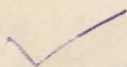


India's Power Sector Alternative To World Bank Prescriptions

**Abridged Version of the Paper discussed in
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1 Introductory

- 1.1 Fundamental policy objective in power sector should be to ensure supply of quality electricity in adequate measure at minimum costs and maximum benefits to the national economy in the given situation. Any programme that defeats this objective is against national interests.
- 1.2 This paper evaluates the recent policy changes and programmes in the power sector from the above said policy perspective and examine possible alternative under the prevailing circumstances. It was prepared on the basis of the findings of a study commissioned by NCOA, EEFI and AIFEE jointly with their affiliate unions. (1)

2. Recent Policy Changes and Programmes

- 2.1 Government of India has initiated several policy changes recently by amending the electricity act-1948 and through several executive orders. It has 'modified the financial, administrative and legal environment in the power sector in order to widen the scope of private (especially foreign) investments'. Schemes drawn up with this objective are being vigorously pursued by the Government. (2). These policy changes and programmes are justified by the Government as inevitable because of a "serious resource crisis."
- 2.2 Power equipment manufacturers in developed countries are offering 'assistance' to power development by way of long term suppliers credit and even direct foreign investments in generating utilities, their governments are supporting them by offers of soft bilateral loans, and World Bank and their associates are keen to arrange liberal multilateral loans provided the recent policy changes are vigorously pursued further. Government of India looks at accepting these foreign offers as the only way for resolving the resource crisis in the power sector.
- 2.3 World Bank was for long insisting on free market solutions at global level for the development problems of India's power sector—i.e. increase electricity prices to international levels,

so that higher and guaranteed profits could attract foreign direct investments. In order to facilitate such a free market solution World Bank has proposed a new role for the National Power Transmission Corporation (NPTC), a central sector transmission utility, set up about an year back.

2.4 As seen by World Bank, the NPTC by virtue of its owning and operating a national wide transmission grid will emerge in future, as a national monopoly for trading in bulk electricity; private generating utilities could hang on from one end of this national grid and distribution utilities like the 'future SEBs' and bulk high tension consumers from the other. This company will be the king-pin in India's power development for the future and could be privatised or taken over by international capital at an appropriate time. World Bank is insisting for redefining the role of CEA, REBs, SEBs etc. so that NPTC emerges in future as the national focal point in an international power sector scenario. (3)

2.5 World Bank has already announced a two billion dollar loans primarily for promoting NPTC on the new lines and private sector generation utilities as joint ventures with National Thermal Power Corporation (NTPC). Asian Development Bank is likely to join hands to speed up these World Bank directed structural reforms of India's power sector. In essence, recent policy changes and programmes initiated by the Government are in tune with these World Bank prescriptions. In brief they aim at:

- (a) Filling up the resource gap with external assistance by availing suppliers credit, bilateral loans, multilateral loans, resorting to foreign direct investment and by privatisation.
- (b) Internationalising India's power development programme by opening up the electricity market as well as the power equipment market in the country to global monopolies.

3. Are foreign loans/investments necessary?

3.1 In the early years of independence India did not have an indigenous power equipment industry and adequate systems design expertise; it had to depend entirely on imported equipment, systems and technologies. Foreign loans and aid packages were possibly necessary at that point of time. Situation changed dramatically since late sixties when indigenous power equipment industry started gathering momentum. The plan for "phasing of generation schemes and planning for generation equipment for the decade 1971-81" drawn up in 1971

under the initiative of the then power minister Dr. K.L. Rao was in essence an attempt for integrating power development needs with indigenous technological capabilities that were just emerging. (4)

- 3.2 With the help of a planned integrated approach for power development, indigenous manufacture of power equipment and systems matured into a national industry primarily under the initiative of Bharat Heavy Electrical Ltd (BHEL). Several dozens of industrial enterprises both in the private and public sector grew up in the country by serving the needs of a rapidly expanding power sector. Power generation and consumption increased by 55 times since independence. Out of the 53700 MW of generating capacity added upto 1991 80 percent (43000 MW) was from indigenous equipment. (See Chart 1). Indian power equipment is cheap and of internationally accepted quality. Indigenous manufacturing industry has a capacity of 7000 MW per year which could be augmented further as necessary; it can meet the entire power equipment needs of the country and has proved its competitiveness even in the export market.
- 3.3. With regard to systems and equipment design as well as manufacturing and construction technologies India has achieved a very high degree of self reliance. Man power and technological resources available within the country are adequate to support a one hundred percent indigenous power development programme. Foreign exchange requirement for such a programme will be only around 10 percent of the sectoral investment. This is less than four percent of the total imports of the country. (5)
- 3.4 Need for foreign loans and credits has ceased to exist more than a decade ago as far as the power sector was concerned. But the country was forced to continue to avail of such facilities because of the directed credit policies of the Governments of developed countries, World Bank and other international financing agencies. Government of India, during all these years has been trying to fill up the resource gap, by uncritically accepting and using such directed foreign exchange credit facilities for the financing of power sector which could have been entirely met through Rupee resources. It has now directed the SEBs that all power equipment contracts should be finalised on the basis of global tenders and that suppliers should be selected on the strength of credit packages

