mode of recruitment to various posts

6.13. Temporary employees recruited during construction stage gradually become surplus to requirements on tapering of construction. They are given first preference for absorption in all vacancies in the regular establishment.

(i) *Employment Exchange*

6.14. Where the temporary construction staff do not provide suitable or sufficient material for recruitment, the local employment exchange is contacted. If suitable candidates are not available from the Employment Exchange, the Employment Exchange issues a 'Non Availability Certificate' and vacancies are advertised in the Newspapers. In the case of technical categories, generally Employment

Exchange are unable to sponsor candidates suitably qualified and skilled as the standard of technical skill required in a Commercial Undertaking like BHEL is fairly high. To save time the newspaper advertisement is issued simultaneously with intimation to the Employment Exchange. A copy of the advertisement is also sent to the Employment Exchange for recommending suitable candidates if available from any other centre. Preference is however, given in recruitment to residents of local and adjoining areas.

(ii) *Direct Recruitment*

6.15. Where suitable departmental candidates are not available, senior and technical posts are filled by advertising in important newspapers having a good All India circulation. Simultaneously, the local Employment Exchanges, Central Employment Exchanges are also intimated of their requirements so that they could recommend suitable candidates for consideration.

(iii) *Deputationists*

6.16. Except for a few posts in some departments where it is absolutely essential to appoint a deputationist, deputation is not looked upon as a means of filling vacancies.

(a) *Promotion Policy and Procedure*

6.17. All promotions are made on the recommedations based on merit-*cum*-seniority by *ad-hoc* Departmental Promotion Committees consisting of at least three members constituted on each occasion. Seniority is allotted a certain quota of marks but it is not the deciding factor. Wherever possible and practicable, written tests and trade tests from part of the selection procedure. The Departmental promo-Committee recommends the candidates on the basis of seniority, confidential reports, performance in an interview.

Promotion to the officers grade (400—950 and above) are made on the recommendations of the Central Selection Committee of the BHEL which is a common Committee for all the BHEL Units consisting of two former members of the U.P.S.C. with whom the General Manager of the Unit. where the selection is being conducted, is associated as third member of the Committee.

The basic policy of the Company regarding promotion is to try to locate and give opportunities to suitable employees within the organisation to man higher posts. Normally, a minimum period is prescribed for promotion of officers from one grade to another except in cases of candidates with outstanding ability and merit who supersede others. The Company helps its employees to develop skill by training themselves making them fit for promotion. Training schemes are in vogue for (a) unskilled workers, peons, security guards etc. who have aptitude for acquiring technical skill for equipping them for the posts of semi-skilled workers (b) semi-skilled workers for skilled workers and (c) skilled workers as chargemen.

(b) *Percentage of posts reserved for promotion*

6.18. At the present stage of development of the units no such reservation has been made but the general policy is to fill as many vacancies from internal sources as possible and to resort to outside recruitment only when serving employees of requisite qualifications and experience are not available.

F. Labour Relations

6.19. During the year, the industrial peace at two Units of BHEL was disturbed. To press for their various demands, which, *inter-alia,* included the demand for continued payment of Project Allowance, the workers at the Hardwar Unit struck work on May 12 1970. This was preceded by a tool down strike on 3 days. The general strike was called off on May 25, 1970, in pursuance of an Agreement between the Management and the recognised Union. However, immediately thereafter, five persons, including the President and the Vice-President of an unrecognized Union, went on a hunger strike in support of the same demands, which were then under negotiation in pursuance of the Agreement entered into with the recognized Union earlier. The hunger strike, which commenced on June 9, 1970, was called off on June 20, 1970. Negotiations were continued with the Recognized Union and an agreement covering the various demands raised by them at the time of strike in May, 1970 was signed with them on August 8, 1970 and the Unit returned to normalcy.

At Hyderabad Unit, on December 4, 1970, a section of the employees went on a strike, even though there were no demands pending with the management. Inspite of the efforts of the management, a certain section of workers did not resume their duties. As there was a threat to the assets of the Company, the Management was compelled to declare a lock-out in such of those factory blocks which were adversely affected. The lock-out was lifted in stages as the striking workers agreed to join duties. The strike was finally called off on January 12, 1971.

G. Incentive Scheme

6.20. In a written reply, BHEL, have stated that no incentive scheme has been introduced in Tiruchy Unit so far. Based on the financial results for the year 1969-70, the profit sharing bonus was paid for at this Unit. The profit-sharing is found to be a great motivating factor for the employees as a whole.

Amenities

6.21. As on March 31, 1971, the total number of houses in the various townships of the Company stood at 7,475. Out of 600 quarters for Hardwar Unit, sanction for which was received during 1969-70 construction of 380 quarters was completed and the work on

the remaining was in progress. During the year (1970-71) Government sanction was received for construction of 636 additional quarters in Tiruchirapalli Unit and the construction was taken up on 582 quarters. The work on remaining 54 quarters had also since been undertaken.

Besides quarters, other welfare amenities provided to the employees include canteens, medical benefits, schools, community centres and clubs, as also subsidised transport. During the year (1970-71) a sum of Rs. 16.48 million was spent on the staff welfare activities. Out of this, Rs. 10.32 million was on township, Rs. 4.59 million on medical facilities (over and above the amount spent by the Company under the statutory obligations) Rs. 0.67 million on maintenance of educational facilities, Rs. 0.39 million on subsidised transport, Rs. 0.13 million on dairy farming, vegetable farms, fair price shops, Rs. 0.39 million on social and cultural activities. In 1970-71 the expenditure on amenities per employee was Rs. 73 per month.

6.22. **The Committee note that in Tiruchy Unit of BHEL, no incentive scheme has yet been introduced. The Committee consider that as incentive schemes offer inducement to workers to give better individual and group performance, and is one of the important factors motivating workers to increase production, the Tiruchy Unit of BHEL should devise a suitable incentive scheme with realistic parameters after making an expert study and in consultation with the workers. The Committee have no doubt that if the incentive scheme is properly devised and implemented, it would result in greater production by the willing participation and cooperation of workers.**

H. Administrative Ministry

6.23. During evidence of the Ministry the Committee pointed out that the BHEL was primarily concerned with the Irrigation and Power Ministry but it was functioning under the Ministry of Industrial Development. The Committee suggested whether it would be more advantageous if the Undertaking was switched over to the Ministry of Irrigation and Power. The representatives of the Ministry stated:—

> "I do not visualise there can be any substantial advantage because the problem of getting sanctions from Finance would be the same. After all in the Ministry just because we are not the users, we do not sit back and do not discuss it with Finance, but we take the same interest and we are more used to the developmental aspect and therefore we are endeavouring our best to try to secure production at the earliest possible moment."

The witness further added that the Ministry of Irrigation and Power were also consulted where necessary. Apart from the Ministry of I. & P. they had other customers also *viz.* TISCO, Bokaro Steel Plant, State Electric Boards. In Ahmedabad, BHEL had taken orders from Tata Advance Mills.

6.24. The Committee mentioned that the Fourth Five Year Plan indicated that 31 such turbines will be needed during that Plan period. There is a power plan in the country but that is the primary concern of the Ministry of Irrigation and Power. Unless there is a close liaison between these undertakings and a sense of involvement and participation in the planned development of the country, there will always be some hiatus between the Power Ministry and the Ministry of Industrial Development. These undertakings must be deeply involved not only in the implementation but in the actual perspective of the power generation in the country. The Committee, therefore, desired to know whether the Undertaking should be placed under the administrative control of the Ministry of Irrigation and Power.

The representative of the Ministry replied:—

> "there is a representative of the CWPC Power Wing on Board of Directors. We have regular periodic meetings which are presided over by Secretary, Irrigation and Power and by the Ministry, Irrigation and Power where not only the Ministry's representatives are present, but also the Chairman, Managing Director and General Managers of HE(I)L, Bhopal as well as BHEL constantly join. There is no special advantage in transferring the work to the other Ministries. Whatever coordination is necessary is being achieved today through various methods like association of a member of the Board of Directors frequent meetings held by the Secretary, Irrigation & Power, Minister, Irrigation and Power and the constant telephone calls and contacts that go on between the representatives of Irrigation and Power Ministry as well as Undertakings etc."

6.25. In a note furnished after the evidence, Ministry of Industrial Development explained the following view point:—

> "(i)While it is true that Bharat Heavy Electricals Ltd. manufacture many items which are used only by State Electricity Boards and other similar organisations engaged in the generation, transmission and distribution of power, a part of their production, particularly in items like electric motors transformers, switchgears, capacitors, rectifiers, industrial boilers and valves is also used by a variety of other consumers both in the public and private sector. The large motors manufactured by BHEL are, for example, used in industries like steel etc. while turbo compressors are used largely by the fertilizer factories, both in the public and private sector. Similarly, switchgear, capacitors and rectifiers are also used, to a large extent, by public sector and private sector industries. The management and control of BHEL, therefore, must be retained by a Ministry responsible for general industrial development so that the requirements of all industries which consume items manufactured by BHEL can be properly taken care of.

(ii) Many of the items in the range of production of BHEL, like transformers, switchgears, capacitors, rectifiers, motors, boilers, valves, etc. are also produced by other units, both in the private and in the public sector. Coordination of the activities of these units with those of BHEL can best be achieved by the Ministry of Industrial Development which is also incharge of licensing of manufacture of heavy electricals equipment.

(iii) Industries like steel castings, forgings electrical stampings etc. which are in the nature of ancillary industries vital to the growth of BHEL are in the charge of the Ministry of Industrial Development. By having BHEL side by side with the ancillary and feeder industries in their charge the Ministry of Industrial Development is better situated to ensure close coordination in their activities.

(iv) Manufacturing activities were at one time concentrated primarily in the then composite Ministry of Commerce and industry. Over the years a broad balance has been reached by a certain amount of decentralisation through distribution of work relating to manufacturing industries among an optimum number of production Ministries like the Ministry of Industrial Development, Ministry of Steel and Mines and Ministry of Petroleum and Chemicals. The expertise relating to handling of issues effecting manufacturing activities has been developed in these Ministries. To transfer a major manufacturing undertaking like the BHEL to a Ministry like Irrigation and Power which is primarily not concerned with production activities and in fact, acts, only as a coordinator through its Central Water and Power Commission in respect of the activities of various Electricity Boards (which in reality, are the customers of BHEL having autonomous powers) would be to lose the advantage of expertise in regard to manufacturing activities that is in the possession of the Ministry of Industrial Development. The assistance and advice that can be readily had by BHEL from the Directorate General of Technical Development which is a part of the Ministry of Industrial Development, will become distant and time-consuming if the BHEL is taken away from the umbrella of the Ministry of Industrial Development.

(v) The Ministry of Industrial Development has with it the machinery to clear import of Machinery, maintenance requirements, foreign collaboration, etc., which will be inevitably required in a large measure in a project of the magnitude and sophistication of BHEL, hence it is this Ministry that is in the best position to guide and assist BHEL's production activities with maximum speed and relevance.

6.26. **The Committee feel that since the Ministry of Irrigation and Power is responsible for the development of power in the country according to the targets envisaged in the Fourth Plan and since the BHEL is engaged mainly on manufacturing machinery and equipment which are primarily needed by the State Electricity Boards and other similar organisations engaged in generation, transmission and distribution of power, it is essential that there should be a close liaison between these Undertakings and a sense of participation and involvement in the planned development of the country. The Committee recommend that the views of the Ministry of Irrigation and Power may be ascertained and the question considered carefully from all angles with a view to ensuring coordinated development of generation, distribution and transmission of power in the country.**

I. Management

6.27. In a note furnished after the evidence, the Government have expressed their views that the management of the three units under BHEL should continue to be under one company.

This question was in fact raised by the Bureau of Public Enterprises in December, 1969 and it was decided in 1970 that the three units should function under one management for the following reasons:—

(i) In modern times, the thinking in industrial circle is more and more in favour of larger and larger complexes and against this background the Administrative Reforms Commission had suggested the formation of a heavy electrical complex in the sphere of electrical engineering industries.

(ii) There was inter-dependence of the three units, e.g. Hyderabad unit supplies castings and Hardwar unit supplies boiler auxiliaries to Tiruchi. The Tiruchi plant in turn supplies power housing pipes and valves for the turbo-sets manufactured at Hyderabad and Hardwar.

(iii) It is not correct to say that there is nothing common in the products that are manufactured in Tiruchi unit and at the two other units. The boiler, turbine and generator forms one complete entity as far as power-house and power generation are concerned.

(iv) Another point that is stated is that there is a competition in the boiler making field in the country and the Tiruchi unit would be better placed to meet this competition as an independent company. This view may not, however, be very correct as there are only two boiler makers of established capacity, namely BHEL and AVB, and they can hardly meet the needs of the country. Apart from this, all the units of BHEL have a well organised commercial set up and the policy of the company has been

that so long as the manufacturing units cover all costs, including factory overheads, commercial and administrative overheads and make a percentage of profit to be laid down by the Board of Directors, they would be free to quote independently except for turn-key schemes, in which latter case the co-ordination of the headquarters is availed of for submitting a composite offer.

(v) Accounts of each unit from 1969-70 would be published separately and so there is no fear of financial position of the Tiruchi unit, which was making profits, not being brought out to light. More recently this question was considered again in the context of the following points:—

(a) Tiruchi's profits are eaten up by other two units with the result that no bonus is given to its staff. It amounts to a denial to Tiruchi staff of the fruits of their labour.

(b) Interchangeability of staff among units may be a point for friction because this enable an inefficient but senior person of Hardwar or Hyderabad Unit to get promotion earlier than his efficient but junior counterpart in Tiruchi.

(c) Swallowing of Tiruchi's profit results in denial of expansion to this unit.

It was felt that while the above points may have some force they would be more than compensated for by corresponding advantages arising out of the three units remaining under one umbrella, e.g.:—

(i) Greater flexibility in utilization of personnel. This is a matter of considerable importance in a situation (faced by all public sector projects at present) of scarcity of suitable personnel for top managerial posts.

(ii) Greater coordination in the supply of complete thermal power station equipment.

(iii) A better profit-and-loss picture for the Corporation as a whole. It has, therefore, been considered that the *status quo* should be maintained.

VII

FINANCIAL MATTERS

A. Capital Structure

7.1. Bharat Heavy Electricals Ltd. was registered with an authorised capital of Rs. 40 crores which was gradually raised to Rs. 80 crores as on 31st March, 1971. Though Government have approved increase in authorised share capital from Rs. 65 crores to Rs. 80 crores on 24-3-71 but equity funds as such have not yet been released by Government. On the basis of the revised estimates of capital expenditure, the paid-up capital of the Company stood at Rs. 65 crores as on 31st March, 1971. The Company was given Rs. 85.94* crores as loan by the Government.

