

# THE POWER CRISIS

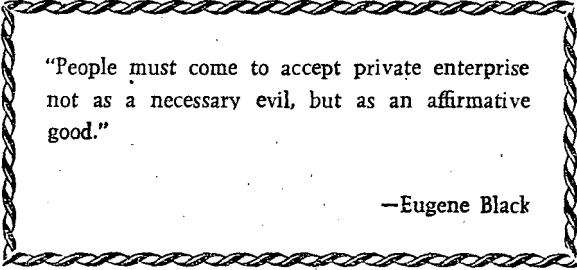
BY

P. M. AGERWALA



**FORUM OF FREE ENTERPRISE**

SOHRAB HOUSE, 235 DR. D. N. ROAD, BOMBAY-1



“People must come to accept private enterprise not as a necessary evil, but as an affirmative good.”

—Eugene Black

# THE POWER CRISIS

*By*

**P. M. AGERWALA \***

Firstly a few words regarding the shortages in Western Maharashtra. We, in Bombay, have been anticipating a serious power crisis—or more appropriately a power famine—and we believe that unless some effective action is taken this will continue for several years. As early as 1960 we had indicated our projections of power for this area to the Government of Maharashtra—the projections made an assessment of our needs up to 1975. These were reviewed in 1963 and we were then told that: “Government does not expect Tatas to add any further capacity and that our load requirements will be met by the additions planned in the region.”

We again represented early in 1965 that the growth in the Tata-Koyna region needed a careful appraisal of our power needs and we were informed that: “1967-68 and 1968-69 would be critical years during which restrictions on sanctions to new loads would appear to be the only remedy possible. For the year 1969-70 the shortage of power would be of a very small order whilst from 1970-71 onwards the capacity would be enough to serve the demand.”

---

\* This is the text of a public lecture delivered under the auspices of the Forum of Free Enterprise in Bombay on 30th April 1973. Mr. Agerwala, Managing Director of Tata Electric Companies, is an authority on this subject.

In May 1969 we again referred to the Maharashtra State Electricity Board (MSEB) the serious situation which was likely to develop in this area and estimated our requirements taking into account all contingencies such as average and "below average" monsoons. We were informed in July 1969 that: "In general we find that the energy assistance required by you can be met by us up to the end of 1972-73. In 1973-74 and 1974-75 there might be a **slight** shortage which in our opinion is **negligible.**" The letter went on further to say that: "It might be difficult for us to meet your power demand because, as you know, the whole State will face a shortage of power throughout the 4th Plan period and this shortage is likely to rise to about 400 MWs by the end of 1973-74."

The power crisis in this area has not developed all of a sudden. We have known that the gap between capacity and demand was inexorably being narrowed and that no effective measures were being taken to bridge the gap.

In the all-India context there is indeed a deep crisis in the power generation and transmission industry. The reasons are not far to seek.

Firstly, our plans have been highly unrealistic — too much emphasis on how much to allocate or invest in generating stations and too little on objectives and performance. The Plans provide no guide-lines to the organisations in the field and there is, of course, no mechanism to judge performance.

Secondly, there is the confrontation between two strongly entrenched schools of thought — one for the indigenisation

and local manufacture at any cost and the other for practically turn-key imports based on the "latest technology and quickest delivery." The confrontation means the slowing down of action in both the areas and as a result it is the consumer who suffers.

Thirdly, the Indian Electricity Act, 1910, and the Electricity (Supply) Act, 1948 are unsuited to the needs of an independent country which needs 12 to 16% rate of growth of electricity to stimulate and sustain its economic programmes. The structure of these Acts, I suggest, sets a premium on inefficiency and does not provide for any financial or commercial discipline in the business of electricity. The result is that the Electricity Boards mostly run at a loss, many are unable to pay even interest on their borrowings and the quality of service both in the rural and urban areas is much below the norms laid down in the Indian Electricity Act. In the private sector efficiently managed undertakings are unable to expand or even up-grade their systems because the "reasonable return" under the Electricity (Supply) Act is limited to 8% and in certain circumstances at 7% whereas money can be borrowed only at 10 to 12% !