ADDITION TO GENERATING CAPACITY CONTRIBUTION OF INDIGENOUS EQUIPMENT

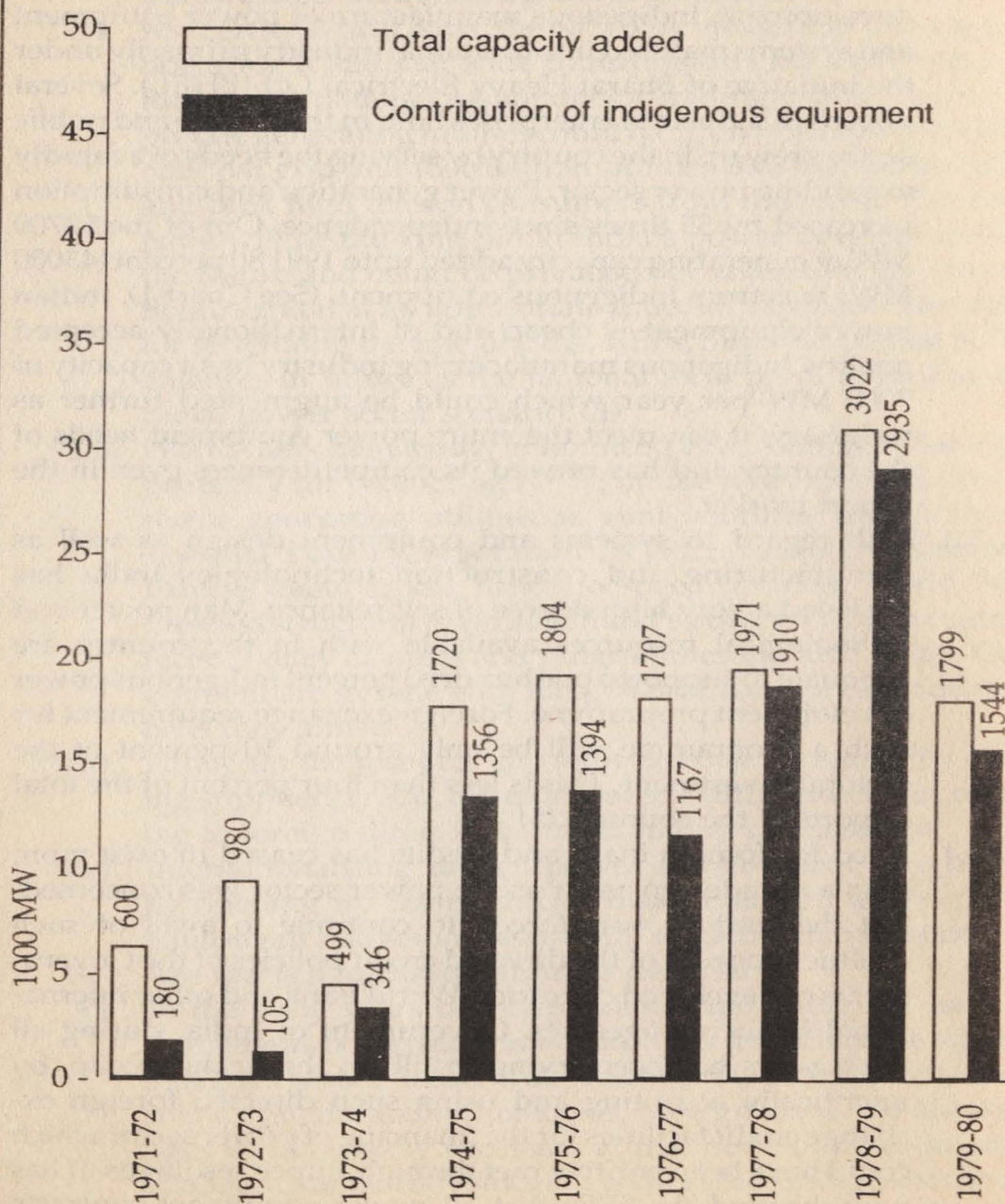
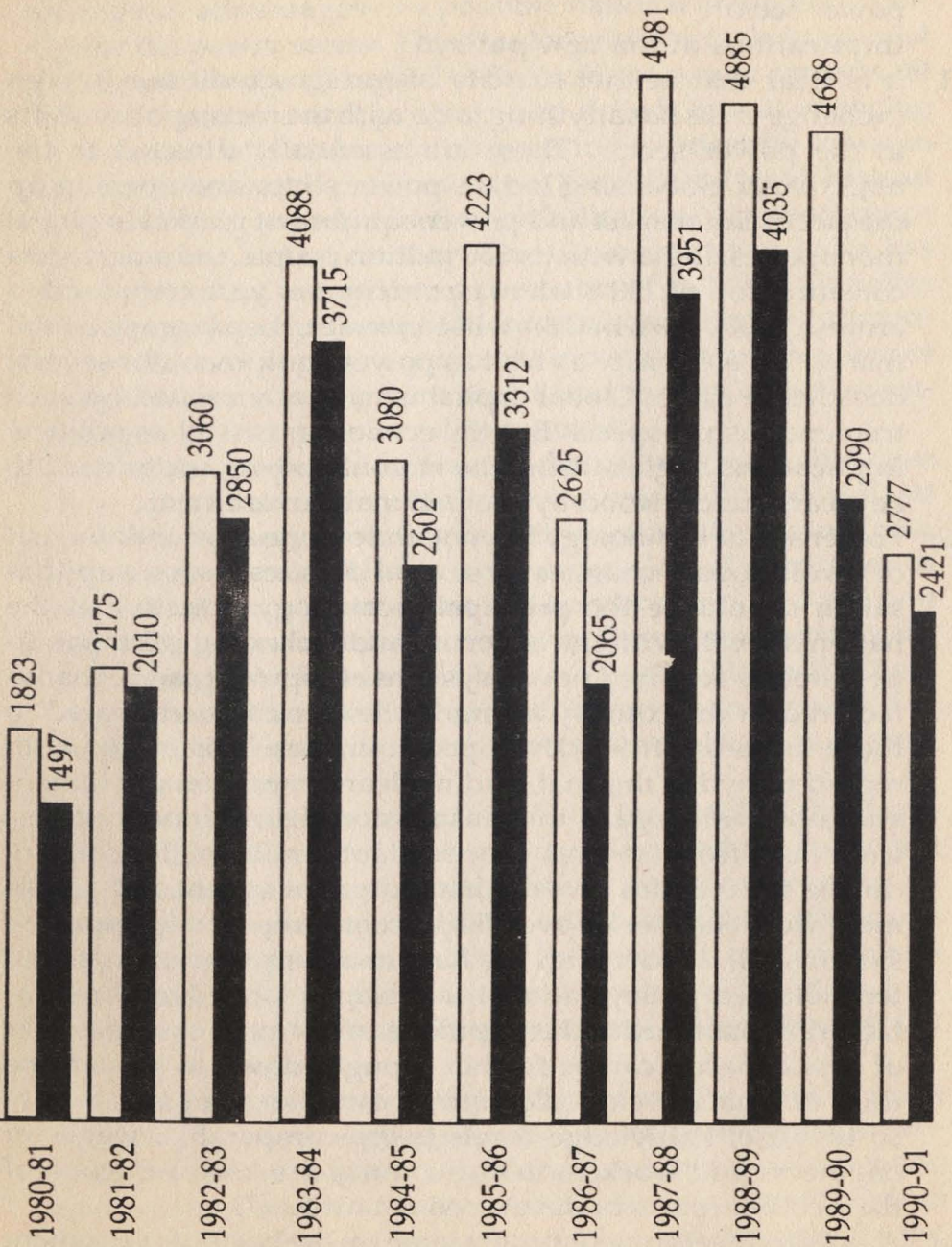


