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

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

CONTENTS

Annexure-VII	Views/ suggestions of NHPC Ltd.	
Annexure-VIII	Views/ suggestions of THDCIL.	
Annexure-IX	Views/ suggestions of Larsen & Toubro Limited.	
Annexure-X	Views/ suggestions of R.M. Sinha & CO.	
Annexure-XI	Views/ suggestions of Andritz Hydro Private Ltd.	
Annexure-XII	Views/ suggestions of Afcons Infrastructure Ltd.	
Annexure-XIII	Views/ suggestions of Hindustan Construction Co. Ltd.	
Annexure-XIV	Views/ suggestions of Voith Hydro Pvt. Ltd.	
Annexure-XV	Views/ suggestions of World bank	

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 24th 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.

3.0 THE TERMS & REFERENCE OF THE COMMITTEE:

The terms and Reference of the committee is to give recommendations on:

(i) whether EPC contracts or item rates contracts are more viable and under which circumstances

(ii) restructuring relevant provisions of contracts as recommended after study of

a. Arbitration cases
b. Kanwar Singh Committee recommendations
c. CVC circulars
d. World Bank recommendations

Further, in the meeting held on 17.01.2022, Secretary (Power) directed that Committee shall broaden its scope to cover a unified comprehensive strategy on how to structure contracts and improve contract management system for execution of hydro projects, measures to minimize the disputes and need of arbitration, check time and cost overrun and make HEPs cost efficient may also be examined.

4.0 MEETINGS OF THE COMMITTEE:

4.1 <u>The Committee had its 1st meeting on December 19th, 2021 at THDCIL NCR office, Kaushambi. Committee deliberated on the terms and reference and took following decisions:</u>

- To have at least one Committee meeting each in the offices of CEA and Hydro CPSEs i.e. NHPC, SJVN, NEEOCO and THDC. It was also agreed to have one meeting at World Bank headquarter who have very good experience of contracting in Asian countries.
- To hold a Conference in Feb. 2021 which will culminate the proceedings of the Committee. All stake holders, contractors, consultants, experts, officials from World Bank, Hydro CPSUs, CEA etc. will be invited to participate in the Conference.
- To take the suggestion of the contractors who are actually working on the field. The Committee can focus on few important issues which will be emerged from contractors' suggestions at the time of meeting with stakeholders/ contractors.
- To co-opt Sh. Manoj Tripathi, Chief Engineer (Hydro Project Monitoring), CEA in the committee who has good experience in this field and was part of the other committees earlier also.
- To take views of all Hydro CPSUs regarding mode of contracting, their merits & demerits and their comments on improvement of important contract clauses. All the CPSUs were requested to share experience and provide data/inputs related to the contracts which have been awarded by them by 30.12.2021.
- It was decided to nominate one officer by each CPSU for coordination.
- It was agreed to have the next meeting on 7th-8th Jan, 2022, at NEEPCO, Headquarter, Shilong.

The Record notes of the meeting of the committee are enclosed at **Annexure-II.**

4.2 **<u>The Committee had its 2nd meeting on 10th Jan,2022 via virtual mode and deliberated on the terms and reference. The gist is as under:</u>**

- The mode of contracting for hydro projects was discussed in detail and it was concluded that EPC contracts may be undertaken in projects where there are not substantial underground works. Further extensive geological investigations are to be done in such projects with a cap on risk to the contractor.
- NEEPCO gave a presentation on the various issues related to contractual matters.
- It was decided that the discussion in the next meeting will focus on views of each of the CPSE's, Contractors and World Bank on the various agenda items related to contractual issues. A comparative chart will be prepared for each of the aspects.

The Record notes of the meeting of the committee are enclosed at **Annexure-III.**

4.3 **<u>The Committee had its 3rd meeting with CMDs of Hydro-CPSEs on 19th Jan, 2022 via virtual mode and deliberated on different mode of contracting for hydro projects. In this meeting, various Hydro-CPSEs submitted their views regarding different mode of contracting for hydro projects:</u>**

- NHPC stated that as availability of competent contractor(s) is a major issue in Hydro Sector, selection of Packages / Turn Key / EPC mode of contract should be considered on case to case basis considering the factors as brought out above (compactness, law and order, quantum of underground works associated unforeseen risk, local issues, investigation details available). As such, the option to choosing the mode of contracting should be left with the PSU to decide.
- NEEPCO stated that the choice of adopting the right mode of contracting as below in hydro projects may be left to the developers to be decided on a case to case basis.
    - Single EPC Contract- Turn Key type

- Multiple EPC contracts for EM, HM and Civil Packages.
- Composite Contracts with EPC for EM & HM works and Item-rate Contract for Civil works.
- Multiple Package contracts on item rate basis for EM, HM and Civil Packages.

- SJVN stated that the choice of the mode of contracting whether Turnkey, Two-EPC or Item-rate will depend on a no. of factors viz. the extent of underground works involved in the project, Value of the Contracts and availability of contracting parties. Therefore, a one-size-fits-all approach may not be appropriate and the decision in this regard is best left to the developer of the Project.

The Record notes of the meeting of the committee are enclosed at **Annexure-IV.**

4.4 <u>The Committee had its 4th meeting on 04th Feb, 2022 via virtual mode. In this meeting, the Committee deliberated on the views received from all Hydro-CPSEs.</u>

- After detailed deliberation on the views received from all Hydro-CPSE, it was decided that a draft report shall be prepared and circulated among Committee members and the same will be further discussed in next committee meeting.

4.5 <u>The Committee had its 5th meeting on 14th March, 2022 at THDCIL NCR office, Kaushambi.</u>

- In this meeting, detailed discussions were held on the Draft report.
- It was decided that after suitable modifications, the draft report shall be finalized by circulating among Committee members.

4.6 <u>The Committee had its 6th meeting on 29th April, 2022 via virtual mode.</u> In this meeting:

- Detailed discussions were held on the various points of the earlier circulated Draft report.
- Detailed discussions were held on the Contractors' views/suggestions received vide e-mails.

4.7 **<u>The Committee had its 7th meeting on 09th September, 2022 via virtual mode.</u>**

- In this meeting, detailed discussions were held on the various points, suggested for further deliberations in the Review Meeting under the chairmanship of Secretary (Power) held on 22.06.2022.

4.8 **<u>A Review Meeting held on 22.12.2022 at Shram Shakti Bhawan, New Delhi.</u>**

- A Review Meeting, under the chairmanship of Hon'ble Minister of Power, New & Renewable Energy, held on 22.12.2022 on the Report submitted by the Committee at Shram Shakti Bhawan, New Delhi.
- In this meeting, detailed discussions were held on the various points of the report. The committee accordingly incorporated the points and updated its report.

5.0 VIEWS/SUGGESTIONS OF STAKEHOLDERS:

5.1 Comments of CPSEs:

5.1.1 CPSEs were requested vide letter No.THDCIL/NCR/Arbitration Committee/F-220B/607 dated 22.12.2021 to share their experience and provide valuable views /suggestions with respect to Hydro-power projects considering Hydro-Mechanical works, Electro-Mechanical works & Civil works, on the following points:

(i) Viability of EPC contracts or item rates contracts along with circumstances thereof

(ii) Comments on various contract clauses of different hydro-power project contracts, like:

a. Qualifications/Eligibility requirement
b. Scope of work
c. E-reverse bidding process
d. Variation and adjustment
e. Adjustment for change in laws
f. Payment (Down payment, Interest bearing payment, Progressive payment related clauses, Bank Guarantee etc.)
g. Claims procedure
h. Force majeure
i. Risk sharing methodology
j. Procedure for the payment of the idling cost to the Contractor
k. Incentive clause for early completion of works
l. Construction Methodology
m. Equipment advances
n. Any other addition in Contractual condition, for which CPSE may like to propose for smooth execution of works.

(iii) Additional Suggestions, if any.

In addition to the above, it was also requested to furnish the desired information (Project-wise) in the attached Format.

5.1.2 Comments of NEEPCO:

NEEPCO has submitted their views/suggestions vide email dated 31.12.2021 and the same is placed at **Annexure-V.**

5.1.3 Comments of SJVN:

SJVN has submitted their views/suggestions vide email dated 05.01.2022 and the same is placed at **Annexure-VI.**

5.1.4 Comments of NHPC:

NHPC has submitted their views/suggestions vide letter no. NH/Dir(Proj)/Misc./2022/7 dated 05.01.2022 and the same is placed at **Annexure-VII.**

5.1.5 Comments of THDC:

THDC has submitted their views/suggestions vide email dated 06.01.2022 and the same is placed at **Annexure-VIII.**

5.2 <u>Views/Suggestions of Contractors:</u>

Contractors were requested vide letter No. THDCIL/NCR/Arbitration Committee/F-220B/606 dated 22.12.2021 to share their experience and provide your valuable views /suggestions with respect to Hydro-power projects considering Hydro-Mechanical works, Electro-Mechanical works & Civil works, on the following points:

(i) Viability of EPC contracts or item rates contracts alongwith circumstances thereof

(ii) Comments on various contract clauses of different hydro-power project contracts, like:

a. Qualifications/Eligibility requirement

b. Scope of work

c. E-reverse bidding process

d. Variation and adjustment

e. Adjustment for change in laws

f. Payment (Down payment, Interest bearing payment, Progressive payment related clauses, Bank Guarantee etc.)

g. Claims procedure

h. Force majeure

i. Risk sharing methodology

j. Procedure for the payment of the idling cost to the Contractor

k. Incentive clause for early completion of works

l. Construction Methodology

m. Equipment advances

n. Any other addition in Contractual condition, for which CPSE may like to propose for smooth execution of works.

(iii) Additional Suggestions, if any.

5.2.1 Comments of Larsen & Tourbro:

Larsen & Tourbro has submitted their views on contract clauses & different modes of contracting in hydro power projects vide their letter dated 30.12.2021 and the same are placed at **Annexure-IX.**

5.2.2 Comments of R.M. Sinha & Co.:

R.M. Sinha & Co. has submitted their views on contract clauses & different modes of contracting in hydro power projects vide their letter dated 30.12.2021 and the same are placed at **Annexure-X.**

5.2.3 Comments of ANDRITZ Hydro Private Limited:

ANDRITZ Hydro Private Limited has submitted their views on contract clauses & different modes of contracting in hydro power projects vide their letter dated 05.01.2022 and the same are placed at **Annexure-XI.**

5.2.4 Comments of AFCONS Infrastructure Limited:

AFCONS Infrastructure Limited has submitted their views on contract clauses & different modes of contracting in hydro power projects vide their letter no. HYDRO/SGP/2273 dated 29.12.2021 and the same are placed at **Annexure-XII.**

5.2.5 Comments of Hindustan Construction Co. Ltd. (HCC):

HCC has submitted their views on contract clauses & different modes of contracting in hydro power projects vide their letter no. HYD-S/MT/003 dated 6.01.2022 and the same are placed at **Annexure-XIII.**

5.2.6 Comments of Voith Hydro Pvt. Ltd.:

Voith Hydro Pvt. Ltd has submitted their views on contract clauses & different modes of contracting in hydro power projects vide their email dated 07.01.2022 and the same are placed at **Annexure-XIV.**

5.3 Views/Suggestions of World Bank:

Sh. Shanker Lal, FCIPS, Lead Procurement Specialist, The World Bank has submitted comparison of two popular contracting models used for hydro projects vide e-mail dated 06.01.2022 and the same is placed at **Annexure-XV.** It was further brought out that the choice of Contract depends on factors like size/complexity of the package, level of uncertainties including the anticipated potential for change of scope or design, capacity of Employer, availability of qualified contractors, legal and regulatory environment in the country as well as the level of involvement the Employer wants to have in the execution of the project. Hence a fit-for-purpose approach needs to be taken based on the merits of each case.

6.0 DELIBERATIONS OF THE COMMITTEE:

6.1 Different modes of Contracting - EPC or Item rate – which one is better for faster execution or criteria for any project:

The Committee adopted the following definitions with respect to different modes of contracting:

1. **EPC Contract:** An EPC Contract covers Engineering, Procurement and Construction part of the project/package. Employer will provide basic engineering to a contractor and based on this, the later shall perform detailed design.
2. **Turnkey Contract:** Turnkey means a procurement process where one service provider assumes total responsibility for all aspects of the project and delivers the full end product / service required by the contract. The Turnkey contractor begins the work from scratch and deliver the end project which can be put to use immediately where as in EPC contract, generally the major works of the project including design are executed by the contractor but the infrastructure works are get done by the owner.
3. **Item-rate Contract**: An item rate contract is the type of contract in which the contractor agrees to carry out the work as per drawings and specifications considering the payment made entirely on the basis of measurements taken as the work proceeds and at the unit price tendered by the contractor in the bill of quantities

6.1.1 Views of CEA

Hydro Projects being executed by the CPSE's under the Ministry of Power are presently executing major Civil/ E&M/ HM contracts for their hydro projects mainly based on the FIDIC suite of contracts viz. Red Book for Item rate contracts for procurement of civil works, Yellow Book for procurement of E&M/ HM works and Silver Book for Turnkey/ EPC contracts.

Turnkey/ EPC contracts are popular in the developed nations and also picking pace in the developing economies due to large expectations from this mode of contract by the major stakeholders viz. Owners & Financiers. Turnkey/ EPC contracts are considered to provide better certainty of cost (and also time) since the risk of the unforeseen ground conditions is the responsibility of the

contractor. FIDIC, however, recommends it to be used under certain conditions and not to be universally adopted for each and every project.

a) Use of Turnkey/ EPC contracts for hydro projects-

The Turnkey/ EPC contracts may be used considering the following aspects related to recommendations of the FIDIC, expectations of the various stakeholders, availability of sufficient EPC contractors, recommendations of the Government and past experience on the success of the EPC/ Turnkey contracts.

i) Boundary Conditions for use as per FIDIC-

The FIDIC Silver Book was produced in 1999, in response to a perceived need for a form of contract 'where certainty of final price, and often of completion date, are of extreme importance. Its publishers also recognized that turnkey projects are popular in project financed deals, where lenders require greater certainty about a project's final costs than is allowed for under contracts that reflect the traditional allocation of risks, such as FIDIC's Red and Yellow Books. Later on, FIDIC based on its experience brought out the second edition of the Silver Book during year 2017.

ii) FIDIC has recommended that EPC/ Turnkey contracts should be used under the following circumstances for infrastructure/ hydro projects-

- The Employer wishes the Contractor to take total responsibility for the design and construction of the infrastructure facility,
- Employer wishes a higher degree of certainty that the agreed contract price and time will not be exceeded, except that if underground works in uncertain or difficult ground conditions are likely then the risk of unforeseen ground conditions should be borne by the Employer (and the provisions of the Plant and Design-Build Conditions in this respect - Sub-Clause 4.12 - would be appropriate),
- The Employer wishes - or is used to - the Project being organized on a strictly two party approach, i.e. without an "Engineer" being

involved and the Employer does not wish to be involved in the day-to-day progress of the construction work, provided the end result meets the performance criteria he has specified, and

- The Employer is willing to pay more for the construction of his Project (than would be the case if the Conditions of Contract for Plant and Design-Build were used) in return for the Contractor bearing the extra risks associated with enhanced certainty of final price and time.

iii) FIDIC states that the Silver Book is not suitable for use in the following circumstances-

- If there is insufficient time or information for tenderers to scrutinize and check the Employer's Requirements or for them to carry out their designs, risk assessment studies and estimating;
- If construction will involve substantial work underground or work in other areas which tenderers cannot inspect, unless special provisions are provided to account for unforeseen conditions or
- If the Employer intends to supervise closely or control the Contractor's work, or to review most of the construction drawings.

b) Expectations of the Stakeholders-

The major stakeholders with regard to the contracting mechanism to be applied for hydro projects of CPSE's are owners (Government as equity holders), Debt infusers viz. Banks/ FI/ MBD and the Contractors. The expectations of the stakeholders are as under-

i) Owners/ Management- The owners/ equity holders (including Government in case of CPSE's) will certainly look for least time and cost overrun. As per NITI Aayog OM dated 5th Sept,2016 regarding revival of the construction sector, it has been recommended to substitute Item Rate contracts by EPC/ Turnkey contracts, wherever appropriate. The Government is also now very serious in clearing RCE proposals and needs certainty in completion cost of the hydro projects.

ii) Financiers- The financiers always look for certainty in the completion cost and EPC/ Turnkey contracts suits them the best. As per the recommendations of the World Bank vide their e-mail letter dated 6th

Jan,22, they have stated that “FIDIC Redbook (Item Rate Contracts) is not very popular for large power projects as it puts additional risks/ responsibilities on Employer”.

iii) Contractors- Since the risk of the unforeseen ground conditions is being transferred to the contractor in case of EPC/ Turnkey projects, so most of the Contractors are not comfortable with EPC contracts. The other reason behind this is the poor financial health of most of the major civil contractors presently executing civil contractors. However, few contractors like L&T which are financially sound and use to EPC contractors welcome this mode of contracting. As per M/s L&T, EPC Contracts gives the Contractor’s a better opportunity to optimize the design which in turn leads to cost optimization. However, projects which are confidential in nature, in sensitive zones and for the projects wherein the entire details cannot be shared; Item Rate Contracts may be operated.

c) Availability of EPC contractors-

At present most of the civil contractors viz. HCC, Patel, Gammon, JAL, Coastal, etc. executing hydro projects are experiencing poor financial health and so the risk capability is also reduced. Further, the working capital of these companies is not such to execute large hydro projects. Hence, most of the contractors are not comfortable with EPC projects.

d) Past and present analysis of EPC/ Turnkey contracts-

During the last 25 years, it has been observed that only about 10 hydro projects have been commissioned in time/ nearly on time. These projects had been executed under both Turnkey/ EPC mode and Item rate basis. Presently out of the 36 under construction hydro projects (above 25 MW), it has been observed that about 10 projects are being executed under EPC/ Turnkey mode and rest on Item rate basis. Based on the present and the past scenario, it cannot be specifically stated that the Turnkey/ EPC projects are best suited to contain time and cost overrun, however, the trend shows that more EPC/ Turnkey contracts are being executed at present than the past. The success of any contract does not depend on the contracting mechanism only and depends on many other factors, viz. use of correct contract mechanism under

the specific conditions, equitable and clear contract conditions, expeditious dispute resolution mechanism, timely payments, use of modern equipment, experienced manpower, timely decision making, etc.

It was observed that NEEPCO, THDC and SJVNL has no prior history of completion of hydro projects on turnkey basis, however, THDC and SJVNL are presently executing hydro projects under EPC/ Turnkey mode of contracting.

6.1.2 NHPC views:

- **EPC Mode** of execution are feasible for projects located in smaller reach, compact in nature, less or no geological surprises (if quantum of underground works such as HRT, TRT, Diversion tunnels etc. are lesser in quantity and geological strata is favorable with limited variability), scope of work is not likely to vary and project cost is not too high so as to ensure availability of eligible and competent contractors. Law and Order conditions, availability of land for quarries / infrastructure should not hamper the progress of work in the future. This type of mode of executing is best suited for projects where the risk determined and perspective bidders can judge the local condition as well as the project profile appropriately.
- **Item Rate / Package mode** of contracts are suitable for large sized projects involving high cost and located in wider reaches, involving higher degree of geological surprises (high quantum of underground works) and scope of work could vary. It is suitable for works which can be split into various items, quantities under each item can be estimated with accuracy and where in-house capability for Design & Engineering and project management is available.
- **The success of contract** does not only depend on the adoption of type of contracting but also depends upon many other factors some of which are detailed hereunder:
  - (i) Choosing of correct mode of execution,
  - (ii) Contract administration in its true spirit,

(iii) Timely approval of extension of time (EOT), deviations, rate revision, extra items and payment of monthly running account (RA) bills and other related payments,

(iv) Timely dispute resolution and payment,

(v) Deployment of right equipment and construction methodology,

(vi) Deployment of sufficient experienced manpower,

(vii) Timely decision making etc.

NHPC has also adopted EPC mode of contracting for HM and E&M Packages.

- **Availability of contractors**- Most of the Major civil contractors viz. HCC Ltd, Patel Engg. Ltd, Gammon, Jai Prakash Associates Limited, Coastal, etc. having experience of executing hydro projects are experiencing poor financial health some of them or their associate / subsidiary companies are going through insolvency proceedings, so the risk bearing capability of contractors has been substantially reduced. Further, the working capital of these companies is not such to execute large hydro projects on turnkey / EPC basis. Hence, most of the contractors are not comfortable with EPC projects.

As, availability of competent contractor(s) is a major issue in Hydro Sector, selection of Packages / Turn Key / EPC mode of contract should be considered on case to case basis considering the factors as brought out above (compactness, law and order, quantum of underground works associated unforeseen risk, local issues, investigation details available). As such, the option to choosing the mode of contracting should be left with the PSU to decide.

6.1.3 SJVN views:

All modes of contracting, item-rate as well as EPC/Turnkey contracts have their own advantages and limitations. Item-rate contracts offer better risk distribution, especially when uncertainties are higher with substantial underground works. But at the same time, item rate contracts are beset with time and cost overruns. EPC contracts though provide better time and cost certainty but the initial quotes are substantially higher. However, these higher quotes are offset by lower cost overruns during project executions.

Weighing-in all the pros and cons of item-rate and EPC contracts, SJVN has decided to adopt two-EPC mode where underground works are not substantial.

Based on the foregoing, EPC (Civil & HM works as one package and EM separate EPC contract) is most preferred in comparison to Item Rate. We are also not averse to the idea of having one package i.e. Turnkey contact. EPC/Turnkey mode of Contract should be avoided for projects which involve substantial underground works. However, if opted, suitable risk-sharing mechanism for underground works must be included in the Contract.

But it would depend on the features of the particular project as hydro projects are bespoke designed. As of now SJVN is executing two Dam-toe powerhouse projects in Two-EPC mode and is in the process of awarding works on another project also on this mode.

Therefore, the choice of the mode of contracting whether Turnkey, Two-EPC or Item-rate will depend on a no. of factors viz. the extent of underground works involved in the project, Value of the Contracts and availability of contracting parties.

Therefore, a one-size-fits-all approach may not be appropriate and the decision in this regard is best left to the developer of the Project.

6.1.4 THDC views:

Implementation of Civil Works of Hydro Projects, inherent uncertainty is involved in respect of topography, geology, hydro-geology etc. Due to this detailed design & construction methodology of contractors finalised during execution may widely vary as compared to their bidding stage design & methodology conceived in their bid leading to claims & disputes. Therefore, EPC Contract may not be a successful model for execution of such works unless an appropriate risk sharing mechanism is made a part of tender document. The risk of ground conditions in particular where substantial underground works are involved should rest with the Project Developer and should not be transferred to the Contractor. Further, EPC model does not provide adequate contractual window to the client to intervene in the event of non-performance of the contractor.

Contrary to above, in item rate tenders, contractors are required to quote rate for each individual items of work on the basis of Bill of quantities (BOQ) provided by the Procuring Entity in the Bid Documents. Reasonable variations in quantities are also allowed during the execution in terms of the contract.

Accordingly, Item rate contracts which can salvage the project from the uncertainties may be better to be followed for Civil Works Contract Packages However, in case of Electro-mechanical and Hydro-mechanical works contract packages involving substantial off-site activities, EPC mode of Contract Condition may be followed.

Further, in Item Rates Contracts, it has been observed that contractors at times quote skewed rates comparison to estimated rates which cause problems in overall execution. Contractor is interested in executing high rated items and tries to increase the quantity of such items during execution. At the same time contractor avoids executing certain items which are low rated and tries to get substituted them by either rightly or highly priced items. In order to overcome such issues, the Bill of Quantity could be split in two parts. One those items, on which Developer is confident about productivity methodology and cost of input or those items for which rates are available in standard schedule of rates. Estimated rates of such items may be disclosed to the bidders and bidders may be asked to quote percentage above or below the estimated rates for the total group. Other items, whose productivity, construction methodology and cost of input are not certain, or which are not available in the standard schedule of rates, contractor may be allowed to quote their own rates of such individual items.

6.1.5 NEEPCO views:

In EPC Contract, reliance of the Client is concentrated on a single contractor. As a result, the success of executing the project largely depends on the performance of the EPC contractor.

Hydro Power Projects involve various complexities including sub-surface works and geological surprises in various work fronts. Further, the location of Hydro Power Project is mostly remote which lacks infrastructure, accessibility and other facilities. In consideration of these inadequacies, there could be a potential risk involved in relying upon a single EPC Contractor.

In Hydro Power Project executed under Package Contracts, the risks arising out of inadequacies are spread over different contractors which could be advantageous in risk mitigation.

In consideration of the above, while aligning with the view offered by Kanwar Singh Committee in its report Dated May, 2019, EPC contracts can be considered for works involving less uncertainties like Electro-Mechanical and Hydro-Mechanical works. Item Rate Contracts could be advantageous for the Civil works involving sub-surface activities.