Fourthly, there is no effective machinery in the structure of the Acts or in the scheme of the Government directives to delineate a policy for or to co-ordinate the activities of the various Electricity Boards and private Electricity Undertakings. As a result, planning and provisioning is based on local and parochial interests far removed from a national policy of self-sufficiency, and of integration of power networks to provide the most economical and satisfactory service. Even more serious is the absence of an

organisation to ensure introduction of modern technology with a view to improving reliability and controls, as well as to monitor and optimise performance.

Let us first look at some of the facts.

(i) **Investments and Physical Achievements:** The investment in Power has been of the order of Rs. 3,500 crores in the decade 1961-71 and Rs. 1,516 crores are estimated to have been spent during the first three years of the Fourth Plan. These are large investments forming a significant proportion of our total Plan outlay. Our achievements, on the other hand, have been far short of targets.

In the last 20 years, whilst the investments made in this industry were as projected or even higher, there has been a significant shortfall in physical achievements averaging about 35%.

High capital expenditure on power projects and continuing low standards of performance to reach pre-set targets have been the recurring features during the last 20 years.

(ii) **Transmission Losses:** The magnitude and trend of energy losses in transmission and distribution are even more disconcerting. These have been on the increase in the last few years. The latest estimates place the losses at as high a figure as 18% and the assumption is that these will continue to remain at about that level during the current decade. It is my estimate that the losses in the rural sector are significantly higher than reflected by these statistics. It is to be realised that 1% reduction in transmission and distribution losses would result in a revenue benefit of about

Rs. 5 crores **per annum** and it would be equivalent to an added generating capacity of 120 MWs. The losses in European countries are as low as 5.7% and in no case exceed 12.5%.

The important points to note are that — (a) the losses in transmission and distribution represent a national loss, a waste of national resources and reduced availability of power to the consumers; (b) we continue to plan for additional generating capacity to provide for these continuing high losses and (c) even though the investments on transmission networks are relatively less than on increasing generating capacity, no effective action has so far been initiated to reduce these losses.

(iii) **Maintenance** : One of the most serious weaknesses results from inadequate training of directing and operating staff. The maintenance of plant and equipment, as well as of the transmission and distribution networks is very poor. Unscheduled stoppages of plants are frequent and these have serious adverse effects on the life and working of thermal plants. It is not unusual to read in the daily newspapers about the failure of one thermal plant or the other. I can do no better than to quote from an editorial in the July 1972 issue of "The Indian Journal of Power and River Valley Development" :

“..... The problem with the public sector power systems in West Bengal, and for that matter in the Eastern Region is, more than anything else, their incompetent management. Each of the systems has enough technical expertise for both operation and maintenance

and yet over a third of the installed capacity is down for over the last 6 months causing erratic and heavy load shedding every day. In almost every case, the unit is down because of breakdowns to the boiler or its auxiliaries . . . What ails the power stations are bad man (Personnel) Management, bad Materials Management, bad maintenance and totally outdated methods..."

It is pertinent to ask the question, "What is the effect of power cut on industrial production?" For the year 1972, the gross value of output of industry at 1972 prices is estimated at about Rs. 16,300 crores. No reliable estimates of industrial production in 1973 can be drawn up at present as the power situation seems to be uncertain but the loss upto the monsoon months could well range between Rs. 500 to Rs. 1,000 crores.