CHART - I



extended by them. Strangely the present stream of policy changes triggered by a BOP crisis has accelerated the unnecessary dependance on foreign loans for the financing of the power sector.

4. Implications of the new policy:

- 4.1 It is clear that neither scarcity of foreign credit nor foreign exchange crisis has anything to do with the recent policy shifts in the power sector. These are essentially directed to the objective of globalising India's power sector and opening up the electricity market and power equipment market to global monopolies. India with its 850 million people and a percapita consumption of 230 Kwh of electricity per year compared to around 10000 Kwh in USA will continue to be a large potential market for electricity as well as power equipment for several decades to come. Global capital is naturally excited by such tremendous prospects. But the economic as well as political implications of globalising the national power sector need to be clearly understood by the national Government.
- 4.2 Power sector technology has not undergone any fundamental or revolutionary changes for several decades and cost optimisation should be the principal technology objective at the national level. With the expertise and technological capabilities already acquired power systems equipment can be manufactured in the country at much cheaper costs compared to those imported from developed countries. This is true with regard to hydel, thermal, and nuclear generation equipment and also with regard to transmission distribution systems. Cost data from several power plants built in the country during the eighties reveals that indigenous plant and equipment were cheaper by even 50 percent compared to imported systems. (6). In fact with the help of an appropriate national technological policy, rationalisation and planned mass manufacture of standardised equipment, investment costs per MW of new capacity can be further brought down to half or one third of what developed countries can offer. This is naturally so because, knowledge levels being comparable, wages of engineers and workers in our country are only a fraction of their counterparts in developed countries.(7)
- 4.3 A power development programme on the basis of equipment and systems designed and manufactured to uniform national standards and specifications can not only cut down unit investment costs but also improve quality and contain electric-

ity prices. This advantage which is vital to a capital scarce developing economy is lost when sourcing of equipment is dictated by foreign loans and credits. In spite of its strong manufacturing base India has been prevented in the past from taking full advantages of a possible national technology policy for the power sector. This was largely due to the irrational policy followed with regard to financing of power projects.(8)