Debt Equity

7.2. The debt equity ratio of the Company was as under:—

As on	Ratio	Ratio (Excluding deferred credits)
31-3-1969	1·50 : 1	1·3 : 1
31-3-1970	1·67 : 1	1·4 : 1
31-3-1971	1·72 : 1	1·5 : 1

7.3. Assuming that the additional equity will be available during the year 1971-72 (and excluding the deferred credits which are for financing production) the debt equity ratio as on 31-3-1972 is expected to be 1.2:1.

7.4. The Committee desired to know the reasons for the debts of the Company being on the high side.

The Company stated that the main reason for the debts being heavy is that 50 per cent of the project cost was financed by the Government in the form of loans. Out of the loans of Rs. 87.97 crores as on 31st March, 1969, Rs. 62.02 crores is for project cost financed out of the loans. Cash loss during the gestation period is also met from Government loans. This accounts for Rs. 12.52 crores. Cash loss includes deferred revenue expenditure which is financed by Government. A comparatively small loan of Rs. 4.60 crores was financed by Government as working capital. In the initial stages of production the losses were heavy primarily because of the Government's policy of financing of the project cost on the basis of 50 per cent from equity and 50 per cent from loans.

7.5. During evidence of the representatives of the Ministry of Industrial Development, the Financial Advisor stated that in their

*According to Annual Report for 1970-71, outstanding loans amounted to Rs. 99·22 crores.

15th Report on Financial Management the Committee on Public Undertakings (1967-68) had recommended a debt equity ratio of 1:1. He stated that in the case of long gestation period industries, the ratio may be changed to 1:2. No decision had, however, been taken as yet on this. He added that the question of restructuring the capital structure of not only Bharat Heavy Electricals Ltd. but also Heavy Electricals (I) Ltd. is under consideration. He stated that two or three factors were causing imbalance in the debt equity ratio. First, as a matter of policy cash losses are financed from loans and not from equity. Secondly, there is sometimes a time-lag between releases of equity and loan. Thirdly, hitherto townships were financed both from equity and loan but from December, 1970, Government had decided that all township expenditure should be financed only from equity and not loan.

7.6. **The Committee note that the existing debt-equity ratio of Bharat Heavy Electricals Ltd. is 1.72 : 1 (as on 31-3-71). The Company have pointed out that the main reasons why the debts of the Company were on the high side was that the 50 per cent of the project cost was financed by Government in the form of loans. Thus the project was burdened with heavy interest on loans before it could even attain full production. This liability increased with the passage of time and cash losses in the initial years were also met from Government loans. In para 1.13 of their 15th Report on "Financial Management in Public Undertakings" the Committee had referred to this problem and suggested, "An arrangement which appeals to the Committee is to capitalise interest liability during the construction period and to write it off from profits in the later years." The Committee hope that while considering the question of reconstructing the capital structure of the Company, Government would show greater awareness of the problems of capital intensive companies with long gestation period in the initial years of production so that a Company which takes a heavy loan to cover a part of its project cost does not find itself in a difficult position of having to pay interest even before commencement of production because such interest leads to further losses.**

B. Loans

7.7. As on 31st March, 1971, a sum of Rs. 1.31 crores was due from the Company to Government as interest charges out of the total interest due in the year 1970-71 of Rs. 6.71 crores. Out of this Rs. 0.95 crores has also been paid to Government in the months of April, 1971 on realisation of the Company's due from the Electricity Boards and other customers. Dues to the Government as on 31-3-71 towards interest are Rs. 1,31,19,307 which has since been paid. Dues for 1971-72 are Rs. 6,72,06,799.

7.8. Under the procedure laid down by the Ministry of Finance the Company was required to make payments to the Accountant General, Central Revenues for plant and machinery, etc., purchased against Czechoslovak and U.S.S.R. credits immediately on receipt of intimation of payments made to the foreign suppliers. However,

the gap between the date of payment by the Government to the suppliers and the date of deposit by the Company ranged between 1 and 13 months. The interest liability for such delayed payments amounted to Rs. 128 lakhs up to 31st March, 1970 which has not been paid by the Company so far (August, 1970).

7.9. The Ministry have stated (July, 1970) that the delay on the part of the State Electricity Boards in making the advance and progress payment for the supply of boilers and turbo-sets affected the resources of the Company, thereby resulting in delayed payments of the dues against credits.

7.10. A sum of Rs. 65.39 lakhs was due from the Company towards interest on loans as on 31st March, 1969. The repayment of instalments of the loans and payment of interest thereon were not made on due dates except in two cases of repayment of instalments of loans. Accordingly the Company became liable to pay additional interest of Rs. 33 lakhs (approximately). The Company has approached the Government in July, 1969 for waiver of additional interest of Rs. 33 lakhs. The Company has sought for waiver of the penal interest as the Government only reserve the right to levy penal interest and it is not leviable automatically, In view of the cumulative losses of the Company during gestation period. Government have waived such penal interest previously and in similar cases of other public sector projects.

7.11. The Company's liability to additional interest rose to Rs. 74.26 lakhs as on 31-3-1970 (the interest accrued and due on that date being Rs. 146.91 lakhs. On account of continued defaults in the repayments of instalments of principal and payment of interest due thereon.

7.12. The Committee also understand that due to different figures of additional interest having been intimated to Government from time to time, the Ministry had asked the Company on 4-11-1969 to check up the correct position in this regard with the A.G., C.W.M. and then to approach the Government for waiver of additional interest, duly supported by reasons therefor. At the same time the Ministry conveyed its displeasure in regard to the defaults made by the Company in the payment of instalments of principal and interest and not approaching them in time for waiver of additional interest. They also expressed the view that such dues to Government should constitute a first charge in the budget of the Company and that the reasons for these defaults should be examined, particularly whether the defaults occurred on account of laxity of financial management in not having brought the correct position to the notice of the Board of Directors well in advance. The matter appears to be still under correspondence with the A.G., C.W. & M. and the final report to the Government has not been made so far (January, 1971).

7.13. The Company has intimated that the amount due is to be finalised by the A.G., C.W.M. who has raised certain basic questions as to whether the penal amount would apply for the amount of the instalment or on the principal and this is under correspondence between A.G. and Ministry.

7.14. The advance and progress payment due from the State Electricity Boards amounted to Rs. 29.96 crores as on 30-11-1971 as against Rs. 17.36 crores as on 31-3-1971. Details are given below:—

Statement of outstanding dues from various State Electricity Boards

(Rs. in lakhs)

Sl. No.	Particulars	As on 31-3-71	As on 30-11-71
1.	Uttar Pradesh State Electricity Board	306·52	934·26
2.	Bihar State Electricity Board	343·44	377·24
3.	Tamil Nadu State Electricity Board	243·72	296·24
4.	Andhra Pradesh State Electricity Board..	444·03	618·49
5.	Maharashtra State Electricity Board	—	70·95
6.	Punjab State Electricity Board	102·20	426·49
7.	Assam State Electricity Board	—	4·00
8.	Haryana State Electricity Board	—	0·43
9.	Jammu & Kashmir State Electricity Board	72·90	14·52
10.	D.E.S.U.	89·42	79·86
11.	Central Water & Power Commission	122·00	160·65
12.	Badarpur Thermal Power Station	11·81	12·35
13.	Heavy Electricals (I) Ltd.	—	1·10
14.	Gujarat State Electricity Board	—	0·04
		1,736·04	2,996·62

7.15. The Company have stated that the delay in payment by the State Electricity Boards cannot be attributed to non-finalisation of agreement with them as they normally make (BHEL) payments on the basis of budgetary prices quoted by them pending settlement of final prices. As far as the Company know, in most of the cases State Electricity Boards have not been able to make payment for want of funds. Interest charges are claimed for abnormal delay. The Company have written to State Electricity Boards that if they do not make advance and progress payments as due, their sets will not be progressed further.

7.16. **The Committee note that as on 30-11-1971, the advance and progress payments amounting to Rs. 29.96 crores are due from State Electricity Boards. The Committee find that on the one hand the State Electricity Boards seem to be unable to settle these outstandings for want of funds and on the other hand the Company have written to the State Electricity Boards that "if they do not make advance and progress payments as due, their sets will not be progressed further". If this warning is carried out, the Committee feel, it will create an avoidable stalemate which in turn was bound to affect the programme for development of power generation in the Country. The Committee recommend that Government should tackle this problem at the highest level in order to find an acceptable solution.**

C. Financial Results

7.17. The table below summarises the financial position of the Company for the last five years.

(Rs. in lakhs)

Liabilities	1966—67	1967—68	1968—69	1969—70	1970—71
(a) (i) Paid-up capital (including advance for Share)	6,369·12	6,500·00	6,500·00	6,500	6,500·00
(ii) Reserves & Surplus	—	—	—	3·90	3·73
(b) Borrowings :				10,879·23	
(i) From the Government of India (including Deferred Credit)	4,232·16	7,776·53	9,705·36	..	11,181·51
(ii) From Bank-cash credit	381·09	301·82	660·24	611·50	498·59
(c) Trade dues and other current liabilities (including provisions)	1,27·67	3,049·52	3,523·95	6,020·36	6,912·95
Total ..	12,254·04	17,627·87	20,389·55	24,014·99	25,096·78
Assets					
(d) Gross block ..	4,964·47	6,635·17	8,069·27	10,532·04	12,594·39
(e) Less : Depreciation	348·57	729·02	1,071·62	1,395·68	1,803·73
(f) Net Fixed assets ..	4,615·90	5,906·15	6,997·65	9,136·36	10,790·66
(g) Capital works-in progress (including machinery at site under erection and in transit unallocated expenditure etc.)	3,639·13	4,389·66	4,632·84	3,284·40	1,956·77
(h) Investments ..	0·08	0·08	0·08	1·83	4·17
(i) Current assets, loans and advances ..	2,764·97	5,379·20	6,435·63	8,946·81	9,982·13
(j) Miscellaneous expenses : (i) Accumulated loss	726·45	1,303·55	1,645·42	1,860·83	1,769·36
(ii) Deferred revenue exp.	507·51	649·23	677·93	784·76	593·69
Total ..	12,254·05	17,627·87	20,389·55	24,014·99	25,096·78
Capital employed ..	6,109·20	8,235·83	99,09·33	12,062·81	13,256·89
Net worth	5,135·16	4,547·22	4,176·65	3,858·31	4,827·73

NOTES : 1. Capital employed represents net fixed assets plus working capital.
2. Net worth represents paid-up capital less intangible assets.

7.18. The cumulative loss of Rs. 1645.42 lakhs incurred by the Company upto 31st March, 1969, represented 25.3 per cent of the paid-up capital of Rs. 6,500 lakhs. The profit/loss relating to each of the Projects of the Company during the three years from 1966-67 to 1968-69 is given below:—

(Rupees in lakhs)

	1966—67	1967—68	1968—69
1. Heavy Electrical Equipment Plant, Hardwar ..	(—) 63·04	(—) 140·78	(—) 197·98
2. Heavy Power Equipment Plant, Hyderabad ..	(—) 233·31	(—) 446·64	(—) 353·14
3. Switchgear Unit, Hyderabad	(—) 16·57	(—) 32·05	(—) 49·64
4. High Pressure Boiler Plant, Tiruchy ..	(—) 269·82	(+) 42·37	(+) 258·89
..	(—) 582·74	(—) 577·10	(—) 341·87

7.19. As on March 31, 1970 the total capital expenditure in the Company amounted to Rs. 1385.45 lakhs. Of this, Rs. 6,500 lakhs was financed from 'equity funds' and the remaining Rs. 735.45 lakhs from out of 'loans' received from Government. The data relating to capital expenditure incurred at the various Units of the Company upto March 31, 1970 against the sanctioned estimates, is given in the table below:—

(Rupees in million)

Unit	Revised Estimates	Capital Expenditure upto 31-3-1970 (Provision)	Percentage of capital expenditure to Project Estimates
1. H.E.E.P. Hardwar	892·23	806·58	90%
2. H.P.E.P. Hyderabad	411·53	371·53	90%
3. H.P.B.P. Tiruchirappali	250·16	230·09	92%
	1553·92	1,408·20	90%

NOTE :—The above table excludes the capital expenditure of Rs. 5·6 million at Central Foundry Forge Plant and the Head Office.

7.20. The Committee enquired as to why all the projects of BHEL, except High Pressure Boiler Plant, Tiruchy were incurring losses year after year? The BHEL in a written reply have stated that Heavy Electrical Equipment Plant being the sophisticated industry has a long gestation period. The absorption of technology, acquisition of skill take time and, therefore, the growth in production is slow in the initial years. Besides, this is a capital intensive plant involving heavy incidence of depreciation and interest right from the date of commissioning even though as stated earlier. the growth in production is inevitably slow in initial stages. Build up of production was hampered because of the order book position. The orders were not available well in advance to allow sufficient time to arrange for the procurement of items not produced in the country such as special castings and forgings. These factors account for the losses in the plant in the initial years.

7.21. During evidence, the Committee enquired about the reasons for the financial losses suffered by the various Units of the Bharat Heavy Electricals. The representative of the Ministry informed the Committee that these losses were due to a combination of factors. In the heavy investment sector, they had usually in the initial phases very high depreciation and interest charges and these charges had to be met in the beginning in circumstances where the production was not sufficiently high. In the gestation period, the cost of production tends to be on the high side because in a very highly sophisticated industry like BHEL where they were handling highly technical kind of equipment and absorption of skill took time. For absorbing skills they needed orders. The position of order booking was weak in the beginning and they could not also accelerate the absorption of skills.

7.22. Asked when were the financial results of the three Units of BHEL likely to show profit, the witness stated that if the financial results of the three Units were taken together, they had an annual profit of Rs. 65 lakhs during 1970-71. In the case of Tiruchy Unit, they made a profit of Rs. 5.9 crores in 1971-72. In Hyderabad Unit a profit of Rs. 1.35 crores was expected in 1971-72. But in Hardwar Plant there would be a loss of about Rs. 5 crores. The Committee were informed that the Hardwar Plant was not expected to turn the corner till about 1975-76.

7.23. The Committee pointed out that the loss in respect of Hardwar Unit had increased from Rs. 63 lakhs in 1966-67 to Rs. 198 lakhs in 1968-69 and enquired the reasons for increase in the losses of this Unit. The representative of the Ministry infromed the Committee that when the production was increasing in the initial phases, the cost of production was also excessive compared to the earning and the losses were also increasing. When asked whether the losses were due to the under-utilisation of capacity, the witness stated as follows:—

> "Practically there are not many orders which were not executed. It is possible that in one or two cases there might be some delay. It is due to interest and depreciation charges. In the year 1967 the loss is only Rs. 43 lakhs. At that time the capitalised equipment was only Rs. 10 crores. I had to pay depreciation charges and loss was on Rs. 10 crores. Subsequently, in the year 1968-69, it became Rs. 28 crores. In the year 1969-70, it became Rs. 40 crores and in 1970-71 it became Rs. 69 crores. So, interest and depreciation are the main things responsible for losses. If we take out these, progressively we have been making profit. In earlier years, 1967, 1968 and 1969 we have Rs. 40 lakhs, Rs. 60 lakhs and Rs. 62 lakhs respectively and in 1969-70. Rs. 7 lakhs and in 1970-71 we have made a profit of Rs. 61 lakhs. In 1971-72 we expect to make a profit of Rs. 65 lakhs. If interest and depreciation charges are taken out, we go on the profit side".

