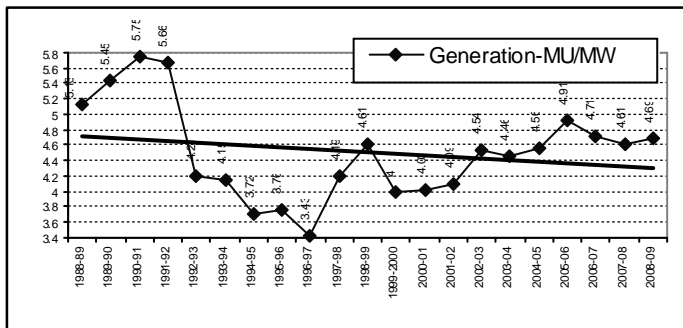


NHPC's Underperformance in Power generation

NHPC Ltd, previously called National Hydroelectric Power Corporation, is the main vehicle of the Government of India's plans to implement large hydro projects in the central sector. The company, set up in 1975, has current installed capacity of 3663 MW, spread over eleven projects in six states. So over the 34 years of its existence, it has achieved around 108 MW of installed capacity per year. It has a Joint Venture called the Narmada Hydroelectric Development Corporation with the Madhya Pradesh government, with total installed capacity of 1520 MW. However, the company has ambitious plans. A dozen projects with installed capacity just over 4600 MW are under implementation and many more in pipeline. However, there has been little attempt at systematic, independent appraisal of the company's performance. Here we attempt at providing a snapshot of the company's performance on power generation front.

In the graph below we have plotted NHPC's annual power generation in Million Units per MW installed capacity. We have used only official generation figures



from the Central Electricity Authority. We can see from this plot that there is a clear downward trend line in NHPC's power generation performance. The 21 year figures that we have used here is a long enough series to capture NHPC's power generation trend. The trend line also possibly indicates something about the company's future performance.

Promise Vs Actual Generation We also assessed NHPC's power generation performance in another way. The hydro projects are sanctioned based on certain power generation promise. This promise is captured in the figure of power to be generated by the project proponent as 90% dependable generation figure. What this figure means is that the project is supposed to achieve that level of generation or higher level in at least 90% of the year. Our analysis of NHPC projects' actual power generation, as against the promised generation is given in the table below. All figures, including the design 90% dependable generation figures have been obtained from the Central Electricity Authority. In case of some of these projects (e.g. Baira Siul, Loktak, Tanakpur projects), the installed capacity has been changing. We have proportionately changed the design 90% dependable generation.

Project (installed cap, MW)	Design 90% dependable generation, MU	Actual 90% dependable generation, MU	% under performance	% when generation below 90% design generation
Bairasul (198)	779.28	606	22.24	58.33
Chamera (540)	1664.56	1990	(over) +19.55	00
Chamera-II (300)	1499.89	1372	8.53	100
Salal (690)	3082	2305	25.21	50
Uri (480)	2587.38	1954	24.48	58.33
Loktak (95)	443.6	405	17.39	29.17
Rangeet (60)	349	304	12.89	66.67
Tanakpur (120)	525	408	38.99	100
Dhauli Ganga (280)	1907	1117	41.43	100
Dulhasti (300)	1134.69	Analysis not possible since the project is in operation for only two years.		
Teesta V (510)	2573	Analysis not possible since the project is in operation for only One year.		

A few noteworthy observations from the above table:

- ✓ None of the NHPC projects have achieved generation at the promised level, with the exception of Chamera project. For Chamera, when one compares the design 90% dependable generation figure with that of the upstream Chamera II project, we find that indeed, Chamera's design generation figure seem rather low when one also considers that a number of additional streams bring water to Chamera, including Baira-Siul.
- ✓ When one looks at the last column, one realizes that at least three projects (of the nine projects for which this analysis is applicable) have *never* achieved the design 90% dependable generation figure. Four other projects have not achieved that figure in 50% or more of the years.
- ✓ In case of five of the nine projects, the under performance is more than 20%, for two of the projects more than 35%.

This kind of under performance in power generation should shock anyone. Unfortunately in India, this kind of analysis is not even done, leave aside the question of holding people accountable. It should be noted here that these projects have been constructed at huge social, environment and economic costs and the project authorities must be held accountable for such gross under performance.

What we have attempted here is to provide only a snapshot of the company's power generation performance. NHPC's performance in other relevant areas of social, environment, economic, financial, governance, safety or technical issues is not even mentioned here, we can only add that available indicators are not particularly positive.

(SANDRP analysis by Swarup Bhattacharya and Himanshu Thakkar)