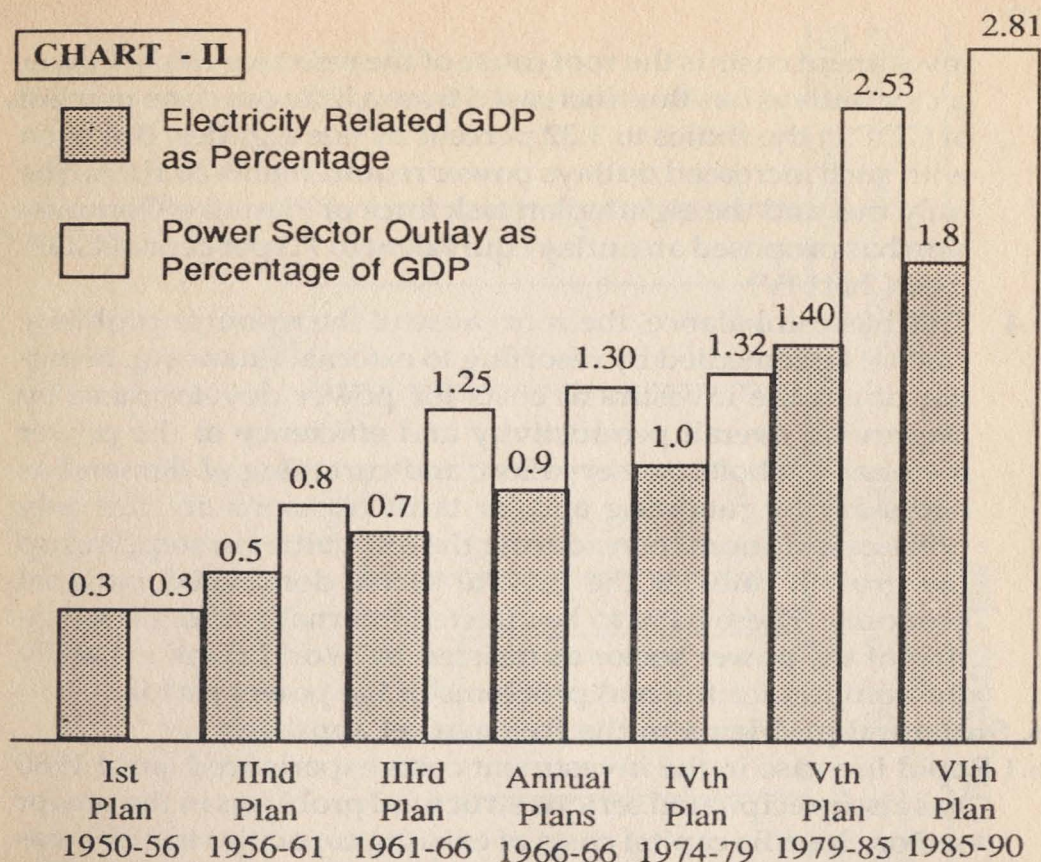
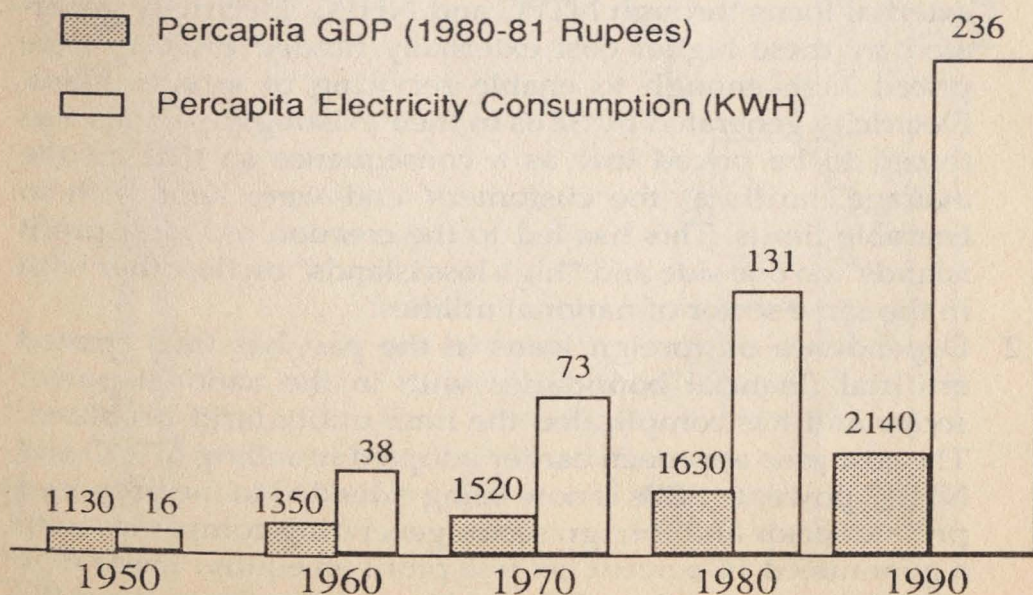
- 4.4 The new policies and programmes do not aim at reducing investment costs and containing electricity prices by trying to improve the overall productivity at the national level. Instead they are being aimed at instant globalisation of power equipment market in the country. The Government of India has surrendered to the marketing pressures of global monopolies who are trying to pre-empt the threats from a highly competitive indigenous power equipment industry through offers of long term loans, equipment credit, and foreign direct investment for financing power development.
- 4.5 Several of the proposals for foreign direct investment that have come up indicate a very high specific cost of Rs.4 crores and above per MW of generating capacity against the seventh plan experience of around Rupees one crore. Cost of generation at this level of investment—cost will be more than Rs. 3 per unit and SEBs are now asked to sign up long term contract for purchasing this electricity in bulk on a cost plus basis. These are indicators that investment costs for power sector as well as electricity prices are likely to increase several fold as a result of the new policies.
- 4.6 Steep increases in electricity tariffs are inevitable if the costly power equipment and systems manufactured in developed countries are to be cost effective in our circumstances. In fact World Bank had observed that average electricity tariff levels in India "is only about half the incremental cost of system expansion." (9). In plain words it means that a two fold increase in electricity tariffs is necessary if these equipment are to be cost effective.
- 4.7 It is clear that the new policy will prevent the country from following a low cost indigenous power development programme, inflate the investment costs and thereby worsen the resource gap, and lead to steep increases in electricity prices and destabilise the indigenous capital goods industry for the power sector: Cost to the national economy will be enormous and in all probability the national power development pro-