7.24. The Committee pointed out that in all Undertakings the interest and depreciation were always taken into account while working out profits and there is no reason why it should be otherwise in the case of Hardwar Plant. The General Manager, Hardwar

Unit stated that in the Project Plan, increases in losses in the first five years, then decreases in losses, then break even and then profit had been indicated. This was the built up pattern of that type of work. As earlier stated they expected that in 1975-76, the Hardwar Plant would earn profit. The witness added that the volume of production had to grow. There were also shortage of orders etc. In 1970-71, there was a loss of Rs. 4.25 crores. But if they took out interest and dpereciation there was a profit of Rs. 61 lakhs. The witness further added that they had an indication of losses in the Project Report in the earlier years and the losses would be increasing as production and capitalisation build up. The original project was not exactly what they had been implementing but there had been changes in it. In the Hardwar Unit losses for four years had been indicated in Project Report.

7.25. In a subsequent note furnished after the evidence, BHEL intimated that capital expenditure and cumulative losses of each Unit during 1969-70 and 1970-71 were as under:—

(i) *Cumulative losses/profit incurred by the Units of BHEL*

(Rs. in crores)

	As on 31-3-1970	As on 31-3-1971	As on 31-3-1972 (Provisional)
Tiruchi	+ 3·84	+ 9·00	+ 14·99*
HPEP including Switchgear ..	(—) 15·04	(—) 15·10	(—) 14·25
Hardwar	(—) 7·41	(—) 11·59	(—) 15·64
Company as a whole ..	(—) 18·61	(—) 17·69	(—) 14·90

*Excluding Development Rebate Reserve of Rs. 2·87 crores.

(ii) *Total Profit/Loss of BHEL excluding Interest and Depreciation*

(Rs. in crores)

	During 1969-70	During 1970-71
Depreciation :	3·80	4·74
Interest :	7·57	6·17
	11·37	10·91
Net profit/loss for the year :	(—)1·50	(+)0·65
Net Profit before charging Depreciation and Interest:	9·87	11·56

(iii) *Revised estimates, Capital expenditure and percentage of capital expenditure to Project Estimates*

CAPITAL EXPENDITURE

Year*	Revised Project estimate	Expenditure upto the end of March	Percentage of 3 to 2
1	2	3	4
1969—70			(Rs. in crores)
Tiruchi ..	25·02	23·90	96
Hyderabad ..	41·15	37·81	92
Hardwar	101·35	83·77	83
	167·52	145·48	87
1970—71			
Tiruchi	25·02	24·33	97
Hyderabad	41·15	38·28	93
Hardwar	101·35	88·35	87
	167·52	150·96	90

*As per latest Revised Estimates.

7.26. **While the Committee are happy to note that Heavy Pressure Boiler Plant, Tiruchy in whose case capital expenditure upto March, 1971 was Rs. 24.33 crores had earned cumulative profit of Rs. 9.00 crores, they are rather distressed to find that the other two plants of B.H.E.L. had not shown encouraging financial results. Heavy Power Equipment Plant, Hyderabad and Heavy Electrical Equipment Plant, Hardwar had incurred cumulative losses to the extent of Rs. 15.10 crores and Rs. 11.59 crores as on 31st March, 1971 respectvely. The Committee agree that as Heavy Electrical Equipment Plant is a sophistcated industry with a long gestation period, absorption of technology and acquisition of skill took some time. The Committee were assured during evidence that Hyderabad Unit is expected to make a profit in 1971-72 and that Hardwar Plant would make a profit in 1975-76. The Committee recommend that Government should satisfy themselves that Hardwar Plant had incurred losses for the years and to the extent indicated in the Detailed Project Report and not more. If the quantum of losses had been more or if the period for which these losses were incurred was excessive as compared to DPR estimate, the reasons should be investigated. Concerted efforts should be made to see that Hardwar and Hyderabad Plants not only break-even but also are able to wipe out the cumulative losses.**

D. Revolving Fund

7.27. The Committee desired to know the fate of the proposal to set up a "Revolving Fund". The Financial Adviser, Ministry of Finance, stated:—

> "This question of giving them a revolving fund has been under consideration of Government for quite some time. It involves a quite heavy investment by way of working capital, purchase of components, raw materials etc. etc. and we do not know whether there would be a definite demand or not. Now, most of the orders come from the Electricity Boards. The Electricity Boards have to place formal orders on the Bharat Heavy Electricals that before the procurement action and manufacture of the equipment are undertaken as we expect the Undertakings also to function as Commercial concerns.
>
> Now in the case of heavy equipment a commercial concern cannot go ahead with the production programme and procurement of raw materials and components when there is no order placed on them. We are considering the matter seriously whether Government should provide a revolving fund to enable the BHEL to go ahead with the manufacturing programme, but there is a certain risk involved. If there are no orders, we will be faced with heavy inventories of raw materials components and finished goods. This had happened in the case of Heavy Electricals, Bhopal, where Government gave orders for ten sets of thermal generating equipment but there were no specific orders for these sets, as a result of which inventory suddenly shot up. We have been applying our mind to resolve this. So we have to balance, on the one hand the rest of the idle capacity and on the other the possible risk of having high inventories in finished goods and stocks. Now, the Electricity Boards' financial position is unsound and they are not in a position to place orders....."

7.28. He further stated:—

> "So far as the financial position of the Bharat Heavy Electricals Ltd. is concerned, there is no difficulty. The Electricity Boards are independent bodies; they have to place their own orders with the Heavy Electricals or with the Bharat Heavy Electricals and make funds available when they are required and the Central Government are not in a position to do this for them.....
>
> On the one hand we say that the undertaking should function strictly on commercial principles and if that is applied then they have to receive orders for the manufacture of equipment as also payments therefor. But on the other hand, as I said earlier, the Government has to balance the risk of either keeping the plants idle or running them partially utilised with the question of heavy over stocks of finished goods and components etc. Now, if we balance these two considerations, we may come to the cinclusion that it is better to have an advance procurement action and provide funds but is not an easy affairs".

7.29. **The Committee note that Government are considering the question of setting up a revolving fund for Bharat Heavy Electricals Ltd. so that it could go ahead with its manufacturing programme. There is no doubt that if adequate orders are not forthcoming, the Company would find itself in a predicament in as much as its inventory of raw materials, components and finished stocks would go up.**

If utilisation of spare capacity leads to high inventory, it would be a remedy which would be worse than the disease. The Committee therefore, recommend that Government should see that adequate orders from State Electricity Boards are placed so that concept of Revolving Fund develops into a success.

VIII

CONCLUSION

8.1. The Bharat Heavy Electrical Ltd. was incorporated on November 13, 1964 as a new Company to take over the management and control of the following Units from the Heavy Electrical (India) Ltd., Bhopal:—

(i) Heavy Electrical Equipment Plant (HEEP) at Hardwar;

(ii) Heavy Power Equipment Plant at (HPEP) Hyderabad; and

(iii) High Pressure Boiler Plant (HPBP) at Tiruchy.

The new Company namely, Bharat Heavy Electrical Ltd. commenced business with effect from November 17, 1964.

8.2. The Heavy Electrical Equipment Plant, Hardwar was set up in collaboration with M/s. Prommashexport, USSR, which will be the largest of all the electric plants in the country. The Plant was set up with a capacity to manufacture yearly 1.5 million KW of steam turbines and turbo-alternators, 1.2 million KW of hydroturbines and generators and 0.515 million KW of large size electric motors and associated control equipment. The value of annual output at full rated capacity will be Rs. 968 million

8.3. The Heavy Power Equipment Plant at Hyderabad was set up in collaboration with Skodaexport, C.S.S.R. This Plant was inaugurated in December, 1965. The Plant had been designed for an annual output of about 0.9 million KW of steam turbines and generators upto unit sizes of 110 MW capacity, and associated auxiliaries like boiler feed pumps, heaters, condensate pumps etc. The Plant will also manufacture radial and axial turbocompressors with driving turbines for steel plants and chemical plants, small turbo-sets for industrial use, package power plants and an extended range of industrial an power station auxiliary pumps. The value of annual output at full rated capacity will be Rs. 380 million.

8.4. The need to set up a separate Unit viz. Switchgear Unit for production of air blast and minimum oil circuit breakers was felt as the circuit breakers manufactured at Heavy Electricals (India) Ltd., Bhopal in collaboration with M/s. AEI of England were not generally found acceptable. It was also envisaged that main plant at Bhopal would concentrate its manufacturing activities on transformers, capacitors, traction/industrial motors water-steam turbo generators etc. thus, gradually discontinuing the manufacture of circuit breakers altogether. Accordingly in July, 1964 a proposal for technical collaboration with M/s. ASEA of Sweden for the manufacture of Air Blast Circuit Breakers of 132 KV, 230 KV and 400 KV, was approved by the Government of India. The total investment for the first stage of the Switchgear Unit at Hyderabad, to cover the manufacture of Air Blast Circuit Breakers was established at an estimate of Rs. 227 lakhs. This project went into production in October, 1966 for the manufacture of air blast circuit breakers.

8.5. The High Pressure Boiler Plant, Tiruchy was set up in collaboration with Skodaexport, C.S.S.R., designed for an annual out put of 30,000 tons of finished boiler house equipment. The value of annual output at full rated capacity will be Rs. 2500 lakhs. This Plant was inaugurated in May, 1965 when the production of valves was commenced.

8.6. The Committee take a serious view of the fact that it took Government more than three years to sanction the estimates submitted by BHEL in December, 1966. It is regrettable that in spite of the recommendation of the Committee on Public Undertakings in their 39th Report (1967) no responsibility has so far been fixed for this delay as suggested by the Committee in their Report *ibid.* The Committee, therefore, consider that the procedure should be streamlined to avoid such delays in sanction of the project estimates.

8.7. The Committee, regret to note as against the first estimates of Rs. 63.43 crores for the project prepared by the Undertaking/ Government, the project is estimated to cost Rs. 98.13 crores *i.e.* an increase of about 55 per cent over the first estimates. The Committee have repeatedly observed that the total commitments on a project should be prepared as realistically as possible in the beginning and should be available to Parliament before a Project is approved instead of making them commit to a project on piece-meal basis from year to year without giving them a true and realistic picture of the project. The Committee feel that where the economies of the project are adversely affected as a result of revised estimates, Parliament should be specifically informed of it in time with supporting details.

8.8. The Committee note with regret that the construction schedule of Heavy Electrical Equipment Plant, Hardwar which should have been completed by the end of December, 1966, had been revised time and again. The Committee were assured that the installation of the equipment would be completed by March, 1972.

8.9. The Committee are unhappy at the frequent revision in the date of completion of project and are particularly distressed by the fact that equipment to the tune of Rs. 70 lakhs had not been installed. The Committee feel that had the Management adopted modern techniques for planning, installation and commissioning of the machinery in the project, such delays could have been obviated. The Committee cannot too strongly stress the need for more scientific and rational procedure in placing the orders for machinery and equipment so that they are received and installed in proper sequence to yield the best production results at the earliest.

8.10. The Committee note that though the project Report for Heavy Equipment Electrical Plant, Hardwar, did not contain any time-bound programme for attaining the capacity from year to year, it gave an indication that the plan would attain its "Rated Capacity" in the 8th year of production. The Committee were assured by the representative of BHEL that full capacity was expected to be achieved in the 8th year of production depending an order book

position and absorption of skill. As the Plant has at present orders for thermal sets only upto 1975-76 and do not have adequate orders for motors, the Committee hope that all out efforts would be made to procure sufficient orders to ensure the achievement of the full rated capacity of the plant.

8.11. The Committee were informed that the main problem standing in the way of achievement in the targetted production was delay/defective supply of castings and forgings from indigenous and foreign suppliers and non-availability of good quality of castings and forgings. The Committee recommend that the Government and the Management of BHEL should tackle this problem urgently and evolve a procedure by which the sustained and dependable supply is ensured.

8.12. The Committee find that capacity likely to be developed at Heavy Electrical Equipment Plant was revised as many as four times during a period of two years *i.e.*, in January and July, 1968 and April and December, 1969 generally in a downward manner. The Government admitted that the original estimates were more "ambitious" than realistic. The Committee recommend that Hardwar Plant should therefore, prepare a realistic programme of build up of capacity to end uncertainty and obviate revisions.

8.13. The Committee find that production and delivery schedule of Hardwar Plant has suffered set backs in the past, mainly due to the delay in receipt of castings and forgings from indigenous and foreign suppliers. The Committee recommend that this problem of castings and forgings should be tackled expeditiously in coordination with the Heavy Engineering Corporation as otherwise, it will not only seriously affect the Plants build-up of capacity to the optimum level but impair the plant's prospects of attracting more orders for sets.

8.14. The Committee were greatly distressed to find that while on the one hand, mid-term plan appraisal places the blame for shortfall in the installation of additional generating capacity on late delivery of plant and equipment by public undertakings, the Bharat Heavy Electricals have emphatically stated before the Committee their difficulties arising out of the non-receipt of firm orders for generating sets and equipment even though they have the capacity, the know-how and the skill to manufacture them. The Committee consider that it should not have been beyond the ingenuity of the Planning Commission/Central Government/State Electricity Boards/Public Undertakings to find a means by which firm orders were placed for generating sets and equipment a few years in advance so as to ensure timely delivery as well as full utilisation of the manufacturing capacity developed in the public sector.

8.15. The Committee note that in Janury, 1969 the Bureau of Public Enterprises (Ministry of Finance) advised the public sector undertaking to consult the Finance Branch in case of purchases where difference between the accepted and lowest tender was more than 5 per cent subject to over all limits. The Committee find that instructions to give effect to the Bureau's Circular were issued by

the Company in August, 1971 *i.e.* after a period of more than 2½ years. The Committee recommend that reasons for this inordinate delay should be investigated.

8.15A. The Committee also recommend that Ministry/Bureau of Public Enterprises should ensure through periodical reports that instructions issued by them are being implemented by the Undertakings.

8.16. The Committee are surprised to find that Alloy Steel valued at Rs. 17.89 lakhs was imported for the manufacture of special type of tools and hot forgings, dies etc. on "ad hoc basis". The Committee are unable to appreciate why this import was authorised by Government when even the actual requirement was not known. The Committee feel that responsibility for making this ad-hoc purchase involving foreign exchange should be fixed and the Committee kept informed of the action taken.