6.1.6 World Bank Views:

Comparison of FIDIC Yellow Book with Silver Book:

Sl. No.	Yellow Book	Silver Book
1	This Contract model stipulates a single point responsibility on the Contractor to design and build a project fit for purpose stated in the Employer's requirement.	This Contract Model assigns a single point responsibility on Contractor to establish a turnkey project, capable of delivering the functional expectations and meet the performance criteria set out in the Employer's requirement.
2	When balanced risk sharing between Employer and Contractor is to be planned based on capacity to manage the respective risks by both the parties.	When Contractor is required to take wider range of risks including unexpected Site and Ground conditions at the project location and performance expectations.
3	When Employer is expecting lower price of Contract and is accepting further increase in costs only when the particular unforeseeable risks on his side actually eventuate.	When Employer is seeking certainty of final price and completion date but is willing to pay more for firm commitment of Contractor to deliver the expected performance.
4	Contractor is expected to quote competitive prices, since he need not evaluate those risk (taken by the Employer), which he cannot manage.	When Employer is willing to pay more since most of the risks are to be taken over by the Contractor.
5	The Contractor is expected to do detailed designing based on substantial guidance provided in Employer's requirement, about major features of the project.	Contractor is required to have competency to analyse Employer's requirement to convert it into the desired objective of expected project performance.
6	Contractor is required to face the Force Majeure events but is granted	Contractor is required to manage most of Force Majeure events,

Sl. No.	Yellow Book	Silver Book
	relief in time and cost to manage them properly.	adversely affecting the project except for risks of war, terrorism, and civil disturbance, which will be compensated by the Employer.
7	Employer's requirement is provided with major choices and parameters and Contractor is required to convert into proper design and detailed engineering to meet the performance expectations.	Employer's requirement provided here is supposed to describe the principles and basic design concepts of the Plant, only on functional basis and the Contractor is required to convert it into working design, meeting the performance expectations.
8	Tendering procedure with normal time to assess and prepare the offer based on Employer’s major choices and general arrangement is sufficient for Contractor's offer.	Tendering procedure should allow sufficient time for investigation of site and initial design by the Contractor for proper pricing of the project.
9	Design engineering proposal in line with basic scheme suggested in the Employer's requirement.	Contractors would be allowed to offer design solution, best suited to his engineering capability and experience.
10	Tendring process will normally not require any interaction between Employer and Contractor since the basic design scheme is provided by the Employer.	Tendering process to permit discussion, if required between Employer and the Contractor about technology and commercial conditions.
11	The Contractor is expected to follow the time schedule mutually agreed by both the parties and to maintain it by corrective measures if it goes behind schedule during execution.	On award the Contractor should be allowed to plan and carryout the Work in his chosen manner, provided the end results meet the performance criteria set out by the Employer.
12	The Engineer appointed by the Employer can monitor the progress of Work regularly and seek revised schedule to completion, if the execution is behind schedule due to any reason.	Employer through its Representative should exercise limited control over the Contractor's work and should in general not interfere with the Contractor's work. Separate PMC Engineer shall not be appointed, and Employer's representative will look after the project.
13	The Employer's Engineer will have power to decide all matters referred to him by Contractor. The Engineer can	Employer can follow progress of the Work and be assured that the agreed time schedule is being followed and

Sl. No.	Yellow Book	Silver Book
	review the progress from time to time and seek compliance about the quality control test specified in the Contract along with test results.	the quality of construction is being maintained.
14	The Contractor is required to meet the various tests specified under “Test on Completion” and “Test after Completion” to the satisfaction of the Employer's Engineer.	The Contractor has to prove the reliability and performance of his plant and equipment to the Employer's satisfaction despite the intermediate tests being otherwise satisfactory.
15	This model is suitable for following expectations of the Employer about the project: a) If Construction work involve substantial underground work or project areas which tenderer cannot inspect. b) If the Employer intends to closely supervise and control the Contractor's Work including review of most of the Construction drawings. c) If the Interim payments are to be released after the decision by an officer of the Employer on his assessment.	This model is not suitable for following expectations of the Employer about the project: a) If Construction work involve substantial underground work or project areas which tenderer cannot inspect. b) If the Employer intends to closely supervise and control the Contractor's Work including review of most of the Construction drawings. c) If the Interim payments are to be released after the decision by an officer of the Employer based on his assessment.
16	If there are any Errors in the Employer's requirement, the Contractor is expected to check or correct them except for those errors, which he will not be able to locate easily. Price variation shall be allowed for serious errors in Employer's data.	If there are any errors in the Employer's data, the Contractor is expected to notice it and correct it without seeking any relief from the Employer since he is fully responsible for proper performance of the project.
17	Yellow book is silent about any pre-tender meeting between Employer and Contractor, probably because the Employer's Requirement are stated in good details (which does not require meeting for any clarification).	Silver Book encourages the meeting of Tenderer before he submits his proposal for mainly design and scope related queries and discussion to understand the Employer's expectations.
18	The Employer shall appoint PMC/ Engineer to monitor and control the project on his behalf, with the	The Employer shall not appoint PMC/ Engineer to monitor the project. However, the Employer's

Sl. No.	Yellow Book	Silver Book
	Engineer's power clearly mentioned in the General Conditions.	Representative shall be appointed to supervise and control the Project as mentioned in General Conditions.
19	The Design Build project under Yellow Book will be monitored by PMC or Engineer on behalf of Employer in the meticulous details as provided in the General Conditions.	The EPC Turnkey Project under Silver Book will be supervised by Employer's Representative without going into very detailed monitoring of the progress and the PMC/ Engineer shall not be appointed.
20	During the execution, if there are any claims issues related the variation in scope or delays to completion, the Employer's Engineer is authorized to agree by consensus of both the parties or to determine the issue by fair and neutral decision which both parties will have to abide by during execution and challenge it at DAAB body if required.	During the execution if there are any claim issues related to variation in scope or delays to the completion, the Employer's Representative is authorized to agree by consensus with the Contractor or determine the issue by his fair and neutral decision, which contractor will have to abide by though he can challenge the same with DAAB body If required.

Thus, the Contractors bear lesser risks in Yellow Book in comparison to Silver Book. In case the Employer has provided the design, he bears the responsibility for correctness of design in Yellow Book but not in Silver Book (where the Contractor is supposed to verify the design before accepting it). Similarly, the risks of unforeseen physical conditions are borne by Employer in Yellow Book, but this risk is transferred to Contractor in Silver Book. Of Course, these provisions could be modified to some extent through particular conditions on case-to-case basis.

6.1.7 Kanwar Singh Committee Recommendation:

EPC contracts be followed in projects involving Dam toe power house whereas for projects involving substantial underground works Item rate tenders should be resorted to. Even for EPC contracts the risk of variation in Dam foundation level beyond a limit (say $\pm$5m) shall be payable / recoverable from contractor. In exceptional cases where EPC tenders are resorted for underground works risks of sharing EGOs should be appropriately included in the Bid Conditions.

6.2 Review of qualifying/eligibility criteria:

6.2.1 Kanwar Singh Committee Recommendation:

The Committee recommends the following Qualifying Criteria:

6.2.1.1 Financial Qualification Criteria:

Turnover: Minimum average annual construction turnover shall be 1.5 times the annualized value of tendered work for the immediately preceding two consecutive financial years.

Net worth: Net worth in the immediate preceding financial year shall not be less than 25% of the paid up share capital.

Working Capital: Capacity to have a cash flow amount/working capital judged from the immediately preceding financial year as per the audited balance sheet / equivalent financial statements. The working capital shall be at least 3 times the monthly cash flow requirement i.e. estimated cost of Work x 3 / Construction period in months). Working Capital/Cash Flow amount shall be calculated by subtracting Current Liabilities (CL) from Current Assets (CA) i.e. (CA-CL) as per the audited balance sheet/equivalent financial statements of the immediately preceding financial year.

Bid Capacity:

Available Bid Capacity = (2 x A x N) – B

Where;

A= Indexed value of maximum value of works executed (in an on-going or completed project) in any one year during last 20 years, keeping index of inflation as 6% (compounded annually) for calculating A at present Price Level.

N= Completion period of the subject Contract Package in years.

B= Value of existing commitments and ongoing works to be completed in the next ‘N’ years.

The bid capacity shall be assessed at the time of submission of the Price Bid and should not be less than the estimated cost of the work.

6.2.1.2 Technical Qualifying Criteria:

General Experience: Bidder, should have experience of executing (includes completed and on-going projects) a Works Contract of value not less than 50% of the estimated cost of tendered work in preceding 15 years for contracts of estimated cost less than Rs.500 crores. For contracts, with estimated value of Rs.500 crores or more, the bidder should have experience of executing (includes completed and on-going projects) a Works Contract of value not less than 25% of the estimated cost of tendered work or Rs.50 Crores whichever is higher in the preceding 15 years.

Specific experience:

(a) Experience of executing (includes completed and ongoing projects) at least one civil work involving excavation/earth work of more than 50% of the estimated excavation quantities of tendered work in a single contract in last 20 years for contracts of estimated value less than Rs. 500 crores. For contracts with estimated value of Rs. 500 crores or more, the minimum requirement for excavation/earth work shall be 25% of the estimated excavation quantities of tendered work in a single contract in last 20 years.

(b) Experience of achieving progress rate of execution of excavation/earth work for any continuous period of 12 months (in a completed / on-going project) amounting to at least 50% of the required progress rate of excavation quantity for the tendered work in a single contract in last 20 years.

(c) Experience of executing (includes completed and on-going projects) at least one civil work involving concrete quantities of more than 50% of the estimated concrete quantities of tendered work in single contract in last 20 years for contracts of estimated value less than Rs. 500 crores. For contracts with estimated value of Rs. 500 crores or more, the minimum requirement for concreting shall be 25% of the estimated concreting quantities of tendered work in a single contract in last 20 years.

(d) Experience of achieving progress rate of execution of concrete quantities for any continuous period of 12 months (in a completed / on-going

project) amounting to at least 50% of the required progress rate of the concrete quantity for the tendered work in a single contract in last 20 years.

(e) In case of a unique structure, e.g. very high dam, tunnelling with TBM etc. the Project Developer may have an option to define component specific Qualifying Criteria for the critical component of project.

(f) Bidders not meeting the specified Specific experience criteria from Hydropower/ River Valley project, should necessarily engage sub-contractor/ consultant having experience of “construction” or "Construction Management Services” of Hydropower Project/ river valley projects. The Committee suggests the following qualifying criteria for hiring an agency as sub-contractor/ consultant for Construction Management Services:

(i) Construction Management or construction of Concrete Dam/Barrage/ Earthen Dam/ rock filled Dam/ RCC Dam of minimum ….m high (50% of required height).

(ii) Construction Management or construction of Power House of minimum …m wide for a Hydropower Project (50-80% of required width). In case of underground power house experience may be asked for cavern (50 to 80% of required width)

(iii) Construction Management or construction of at least one Tunnel by TBM/DBM as the case may be (50 to 80% of dia of the required tunnel)

(iv) Construction Management or construction of Shaft of minimum …m depth (50% of required depth).

(v) Also, whenever construction management agency is required to be associated as a sub-contractor/consultant, the interest of Developer shall be safeguarded by submission of Joint Deed of Undertaking and additional Performance Security by the sub-contractor/Consultant.

6.2.2 SJVN views:

Currently the QR being followed stems from report of Committee constituted by Ministry of Power vide Office Order No.15-18/20/2017-HYDEL-II (MOP) dated 26th July, 2017 *to study the situation and reasons including qualifying criteria etc. and suggest measures to increase competent vendors for speedy execution of hydro power projects',* referred to as Kanwar Singh Committee Report. The committee recommended relaxing the technical qualifying criteria in order to have wider participation and include non-hydro civil contractors. The committee proposed experience criteria based on quantum of excavation and concreting instead of specific components of hydro projects. The financial criteria were also appropriately strengthened.

The qualifying criteria recommended by the committee was relevant at that time. However, in the present scenario, sufficient number of hydro contractors are competing and relaxation in criteria is no longer required. It is anticipated that difficulties will arise during construction if lesser experienced parties are allowed. There are examples of hydro projects which got stalled/ abandoned due to technical issues during construction and in the process put huge amount of public money at risk. Loss to public exchequer can be avoided, if right technical advice is rendered/ applied at the right time. As such, qualification criteria should be based on components envisaged in a particular project. The Committee may deliberate on number of years to be kept in technical criteria.

Further, in respect of Bid capacity, allowing a period of twenty years for calculating the value of A has unnecessarily diluted the financial criteria. Accordingly following changes in QR are suggested so as to attract maximum number of contractors with relevant experience.

Suggestion:

i. In the General Experience criteria in place of seeking experience of executing a Works Contract we may seek experience of a major Civil Structure in a Water Resources/ Hydro Power Project.
ii. In the Specific Experience criteria in place of seeking experience of executing excavation/earth work and concreting we may seek experience of a having executed the major civil structures involved in the Project viz.

dam/barrage, river diversion arrangement, power house (surface or underground), tunnel, shafts: pressure shaft/surge shaft, desilting basin etc.

iii. For evaluating the Bid Capacity, it is proposed that a period of five years without indexation factor may be considered in place of twenty years for calculating the value of A in the formula for Bid Capacity, which is reproduced below:

Bid Capacity= (2 x A x N) – B,

Where, A = Indexed value of maximum value of works executed (in a on-going or completed project) in any one year during last 20 years, keeping index of inflation as 6% (compounded annually) for calculating A at present Price Level, N = Number of years prescribed for completion of the subject Contract Package and B = Value of existing commitments (as on bid submission date) and ongoing works to be completed in the next 'N' years.

6.2.3 NEEPCO views:

It is desired that the bidder shall simultaneously fulfil the financial QR, General Technical QR and Specific Technical QR. However, in case sufficient numbers of bidders are not available who fulfil all these requirements by itself, then there is need for flexibility in the QR. In such case, the recommendation of Kanwar Singh Committee is a viable option. However, as far as possible the past experience of bidders should be similar to the tendered work.

6.2.4 THDC views:

6.2.4.1 Qualification & Eligibility Requirements:

(i) Financial Criteria:

Net Worth: Positive in the preceding 3 years.

Profitability: Bidder should not have incurred loss in more than 2 financial years out of immediately 5 financial years (*As per Tehri PSP Contract*).

Cash Flow: 3 times of monthly cash flow i.e. (Estimate Cost of Works x3 / Construction Period).

Average Annual Turnover: Previously it used to be at least 30 % of estimated cost of work. Now, 1.5 to 2 times annualised value of work depending upon the size of contract.

Bid Capacity: Not specified in earlier Contracts of THDCIL. However, it may be asked as below:

Available Bid Capacity = (2 x A x N) – B,

Where;

A = Indexed value of maximum value of works executed (in an ongoing or completed project) in any one year during last 15 years, keeping index of inflation as 6% (compounded annually) for calculating A at present Price Level.

N = Number of years prescribed for completion of the subject Contract Package.

B = Value of existing commitments (as on bid submission date) and ongoing works to be completed in the next 'N' years."

(ii) Technical Criteria:

General: The applicant should have experience in the role of principal contractor /subcontractor for successfully executing following civil works of similar nature associated with HEP at least 7 to 12 years (depending upon the exact nature of work) prior to the application submission deadline or publication of NIT.

Specific: Experience as principal contractor / subcontractor for having substantially completed civil works of HEP costing not less than the following during last 7 to 12 years (depending upon the exact nature of work) prior to the application submission deadline or publication of NIT.

1. One similar work costing not less than 80% of the estimated cost or
2. Two similar works each costing not less than 50% of the estimate cost or
3. Three similar works each costing not less than 40% of the estimate cost.

Besides above, the criteria of experience requirement for completion of minimum specified quantities of specified items (viz, Excavation, Earthwork or filling, Concreting & Grouting etc) of works in HEPs or Water Resources Development projects during last 7 to 12 years

(depending upon the exact nature of work), should also be specified as per the requirement of specific work.

6.2.4.2 History of Non-Performing Contracts & Pending Litigations (As provided in VPHEP & Tehri PSP Contracts):

Non-performance of a contractor should not occur within last 12 years prior to the deadline for submission of application based on all information on fully settled disputes or litigation. A fully settled dispute or litigation is one that has been resolved in accordance with the Dispute Resolution Mechanism under the respective contract and where all appeal instances available to the applicant have been exhausted.

All pending litigation shall in total not represent more than 10 to 25% (to be specified) of the Applicant's net worth and shall be treated as resolved against the applicant.

6.2.5 NHPC views:

The Qualification Criteria in NHPC is formulated by an empowered Committee. The Committee shall finalise the Qualification Criteria (i.e. General, Technical and Financial Criteria) for the tender on the basis of availability of competent contractors, site conditions, complexity of works involved and other related issues considering the CVC and Govt. Guidelines. The qualification criteria should neither be too relaxed nor too stringent.

6.3 Scope of work:

6.3.1 NEEPCO Views:

- The scope of work shall depend upon the nature of work tendered and type of contract adopted.
- In case of E-M & H-M Package contract, the responsibility of design rests in the scope of Contractor while in Civil works, the design is normally provided by the Client. However, in case of EPC contracts, the scope of works includes design also.
- As per the General Instructions on Procurement and Project Management issued by the Department of Expenditure, Ministry of Finance, GOI dated 29/10/2021, the technical specification for EPC

Contracts should be framed in such a manner to allow sufficient freedom to the Contractor for optimizing the design since over-specification of design leads to increase in cost (Sl. No. 13.4 of the Circular).

6.3.2 THDC View:

Construction of essential infrastructure (approach roads and bridges etc.) may be kept in the scope of project developer so that contractor can immediately start work after arrival at the site.

6.3.3 NHPC View:

- Scope of work shall depend upon the requirement of Project.
- The scope of work should be clearly specified in the contract irrespective of the fact that it's an item rate contract or turnkey or EPC contract.

6.4 E-reverse bidding process:

6.4.1 NEEPCO Views:

- e-RA is conducted for procurement, where award criteria are L1 evaluated price. The interest of winning a contract has the potential of inducing unhealthy competition amongst bidders during e-RA, which may affect quality of Goods/ Works/ Services to be procured. Therefore, e-RA is used as a strategic tool and it is generally avoided in procurement of high-end products in which quality, safety aspects and stakes of commercial losses are major considerations.
- Taking advantage of e-RA, there is possibility of quoting high price by bidders in their initial price bid. In the event of a single bidder qualifying in techno-commercial evaluation, there is a possibility of finalisation of award to the lone bidder at his quoted price which may be inflated in consideration of option of e-RA. Therefore, it is considered prudent to conduct the e-RA with following provision so as to caution the bidders from quoting inflated price in their initial price bid:

  (i) e-RA is conducted only when there is at least 03 (three) Techno-Commercially qualified bidders, wherein the bidder quoting the highest price (H-1 bidder) among the Techno Commercially

qualified bidders in the initial price bid shall be excluded from participating in the e-RA.

(ii) In case of numbers of Techno-Commercially qualified bidders are less than 03 (three), the L1 bidder becomes eligible for award at its quoted Price.

- There could be need of further price negotiation with the L1 bidder if the L1 price is considered to be high.

6.4.2 THDC View:

THDCIL has a policy for adoption of e-RA in procurement of Goods, Works & Services (with minimum threshold value of Rs. 10 Cr.), where award criteria are on least cost basis.

6.4.3 NHPC View:

NHPC has adopted the e-RA for all contracts having an estimated value of more than five (5) crs. e-RA is followed after e-tender if number of eligible bidders at price bid stage is at least 2 (two) and the total evaluated bid price (including taxes & duties etc.) of the lowest evaluated techno commercially responsive L1 Bidder is higher with respect to estimated cost as under:

- Cost estimate of Package up to Rs. 500 Crore-More than 7.5%.
- Cost estimate of Package beyond Rs. 500 Crore & up to Rs. 1200 Crore-More than 5%.
- Cost estimate of Package above Rs. 1200 Crore-More than 2.5%.
- The H1 bidder (whose evaluated bid price is highest) will not be allowed to participate in further Reverse Auction process provided minimum three bidders are left after removal of H1 bidder.

6.5 <u>Variation and adjustment:</u>

6.5.1 NEEPCO Views:

- For civil works contract, where possibility of variation of quantity is comparatively higher, following provision of SBD is considered necessary.
- If any item of work appearing in the BOQ is increased by more than 25% of the quantity of that item and this change in quantity (ie. quantity

increasing over 1.25 times of BOQ quantity) multiplied by the BOQ rate exceeds 0.25% of the contract price, then the rate of the said item shall be revised/analysed. The new rate shall be applicable only for the quantity executed in excess of 1.25 times of the BOQ quantity.

- Further, if the quantity of any item, gets reduced by more than 25% of the quantity provided in the BOQ then the total payment for the reduced quantity of that item shall be payable at the revised/analysed rate. However, value of total payment against such reduced quantity of items at revised rate shall be limited to the payment admissible for 75% quantity of the said item at the rate provided in the BOQ.
- Rates for Extra items: In the event of requirement of any new item (not available in the BOQ), it becomes necessary to finalise rates of such items in the following sequence:
- the rates of such items, as far as practicable, shall be derived from the contracted rates of analogous /similar item(s) in the Bill of Quantities after actual observation at Site. Items whose rates are identified as abnormally high (AHR) shall not be taken as reference to evaluate rates of such extra, substituted items etc.
- In the cases, where analogous/similar items are not available in the Bill of Quantities, such items shall be termed as extra items, and their rates shall be determined based on analysis of rates.

6.5.2 THDC View:

Price Adjustment Clause is generally provided in long term contracts, where the delivery / completion period extends beyond 18 months.

At our lastly commissioned Dhukwan SHEP (3x8 MW), Jhansi (UP), five separate escalation formula viz. for cement dominated items; structural steel dominated items; reinforcement steel bar dominated items; excavation related items of work and for remaining items of work were specified so that payment for price variation are released to the contractor commensurate with input cost of resources during the contemporary period.

6.5.3 NHPC View:

NHPC has adopted the suggestions of Sh. Kanwar Singh Committee Report appropriately in its contracts and have the provisions that within 120 days

after receiving all particulars supporting claim or within such other period as may be proposed by the Engineer and approved by the Contractor the Engineer shall respond with approval or with disapproval and detailed comments.

Provision for negative variation in quantities has also been covered in the contracts. The compensation for negative deviations shall not be applicable if the item has been substituted.

6.6 Adjustment for change in laws:

6.6.1 Kanwar Singh Committee Recommendation:

The Committee recommends use of FIDIC/World Bank provision for “change in law” and in line with practice being followed in NHPC/SJVN.

The provision recommended by Kanwar Singh Committee is reproduced below: “Introduction of new Laws and the repeal or modification of existing Laws or in the judicial or official governmental interpretation of such Laws, made after the Base Date (28 days prior to bid submission), which affect the Contractor in the performance of obligations under the Contract shall be paid/recovered separately provided such additional or reduced cost shall not be separately paid or credited if the same shall already have taken into account in the indexing or any inputs to the Price Adjustment Formulae. Variation in the rates or royalty charges/fresh levy of royalty on materials shall be reimbursed as per actuals. Provided always that any variations resulted from the changes in legislation, on POL or on the labour and staff of the Contractor, shall be deemed to be included in the price adjustment formula and shall not be paid separately by the Employer.”

6.6.2 NEEPCO Views:

Kanwar Singh Committee Recommendation is acceptable.

6.6.3 NHPC View:

NHPC has considered the provision for payment / deduction to contractor due to change in Law affected after base date i.e. 28 days prior to the latest date for submission of the tender.

6.7 Payment (Down payment, Interest bearing payment, Progressive payment related clauses, Bank Guarantee etc.):

6.7.1 NEEPCO Views:

- Down payment and advances should be secured by interest bearing BG.
- Recovery of interest bearing advances should be linked with progress of work. Recommendation of Kanwar Sign Committee is found acceptable.
- Secured Advance being released after receipt of the materials at site, need of Bank Guarantee is not necessary.
- Recovery of interest free advances if granted shall be time bound without linking with progress of work. This is in compliance of CVC Guidelines
- In regards to Progressive payment to the contractor, the provision recommended by Kanwar Singh Committee is acceptable.

6.7.2 NHPC View:

I) **Down Payment and Interest Bearing Payment:** Provision for interest bearing Mobilization and Equipment Advance has been included. Advances shall be secured by bank guarantee. Following are the key points:

- Mobilization advance – 5%,
- Equipment advance - 10%,
- Rate of interest –SBI MCLR for 3 years + margin of 150 basis points.
- Recovery – within 80% of Accepted Contract Amount is certified.
- Contractor can hypothecate the equipment.

II) **Progressive Payment:** NHPC has adopted the suggestions of Sh. Kanwar Singh Committee Report appropriately alongwith the guidelines issued by the MoP vide order dated 08.11.2019 for reduction of time and cost overrun in hydro power projects. Following provisions are in place:
All payments to the Contractor (advance, Interim Payment and Final Bill) shall be released and credited into a designated Escrow Account. Payment of 80 % of the admissible gross value of Interim Payment Certificate on provisional basis within 7 days after Engineer receives the statement and supporting documents and after taking into account all

recoveries including retention amount on 100 % of the value of Interim Payment Certificate. All the statutory deductions will be carried out on the amount payable to the Contractor.

Balance 20% payment on any date between 7th day to 42nd day after the date of receipt of the statement and after taking into account of balance adjustment, statutory deductions & recoveries, if any.

III) **Bank Guarantee:** Bank Guarantee shall be 110% of advance amount.

6.8 Payment (Down payment, Equipment Advance Interest bearing payment, Progressive payment related clauses, Bank Guarantee etc.

It is observed that as per the procedure recommended by Kanwar Singh Committee, the advance released against supply order remains unsecured till the equipment is purchased and hypothecated. Therefore, it is suggested that the Equipment Advance shall be released against supply order and submission of BG of equivalent amount.

6.8.1 SJVN Views:

Currently, if a sub-contractor qualifies on the strength of its parent/holding company, three Performance Security Bank Guarantees have to be submitted for same portion of work viz. first BG by Main Bidder, second by Sub-Contractor for his portion of work and third by the parent company of sub-Contractor.

It is suggested that in place of a BG, the parent company shall be required to submit an undertaking along with the bid that in case of award of work, they will provide the full technical and financial support for completion of work.

6.8.2 THDC View:

All the payments under the contract shall be made to the escrow account of the contractor so that diversion of funds by the contractors to their headquarters are controlled.

(i) Mobilisation Advance:

An interest-bearing mobilisation advance may be paid to the contractor exclusively for the costs of mobilisation at 10 (ten) per cent of the contract price against an unconditional BG. Such BGs shall remain effective until

the advance payment has been fully repaid, but the amount thereof may be progressively reduced by the amount repaid by the contractor subject to minimum 10% of total advance payment. The aforesaid advance of 10 (ten) per cent may be paid in two instalments, each of five per cent. The first one may be paid on commencement of the work and provision by the contractor of the unconditional BG in respect of the advance. The second instalment may be paid on certification by the engineer having achieved a financial progress of 10 (ten) per cent of the contract price or any other such milestones provided in the contract, on provision of a BG by the contractor for this part of the advance. The BG taken towards security of “Mobilization Advance” should be at least 110% of the advance so as to enable recovery of not only principle amount but also the interest portion, if so required.

The rate of interest shall be as stipulated in the bid documents.

(ii) Equipment Advance:

An interest-bearing advance of 5% of the contract price, depending on the merits of the case, may be paid against the new key construction equipment purchased for the work and brought to the site, if so provided in the Bid Documents and so requested by the contractor. The advance should normally not be more than 75 (Seventy-Five) percent of the purchase price of such plants and machinery on insurance and hypothecation in favour of developer, before the payment of advance is released. This advance shall be subject to the following conditions: (i) the contractor shall produce satisfactory proof of payment; (ii) such equipment is considered necessary by the engineer for the works; (iii) the equipment has been verified to have been brought to site; (iv) the contractor gives an undertaking on stamp paper that the equipment will work only on that job and will not be removed from the site without obtaining written approval from the engineer; No advance shall be admissible on equipment purchased under a hire purchase scheme/ financing arrangement or on hired equipment. The rate of interest shall be as stipulated in the bid documents.