gramme will turn chaotic and get even totally out of control. It may also be stressed, that the "steep increase in electricity prices" would put it beyond the reach of the common masses, and a luxury for the middle class. Even this basic utility, — so essential for a better quality of life for all, would become a monopoly of the elite, the top strata of the population. It would thus widen the gulf between the rich and the poor. Besides, the 'free market approach', would negate the social obligations which were undertaken, when power was sought to be brought in the public sector, by the 1948 Act. Thus, the goal of taking electricity to villages, to remote areas, making it available to harijan bustees and tribal areas, would recede into the background. This would aggravate social, rural-urban-and regional disparities.

- 4.8 Apart from the economic fall out there is an important political question: Power being basic infrastructure, a key and sensitive sector is it wise to leave it entirely to global market forces which is the ultimate solution aimed at by the World Bank prescriptions?

5. The Genesis of the Resource Crisis

- 5.1 Poor financial performance of SEBs is often projected as the root cause for the resources problems in the power sector but, this is far from the truth. Own financial surpluses of electric utilities can contribute only a minor part of the total investments in the power sector. In a developing economy bulk of the investment needs of power sector has to be met from the financial surpluses from other sectors. This was the case in Indian economy as well. (See Chart-II)
- 5.2 Electricity, being a public utility and seen as a basic amenity, is forced to grow at a much rapid pace in a developing country compared to the rest of the economy. After independence per-capita generation and consumption of electricity increased sixteen fold whereas percapita GDP has only doubled. (See Chart-III). Cost of adding one MW of power to the Indian grid had abruptly increased during mid sixties due to Rupee devaluation, could be stabilised during the seventies thanks to rapid indigenisation but, again experienced a sharp increase due to arbitrary technological changes and dependence on foreign loans and imported equipment during the eighties. (10)
- 5.3 The higher growth rate demanded from the power sector by a slow moving economy, coupled with the increasing specific

CHART - II**CHART - III**

investment costs is the root cause of the resource crisis. Power sector outlays has thus increased from a little over one percent of GDP in the sixties to 3.32 percent by late eighties. But even with such increased outlays power requirements could not be fully met and the eighth plan task force of Planning Commission has proposed an outlay equivalent to 7.3 per cent of GDP. (See Chart IV)