8.17. The Committee note that the Hardwar Project has so far undertaken three profitability studies in March, 1969, June 1969 and September, 1970. The Committee regret to observe that none of them could actually come true either due to under utilisation of developed capacity or fixation of ad-hoc selling prices. The Project intends to undertake another study soon. The Committee hope that a more realistic position would emerge as a result of proposed study and the unit would make all out efforts to procure firm orders for the utilisation of the developed capacity and fix reasonable selling prices competitive but consistent with production costs.

8.18. The Committee are not happy at the way the planning for setting up a stamping unit which was considered so essential to the Unit, was handled. The Stamping Unit planned with a capacity of 10,400 tonnes of stamping per year was to involve investment of Rs. 323.11 lakhs. But according to estimates based on minimum expected orders it was clear that the requirement which would be 75 tonnes in 1969-70 may rise to 2,260 tonnes only by 1973-74. Consequently the Unit is now proposed to be set up in two phases, the first phase being of 4,000 tonnes capacity and the second phase to be undertaken if and when necessary. The Committee have been informed that economics of the Unit will be worked out after the assessment being made for Fourth Plan of anticipated requirement of the stampings on the basis of the orders now received is completed. The Committee recommend that such delays which result in increase in estimated cost and thereby add to the financial burden of the undertaking should be avoided in future.

8.19. The Committee regret to note that even without working out economics of the Plant, not only a decision was taken to erect the bays but imported equipment and machinery worth Rs. 19 lakhs (Approx) is purchased and orders for Rs. 98 lakhs worth of machinery were placed with HMT.

8.20. The Committee also recommend that the plant should quickly assess its requirements of stampings to procure orders thereof to ensure that the capacity of the first phase of this plant is fully realised.

8.21. The Committee find that it was decided to set up a foundry Forge Plant consisting of Presses of 1,000 tonnes and 4,000 tonnes capacity at a capital cost (revised) of Rs. 28.36 crores. The Planning Commission indicated that there would be little justification for adding a 4,000/5,000 tonnes press at Hardwar. On the basis of a report of the Committee constituted to assess the capacity of HEC, Ranchi, the Planning Commission decided that setting up of a Foundry Forge Plant at Hardwar Plant must be deferred. Meanwhile, the project incurred an expenditure of Rs. 88.38 lakhs for providing Engineering and technical services preparation of construction site, factory works load, improvement, administration etc. The Committee would like to be kept informed of the final decision of the Planning Commission in the matter.

8.22. The Committee find that in March, 1969 a high powered Committee was set up by Govt. to go into the pending cases of price fixation of Hydro and Steam generating sets. It thus took Government two years to settle the sale price of a 100 MW set. The Committee are of the view that if Hardwar Project is to improve its sales performance and create a favourable image inside the country and abroad to be successful to give global tenders, it must see that prices of all ranges of its products are determined and available.

The Comittee recommend that the Government should issue clear guidelines for the fixation of prices in cases which are not covered by the existing guidelines in order to enable the Company to settle the prices with the customers before undertaking the jobs so as to avoid disputes later on or uncertainty regarding financial implication thereof.

8.23. The Committee also note that out of 250 enquiries from Government-Undertakings, 226 enquiries did not materialise. According to the management one of the reasons for non-finalisation of cases was that the price quoted by the Project for low voltage motors was high. The Committee recommend that the Government should undertake a comprehensive study in depth to identify the causes for the poor sales performance and to devise ways and means for formulating standard designs with reference to market requirements and adopt a suitable pricing policy.

8.24. The Committee regret to note that the BHEL took up the manufacture of the flame proof electric motors without settling the terms and conditions of the sale and without obtaining a firm order from the M.A.M.C. The result has been that there was avoidable import of components for these motors from USSR and there was blocking up of funds to the extent of Rs. 24.39 laks and loss of interest thereon.

The Committee recommend that the entire deal with M.A.M.C. should be investigated in detail and the results thereof intimated to them.

8.25. The Committee find that a sum of Rs. 130 lakhs was paid to the collaborators for the technical documentation for manufacture of 12.60 and 110 MW turbo generator sets for expanding the capacity

of the Hyderabad Plant, over and above a sum of Rs. 52 lakhs paid to them for the preparation of Detailed Project Report in connection with the manufacture of 12 MW & 25 MW turbo-generator sets. A sum of Rs. 93,000 was paid for design documentation for 25 MW sets. The Committee note that the Plant has not received any order for the manufacture of 25 MW sets and there is hardly any likelihood of the plant receiving any such order. The Committee would like to reiterate their conclusion given in para 35 of 29th Report of Committee on Public Undertakings (1967) that there was no crystalized thinking regarding the range of the equipments to be manufactured and the Project was conceived and proceeded without basic data or exact knowledge. The Committee note with concern the undue haste in taking important decisions on such projects for manufacture of capital machinery without a proper demand survey and without carefully analysing and understanding the design trends in the size of turbo-generators which have such vital bearing on the economics of generation of power.

8.26. The Committee find that though the Hyderabad Plant had submitted revised project estimates to Government as early as April 1969 for approval, the consideration of revised project estimates by Government has thus taken more than three years, as the project authorities had sent the Revised Project estimates in an incomplete shape only after the actual expenditure had already exceeded by about Rs. 260 lakhs of the original estimates. The Committee stress that the Plant authorities should have prepared the Revised Estimates complete in all respects, and with full supporting details about their effect on economic viability of the Plant in order to obtain the approval of Government in time before incurring additional expenditure. The Committee deprecate such inordinate delays in submission and sanction of revised project estimates.

8.27. The Committee note that with reference to target dates for completion of civil works, there had been delays in completion of the civil works of shopsranging from 6 to 28th Months. The Committee also find that erection of plant and machinery in the main production blocks of factory ran behind schedule. These delays are stated to have occurred due to non-receipt of steel in time, foreign exchange restrictions, belated receipt of 100 MW study necessitating re-examination of machine loading and processes, delay in execution of works by Contractors/sub-Contractors and inadequacy of equipment with contractors. The Committee recommend that Government should allocate high priority for steel to important development projects and ensure adequate and timely supply of steel either from indigenous Plants or by imports so that civil works and schedule for erection of plant and machinery do not suffer a set back. The Committee find that the plant failed to achieve targets of production due to delays in the supply of alloy steel castings and forgings, both indigenous and imported and non-attainment of expected labour efficiency. The Committee are surprised that non-supply of forgoing/castings continue to be the maior bottleneck in many of the Undertakings in achieving their production targets. The Committee feel that unless this problem

is tackled with all seriousness, and promptitude the production performance of the Undertakings dependent on such castings and forgings cannot be expected to improve. The Committee recommend that Government should find out a solution by deploying a high powered Task Force of Technical experts so that this difficulty is overcome.

8.28. The Committee note that Hyderabad Plant had not been able to adhere to dates of delivery of sets quoted by it to its customers. While the Committee appreciate that certain delays are inevitable due to the customers not being ready to receive the sets on account of delays in Civil Engineering Works at the site or lack of handling facilities, etc. The Committee need hardly impress that non-adherence to due dates of the delivery and consequential delays have far reaching implications, in as much as they accentuate the power shortage which adversely affects the industrial development.

8.29. The Committee were informed that utilisation of capacity depended on three main factors *viz.* (i) order book position (ii) availability of special castings and forgings and (iii) development of skills. The Committee find that though Hyderabad Plant went into production in 1966-67 and had more than 6 years experience in the line, yet inadequate development of skill continued to be advanced as one of the factors coming in the way of fuller development and utilisation of capacity. The Committee, therefore, recommend that Management should draw up a well coordinated and time bound training programme for development of skills at all levels of workers and supervisors, in order to utilise the capicity of the plant at optimum level.

8.30. The Committee note that the cost of total idle hours was Rs. 1.68 lakhs in 1967-68, Rs. 2.39 lakhs in 1968-69 and Rs. 3.76 lakhs in 1969-70. The Committee were informed that the main reasons for labour remaining idle for want of work in certain work centres when there were several orders on hand were the defects noticed in the castings and forgings during the course of machining, delay in receipt of critical castings and forgings and other materials.

8.31. The Committee stress the need for coordinated action by Management specially in the field of procuring orders well in advance and arranging the supplies of materials and quality castings and forgings so as to make for optimum utilisation of labour and machinery and reducing the percentage of idle hours to available hours of work.

8.32. The Committee recommend that the reasons due to which the Project had continued to incur losses even though Consultants had farecast losses upto the 4th year from the commencement of production should be thoroughly investigated.

8.33. The Committee are surprised at the statement that "In view of the uncertain position of the utilisation of capacity and the manufacturing programme, no definite idea as to the extent of loss likely to be sustained on account of non-utilisation of the developed capacity can be formed".

8.34. The Committee feel that it is high time that the management apply their mind to this important question, estimate the Losses/Profit and accordingly take adequate precautionary measures and reduce their standing expenses with a view to develop competitive prices for the products, and reach break even point at the earliest.

8.35. The Committee note that though the Unit entered into a collaboration agreement with M/s. ASEA of SWEDEN for setting up a Switchgear Unit for the manufacture of 145, 245 and 420 air-blast circuit breakers, the Company had not been able to secure orders for the last 6 years for HVH 420 breakers.

8.36. The Committee regret to note the undue haste in widening the scope of the Unit to include manufacture of 420 Air Blast Circuit Breakers without a proper demand survey for the products to be manufactured and hope that in future Government would exercise utmost care before entering into such financial commitments with foreign collaborators.

8.37. The Committee find that no specific targets for completion of the switchgear project were laid down. The Project, however, went into production in October, 1966.

8.38. The Production performance deteriorated during 1968-69 and 1969-70 due to lack of adequate orders. During 1970-71 and 1971-72, the targets could not be achieved due to strikes and lockouts etc. and delay in establishing indigenous castings.

The unit has been able to secure orders upto 1963-64 enough to utilise the full capacity of the Plant.

8.39. The Committee recommend that since the unit is in a position to book orders regularly, steps should be taken to gear up the machinery to full working capacity by ensuring timely supply of indigenous forgings and castings.

8.40. The Committee understand that profitability studies were undertaken from time to time and according to the latest report in December, 1969, full utilisation would be achieved by 1973-74.

The Committee recommend that the Project should make all out efforts to ensure an even flow of orders if the anticipations according to profitability studies are to be achieved.

8.41. The Committee note that Tiruchy Plant obtained in October, 1967 "project documentation" for the expansion of the Plant 750 MW to 2,000 MW. In March, 1969 a Technical Committee concluded that the revised outlook for power generation did not warrant the expansion of the Plant to 2,000 MM. The Committee feel that had the technical examination of the outlook for power generation been done earlier the expenditure of Rs. 15.67 lakhs could have been avoided. The Committee stress the clear need for greater coordination between the Ministries/Departments to ensure that Plans and Programmes for power generation in the country are based on some firm indications.

8.42. The Committee note that while the developed capacity of the Plant would be utilised, in the case of boiler fitting valves, it

is not so. The Committee recommend that the management should arrange to secure long term and firm orders for valves production so that no portion of the developed capacity may remain idle.

8.43. The Committee are glad to note that the Tiruchy Plant of B.H.E.L. has been able to secure large orders for export of boilers to Malaysia.

The Committee would like BHEL/Government to explore the possibility of stepping up exports of valves.

The Committee have no doubt that Government would extend all necessary assistance to BHEL in order to sustain and step up the exports.

8.44. The Committee also recommend that the management should maintain suitable cost records for ascertaining actual labour costs and consumption of material compared to estimates in order to ensure effective cost control and correct fixation of prices of the products.

8.45. The Committee note that in the Tiruchy Unit of BHEL, no incentive scheme has yet been introduced. The Committee have no doubt that if the incentive scheme is properly devised and implemented, it would result in greater production by the willing participation and cooperation of workers.

8.46. The Committee feel that since the Ministry of Irrigation and Power is responsible for the development of power in the country according to the targets envisaged in the Fourth Plan and since the BHEL is engaged mainly on manufacturing machinery and equipment which are primarily needed by the State Electricity Boards and other similar organisations engaged in generation, transmission and distribution of power, it is essential that there should be a close liasion between these Undertakings and a sense of participation and involvement in the planned development of the country. The Committee recommend that the views of the Ministry of Irrigation and Power may be ascertained and the question considered carefully from all angles with a view to ensuring coordinated development of generation, distribution and transmission of power in the country.

8.47. The Committee note that existing debt-equity ratio of Bharat Heavy Electricals Ltd. is 1.72:1 (as on 31-3-71). The Committee hope that while considering the question of restructuring the capital of the Company, Government would show greater awareness of the problems of companies in the initial years of production so that a Company which takes a heavy loan to cover a part of its project cost does not find itself in an unhappy position of having to pay interest even before Commencement of production because such interest leads to further losses.

8.48. The Committee note that as on 30-11-1971, the advance and progress payments amounting to Rs. 29.96 crores are due from State Electricity Boards. The State Electricity Boards seem to be unable to settle these outstandings for want of funds and on the other hand the Company has written to the State Elecricity Boards that "if they do not make advance and progress payments as due, their sets will

not be progressed further." The Committee recommend that Government should tackle this problem at the highest level in order to find an acceptable solution.

8.49. While the Committee are happy to note that Heavy Pressure Boiler Plant, Tiruchy in whose case capital expenditure upto March, 1971 was Rs. 24.33 crores had earned cumulative profit of Rs. 9.00 crores, they are rather distressed to find that the other two plants of BHEL had not shown encouraging financial results. The Committee recommend that Government should satisfy themselves that Hardwar Plant had incurred losses to the extent indicated in the detailed Project Report and not more. If the quantum of losses had been more or if the period for which these losses were incurred were excessive as compared DPR estimate, the reasons should be investigated. Concerted efforts should be made to see that Hardwar and Hyderabad Plants not only break-even but also are able to wipe out the cumulative losses.

8.50. The Committee note that Government are considering the question of setting up a revolving fund for Bharat Heavy Electricals Ltd. so that it could go ahead with its manufacturing programme.

If utilisation of spare capacity leads to high inventory, it would be a remedy which would be worse than the disease. The Committee therefore, recommend that Government should see that adequate orders from State Electricity Boards are placed so that the concept of Revolving Fund develops into a success.

NEW DELHI;
April 24, 1972

Vaisakha 4, 1894 (*S*)

M. B. RANA,
Chairman,
Committee on Public Undertakings.

APPENDIX I

(*Vide* Para 2.5)

List of the Critical Machinery and Equipment (Imported)

Sl. No.	Trans· No.	Description	First promise	Second promise	Third promise	Fourth promise	present position
1.	011036	Rotor Slot milling machine	II qr. 69	III qr.69	III qr. 69	..	Received in Dec., 69
2.	011115	Special grinding machine with horizontal spindle for cutters.	1 qr. 69	III qr.69	II qr. 70	..	Received in August, 1970.
3.	020117	Electric Chamber type boggie hearth furnance	III qr. 67	II qr. 68	III qr 69	III qr. 69	Received in March, 1970.
4.	020088 020090	Installation for automatic electroslag welding universal automatic machine for electroslag welding	II qr· 67	1 qr· 68	IV qr. 68	1 qr. 69	Received in October, 1969.
5.	032102	Electro furnace for heat test of steam turbine rotor.	II qr. 67	II qr. 68	IV qr. 68	IV qr. 69	Received in September, 1970.
6.	043108	Vacuum pumps for forming	II qr. 68	II qr. 68	I qr. 68	..	Received in June, 1970.
7.	043045	Installation for forming and backing of Turbo bars (200. MW set)	IV qr 68	IV qr. 68	1972		
8.	043046	Installation for forming and backing of hydrogenerator bars.	I qr. 69	I qr. 69	II qr. 69	1972	These are expected to be delivered in 2nd quarter of 1972.