For the purposes of these estimates, I have assumed that the loss in industrial production was not significant till December 1972 though this is not quite correct as in several areas, particularly Punjab, Haryana and Tamil Nadu power cut has affected industrial production from September 1972 onwards. Losses in the Punjab are estimated at approximately Rs. 20 crores per month, in Tamil Nadu these are also of the same order. Maharashtra, Gujarat, Mysore, Andhra Pradesh and Uttar Pradesh are the other States which have been affected by the power cut. It is important to note that in several cases the effect on agricultural production has been very serious; for example, in the case of the Punjab and Haryana, a significantly large proportion of the power is used for agricultural purposes and in these cases due to



non-availability of power the facilities for pumping water are reduced significantly.

It is unfortunate that no organised measures have been adopted for distributing shortages rationally and **ad hoc** load reductions are being made by opening out supply feeders; there is no regular programme to assess the relative effects on the industrial production and agricultural production and at times, power supplies to one sector have been cut off for days together at the expense of the other sector. Introduction of adequate rationing instead of load relieving on a day-to-day basis is a **must** under the conditions obtaining in this country. Even though some six months have passed since the beginning of the crisis, one finds it difficult to believe that no action has been taken (except in the case of Maharashtra) in this regard.

It is relevant to give an example of the type of action that can and should be taken in an unprecedented crisis of the type which we are facing today.

In November 1965, the entire North-eastern United States of America was plunged into darkness following the failure of power supply in the area. Almost **immediately**, the President wrote a detailed memorandum to the Federal Power Commission to analyse the causes of the failure and to study power system reliability in the North-East and elsewhere in the country. **Within a month**, the Commission submitted its preliminary analysis of the massive occurrence and interim reports were submitted at 6-monthly intervals thereafter. In July 1967, in a letter to the President, the Commission submitted its final report, recommendations,

and steps necessary to prevent recurrence. No such major power failure has been reported in the region since.

Compare this to the action taken in India. There are no clear-cut guidelines even to study the all-India problems. The responsibility for evaluation and assessment continues to rest with those who have largely been responsible for the present crisis. There is no realisation that the crisis is far too deep to be resolved by setting up **ad hoc** Committees, by experts working part-time in addition to their normal duties, by marginal adjustments and by adopting partial remedies.

Let us consider for example the fuel resources. Thermal plants use coal, refinery fuels and gas. India has large resources of coal but adequate capacity for raising coal does not exist and it has not been planned. The result is that at present it has not been possible to get sufficient coal to fully utilise the capacity of the thermal stations in Maharashtra. Even if coal were to be available, railway wagons are in short supply and movement of coal to thermal stations has not been possible. Further, with power restrictions, the use of kerosene and other fuels such as diesel oils has increased and it is well known that both crude oil and petroleum products are in short supply. Thus we find ourselves in the unenviable position of not having adequate fuel for our thermal plants.

Even eight months after common knowledge that the crisis was developing, there is no assessment of the available energy resources and of their allocation according to the requirements of the different sectors. During the last few

months there has been one crisis after another resulting from reversal or modification of orders. Recently, orders had been issued for thermal stations to be converted to the use of coal and for individual units to work only from coal and now these orders have been rescinded and it has been proposed that some of the thermal stations should work **only** on refinery fuels. Thus at a time of great shortages we find lack of planning and of co-ordination so widespread that hardly any effective short-term solutions can be found. There is of course little that is being done to find long-term solutions.

**Remedial Measures :** It is impracticable to indicate in any detail the remedial measures to improve the working of the power industry; however, some of the very obvious steps are :—

(i) An effective central directing machinery with whole-time members to lay down guidelines for short-term and long-term plans on an all-India basis. Such a body would quickly survey the country's energy resources and allocate them to different regions.

(ii) Establishment of a central authority with a large measure of autonomy to plan and provide the required services for those States and regions which are not fully equipped. The State Electricity Board should be given a large measure of autonomy for timely execution of projects and for ensuring an equitable, firm and reliable service to the consumers.

(iii) A whole-time central control and monitoring authority to oversee the performance of the Electricity Boards and the generating and distributing companies. It

should publish at regular intervals indices of performance of the various utilities; analyse the efficiency of the generating plants, monitor performance and ensure reliability and quality of service.