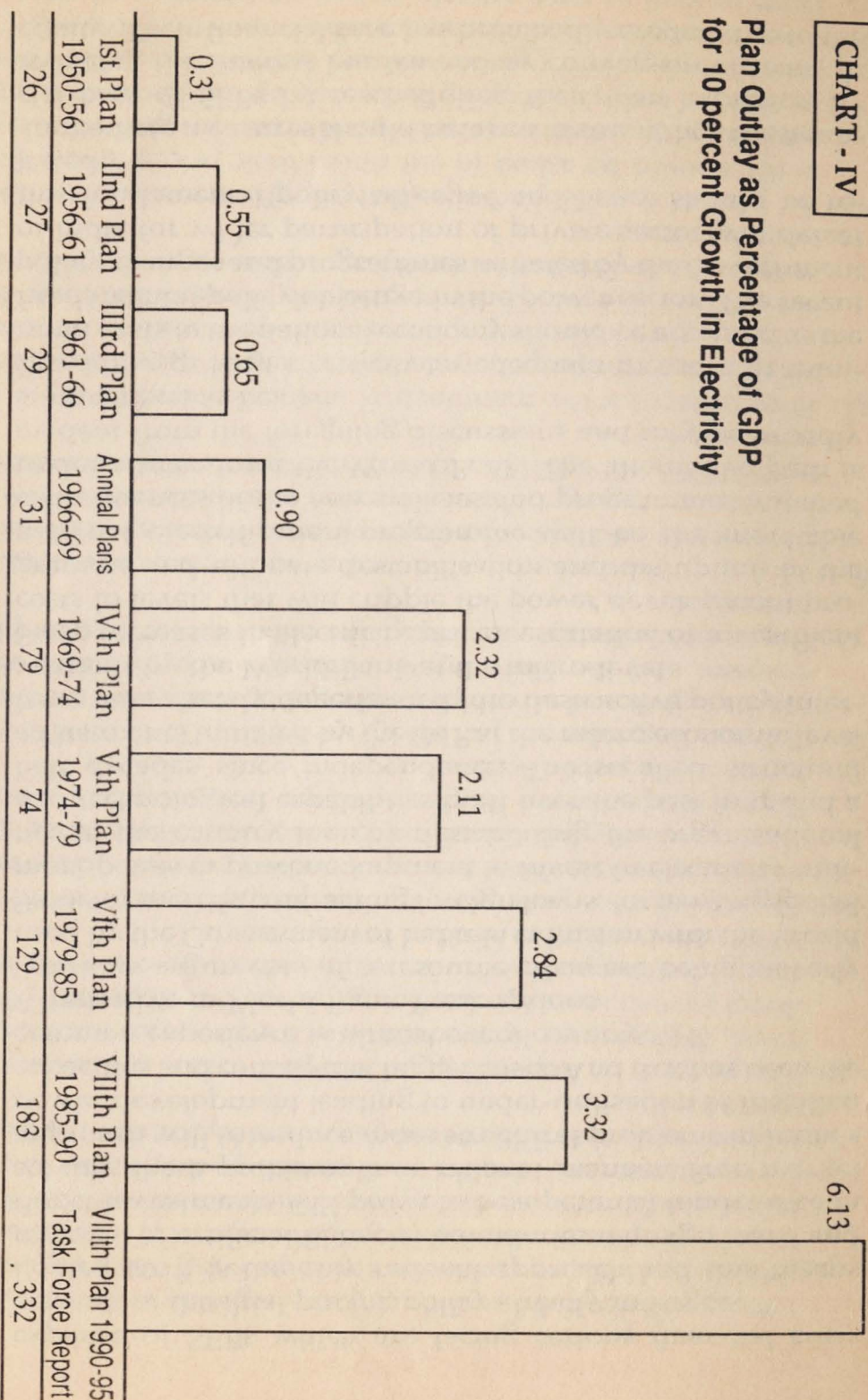
- 5.4 This basic imbalance, the root cause of the resource problem, can not be remedied by resorting to external financing. Bringing down the investment costs for power development by improving overall productivity and efficiency of the power sector as a whole, conservation, and curtailing of demand as necessary by rationing and/or tariff revisions are the only practical solutions, considering the difficulties in stepping up the growth rates of the private sector dominated national economy. These have to be effected internally and globalisation of the power sector as insisted by World Bank is hardly the solution for the real problems of the power sector.

6. Structural problems in the free market approach

- 6.1 Rapid increase in the investment costs experienced since 1980 has also precipitated serious structural problems in the power sector. Specific capital costs of existing capacities in 1980 was only Rs. 43 lakhs per MW on the average. New capacities added after 1980 were costing nearly three or four times this average figure. Most of these new capacities were financed by external loans through NTPC and NHPC. Electricity generated by these higher cost externally funded projects were priced high enough to enable servicing of foreign loans. Electricity generated by SEBs in their existing capacities was forced to be priced low as a consequence so that on the average, tariffs at the customers' end were kept within bearable limits. This has led to the creation of "high profit islands" on one side and "high loss islands" on the other within the same sector of national utilities.
- 6.2 Dependence on foreign loans in the past has thus created artificial financial boundaries within the national power sector and has complicated the inter-utility tariff problems. The cost plus approach earlier adopted in selling NTPC and NHPC power to SEBs is now being extended to the proposed private sector and foreign sector generating companies with a guaranteed 16 percent tax free profit on equity. These new generating companies will be making monopoly profits at the

CHART - IV

Plan Outlay as Percentage of GDP
for 10 percent Growth in Electricity



PLAN OUTLAY RS. LAKHS / MW

expense of SEBs which are facing serious financial crisis because of the dual pricing policy already in vogue.