APPENDIX II

(*Vide* Para 2.31)

Statement showing progress of work as against target date of completion

Blocks	Target date of completion as per schedule prepared in October, 1963	Target date of completion as per Master construction Schedule prepared during December, 1966 to May, 1967	Target date of completion as per latest construction schedule prepared in December, 1967 (March 1968 for auxiliary service blocks)	Progress of work as on 31st March, 1969
1	2	3	4	5
Block I				
1. Electric Machine ..	September, 1965	December 1967	June, 1969	63% to 99%
Block II				
2. Steel Structure Department	September, 1965	March, 1968	June, 1969	50% to 100%
Block III				
3. Turbine & Auxiliary Department ..	September, 1966	November, 1969	June, 1969	58% to 97%
Block IV				
4. Apparatus Winding Insulation Block	June, 1966	June, 1968	June, 1969	30% to 93%
Block V				
5. Steel Forge	March, 1966	April, 1968	June, 1969	26% to 100%
Block VI				
6. Stamping Unit ..	Work being planned	Formerly it was C.I. Foundry Block		
Block VII				
7. Wood Working Department	December, 1965	December, 1967	June, 1969	69% to 99%
Auxiliary Service Blocks				
(i) Thermal Power Station (Machine Hall Bunker and Deaerator Bay)	June, 1968	October, 1968	October, 1969	75% Erection 96 % Civil works.
(ii) Thermal Power Station (Hydraulic Slag and ash disposal plant and Oil/ Mazout facilities)	June, 1968	August, 1968	August, 1968	86%

1	2	3	4	5
(*iii*) Thermal Power Station (Boiler Plant)	June, 1966	December, 1968	December, 1968	54%
(*iv*) Chemical Water Treatment Plant	No Schedule	August, 1968	August, 1968	95%
(*v*) Compressor House (4 Compressors)	December, 1965	May, 1968	May, 1968	100% (December, 1968.)
(*vi*) 132 KV sub-station	No Schedule	June, 1968	June, 1968	60%
(*vii*) Central Plant Laboratory	March, 1966	July, 1968	July, 1968	99% (Civil works) (testing work in progress)
(*viii*) Turbine Laboratory	December, 1966	No Schedule	No Schedule	92% (Civil works)
(*ix*) Acetylene Plant	March, 1966	September, 1967	May, 1968	30%
(*x*) Oxygen Plant (715 M)	December, 1965	February, 1968	June, 1968	100% (Feb, 1969)
(xi) Gas Producer Plant	March, 1966	December, 1968	December, 1968	34% (erection), 99% (Civil)
Project as a whole			March, 1969 (99% excepting installation of heavy unique machines)	87%

APPENDIX III

(*Vide* para 2.60)

Capacity likely to be developed (as per estimates made in October, 1963)		State-wise production programme as per estimates in January 1968)		Capacity likely to be available (as per estimates in July, 1968)		Capacity planned to be developed (as per estimates in April, 1969)		Capacity planned for development (as per estimates in December, 1969)		Production planned (as per estimates in December, 1969)	
1		2		3		4		5		6	
Steam Turbines and Turbo Generators											
	No.	MW	No.	MW	No.	MW	No.	MW	No.	MW	No.	MW
1969-70	4×100 1×200	600	3×100	300	4×100	400	2	200	2	200	2	200
1970-71	4×100 2×200	800	4×100 1×200	600		600	2	200	2	200	2	200
1971-72	4×100 3×200	1000	Not indicated		..	900	..	400	..	400	2	200
1972-73	2×100 4×200 1×300	1300	do		..	1200	..	800	..	800	1	80
1973-74	2×100 5×200 1×300	1500	Do.		..	1500	..	1200	..	1200	..	..
Hydro Turbines and Generators												
1969-70		300	2×100	200	1	30	..	..	..	..	..	..
1970-71		300	1×100 2×60	220	3	55	2	60	2	60	..	..
1971-72		750	Not indicated		..	400	5	185	5	185	5	..
1972-73		1000	Do.		..	750	8	460	8	460	8	..
1973-74		1200	Do.		..	1200	..	800	..	800	11	..
Electric Machines												
1969-70		400	816	247	Not indicated		..	81	326	81	326	81
1970-71		400	1025	325	Do.		..	214	400	200	250	90
1971-72		515	Not indicated		Do.		..	420	610	300	250	90
1972-73		515	Do.		Do.		..	477	740	370	110	110
1973-74		515	Do.		Do.		..	515	860	465	350	130

APPENDIX IV

(*Vide* para 2.61)

DELEGATIONS VARIANT

Mastering of the production capacity of BHEL, Hardwar, on year basis in the period upto 1974-75

Sl. No.	Description Year	1969/1970	1970/1971	1971/1972	1972/1973	1973/1974	1974/1975	Remarks
1	2	3	4	5	6	7	8	9
1	Available capacity	284	324	453	895	1,365	1,630	
2	Coefficient of labour consumption							
	(*a*) Steam turbine production	..	4·5	4·2	4·0	3·7	3·5	
	(*b*) Hydro turbine production	..	4·5	4·0	3·5	3·0	2·5	
	(*c*) Electrical machine production	4·5	4·0	3·5	3·00	2·5	2·5	
3	Steam turbine production							
	(*a*) Available capacity in (MW)	200	200	200	400	400	600	
	(*b*) Capacity actually required as per orders (in MW)	200	200	200	..	..	..	
	(*c*) Suggestions for additional loading (in MW)	..	..		400	400	600	
	(*d*) Quantity of turbines (in Nos.)	2	2	2	3	2	3	
		x/	1972-73		100MW- 2 Nos.			
		xx/	1973/75		200 MW 1 No.			Without
		xxx	1974/75	..	200MW 2 Nos.			generators
					200 MW 3 Nos.			
4	Hydro-turbine production							
	(*a*) Available capacity (in MW)	..	30	105	430	395	600	
	(*b*) Capacity actually required as per orders (in MW)	..	30	105	430	395	600	
	(*c*) Suggestions for additional loading (in MW) ..	..	..		..	..	..	
	(*d*) Quantity of turbine (Nos.)	..	1	5	9	6	7	
5	Turbogenerators							
	(*a*) Available capacity (in MW)	200	200	200	280	600	600	
	(*b*) Capacity actually required as per orders (in MW)	200	200	200	80	..	..	
	(*c*) Suggestions for additional loading (in MW)	..	..		200	800	600	
	(*d*) Quantity of generators (Nos.)	2	2	2	3	3	3	
		x/	1972/73-1 generator 235 MW is taken for					
		xx/	80 MW and 2 Nos. of 100 MW					
		xxx	1973/74 200 MW-3 Nos.					
			1974/75 200 MW—3 Nos.					

APPENDIX IV

1	2	3	4	5	6	7	8	9
6.	Hydro Generators							
	(*a*) Available capacity (in MW)	..	30	105	430	395	600	
	(*b*) Capacity actually required as per order (in MW)	..	30	105	430	395	600	
	(*c*) Suggestions for additional loading	..	..	..	..	..	..	
	(*d*) Quantity of generators (in Nos.)	..	..	5	9	6	7	
7.	Electrical machine							
	(*a*) Available capacity (in MW)	84	94	145	185	370	430	
	(*b*) Capacity actually required as per orders (in MW)	84	70	..	..	..		
	(*c*) Suggestions for additional loading (in MW)	..	24	145	185	370	430	
	(*d*) Quantity of el. machines (in Nos.)	253	350	500	700	1000	1300	
8.	Rate of mastering the rated capacity as per project (in per cent)	9	10	14	28	42	51*	

APPENDIX V

Summary of Conclusions/Recommendations of the Committee on Public Undertakings contained in the report

Serial No.	Reference to paras in the Report	Summary of Conclusions/Recommendations
1	2	3
1.	2·17	The Committee note that the delivery schedules were not strictly followed by the collaborator with the result that there was delay in erection of equipment and going into production. The delay ranges from six months to three years and naturally has caused concern to the Committee. The Committee also find that as is usual in such agreements with Russian collaborators, no penalty clause was provided for delay in supply of equipment. One of the reasons advanced for non-provision of the penalty clause is that the Russians desired to have a counter-penalty clause if there was delay in opening of letter of credit. The Committee could suggest that Government may examine the matter in all its aspects to ensure that delays of the nature that occurred in the present undertaking do not recur.
2.	2·26	The Committee take a serious view of the fact that it took Government more than three years to sanction the estimates submitted by BHEL in December, 1966. It is regrettable that inspite of the recommendation of the Committee on Public Undertakings in their 39th Report (1967), that Government should accord its sanction to the estimates without any delay, no serious efforts were made to expedite the sanction of these estimates. It has been admitted that there was considerable delay on the part of Government in sanctioning these estimates. However, no responsibility has been fixed for this delay as suggested by the Committee in their 16th Report (1967-68). According to the Ministry these revised estimates were examined in consultation with the Ministry of Finance and the Bureau of Public Enterprises which took some time. As no particular officer was responsible for the delay the question of punishing any delinquent officer in this connection does not arise. The consultation among the various departments of the Government of India can hardly justify the delay of more than three years in sanctioning the estimates. The Committee, therefore consider that the procedure should be streamlined to avoid such delays in sanction of the estimates.

1	2	3
3.	2·27	The Committee also regret to note that as against the first estimates of Rs. 63·43 crores for the project prepared by the Undertaking/Government the project is estimated to cost Rs. 98·13 crores an increase of Rs. 34·70 crores or about 55 per cent of the first estimates. The Committee have repeatedly observed that frequent revisions and large increase in estimates of a project vitiates parliamentary control. The total commitments on a project should be prepared as realistically as possible in the beginning and should be available to Parliament before a project is approved, instead of making them commit to a project on piece-meal basis from year to year without giving them a true and realistic picture of the project. The Committee feel that where the economies of the project are adversely affected as a result of revised estimates, Parliament should be specifically informed of it in time with supporting details.
4.	2·45	The Committee note with regret that Heavy Electrical Equipment Plant, Hardwar which according to the tentative time schedule drawn up in October, 1963 for construction of the project should have been completed by the end of December, 1966, has not been completed till now. During evidence, the Committee were informed that so far 95 per cent of the project has been completed. In other words, there has been a delay of more than five years in the completion of this project. In July, 1964, the construction schedule was revised. Another revision was made during December, 1966 to May, 1967 when the date of completion of project (excepting installation of Heavy, unique, special and non-standard equipment) was revised to December, 1968. In December, 1967, the Management again revised the time schedule and indicated that 99 per cent of the blocks would be completed by the end of March, 1969. This revision became necessary owing to the delay on the part of the suppliers to despatch working drawings and equipment (imported and indigenous). During evidence of Undertaking/Ministry, it also transpired that out of Rs. 380·75 lakhs of equipment of the value of Rs. 70 lakhs had not been installed. The Committee were assured that the installation of this equipment would be completed by March, 1972.
5.	2·46	The Committee are unhappy at the frequent revision in the date of completion of project and are particularly distressed by the fact that equipment to the tune of Rs. 70 lakhs had

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not been installed. The Committee feel that had the Management remained alert to their duties towards the nation and adopted modern techniques for planning, installation and commissioning of the machinery in the project, such delays could have been obviated. The Committee cannot too strongly stress the need for more scientific and national procedure in placing the orders for machinery and equipment two or three years in advance according to schedule so that they are received and installed in proper sequence to yield the best production results at the earliest.

6. 2·54 The Committee note that though the project Report for Heavy Equipment Electrical Plant, Hardwar, did not contain any time bound programme for attaining the capacity from year to year, it gave an indication that the plant would attain its 'Rated Capacity' in the 8th year of production. The rated capacity as envisaged in the report was 515 MW for medium and heavy electric machines, 1500 MW for steam turbines and turbo generators and 1200 MW for Hydro Turbines and generators. During evidence, the Committee were assured by the representative of BHEL that full capacity for generators and hydro turbines was expected to be achieved in the 8th year of production but as Heavy Electrical industry is a sophisticated one this achievement would, however, depend on order book position and absorption of skill. The Committee also note that a 10 year Plan called the "Decade Plan" has been drawn up for development of power generation in the country. The Committee feel that it should now be possible for Government to give a clear picture to the Management as to what orders it was expected to plan for and execute during the next 10 years. The plant has at present orders for thermal sets only up to 1975-76 and do not have adequate orders for motors. The Committee hope that all our efforts would be made to procure sufficient orders to ensure the achievement of the full rated capacity of the plant.

