The Diminishing Performance of Big Hydro Projects in India

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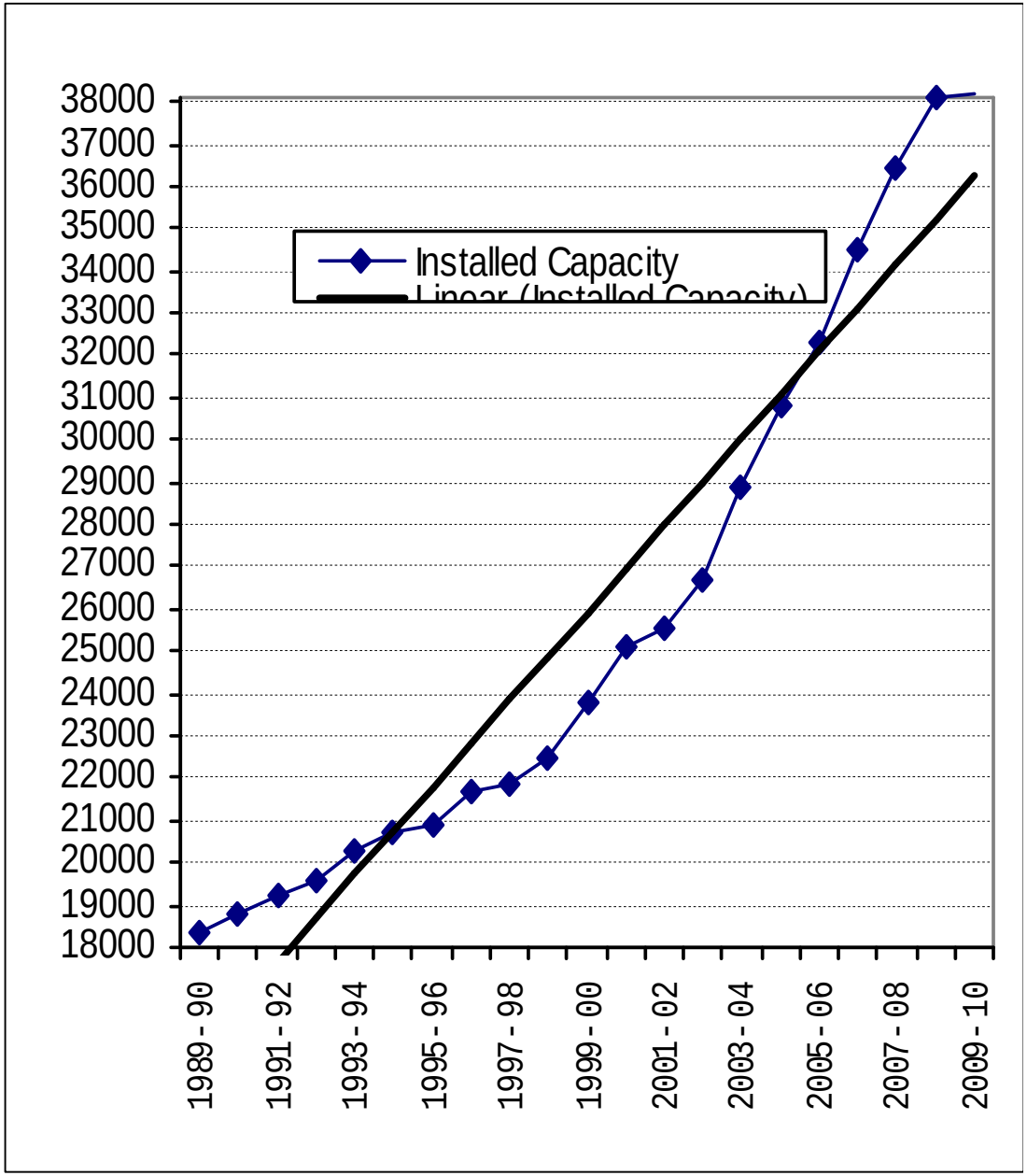
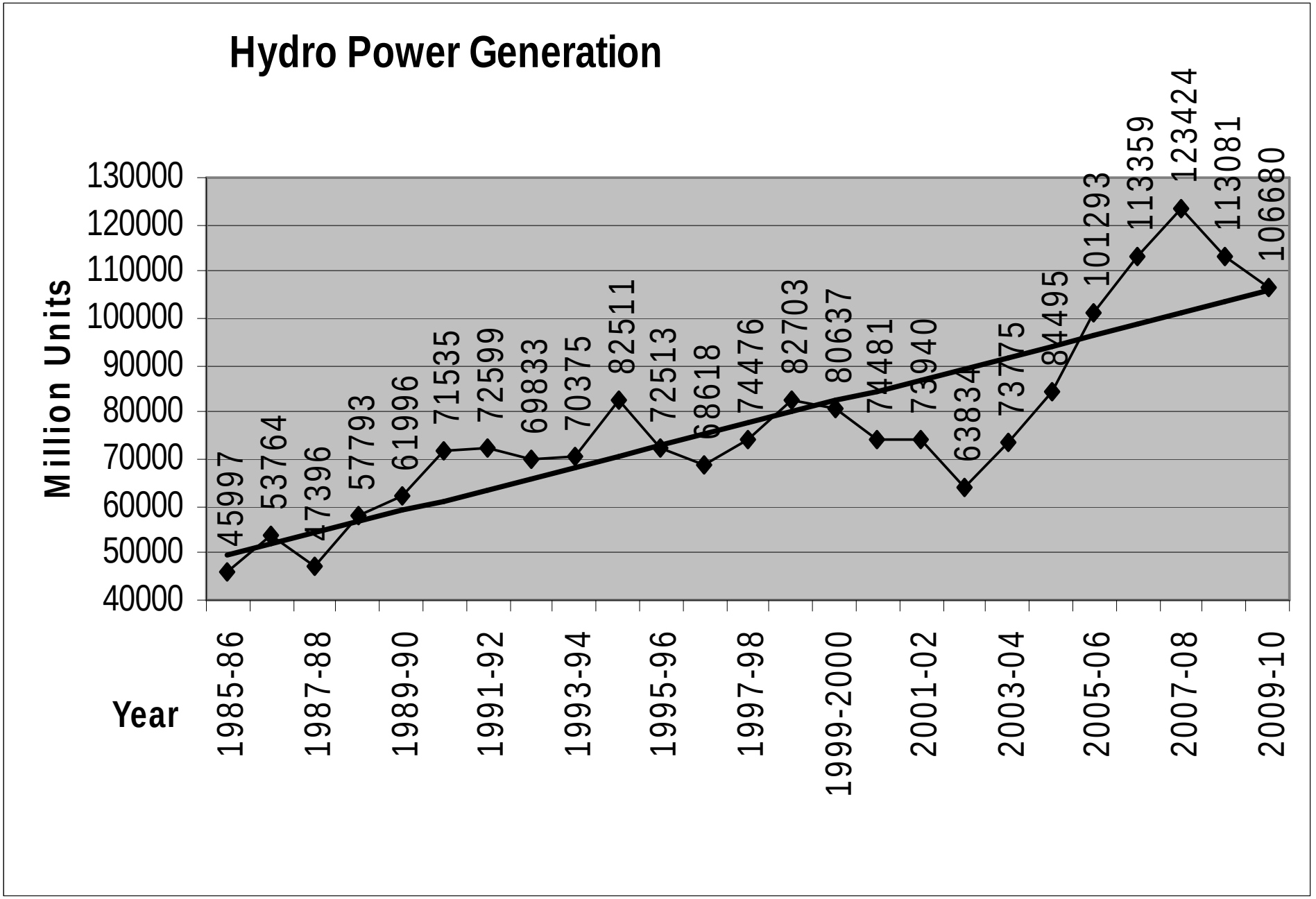
Advocacy for large hydro