(iii) Secured Advance against Material brought to site:

During the progress of the work, an advance to the extent of 75% of the value of the material (other than perishable materials) required for utilization in the work and actually brought to site but not yet consumed/utilized may be paid if provided in the conditions of the contract. The payment for such advances may be made on the hypothecation of the said material in favour of developer.

6.8.3 NHPC View

Provision for interest bearing Mobilization and Equipment Advance has been included. Advances shall be secured by bank guarantee. Following are the key points:

- Mobilization advance – 5%,
- Equipment advance - 10%,
- Rate of interest –SBI MCLR for 3 years + margin of 150 basis points.
- Recovery – within 80% of Accepted Contract Amount is certified.
- Contractor can hypothecate the equipment.

6.8.4 Kanwar Singh Committee Recommendation:

(i) All payments above a certain amount (say. Rs. 1 Lakh per transaction limited to Rs. 10 Lakhs per month) be made only through an Escrow Account.

(ii) Contractor shall be admissible for interest bearing mobilization advance up to 5% of Contract Value. Rate of interest may be MCLR plus 100 bps. Full advance including interest shall be recovered by the time 90% of works are completed.

(iii) Interest free Equipment advance shall be up to 10% of Contract Value (may be enhanced on case to case basis) for purchase of new equipment. The advance may be released against supply order and later on securitised against hypothecation/ B.G. Full advance shall be recovered by the time 90% of works are completed.

(iv) Retention money @5% be released against BG.

(v) Settlement of rates for extra items and variations shall be done in a fixed time say in 4 months.

(vi) Based on supporting documents submitted by the Contractor, the Developer shall pay @ 80 % of the admissible RA Bill on provisional basis within 7 days. Balance payment be paid within 45 days after the date of receipt of RA Bill and after taking into account of balance adjustment, statutory deductions & recoveries, if any. In case provisional amount released by the Engineer in-charge in 7 days was more than 100% of the admissible Bill amount, the Developer shall charge interest on the amount in excess of 80 % due net payment from the next payment to the Contractor.

(vii) Contractor be paid 80 % of cost of material as interest free secured advance upon arrival of material at Site which shall be utilised in a reasonable time.

(viii) Formula for determination of cost of idling of contractor's resources entitling cost claims to the contractor should be included in the Contract so that the cost claims are paid to the contractor at the material time during execution of Works.

6.9 Claims procedure:

6.9.1 NEEPCO Views:

If the Contractor intends to claim any additional payment, he shall give notice of his intention to the Engineer-in-Charge within specified time, say 15 days after the event giving rise to the claim has first arisen. Such claims shall be supported by contemporary records jointly maintained by the contractor and Client. However, the detail records and calculations in support of the claim shall be submitted by the contractor not later than 90 days of such event.

The claim should be settled within 45 (forty-five) days after receiving the same by the Engineer-in-Charge otherwise the claim made by the Contractor will be deemed to have been accepted.

The above Claim procedure is also based on the suggestions put forward in Sl. No.VI (e) &(h) of Guidelines to reduce the incidence of time and cost overruns in Hydro Power Projects, as circulated by the MoP vide letter No. 2/3/2016-NHPC dated 08/11/2019.

6.9.2 SJVN Views:

For challenging of Arbitration award in Courts, limited relief has been provided under the Arbitration and Conciliation Act (ref. Section 34 of Act.) As such, it becomes vital to settle disputes beforehand via negotiation, conciliation, mediation etc.

Suggestion:

It is suggested that all efforts shall be made to amicably settle the disputes, so that minimum number of disputes reach court of law. Legal remedy should be used as a last recourse. There should be willingness and fearlessness in settling issues and admitting if owner is at fault. Imbibing such culture in PSUs can really go a long way in reducing contingent liability against the companies.

- **Stage-I**: Engineer-in-charge (EIC): If either party feels it is entitled to time/cost under the contract, it can refer the claim to EIC for decision. The EIC should get the same examined by an internal committee at project level. All efforts shall be made to resolve the issue at project level only. EIC/HOP shall be suitably empowered via Delegation of Powers for acceptance of claims.
- **Stage-II**: Committee of Directors: Before referring the matter to IE or Arbitration, an internal committee of Directors shall be constituted who shall examine the matter and try to resolve the same by amicable settlement.
- **Stage-III**: Independent Engineer: If contractor is dissatisfied with the decision of Committee of Directors, it can be referred to Independent Engineer. An IE is a third party appointed for expeditious elimination of disagreements in a just and fair manner. Under the MOP's SOP, a strict timeline has been specified for decision making by IE. It is a new concept that has substituted the existing dispute resolution through DB.
- **Stage-IV**: Conciliation/Arbitration: In case a dispute remains unresolved following the decision of the Independent Engineer, the parties can take recourse to either Conciliation or Institutional Arbitration.

6.9.3 THDC View:

Wherever practical photography / videography of such events shall also be done and maintained in record sections. Such data shall act as authenticate evidence for a particular occurrence and will be useful for carrying out delay analysis and deciding claims and other compensation in accordance with contract.

6.9.4 NHPC View:

Guidelines to reduce the incidence of time and cost overruns in Hydro Power Projects, as circulated by the MoP vide letter No. 2/3/2016-NHPC dtd. 08/11/2019 has been adopted by NHPC. Procedure for evaluation of Idle Time Cost Claim has been included in the Contract.

6.9.5 Kanwar Singh Committee Recommendation:

For effective and faster Dispute Resolution the Committee suggests as under:

i) Claims, if found justified may be processed and finalized in a time bound manner based on the contemporary records prepared by contractor and verified by EIC to avoid time taking process of adjudication / arbitrations.

ii) Adoption of Dispute Adjudication Board (DAB) followed by Arbitration may be adopted.

iii) Decision of DAB up to a particular amount of claim (say up to Rs. 5 Crores) may be made final and binding on the parties and shall not be subject to arbitration.

iv) Institutional Arbitration should be adopted.

v) Payment should be released against part of the award for which there is no strong ground for getting relief from the competent court and only the remaining portion of award should be challenged in court.

vi) A provision in contract that no reference for arbitration shall be maintainable unless the Contractor deposits to the Employer 1% of the claim.

vii) All Arbitration awards up to certain amount say Rs. 300 lakhs be accepted by CPSUs.

viii) All unanimous Arbitration awards up to certain amount say Rs. 600 lakhs be accepted by CPSUs.

ix) Seat of arbitration must be mentioned in the contract.

6.10 Force majeure:

6.10.1 THDC View:

In case of force majeure conditions lasts for comparatively longer period (say 3 months), part of the risks of the cost of overstay may be borne by developer.

6.10.2 NEEPCO Views:

The provision recommended by Kanwar Singh Committee for adoption of FIDIC/World Bank definition of Force Majeure is found acceptable.

6.10.3 NHPC Views:

NHPC has adopted the suggestions of Sh. Kanwar Singh Committee Report appropriately. Following provisions are in place:

'if the event or circumstance is of the kind described in definition of Force Majeure and, in the case occurs in the Country, payment of 75% of such Cost'.

6.10.4 Kanwar Singh Committee Recommendation:

The provision recommended by Kanwar Singh Committee for adoption of FIDIC/World Bank definition of Force Majeure is reproduced below: "Force majeure" means an exceptional event or circumstance:

a) Which is beyond a Party's control.

b) Which such Party could not reasonably have provided against before entering into the Contract.

c) Which, having arisen, such Party could not reasonably have avoided or overcome, and Which is not substantially attributable to the other party."

6.11 Risk sharing methodology:

6.11.1 THDC Views:

As per THDCIL policy, following important provisions shall be made part of Contract document of all future major Hydro Electric Projects (which involve major underground works).

I) GBR (Geotechnical Baseline Report) shall be made a part of the Contract document. The principal purpose of the GBR is to set clear realistic baseline conditions anticipated to be encountered during subsurface construction, and thereby provide all bidders with a single

contractual interpretation that can be relied upon in preparing their bids. It also guides the Owner in administering the Contract and monitoring performance during construction.

GBR contains broader geotechnical details of the Project area / location of the structures and the predicted rock conditions. The bidder plans his construction methodology and work out the quantities of various resource including input materials based on the predicted data. If during execution more adverse conditions than envisaged as base conditions in the GBR are encountered, then the responsibility lies with the owner and contractor is compensated for any additional time and cost. GBR, is thus, more or less a full cover to the contractor against any speculative plans for the execution of work.

II) Risk Sharing Mechanism with well-defined responsibility of owner & contractor shall be made a part of the Contract document. It must include the assessment of risks and vulnerabilities available in project.

III) Provision of Contingency Plan shall also be made a part of Contract document.

Above provision may help in reducing claims & disputes of contractors.

6.11.2 NEEPCO Views:

The recommendation of Kanwar Singh Committee is acceptable.

6.11.3 NHPC Views:

Risk Allocation Schedule has been incorporated in contract to define the risk of employer and contractor.

6.11.4 Kanwar Singh Committee Recommendation:

The recommendation of Kanwar Singh Committee is reproduced below: “The Committee recommends that FIDIC conditions with appropriately incorporating “Risk Allocation Schedule” / “Risk Register” as per concept of SBD and further Employer bearing 75% of the overstay costs resulting from Force Majeure risks may be adopted for equitable risk sharing.”

6.12 Procedure for the payment of the idling cost to the Contractor:

6.12.1 NEEPCO Views:

The recommendation of Kanwar Singh Committee on Procedure for payment of Idling cost to the Contractor is based on bid conditions of SJVN & NHPC, which is acceptable to NEEPCO.

6.12.2 THDC Views:

The idling of contractor's resources shall cover compensation for idling time related cost of following items:

(i) Construction Equipment: The idling cost shall be calculated taking into account following costs for the idling period.

a. 50% of Depreciation cost of Construction Equipment based upon annual depreciation as per IS 11590 : 1995.

b. Interest on Capital Investment (Average Annual Cost) of Construction Equipment with interest rate applicable for Equipment Advance.

c. Insurance Cost for Construction Equipment.

(ii) Labour Cost.

(iii) Interest accrued on Mobilization Advance.

(iv) Cost of Site Staff

(v) Bank Guarantees and Insurance charges for Works (CAR) policy.

(vi) Overheads.

6.12.3 NHPC Views:

The procedure for evaluation of Idle Time Cost Claim within a scheduled time has been included in the Contract.

6.12.4 Kanwar Singh Committee Recommendation:

Mechanism for payment of cost of "underutilisation of Contractor's resources" or cost of overstay of contractor for the events entitling EOT with costs be clearly specified in the Contract as per para 5.18 (vi) hereinabove.

The BG/CAR policy insurance charges, for the EOT granted with costs, should be payable by the EIC directly to the Bank/insurer. Similarly compensating interest on mobilization advance in extended period to the Contractor, the same can be waived off by the Developer.

6.13 Incentive clause for early completion of works:

6.13.1 NEEPCO Views:

The recommendation of Kanwar Singh Committee is acceptable.

6.13.2 SJVN Views:

It is suggested that incentive for early completion, based on the following be considered:

- **Incentive to Contractor**: If the Works as a whole are completed before the specified Time for Completion, incentive will be payable to Contractor at the rate of 0.25 % of Award value per month of early completion, subject to maximum of 2.5 % of Award value.
- **Incentive for labour:** The Engineer-in-charge can set targets for day to day activities like erection of Gantry and the labour (skilled and unskilled) will be awarded certain additional percentage of minimum wages for early/timely completion of targets.

6.13.3 NHPC Views:

Following incentive clause may be considered for inclusion for incentive to Contractor and Labour:

- **Incentive to Contractor:** For early completion of the Contract before the stipulated date of completion, an incentive amount at the rate of 0.05% per day of Contract Price of early completion subject to a maximum of 2.5% (two and half percent) of the Contract Price, shall be paid to the Contractor. For the purpose of this clause the relevant schedule date of completion shall correspond to original time for completion without any extension of time.
- **Incentive to labour:** For early completion of the Contract before the stipulated date of completion, an incentive amount at the rate 0.010% of the Contract Price per day of early completion subject to a maximum of 2.5% (two and half percent) of the Contract Price, shall be payable to the Contractor. This incentive benefit is required to be paid by the Contractor to unskilled, semiskilled and skilled labourer those are directly involved in the execution of works for not less than …….(to be kept as per duration

of project) months. The payment of incentive shall be proportionate to the amount of wages paid to respective labourer

6.13.4 Kanwar Singh Committee Recommendation:

Incentive (upto 5%) @ 0.05% of contract value per day of early completion, may be paid to the Contractor for early completion of project in case of turnkey projects or component of the project

6.14 Construction Methodology:

6.14.1 THDC Views:

The developer should prepare his own construction planning and equipment planning and attach it with the Tender documents, as a suggestive document for study by the bidders. Bidders may consider it for improvement and finalization of their proposed methodology for submission alongwith their bids. List of proposed equipments should have a clear mention of standby equipments, quantum of equipments and mention of those equipments which have necessarily to be new.

Construction methods and equipment planning shall be finalised with the successful bidder prior to award of work.

6.14.2 NEEPCO Views:

Bidders shall provide the “Construction Methodology” including relevant information viz. sequences, facilities and layouts, Sketches, drawings and diagrams, cycle time, manpower, equipment and materials etc. along with their Techno-Commercial Bids to facilitate assessment of the general adequacy of the bidder’s proposal.

6.14.3 NHPC Views:

If the contractor deviates from the stipulated methodology, Engineer-in-charge should immediately seek an undertaking from the contractor that he has changed the methodology for his ease in execution of work and he would not raise any claim against it. Where, the methodology has been changed on the instruction of Engineer-in-charge, he should seek all the details from the contractor and process the case file in terms of the contract expeditiously. In

case there is a reduction in the cost due to change(s) suggested by the contractor or as per instruction(s) of Engineer (In-charge), the amount be deducted from the contract price and payment certificate.

6.15 Settlement of disputes and arbitration:

6.15.1 NEEPCO Views:

In additions to the provision of Arbitration for settlement of dispute, the following mechanisms as finalised by MOP shall be included in the Contract for expeditious settlement of disputes:

- Dispute Avoidance mechanism through appointment of Independent Engineer (IE).
- Reconciliation Mechanism through Conciliation Committees of Independent Experts (CCIE)

6.16 Payment Mechanism:

6.16.1 SJVN Views:

It has been observed that contractors have a tendency to divert the project funds to other sites/Headquarters. This can result in delay in payments to suppliers/sub-contractors, labour etc. As such, following payment mechanism is proposed to avoid diversion of project funds:

(i) The Contractor shall open a Dedicated Account for the Works of the Project

(ii) All payments including advances shall be released through Dedicated Account only.

(iii) The Dedicated Account shall be jointly operated by Contractor and Employer.

(iv) The same mechanism shall also apply to the sub-contractors/sub-vendors for works or any part thereof having substantial value of works say 10% of the Accepted Contract Amount.

(v) The Contractor shall submit report on annual accounts of the works undertaken by the Contractor under the Contract as a separate accounting unit as per applicable accounting standards

(vi) In case it is observed that the payments under the Contract are diverted by the Contractor for purposes other than the Works under Contract without prior permission from the Employer's Representative, all subsequent payments shall be released through escrow account.

7.0 CONCLUSIONS AND RECOMMENDATIONS:

After thoroughly examining the views of Contractors & hydro-CPSEs and subsequent detailed deliberations, following are the recommendations of the Committee:

7.1 Different modes of Contracting-Turnkey or EPC or Item rate – which one is better for faster execution:

The following definitions with respect to different modes of contracting are adopted and are illustrated below for sake of clarity:

1. **EPC Contract:** An EPC Contract covers Engineering, Procurement and Construction part of the project/package. Employer will provide basic engineering to a contractor and based on this, the later shall perform detailed design.
2. **Turnkey Contract:** Turnkey means a procurement process where one service provider assumes total responsibility for all aspects of the project and delivers the full end product / service required by the contract. The Turnkey contractor begins the work from scratch and deliver the end project which can be put to use immediately where as in EPC contract, generally the major works of the project including design are executed by the contractor but the infrastructure works are get done by the owner.
3. **Item-rate Contract**: An item rate contract is the type of contract in which the contractor agrees to carry out the work as per drawings and specifications considering the payment made entirely on the basis of measurements taken as the work proceeds and at the unit price tendered by the contractor in the bill of quantities

In hydro sector, the most common form of contract is item rate contract for civil works (in one or more packages depending on the total scope/ cost of the civil works) and separate EPC contract for HM & EM works. Out of the present 36 no of hydro projects being executed at present, there are only 03 projects where the entire project works (Civil + EM + HM) are being executed on Turnkey basis, whereas in 08 no of projects the entire civil and HM works are being executed under EPC mode and for EM package there is a separate EPC

contract. In rest of the projects, the Civil works are being executed (as a single or multiple contracts) on item rate basis and EM & HM works are being executed on EPC basis.

Based on the combination of modes of execution adopted for Civil, HM and EM works, hydropower projects are executed primarily in the following modes of Contracts:

7.1.1 Civil Works:

1) EPC mode for Civil Works:

For Civil works, EPC Mode of execution is best suited for projects located in smaller reach, compact in nature, less or no geological surprises, scope of work is not likely to vary and project cost is not too high.

Moreover, in some cases considering the accessibility of various areas of the project, Civil works and HM works can be considered for awarding as a single EPC contract.

2) Item rate for Civil Works:

It has been observed that for implementation of Civil Works of Hydro Projects, inherent uncertainty is involved in respect of topography, geology, hydro-geology etc. Due to this, detailed design & construction methodology finalised during execution may widely vary as compared to the bidding stage design & methodology conceived in the bid leading to claims & disputes. Therefore, EPC Contract may not be a successful model for execution of such works unless an appropriate risk sharing mechanism is made a part of tender document. The risk of ground conditions in particular where substantial underground works are involved should rest with the Project Developer and should not be transferred to the Contractor. Further, EPC model does not provide adequate contractual window to the Owner to intervene in the event of non-performance of the contractor. Item Rate mode of contracts are more suitable for Civil Works and contracts for large sized projects involving high cost and complexities.

7.1.2 Electro-Mechanical works & Hydro-Mechanical works:

1) EPC mode for EM works, HM Works:

Engineering, Procurement and Construction" (EPC) mode of contract is generally adopted for Electro-mechanical (EM) & Hydro-mechanical (HM) works, wherein the responsibility involving equipment design lies with the contractor. The project and output parameters are provided by the developer in bid specifications and the contractor designs the components in conformity to these parameters. The owner retains the right to review the drawings, following which the contractor proceeds for procurement / manufacture only after obtaining approval of the developer on their submitted design. Moreover, most of the equipment are build offsite and transported to site for further erection and commissioning of the plant. However, considering longevity, safety and quality of the Hydro power projects (HPPs), the project developers may retain the scope of design with themselves, wherever suitable. Accordingly, "Procurement and Construction" (PC) mode of contract may be considered for Electro-mechanical (EM) & Hydro-mechanical (HM) works.

7.1.3 Turnkey Contract for the project, as a whole:

In general, it has been observed that very few projects have been awarded on Turnkey basis i.e., where the entire project works (Civil + Electro-Mechanical + Hydro- Mechanical) and infrastructure works are being executed as a single contract.

7.1.4 Conclusion:

- In turnkey mode of contracting the risks are absorbed by the contractor. But Hydro projects are often associated with unforeseen risks concerning geological surprise, land acquisition, law and order problems, approach roads, force majeure, local issues etc. Therefore, Turnkey mode of contracting is not considered suitable for Hydro-sector.
- EPC mode of contract is generally adopted for Electro-mechanical (EM) & Hydro-mechanical (HM) works. However, considering longevity, safety and quality of the Hydro power projects (HPPs), the project developers may retain the scope of design with themselves, wherever suitable. Accordingly, "Procurement and Construction" (PC) mode of contract may

be considered for Electro-mechanical (EM) & Hydro-mechanical (HM) works

- Availability of financially sound contractor(s) is a major issue in Hydro Sector. Selection of mode of contracting Package / Turn Key / EPC / PC should be considered on case to case basis considering the factors such as Nature of project, cost of the project, status of various project clearances, compactness, law and order, quantum of underground works, unforeseen risks, local issues, investigation details available, land for quarry and dumping, approach to various project components etc. Therefore, a one-size-fits-all approach may not be appropriate and the decision in this regard is best left to the developer of the Project.

7.2 Review of Qualifying/ Eligibility criteria:

- While framing the criteria, care to be taken for complying all the CVC guidelines issued from time to time. Moreover, the criteria to be framed will neither be stringent nor relaxed, and it should be framed in such a way that all the competent contractors are given equal opportunities for participating in the contract.
- The Qualification Criteria (i.e. General, Technical and Financial) for the tender should be finalized considering availability of competent contractors, site conditions, complexity of works involved and other related issues complying the CVC and Govt. Guidelines. The qualification criteria should neither be too relaxed nor too stringent.

7.2.1 Financial Qualification Criteria:

Turnover: Minimum average annual turnover shall be 1.25 times the annualized value of tendered work for the immediately preceding two consecutive financial years.

Net worth: Participating contractors in Hydro-project tenders should have positive “Net Worth” in at least 02 financial years out of the last 03 financial

years, with the condition of positive Net Worth in immediately preceding financial year.

Working Capital: Capacity to have a cash flow amount/working capital judged from the immediately preceding financial year as per the audited balance sheet / equivalent financial statements. The working capital shall be at least 2 times the monthly cash flow requirement i.e. estimated cost of Work x 2 / Construction period in months). Working Capital/Cash Flow amount shall be calculated by subtracting Current Liabilities (CL) from Current Assets (CA) i.e. (CA-CL) as per the audited balance sheet/ equivalent financial statements including profit and loss statement of the immediately preceding financial year. If audited financial statement for the immediate preceding financial year is not available, then the bidder shall submit these statements certified by a Chartered Accountant.

Bid Capacity:

Available Bid Capacity = (2 x A x N)– B
Where;

A= Indexed value of maximum value of works executed (in an ongoing or completed project) in any one year during last 5 years, keeping index of inflation as 6% (compounded annually) for calculating 'A' a present Price Level.

N= Completion period of the subject Contract Package in years.

B= Value of existing commitments and ongoing works to be completed in the next 'N' years.

The bid capacity shall be assessed at the time of submission of the Price Bid and should not be less than the estimated cost of the work.

7.2.2 Technical Qualifying Criteria:

- Experience as principal contractor / subcontractor for having substantially completed hydro or other civil/ infrastructure works costing not less than the following during last 7 to 12 years (depending upon the exact nature of work) prior to the application submission deadline or publication of NIT:

1. One similar work costing not less than 80% of the estimated cost or
2. Two similar works each costing not less than 50% of the estimate cost or
3. Three similar works each costing not less than 40% of the estimate cost.

- Similar work may be defined as the work, specific to the nature of work of project components executed either in hydro projects or in other civil / infrastructure works e.g. the experience of tunneling in other sector (railway, metro, highway etc.) may be considered for tunneling in hydro sector also. The experience for completion of minimum specified quantities of specified items viz., Excavation (open and Underground), Earthwork or filling, Concreting & Grouting etc., in any sector (hydro projects or other civil / infrastructure) during the last 7 to 12 years (depending upon the exact nature of work), should also be specified as per the requirement of specific work.
- Presently, there is a dearth of availability of competent and financially sound civil contractors for hydro projects i.e. most of the Major civil contractors having experience of executing hydro projects are experiencing poor financial health some of them or their associate / subsidiary companies are going through insolvency proceedings, so the risk bearing capability of contractors has been substantially reduced. Further, the working capital of these companies is not such to execute large hydro projects on turnkey / EPC basis. Hence, most of the contractors are not comfortable with EPC projects.
- Therefore, financially sound contractors having experience in infrastructure projects of similar nature of works may be allowed for hydro projects with the condition of deployment of key personnel / experts having experience of executing the key components of hydro projects as mentioned above. QR may be formed to adopt **Expertise Centric approach** in place of Company Centric approach.

- In case of Expertise Centric approach (Specific experience) criteria, specific experience of engaged manpower of the company (eg. Hydrologist, geologist, Structural Engineer, Electrical specialist, Mechanical Specialist, Planning manager, Construction Managers etc.), which shall mandatorily be deployed during contract execution till its completion, may be taken into consideration in addition to company's specific experience.

7.3 Scope of Work:

- The scope of work should be clearly specified in the contract irrespective of the fact that it's an item rate contract or turnkey or EPC contract.
- While framing EPC contracts, broad technical specifications and key output parameters should be specified. Over-specification of design may lead to increase in cost. Technical specifications shall be framed in such a manner to allow sufficient freedom to the contractor to optimize design.

7.4 Bidding Process:

e-Reverse auction process:

e-Reverse auction can be used as a strategic tool for arriving at lowest quote. e-RA, is to be followed if number of eligiblele bidders at price bid stage are atleast 2 (two). As such, following procedure of e-RA is proposed:

a) If the discovered price is up to 105 % of the estimated price, no e-RA will be conducted.

b) If the discovered price is above the price mentioned in (a) above, then following procedure of e-RA is proposed:
   - In case the number of eligible Bidders is 3 or less than 3, then e-RA shall be conducted among all the bidders.
   - In case the number of eligible Bidders is 4, then e-RA shall be conducted among the bidders except H1.
   - In case the number of eligible Bidders is more than 4, then the bidders quoting higher rates shall be eliminated as per below

formula, and e-RA shall be conducted among the remaining bidders:

Numbers of eliminated bidders = (n-3) x 0.5 where n = total bidders

(In case “Numbers of eliminated bidders” is a fraction, it shall be rounded off to lower whole number.)

c) If only Single Technically Qualified Bidder is available, then the work shall be awarded to the lone bidder if the quoted price is within 10% of the estimated value after price negotiation. If, however the price discovered after price negotiation is more than 10% of estimated value, the decision for awarding/retendering the works is best left to the developer of the Project considering the criticality of the package and prevalent situation of the Project.

d) If the discovered price after e-RA is more than 20% of estimated value even after price negotiation, then the decision for awarding/retendering the works is best left to the developer of the Project considering the criticality of the package and prevalent situation of the Project.