7. 2·59 The Committee find that there has been shortfall in production of electric machines, turbo sets and steam turbines in the Heavy Electricals Equipment Plant, Hardwar which went into partial production in January, 1967. The Committee were informed that the main problem standing in the way of achievement of the targated production was delay/ defective supply of castings and forgings from indigenous

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		and foreign suppliers and non-availability of good quality castings and forgings. Since the problem is faced by the Management year after year, the Committee are surprised that no satisfactory arrangement has been made in this direction by them and due to that the power generation in the country is greatly hampered. The Committee recommended that the Government and the Management of BHEL should tackle this problem urgently and evolve a procedure by which the sustained and dependable supply of castings and forgings is ensured.
8	2·80	The Committee find that production and delivery schedule of Hardwar Plant has suffered set backs in the past. According to indications given to the customers the Plant was to deliver 3rd set in July, 1971, 4th in September, 1971, 5th in December, 1971 and 6th in March, 1972. While the Plant delivered the third set, it hoped to deliver the 4th and 5th sets by the end of March, 1972 and the 6th set by June, 1972. The Committee have been informed that the delivery of these sets had been delayed mainly due to the delay in receipt of castings and forgings from indigenous and foreign suppliers". Castings and forgings were so defective that either they had to be rejected or rectified. The Committee recommended that this problem of castings and forgings should be tacked expeditiously in coordination with the Heavy Engineering Corporation as otherwise, it will not only seriously effect the Plants build up of capacity to the optimum level but impair the Plant's prospects of attracting more orders for sets.
9	2·81	The Committee find that capacity likely to be developed at Heavy Electrical Equipment Plant, Hardwar, was determined in October, 1963 but subsequently it was revised as many as four times during a period of two years *i.e.* in January, and July, 1968 and April and December 1969 generally in a downward manner. Unless the capacity determined in early stages was based on incorrect assumptions, the Committee do not see any other justification for such frequent revisions of capacity likely to be developed. The Committee were informed that the assumptions underlying the studies of development of capacity were order book position, availability of material and components and absorption of skills. Government admitted that the original estimates were more "ambitious" than realistic. The Committee recommend that Hardwar Plant should

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		therefore, prepare, a realistic programme of build up of capacity to end uncertainly and obviate the need for frequent revisions.
10	2·82	The Committee note that in December, 1969 an experts delegation from USSR studied the capacity development of Hardwar Plant and estimated that Hardwar Plant's capacity can be developed to 1603 MW by 1974-75 provided orders for 6 turbo sets of 200 MW each and 2 turbo sets of 100 MW *i.e.*, 1400 MW are received within the IV plan Period and Production Sector Tool Room and Design Division are strengthened. The Committee understand that Hardwar Plant has firm orders, for 5 sets of 200 MW and letters of intend for 3 more. The Plant is thus fully booked for turbo sets of 200 MW upto 1974-75. The plant is also booked for Hydro sets upto 1974-75 and for Machines upto 1972-73. During evidence the Committee were informed that as supply of components for those sets took about 1½ to 2 years and it took 3 years on the shop floor to manufacture a set, it was high time that the Plant had more orders to plan and go ahead with pre-production preliminaries. In this connection the Committee were also informed that Government were considering the question of providing an imprest order for four 200 MW and four 100 MW sets, so that even if at any point of time the plant did not have definite allocation it could go ahead with making preliminary arrangements.
11	2·83	The Committee find that in the Mid-term Plan Appraisal it has been stated that "As against the targeted capacity of 23 Million KW, it is now reasonably certain that 21·2 million KW may be achieved in 1973-74". The reduction is mainly due to slow progress and delay in delivery of plant and equipment from the public sector manufacturing units". Under the heading "long-term measures", it has been stated by the Planning Commission that it is proposed to monitor manufacture of plant and equipment and delivery according to schedule. The Committee are greatly distressed to find that while on the one hand, mid-term plan Appraisal places the blame for shortfall in the installation of additional generating capacity on late delivery of plant and equipment by public understakings, the Bharat Heavy Elelctricals have emphatically stated before the Committee their difficulties arising out of the non-receipt of firm orders for generating sets

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		and equipment even though they have the capacity, the know-how and the skill to manufacture them. The Committee feel that this difficulty could have been easily got over by having an integrated plan for manufacture of generating sets and their delivery schedule to match the plan requirements. The Committee consider that it should not have been beyond the ingenuity of the Planning Commission/ Central Government/State Electricity Boards/Public Undertakings to find means by which firm orders were placed for generating sets and equipment a few years in advance as to ensure timely delivery as well as full utilisation of the manufacturing capacity developed in the public sector.
12	2·91	The Committee note that percentage of idle machine hours has increased from 24·43 (average of percentage in Blocks I to IV and Tool Room) in 1968-69 to 41·66 in 1969-70 and came down to 31·6 in 1971-72. Percentage of idle labour hours has gone up from 5·3 in 1968-69 (average of Blocks I and II) to 5·6 in 1971-72 although it was only 3% in 1969-70. The main reasons for idleness of machinery were stated to be want of load and want of operator. The Committee find that Hardwar Plant has neither worked out its financial loss on account of idle hours nor has it developed norms of maintenance for different types of machines in various blocks. The Committe view this very seriously and recommend that Management should without further loss of time evaluate the financial loss due to idle capacity of men and machinery and assess its effect on the working results. The Undertaking should also fix realistic norms of maintenance and utilisation of machinery.
13	2·95	The Committee note that in January, 1969 the Bureau of Public Enterprises (Ministry of Finance) advised the public sector undertaking to consult the Finance Branch in case of purchases where difference between the accepted and lowest tender was more than 5 per cent subject to overall limits. The Committee find that instructions to give effect to the Bureau's Circular were issued by the Company in August, 1971 *i.e.* after a period of more than 2½ years. The Committee recommend that reasons for this inordinate delay in giving effect to instructions issued by the Bureau should be investigated and Committee kept informed. The Committee also recommend that Ministry/Bureau of Public Enterprises should ensure through periodical reports that

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		instructions issued by them are being implemented by the Undertakings faithfully.
14	2·104	The Committee note that the closing stock of stores in terms of months consumption held by Hardwar Plant has been brought down from 23·8 in 1966-67 to 10·3 in 1969-70. The Committee expect that this will be further brought down in the near future to avoid blocking of funds. The Committee also note that the Plant had finished stock worth Rs. 212·10 lakhs as on 31st December, 1971. It has been stated that sometimes customers refuse to lift the motors after placing letter of content (in the case of Flame Proof Motors valued at Rs. 16·91 lakhs not lifted by MAMCO) or revise the delivery schedule as in the case of Excavator Electrics manufactured for HMBP, Ranchi. The Committee recommend that agreements with customers should be reviewed with a view to see whether the terms and conditions can be suitably modified to avoid such contingencies.
15	2·105	The Committee are surprised to find that alloy steel valued at Rs. 17·89 lakhs was imported for the manufacture of special type of tools and hot forgings, dies etc. on "ad hoc basis". It was stated that the actual requirement was not known at the time of procurement. The Committee are unable to appreciate why this import of alloy steel was made by Hardwar Plant and authorised by Government on *ad hoc* basis and that too when even the actual requirement was not known. The result of this hasty procurement action has been that alloy steel of the value of Rs. 10·60 lakhs is lying surplus to requirements of the plant. The Committee feel that responsibility for making this *al hoc* purchase involving foreign exchange should be fixed and the Committee informed of the action taken.
16	2·106	The Committee note that stores worth Rs. 42·68 lakhs have been declared surplus to requirement. The Management have stated that though the list of surplus stores was circulated to other public undertakings and advertised in Lok Udyog the response was not encouraging and fresh tenders were being invited. The Committee recommend that since non-disposal of surplus stores blocks the capital, vigorous efforts should be made by the Management to dispose of such stores early. But it should not be a distress sale. The Committee also recommend that continuous review of

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		stores should be made to identify the surplus and suitable action taken to divert them for alternate purposes.
17	2·119	The Committee note that the Hardwar Plant has made a beginning in export promotion by submitting quotations for global tenders. The Committee need hardly stress that what is more important is attainment of perfect standards of quality, development of competitive price. Standardisation of products to suit international specifications adherence to delivery schedules which alone will help the plant to secure orders and earn suitable foreign exchange. The Committee also recommend that the assistance of Research and Development Organisations in the field should be taken in developing the appropriate and adequately qualitative indigenous substitutes for imported content of the products. The Committee feel that the first charge on Hardwar Plant should be that of Electricity Boards of the country which should not suffer in the event of the Plant accepting the global orders.
18	2·135	The Committee note that the Hardwar Project has so far undertaken three profitability studies in March, 1969, June, 1969 and September, 1970. The Committee regret to observe that none of them could actually come true either due to under utilisation of developed capacity or fixation of *ad hoc* selling prices. The Project intends to undertake another study soon, "taking into account the work load on hand, anticipated production during 1972-73, 1973-74 and 1974-75 and prices likely to be received for Company's products". The Committee hope that a more realistic position would emerge as a result of proposed study and the unit would make all out efforts to procure firm orders for the utilisation of the developed capacity and fix reasonable selling prices competitive, but consistent with production costs.
19	2·148	The Committee are not happy at the way the planning for setting up a stamping unit which was considered so essential to the Unit, was handled. The Committee find the proposal to set up a stamping unit as part of Hardwar Project was mooted by the Consultants in October, 1963, estimates of expenditure (revised) were approved by Government in October, 1968, agreement for supply of Plant and machinery was executed in July, 1970 and the Unit was expected to go into production by March, 1972. It is really a sad commentary that it should have taken more than 8 year

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		to set up and commission this Unit which was so essential and was conceived as early as in 1963.
		According to the estimates prepared by the Management in October, 1965, the Stamping Unit with a capacity of 10,400 tonnes of stamping per year was to involve investment of Rs. 155 lakhs. On receipt of Project Report from the Consultants, the estimates were revised to Rs. 265·23 lakhs in February, 1968 on account of devaluation and provision of certain additional facilities. These estimates were again revised to Rs. 323·11 lakhs in April, 1968 to include estimated increase in cost of plant and machinery, civil work, contingencies incidental expenses during construction and to provide cost of the Project Report and working drawings which were not provided for earlier. The unit was planned on the basis of requirement of 10,400 tonnes per annum but according to estimates based on minimum expected orders it was clear that the requirement which would be 75 tonnes in 1969-70 which may rise to 2,260 tonnes only by 1973-74. Consequently the Unit is now proposed to be set up in two phases, the first phase being of 4,000 tonnes capacity and the second phase to be undertaken if and when necessary. The Committee have been informed that economics of the Unit will be worked out after the assessment being made for Fourth Plan of anticipated requirement of the stampings on the basis of the orders now received is completed.
		The Committee recommend that such delays which result in increase in estimated cost and thereby add to the financial burden of the Undertaking as has happened in this case should be avoided in future.
20	2·149	The Committee are also surprised to find that common items like cost of the Project Report, working drawings and incidental expenses during construction which are usually included in any Project Estimates, had been omitted from the Project Estimate and the estimates had to be revised on this account.
		The Committee regret to note that even without working out economics of the Plant, not only a decision was taken to erect the bays but imported equipment and machinery worth Rs. 19 lakhs (Appx.) purchased and orders for Rs. 98 lakhs worth of machinery were placed with HMT.

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		The Committee recommend that in matters of planning or purchasing, the Plant should prepare realistic estimates of costs and benefits before making any investment. The Committee also recommend that the Plant should quickly assess its requirements of Stampings to ensure that the capacity of the first phase of this Plant is fully utilised.
21	2·162	The Committee find that it was first decided to set up a foundry Forge Plant consisting of Presses of 1,000 tonnes and 4,000 tonnes capacity at a capital cost (revised) of Rs. 28·36 crores. In January, 1967 the Planning Commission indicated that there would be little justification for adding a 4,000/5,000 tonnes press at Hardwar. NIDC, however, was of the view that the Plant should go ahead as planned except for light castings bays which should be put up after the financial benefits are worked out. In the meeting of the Planning Commission held on 12th February, 1969, it was *inter alia* decided that "the entire scope of the Central Foundry Forge Project, Hardwar may be deferred for the present". The position was reviewed in a meeting between the Chairman BHEL, and HEC on 13-5-1969 and it appeared that Foundry Forge Plant at Hardwar would not be required in the next 10 years or so. On the basis of a Report of the Committee constituted to assess the capacity of HEC, Ranchi, the Planning Commission decided on 3rd January, 1970 that case for setting up a Foundry Forge Plant at Hardwar must be deferred. Meanwhile, the Project paid Rs. 51·76 lakhs to the Collaborator on account of instalments due for providing engineering and technical services. It also incurred an expenditure of Rs. 36·62 lakhs on the preparation of construction site, factory works, land improvement, administration, etc. up to 31st March, 1969. Government consider that "it would be too early to say that expenditure has been infructuously incurred." It is hard for the Committee to believe that the surplus capacity available at the FFP of HEC was not known to Government when it gave a green signal for the setting up of Foundry Forge Plant at Hardwar. It is also not clear why Plann ng Commission was not consulted in the beginning itself so that their views were available to Government before coming to a decision. The Ministry of Industrial Development have stated that a case with detailed justification for setting up the Foundry Forge Plant has been prepared and sent to the Planning Commission.

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		The Committee would like to be kept informed of the final decision of the Planning Commission in the matter.
22	2·171	The Committee find that in March, 1969, a high powered Committee was set up by Government to go into the pending cases of price fixation of Hydro and steam generating sets. Only one out of nine pending cases referred to that Committee up to February, 1970. The Committee settled the price of 100 MW set only on 23rd April, 1971. It thus took Government two years to settle the sale rice of a 100 MW set. Further the Committee are not aware of the position regarding the fixation of price in respect of remaining 8 sets. Hardwar project even undertook manufacture of 65 flame proof electric motors without settling the price. If Hardwar project is to improve its sales performance and create a favourable image inside the country and abroad to be successful to give global tenders, it must see that prices of all ranges of its products are determined and are available with them. The Committee recommend that the Government should issue clear guidelines for the fixation of prices in cases which are not covered by the existing guidelines in order to enable the Company to settle the prices with the customers before undertaking the jobs so as to avoid disputes later on or uncertainty regarding financial implication thereof. Where the fixation of prices cannot be brought under the guidelines already laid or to be laid down, Committee recommend that such cases should be settled if necessary in consultation with expert bodies in the field within a fixed time limit so that neither the customer nor the manufacturer remains in dark in regard to its liability/entitlements.
23	2·178	The Committee note that out of 650 enquiries received for electrical machines during June, 1969 to January, 1972, only 80 per cent turned into firm orders. The Committee also note that out of 250 enquiries from Government/Public Undertakings 226 enquiries did not materialise. According to the management one of the reasons for non-finalisation of cases was that the price quoted by the Project for low voltage motors were high. The Committee are surprised at the statement that there was no specific case where Government/Public Undertakings had not placed orders because of high prices only. The Committee were informed that the plant had started taking certain steps to increase the sale of their products

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		e.g. assessment of market requirements, market surveys, modification of certain existing designs to meet customers' specifications etc. The Committee recommend that the Government should undertake a comprehensive study in depth to identify the causes for the poor sales performance and to devise ways and means for formulating designs with reference to market requirements and adopt a suitable pricing policy.
24	2·189	The Committee regret to note that the BHEL took up the manufacture of the flame proof electric motors without settling the terms and conditions of the sale and without obtaining a firm order from the M.A.M.C. The result has been that there was avoidable import of components for these motors from USSR and there was blocking up of funds to the extent of Rs. 24·39 lakhs (as on 31st March, 1969) and loss of interest thereon. The Committee also fail to understand the reasons for which the Ministry instead of asking the M.A.M.C. to accept the motors which had been specifically, manufactured for them, advised the Company to dispose of the motors. (Out of the 65 motors, 49 motors have not been disposed of so far). The Committee recommend that the entire deal with M.A.M.C. should be investigated in detail and the results thereof intimated to them. The Committee also recommend that BHEL should at least take a lesson from this transaction not to proceed with the execution of any demands on simple letters of intents without settlement of terms and conditions and specifications. The Committee would also like to be kept informed about the disposal of the remaining motors and the ultimate settlement made with the M.A.M.C. in regard to the 16 motors supplied (with 9 control gears) and still lying with them.
25	2·199	The Committee note that the Management have worked out cost in respect of motors only and in almost all the cases of motor production, the cost of production is higher than the sale price. The Committee were informed that such higher cost of production was due to low production—the initial stages and low labour efficiency. The Committee recommend that keeping in view the analysis of cost the Management should take steps to improve the labour efficiency by stricter control and supervision, proper deployment of labour of productive purposes and avoiding over-staffing.