- There is strong push for large hydro projects today, as if large hydro projects are good in themselves.
- In fact installed capacity of large hydro has increased at a compound growth rate of 4.35% per annum during 1991-2005, HIGHER than all other power sub-sectors.
- There is little attempt for credible assessment of performance of large hydro. How have they performed?

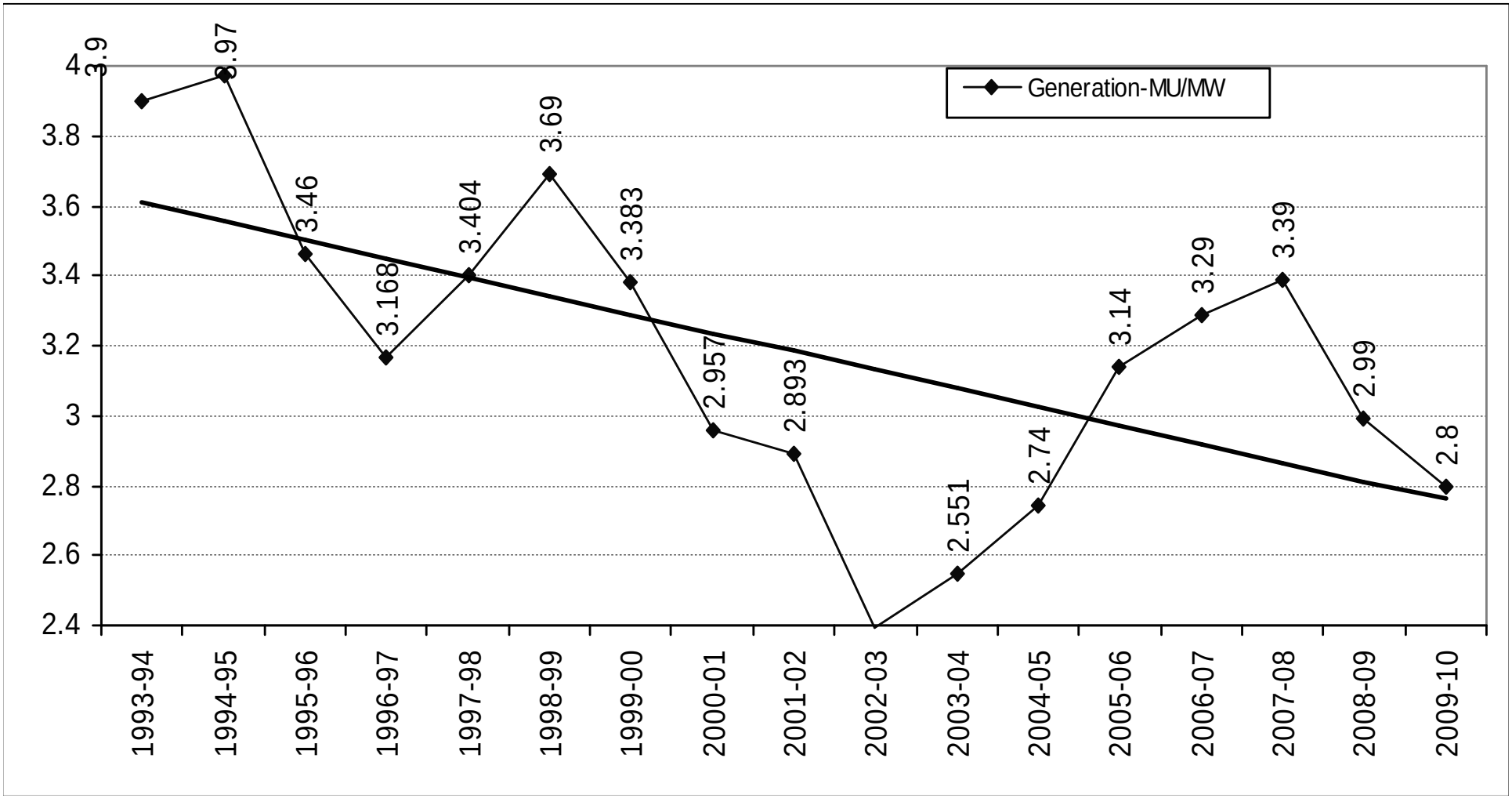


Total Annual Hydropower Generation

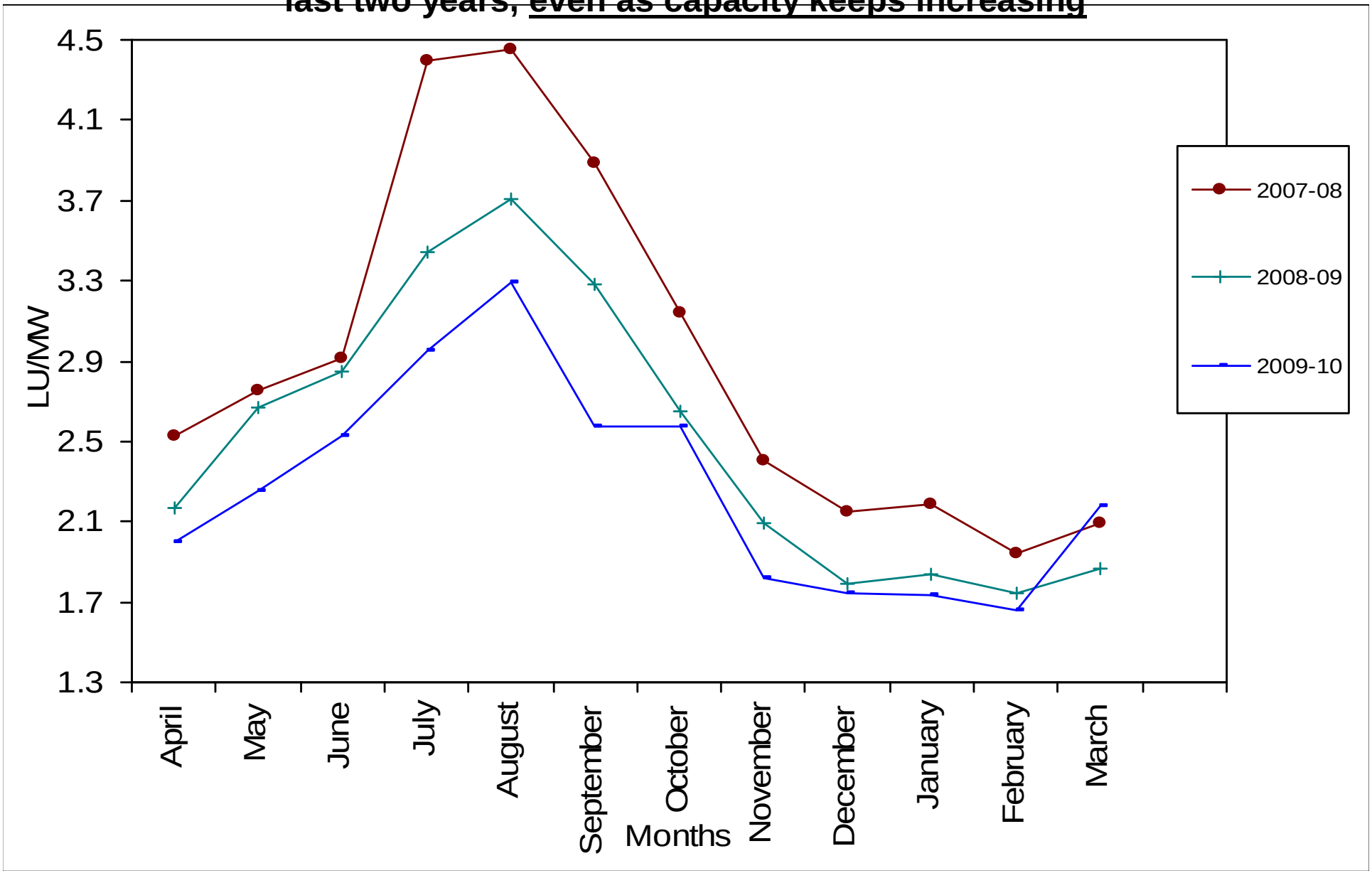


Diminishing Returns from Large Hydro

- As can be seen from the chart here, the Million Units power energy generated from large hydro projects has been almost continuously falling over the last fifteen years.
- The fall from 1994-5 to 2009-10 is huge 29.47%.
- There are many reasons for this: unviable projects, over development, optimistic assumptions, siltation, inadequate R&M, ROR projects, etc.



Power Generation (Lakh Units/ Mega Watt Installed Capacity) in 2008-09 has fallen in each month compared to respective months in 2007-08; similarly, generation in each of the first eleven months of 2009-10 is lower than the respective months in last two years, even as capacity keeps increasing



89% of projects generate at below design capacity

- When a project is given techno-economic clearance, it is based on promise that it will generate certain units of power at design level (at 90% dependability level)
- Our analysis of all the hydropower projects of India show that 89% of the projects generate at BELOW the design capacity.
- In fact 50% of the under-performing projects generate at below the 50% of design energy.
