

**REPORT  
OF THE COMMITTEE CONSTITUTED  
BY  
MINISTRY OF POWER**

**(MoP Office Order No. 14-4/14/2021 - H.I (260146) Dated 09.12.2021)**

**To examine the Contractual Issues  
and different Modes of Contracting  
in Hydro Power Projects**

**January, 2023**

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## 1.0 BACKGROUND:

The issue of viability of tariff of the present under construction hydro projects and upcoming hydro projects has emerged during the last few years. It has been observed that many of the present under construction hydro projects and even hydro projects commissioned during the last few years have no PPA, since the tariff of these projects is higher compared to tariff of electricity from other sources. The issue was deliberated in a meeting chaired by Secretary (Power) on 24<sup>th</sup> November, 2021 and it was observed that one of the main reasons for delay in project is due to contractual issues. It was decided to constitute a Committee comprising of Sh. R.K.Vishnoi, CMD THDC India (Chairperson), Sh. Ajay Talegaonkar, Chief Engineer (FCA), Sh. Biswajit Basu, Director(Projects) NHPC, Sh. S.P. Bansal, Director(Civil) SJVN and Sh. Hemanta Kumar Deka, Director(Technical) NEEPCO to study the aspects related to role of type of contracting in expediting projects and improvement in contractual provisions to facilitate expeditious completion of the projects.

With the fast depleting fossil fuels and enhanced environmental concerns including international obligations towards controlling emissions of gases, the need to increase and shift dependence on hydro power generation for development and prosperity of the nation has become compulsive. India has a hydro power potential of about 1,45,000 MW (above 25 MW) besides about 94,000 MW pump storage schemes. As on 31.12.2021, installed capacity of hydro power (above 25 MW) in India is about 46,500 MW. Thus, so far we have harnessed only about 32 percent of the total assessed conventional hydro potential. In view of the distorted hydro-thermal mix and the inherent benefits of hydro power viz. clean source of energy, quick start and stop capability, black start capability, reactive power capability, water security, flood moderation, development of backward areas, large scale employment during construction period, infrastructure development, long life of project, inflation free power, etc., hydro power needs accelerated development through suitable policy initiatives and other incentives.

In the recent COP26 Summit at Glasgow, India has committed to take its non-fossil energy capacity to 500 GW by 2030 and meet 50 percent of its energy

requirement from renewable energy by 2030. The power produced from solar and wind plants are intermittent power and may not be available during periods of peak requirement. For peaking requirements, the system would need storage capacity. Hydropower projects with pondage or storage are good, efficient and reliable source of energy during peak demand. This storage capacity can also be provided by pumped storage schemes, wherein the water from lower reservoir can be pumped to higher elevation during off-peak period and utilize such a stored water to produce power in periods of peak demand.

The Hydro Power projects are different from other infrastructure/ Thermal/ Solar/ wind Power projects due to the following reasons:

- Remote location.
- Poor communication/Road-Rail connectivity and civic facilities.
- Difficult and hazardous conditions.
- Availability of limited information on physical aspects of the project, foundations and soil characteristics etc.
- Being in hilly terrain, risks are associated with variable physical ground conditions e.g. sub-surface, landslides, hydrological conditions e.g. floods and unfavorable climatic / weather conditions.
- Limitations on working season.
- Long gestation period
- R&R, socio-political / policy issues.
- Forest, Environmental issues.
- Limited availability of competent/resourceful contractors/vendors.
- Complex contract administration.

As such, in hydro power projects, it becomes more difficult to manage timely completion of project. For timely completion of hydro projects, proper contract administration and timely decision-making process are important aspects. Presently the major reason for slow progress in the hydro projects is due to fund constraints with the Civil Works contractors, inadequate deployment of proper machinery / equipment, delay in decision making related to contractual matters etc. Abnormally high/ low quotes by the bidders, inability of furnishing

the Bank Guarantees, poor participation by the bidders etc. has also delayed the award of works in many projects.