7.5 Payment (Performance Security, Secured Advance, Equipment Advance, Progressive payment related clauses, etc.):

All payments (Monthly RA Bills, Advances, Claims etc.) to contractor shall be routed through Escrow Account. For E&M and HM Contracts, the CPSE may decide to include / exclude this provision suitably.

Performance Security: Tender documents to be prepared in such a manner that performance security bank guarantee/ any other instrument approved/cleared by MoP has to be submitted for the respective scope of work i.e. in totality the performance security should not be more than 100 % of the specified limit.

Secured Advance: As the advance is against the receipt of non- perishable materials at site, necessity of bank guarantee may not arise, however suitable provisions to be made for release of the amount up to 90% of the value of the

material and for the safe custody of the material at project site by the contractor. The advance shall be recovered within a specified time.

Mobilization advance: Contractor shall be admissible for interest bearing mobilization advance up to 5% of Contract Value. Rate of interest may be MCLR plus 150 bps. Full advance including interest shall be recovered by the time 90% of works are completed.

Equipment advance: Interest bearing Equipment advance shall be up to 10% of Contract Value (may be enhanced on case to case basis) for purchase of new equipment. Rate of interest may be MCLR plus 150 bps. The advance may be released against supply order and later on securitised against hypothecation/ B.G. Full advance shall be recovered by the time 90% of works are completed.

Special Advance: A need based special advance limited to 2.5% of Accepted Contract Amount can be released to the Contractor at any time during execution of the contract for the payment of labour, construction materials, R&M of machinery and POL etc. being used for project works in the following circumstances:

1) Work is stopped and Contractor is not allowed to demobilize from site causing idling of resources.
2) To accelerate the work to shrink the overall completion w.r.t. approved schedule.
3) Work is affected due to any unforeseen natural calamity
4) Cash flow problem of Contractor.

100% advance shall be secured by unconditional bank guarantee / any other instrument approved/cleared by MoP. However, in the event of inability of contractor to furnish the surety, regulating the special advance payment through escrow account may be considered, after ascertaining the inability of contractor is genuine as evident from the latest financial balance sheet of the contractor. This provision may only be used in exceptional circumstances, where contract termination is not found a feasible solution, so as to save the project from time/cost overruns. Rate of interest on such advance shall be 1% higher than the rate applicable for mobilisation advance.

Progressive Payment: Based on supporting documents submitted by the Contractor, the Developer shall pay 80 % of the admissible RA Bill on provisional basis within 7 days. Balance payment be paid within 45 days after the date of receipt of RA Bill and after taking into account of balance adjustment, statutory deductions & recoveries, if any. Payment interval of RA bills shall be kept up to 30 days to increase the cash flow of contractors.

7.6 Variation and Adjustment:

For civil works contract, where possibility of variation of quantity is comparatively higher, following provision may be incorporated:

- If any item of work appearing in the BOQ is increased by more than 50% of the quantity of that item and this change in quantity (i.e. quantity increasing over 1.5 times of BOQ quantity) multiplied by the BOQ rate exceeds 0.5% of the contract price, then the rate of the such item shall be revised/analysed. The new rate shall be applicable only for the quantity executed after the occurrence of both the above conditions together i.e., quantities executed beyond the trigger point.
- Further, if the quantity of any item, gets reduced by more than 50% of the quantity provided in the BOQ then the total payment for the reduced quantity of that item shall be payable at the revised/analysed rate. However, value of total payment against such reduced quantity of items at revised rate shall be limited to the payment admissible for 50% quantity of the said item at the rate provided in the BOQ.

Rates for Extra items: In the event of requirement of any new item (not available in the BOQ), it becomes necessary to finalise rates of such items in the following sequence:

- The rates of such items, as far as practicable, shall be derived from the contracted rates of analogous /similar item(s) in the Bill of Quantities after actual observation at Site. Items whose rates are identified as abnormally high (AHR) shall not be taken as reference to evaluate rates of such extra, substituted items etc.

- In the cases, where analogous/similar items are not available in the Bill of Quantities, such items shall be termed as extra items, and their rates shall be determined based on analysis of rates.

The upper cap limit for variation in cost is subject to ceiling of 10% of the contract price in case of Turnkey / EPC / PC contracts.

To accommodate unforeseen price variation in predominantly used commodities in Hydro Sector (i.e. cement, steel etc.), the price variation clauses may suitably consider incorporating widely accepted industry indices of commodities.

7.7 Claims Procedure:

All efforts shall be made to amicably settle the disputes, so that minimum number of disputes reaches court of law. Legal remedy should be used as a last recourse. There should be willingness and fearlessness in settling issues and admitting if owner is at fault. Imbibing such culture in CPSEs can really go a long way in reducing contingent liability against the companies. CPSEs may adopt following stages for claims procedure:

- **Stage-I {Engineer-in-charge (EIC)}:** If the contractor wishes to raise a claim for any reason, such reasons/events should be notified by the contractors within 15 days of such events and claims should be raised by the contractor within 90 days. If contractor either fails to (i) notify the event or (ii) files the claim within 90 days, the claim made by him shall not be entertained. Thereafter, the claims should be settled within 45 days after receiving the same by the Engineer-in-charge (EIC) otherwise the claim made by contractor will be deemed to have been accepted.
- **Stage-II {Independent Engineer (IE)}:** If contractor is dissatisfied with the EIC decision, it can be referred to Independent Engineer. An IE is a third party appointed for expeditious elimination of disagreements in a just and fair manner as per the laid down guidelines vide MoP O.M. No. 15-18/1/2020-HYDEL-II(MoP) dated 27.09.2021.
- **Stage-III (High-level committee / Amicable settlement):** In cases of dispute on claims, where the contractor is not satisfied with the decision

of 'Independent Engineer', CPSEs may constitute a high level committee, to whom Contractor may approach before referring the matter to Conciliation Committee. The high level committee shall examine the claim and try to resolve the same within one month's time. If no decision is taken by the High level committee within one month, the contractor may proceed for dispute resolution through Conciliation Committee as per laid down rules & procedure.

- **Stage-IV (Conciliation):** In case a dispute remains unresolved following the decision of the Committee, the parties can take recourse to Conciliation, as per the laid down guidelines vide MoP F.No. 11/22/2021-Th. II dated 29.12.2021.

7.8 Change in law:

"Introduction of new Laws and the repeal or modification of existing Laws or in the judicial or official governmental interpretation of such Laws, made after the Base Date (07 days prior to bid submission), which affect the Contractor in the performance of obligations under the Contract shall be paid/recovered separately provided such additional or reduced cost shall not be separately paid or credited if the same shall already have taken into account in the indexing or any inputs to the Price Adjustment Formulae. Variation in the rates or royalty charges/fresh levy of royalty on materials shall be reimbursed as per actuals. Provided always that any variations resulted from the changes in legislation, on POL or on the labour and staff of the Contractor, shall be deemed to be included in the price adjustment formula and shall not be paid separately by the Employer."

Within 45 days after receiving all particulars supporting claim, the Engineer shall respond with approval or with disapproval and detailed comments on the admissibility of claim. If the Contractor does not receive the approval or disapproval from the Engineer on the admissibility of the Claim within such time, then the claim (under change in law) made by the Contractor will be deemed to have been considered admissible and 80% of the admissible claim amount may be released within one month and the balance amount should be released within three months.

7.9 Force Majeure:

The Committee recommends following definition of the Force Majeure:

"Force majeure" means an exceptional event or circumstance:

a) Which is beyond a Party's control.

b) Which such Party could not reasonably have provided against before entering into the Contract.

c) Which, having arisen, such Party could not reasonably have avoided or overcome, and Which is not substantially attributable to the other party.

7.10 Risk Sharing Methodology:

The Committee recommends incorporation of "Risk Allocation Schedule" / "Risk Register" wherein the Employer bears 75% of the such costs resulting from Force Majeure risks for equitable risk sharing.

Further, Committee recommends that following important provisions shall be made part of Contract document of all future major Hydro Electric Projects (which involve major underground works).

- GBR (Geotechnical Baseline Report) shall be made a part of the Contract document. The principal purpose of the GBR is to set clear realistic baseline conditions anticipated to be encountered during subsurface construction, and thereby provide all bidders with a single contractual interpretation that can be relied upon in preparing their bids. If during execution more adverse conditions than envisaged as base conditions in the GBR are encountered, then the responsibility lies with the owner and contractor is compensated for any additional time and cost. GBR, is thus, provide cover to the contractor against any speculative plans for the execution of work. THDC has adopted the provision of GBR & Risk Register in its Vishnughat-Pipalkotii HEP - 440MW.
- Risk Sharing Mechanism with well-defined responsibility of owner & contractor shall be made a part of the Contract document. It must include the assessment of risks and vulnerabilities available in project. It must include the provisions for stoppage of work in situations e.g., law and order

problem, floods, earthquake, geological surprises etc. “Risk Allocation Schedule / Risk Register / Adverse Geological Conditions” has been adopted by Hydro-CPSEs in following recent contracts:

Sr. No.	Name of work	CPSE
A	**Awarded Contracts**	
1	Parbati-II HEP, Lot PB-2C “Execution of 1500 M. HRT” Package.	NHPC
2	Subansiri Lower HEP, Civil Works Package, Lot-SSL-6 “Construction of Balance Civil works of Power House Complex from HRT Intake Structures to Tail Race Channel, Subansiri Lower HE Project, Assam and Arunachal Pradesh.”	NHPC
3	Turnkey contract for execution of Ratle HEP	NHPC
4	Rangit-IV HE Project, Lot-1 Package “Construction of Balance Civil Works of Diversion Channel, Coffer Dams, Dam, Spillway & Stilling Basin, Intake structure, Desilting Chambers, SFT, HRT, Surge Shaft, Pressure Shaft, Surface Power House, TRC and other associated structures etc.”	NHPC
5	Teesta VI HEP, Lot-I Package “Construction of Balance Civil Works of Barrage, Desilting Basins, SFT, Intake Structure, Part of HRT-I & HRT-II and other associated Structures etc. of Teesta-VI HE Project, Sikkim”.	NHPC
6	EPC Contract for Civil Works and Hydro – Mechanical Equipment works including penstock steel liners for VPHEP, Pipalkoti.	THDC

B	Works in tendering Process	
1	Turnkey Tender for execution of Dugar HEP	NHPC
2	Turnkey Tender for execution of Sawalkot HEP	NHPC
3	Dibang Multipurpose Project, Package Lot-4 "Construction of Civil Works for Head Race Tunnel including Intake, Pressure Shafts, Penstocks, Power House & Transformer Cavern, Tail Race Tunnel, Pothead Yard, Adits for Dibang Multipurpose Project."	NHPC

- Provision of Contingency Plan shall also be made a part of Contract document.

7.11 Procedure for the payment of the idling cost to the Contractor:

The following are considered for compensation against idling of the Contractor's resources, subject to proper verification that contractor's resources are not utilised elsewhere:

(i) Construction Equipment: The idling cost shall be calculated taking into account following costs for the idling period.

- 50% of Depreciation cost of Construction Equipment based upon annual depreciation as per IS 11590 : 1995.
- Interest on Capital Investment (Average Annual Cost) of Construction Equipment with interest rate applicable for Equipment Advance.
- Insurance Cost for Construction Equipment.

(ii) Labour Cost

(iii) Interest accrued on Mobilization Advance.

(iv) Cost of Site Staff

(v) Bank Guarantees and Insurance charges for Works (CAR) policy.

(vi) Overheads cost: Overhead costs include but not limited to Office and share of head office expenses, Legal charges, General establishment, Watch and Ward, Local conveyance, Travelling expenses, Social welfare, salaries of Managerial and clerical staff etc. and Publicity, etc.

Overhead Charges = 5% of Contract price × authorized Time Extension entitling cost claim / Contractual Construction Period

The lump-sum component of overhead as 5% shall cover all other charges not included expressly in any of the items of claim on account of cost of owned / leased / hired equipment, cost of Labour, cost of site staff, and interest on mobilisation advance.

(vii) The taxes applicable on cost claims: The applicable taxes on the above elements of cost claim shall be reimbursed to the Contractor as per actuals based on the documentary evidence.

7.12 Incentive Clause:

The Committee recommends that incentive up to 03% of contract price may be paid to the Contractor for early completion of Contract. For the purpose of this clause the relevant schedule date of completion shall correspond to original time for completion without any extension of time.

The above incentive shall be worked out at a rate per day of advancement of completion date, which shall be decided by the developers depending on the stipulated time of completion and criticality of the contract.

For early execution / completion of any particular item rate package which is foreclosed or terminated and seems to be critical for completion of the project as a whole, CPSE may decide to include suitable provision in the bid document during retendering for expediting the work and completion of the Project at the earliest.

7.13 Construction Methodology:

If the contractor deviates from the stipulated methodology, Engineer-in-charge should immediately seek an undertaking from the contractor that he has

changed the methodology for his ease in execution of work without compromising the desired output and he would not raise any claim against it. Where, the methodology has been changed on the instruction of Engineer-in-charge, he should seek all the details from the contractor and process the case file in terms of the contract expeditiously.

7.14 <u>Using IT tools effectively for contract management:</u>

The contract may have following provisions, related to information technology, for effective contract management:

(i) **Enterprise Resource Planning (ERP) System:** For all major Contracts under execution, all the records / documents of contract including drawings, correspondence with contractors, Contract Agreements, MBs etc. be kept in digitized format in ERP. MBs for all Contracts in respect of all Projects / units should be recorded in ERP. In addition to this, documents of all the running contracts which are still open, are also to be digitized.

The day-to-day maintenance of hindrance register in ERP shall be ensured by the respective HOP. Digital recording of real time data for all kind of hindrance shall be through ERP system. By this provision, all hindrance, claimed by the Contractor, carries specific date and time of entering the data, thus, eliminate any kind of false entry of hindrance.

(ii) **A Single Channel Communication system**: A single digital portal may be established for all kind of communications related to specific contract between Contractor and owner. All communications between Contractor and owner shall be held through this channel or recorded in this portal thus, avoiding any mishandling of records. Also, the letters/claims by contractors and response of the CPSE should also be recorded in this portal.

(iii) **Project Monitoring:** Latest software based project monitoring should be adopted.

7.15 <u>Deployment of equipment:</u>

In view of the importance of construction machinery in construction projects, the contract may have provision of all key equipment as new and it should be

clearly specified in the contract. In case of other than key equipment, the contract may have provision to deploy at least 50% new equipment. Also, the deployment of equipment should be monitored with respect to deployment schedule finalized at the time of bidding/award. In case of deficiencies on part of Contractor, suitable amount per month (to be decided by respective CPSE) shall be deducted from running bills till the contractor deploy the specified key equipment as per contract The ceiling limit of amount deducted against non-deployment / less deployment of equipment against the key equipment specified in the contract shall be 2% of the contract price.

7.16 Designated place for issue of departmental material:

Designated place for issue of departmental material should be mentioned in the Contract. If designated place for issue of departmental material is changed due to unavoidable reasons, additional expenditure, if incurred, in bringing material at site be reimbursed.

7.17 Imposing Liquidated Damages:

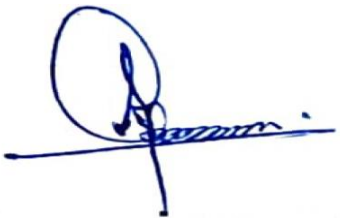
The Committee proposes that before imposing Liquidated Damages, a reasoned notice containing quantum of Liquidated Damages to be imposed must be communicated to the Contractor. In case of extension of time, Liquidated Damages, if any may be recovered from the monthly RA bills (up to maximum 5% of the RA Bills) in equal instalments considering the balance period of completion. Balance recovery, if any, will be recovered from the final bill.

7.18 Delegation of power to Engineer-in-Charge (EIC) for faster decision making:

The Committee recommends that for faster decision making, appropriate powers should be delegated to EIC for timely deciding contractual issues as under:

- Extension of Time for completion-full powers to ED and in case EIC reports directly to Director then full powers to EIC,
- Cost claims up to Rs. 5 crores,

- Ordering variations in BoQ quantities as well as new/substituted items of works as per construction drawings issued by Designer and/or as per site conditions. Determination and approval of rates of varied / extra items, the approval for variation in amount up to a threshold percentage of contract value subject to absolute monetary delegation of power shall be given by the EIC.
- Change in law related to royalty on construction materials, valuation of imposition of new tax/levy/duty as well as variation in existing taxes/duties/levies after getting in principle approval of concerned Director.



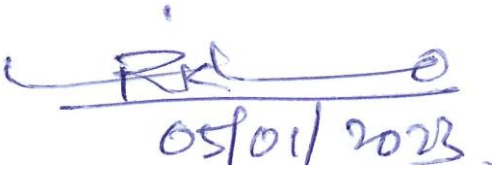
(Samiran Goswami)
Executive Director, NEEPCO

(Manoj Tripathi)
Chief Engineer (HPM), CEA
(Co-Opted Member)

(Sushil Sharma)
Director (Electrical), SJVN Ltd

(Biswajit Basu)
Director (Projects), NHPC Ltd

(Ajay Talegaonkar)
Member (E & C), CEA



(Rajeev Kumar Vishnoi)
CMD, THDCIL,
CMD (Addl. charge), NEEPCO & NHPC

Annexure-I

F.No.14-4/14/2021-H.I (260146)
Government of India
Ministry of Power

Shram Shakti Bhawan, Rafi Marg.
New Delhi, dated the 9th December, 2021

OFFICE ORDER

Subject:- Constitution of Committee to examine the contractual issues & different modes of contracting in hydro projects.

With the approval of the competent authority, following Committee has been constituted to examine the advantages/disadvantages associated with different modes of contracts such as EPC/Turnkey, Item Rate etc. in Hydro Power Projects: -

Sl. No	Name of the Officer & Designation	
1	Shri R. K. Vishnoi, CMD, THDCIL	Chairperson
2	Sh. Ajay Talegaonkar, Chief Engineer (FCA)	Member
3	Sh. Biswajit Basu, Director (Projects), NHPC Ltd.	Member
4	Sh. S.P. Bansal, Director (Civil), SJVN Ltd.	Member
5	Sh. Hemanta Kumar Deka, Director (Technical), NEEPCO	Member

2. The Terms and Reference of the Committee is to give recommendations on:

(i) whether EPC contracts or item rates contracts are more viable and under which circumstances

(ii) restructuring relevant provisions of contracts as recommended after study of:

a. Arbitration cases
b. Kanwar Singh Committee recommendations
c. CVC circulars
d. World Bank recommendations

3. The Committee would submit its report within a period of one month.

(Mukesh Sawhney)
Under Secretary to the Government of India.
Tele : 23324357

To: All Members of the Committee.

Copy to: CMDs of NHPC/THDCIL/SJVNL/NEEPCO

Copy To

Sr. PPS to Secretary (Power)/PPS to AS(Hydro)/PPS to JS (Hydro)/PS to Director (H-I)/PS to Director (H II).

Record Notes of 1st Meeting of Committee constituted by Ministry of Power to examine different mode of contracting and restructure relevant provisions of contracts in Hydro Power Sector after study of Arbitration cases, Kanwar Singh Committee recommendations, CVC Circulars and World Bank recommendations

Ministry of Power (MoP), the Government of India vide office order no.14-4/14/2021 -H.I (260146) dated 09.12.2021 constituted a committee comprising the following members:

Sh. R. K. Vishnoi, CMD, THDC India Ltd.	Chairperson
Sh. Ajay Talegaonkar, Chief Engineer (FCA)	Member
Sh. Biswajit Basu, Director (Projects), NHPC, Ltd.	Member
Sh. S. P. Bansal, Director (Civil), SJVN Ltd.	Member
Sh. Hemanta Kumar Deka, Director (Technical), NEEPCO	Member

The first meeting of the Committee constituted to examine different mode of contracting and restructure relevant provisions of contracts of Hydro Power Sector after study of Arbitration cases, Kanwar Singh Committee recommendations, CVC Circulars and World Bank recommendations was held on 19.12.2021 at THDCIL NCR office, Kaushambi. Sh. Ajay Telegaonkar, Chief Engineer (FCA) and Sh. Biswajit Basu, Director (Projects), NHPC, Ltd. attended meeting through Video Conferencing.

The list of participants is enclosed at Annexure-I.

1.0 Opening Remarks by the CMD, THDC India Ltd.

At the outset, CMD, THDC India Ltd. extended a warm welcome to Committee Members and other participants. He explained the objective behind constituting of Committee by MoP and its mandate. It was apprised by the CMD, THDCIL that

- In general contracts have been awarded on different modes in Indian Hydro Power Sector i.e. EPC/Turnkey, item rate etc. 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.

CMD, THDCIL further stated that the following issues will be discussed in the Committee.

- Difficulties faced in each type of mechanism. Whether we can have some guiding factors which can help in deciding the choice of contracting.
- frame the guidelines to identify the mode of contracting to be adopted for the execution of hydro projects on the ground level i.e. whether it is EPC/Turnkey contract or Item Rate contract. Recommend uniform guidelines for selecting appropriate mechanism for contracting.Committee's discussions should primarily be based on the following:-
    - There should be mechanism for feedback to guide us so that we can align our self for appropriate mechanism for future contracts.
    - Possibilities of the evolution of the disputes during the execution.Committee members may give specific opinion about anyparticular contracting mechanism which gives rise to disputes during the execution if so then what is the way out in that particular mechanism.
    - Status of the arbitration cases where the particular contracting mechanism has been adopted so that we have experience of all type of contracting mechanism for doing the analysis. We may list out all arbitration casesfor each contracting mechanism and see whether particular contracting mechanism is more vulnerable to give rise to disputes.
    - Exposer to disputes means whether a particular type of contracting mechanism has got some kind of provisions which can make the decision maker to do more scrutiny. If fear of scrutiny is there in a particular mechanism, the decision making becomes slow. So in a way that is a kind of break on the pace of the work on the ground.
    - Lot of information/literature is available on the websites and with the organizations which can be compiled at one placei.e.

dedicated secretariat under Sh. Sanjay Singhal, AGM Incharge, THDC NCR office for reference of the Committee. It was further stated that 5 to 6 meetings will be held in next one month and directed Sh. Sanjay Singhal, AGM Incharge to start writing Report which will be updated after each meeting of the Committee. All these things put together, Committee needs to take holistic view in finalizing its recommendations.

- Chairman of the Committee suggested to co-opt some more members, if require, who have the vide experience in this field.
- Further CMD, THDC India Ltdsuggested that we should have atleast one Committee meeting each in the officesof CEA and Hydro CPSE i.e. NHPC, SJVN, NEEOCO and THDCwhich was agreed by the Committee.It was also agreed to have one meeting at World Bank headquarter who have very good experience contracting in Asian countries.
- It was decided to hold a Conference in February,2022 which will culminate the proceedings of the Committee. All stake holders, contractors, consultants, experts, officials from World Band, Hydro CPSUs, CEA etc. will be invited to participate in the Conference.

2.0 Chairman of Committee invited other members to give their views.The main comments/views expressed during the discussions were as follows:

2.1 Sh. S. P. Bansal, Director (Civil) explained that Committee is to consider mainly following issues-

- Whether to go for EPC or item rate contract and which one is more viable. It needs discussions on the basis of experiences of each organization.
- Awarded cost vis a vis completion cost in each mechanism.
- Completion of timein each mechanism. Whether the project has been completed in shortest possible time.
- He further stated that SJVNL is having all multiple mechanism experiences and will share it in due course of time.

2.2 Hemanta Kumar Deka, Director (Technical), NEEPCO stated that they have good experience in EPC contracts in thermal projects where the risk factor is low. Heopined that item rate contracts are more suitable for civil construction works in hydro power projects where there are lot of uncertainty and the risk factor is high.

2.3 Sh. Ajay Talegaonkar, Chief Engineer (FCA)welcomed the suggestion given by the chairperson that we have to take up these issues with the stockholders particularly contractors who are actually working on the field.He further suggested that it would be better to take the suggestion of the contractors at this stage only so that by the end of January,2022 we have the fare idea of what kind of suggestions are there.We can focus on few important issues which are emerging at the time of meeting with stakeholders/ contractors.

He further requested to the Chairperson to co-opt Sh. Manoj Tripathi, Chief Engineer (Hydro Project Monitoring), CEA in the committee who has good experience in this field and was part of the other committees earlier also. The Committee agreed to the suggestion of Sh. Ajay Telegaonkar.

He informed that Department of Expenditure, Ministry of Finance issued general instructions on Procurement and Project Management vide order dated 29.10.2021.There are very important suggestions in that circular which may be perused by the committee for consideration.

2.4 Chairperson stated that we may obtain the views of hydro CPSUs and contractors in the beginning which may be deliberated and analyze by the Committee.

- It was also agreed by the committee to associate one member from Contract Department of the World Bank.
- Chairperson stated to co-opt 1-2 free lancers who have vast experience in this field to have wider data base/ information

2.5 Sh. Biswajit Basu, Director (Projects), NHPC, Ltd. stated that they have vast experience of handling both EPC and item rate contracts. In next meeting they will make detailed presentation sharing NHPC experiences and suggestions.

2.6 It was decided to take views all Hydro CPSUsregarding mode of contracting and their advantages and disadvantages and their comments on improvement of important contract clauses.All the CPSUs were requested toshare experience and provide data/inputs related to the contracts which have been awarded by them by 30.12.2021. These view points should be approved by respective CMDs.

2.7 It was decided to nominate one officer by each CPSU for coordination.

2.8 It was agreed to have the next meeting on 7th-8th Jan,2022, at NEEPCO, Headquarter, Shilong.

Finally, CMD, THDC India Ltd. concluded the meeting by thanking committee Members and other participants for sparing their valuable time to attend the meeting and providing valuable suggestions.