- 6.3 Pooled tariff is the only rational approach and this means removal of artificial financial boundaries. Foreign loans and direct investments will prove to be a perennial hinderance in solving these problems in a rational manner. Free market approach will introduce more structural problems in India's power development leading to under-utilisation of installed capacities and consequent higher costs. And that has been the common experience of almost every country. (11)
7. **Alternative to World Bank Prescriptions**
 - 7.1 Spurious arguments of a resource crisis are being cleverly used by the Government of India in collusion with the World Bank for merrily contracting foreign loans, for inviting global monopolies in power equipment to invest in electricity utilities in the country thereby destabilising the organisational and technological capabilities built over the past four and a half decades since independence. The so-called structural adjustments initiated by the IMF at the macro economic level have thus already degenerated into destructive policy interventions by the World Bank at the micro-level.
 - 7.2 Steep increases in electricity prices, escalation of investment costs to levels that will cripple the power development programme and ultimate destabilisation and disruption of the national electrification programme will be the inevitable consequences of the new policies and programmes initiated under advice from the World Bank. The alternative path is evident from the foregoing discussions and may be broadly summarised as below:
 - (a) Providing quality electricity in adequate measure at minimum costs to the national economy should be accepted as the fundamental policy objective in the power sector. The recent policy changes and programmes initiated by the Government of India for wider participation of private sector will defeat this fundamental policy objective and hence should be rejected.
 - (b) Immediate measures should be taken to strengthen the financial base of SEBs by rescheduling their loan liabilities, by reducing the interest burden and by conversion of loans to equity. Their financial base has been badly eroded due to the

wrong policies followed during the eighties and rectifying this is the first pre-condition for improving their organisational and operational efficiency. Government of India should initiate an immediate dialogue on this matter with the State Governments and decide on financial packages for implementation so that SEBs could play their legitimate developmental role.

- (c) The practice of depending on bilateral loans, multinational loans, foreign suppliers credit and the proposal for foreign direct investments for financing power development plans should be stopped with immediate effect, because external assistance is no more needed for this sector.
- (d) The eighth five year plan for the power sector should be conceived and finalised as a one hundred percent indigenous plan by making full use of indigenous capabilities; adequate Rupee funds should be provided for financing this crucial sector in the public sector.
- (e) All pending schemes put up by the SEBs, NTPC, NHPC etc. for the eighth and ninth plans should be cleared by the Government and the Planning Commission expeditiously and Rupee funds firmly committed and allocated for their implementation.
- (f) CEA should be asked to standardise and freeze the technical parameters and specifications of equipment, systems and layouts on any urgent basis wherever possible in consultation with NTPC, SEBs, BHEL etc. so that investment costs could be minimised.
- (g) Firm orders for the manufacture and time bound supply of standardised equipment, systems and related services needed for the eighth and ninth plans should be placed on national enterprises like BHEL at negotiated prices. CEA may be authorised to finalise mutually agreeable terms and conditions for the same.
- (h) As part of a total package-deal supply organisations like BHEL should be asked to cut down their prices taking full advantage of stable large scale production programmes and to plan for further reducing their costs by indigenisation and by improving their operational and technological efficiency.
- (i) Considering the capabilities, proven competence, cost advantages as well as past records power equipment and related services should be seen as a major thrust area for export promotion. Government of India should take the lead in

creating the necessary organisational structures for mobilising the expertise and manpower resources available with CEA, NTPC, NHPC, SEBs, BHEL etc. towards export promotion in this sector and approach international financing agencies for their help and co-operation.

- (j) Taking into account the needs of future growth, the supply side capabilities need to be nearly doubled by the end of the century. Immediate steps need to be initiated with regard to perspective planning covering all aspects of power development.
- (k) Organisational structures and system of management of SEBs, REBs, and CEA need to be improved and strengthened for better efficiency and performance of the power sector. The Rajadhyaksha Committee, the first ever committee that have gone into the problems of India's power sector, had made several recommendations in 1980. Hardly any of them had been implemented, though most are valid even today. These recommendations should be quickly reviewed and implemented as a first step after due consultations at all levels.
- (l) 'Introduction of workers' participation in management at all levels, which would contribute to improve allround efficiency and to reduce wastages at all levels.
- (m) Above suggestions are for immediate implementation. Four and a half decades of experience of planning and managing the power sector under public sector initiative should be reviewed in its entirety covering all aspects—technological, organisational and financial and measures taken for improving performance and efficiency at all level—local, state, regional and central. The Government of India should initiate consultations in this regard with State Governments, Public Sector organisations, trade unions and associations of professional workers connected with the power sector.

