

CHAPTER - 8

Conclusion and Recommendations

8.1 Conclusion

8.1.1 Hydel power sector CPSEs embarked upon an ambitious target of capacity addition of 11,813 MW during the period 2007-12. However, the CPSEs did not prepare their capacity addition plans with due diligence as two CPSEs (THDC and NEEPCO) did not envisage any new project for capacity addition and two CPSEs (SJVNL and NHPC) included projects without consultation with the State Governments with the result that the plans did not materialize. As a result the plans had to be scaled down (11,813 MW to 6,794 MW). Even the scaled down targets which were almost 42 *per cent* less than the original targets could not be achieved. CPSEs had achieved only 1,550 MW (13 per cent and 23 per cent of the original and revised targets respectively) by March 2012.

Besides, these CPSEs are likely to add only 3,774 MW capacity in 12 projects in XII Five Year Plan (2012-2017) as against 14,535 MW in 33 projects envisaged in the Hydro Power Policy 2008.

8.1.2 Audit observed that the entire process for project planning and implementation was beset with inordinate delays. The CPSEs could complete the pre-investment approval activities within the benchmark of 30 months fixed by the Ministry of Power (MOP) in only two out of 14 Projects. While there was a marginal delay of up to six months in completing these activities in five projects, there were delays ranging from 12 to 50 months in remaining seven projects. Further analysis disclosed that NHPC took up to 49 months to complete 'Environmental Impact Assessment/Environmental Management Plan' studies for obtaining environment clearance and a further time of up to 11 months in submitting these studies to the Ministry of Environment and Forests, Government of India (GOI) for clearance.

8.1.3 Despite specific directions from Prime Minister's Office (PMO), MOP did not form Special Purpose Vehicle (SPV) for survey, investigation and implementation of the Siang and Subansiri multi purpose projects (six) in the Brahmaputra Basin in Arunachal Pradesh. GOI allocated six projects (20,700 MW) to NHPC of which only one project i.e. Subansiri Lower (2,000 MW) is being executed by NHPC.

These six projects were first allotted by GOI to NHPC and later, out of these projects, GOAP allotted two projects to the private developers based on limited tendering from private parties only; two projects to its Joint Ventures and one project to NTPC⁶⁶. Transparency and competitiveness in allotment of Hydro Power Projects as envisaged in the Hydro policies of the GOI was, thus, overlooked. Hence, decision to allot projects from SPV to NHPC and subsequent allotment to the private developers/joint ventures/NTPC by GOAP resulted in the five projects conceived in January 1999 not taking off so far even after lapse of 12 years even though a large size hydro project as per CEA norms takes about 10 years from conceptualisation of a project to its commissioning. Besides, the estimated benefit of generation of 6,600 MW electricity per annum, as per DPRs of four projects allotted to private developers/ joint ventures, has not been achieved.

8.1.4 Audit noticed that even the first stage of implementation, *i.e.* survey and investigation which is the critical activity in the entire process was not accorded due importance by NHPC and SJVNL despite Policy on Hydro Power Development (1998) envisaging for thorough survey and investigation of hydro project sites before preparation of DPRs. There were no norms for drilling till 2006 and the drilling by NHPC and SJVNL during the survey stage was significantly inadequate as compared to requirements thereby exposing the CPSEs to several geological surprises causing a cascading impact on the time and cost of the projects. NHPC, in Parbati-II Project, resorted to use of inappropriate technology for drilling the head race tunnel despite concerns of various authorities like Geological Survey of India, MOP and Central Water Commission, etc. The tunnel boring machine was stuck in the tunnel and finally NHPC had to terminate the contract.

8.1.5 A time of 8 months was taken for investment approval after Techno Economic Clearance in case of Subansiri Lower of NHPC whereas it ranged between 10 and 29 months in respect of other 13 projects⁶⁷ (excluding Koteswar Project of THDC⁶⁸).

The Working Group on Power for Eleventh Plan (2007-12) envisaged (February 2007) cost of construction at ₹4.50 crore per MW for the run of the river hydro

⁶⁶ *Only for preparation of Pre Feasibility Report*

⁶⁷ *Excludes two projects of NEEPCO as planning activities were not covered in this Performance Audit.*

⁶⁸ *A time of 127 months was taken in respect of Koteswar project of THDC after obtaining TEC (August 1989) as Committee of Secretaries decided to take up this project after the work of Tehri Stage-I project picked up.*

projects. The approved per MW cost of construction of nine out of 12 run of the river hydro projects⁶⁹ approved by CCEA between July 1998 and January 2007 ranged between ₹4.90 crore and ₹14.12 crore as against ₹4.50 crore per MW envisaged by the Working Group. However, the anticipated cost of construction of 11 out of above 12 projects is much higher than the approved cost and ranged between 18 to 112 per cent of the approved cost. Besides per MW anticipated cost of above 12 projects also ranged between ₹4.97 crore to ₹20.80 crore as against ₹4.50 crore per MW envisaged by the Working Group.

- 8.1.6 The process of award of contracts by the CPSEs revealed significant departures from the generally accepted financial best practices and instances of inequitable and unfair contracting. The PQ criteria had been relaxed after closure of sale of bid documents, which allowed undue advantage to certain bidders over others. NHPC extended undue advantage to a bidder M/s HJV (led by MAYTAS), by relaxing the pre-qualifying criteria regarding requirement of JV partner specialized in the use of Tunnel Boring Machine and minimum average annual turnover requirement for lead and other partners in contrary to the practice in vogue in NHPC. These relaxations, after closure of sale of bid documents, were neither transparent nor fair to other parties who could also have participated due to relaxation in the criteria. M/s HJV (led by MAYTAS) was further favoured by prequalifying them on the basis of incomplete experience for tunnel boring machine. NHPC further compromised the transparency of the bid opening process for its Chamera III project as the discount letter of the lowest bidder did not form part of the bid documents submitted by them.