Annexure-I

List of Participants

1. Sh. R. K. Vishnoi, CMD, THDC India Ltd., Committee Chairperson
2. Sh. Ajay Talegaonkar, Chief Engineer (FCA), Committee member
3. Sh. Biswajit Basu, Director (Projects), NHPC, Ltd., Committee member
4. Sh. S. P. Bansal, Director (Civil), SJVN Ltd., Committee member
5. Sh. Hemanta Kumar Deka, Director (Technical), NEEPCO, Committee member
6. Sh. A.K. Nauriyal, ED(PSMG), NHPC Ltd.
7. Sh. Samiran Goswami, CGM(C), Contract & Procurement, NEEPCO
8. Sh. Vijay Deep, GM(Contracts), NHPC Ltd.
9. Sh. Sanjay Singhal, Addl. GM (I/c), THDC India Ltd., NCR Office, Kaushambhi
10. Sh. Sanjay Uppal, Ex-CGM(SJVN Ltd.), Consultant, THDC India Ltd., NCR Office, Kaushambhi
11. Sh. Mallikarjuan Udaygiri, Sr. Manager, THDC India Ltd., NCR Office, Kaushambhi
12. Sh. Sumit Sharma, Manager(ADR), SJVN Ltd.
13. Sh. Rajesh Kumar Jat, Sr. Engineer, THDC India Ltd., NCR Office, Kaushambhi

Record Notes of the second meeting of the Committee constituted by Ministry of Power to examine different modes of contracting and restructure relevant provisions of contracts in Hydro Power Sector after study of Arbitration cases, Kanwar Singh Committee recommendations, CVC Circulars and World Bank recommendations

The second meeting of the Committee constituted to examine different modes of contracting and restructure relevant provisions of contracts of Hydro Power Sector after study of Arbitration cases, Kanwar Singh Committee recommendations, CVC Circulars and World Bank recommendations was held on 10.01.2022 through Video Conferencing.

The list of participants is enclosed at **Annexure-A.**

1.0 Opening Remarks by the CMD, THDC India Ltd.

At the outset, Sh. R.K. Vishnoi, CMD, THDC India Ltd. extended a warm welcome to Committee Members and other participants. It was apprised by the CMD, THDCIL that presently, there are mainly two type of Contracts being executed in the Hydro-Power sector i.e., (i) EPC contracting- where responsibilities of Engineering, Procurement & Construction lies with the Contractor and there are certain specific parameters, based on which progress of project is monitored. Generally, in these kind of contracts, employer has no window of making intervention during Construction time. (ii) Unit rate contracting- Where responsibility of design lies with the employer and to an extent, contractors are insulated from uncertainties/risks and employer bears higher risk.

2.0 CMD, THDC India Ltd. requested NEEPCO ltd. to share their views, based on its experience, on different modes of contracting for the Hydro-power projects and to share its opinion on various important contractual clauses.

Sh. H.K. Deka, Director (Technical), NEEPCO apprised that so far NEEPCO's experience with EPC contracts is limited to Combined cycle power plant only (Thermal projects). He also apprised that NEEPCO has prepared a power point presentation **(Annexure-B)** on the matter covering all aspects including NEEPCO's view on different modes of Contracting & various contractual clauses etc.

3.0 NEEPCO presented its view on the following points:

3.1 Viability of EPC contracts or item rates contracts along with circumstances thereof:

In EPC Contract, reliance of the Client is concentrated on a single contractor. As a result, the success of executing the project largely depends on the performance of the EPC contractor. On the other hand, in Package Contract, multiple contractors are involved for different segments of the Project. Hydro Power Projects involve various complexities including sub-surface works and geological surprises in various work fronts. Further, the locations of Hydro Power Projects are mostly remote which lacks infrastructure, accessibility and other facilities. In consideration of these inadequacies, there could be a potential risk involved in relying upon a single EPC Contractor. On the other hand, in Hydro Power Project executed under Package Contracts, the risks arising out of inadequacies are spread over different contractors which could be advantageous in risk mitigation. In consideration of the above, while aligning with the view offered by Kanwar Singh Committee in its report Dated May, 2019, it could be opined that EPC contracts can be considered for works involving less uncertainties like Electro-Mechanical and Hydro-Mechanical works. Package Contracts could be advantageous for the Civil works involving sub-surface activities.

3.2 Comments on Contract clauses for Hydro Power Projects:

3.2.1 Qualifications/Eligibility requirement:

It is desired that the bidder shall simultaneously fulfill the financial QR, General Technical QR and Specific Technical QR. However, in case sufficient numbers of bidders are not available who fulfill all these requirements by itself, then there is need for flexibility in the QR. In such case, the recommendation of Kanwar Singh Committee is a viable option. However, as far as possible the past experience of bidders should be similar to the tendered work.

3.2.2 Scope of work:

The scope of work shall depend upon the nature of work tendered and type of contract adopted. In case of E-M & H-M Package contract, the responsibility of design rests in the scope of Contractor while in Civil works, the design is normally provided by the Client. However, in case of EPC contracts, the scope of works includes design also. As per the General Instructions on Procurement and Project Management issued by the Department of Expenditure, Ministry of Finance, GoI dated 29/10/2021, the technical specification for EPC Contracts should be framed in such a manner to allow sufficient freedom to the Contractor for optimizing the design since over-specification of design leads to increase in cost.

3.2.3 E-reverse bidding process:

e-RA is conducted for procurement, where award criteria is L1 evaluated price. The interest of winning a contract has the potential of inducing unhealthy competition amongst bidders during e-RA, which may affect quality of Goods/ Works/ Services to be procured. Therefore, e-RA is used as a strategic tool and it is generally avoided in procurement of high end products in which quality, safety aspects and stakes of commercial losses are major considerations. Taking advantage of eRA , there is possibility of quoting high price by bidders in their initial price bid. In the event of a single bidder qualifying in techno-commercial evaluation, there is a possibility of finalisation of award to the lone bidder at his quoted price which may be inflated in consideration of option of e-RA. Therefore, it is considered prudent to conduct the e-RA with following provision so as to caution the bidders from quoting inflated price in their initial price bid:

(i) e-RA is conducted only when there is at least 3(three) Techno-Commercially qualified bidders, wherein the bidder quoting the highest price (H-1 bidder) among the Techno Commercially qualified bidders in the initial price bid shall be excluded from participating in the e-RA.

(ii) In case of numbers of Techno-Commercially qualified bidders are less than 3 (three), the L1 bidder becomes eligible for award at its quoted Price. There could be need of further price negotiation with the L1 bidder if the L1 price is considered to be high.

3.2.4 Variation and adjustment:

For civil works contract, where possibility of variation of quantity is comparatively higher, following provision of SBD is considered necessary.

If any item of work appearing in the BOQ is increased by more than 25% of the quantity of that item and this change in quantity (ie. quantity increasing over 1.25 times of BOQ quantity) multiplied by the BOQ rate exceeds 0.25% of the contract price, then the rate of the said item shall be revised/analysed. The new rate shall be applicable only for the quantity executed in excess of 1.25 times of the BOQ quantity.

Further, if the quantity of any item, gets reduced by more than 25% of the quantity provided in the BOQ then the total payment for the reduced quantity of that item shall be payable at the revised/analysed rate. However, value of total payment against such reduced quantity of items at revised rate shall be limited to the payment admissible for 75% quantity of the said item at the rate provided in the BOQ.

3.2.5 Rates for Extra items:

In the event of requirement of any new item (not available in the BOQ), it becomes necessary to finalize rates of such items in the following sequence: the rates of such items, as far as practicable, shall be derived from the contracted rates of analogous /similar item(s) in the Bill of Quantities after actual observation at Site.

Items whose rates are identified as abnormally high rate (AHR) shall not be taken as reference to evaluate rates of such extra, substituted items etc.

In the cases, where analogous/similar items are not available in the Bill of Quantities, such items shall be termed as extra items, and their rates shall be determined based on analysis of rates.

3.2.6 Adjustment for change in laws:

In this regard, the provision recommended by Kanwar Singh Committee for this clause is accepted by NEEPCO.

3.2.7 Payment (Down payment, Interest bearing payment, Progressive payment related clauses, Bank Guarantee etc.):

- Down payment and advances should be secured by interest bearing BG.

- Recovery of interest bearing advances should be linked with progress of work. Recommendation of Kanwar Singh Committee is found acceptable.
- Secured Advance being released after receipt of the materials at site, need of Bank Guarantee is not necessary.
- Recovery of interest free advances if granted shall be time bound without linking with progress of work. This is in compliance of CVC Guidelines.
- In regards to Progressive payment to the contractor, the provision recommended by Kanwar Singh Committee for RA Bills is acceptable to NEEPCO.

3.2.8 Claims procedure:

If the Contractor intends to claim any additional payment, he shall give notice of his intention to the Engineer-in-Charge within specified time, say 15 days after the event giving rise to the claim has first arisen. Such claims shall be supported by contemporary records jointly maintained by the contractor and Client. However, the detail records and calculations in support of the claim shall be submitted by the contractor not later than 90 days of such event. The claim should be settled within 45 (forty-five) days after receiving the same by the Engineer-in- Charge otherwise the claim made by the Contractor will be deemed to have been accepted.

The above Claim procedure is also based on the suggestions put forward in Sl. No.VI (e) &(h) of Guidelines to reduce the incidence of time and cost overruns in Hydro Power Projects, as circulated by the MoP vide letter No. 2/3/2016-NHPC dtd. 08/11/2019.

3.2.9 Force majeure:

In this regard, the provision recommended by Kanwar Singh Committee for this clause is accepted by NEEPCO.

3.2.10 Risk sharing methodology:

In this regard, the provision recommended by Kanwar Singh Committee for this clause is accepted by NEEPCO.

3.2.11 Procedure for the payment of the idling cost to the Contractor:

The recommendation of Kanwar Singh Committee on Procedure for payment of Idling cost to the Contractor is based on bid conditions of SJVN & NHPC, which is acceptable to NEEPCO.

3.2.12 Incentive clause for early completion of works:

In this regard, the provision recommended by Kanwar Singh Committee for this clause is accepted by NEEPCO

3.2.13 Construction Methodology:

Bidders shall provide the "Construction Methodology" including relevant information viz. sequences, facilities and layouts, Sketches, drawings and diagrams, cycle time, manpower, equipment and materials etc. along with their Techno-Commercial Bids to facilitate assessment of the general adequacy of the bidder's proposal.

3.2.14 Equipment advance:

The recommendation of Kanwar Singh Committee is reproduced below:

"Interest free Equipment advance shall be up to 10% of Contract Value (may be enhanced on case to case basis) for purchase of new equipment. The advance may be released against supply order and later on securitised against hypothecation/BG. Full advance shall be recovered by the time 90% of works are completed."

It is observed that as per the above procedure the advance released against supply order remains unsecured till the equipment is purchased and hypothecated. Therefore, it is suggested that the Equipment Advance shall be released against supply order and submission of BG of equivalent amount.

3.2.15 Settlement of Disputes and Arbitration:

In additions to the provision of Arbitration for settlement of dispute, the following mechanisms as finalized by MOP shall be included in the Contract for expeditious settlement of disputes:

A. Dispute Avoidance mechanism through appointment of Independent Engineer (IE).

B. Dispute Resolution Mechanism through Conciliation Committees of Independent Experts (CCIE)

4.0 Chairman of Committee invited other members to give their comments/views on NEEPCO's presentation. The main comments/views expressed during the discussions were as follows:

4.1 Sh. S. P. Bansal, Director (Civil), SJVN Ltd. apprised that SJVN has slightly different views on *"Viability of EPC contracts or item rates contracts alongwith circumstances thereof"*. He further elaborated that method of contracting could be divided into following 03 types for Hydro-power contracts:

i) Item-rate Contracts: In this mode the Civil works and HM works are awarded in two separate item rate contract packages and the EM works are awarded in a separate EPC contract. Sometime civil and HM works are awarded in a single item rate contract package also. In NJHEP and RHEP Projects, Civil works were awarded on item rate mode, while EM & HM works were awarded on EPC contracts. This mode offers the advantage of increased participation of bidders as there is balanced risk sharing. Top quality work was delivered by the Contractors in our Projects (NJHEP and RHEP). However, this mode of contracting is beset with time and cost overruns.

ii) Two-EPC Contracts: In this mode the Employer divides the works involved in two EPC contract packages (one for Combined EM & HM works and second for Civil works only) and invites bids for them separately. For both the contracts, the Contractor has the responsibility for design and build as per Employer's requirements for the respective contracts. The owner retains the right to review the drawings, but the Contractor is obligated to revise the design and drawings only if it is not as per the Contract. LHEP stage-1 and DSHEP of SJVN were awarded in two-EPC mode.

iii) Turnkey: In this mode all the works involved in the construction of the hydropower project i.e. Civil works, hydro-mechanical (HM) and electro-mechanical (EM)along with design and engineering are included in one

contract package. The successful bidder has to complete the works and commission the project as per the Employer's requirements. The contractor provides a turn-the-key solution to the Employer. Till this date, SJVN has no experience of Turnkey projects for its Hydro-power plants.

He further suggested that Two-EPC (Civil & HM works as one package and EM works as second EPC contract) should be most preferred in comparison to Item Rate. EPC/Turnkey mode of Contract should be avoided for projects which involve substantial underground works. However, if opted, suitable risk-sharing mechanism for underground works must be included in the Contract.

Director (Civil), SJVN Ltd. further presented SJVN's views on following key points:

a) <u>Qualifications/Eligibility requirement</u>

He apprised that one of the key recommendation of Kanwar Singh Committee was allowing other sectors' Civil Contractors into Hydro-power projects. He suggested that this qualifying criteria recommended by the committee was relevant at that time, but needs to amend at present time. Presently, there are enough numbers of Hydro-civil contractors are in the market. So, in the General Experience criteria in place of seeking experience of executing a *Works Contract*, experience of a major Civil Structure in a Water Resources/ Hydro Power Project may be sought.

- In the Specific Experience criteria in place of seeking experience of executing *excavation/earth work and concreting* we may seek experience of a having executed the major *civil structures* involved in the Project viz. *d*am/barrage, river diversion arrangement, power house (surface or underground), tunnel, shafts: pressure shaft/surge shaft, desilting basin etc.
- For evaluating the Bid Capacity, it is proposed that a period of five years without indexation factor may be considered in place of twenty

years for calculating the value of A (maximum value of works done in a year during last x years) in the formula for Bid Capacity.

b) <u>E-reverse bidding process</u>

e-Reverse Auction can be used as a strategic tool for arriving at lowest quote. At the same time, workability of awarded rates has to be ensured. As such, following procedure of e-RA is proposed:

- If L1 quoted price is less than or equal to the estimated value, work shall be awarded to L1 bidder without e-RA.
- If L1 quoted price is more than estimated value but less than or equal to 1.10 times the estimated value, e-RA shall be conducted between all the bidders in this price range. If only one bidder is there in this price range, work shall be awarded without e-RA.
- If L1 quoted price is greater than 1.10 times the estimated value, e-RA shall be conducted among all the bidders except H1 bidder. If only two bidders are there above this price range, e-RA shall be conducted between both the bidders.

c) <u>Variation and adjustment, and Risk sharing methodology</u>

It was suggested that in EPC contracts with significant underground works, provision for payment of variations in Dam foundation and support system in underground works be introduced for better risk sharing.

For variation in Dam foundation:

- Variation in dam foundation up to certain depth (say ± 2m) shall not be paid.
- Variation beyond 2 m shall be payable at a pre-defined rate, measured as addition/reduction in quantity of concrete.

For variation in support system

- The support system envisaged in underground works shall be disclosed to the bidder alongwith quantities considered and their estimated costs.

- Any variation beyond a certain percentage (say 10%) shall be payable/deducted at the pre-defined rates.

d) Payment (Down payment, Interest bearing payment, Progressive payment related clauses, Bank Guarantee etc.)

In place of a BG the parent company shall be required to submit an undertaking alongwith the bid that in case of award of work, they will provide the full technical and financial support for completion of work.

e) Claims procedure

It is suggested that all efforts shall be made to amicably settle the disputes, so that minimum number of disputes reach court of law. Legal remedy should be used as a last recourse. There should be willingness and fearlessness in settling issues and admitting if owner is at fault. Imbibing such culture in PSUs can really go a long way in reducing contingent liability against the companies. Following 4 stages are suggested for Claims procedure:

- Stage-I : Engineer-in-charge (EIC): If either party feels it is entitled to time/cost under the contract, it can refer the claim to EIC for decision. The EIC should get the same examined by an internal committee at project level. All efforts shall be made to resolve the issue at project level only. EIC/HOP shall be suitably empowered via Delegation of Powers for acceptance of claims.
- Stage-II : Committee of Directors: Before referring the matter to IE or Arbitration, an internal committee of Directors shall be constituted who shall examine the matter and try to resolve the same by amicable settlement.
- Stage-III: Independent Engineer: If contractor is dissatisfied with the decision of Committee of Directors, it can be referred to Independent Engineer. An IE is a third party appointed for expeditious elimination of disagreements in a just and fair manner. Under the MOP's SOP, a strict timeline has been specified for decision making by IE. It is a new

concept that has substituted the existing dispute resolution through DB.

- Stage-IV: Conciliation/Arbitration: In case a dispute remains unresolved following the decision of the Independent Engineer, the parties can take recourse to either Conciliation or Institutional Arbitration.

f) Certificate of Completion:

It has been observed that some Contractors are submitting certificate of completion issued by Chartered Accountants. It is suggested that certificate of completion should be issued by Client/Owner. Certificate of completion should be issued before the last date of submission of bid.

g) Awarding weightage to quality parameters while finalizing successful bidder

It is suggested that while finalizing the successful bidder, weightage should also be given to parameters indicating capabilities of the bidders to execute the Works. Following technical evaluation of bids, scores can be awarded to bidders on parameters like financial capabilities, Experience, low litigation history, Equipment owned and Technological capability. Then a composite score for these capabilities and bid price can be evaluated and the bidder scoring the highest composite score would emerge as successful and awarded the Works.

Sl. No.	Parameter	Metric	Method of evaluation	Weightage
1	Networth	Networth of the bidder as evidenced from the annual account statements	A no. of ranges of networth of immediate preceding F.Y. alongwith marks shall be drawn. Bidders shall be evaluated based on the range in which	20%

			their respective networth falls.	
2	Experience (in MW)	Total installed capacity of hydroelectric projects in MW completed by the Bidder during the last twenty years	A no. of ranges of installed capacity alongwith marks shall be drawn. Bidders shall be evaluated based on the installed capacity of completed Contracts.	20%
3	Litigation history	List of all outstanding claims/disputes pending before ADR forums and Courts	A no. of ranges of value of pending disputes alongwith marks shall be drawn. Bidders shall be evaluated based on the value of pending disputes.	20%
4	Equipment	Total value (in INR) of equipment owned, not more than two years old	A no. of ranges of value of equipment owned alongwith marks shall be drawn. Bidders shall be evaluated based on the value of equipment owned by the bidder.	20%
5	Technological capability	Average rate of progress achieved in	A no. of ranges of progress of key activities alongwith marks shall be drawn.	20%

		executing key activities: Dam Concreting Tunnel excavation Tunnel lining	Bidders shall be evaluated based on the highest average progress achieved by him in a single Contract during the last twenty years.	

A quality score shall be evaluated based on the aforementioned parameters. Then a composite Quality-Cost score shall be evaluated based on the quality score and financial score. The weightage of quality and cost shall be **05** : **95**.

Sh. Ajay Talegaonkar, Chief Engineer (F&CA), CEA apprised that as per recent instructions issued by Ministry of Finance on 29th Oct, 2021, Quality and Cost Based Selection (QCBS) system can be adopted for procurement of Non-consultancy services, where estimated value of procurement (including all taxes and option clauses) does not exceed Rs. 10 Crore or for the procurement which have been declared to be a Quality Oriented Procurement (QOP) by the competent authority. This is normally followed for procurement of Consultancy services.

Continuation to this, CMD (THDCIL) further stated that this is a good suggestion, however CPSEs would have to be extra careful while issuing tender based on QCBS system and all quality parameters has to be pre-specified and an integral part of the bidding documents for transparency and to avoid disputes. However, this matter needs to be deliberated more in upcoming meetings.

4.2 Sh. Manoj Tripathi, Chief Engineer, HPM, CEA stated that past experience of EPC/ Turnkey contract is not much, as only few projects have been executed and completed on EPC/ Turnkey mode of contracting, however,

the success rate had been higher from EPC mode. The EPC/ Turnkey contracts for commissioned projects viz. Chamera-II, Baglihar-II and Omkareshwar Project have been completed on time. At present 10 projects out of the total of 36 under construction projects are being executed on EPC/ Turnkey mode of contracting and it has been observed that most of them are delayed. Hence there had been a mixed response from EPC contracts. He further stated that there are many aspects viz. recommendations of the FIDIC, expectation of various stakeholders, availibility of sufficient EPC contractors, recommendations/ guidelines of the Government, past expereince of success of EPC/ Turnkey contracts, etc. which need to be looked into with respect to "which kind of contracting need to be followed in Hydro-power sector".

a) FIDIC Silver Book

FIDIC states that the Silver Book is not suitable for use in the following circumstances-

- If there is insufficient time or information for tenderers to scrutinize and check the Employer's Requirements or for them to carry out their designs, risk assessment studies and estimating;
- If construction will involve substantial work underground or work in other areas which tenderers cannot inspect, unless special provisions are provided to account for unforeseen conditions or
- If the Employer intends to supervise closely or control the Contractor's work, or to review most of the construction drawings.

b) Expectations of the Stakeholders-

The major stakeholders with regard to the contracting mechanism to be applied for hydro projects of CPSE's are owners (Government as equity holders), Debt infusers viz. Banks/ FI/ MBD and the Contractors. The expectations of the stakeholders are as under-

i. Owners/ Management- The owners/ equity holders (including Government in case of CPSE's) will certainly look for least time and cost overrun. As per NITI Ayog OM dated 5th Sept,2016 regarding revival of the construction sector, it has been recommended to substitute Item Rate contracts by EPC/ Turnkey contracts, wherever

appropriate. The Government is also now very serious in clearing RCE proposals and needs certainty in completion cost of the hydro projects.

ii. Financiers- The financiers always look for certainty in the completion cost and EPC/ Turnkey contracts suits them the best. As per the recommendations of the World Bank vide their e-mail letter dated 6th Jan,22, they have stated that "FIDIC Redbook (Item Rate Contracts) is not very popular for large power projects as it puts additional risks/ responsibilities on Employer".

iii. Contractors- Since the risk of the unforeseen ground conditions is being transferred to the contractor in case of EPC/ Turnkey projects, so most of the Contractors are not comfortable with EPC contracts. The other reason behind this is the poor financial health of most of the major civil contractors presently executing civil contractors. However, few contractors like L&T which are financially sound and are used to execution of EPC contracts welcome this mode of contracting. As per M/s L&T, "EPC Contracts gives the Contractors a better opportunity to optimize the design which in turn leads to cost optimization. However, projects which are confidential in nature, in sensitive zones and for the projects wherein the entire details cannot be shared; Item Rate Contracts may be operated."

c) Availability of EPC contractors-

At present most of the civil contractors viz. HCC, Patel, Gammon, JAL, Coastal, etc. executing hydro projects are experiencing poor financial health and so the risk capability is also reduced. Further, most of these contractors are not used to EPC/ Turnkey mode of contracting and working capital of these companies is also not such to execute large hydro projects. Hence, most of the civil contractors are not comfortable with EPC projects.

Sh. Manoj Tripathi, Chief Engineer, HPM, CEA further elaborated that based on the recommendations of FIDC, expectations of the various stakeholders and past experience, and as per deliberations of the

Committee, it is recommended that EPC/ Turnkey mode of contracting may be followed if the project satisfies the following conditions-

a) **Type of Project-** Dam Toe type hydro projects with Surface Power House (1st choice) or Dam Toe Type Power House with Underground Power House and extensive geotechnical and geophysical investigations done by Employer for the Power House or Hydro project with short water conductor system (say less than 3-4 km length) and with extensive geotechnical and geophysical investigations done by Employer for the underground works viz. HRT and Power House. The risk for variation in Dam foundation level beyond a certain limit (say+-5 m) shall be payable/ recoverable from contractor.

b) **Survey and Investigations-** The geotechnical investigations for Dam, HRT, Power House may be supplemented with geophysical investigations like Resistivity Imaging, Seismic Tomographic Scanning, etc. Further, sufficient time may be given to the contractor during the bidding process to conduct his own investigations, risk assessment studies and Employer requirements.

c) **Size/ Cost of Project-** The total cost of the project is less than say Rs. 1000 crores.

d) **Ready to Start Environment-** In order for the contractor to immediately start the works and to provide an encumbrance free environment the following may be adopted-

- The river diversion arrangement may be completed during S&I/ DPR stage, if cost of the same is within about 2-3 % of the project cost and
- There should be availability of all statutory clearances, availability of encumbrance free land, availability of construction power, availability of roads and bridges to all components of the project, etc.

e) **Incentives and Penalties** may be imposed on intermediate milestones as well as project completion/ commissioning, subject to maximum of ten percent. However, penalty on intermediate milestones may be

waived off if project is commissioned on time. The time-frame for completion of the project may be realistic and neither too optimistic nor too pessimistic.

Sh. S. P. Bansal, Director (Civil), SJVN Ltd. stated that executing EPC contracts in projects involving heavily underground structure may be a difficult task but with minor improvisations, Dam Toe type hydro projects could be executed suitably by this type of contracting. He further stated that recently Sunni Dam Power project of SJVN (Dam Toe type hydro project with underground power-house) is being executed by EPC contract. In this project SJVN has quantified the amount of all support system of underground structure and placed a condition in the tender documents that if this quantity exceed beyond 10% of the decided quantified amount, extra payment would be paid as per predefined rate, mentioned in the tender documents. Also, similarly in Dhaulasidh hydro power project, SJVN has constructed "drifts" along the crown of diversion tunnel to provide more clarity to the Contractor, thus mitigating the risk of the contractor, subsequently getting the bids at lower side.

Sh. Manoj Tripathi agreed and stated that EPC contracts can be executed properly by defining the extent of Contractor's risks with suitable risk sharing clause in the contract in case of underground/ sub-surface works like Underground Power House, as been done by M/s SJVNL in their recent EPC contract

Sh. A.K. Nauriyal, ED(PMSG), NHPC stated that NHPC has a mixed experience of executing EPC contracts. In Omkareshwar Hydro power project, NHPC got good response, both in terms of cost overrun & time overrun. However, in Pakal Dul project, NHPC had to cancel the Turnkey Bid due to High Price and later awarded into Package contracts at a much lower price (21% lower than Turnkey bid). EPC contracts could well be suitable only for Projects having less uncertainties and limited underground structure.

4.3 The Committee also decided that next meeting will be held physically on 19.01.2022 at New Delhi.

5.0 Finally, CMD, THDC India Ltd. concluded the meeting by thanking committee Members and other participants for sparing their valuable time to attend the meeting and providing valuable suggestions.