For development of hydropower projects, contract failure had been one of the most common cited reasons for delay in project completion. Management of contract starts much earlier than the award of contract. As such, selection of proper type of contracting, drafting of a well-balanced tender document, properly framed tender estimate, effective evaluation of the bids and administration of contract in the field by competent contract management team is essentially required for any contract to be successful. Procurement for project implementation mainly comprise of major contract packages for Civil, Electro-mechanical and Hydro-mechanical contracts. Electro-mechanical and Hydro-mechanical contracts have about 90% off-site activities, whereas the Civil works involves 100% on-site activities fraught with lot of uncertainties.

Presently, most of the contracts have been awarded on item rates basis. There are no set of guidelines which can be considered for deciding the mode of contracting. Every organization has its own set of experiences and based on these experiences, practice of the mode of contracting is continuing. There is need to frame guidelines for selecting appropriate mechanism for contracting to be adopted for execution of hydro power projects i.e. whether it is EPC/Turnkey contract or Item Rate contract.

Also at present, each CPSU follows its own Standard Bidding Document. There is a need to devise common set of conditions for better contract formulation and administration for execution of hydro power projects by CPSUs after detailed discussions with stake holders i.e. Hydro CPSUs, World Bank, Contractors, consultants etc. to avoid time & cost over runs and disputes with contractors. There should be a balance approach towards sharing of risk between contractor and developer for the best interest of the project.

MoP vide Office Order No. 11/35/2020-NHPC dated 09.03.2021 constituted a committee to suggest remedial measures as well as amendments in the existing Contract and bidding documents for avoiding disputes and also for settling the disputes expeditiously after study of relevant provisions, laid down

in respective contractual/ bidding documents, NITI Aayog Guidelines and the Arbitration and Conciliation Act etc. The Committee submitted Final Report in November, 2021.

Further, Ministry of Power vide Office Order No. 11/35/2020-NHPC dated 09.12.2021 constituted the present committee under the Chairmanship of Sh. Rajeev Kumar Vishnoi, CMD, THDC India Limited to study Arbitration cases, Kanwar Singh Committee recommendations, CVC circulars and World Bank document and make recommendations on merits and demerits of EPC and item rate contract and restructuring of relevant provisions of contracts for faster implementation of Hydro Power Projects.

## 2.0 CONSTITUTION OF COMMITTEE:

MoP vide Office Order No. 14-4/14/2021-H-I (260146) dated 09.12.2021 constituted a committee with the following members: -

Sl. No.	Name & Designation	Designation with respect to committee
1	Sh. Rajeev Kumar Vishnoi, CMD, THDC India Limited	Chairperson
2	Sh. Ajay Talegaonkar, Chief Engineer (FCA)	Member
3	Sh. Biswajit Basu, Director (Projects), NHPC Limited	Member
4	Sh. S.P. Bansal, Director (Civil), SJVN Limited	Member
5	Sh. Hemanta Kumar Deka, Director (Technical), NEEPCO	Member

The MoP Office Order No. 14-4/14/2021-H-I (260146) dated 09.12.2021 regarding constitution of committee is placed at **Annexure-I**. The committee was mandated to submit its report by 8th January, 2022.

The committee co-opted for inclusion of Sh. Manoj Tripathi, Chief Engineer (Hydro Project Monitoring), CEA as member during the 1st meeting of the Committee.

Sh. Shanker Lal, Lead Procurement Specialist from World Bank was requested vide e-mail dated 22.12.2021 to give his consent to be associated in the Committee as decided by the Committee in its first meeting held on 19.12.2021. Sh. Shanker Lal, Lead Procurement Specialist from World Bank vide e-mail dated 29.12.2021 expressed his inability to join the Committee.

However, he has agreed to share global experience and best practices in hydropower sector contracting.

Sh. Hemanta Kumar Deka, Director (Technical), NEEPCO was superannuated on 28.02.2022. Subsequent to his superannuation, Sh. V. K. Singh, CMD, NEEPCO has been nominated for the Committee from NEEPCO till his superannuation i.e., 31.05.2022. After the superannuation of Sh. V. K. Singh, Sh. Samiran Goswami, CGM(C) I/c Contract & Procurement has been nominated for the Committee from NEEPCO Ltd.

Sh. Sushil Sharma, Director (Electrical), SJVN Ltd. has been nominated for the Committee in place of Sh. S. P. Bansal from SJVN Ltd.