NHPC considered bid of MAYTAS in case of civil works package of Chutak project though it was decided to set aside their bid in view of poor performance in Parbati-II project.

- 8.1.7 M/s HJV (led by MAYTAS) was not only favoured in the award of contract but was extended undue favours during the execution of the contract also. MAYTAS the lead partner of the M/s HJV offloaded their portion of work to the least capable partner of the JV in violation of the terms of the contract. Due to undue favour to M/s HJV (led by MAYTAS) in the PQ stage itself, NHPC ended up in selecting an incompetent contractor who failed to execute the work in time. To tide over the situation, NHPC extended financial assistance of ₹131.65 crore beyond contractual provisions to M/s HJV. For resumption of work, a committee

⁶⁹ *Koteshwar project of THDC and Omkareshwar project of NHPC (JV with MP Govt.) are storage type.*

chaired by former Secretary (Power) was constituted by MOP. Audit observed that Chairman of this committee was a member of the Board of one of the JV partners of M/s HJV and had a clear conflict of interest in both his responsibilities. Finally the contract was cancelled, bank guarantees were encashed leaving a balance of ₹182.48 crore unrecovered. This has resulted in blocking of ₹182.48 crore with remote chances of recovery and estimated cost over run of ₹243.54 crore and time over run of 99 months.

- 8.1.8 NHPC agreed to compensate a contractor for compression of schedule of hydro mechanical works relating to Chamara-III and Uri-II projects and paid an amount of ₹13.60 crore to the contractor, which was not justified as the civil works were already running behind schedule and completion of hydro mechanical works without civil works was of no use.

NEEPCO suffered a loss of ₹19.88 crore due to damage of extra items of work executed by the contractor in two accidents in January 2007 and December 2007. This amount could not be recovered by NEEPCO either from the contractor or the insurance company as the contractor had not insured these extra items of work.

- 8.1.9 Delay in execution of 16 projects by four CPSEs resulted in revision of their initial approved cost of ₹ 30,005 crore to ₹ 44,712 crore. In seven completed/ongoing projects, the cost overrun was in the range of 53 to 148 per cent.

The main reasons for delay in project execution were geological surprises and other controllable factors like delay in handing over of access roads to the contractors, wrong assessment of land requirements, delay in issuance of construction drawings, increase in scope of work due to incorrect assessment of bill of quantities, etc. also contributed to delay in execution of the projects.

Thorough survey and investigation as envisaged in the Policy on Hydro Power Development (1998) would have minimized the geological surprises. Other factors like delay in handing over of access roads, delay in issuance of construction drawings, etc. could have been controlled by proper coordination and monitoring by the CPSEs.

- 8.1.10 Though a monitoring mechanism was in place in these CPSEs, it did not have the desired impact in removing the project impediments. Even controllable factors like delay in handing over of access roads to contractors, issuance of construction drawings, incorrect assessment of Bills of Quantities, etc. were not

addressed in time to contain project delays. Monitoring by the MOP also did not help in ensuring timely action on the identified problem areas in execution.

- 8.1.11 In brief, based on the anticipated date of commercial operation of 10 ongoing projects of NHPC, SJVNL and THDC it is reasonable to conclude that a period of 9 years to 19 years would be taken by these CPSEs from conceptualisation to commercial operation of these projects.

Delays in commissioning of projects have led to CPSEs losing the opportunity of generating 26282.97 MUs of electricity annually (as per the DPRs). Further, additional return on equity to the tune of ₹1474.57 crore permissible under CERC Regulations, 2009 has also been foregone by the CPSEs.

8.2 Recommendations

Based on the audit findings, the following recommendations are made:

Ministry of Power, Government of India

1. MOP should coordinate with concerned State Governments and other authorities like CEA, MOEF, MOWR for timely preparation of DPRs, allocation of projects and monitor progress of projects to ensure timely completion of projects for exploitation of hydro power potential in India. Desirability of a High Powered Committee chaired by Secretary (Power) with Members from other nodal Ministries/State Governments as a single window mechanism to monitor and expedite the process of necessary clearances should be explored.
2. The Hydro Policies 1998 and 2008 of GOI allowed State Governments to select developers through MOU route for hydro projects up to 100 MW only and follow a transparent procedure for awarding potential sites to the private sector. MOP, through its oversight role, should therefore impress upon the State Governments to allocate hydro power projects above 100 MW to the developers in a fair, transparent and competitive manner.

NHPC Limited, SJVN Limited, NEEPCO and THDC India Limited

3. CPSEs should ensure that adequate survey and investigation are conducted before preparation of DPR to mitigate the risk of subsequent geological surprises during project execution and consequential increase in volume of work, change in design and resultant Time/Cost overruns.

4. CPSEs should adhere to the established best practices for PQ criteria, bidding and contract management to eliminate the possibility of unfair advantage to some bidders over the others.
5. CPSEs should make their long term plan in line with the GOI Hydro Policy and start their preparedness much in advance as it takes about 10 years from conception to commissioning of a Hydro project.
6. CPSEs should streamline their internal control systems and monitoring mechanism to ensure adherence to the contractual terms by the bidders.



(A K PATNAIK)

Deputy Comptroller and Auditor General
and Chairman, Audit Board

New Delhi
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Countersigned



(VINOD RAI)

Comptroller and Auditor General of India

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