- And yet no questions are asked, no accountability fixed, in fact such an analysis is not even done.
- This means that a lot of the projects that are being set up now are UNVIABLE projects.

Are HEPs providing peaking power?

- One of the most important justifications put forward for taking up hydro projects is that it can provide peaking power, unlike the coal and nuclear power projects.
- An important question here is, how much of the power generated by Hydro projects is available during peaking hours? Unfortunately, such an analysis is not being done currently. This is shocking since, this means that we do not even know if the hydro projects are operating to maximise power generation during peaking hours.
- We are unable to do such an analysis since it requires a lot of data which is not easily available.
- However, anecdotal evidence suggests that indeed a large number of hydro projects are performing as base load stations when they can provide peaking power.
- For example, the Central Electricity Regulatory Commission has noted that projects like Nathpa Jhakri (1500 MW) and Tehri (1000 MW), that were not generating peaking power when they could.
- The peaking power generation capacity of Giri Bata Hydro project is being destroyed by putting up the Renuka dam for supplying water to Delhi.
- A large number of ROR hydro projects cannot even claim to be in a position to generate peaking power, since they are so situated along the river that the downstream projects often get water only during off peak hours. This would very much be the case in Sutlej, Ravi, Beas, Chenab, Bhagirathi, Alaknanda and Teesta basins.

THANK YOU

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