Annexure-A

List of Participants

1. Sh. R. K. Vishnoi, CMD, THDC India Ltd., Committee Chairperson
2. Sh. Ajay Talegaonkar, Chief Engineer (F&CA), Committee member
3. Sh. S. P. Bansal, Director (Civil), SJVN Ltd., Committee member
4. Sh. Hemanta Kumar Deka, Director (Technical), NEEPCO, Committee member
5. Sh. Manoj Tripathi, Chief Engineer (HPM), CEA, Co-opted Committee member
6. Sh. A.K. Nauriyal, ED(PMSG), NHPC Ltd.
7. Sh. Samiran Goswami, CGM(C), Contract & Procurement, NEEPCO
8. Sh. Sanjay Singhal, Addl. GM (I/c), THDC India Ltd., NCR Office, Kaushambhi
9. Sh. Sanjay Uppal, Ex-CGM (SJVN Ltd.), Consultant, THDC India Ltd., NCR Office, Kaushambhi
10. Sh. Hemendra Singh, Sr. Engineer, THDC India Ltd., NCR Office, Kaushambhi

Record Notes of the third meeting of the Committee constituted by Ministry of Power to examine different modes of contracting and restructure relevant provisions of contracts in Hydro Power Sector after study of Arbitration cases, Kanwar Singh Committee recommendations, CVC Circulars and World Bank recommendations

The third meeting of the Committee constituted to examine different modes of contracting and restructure relevant provisions of contracts of Hydro Power Sector after study of Arbitration cases, Kanwar Singh Committee recommendations, CVC Circulars and World Bank recommendations was held on 19.01.2022 through Video Conferencing.

The list of participants is enclosed at **Annexure-A.**

1.0 Opening Remarks by the CMD, THDC India Ltd.

At the outset, Sh. R.K. Vishnoi, CMD, THDC India Ltd. extended a warm welcome to Committee Members and other participants. It was apprised by CMD, THDCIL that at present, EPC contracting & Unit rate contracting, are two popular modes of contracts being executed in Hydro-Power sector. It was also stated that experiences of executing both type of contracts for each Hydro-CPSE have been different, so on the basis of the lessons learnt from Hydro-CPSEs past-experience, some suggestive points may be firmed up, on the basis of which a CPSE may take its decision about selection of Contracting mode for award of work. He further requested CMDs of all Hydro-CPSE to present their view-points on the matter and share their experience.

2.0 CMD, NHPC stated that

- EPC Mode of execution are feasible for projects located in smaller reach, compact in nature, less or no geological surprises, scope of work is not likely to vary and project cost is not too high so as to ensure availability of eligible and competent contractors. Law and Order conditions, availability of land for quarries / infrastructure should not hamper the progress of work in the future. This type of mode of executing is best suited for projects where the risk determined and perspective bidders can judge the local condition as well as the project profile appropriately.

- Item Rate / Package mode of contracts are suitable for large sized projects involving high cost and located in wider reaches, involving higher degree of geological surprises (high quantum of underground works) and scope of work could vary. It is suitable for works which can be split into various items, quantities under each item can be estimated with accuracy and where in-house capability for Design & Engineering and project management is available.

- The success of contract does not only depend on the adoption of type of contracting but also depends upon many other factors some of which are followed as:

    i. Choosing of correct mode of execution,
    ii. Contract administration in its true spirit,
    iii. Timely approval of extension of time (EOT), deviations, rate revision, extra items and payment of monthly running account (RA) bills and other related payments,
    iv. Timely dispute resolution and payment,
    v. Deployment of right equipment and construction methodology,
    vi. Deployment of sufficient experienced manpower,
    vii. Timely decision making etc.

  It was also stated that NHPC has also adopted EPC mode of contracting for HM and E&M Packages.

- Availability of contractors in the Hydro-power sector - most of the Major civil contractors viz. HCC Ltd, Patel Engg. Ltd, Gammon, Jai Prakash Associates Limited, Coastal, etc. having experience of executing hydro projects are experiencing poor financial health. Some of them or their associate / subsidiary companies are going through insolvency proceedings, so the risk bearing capability of contractors has been substantially reduced. Further, the working capital of these companies is not such to execute large hydro projects on turnkey / EPC basis. Hence, most of the contractors are not comfortable with EPC projects.

- NHPC also suggested some broad parameters & factors to be considered while taking the decision for selection of mode of contracting i.e. EPC / Turnkey or Package to execute the Project & are detailed hereunder:

Sr. No.	Parameters	Remarks
1	Availability of Competent Contractors	Availability of Technically & Financially Sound prospective Contractors.
2	Nature of Project	Compact / Widespread.
3	Local & Political issues	Local & Political issues like militancy and unrest in J&K / North East region.
4	Approach to site and other infrastructure in local area	Approach to site and other required infrastructure in local area like road and rail connectivity and appropriate bridges on the local rivers / nallah, electricity supply etc.
5	Unforeseeable Risk involved	Probability of unforeseeable risks involved in the development of project.
6	Cost of the Project	High / Moderate / Low cost of project, so that the competent contractors to participate in the tendered work are available.
7	Quantum of Underground works	Quantum and scope of underground works.
8	Detailed Investigation	Availability of detailed Investigations before inviting bids for tendered work.
9	Law and order	Chances of Law and order problems during execution.
10	Land for quarries and dumping	Available or not.
11	Interfacing issues	Interfacing issues with Civil, HM and E&M works.
12	Clearances	Status of various project clearances.

It was further submitted that as availability of competent contractor(s) is a major issue in Hydro Sector, selection of Packages / Turn Key / EPC mode of contract should be considered on case to case basis considering the factors as brought out above (compactness, law and order, quantum of underground works associated unforeseen risk, local issues, investigation details available). As such, the option to choosing the mode of contracting should be left with the PSU to decide.

NHPC submitted its views vide mail and are enclosed as **'Annexure-B'.**

3.0 CMD, NEEPCO stated that

- in EPC Contract, reliance of the Client is concentrated on a single contractor. As a result, the success of executing the project largely depends on the performance of the EPC contractor.
- Hydro Power Projects involve various complexities including sub-surface works and geological surprises in various work fronts. Further, the locations of Hydro Power Project are mostly remote which lacks infrastructure, accessibility and other facilities. In consideration of these inadequacies, there could be a potential risk involved in relying upon a single EPC Contractor.
- In Hydro Power Project executed under Package Contracts, the risks arising out of inadequacies are spread over different contractors which could be advantageous in risk mitigation.
- In consideration of the above, while aligning with the view offered by Kanwar Singh Committee in its report Dated May, 2019, EPC contracts can be considered for works involving less uncertainties like Electro-Mechanical and Hydro-Mechanical works. Item Rate Contracts could be advantageous for the Civil works involving sub-surface activities.
- Uncertainties in execution of hydro projects are major factors that affect timely commissioning of hydro projects. Therefore, consideration of EPC mode of contract in hydro projects may be not be taken in a routine manner but decided on a case to case basis on merit.
- In case of an EPC Contract, interface between core departments, e.g., in house design departments, executing departments as well as the

Corporate Project Monitoring departments within the developer should be in place / be strengthened to ensure that the developer has better control during execution of the Contract.

It was further submitted that the choice of adopting the right mode of contracting as below in hydro projects, may be left to the developers to be decided on a case to case basis.

- Single EPC Contract- Turn Key type
- Multiple EPC contracts for EM, HM and Civil Packages.
- Composite Contracts with EPC for EM & HM works and Item-rate Contract for Civil works.
- Multiple Package contracts on item rate basis for EM, HM and Civil Packages.

NEEPCO submitted its views vide mail and are enclosed as **'Annexure-C'.**

4.0 CMD, SJVN Ltd. stated that

- All modes of contracting, item-rate as well as EPC/Turnkey contracts have their own advantages and limitations. Item-rate contracts offer better risk distribution, especially when uncertainties are higher with substantial underground works. But at the same time, item rate contracts are beset with time and cost overruns. EPC contracts though provide better time and cost certainty but the initial quotes are substantially higher. However, these higher quotes are offset by lower cost overruns during project executions.
- Weighing-in all the pros and cons of item-rate and EPC contracts, SJVN has decided to adopt two-EPC mode where underground works are not substantial. SJVN is not averse to the idea of having one package i.e. Turnkey contact. But it would depend on the features of the particular project as hydro projects are bespoke designed. As of now SJVN is executing two Dam-toe powerhouse projects in Two-EPC mode and is in the process of awarding works on another project also on this mode.

It was further submitted that the choice of the mode of contracting whether Turnkey, Two-EPC or Item-rate will depend on a no. of factors viz. the extent

of underground works involved in the project, Value of the Contracts and availability of contracting parties. Therefore, a one-size-fits-all approach may not be appropriate and the decision in this regard is best left to the developer of the Project.

SJVN Ltd. submitted its views vide mail and are enclosed as **'Annexure-D'.**

5.0 Finally, CMD, THDC India Ltd. concluded the meeting by thanking CMDs, committee Members and other participants for sparing their valuable time to attend the meeting and providing valuable suggestions.

Annexure-A

List of Participants

Committee Members

1. Sh. Rajiv Kumar Vishnoi, CMD, THDCIL - Chairperson of Committee
2. Sh. Hemanta Kumar Deka, Director (Technical), NEEPCO, Committee member
3. Sh. S. P. Bansal, Director (Civil), SJVN Ltd., Committee member
4. Sh. Biswajit Basu, Director (Projects), NHPC, Ltd., Committee member
5. Sh. Ajay Talegaonkar, Chief Engineer (F&CA), CEA, Committee member
6. Sh. Manoj Tripathi, Chief Engineer (HPM), CEA, Co-opted Committee member

Other partiipants

7. Sh. Abhay Kumar Singh, CMD, NHPC Ltd
8. Sh. Vinod Kumar Singh, CMD, NEEPCO Ltd
9. Sh. Nand Lal Sharma, CMD, SJVN Ltd
10. Sh. Y. K. Chaubey, Director (Technical), NHPC Ltd –
11. Sh. A.K. Nauriyal, ED(PMSG), NHPC Ltd.
12. Sh. Samiran Goswami, CGM(C), Contract & Procurement, NEEPCO
13. Sh. Sanjay Singhal, Addl. GM (I/c), THDC India Ltd., NCR Office, Kaushambhi
14. Sh. Sanjay Uppal, Ex-CGM (SJVN Ltd.), Consultant, THDC India Ltd., NCR Office, Kaushambhi
15. Sh. Hemendra Singh, Sr. Engineer, THDC India Ltd., NCR Office, Kaushambhi

'Annexure-B'

Subject: Committee constituted by MoP to examine the contractual issues & different modes of contracting in hydro projects- views/suggestions of NHPC.

With reference to the meeting held on 19.01.2022, as desired some of the broad parameters & factors to be considered while taking the decision for selection of mode of contracting i.e. EPC / Turnkey or Package to execute the Project are detailed hereunder:

Sr. No.	Parameters	Remarks
1	Availability of Competent Contractors	Availability of Technically & Financially Sound prospective Contractors.
2	Nature of Project	Compact / Widespread.
3	Local & Political issues	Local & Political issues like militancy and unrest in J&K / North East region.
4	Approach to site and other infrastructure in local area	Approach to site and other required infrastructure in local area like road and rail connectivity and appropriate bridges on the local rivers / nallah, electricity supply etc.
5	Unforeseeable Risk involved	Probability of unforeseeable risks involved in the development of project.
6	Cost of the Project	High / Moderate / Low cost of project, so that the competent contractors to participate in the tendered work are available.
7	Quantum of Underground works	Quantum and scope of underground works.
8	Detailed Investigation	Availability of detailed Investigations before inviting bids for tendered work.
9	Law and order	Chances of Law and order problems during execution.
10	Land for quarries and dumping	Available or not.
11	Interfacing issues	Interfacing issues with Civil, HM and E&M works.
12	Clearances	Status of various project clearances.

As, availability of competent contractor(s) is a major issue in Hydro Sector, selection of Package / Turn Key / EPC mode of contracting should be considered on case to case basis considering the factors as brought out above (compactness, law and order, quantum of underground works associated unforeseen risk, local issues, investigation details available etc.). As such, the option for choosing mode of contracting should be left with the PSU to decide.

Date : 21.01.2022

Subject: Committee constituted by MoP to examine the contractual issues & different modes of contracting in hydro projects- views/suggestions of NHPC.

Ref: (i) Email dtd. 23-12-2021 of Addl. GM-incharge (Thermail, Renewable Energy), THDCIL attaching THDCIL's Letter No. THDCIL/NCR/Arbitration Committee/F-220B/607 dtd. 22.12.2021 addressed to CMDs of Central Hydro Power PSUs.

(ii) Ministry of Power (MoP)'s Office Order No. 14-4/14/2021-H.I (260146) dated 09.12.2021.

As desired, vide above letter dated 22.12.2021 and subsequent discussion on the matter, the views / suggestions of NHPC on the following contract related issues concerning Hydro Power Projects are detailed hereunder:

(i) Viability of EPC contracts or item rates contracts alongwith circumstances thereof:

- **EPC Mode** of execution are feasible for projects located in smaller reach, compact in nature, less or no geological surprises (if quantum of underground works such as HRT, TRT, Diversion tunnels etc. are lesser in quantity and geological strata is favorable with limited variability), scope of work is not likely to vary and project cost is not too high so as to ensure availability of eligible and competent contractors. Law and Order conditions, availability of land for quarries / infrastructure should not hamper the progress of work in the future. This type of mode of executing is best suited for projects where the risk determined and perspective bidders can judge the local condition as well as the project profile appropriately.

- **Item Rate / Package mode** of contracts are suitable for large sized projects involving high cost and located in wider reaches, involving higher degree of geological surprises (high quantum of underground works) and scope of work could vary. It is suitable for works which can be split into various items, quantities under each item can be estimated with accuracy and where in-house capability for Design & Engineering and project management is available.

- **The success of contract** does not only depend on the adoption of type of contracting but also depends upon many other factors some of which are detailed hereunder:
    i. Choosing of correct mode of execution,
    ii. Contract administration in its true spirit,
    iii. Timely approval of extension of time (EOT), deviations, rate revision, extra items and payment of monthly running account (RA) bills and other related payments,
    iv. Timely dispute resolution and payment,

v. Deployment of right equipment and construction methodology,
vi. Deployment of sufficient experienced manpower,
vii. Timely decision making etc.

NHPC has also adopted EPC mode of contracting for HM and E&M Packages.

- **Availability of contractors**- Most of the Major civil contractors viz. HCC Ltd, Patel Engg. Ltd, Gammon, Jai Prakash Associates Limited, Coastal, etc. having experience of executing hydro projects are experiencing poor financial health some of them or their associate / subsidiary companies are going through insolvency proceedings, so the risk bearing capability of contractors has been substantially reduced. Further, the working capital of these companies is not such to execute large hydro projects on turnkey / EPC basis. Hence, most of the contractors are not comfortable with EPC projects.

As, availability of competent contractor(s) is a major issue in Hydro Sector, selection of Packages / Turn Key / EPC mode of contract should be considered on case to case basis considering the factors as brought out above (compactness, law and order, quantum of underground works associated unforeseen risk, local issues, investigation details available). As such, the option to choosing the mode of contracting should be left with the PSU to decide.

(ii) Comments / Suggestions on the other Issues:

NHPC has adopted FIDIC-1999 Red Book as base document for all its Major Civil Contract Packages.

It is mentioned that suggestions made by Sh. Kanwar Singh Committee and guidelines for reduction of time and cost overrun issued by the MoP vide order dated 08.11.2019 in hydro electric projects vide orders dated 08.11.2019 have been suitably incorporated by NHPC in its Contracts.

The Comments on various Contract provisions of Hydro Power Projects are as under:

a. **Qualification / Eligibility requirement:**

The Qualification Criteria in NHPC is formulated by an empowered Committee, the Committee shall finalise the Qualification Criteria (i.e. General, Technical and Financial Criteria) for the tender on the basis of availability of competent contractors, site conditions, complexity of works involved and other related issues considering the CVC and Govt. Guidelines. The qualification criteria should neither be too relaxed nor too stringent

b. **Scope of Work:**

- Scope of work shall depend upon the requirement of Project.
- The scope of work should be clearly specified in the contract irrespective of the fact that it's an item rate contract or turnkey or EPC contract.

c. **e-Reverse Auction (e-RA):** NHPC has adopted the e-RA for all contracts having an estimated value of more than five (5) crs. e-RA is followed after e-tender if number of eligible bidders at price bid stage is at least 2 (two) and the total evaluated bid price (including taxes & duties etc.) of the lowest evaluated techno commercially responsive L1 Bidder is higher with respect to estimated cost as under:

- Cost estimate of Package up to Rs. 500 Crore-More than 7.5%.
- Cost estimate of Package beyond Rs. 500 Crore & up to Rs. 1200 Crore-More than 5%.
- Cost estimate of Package above Rs. 1200 Crore-More than 2.5%.
- The H1 bidder (whose evaluated bid price is highest) will not be allowed to participate in further Reverse Auction process provided minimum three bidders are left after removal of H1 bidder.

d. **Variation and adjustment:**

NHPC has adopted the suggestions of Sh. Kanwar Singh Committee Report appropriately in its contracts and have the provisions that within 120 days after receiving all particulars supporting claim or within such other period as may be proposed by the Engineer and approved by the Contractor the Engineer shall respond with approval or with disapproval and detailed comments.

Provision for negative variation in quantities has also been covered in the contracts. The compensation for negative deviations shall not be applicable if the item has been substituted.

e. **Adjustment for change in law:**

NHPC has considered the provision for payment / deduction to contractor due to change in Law affected after base date i.e. 28 days prior to the latest date for submission of the tender.

f. **Payment:**

- **Down Payment and Interest Bearing Payment:** Provision for interest bearing Mobilization and Equipment Advance has been included. Advances shall be secured by bank guarantee. Following are the key points:

- Mobilization advance – 5%,
- Equipment advance - 10%,
- Rate of interest –SBI MCLR for 3 years + margin of 150 basis points.
- Recovery – within 80% of Accepted Contract Amount is certified.
- Contractor can hypothecate the equipment.

➢ **Progressive Payment:** NHPC has adopted the suggestions of Sh. Kanwar Singh Committee Report appropriately alongwith the guidelines issued by the MoP vide order dated 08.11.2019 for reduction of time and cost overrun in hydro power projects. Following provisions are in place:

All payments to the Contractor (advance, Interim Payment and Final Bill) shall be released and credited into a designated Escrow Account. Payment of 80 % of the admissible gross value of Interim Payment Certificate on provisional basis within 7 days after Engineer receives the statement and supporting documents and after taking into account all recoveries including retention amount on 100 % of the value of Interim Payment Certificate. All the statutory deductions will be carried out on the amount payable to the Contractor.

Balance 20% payment on any date between 7th day to 42nd day after the date of receipt of the statement and after taking into account of balance adjustment, statutory deductions & recoveries, if any.

➢ **Bank Guarantee:** Bank Guarantee shall be 110% of advance amount.

g. **Claim Procedure:** Guidelines to reduce the incidence of time and cost overruns in Hydro Power Projects, as circulated by the MoP vide letter No. 2/3/2016-NHPC dtd. 08/11/2019 has been adopted by NHPC. Procedure for evaluation of Idle Time Cost Claim has been included in the Contract.

h. **Force Majeure:** NHPC has adopted the suggestions of Sh. Kanwar Singh Committee Report appropriately. Following provisions are in place:

'if the event or circumstance is of the kind described in definition of Force Majeure and, in the case occurs in the Country, payment of 75% of such Cost'.

i. **Risk Sharing Methodology:** Risk Allocation Schedule has been incorporated in contract to define the risk of employer and contractor.

j. **Procedure for the payment of the idling cost to the Contractor:** The procedure for evaluation of Idle Time Cost Claim within a scheduled time has been included in the Contract.

k. **Incentive Clause:** Following incentive clause may be considered for inclusion for incentive to Contractor and Labour:

- **Incentive to Contractor:** For early completion of the Contract before the stipulated date of completion, an incentive amount at the rate of 0.05% per day of Contract Price of early completion subject to a maximum of 2.5% (two and half percent) of the Contract Price, shall be paid to the Contractor. For the purpose of this clause the relevant schedule date of completion shall correspond to original time for completion without any extension of time.

- **Incentive to labour:** For early completion of the Contract before the stipulated date of completion, an incentive amount at the rate 0.010% of the Contract Price per day of early completion subject to a maximum of 2.5% (two and half percent) of the Contract Price, shall be payable to the Contractor. This incentive benefit is required to be paid by the Contractor to unskilled, semiskilled and skilled labourer those are directly involved in the execution of works for not less than .....(to be kept as per duration of project) months. The payment of incentive shall be proportionate to the amount of wages paid to respective labourer

l. **Construction Methodology:** If the contractor deviates from the stipulated methodology, Engineer-in-charge should immediately seek an undertaking from the contractor that he has changed the methodology for his ease in execution of work and he would not raise any claim against it. Where, the methodology has been changed on the instruction of Engineer-in-charge, he should seek all the details from the contractor and process the case file in terms of the contract expeditiously. In case there is a reduction in the cost due to change(s) suggested by the contractor or as per instruction(s) of Engineer (In-charge), the amount be deducted from the contract price and payment certificate.

m. **Equipment Advance:** Already covered under Para f above.

n. **Any other addition in Contractual condition, for which CPSE may like to propose for smooth execution of works:**

- **Handing over of Land to contractor for working site:** The work should only be awarded after ensuring that land required for handing over to the Contractor for working site is in possession/ available. Land for quarries must be ensured.

- **Designated place for issue of departmental material** should be mentioned in the Contract. If designated place for issue of departmental material is changed due to unavoidable reasons, additional expenditure, if incurred, in bringing material at site be reimbursed.

- **Imposing Liquidated Damages:** Before imposing Liquidated Damages a reasoned notice containing quantum of Liquidated Damages to be imposed must be communicated to the Contractor. However, the recovery of Liquidated Damages may be deferred. Actual Liquidated

damages may only be effected on approval of Extension of Time.

It should be ensured that PBG shall not be released till Liquidated Damages, if any is pending for recovery. Liquidated Damages, if any can be recovered from the retention money and from any other sum payable to the contractor.

- **Record Keeping:** For all major Contracts under execution, all the records / documents of contract including drawings, correspondence with contractors, Contract Agreements, MB's etc. be kept in digitized format in ERP. MB's for all Contracts in respect of all Projects / units should be recorded in ERP. In addition to this, documents of all the running contracts which are still open, are also to be digitized .

- The day to day maintenance of hindrance register in ERP shall be ensured by the respective HOP.
  For contracts awarded by corporate office, the progress / implementation shall be ensured by Corporate Office through concerned ED's.
- **Dispute resolution:** Dispute resolution in a time bound manner should be ensured.

- **Geological / Site Investigation Details:** Geological / Site Investigation related details / reports should be made part of bidding document.

- **RCC Dam:** Considering site conditions, complexities and project requirement, Roller Compacted Concrete Dams may be adopted.

- **Project Monitoring:** Latest software based project monitoring should be adopted.

- **Shortfall:** any shortfall in progress should be addressed in a time bound manner with additional equipment's, manpower and techniques to makeup the progress/time.

****

Annexure-C

Views of NEEPCO expressed on 19.01.2022 during the 3rd meeting of the Committee constituted by the MoP on contractual issues & different modes of contracting in hydro projects

Ref: 3rd meeting of the Committee constituted by MoP with all Hydro-CPSEs on 19.01.2022.

In respect of different modes of contracting in hydro-power projects, following views/ suggestions of NEEPCO were forwarded to THDC India Limited vide email dtd. 31-12-2021 as well as through a PPT presentation during the 2nd meeting of the Committee held on 10-01-2022 at through Video Conferencing:

- *In EPC Contract, reliance of the Client is concentrated on a single contractor. As a result, the success of executing the project largely depends on the performance of the EPC contractor.*
- *Hydro Power Projects involve various complexities including sub-surface works and geological surprises in various work fronts. Further, the location of Hydro Power Project are mostly remote which lacks infrastructure, accessibility and other facilities. In consideration of these inadequacies, there could be a potential risk involved in relying upon a single EPC Contractor.*
- *In Hydro Power Project executed under Package Contracts, the risks arising out of inadequacies are spread over different contractors which could be advantageous in risk mitigation.*
- *In consideration of the above, while aligning with the view offered by Kanwar Singh Committee in its report Dated May, 2019, EPC contracts can be considered for works involving less uncertainties like Electro-Mechanical and Hydro-Mechanical works. Item Rate Contracts could be advantageous for the Civil works involving sub-surface activities.*

Further to above, following further views/suggestions on different modes of contracting in hydro-power projects are submitted below:

- *Uncertainties in execution of hydro projects are major factors that affect timely commissioning of hydro projects. Therefore, consideration of EPC mode of contract in hydro projects may be not be taken in a routine manner but decided on a case to case basis on merit.*
- *In case of an EPC Contract, interface between core departments, e.g., in house design departments, executing departments as well as the Corporate Project Monitoring departments within the developer should be in place / be strengthened to ensure that the developer has better control during execution of the Contract.*
- *The choice of adopting the right mode of contracting as below in hydro projects, may be left to the developers to be decided on a case to case basis.*
    a. *Single EPC Contract- Turn Key type*
    b. *Multiple EPC contracts for EM, HM and Civil Packages.*
    c. *Composite Contracts with EPC for EM & HM works and Item rate Contract for Civil works.*
    d. *Multiple Package contracts on item rate basis for EM, HM and Civil Packages.*

xxxxx

Annexure-D

Subject:- SJVN's view point with respect to the discussions in the committee meeting held on 19.01.2022 regarding different modes of contracting in Hydro Power Projects

SJVN's view, as also communicated during the meeting held on 19.01.2022, is as under:

All modes of contracting, item-rate as well as EPC/Turnkey contracts have their own advantages and limitations. Item-rate contracts offer better risk distribution, especially when uncertainties are higher with substantial underground works. But at the same time, item rate contracts are beset with time and cost overruns. EPC contracts though provide better time and cost certainty but the initial quotes are substantially higher. However these higher quotes are offset by lower cost overruns during project executions.

Weighing-in all the pros and cons of item-rate and EPC contracts, SJVN has decided to adopt two-EPC mode where underground works are not substantial. We are also not averse to the idea of having one package i.e. Turnkey contact. But it would depend on the features of the particular project as hydro projects are bespoke designed. As of now SJVN is executing two Dam-toe powerhouse projects in Two-EPC mode and is in the process of awarding works on another project also on this mode.