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26	2·203	The Committee regret to note that in spite of the recommendation made by the Committee on Public Undertakings in their 15th Report on Financial Managements (April, 1968) and the instructions issued by the Bureau of Public Enterprises for the Internal Audit to undertake a critical review of the systems, procedures and operations, no such appraisal was conducted. The committee are constrained to observe that the Internal Audit has not been effective in discharging the functions expected of it and recommend that it should be intensified so that the management can take advantage of its reports in plugging loopholes.
27	3·6	The Committee find that a sum of Rs. 130 lakhs was paid to the collaborators for the technical documentation for manufacture of 12·60 and 110 MW turbo generator sets for expanding the capacity of the Hyderabad Plant, over and above a sum of Rs. 52 lakhs paid to them for the preparation of Detailed Project Report in connection with the manufacture of 12 MW & 25 MW turbo-generator sets. A sum of Rs. 93 000 was paid for design documentation for 25 MW sets. The Committee note that the Plant has not received any order for the manufacture of 25 MW sets and there is hardly any likelihood of the plant receiving any such order because the present trend all over the world appears to be for turbo sets of higher capacity. The expenditure of Rs. 93,000 incurred on obtaining documentation of 25 MW sets has proved to be infructuous. The Committee would like to reiterate their earlier conclusion given in para 35 of 39th Report of Committee on Public Undertakings (March, 1967) that there was no crystalised thinking regarding the range of the equipments to be manufactured and the project was conceived and proceeded without basic data or exact knowledge. The Committee note with concern the undue haste in taking important decisions on such projects for manufacture of capital machinery without a proper demand survey and without carefully analysing and understanding the design trends in the size of turbo-generators which have such vital bearing on the economics of generation of power.
28	3·10	The Committee note that there have been delays in the completion of supplies of machinery, equipment etc. in respect of 19 out of 32 contracts entered into by the Company with M/s Technoexport (later designated as Sukodaexport) from July 1963 to February, 1969. The contracts with

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		the suppliers provided for recovery of liquidated damages for delay in the supply at 1% of the F.O.B. price of equipment and machinery. The Committee find that against a claim of Rs. 4·41 lakhs recoverable as liquidated damages for the delays, the Hyderabad Plant preferred a claim in June, 1967 on the supplier for recovery of liquidated damages amounting to Rs. 0·54 lakhs only in respect of the Main Contract of July, 1963 and Addendum I of 18th November, 1964. In addition, the Plant preferred certain other claims but without indicating any value "with the purpose of ensuring that they were not time-barred". The Committee are surprised to find that claims for liquidated damages had been filed without indicating the value thereof and without the extent of production loss having been determined. The management stated (April, 1972) that "the extent of production loss, if any, only due to delayed supplies from Sukoda export is being investigated". The Committee are surprised at the dilatory manner in which the Plant has taken 5 years to determine the value of production loss due to delayed supplies of machinery, equipment, etc. for supporting the claim and regret to note the non-maintenance of suitable records in this connection.
		The Committee recommend that the Plant should lose no time in working out the details and completing the formalities expeditiously. The Committee also recommend that suitable system should be devised and records maintained whereby production loss due to each factor or a group of factors can be readily assessed and claims where necessary are filed in time with complete details and followed up till the amounts due are recovered.
29	3·14	The Committee find that though the Hyderabad Plant had submitted revised project estimates to Government as early as April, 1969 for approval the same have not been approved till now because the "question whether the revised estimates should be modified to exclude deferred and surplus items of machinery and equipment was also to be considered before the Government could be approached for sanction of the revised estimate". With the improvement in order book position, it was felt that the equipment provided for in the DPR could be made use of and that it would also cater for diversified items of production such as industrial turbines and centrifugal compressors and hence provision made in the revised estimates would be justified. The

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		Project is stated to have furnished the viability statement to Government in February, 1972.
		The consideration of revised project estimates by Government has thus taken more than three years.
		The Committee would like to point out that the project authorities had sent the Revised Project estimates to Government only in April, 1969 and that too in an incomplete shape only after the actual expenditure (March, 1969) had already exceeded by about Rs. 260 lakhs of the original estimates. The Committee stress that the Plant authority should have prepared the Revised estimates complete in all respects, and with full supporting details about their effect on economic viability of the Plant in order to obtain the approval of Government in time before incurring additional expenditure. The Committee deprecate such inordinate delays in submission and sanction of revised project estimates.
30	3·18	The Committee note that the Detailed Project Report did not indicate the scheduled dates of construction of various works of the Project as the profile for manufacturing programme had undergone change. However, the management had fixed some target dates for completion of civil works and with reference to such schedules, there has been delays in completion of the civil works of shops ranging from 6 to 28 months. It is a moot point whether the works have been completed in all respects even now as no technical completion report has been finalised. The Committee need hardly stress the importance of preparing and finalising the completion Reports without loss of time for ascertaining the technical deviations and financial excesses. The Committee also find that erection of plant and machinery in the main production blocks of factory ran behind schedule. These delays are stated to have occurred due to non-receipt of steel in time, foreign exchange restrictions, belated receipt of 100 MW study necessitating re-examination of machine loading and processes, delay in execution of work by Contractors/Sub-Contractors and inadequacy of equipment with contractors. The Committee recommend that Government should allocate high priority for steel to important development projects and ensure adequate and timely supply of steel either from indigenous plants or by imports so that civil works and schedule for erection of

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		plant and machinery do not suffer a set back. The Committee need hardly point out that delay in a plant for manufacture of capital goods has wide and far reaching effects on the programme for development envisaged in the Plan.
31	3·24	The Committee find that in the year 1966-67, Hyderabad Plant had set a target to produce one set of 12 MW but produced none. During 1967-68 it produced one set of 12 MW against the target of 2 sets of 60 MW. In 1968-69, the target was for 3 sets of 60 MW each but the actual production was 2 sets of 60 MW each. The Plant failed to achieve targets of production in the subsequent years as well. The Committee find that by and large the same deficiencies and obstacles, which hampered the production in the previous years, had continued to prevail during the year 1969-70 to 1971-72 *viz.*, delays in the supply of alloy steel castings and forgings, both indigenous and imported and non-attainment of expected labour efficiency. The Committee are surprised that non-Supply of forgings/castings continues to be the major bottleneck in many of the Undertakings in achieving their production targets. The Committee feel that unless this problem is tackled with all seriousness and promptitude, the production performance of the Undertakings dependent on such castings and forging, cannot be expected to improve. The Committee recommend that Government should find out a solution by deploying a high powered Task Force of technical experts so that this difficulty is overcome.
32	3·29	The Committee note that Hyderabad Plant had not been able to adhere to dates of delivery of sets quoted by it to its customers. While the Committee appreciate that certain delays are inevitable due to the customers not being ready to receive the sets on account of delays in Civil Engineering works at the site or lack of handling facilities, etc., the Committee stress that the Plant should strictly adhere to the delivery schedules accepted by it. The Committee need hardly impress that non-adherence to due dates of the delivery and consequential delays have far reaching implications in as much as they accentuate the power shortage which adversely affects the industrial development.
33	3·34	The Committee note that according to the studies made by the Management in April, 1969, capacity expected to be utilised at the Hyderabad Plant during 1969-70

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		and 1970-71 was 300 MW and 475 MW respectively, but in the study made in December, 1969 the capacity expected to be utilised was reduced to 230 MW and 390 MW respectively even though there was no paucity of orders to be executed during these years. A further study made in September, 1970 revealed that the Plant plans to utilise capacity to the extent of 390 MW (3×110 MW and 1×60 MW) in 1971-72. 440 MW (4×110 MW) in 1972-73 and 560 MW (5×100 MW and 1×60 MW) in 1973-74. The Committee were informed that utilisation of capacity depended on three main factors *viz.*, (1) order book position (*ii*) availability of special castings and forgings and (*iii*) development of skills. The Committee find that though Hyderabad Plant went into production in 1965-66, and had more than 6 years experience in the line, yet inadequate development of skill continue to be advanced as one of the factors coming in the way of fuller development and utilisation of capacity. This means adequate efforts have not been made in this direction so far. The Committee, therefore, recommend that Management should draw up a well coordinated and time bound training programme for development of skills at all levels of workers and supervisors, in order to utilise the capacity of the plant at optimum level. The Committee have elsewhere made recommendation for an advance co-ordinated planning for the supply of forgings and castings by the indigenous manufacturers both in the Public and Private Sector.
34	3·38	The Committee note that percentage of idle hours to available hours at Hyderabad Plant was 18·8 in 1967-68, 10·3 in 1968-69, 8·7 in 1969-70 and 15·1 in 1970-71. The cost of total idle hours was Rs. 1·68 lakhs in 1967-68, Rs. 2·39 lakhs in 1968-69 and Rs. 3·76 lakhs in 1969-70. The Committee were informed that the main reasons for labour remaining idle for want of work in certain work centres when there were several orders on hand were the defects noticed in the castings and forgings during the course of machining, delay in receipt of critical castings and forgings and other materials with consequential delay in the flow of assemblies from one work centre to another and that in the initial stage of manufacture a certain amount of deviations in the manufacturing techniques and tooling was inevitable. Normally as the plant grows in experience and absorbs new skills, labour utilisation should improve.

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		The Committee however, find that Hyderabad Plant idle labour hours have increased from 8·7% in 1969-70 to 15·1% in 1970-71. This steep increase has been attributed by the management to strike and lockout preceded by go-slow tactics by employees.
		The Commitee stress the need for coordinated action by Managment specially in the field of procuring orders well in advance and arranging the supplies of materials and quality castings and forgings so as to made for optimum utilisation of labour and machinery and reducing the percentage of idle hours to available hours of work.
		The Committee have made horizontal studies on Personnel Policies and Labour Management Relations in Public Undertakings. The Committee have no doubt that if implementations of recommendations contained in that Report is done in letter and spirit will promote healthy relations with labour and avoid strikes and lockouts in future.
35	3·42	The Committee find that according to the exercise done by the undertaking in December, 1969 on the basis the price under discussion by H.N. Ray Committee, Hyderabad Project was expected to incur loss (at landed cost) of Rs. 134 lakhs in 1969-70, profit of Rs. 81 lakhs in 1970-71 and loss of Rs. 516 lakhs in 1971-72. As against this, the Project has actually incurred net losses of Rs. 331·01 lakhs in 1969-70 and Rs. 101·00 lakhs in 1970-71. The Committee recommend that the reasons due to which the Project had continued to incur losses even though Consultants had forecast losses up to the 4th year from the commencement of production should be thoroughly investigated. The production in Hyderabad Project commenced in 1965-66 and accordingly there should have been no losses in the year 1969-70 and thereafter.
		The Committee are surprised at the statement that "in view of the uncertain position of the utilisation of capacity and the manufacturing programme, no definite idea as to the extent of loss likely to be sustained on account of non-utilisation of the developed capacity can be formed." When the undertaking has already worked out the programme of production and utilisation of capacity to end of 1973-74, the Committee feel that it is high time that the management apply their mind to this important question

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		estimate the losses/profits and accordingly take adequate precuationary measures and reduce their standing expenses with a view to develop competitive prices for the products and reach break even, point at the earliest. The Committee would also like Government to settle without further delay the price which the undertaking is to be allowed to charge for their 110 MW generating sets and other plants and equipments.
36	3·46	The Committee are surprised to find that though as back as in July, 1970 it was stated by the Ministry that the introduction of machine hour rates was under "active consideration", the same had not been introduced as yet in the Hyderabad Plant. The Committee were informed by the Management in April, 1972 that this matter was "still under active consideration." The Committee recommend that a decision on this question should be arrived at early and the Management should ensure that scientific system of cost control is adopted by the unit.
37	3·50	The Committee note that the Detailed Project Report had not given any indication of the phased development of indigenous manufacture and the Plant has been regulating the import of components and raw material according to certain levels based on the Agreement entered with M/s. Skoda export in April, 1967. The Committee have been informed that indigenous work content as measured in Czech Standard Hours for each set has been steadily increasing so that the Plant would be able to achieve self-sufficiency soon. The Committee recommend that the Plant should intensify its efforts to identify indigenous manufacturers who could feed the Plant with components/raw material of required specifications in substitution of the imported components and raw material.
38	3·60	The Committee note that out of surplus machinery worth Rs. 51·81 lakhs, only machinery of the value of Rs. 12·49 lakhs was awaiting disposal in July, 1970. The Committee would like to be kept informed of the latest position. The Committee also recommend that a review of the inventory of machinery should be done periodically with a view to identifying surpluses and to deploy them in other fields suitably. The Committee also recommend that management should ensure that purchase of machinery is undertaken only after a thorough assessment of anticipated power load in close coordination with the Government.