Notes and References

1. *Para 1.2* : This study report was discussed in a workshop held in Delhi on 25th, 26th April 1992. Apart from engineers and workers from SEBs, NTPC, DVC and BHEL eminent trade union leaders, power engineers and economists also participated in the workshop. The report is being finalised for publication.

2. *Para 2.1* : See the brochure brought out by department of power, GOI. It has indentified 53 projects of aggregate capacity 21558 MW mainly

for foreign investment against an anticipated shortage of 10000 MW in the 8th plan.

3. *Para 2.3* : These conditionalities are listed in para 34 of the World Bank mission report of 25.11.91 on NPTC etc.

4. *Para 3.2* : This exercise initiated by late Dr. K.L. Rao is documented as an internal report of Ministry of Irrigation and Power, GOI (dt. July 1971). It gave tremendous impetus to the infant indigenous power equipment industry and helped to contain development costs (See Chart IV in this paper).

5. *Para 3.2* : BHEL's imports work out to 17 percent of the value of its turnover for 1990-91. On the average 60 percent of power development cost is related to equipment. The ten percent import content is derived on this basis.

6. *Para 4.2* : The following is an extract from an internal BHEL note comparing the costs of thermal power stations.

<i>BHEL Sets</i>	<i>Cost Rs./kw</i>	<i>Imported Sets</i>	<i>Cost Rs./kw</i>
VI Plan Project			
Singrauli-I	4471		
5x200 MW			
VII Plan Projects			
Singrauli-II	7248	Ramagundam-I	9568
2x500 MW		3x200 MW	
Ramagundam-II	7337	Rihand-I	16660
3x500 MW		2x500 MW	
Farakka-I	11535		
3x200 MW			
Korba-II	8105		
3x500 MW			
VIII Plan Projections			
Chandrapur 5,6	9020	Talcher-I	14070
2x500 MW		2x500 MW	
Dadri 1 to 4	15678	Anpara-B	30240
4x210 MW		2x500 MW	
North Madras 1,2,3	13400	Kahalgaon	17660
3x210 MW		4x210 MW	

7. *Para 4.3* : Figures given by Dr. U.R. Rao for communication satellites are illustrative: Cost of procuring a system equivalent to INSAT-2 from NASA will be \$ 120 Million (about Rs. 360 crores) against the cost of Rs. 70-75 crores for an indigenously built one. (Hindu dt. 14th May 1992).

8. *Para 4.3* : Micheal O' Breartuin, Senior Specialist of Electricity Supply Board, Ireland in his excellent paper "Optimising investment in electricity supply in developing countries", presented in the International Conference on power Development in Afro-Asian Countries, (New Delhi-

December 1990) listed the factors that inflate investment cost in power development:

- lack of national standards;
- the inability or the unwillingness of the recipient country to be too critical about a gift from a donor;
- the divorce of technical analysis from economic assessment;
- the predominance of political over techno-economic considerations;
- unforeseen changes in the availability or allocation of financing;
- lack of consistency in the methods of raising finance;
- lack of skills or training.

All these factors possibly except the last one are evident in the Indian situation.

9. *Para 4.6* World Bank's discussion paper on NTPC dt. 17.10.1991, part 25.

10. *Para 5.6*: Maturing of a power equipment industry in India in the seventies more or less coincided with a sharp recession in the global power equipment industry. World power station orders tumbled to less than 10000MW per year by mid eighties from peak of 76000 MW in 1974, the year of oil crisis (Financial Times Survey June 1987). By late seventies multinational companies started their marketing offensive by extending 'aid packages' for India's power sector using NTPC as a conduit; this corporation was set up in 1975 under World Bank's advice. Within two years time a spate of new collaborations were also forced on BHEL; the umbrella type Siemens collaboration was fought against at different forums by eminent political leaders like late P. Ramamurthi, leading parliamentarians, intellectuals, scientists, research workers and top level administrators.

11. *Para 6.3*: Problems of grid power development have always evaded easy free market solutions. Unlike other sectors all suppliers have to work together in power utilities to produce a common product and therefore costs and profits have to be allocated rather than appropriated through the market mechanism. Intervention by public authorities are therefore inevitable for minimising electricity costs and presence of private capital complicates this process. In spite of the strong regulatory role of the Federal Energy Regulating Commission the US system dominated by 130 investor owned utilities produces the costliest electricity in the World. South Korea after its three decades of experimenting with three private utility companies merged into a single state owned monopoly in 1982 in the interests of overall economic development. Privatisation move initiated under Thatcherism is still to gather momentum because of numerous organisational and technological hurdles in dismantling the public sector structures built after the second war. EDF of France, an all embracing power utility, continues to be a highly successful public sector experiment. All these historical experiences should not get overlooked while hurriedly endorsing World Bank prescriptions.

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