Therefore the choice of the mode of contracting whether Turnkey, Two-EPC or Item-rate will depend on a no. of factors viz. the extent of underground works involved in the project, Value of the Contracts and availability of contracting parties.

Therefore a one-size-fits-all approach may not be appropriate and the decision in this regard is best left to the developer of the Project.

Annexure-V

Subject: Committee to examine the contractual issues & different modes of contracting in hydro projects- views/suggestions of NEEPCO.

Ref: (i) Email Dtd 23-12-2021 of Addl. GM-incharge (Thermail, Renewable Energy), THDCIL attaching THDCIL's Letter No. THDCIL/NCR/Arbitration Committee/F-220B/607 Dtd. 22.12.2021 addressed to all CMDs.

(ii) Ministry of Power (MoP)'s Office Order No. 14-4/14/2021-H.I (260146) dated 09.12.2021.

With reference to the above, views/suggestions of NEEPCO on the following contract clauses concerning Hydro Power Projects are submitted below:

1. <u>Viability of EPC contracts or item rates contracts alongwith circumstances thereof</u>:

- In EPC Contract, reliance of the Client is concentrated on a single contractor. As a result, the success of executing the project largely depends on the performance of the EPC contractor. On the other hand, in Package Contract, multiple contractors are involved for different segments of the Project. Hydro Power Projects involve various complexities including sub-surface works and geological surprises in various work fronts. Further, the location of Hydro Power Project are mostly remote which lacks infrastructure, accessibility and other facilities. In consideration of these inadequacies, there could be a potential risk involved in relying upon a single EPC Contractor. On the other hand, in Hydro Power Project executed under Package Contracts, the risks arising out of inadequacies are spread over different contractors which could be advantageous in risk mitigation. In consideration of the above, while aligning with the view offered by Kanwar Singh Committee in its report Dated May, 2019, it could be opined that EPC contracts can be considered for works involving less uncertainties like Electro-Mechanical and Hydro-Mechanical works. Package Contracts could be advantageous for the Civil works involving sub-surface activities.

2. <u>Comments on Contract clauses for Hydro Power Projects:</u>

(i) <u>Qualifications/Eligibility requirement</u>:

- It is desired that the bidder shall simultaneously fulfill the financial QR , General Technical QR and Specific Technical QR. However, in case sufficient numbers of bidders are not available who fulfill all these requirements by itself, then there is need for flexibility in the QR. In such case, the recommendation of Kanwar Singh Committee is a viable option. However, as far as possible the past experience of bidders should be similar to the tendered work.

(ii) <u>Scope of work:</u>

- The scope of work shall depend upon the nature of work tendered and type of contract adopted.
- In case of E-M & H-M Package contract, the responsibility of design rests in the scope of Contractor while in Civil works, the design is normally provided by the Client. However, in case of EPC contracts, the scope of works includes design also.
- As per the General Instructions on Procurement and Project Management issued by the Department of Expenditure, Ministry of Finance, GOI dated 29/10/2021, the technical specification for EPC Contracts should be framed in such a manner to allow sufficient freedom to the Contractor for optimizing the design since over-specification of design leads to increase in cost (Sl. No. 13.4 of the Circular).

(iii) E-reverse bidding process :

- e-RA is conducted for procurement, where award criteria is L1 evaluated price. The interest of winning a contract has the potential of inducing unhealthy competition amongst bidders during e-RA, which may affect quality of Goods/ Works/ Services to be procured. Therefore, e-RA is used as a strategic tool and it is generally avoided in procurement of high end products in which quality, safety aspects and stakes of commercial losses are major considerations.
- Taking advantage of eRA , there is possibility of quoting high price by bidders in their initial price bid. In the event of a single bidder qualifying in techno-commercial evaluation, there is a possibility of finalisation of award to the lone bidder at his quoted price which may be inflated in consideration of option of e-RA. Therefore, it is considered prudent to conduct the e-RA with following provision so as to caution the bidders from quoting inflated price in their initial price bid:
  (i) e-RA is conducted only when there is atleast 3(three) Techno-Commercially qualified bidders, wherein the bidder quoting the highest price (H-1 bidder) among the Techno Commercially qualified bidders in the initial price bid shall be excluded from participating in the e-RA.
  (ii) In case of numbers of Techno-Commercially qualified bidders are less than 3 (three), the L1 bidder becomes eligible for award at its quoted Price.
- There could be need of further price negotiation with the L1 bidder if the L1 price is considered to be high.

(iv) Variation and adjustment:

- For civil works contract, where possibility of variation of quantity is comparatively higher, following provision of SBD is considered necessary.

  - If any item of work appearing in the BOQ is increased by more than 25% of the quantity of that item and this change in quantity (ie. quantity increasing over 1.25 times of BOQ quantity) multiplied by the BOQ rate exceeds 0.25% of the contract price, then the rate of the said item shall be revised/analysed. The new rate shall be applicable only for the quantity executed in excess of 1.25 times of the BOQ quantity.

  - Further, if the quantity of any item, gets reduced by more than 25% of the quantity provided in the BOQ then the total payment for the reduced quantity of that item shall be payable at the revised/analysed rate. However, value of total payment against such reduced quantity of items at revised rate shall be limited to the payment admissible for 75% quantity of the said item at the rate provided in the BOQ.

- Rates for Extra items: In the event of requirement of any new item (not available in the BOQ), it becomes necessary to finalise rates of such items in the following sequence:

  - the rates of such items, as far as practicable, shall be derived from the contracted rates of analogous /similar item(s) in the Bill of Quantities after actual observation at Site. Items whose rates are identified as abnormally high (AHR) shall not be taken as reference to evaluate rates of such extra, substituted items etc.

  - In the cases, where analogous/similar items are not available in the Bill of Quantities, such items shall be termed as extra items, and their rates shall be determined based on analysis of rates.

(v) Adjustment for change in laws:

- The provision recommended by Kanwar Singh Committee is reproduced below:
  "Introduction of new Laws and the repeal or modification of existing Laws or in the judicial or official governmental interpretation of such Laws, made after the Base Date (28 days prior to bid submission), which affect the Contractor in the performance of obligations under the Contract shall be paid/recovered separately provided such additional or reduced cost shall not be separately paid or credited if the same shall already have taken into account in the indexing or any inputs to the Price Adjustment Formulae. Variation in the rates or royalty charges/fresh levy of royalty on materials shall be reimbursed as per actuals. Provided always that any variations resulted from the changes in legislation, on POL or on the labour and staff of the Contractor, shall be deemed to be included in the price adjustment formula and shall not be paid separately by the Employer."

  The above is found acceptable.

(vi) Payment (Down payment, Interest bearing payment, Progressive payment related clauses, Bank Guarantee etc.):

- **Down payment** and advances should be secured by interest bearing BG.
- Recovery of **interest bearing advances** should be linked with progress of work. Recommendation of Kanwar Sign Committee is found acceptable.
- **Secured Advance** being released after receipt of the materials at site, need of Bank Guarantee is not necessary.
- Recovery of **interest free advances** if granted shall be time bound without linking with progress of work. This is in compliance of CVC Guidelines.
- In regards to **Progressive payment** to the contractor, the provision recommended by Kanwar Singh Committee for **RA Bills** is reproduced below:
  "Based on supporting documents submitted by the Contractor, the Developer shall pay @80% of the admissible RA Bill on provisional basis within 7 days. Balance payment be paid within 45 days after the date of receipt of RA Bill and after taking into account of balance adjustment, statutory deductions & recoveries, if any. In case provisional amount released by the Engineer –in-Charge in 7 days was more than 100% of the admissible Bill amount, the Developer shall charge interest on the amount in excess of 80% due net payment from the next payment to the Contractor."

  The above is found acceptable.

(vii) Claims procedure :

If the Contractor intends to claim any additional payment, he shall give notice of his intention to the Engineer-in-Charge within specified time, say 15 days after the event giving rise to the claim has first arisen. Such claims shall be supported by contemporary records jointly maintained by the contractor and Client. However, the detail records and calculations in support of the claim shall be submitted by the contractor not later than 90 days of such event.

The claim should be settled within 45 (forty-five) days after receiving the same by the Engineer-in-Charge otherwise the claim made by the Contractor will be deemed to have been accepted.

The above Claim procedure is also based on the suggestions put forward in Sl. No.VI (e) &(h) of Guidelines to reduce the incidence of time and cost overruns in Hydro Power Projects, as circulated by the MoP vide letter No. 2/3/2016-NHPC dtd. 08/11/2019.

(viii) Force majeure:

The provision recommended by Kanwar Singh Committee for adoption of FIDIC/World Bank definition of Force Majeure is reproduced below:

"Force majeure" means an exceptional event or circumstance:

a) *which is beyond a Party's control.*
b) *which such Party could not reasonably have provided against before entering into the Contract.*
c) *Which, having arisen, such Party could not reasonably have avoided or overcome, and*

Which is not substantially attributable to the other party."

The above is found acceptable.

(ix) Risk sharing methodology:

The recommendation of Kanwar Singh Committee is reproduced below:

"The Committee recommends that FIDIC conditions with appropriately incorporating "Risk Allocation Schedule" / "Risk Register" as per concept of SBD and further Employer bearing 75% of the overstay costs resulting from Force Majeure risks may be adopted for equitable risk sharing."

The above is found acceptable.

(x) Procedure for the payment of the idling cost to the Contractor:

The recommendation of Kanwar Singh Committee on Procedure for payment of Idling cost to the Contractor is based on bid conditions of SJVN & NHPC, which is acceptable to NEEPCO.

(xi) Incentive clause for early completion of works:

The recommendation of Kanwar Singh Committee is reproduced below:

"Incentive (upto 5%) @0.05% of contract value per day of early completion, may be paid to the Contractor for early completion of project in case of turnkey projects or component of the project."

The above is found acceptable.

(xii) Construction Methodology:

Bidders shall provide the "Construction Methodology" including relevant information viz. sequences, facilities and layouts, Sketches, drawings and diagrams, cycle time, manpower, equipment and materials etc. along with their Techno-Commercial Bids to facilitate assessment of the general adequacy of the bidder's proposal.

(xiii) Equipment advance:

The recommendation of Kanwar Singh Committee is reproduced below:

"Interest free Equipment advance shall be upto 10% of Contract Value (may be enhanced on case to case basis) for purchase of new equipment. The advance may be released against supply order and later on securitised against hypothecation/BG. Full advance shall be recovered by the time 90% of works are completed."

It is observed that as per the above procedure the advance released against supply order remains unsecured till the equipment is purchased and hypotheticated. Therefore, it is suggested that the Equipment Advance shall be released against supply order and submission of BG of equivalent amount.

(xiv) Any other addition in Contractual condition, for which CPSE may like to propose for smooth execution of works:

- **SETTLEMENT OF DISPUTES AND ARBITRATION**:
  In additions to the provision of Arbitration for settlement of dispute, the following mechanisms as finalised by MOP shall be included in the Contract for expeditious settlement of disputes:
  A. Dispute Avoidance mechanism through appointment of Independent Engineer (IE).
  B. Reconciliation Mechanism through Conciliation Committees of Independent Experts (CCIE)

3. Information related to contracts (Project-wise) as per the prescribed 'format-A' is attached at **Annexure-I (Statement of contracts).**

xxx

Annexure-VI

Subject : SJVN's Comments on contractual issues and different modes of contracting in hydro projects, as sought by the Committee constituted by Ministry of Power

Ministry of Power vide office order No. 14-4/14/2021-H.I (260146) dated 09.12.2021 has constituted a committee to examine the advantages / disadvantages associated with different modes of contracts such as EPC/Turnkey, Item Rate and restructuring relevant provisions of contracts in Hydropower projects. Following the first meeting of the committee, whichwas held on 19.12.2021 at THDC's NCR Office, Kaushambi, all hydropower PSUs were requested to furnish comments on the various issues vide dated 22.12.2021. SJVN's comments on these issues are asunder:

1. **Viability of EPC contracts or item rates contracts alongwith circumstances thereof**

1.1 The major works involved in the construction of hydropower projects can be divided into two main categories viz. civil, hydro-mechanical(HM) and electro-mechanical(EM) works. HM and EM works are always executed in a design-build mode, with the Contractor responsible for design of the works. In contrast civil works are executed in either an item-rate mode with the Employer retaining the design with himself or in EPC/Turnkey mode with design in the Contractor's scope. Based on the combination of modes of execution adopted for Civil, HM and EM works, Hydropower projects are executed in primarily the following three modes of Contracts:

i. **Item Rate:**In this mode the Civil works and HM works are awarded in two separate item rate contract packages and the EM works are awarded in a separate EPC contract. Sometime civil and HM works are awarded in a single item rate contract package also.

ii. **Two-EPC:**In this mode the Employer divides the works involved in two EPC contract packages and invites bids for them separately.For both the contracts, the Contractor has the responsibility for design and build as per Employer's requirements for the respective contracts. The owner retains the right to review the drawings, but the Contractor is obligated to revise the design and drawings only if it is not as per the Contract.

iii. **Turnkey**: In this mode all the works involved in the construction of the hydropower project i.e. Civil works, hydro-mechanical (HM) and electro-mechanical (EM)along with design and engineering are included in one contract package. The successful bidder has to complete the works and commission the

project as per the Employer's requirements. The contractor provides a turn-the-key solution to the Employer.

1.2 SJVN has experience of executing/awarding Hydro Projects in item rate and two-EPC mode. Our experiences alongwith advantages and disadvantages are listed below:

Item Rate: NJHEP and RHEP Projects were developed on item rate mode. This mode offer the advantage of increased participation of bidders as there is balanced risk sharing. Top quality work was delivered by the Contractors in our Projects (NJHEP and RHEP). However this mode of contracting is beset with time and cost overruns.

Two-EPC : LHEP stage-1 and DSHEP were awarded in two-EPC mode. So far we are satisfied with the progress at these two Project.For DSHEP turnkey mode was considered, but in view of the fact that there are only three EM contractors in the Country, who may not be keen to work under civil contractors, it was decided to go for two-EPC. Thus going for turnkey mode will reduce competition.

EPC/Turnkey contracts offer various advantages over item-rate Contracts like,

- time and cost certainty,
- reduced interface problems,
- optimization of design and reduction in cost
- Design and engineering being Contractor's responsibility, he cannot cover up his inefficiencies/low productivity waiting for instructions from the Employer, in case of adverse geological occurrences.
- Significantly lower opportunities for claims and disputes, which usually beset item-rate contracts.

1.3 Suggestion

Based on the foregoing,Two-EPC (Civil & HM works as one package and EM separate EPC contract) is most preferred in comparison to Item Rate. EPC/Turnkey mode of Contract should be avoided for projects which involve substantial underground works. However, if opted, suitable risk-sharing mechanism for underground works must be included in the Contract.

2.0 Comments on various contract clauses of different hydro-power project contracts

2.1 Qualifications/Eligibility requirement

2.1.1 Currently the QR being followed stems from report of Committee constituted by Ministry of Power vide Office Order No.15-18/20/2017-HYDEL-II (MOP) dated 26th July, 2017 *to study the situation and reasons including qualifying criteria etc. and suggest measures to increase competent vendors for speedy execution of hydro power projects',* referred to as Kanwar Singh Committee Report. The committee recommended relaxing the technical qualifying criteria in order to have wider participation and include non-hydro civil contractors. The committee proposed experience criteria based on quantum of excavation and concreting instead of specific components of hydro projects. The financial criteria were also appropriately strengthened.

The qualifying criteria recommended by the committee was relevant at that time. However, in the present scenario, sufficient number of hydro contractors are competing and relaxation in criteria is no longer required. It is anticipated that difficulties will arise during construction if lesser experienced parties are allowed. There are examples of hydro projects which got stalled/abandoned due to technical issues during construction and in the process put huge amount of public money at risk. Loss to public exchequer can be avoided, if right technical advice is rendered/applied at the right time. As such, qualification criteria should be based on components envisaged in a particular project. The Committee may deliberate on number of years to be kept in technical criteria.

Further, in respect of Bid capacity, allowing a period of twenty years for calculating the value of A has unnecessarily diluted the financial criteria. Accordingly following changes in QR are suggested so as to attract maximum number of contractors with relevant experience.

2.1.2 Suggestion

i. In the **General Experience** criteria in place of seeking experience of executing a *Works Contract* we may seek experience of a *major Civil Structure in a Water Resources/ Hydro Power Project.*

ii. In the **Specific Experience** criteria in place of seeking experience of executing *excavation/earth work and concreting*we may seek experience of a having executed the major c*ivil structures*involved in the Project viz.*d*am/barrage, river diversion arrangement, power house (surface or underground), tunnel, shafts: pressure shaft/surge shaft, desilting basin etc.

iii. For evaluating the **Bid Capacity**, it is proposed that a period of five years without indexation factor may be considered in place of twenty years for calculating the value of A in the formula for Bid Capacity, which is reproduced below:

Bid Capacity= (2 x A x N) – B,

Where, A = Indexed value of maximum value of works executed (in a on-going or completed project) in any one year during last 20 years, keeping index of inflation as 6% (compounded annually) for calculating A at present Price Level, N = Number of years prescribed for completion of the subject Contract Package and B = Value of existing commitments (as on bid submission date) and ongoing works to be completed in the next 'N' years.

2.2 E-reverse bidding process

e-Reverse Auction can be used as a strategic tool for arriving at lowest quote. At the same time, workability of awarded rates has to be ensured. As such, following procedure of e-RA is proposed:

- If L1 quoted price is less than or equal to the estimated value, work shall be awarded to L1 bidder without e-RA.
- If L1 quoted price is more than estimated value but less than or equal to 1.10 times the estimated value, e-RA shall be conducted between all the bidders in this price range. If only one bidder is there in this price range, work shall be awarded without e-RA.
- If L1 quoted price is greater than 1.10 times the estimated value, e-RA shall be conducted among all the bidders except H1 bidder. If only two bidders are there above this price range, e-RA shall be conducted between both the bidders.

2.3 Variation and adjustment, and Risk sharing methodology

it is suggested that in EPC contracts with significant underground works, provision for payment of variations in Dam foundation and support system in underground works be introduced for better risk sharing.

2.3.1 Suggestion

Variation in Dam foundation:

- Variation in dam foundation upto certain depth (say ± 2m) shall not be paid.
- Variation beyond 2 m shall be payable at a pre-defined rate, measured as addition/reduction in quantity of concrete.

Variation in support system

- The support system envisaged in underground works shall be disclosed to the bidder alongwith quantities considered and their estimated costs.
- Any variation beyond a certain percentage (say 10%) shall be payable/deducted at the pre-defined rates.

2.4 Payment (Down payment, Interest bearing payment, Progressive payment related clauses, Bank Guarantee etc.)

Currently, if a sub-contractor qualifies on the strength of its parent/holding company, three Performance Security Bank Guarantees have to be submitted for same portion of work viz. first BG by Main Bidder, second by Sub-Contractor for his portion of work and third by the parent company of sub-Contractor.

2.4.1 Suggestion

In place of a BG the parent company shall be required to submit an undertaking alongwith the bid that in case of award of work, they will provide the full technical and financial support for completion of work.

2.5 Claims procedure

For challenging of Arbitration award in Courts, limited relief has been provided under the Arbitration and Conciliation Act (ref. Section 34 of Act.) As such, it becomes vital to settle disputes beforehand via negotiation, conciliation, mediation etc.

2.5.1 Suggestion:

It is suggested that all efforts shall be made to amicably settle the disputes, so that minimum number of disputes reach court of law. Legal remedy should be used as a last recourse. There should be willingness and fearlessness in settling issues and admitting if owner is at fault. Imbibing such culture in PSUs can really go a long way in reducing contingent liability against the companies.

- **Stage-I** : Engineer-in-charge (EIC): If either party feels it is entitled to time/cost under the contract, it can refer the claim to EIC for decision. The EIC should get the same examined by an internal committee at project level. All efforts shall be made to resolve the issue at project level only. EIC/HOP shall be suitably empowered via Delegation of Powers for acceptance of claims.
- **Stage-II** : Committee of Directors: Before referring the matter to IE or Arbitration, an internal committee of Directors shall be constituted who shall examine the matter and try to resolve the same by amicable settlement.
- **Stage-III**: Independent Engineer: If contractor is dissatisfied with the decision of Committee of Directors, it can be referred to Independent Engineer. An IE is a third party appointed for expeditious elimination of disagreements in a just and fair manner. Under the MOP's SOP, a strict timeline has been specified for decision making by IE. It is a new concept that has substituted the existing dispute resolution through DB.
- **Stage-IV**: Conciliation/Arbitration: In case a dispute remains unresolved following the decision of the Independent Engineer, the parties can take recourse to either Conciliation or Institutional Arbitration.

2.6 Incentive clause for early completion of works

It is suggested that incentive for early completion, based on the following be considered:

- **Incentive to Contractor**: If the Works as a whole are completed before the specified Time for Completion, incentive will be payable to Contractor at the rate of 0.25 % of Award value per month of early completion, subject to maximum of 2.5 % of Award value.

- **Incentive for labour:**The Engineer-in-charge can set targets for day to day activities like erection of Gantry and the labour (skilled and unskilled) will be awarded certain additional percentage of minimum wages for early/timely completion of targets.

2.7 Any other addition in Contractual condition, for which CPSE may like to propose for smooth execution of works.

2.7.1 Payment mechanism:It has been observed that contractors have a tendency to divert the project funds to other sites/Headquarters. This can result in delay in payments to suppliers/sub-contractors, labour etc. As such, following payment mechanism is proposed to avoid diversion of project funds:

i. The Contractor shall open a Dedicated Account for the Works of the Project
ii. All payments including advances shall be released through Dedicated Account only.
iii. The Dedicated Account shall be jointly operated by Contractor and Employer.
iv. The same mechanism shall also apply to the sub-contractors/sub-vendors for works or any part thereof having substantial value of works say 10% of the Accepted Contract Amount.
v. The Contractor shall submit report on annual accounts of the works undertaken by the Contractor under the Contract as a separate accounting unit as per applicable accounting standards
vi. In case it is observed that the payments under the Contract are diverted by the Contractor for purposes other than the Works under Contract without prior permission from the Employer's Representative, all subsequent payments shall be released through escrow account.

2.7.2 Estimation: The estimated cost of the package shall be disclosed to the bidders in the NIT. If bidding period is long (say more than 6 months), the estimated cost shall be updated in the tender 10-15 days before opening of bids.

2.7.3 Deployment of equipment: The Contractor shall be mandatorily required to deploy new equipment (say 50% of required number of each equipment). Also, the deployment of equipment should be monitored with respect to deployment schedule finalized at the time of bidding/award. In case of deficiencies on part of Contractor, a token amount shall be deducted from running bills.

2.7.4 Construction of Drifts : In projects involving underground works,owner can plan drifts along the crown of various adits/tunnels/caverns which will help in knowing geology of the area and also reduce actual construction time and cost of project.

2.7.5 Certificate of Completion: It has been observed that some Contractors are submitting certificate of completion issued by Chartered Accountants. It is suggested that certificate of completion should be issued by Client/Owner. Certificate of completion should be issued before the last date of submission of bid.

2.7.6 It has been observed that at times bidders, particularly in case of consultancy assignments make a mockery of the whole bidding process by requesting repeated clarifications. It is suggested that in case of consultancy assignments, there should be no provision of clarification.

2.7.7 Awarding weightage to quality parameters while finalizing successful bidder

It is suggested that while finalizing the successful bidder, weightage should also be given to parameters indicating capabilities of the bidders to execute the Works. Following technical evaluation of bids, scores can be awarded to bidders on parameters like financial capabilities, Experience, low litigation history, Equipment owned and Technological capability. Then a composite score for these capabilities and bid price can be evaluated and the bidder scoring the highest composite score would emerge as successful and awarded the Works.

Sl. No.	Parameter	Metric	Method of evaluation	Weig htage
1	Networth	Networth of the bidder as evidenced from the annual account statements	A no. of ranges of networth of immediate preceding F.Y. alongwith marks shall be drawn. Bidders shall be evaluated based on the range in which their respective networth falls.	20%
2	Experience (in MW)	Total installed capacity of hydroelectric projects in MW completed by the Bidder during the	A no. of ranges of installed capacity alongwith marks shall be drawn. Bidders shall be evaluated based on the installed capacity of completed Contracts.	20%

		last twenty years		
3	Litigation history	List of all outstanding claims/disputes pending before ADR forums and Courts	A no. of ranges of value of pending disputes alongwith marks shall be drawn. Bidders shall be evaluated based on the value of pending disputes.	20%
4	Equipment	Total value (in INR) of equipment owned, not more than two years old	A no. of ranges of value of equipment owned alongwith marks shall be drawn. Bidders shall be evaluated based on the value of equipment owned by the bidder.	20%
5	Technological capability	Average rate of progress achieved in executing key activities : Dam Concreting Tunnel excavation Tunnel lining	A no. of ranges of progress of key activities alongwith marks shall be drawn. Bidders shall be evaluated based on the highest average progress achieved by him in a single Contract during the last twenty years.	20%

A quality score shall be evaluated based on the aforementioned parameters. Then a composite Quality-Cost score shall be evaluated based on the quality score and financial score. The weightage of quality and cost shall be **5 : 95**.

Annexure-VII

Date : 21.01.2022

Subject: Committee constituted by MoP to examine the contractual issues & different modes of contracting in hydro projects- views/suggestions of NHPC.

Ref: (i) Email dtd. 23-12-2021 of Addl. GM-incharge (Thermail, Renewable Energy), THDCIL attaching THDCIL's Letter No. THDCIL/NCR/Arbitration Committee/F-220B/607 dtd. 22.12.2021 addressed to CMDs of Central Hydro Power PSUs.

(ii) Ministry of Power (MoP)'s Office Order No. 14-4/14/2021-H.I (260146) dated 09.12.2021.

As desired, vide above letter dated 22.12.2021 and subsequent discussion on the matter, the views / suggestions of NHPC on the following contract related issues concerning Hydro Power Projects are detailed hereunder:

(i) Viability of EPC contracts or item rates contracts alongwith circumstances thereof:

- **EPC Mode** of execution are feasible for projects located in smaller reach, compact in nature, less or no geological surprises (if quantum of underground works such as HRT, TRT, Diversion tunnels etc. are lesser in quantity and geological strata is favorable with limited variability), scope of work is not likely to vary and project cost is not too high so as to ensure availability of eligible and competent contractors. Law and Order conditions, availability of land for quarries / infrastructure should not hamper the progress of work in the future. This type of mode of executing is best suited for projects where the risk determined and perspective bidders can judge the local condition as well as the project profile appropriately.