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39	3·63	The Committee hope that the Management will conduct performance appraisal on the same lines as indicated in their 15th Report on Financial Management. The Committee need hardly stress that internal audit report being an indicator to the Management about the efficiency or otherwise of the working of the undertaking should receive adequate and prompt attention so that deficiencies and lapses are rectified in time and the working of the undertaking toned up.
40	4·4	The Committee find that at present Air-Blasts of 220 KV are being manufactured both at the Heavy Electricals(I) Ltd., Bhopal and Switchgear Unit, Hyderabad. The Committee are not happy that manufacture of the same type of products should be undertaken in two different undertakings in the public sector. Overlapping in the product-mix involves creation of production facilities at two different centres, leads to duplication of effort and loss of benefits of economy of scale. The Committee, therefore, recommend that Government should explore the possibility of restricting the manufacture of the Air-Blasts to the Undertaking best suited to it in order to secure uniformity of quality and derive maximum benefit from economics of scale.
41	4·8	The Committee note that though the Unit entered into a collaboration agreement with M/s. ASEA of Sweden in April, 1965 for setting up a Switchgear Unit for the manufacture of 145, 245 and 420 air-blast circuit breakers, the Company had not been able to secure orders for the last 6 year for HVH 420 breakers in respect of which a technical fee amounting to Rs. 4·41 lakhs had been paid to the collaborators. It has been explained that inclusion of these breakers in the licence agreement was based on the "overall power plan in the country made by the CWPC which envisaged 400 KV transmission grids in the country. This did not materialise due to general scaling down of the power plan in the country due to pruning of the plan targets." The Committee have, however, been assured that BEAS Design Directorate might place an order with BHEL for 8 breakers from January, 1975. The Committee regret to note the undue haste in widening the scope of the Unit to include manufacture of 420 Air Blast Circuit Breakers without a proper demand survey for the products to be manufactured and hope that in future Government

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		would exercise utmost care before entering into such financial commitments with foreign collaborators.
42	4·18	The Committee find that no specific targets for completion of the switchgear project were laid down. The Project, however, went into production in October, 1966. During 1966-67 the Project had fixed a target to produce 40 Air Blast Circuit Breakers. This target was reduced to 20 breakers out of which 10 breakers were to be imported in completely knocked down condition. The Committee note that the Project however, actually produced only 3 breakers due to short receipt of the breakers in completely knocked down condition and delay in indigenous assembly due to non-receipt of test equipment. The production performance during 1967-68 however, improved but the position deteriorated during 1968-69 and 1969-70 due to lack of adequate orders. During the 1970-71 and 1971-72, targets could not be achieved due to strikes and lockouts ect. and delay in establishing indigenous castings. Though the unit has been able to secure orders up to 1973-74 enough to utilise the full capacity of the Plant, the Committe note that the Unit could produce only up to 70% of the rated capacity.
43	4·19	The Committee recommend that, since the unit is in a position to book orders regularly, steps should be taken to gear up the machinery to full working capacity by ensuring timely supply of indigenous forgings and castings through sister undertakings like HEC etc.
	4·25	The Committee note that percentage of idle machine hours to available hours has been increasing from 27·15 in 1967-68 to 27·9 in 1970-71 and touched a peak in 1969-70 to 29·76%. The Committee are concerned to note that there has been no significant improvement in this direction. The idle machine hours due to lack of load worked out to 34% of the total machine hours in 1967-68 and 1968-69 and 20% in 1969-70. Since the Committee has been informed that the order book is now complete up to 1973-74, it should be possible for the Unit to work to full capacity and ensure that all measures are taken to avoid both idle labour hours and idle capacity in machinery.
44	4·34	The Committee understand that profitability studies were undertaken from time to time and according to the latest report in December, 1969, full utilisation would be

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		achieved by 1973-74 resulting in profits from 1970-71. If the anticipations according to profitability studies are to be achieved, it is necessary that adequate orders are booked by the Unit from now onwards. The Committee recommend that the Project should make all-out efforts to ensure an even flow of orders according to the anticipations in the profitability study report.
45	5·14	The Committee note that Tiruchy plant obtained in October, 1967 "project documentation" from M/s. Skodaexport, Czechoslovakia from the expansion of the Plant from 750 MW to 2,000 MW. The Plant paid a fee of Rs. 14·58 lakhs to the supplier and incurred an expenditure of Rs.1·09 lakhs on travelling allowance and other miscellaneous items in connection therewith. In March, 1969, a Technical Committee after a study of report submitted by M/s. Cumbustion Engineering Inc. of U. S. A. in connection with survey for setting up another boiler manufacturing plant concluded that the revised outlook for power generation did not warrant the expansion of the Plant to 2,000 MW. BHEL are of the view that though the expansion did not take place, the expenditure of Rs. 15·67 lakhs incurred towards documentation, travelling allowance etc. cannot be regarded as infructuous because detailed study undertaken jointly by the Indian Engineers and C. S. S. R. Experts had helped the Company "to plan its activities of the production more confidently anticipating areas of bottlenecks and maximising product in work centres which are found to have the heavy potential." The Committee are unable to share this view. The Committee feel that had the technical examination of the outlook for power generation been done earlier and the demand assessed correctly. The expenditure of Rs. 15·67 lakhs could have been avoided. The Committee would hardly stress the clear need for greater coordination between the Ministries/Departments to ensure that Plans and Programmes for power generation in the country are based on some firm indications.
46	5·22	The Committee note that the production in the H. P. Boiler Plant in Tiruchy fell short of physical targets by 52·9 53·9, 53·9, 4·8, 10·5 and 9·75% in the years 1965-66 to 1969-70. The Committee were informed that the reasons for shortfall in production were the difficulties in procurement of raw materials, particularly seamless steel tubes, quality

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		sheet steel, and piping billets etc. The Committee are surprised to find that while the Management complained about the difficulties of Procurement of seamless tubes, it had not cared to verify whether the seamless tubes procured by them were of proper quality and specifications. The defects in seamless tubes came to the notice of the Management in the first quarter of 1968-69 almost after one year of its procurement. Because of the inability of the Management to retrieve the position alternate action had to be taken by the Management to import the pipes in March 1969. The Committee would like to be kept informed as to how the seamless tubes which were procured through indigenous manufacturers were utilised and if not utilised whether they had been disposed of in the best interest of the unit.
47	5·23	The Committee feel that the unit should have made use of sister undertakings to procure indigenous seamless tubes for their use. The explanation of the Mangagement for the shortfall in production that the targets were pitched deliberately high even though it was known that the targets could not have been fully achieved is not very convincing. The Committee recommend that the Management should take steps to fix realistic targets for production consistent with the production capabilities of the plant and the known demands for the products.
48	5·26	The Committee note that in Tiruchy Plant "Idle Time" due to 'lack of materials' has increased from 2 ·7% in 1966-67 to 7·4% in 1968-69 in terms of total available hours. Idle time due to other causes such as non-availability of cranes, electrodes, gas and/or compressed air, wait in for clarification from production engineerings designs, inspectional lack of special and standard tools etc. had also increased from 16·7% in 1966-67 to 68% in 1969-70. The Committee find that 'other causes' have been the major contributory factor for idle hours. The Committee were informed that the percentage of idle time due to other causes to total idle time has decreased from 68 per cent in 1969-70 to 58 per cent in 1971-72. The Committee feel that the elements constitutions 'other causes' are such as could be controlled by the Management with proper planning and adequate preventive maintenance and stricter inspection. The Committee also feel that idle time due to 'lack of materials' should be minimised by more efficient material planning and management.

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49	5·32	The Committee note that while on the basis of orders up to 1973-74, the developed capacity of the Boiler Plant would be utilised, in the case of boiler fitting valves, it is not so. Although the Management have planned for utilisation of the capacity except for four automatic machines on the basis of market surveys, the Committee are not aware of the extent of orders firmly secured to ensure full utilisation of the machinery. The Committee would like to be kept informed of this and recommend that the Management should arrange to secure long term and firm orders for valves production so that no portion of the developed capacity may remain idle.
50	5·39	The Committee are glad to note that the Tiruchy Plant of BHEL has been able to secure large orders to totalling over Rs.11 crores for export of boilers to Malaysia. The Committee would like BHEL and Indian Consortium for Power Projects to intensify their export efforts so as to secure larger orders from Malaysia and other developing countries. The Committee have no doubt that Government would extend all necessary assistance to BHEL in order to sustain and step up the exports. As regards valves, the Committee are glad to note that some orders have been secured from such advanced countries as Germany. The Committee would like BHEL/Government to explore the possibilities of stepping up exports of valves.
51	5·50	The Committee note the efforts made by Tiruchy unit to bring down their inventory from 21·8 months consumption in 1968-69 to 11·4 months in 1970-71. The Committee also note that the stock of slow moving stores had been reduced from Rs. 92-04 lakhs on 31-3-1970 to Rs. 58·14 lakhs on 31-10-1971 by disposal and by transfer back to stores for utilisation with suitable redesign of boilers. It has however been admitted by the Management that there has been no significant improvement in the stock of Rs. 2·58 lakhs representing construction stores items. The Committee recommend that Management should keep the level of inventory under check and concentrate on exploring avenues for disposal of construction stores item. The Committee note that the unit was having Rs. 92·04 lakhs worth slow-moving stores including Rs. 53 lakhs worth of seamless tubes. The Committee deprecate that seamless tubes had been procured and lying surplus due to non-receipt

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		of orders for Faridabad I and II and Amarkantak Power stations. Since orders for Faridabad Plant had been received, the Committee hope that the surplus seamless tubes would now be diverted to profitable use.
52	5·62	The Committee note that in the detailed Project Report Consultants had forecast the Tiruchy Plant would incur losses up to the 4th year from the commencement of production (*i.e.* up to 1968-69). The Committee find that the Plant started earning profit even from 1967-68 the 3rd year of production and the profit earned up to 1968-69 was Rs. 3·06 crores. The Committee hope that a close watch will be kept on factors which had to raise the cost of production and affect economies wherever necessary to improve the profitability of the Plant in the years to come. The Committee also note that on the basis of the profitability study made in October, 1970, the Unit is likely to make profit upto 1973-74. While this position may be feasible with reference to the orders for Boilers on hand, the Committee feel that the same cannot be said in regard to valves. At present the orders outstanding on 31-3-71 were for only Rs. 230 lakhs which may cover only one year *i.e.* up to 1971-72. The Committee, therefore, recommend that the unit should make all-out efforts to procure more orders for valves which would ensure full utilisation of the machinery and the anticipated result according to the profitability studies.
53	5·68	The Committee find that for sometime past the casting system followed by Tiruchy Unit suffered from deficiencies like absence of norms of rejection/loss in different processes of manufacture, absence of record showing percentage of utilisation and idletime of machines, absence of comparative study of actual consumption of materials and labour with predetermined estimates. It has been stated by the Management that in March, 1971 the Company has entered into a collaboration Agreement with M/s. Combustion Engineering Inc. USA and process of manufacture were expected to undergo changes in the near future. It has also been stated that "norms of rejection will be fixed based on experience of the new processes". The Committee are surprised to find that the Tiruchy Plant which went into production of Boilers in 1965 did not up to 1971 consider fixing norms for rejections/loss in different processes. The

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		Committee did not see why the question of evolution of norms of rejection/loss should be deferred till new processes emerge. In these days of rapid advancement of technology processes of manufacture undergo changes every now and then and therefore this can hardly be accepted as a valid plea for putting off the question of evolving norms of rejection and loss. The Committee recommend that the unit should on the basis of the experience gained so far fix norms for rejections/losses for different processes of manufacture and review and revise them if necessary on the basis of such changes in the manufacturing processes that may be made for time to time. The Committee also recommend that the management should maintain suitable cost records for ascertaining actual labour costs and consumption of materials as compared to estimates in order to ensure effective cost control and correct fixation of prices of the products.
54	5·72	The Committee regret to note that it should have taken Tiruchy Unit so long to streamline the procedure for internal audit and bring it in the form of a Manual. The Committee are surprised to find that the Management have not cared to conduct any appraisal of the performance of the unit till 1970 and note that a beginning has been made only in August, 1970 that too in respect of one Deptt. The Committee hope that the Internal Audit Cell of the Plant would be activised to discharge the functions and responsibilities expected of it so that the Management can take advantage of the reports of internal audit in setting right the defects in working and improving its efficiency.
55	6·11	The Committee understand that necessary measures have been taken by the different units of BHEL to replace the foreign personnel by Indians, for which purpose the Indian Engineers/Technicians are attached to the foreign experts for picking up work and thereby gain confidence. The Committee hope that the Undertaking will soon be able to build up the expertise necessary for running the plants independently.
56	6·22	The Committee note that in the Tiruchy Unit of BHEL, no incentive scheme has yet been introduced. The committee consider that as incentive schemes offer inducement to workers to give better individual and group performance, and is one of the important factors motivating workers to

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		increase production, the Tiruchy Unit of BHEL should devise a suitable incentive scheme with realistic parameters after making an expert study and in consultation with the workers. The Committee have no doubt that if the incentive scheme is properly devised and implemented. it would result in greater production by the willing participation and cooperation of workers.
57	6·26	The Committee feel that since the Ministry of Irrigation and power is responsible for the development of power in the country according to the targets envisaged in the Fourth Plan and since the BHEL is engaged mainly on manufacturing machinery and equipment which are primarily needed by the State Electricity Boards and other similar organisations engaged in generation, transmission and distribution of power, it is essential that there should be a close liaison between these Undertakings and a sense of participation and involvement in the planned development of the country. The Committee recommend that the views of the Ministry of Irrigation and Power may be ascertained and the question considered carefully from all angles with a view to ensuring coordinated development of generation, distribution and transmission of power in the country.
58	7·6	The Committee note that the existing debt-equity ratio of Bharat Heavy Electricals Ltd. is 1·72 : 1 (as on 31-3-71). The Company have pointed out that the main rasons why the debts of the Company were on the high side was that the 50% of the project cost was financed by Government in the form of loans. Thus the project was burdened with heavy interest on loans before it could even attain full production. This liability increased with the passage of time and cash losses in the initial year were also met from Government loans. In para 1·13 or their 15th Report on 'Financial Management in Public Undertaking' the committee had referred to this problem and suggested, "An arrangement which appeals to the Committee is to capitalise interest liability during the construction period and to write it off from profits in to later years." The Committee hope that while considering the question of re-constructing the capital structure of the Company, Government would show greater awareness of the problems of Capital intensive companies with long gestation period in the initial years of production so that a Company which takes a heavy loan

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		to cover a part of its project cost does not find itself in a difficult position of having to pay interest even before commencement of production because such interest leads to further losses.
59	7·16	The Committee note that as on 30·11-1971, the advance and progress payments amounting to Rs. 29·96 crores are due from State Electricity Board. The Committee find that on the one hand the State Electricity Boards seem to be unable to settle these outstandings for want of funds and on the other hand the Company have written to the State Electricity Boards that "if they do not make advance and progress payments as due, their sets will not be progressed. If this warning is carried out, the Committee feel, it will create an avoidable stalemate which in turn was bound to affect the programme for development of power generation in the Country. The Committee recommend that Government should tackle this problem at the highest level in order to find an acceptable solution.
60	7·26	While the Committee are happy to note the Heavy Pressure Boiler Plant, Tiruchy in whose case capital expenditure up to March, 1971 was Rs. 24·33 crores had earned cumulative profit of Rs. 9·00 crores, they are rather distressed to find that the other two plants of BHEL had not shown encouraging financial results. Heavy Power Equipment Plant, Hyderabad and Heavy Electrical Equipment Plant, Hardwar had incurred cumulative losses to the extent of Rs. 15·10 crores and Rs. 11·59 crores as on 31st March, 1971 respectively. The Committee agree that as Heavy Electrical Equipment Plant is a sophisticated industry with a long gestation period, absorption of technology and acquisition of skill took some time. The committee were assured during evidence that Hyderabad Unit is expected to make a profit in 1971-72 and that Hardwar Plant would make a porfit in 1975-76. The Committee recommend that Government should satisfy themselves that Hardwar Plant had incurred losses for the years and to the extent indicated in the Detailed Project Report and not more. If the quantum of losses had been more or if the period for which these losses were incurred was excessive as compared to DPR estimate, the reasons should be investigated. Concerted efforts should be made to see that Hardwar

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		and Hyderabad Plants not only breakoven but also are able to wipe out the cumulative losses.
61	7·29	The Committee note that Government are considering the question of setting up a revolving fund for Bharat Heavy Electricals Ltd. so that it could go ahead with its manufacturing programme. There is no doubt that if adequate orders are not forthcoming, the Company would find itself in a predicament in as much as its inventory of raw materials, components and finished stocks would go up. If utilisation of spare capacity leads to high inventory, it would be a remedy which would be worse than the disease. The Committee therefore, recommend that Government should see that adequate orders from State Electricity Boards are placed so that concept of Revolving Fund develops into a success.

L/B(D)1LSS—1,340—25-5-72—GIPS