**Conclusion :** We are in the midst of a serious crisis and I would like to suggest that its implications have not been fully understood by the Powers-that-be. India is suffering huge losses both in industrial production and in the agricultural sector. The total loss to the nation can hardly be evaluated.

Heavy load shedding, often unscheduled, has led to a drop in productivity, a fall in machine time and a general apathy and deterioration in the administrative machinery. There is growing discontent in the electricity industry between workers, engineers and Management of State Electricity Boards, most of which are not equipped to deal with today's complexities of power system operation. This had led to several cases of indiscipline amongst the workers, the most recent being in Rajasthan, where military personnel were drafted to man the power stations. Large lay-off of workers is resulting not only in losses to labour but also in a law and order situation.

The power industry in India comprises a large number of complex facets. These remain unplanned and uncoordinated assessments of energy resources, their utilisation, operation of power systems and the like. At least for the present, the prospects for the next decade appear to be dismal indeed.

May I say that we in the Tata Electric Companies have, by incorporation of appropriate technical features in generating stations and by co-ordinating the activities of a large number of well-trained and dedicated engineers and workers, demonstrated that the system losses can be reduced and that it is possible to ensure a stable and trouble-free service to the consumers at the lowest possible tariffs. We have shown that, by the injection of modern management techniques, including computer control, it is possible to optimise the operations of a grid. It has equally been demonstrated that Indian engineers have the necessary ability and talent to achieve highly creditable results. For example, during 1972-73, we were able to obtain in Trombay an average output of 6800 KW hours **per annum**, as against the national average of 3500 KW hours and the world's best-maintained power station's output of 5800 KW hours **per annum**.

It is unfortunate that Indian public opinion is not strong enough to bring to the notice of the Government the serious adverse effects of the poor operation of our electricity systems. Providing a dependable electric service to the nation is a goal that many have articulated, which Parliament has supported and which needs the understanding and support of all Central and State regulatory bodies. The public has a right to expect a response from the Government.

I will conclude by quoting from the Science and Technology plan : "We can formulate, we can envisage, we can project, we can programme, we can define, we can budget:

but if we cannot implement with speed and efficiency, we would have failed the new generation and forfeited our mandate to plan. Howsoever heavy the demand and how-ever great the challenge, all of us must resolve to meet it."

*The views expressed in this booklet are not necessarily the views of the Forum of Free-Enterprise.*

*This publication is sponsored in the interests of public educa-tion by Amar Dye-Chem Ltd., Bombay.*

“Free Enterprise was born with man and shall survive as long as man survives.”

—A. D. Shroff  
(1899-1965)  
Founder-President,  
Forum of Free Enterprise.

# Have you joined the Forum?

The Forum of Free Enterprise is a non-political and non-partisan organisation, started in 1956, to educate public opinion in India on free enterprise and its close relationship with the democratic way of life. The Forum seeks to stimulate public thinking on vital economic problems of the day through booklets and leaflets, meetings, essay competitions, and other means as befit a democratic society.

Membership is open to all who agree with the Manifesto of the Forum. Annual membership fee is Rs. 15/- (entrance fee, Rs. 10/-) and Associate Membership fee, Rs. 7/- only (entrance fee, Rs. 5/-). College students can get our booklets and leaflets by becoming Student Associates on payment of Rs. 3/- only. (No entrance fee).

Write for further particulars (state whether Membership or Student Associateship) to the Secretary, Forum of Free Enterprise, 235, Dr. Dadabhai Naoroji Road, Post Box No. 48-A, Bombay-400 001.

---

Published by M. R. PAI for the Forum of Free Enterprise, 3rd Floor, 235, Dr. D. N. Road, Bombay-400 001, and printed by H. NARAYAN RAO at H. R. MOHAN & CO., (Press), 9-B, Cowasji Patel Street, Bombay-400 001.