- **Item Rate / Package mode** of contracts are suitable for large sized projects involving high cost and located in wider reaches, involving higher degree of geological surprises (high quantum of underground works) and scope of work could vary. It is suitable for works which can be split into various items, quantities under each item can be estimated with accuracy and where in-house capability for Design & Engineering and project management is available.

- **The success of contract** does not only depend on the adoption of type of contracting but also depends upon many other factors some of which are detailed hereunder:
    i. Choosing of correct mode of execution,
    ii. Contract administration in its true spirit,
    iii. Timely approval of extension of time (EOT), deviations, rate revision, extra items and payment of monthly running account (RA) bills and other related payments,
    iv. Timely dispute resolution and payment,

v. Deployment of right equipment and construction methodology,
vi. Deployment of sufficient experienced manpower,
vii. Timely decision making etc.

NHPC has also adopted EPC mode of contracting for HM and E&M Packages.

- **Availability of contractors**- Most of the Major civil contractors viz. HCC Ltd, Patel Engg. Ltd, Gammon, Jai Prakash Associates Limited, Coastal, etc. having experience of executing hydro projects are experiencing poor financial health some of them or their associate / subsidiary companies are going through insolvency proceedings, so the risk bearing capability of contractors has been substantially reduced. Further, the working capital of these companies is not such to execute large hydro projects on turnkey / EPC basis. Hence, most of the contractors are not comfortable with EPC projects.

As, availability of competent contractor(s) is a major issue in Hydro Sector, selection of Packages / Turn Key / EPC mode of contract should be considered on case to case basis considering the factors as brought out above (compactness, law and order, quantum of underground works associated unforeseen risk, local issues, investigation details available). As such, the option to choosing the mode of contracting should be left with the PSU to decide.

(ii) Comments / Suggestions on the other Issues:

NHPC has adopted FIDIC-1999 Red Book as base document for all its Major Civil Contract Packages.

It is mentioned that suggestions made by Sh. Kanwar Singh Committee and guidelines for reduction of time and cost overrun issued by the MoP vide order dated 08.11.2019 in hydro electric projects vide orders dated 08.11.2019 have been suitably incorporated by NHPC in its Contracts.

The Comments on various Contract provisions of Hydro Power Projects are as under:

a. **Qualification / Eligibility requirement:**

The Qualification Criteria in NHPC is formulated by an empowered Committee, the Committee shall finalise the Qualification Criteria (i.e. General, Technical and Financial Criteria) for the tender on the basis of availability of competent contractors, site conditions, complexity of works involved and other related issues considering the CVC and Govt. Guidelines. The qualification criteria should neither be too relaxed nor too stringent

b. **Scope of Work:**

- Scope of work shall depend upon the requirement of Project.
- The scope of work should be clearly specified in the contract irrespective of the fact that it's an item rate contract or turnkey or EPC contract.

c. **e-Reverse Auction (e-RA):** NHPC has adopted the e-RA for all contracts having an estimated value of more than five (5) crs. e-RA is followed after e-tender if number of eligible bidders at price bid stage is at least 2 (two) and the total evaluated bid price (including taxes & duties etc.) of the lowest evaluated techno commercially responsive L1 Bidder is higher with respect to estimated cost as under:

- Cost estimate of Package up to Rs. 500 Crore-More than 7.5%.
- Cost estimate of Package beyond Rs. 500 Crore & up to Rs. 1200 Crore-More than 5%.
- Cost estimate of Package above Rs. 1200 Crore-More than 2.5%.
- The H1 bidder (whose evaluated bid price is highest) will not be allowed to participate in further Reverse Auction process provided minimum three bidders are left after removal of H1 bidder.

d. **Variation and adjustment:**

NHPC has adopted the suggestions of Sh. Kanwar Singh Committee Report appropriately in its contracts and have the provisions that within 120 days after receiving all particulars supporting claim or within such other period as may be proposed by the Engineer and approved by the Contractor the Engineer shall respond with approval or with disapproval and detailed comments.

Provision for negative variation in quantities has also been covered in the contracts. The compensation for negative deviations shall not be applicable if the item has been substituted.

e. **Adjustment for change in law:**

NHPC has considered the provision for payment / deduction to contractor due to change in Law affected after base date i.e. 28 days prior to the latest date for submission of the tender.

f. **Payment:**

- **Down Payment and Interest Bearing Payment:** Provision for interest bearing Mobilization and Equipment Advance has been included. Advances shall be secured by bank guarantee. Following are the key points:

    - Mobilization advance – 5%,
    - Equipment advance - 10%,
    - Rate of interest –SBI MCLR for 3 years + margin of 150 basis points.
    - Recovery – within 80% of Accepted Contract Amount is certified.
    - Contractor can hypothecate the equipment.

- **Progressive Payment:** NHPC has adopted the suggestions of Sh. Kanwar Singh Committee Report appropriately alongwith the guidelines issued by the MoP vide order dated 08.11.2019 for reduction of time and cost overrun in hydro power projects. Following provisions are in place:

  All payments to the Contractor (advance, Interim Payment and Final Bill) shall be released and credited into a designated Escrow Account. Payment of 80 % of the admissible gross value of Interim Payment Certificate on provisional basis within 7 days after Engineer receives the statement and supporting documents and after taking into account all recoveries including retention amount on 100 % of the value of Interim Payment Certificate. All the statutory deductions will be carried out on the amount payable to the Contractor.

  Balance 20% payment on any date between 7th day to 42nd day after the date of receipt of the statement and after taking into account of balance adjustment, statutory deductions & recoveries, if any.

- **Bank Guarantee:** Bank Guarantee shall be 110% of advance amount.

g. **Claim Procedure:** Guidelines to reduce the incidence of time and cost overruns in Hydro Power Projects, as circulated by the MoP vide letter No. 2/3/2016-NHPC dtd. 08/11/2019 has been adopted by NHPC. Procedure for evaluation of Idle Time Cost Claim has been included in the Contract.

h. **Force Majeure:** NHPC has adopted the suggestions of Sh. Kanwar Singh Committee Report appropriately. Following provisions are in place:

‘if the event or circumstance is of the kind described in definition of Force Majeure and, in the case occurs in the Country, payment of 75% of such Cost’.

i. **Risk Sharing Methodology:** Risk Allocation Schedule has been incorporated in contract to define the risk of employer and contractor.

j. **Procedure for the payment of the idling cost to the Contractor:** The procedure for evaluation of Idle Time Cost Claim within a scheduled time has been included in the Contract.

k. **Incentive Clause:** Following incentive clause may be considered for inclusion for incentive to Contractor and Labour:

- **Incentive to Contractor:** For early completion of the Contract before the stipulated date of completion, an incentive amount at the rate of 0.05% per day of Contract Price of early completion subject to a maximum of 2.5% (two and half percent) of the Contract Price, shall be paid to the Contractor. For the purpose of this clause the relevant schedule date of completion shall correspond to original time for completion without any extension of time.

- **Incentive to labour:** For early completion of the Contract before the stipulated date of completion, an incentive amount at the rate 0.010% of the Contract Price per day of early completion subject to a maximum of 2.5% (two and half percent) of the Contract Price, shall be payable to the Contractor. This incentive benefit is required to be paid by the Contractor to unskilled, semiskilled and skilled labourer those are directly involved in the execution of works for not less than …….(to be kept as per duration of project) months. The payment of incentive shall be proportionate to the amount of wages paid to respective labourer

l. **Construction Methodology:** If the contractor deviates from the stipulated methodology, Engineer-in-charge should immediately seek an undertaking from the contractor that he has changed the methodology for his ease in execution of work and he would not raise any claim against it. Where, the methodology has been changed on the instruction of Engineer-in-charge, he should seek all the details from the contractor and process the case file in terms of the contract expeditiously. In case there is a reduction in the cost due to change(s) suggested by the contractor or as per instruction(s) of Engineer (In-charge), the amount be deducted from the contract price and payment certificate.

m. **Equipment Advance:** Already covered under Para f above.

n. **Any other addition in Contractual condition, for which CPSE may like to propose for smooth execution of works:**

- **Handing over of Land to contractor for working site:** The work should only be awarded after ensuring that land required for handing over to the Contractor for working site is in possession/ available. Land for quarries must be ensured.

- **Designated place for issue of departmental material** should be mentioned in the Contract. If designated place for issue of departmental material is changed due to unavoidable reasons, additional expenditure, if incurred, in bringing material at site be reimbursed.

- **Imposing Liquidated Damages:** Before imposing Liquidated Damages a reasoned notice containing quantum of Liquidated Damages to be imposed must be communicated to the Contractor. However, the recovery of Liquidated Damages may be deferred. Actual Liquidated damages may only be effected on approval of Extension of Time.

  It should be ensured that PBG shall not be released till Liquidated Damages, if any is pending for recovery. Liquidated Damages, if any can be recovered from the retention money and from any other sum payable to the contractor.

- **Record Keeping:** For all major Contracts under execution, all the records / documents of contract including drawings, correspondence with contractors, Contract Agreements, MB's etc. be kept in digitized format in ERP. MB's for all Contracts in respect of all Projects / units should be recorded in ERP. In addition to this, documents of all the running contracts which are still open, are also to be digitized .

- The day to day maintenance of hindrance register in ERP shall be ensured by the respective HOP.
  For contracts awarded by corporate office, the progress / implementation shall be ensured by Corporate Office through concerned ED's.
- **Dispute resolution:** Dispute resolution in a time bound manner should be ensured.

- **Geological / Site Investigation Details:** Geological / Site Investigation related details / reports should be made part of bidding document.

- **RCC Dam:** Considering site conditions, complexities and project requirement, Roller Compacted Concrete Dams may be adopted.

- **Project Monitoring:** Latest software based project monitoring should be adopted.

- **Shortfall:** any shortfall in progress should be addressed in a time bound manner with additional equipment’s, manpower and techniques to makeup the progress/time.

****

Views of THDCIL on Contractual Issues & Different Modes of Contracting in Hydro Projects

(1) Viability of EPC Contracts or Item Rates Contracts:

The EPC approach relies on assigning the responsibility for investigations, design and construction to the contractor for a lump sum price determined through competitive bidding. The objective is to ensure implementation of the project to specified standards with a fair degree of certainty relating to costs and time while transferring the construction risks to the contractor.

However, it has been observed that in implementation of Civil Works of Hydro Projects, inherent uncertainty is involved in respect of topography, geology, hydro-geology etc. Due to this detailed design & construction methodology of contractors finalised during execution may widely vary as compared to their bidding stage design & methodology conceived in their bid leading to claims & disputes. Therefore, EPC Contract may not be a successful model for execution of such works unless an appropriate risk sharing mechanism is made a part of tender document. The risk of ground conditions in particular where substantial underground works are involved should rest with the Project Developer and should not be transferred to the Contractor. Further, EPC model does not provide adequate contractual window to the client to intervene in the event of non performance of the contractor.

Contrary to above, in item rate tenders, contractors are required to quote rate for each individual items of work on the basis of Bill of quantities (BOQ) provided by the Procuring Entity in the Bid Documents. Reasonable variations in quantities is also allowed during the execution in terms of the contract.

Accordingly, Item rate contracts which can salvage the project from the uncertainties may be better to be followed for Civil Works Contract Packages However, in case of Electro-mechanical and Hydro-mechanical works contract packages involving substantial off-site activities EPC mode of Contract Condition may be followed.

Further, in Item Rates Contracts, it has been observed that contractors at times quote skewed rates comparison to estimated rates which cause problems in overall execution. Contractor is interested in executing high rated items and tries to increase the quantity of such items during execution. At the same time contractor avoids executing certain items which are low rated and tries to get substituted them by either rightly or highly priced items. In order to overcome such issues, the Bill of Quantity could be split in two parts. One those items, on which Developer is confident about productivity methodology and cost of input or those items for which rates are available in standard schedule of rates. Estimated rates of such items may be disclosed to the bidders and bidders may be asked to quote percentage above or below the estimated rates for the total group. Other items, whose productivity, construction methodology and cost of input are not

certain, or which are not available in the standard schedule of rates, contractor may be allowed to quote their own rates of such individual items.

(2) Comments on Various Contract Clauses:

(a) Qualification & Eligibility Requirements:

(i) Financial Criteria

Net Worth: Positive in the preceding 3 years.

Profitability: Bidder should not have incurred loss in more than 2 financial years out of immediately 5 financial years (*As per Tehri PSP Contract*).

Cash Flow: 3 times of monthly cash flow i.e. (Estimate Cost of Works x3 / Construction Period).
Average Annual Turnover: Previously it used to be at least 30 % of estimated cost of work. Now, 1.5 to 2 times annualised value of work depending upon the size of contract.

Bid Capacity: Not specified in earlier Contracts of THDCIL. However, it may be asked as below:

Available Bid Capacity = (2 x AxN) – B,

Where;
A = Indexed value of maximum value of works executed (in a ongoing or completed project) in any one year during last 15 years , keeping index of inflation as 6% (compounded annually) for calculating A at present Price Level.
N = Number of years prescribed for completion of the subject Contract Package.
B = Value of existing commitments (as on bid submission date) and ongoing works to be completed in the next 'N' years."

(ii) Technical Criteria:

General: The applicant should have experience in the role of principal contractor /subcontractor for successfully executing following civil works of similar nature associated with HEP at least 7 to 12 years (depending upon the exact nature of work) prior to the application submission deadline or publication of NIT.

Specific: Experience as principal contractor / subcontractor for having substantially completed civil works of HEP costing not less than the following during last 7 to 12 years (depending upon the exact nature of work) prior to the application submission deadline or publication of NIT.

1. One similar work costing not less than 80% of the estimated cost or

2.Two similar works each costing not less than 50% of the estimate cost or
3.Three similar works each costing not less than 40% of the estimate cost.

Besides above, the criteria of experience requirement for completion of minimum specified quantities of specified items (viz, Excavation, Earthwork or filling, Concreting & Grouting etc) of works in HEPs or Water Resources Development projects during last 7 to 12 years (depending upon the exact nature of work), should also be specified as per the requirement of specific work.

(iii) History of Non-Performing Contracts & Pending Litigations *(As provided in VPHEP & Tehri PSP Contracts)***:**

Non-performance of a contractor should not occur within last 12 years prior to the deadline for submission of application based on all information on fully settled disputes or litigation. A fully settled dispute or litigation is one that has been resolved in accordance with the Dispute Resolution Mechanism under the respective contract and where all appeal instances available to the applicant have been exhausted.

All pending litigation shall in total not represent more than 10 to 25% (to be specified) of the Applicant's net worth and shall be treated as resolved against the applicant.

(b) Scope of Work: - Construction of essential infrastructure (approach roads and bridges etc.) may be kept in the scope of project developer so that contractor can immediately start work after arrival at the site.

(c) E Reverse Bidding Process: THDCIL has a policy for adoption of eRA in procurement of Goods, Works & Services (with minimum threshold value of Rs. 10 Cr.), where award criteria is on least cost basis.

(d) Variation and Adjustment Clause: Price Adjustment Clause is generally provided in long term contracts, where the delivery / completion period extends beyond 18 months.

At our lastly commissioned Dhukwan SHEP (3x8 MW), Jhansi (UP), five separate escalation formula viz. for cement dominated items; structural steel dominated items; reinforcement steel bar dominated items; excavation related items of work and for remaining items of work were specified so that payment for price variation are released to the contractor commensurate with input cost of resources during the contemporary period.

(e) Adjustment for Change in Law: No comment.

(f) Payment (Down Payment, Interest bearing payment, progressive payment related clauses, Bank Guarantee etc):

All the payments under the contract shall be made to the escrow account of the contractor so that diversion of funds by the contractors to their head quarters are controlled.

Mobilization Advance:

An interest-bearing mobilisation advance may be paid to the contractor exclusively for the costs of mobilisation at 10 (ten) per cent of the contract price against an unconditional BG. Such BGs shall remain effective until the advance payment has been fully repaid, but the amount thereof may be progressively reduced by the amount repaid by the contractor subject to minimum 10% of total advance payment. The aforesaid advance of 10 (ten) per cent may be paid in two installments, each of five per cent. The first one may be paid on commencement of the work and provision by the contractor of the unconditional BG in respect of the advance. The second installment may be paid on certification by the engineer having achieved a financial progress of 10 (ten) per cent of the contract price or any other such milestones provided in the contract, on provision of a BG by the contractor for this part of the advance. The BG taken towards security of “Mobilization Advance” should be atleast 110% of the advance so as to enable recovery of not only principle amount but also the interest portion, if so required.

The rate of interest shall be as stipulated in the bid documents.

Equipment Advance:

An interest-bearing advance of 5% of the contract price, depending on the merits of the case, may be paid against the new key construction equipment purchased for the work and brought to the site, if so provided in the Bid Documents and so requested by the contractor. The advance should normally not be more than 75 (Seventy Five) percent of the purchase price of such plants and machinery on insurance and hypothecation in favour of developer, before the payment of advance is released. This advance shall be subject to the following conditions: (i) the contractor shall produce satisfactory proof of payment; (ii) such equipment is considered necessary by the engineer for the works; (iii) the equipment has been verified to have been brought to site; (iv) the contractor gives an undertaking on stamp paper that the equipment will work only on that job and will not be removed from the site without obtaining written approval from the engineer; No advance shall be admissible on equipment purchased under a hire purchase scheme/ financing arrangement or on hired equipment. The rate of interest shall be as stipulated in the bid documents.

Secured Advance against Material brought to site:

During the progress of the work, an advance to the extent of 75% of the value of the material (other than perishable materials) required for utilization in the work and actually

brought to site but not yet consumed/utilized may be paid if provided in the conditions of the contract. The payment for such advances may be made on the hypothecation of the said material in favour of developer.

(g) Claims Procedure

Significant events like floods, strikes, geological occurrences that cause delay may be recorded in writing in a hinderance register and mutually agreed upon by the parties. Wherever practical photography / videography of such events shall also be done and maintained in record sections. Such data shall act as authenticate evidence for a particular occurrence and will be useful for carrying out delay analysis and deciding claims and other compensation in accordance with contract.

(h) Force Majeure: In case of force majeure conditions lasts for comparatively longer period (say 3 months), part of the risks of the cost of overstay may be borne by developer.

(i) Risk Sharing Methodology:

As per THDCIL policy, following important provisions shall be made part of Contract document of all future major Hydro Electric Projects (which involve major underground works).

(i) GBR (Geotechnical Baseline Report) shall be made a part of the Contract document. The principal purpose of the GBR is to set clear realistic baseline conditions anticipated to be encountered during subsurface construction, and thereby provide all bidders with a single contractual interpretation that can be relied upon in preparing their bids. It also guides the Owner in administering the Contract and monitoring performance during construction.

GBR contains broader geotechnical details of the Project area / location of the structures and the predicted rock conditions. The bidder plans his construction methodology and work out the quantities of various resource including input materials based on the predicted data. If during execution more adverse conditions than envisaged as base conditions in the GBR are encountered, then the responsibility lies with the owner and contractor is compensated for any additional time and cost. GBR, is thus, more or less a full cover to the contractor against any speculative plans for the execution of work.

(i) Risk Sharing Mechanism with well-defined responsibility of owner & contractor shall be made a part of the Contract document. It must include the assessment of risks and vulnerabilities available in project.

(ii) Provision of Contingency Plan shall also be made a part of Contract document.

Above provision may help in reducing claims & disputes of contractors.

(j) Procedure for the payment of Idling Cost to the Contractor:

The idling of contractor's resources shall cover compensation for idling time related cost of following items:

(i) Construction Equipment: The idling cost shall be calculated taking into account following costs for the idling period.

a. 50% of Depreciation cost of Construction Equipment based upon annual depreciation as per IS 11590 : 1995.
b. Interest on Capital Investment (Average Annual Cost) of Construction Equipment with interest rate applicable for Equipment Advance.
c. Insurance Cost for Construction Equipment.
(ii) Labour Cost.
(iii) Interest accrued on Mobilization Advance.
(iv) Cost of Site Staff
(v) Bank Guarantees and Insurance charges for Works (CAR) policy.
(vi) Overheads.

(k) Incentive clause for early completion of work: - No comment.

(l) Construction Methodology:

The developer should prepare his own construction planning and equipment planning and attach it with the Tender documents, as a suggestive document for study by the bidders. Bidders may consider it for improvement and finalization of their proposed methodology for submission alongwith their bids. List of proposed equipments should have a clear mention of standby equipments, quantum of equipments and mention of those equipments which have necessarily to be new.

Construction methods and equipment planning shall be finalised with the successful bidder prior to award of work.

(m) Any Other Addition:

Following provisions should also be covered in bidding document:

(i) Limitation of Liability Clause.

The aggregate liability of the Contractor to the Project Developer may be kept and shall not exceed the total Contract Price, provided that this limitation shall not apply to any obligation of the Contractor to indemnify the Project Developer with respect to patent infringement.

(ii) No Claim for interest or damage

A clause regarding nonpayment of interest may be kept. THDCIL have a policy of keeping the following clauses in this regard.

(a) Interest on money due to the contractor

Contractor shall not be entitled to any interest or damage in case of any delay on the part of the Employer to pay the amount due upon measurement or as per Contract or otherwise. Contractor shall also not be entitled to interest upon any guarantee/ security/ retention money or payments in arrears or upon any balance which may on the final settlement of his account be due to him.

(b) No claim for interest or damage:

No claim for interest or damage will be entertained or be payable by the Employer in respect of any amount or balance which may be lying with the Employer or may become due upon settlement/adjudication of any dispute, difference or misunderstanding between the parties by way of arbitration or court proceedings or otherwise or in respect of any delay or omission on the part of the Employer in making intermediate or final payment or in respect of any amount/damage which may be claimed through arbitration or court proceedings or in any other respect whatsoever.

(iii) Penalty clause for delay in submission of performance guarantee by the contractor.

A clause regarding penalty for delay in submission of Performance Guarantee may be kept for timely submission of performance Guarantee by Contractor.

.....

Annexure-IX

Larsen & Toubro Limited,
Construction
Heavy Civil Infrastructure
No. 12/4, 3rd Floor,
Delhi Mathura Road,
Sector - 27D, Faridabad,
Haryana - 121 003, INDIA
Tel : +91-129-4891000
Dir : +91-129-4891303
www.Lntecc.com

LARSEN & TOUBRO

LNT/HCIIC/HNT/THDC/General/179 Date: 30.12.2021

To,

Addl. General Manager – Incharge
Thermal, R.E. Department,
THDC India Limited

Subject: Views on contract clauses & different modes of contracting in hydro power projects

Dear Sir,

This has reference to your letter no. THDCIL/NCR/Arbitration Committee/f-220B/606 dated 22.12.2021 seeking views on contract clauses and modes of contracting in hydro projects. In this connection, please find below our suggestions/views for your kind consideration.

1) Viability of EPC Contracts or item rates contracts along with circumstances thereof
We feel that EPC Contracts gives the Contractor's an better oppurtunity to optimize the design which in turn leads to cost optimzation. So, we feel that EPC should be the preferred mode of operation of future hydel Contracts.

However, projects which are confidential in nature, in sensitive zones and for the projects wherein the entire details can not be shared; Item Rate Contracts may be operated.

2) Comments on various contract clauses of different hydro PSU's contracts like.

a) **<u>Qualification / Eligibility requirement:</u>** In the recent past, we have seen dilution in pre-qualification criterion for both technical and financial requirements. This has resulted in award of major projects to companies which are not competent in delivering the projects in time and in line with the technical requirements resulting in huge cost and time overruns and in turn affecting the nation's interests at large. In this line, robust Qualification requirements (60% to 80% of requirements)should be mandated such that the projects which are of national importance are awarded to the companies technically and financially capable enough to executing it.
Some important suggestions are as below:

Larsen & Toubro Limited,
Construction
Heavy Civil Infrastructure
No. 12/4, 3rd Floor,
Delhi Mathura Road,
Sector - 27D, Faridabad,
Haryana - 121 003, INDIA
Tel : +91-129-4891000
Dir : +91-129-4891303
www.Lntecc.com

i) Generalised PQ criterion such as Volume of Concrete, Excavation etc. should be deleted

ii) Positive PAT and Net Worth positive for the past 3 years

b) <u>Scope of Work:</u>

i) Infra works: Infrastructure and preliminaries works such as Approach to project sites, Approach within project components, Quarries, Muck Disposal yards etc. can be constructed/developed prior to floating of tender for main works (These activities can be taken up parallelly during Site Investigation/Geotechnical studies etc.) This will save a substantial amount of time and the Main works can be immediately started after award of the tender.

ii) Main Works: Instead of bifurcating the Main works into separate packages; it will be more prudent to award the whole of the works to a single Contractor in order to avoid Interdependencies and disputes during execution. This will also reduce the overall project cost as there will be

- Common Project Management Team
- Common Site Infra-structure facilities
- Better utilization of Resources etc.

c) <u>E-Reverse Bidding Process:</u>

We feel that e-reverse bidding process may please be scrapped and allow the bidders to quote the best possible price in one go itself. E-reverse bidding may result in unfair bidding process and may result in bidders dropping their prices to such an extent that it becomes untenable for them to execute the project at such low value. Although they may be awarded the project work at low prices, but after some time the works will be hampered due to financial constraints thereby delaying the project completion and commissioning.

However, if its not possible to scrap the e-reverse bidding process in totality; some regulations must be brought in order to regulate the prices at which the Contracts are awarded. Further, there should be a mechanism in place to ensure that the e-reverse bidding process are completed within a pre-determined time frame (Say 2 hours) and with minimum no. of iterations (Can be restricted to 3 nos.)

Larsen & Toubro Limited,
Construction
Heavy Civil Infrastructure
No. 12/4, 3rd Floor,
Delhi Mathura Road,
Sector - 27D, Faridabad,
Haryana - 121 003, INDIA
Tel : +91-129-4891000
Dir : +91-129-4891303
www.Lntecc.com

Here we would also like to propose an requirement of additional performance Bank Guarantee, if the quoted price is 10% or more than 10% below the departmental estimate.

d) Variations and Adjustments:

- Considering the huge volatilities in the rates of Cement, Steel and HSD and the duration of hydel projects; WPI Indices does not really compensate the cost variations. Accordingly, Star Rates (Actual Variation in Prices) may please be considered for Price Variation

- Index used for compensating the increased cost towards Construction Machinery is **"Manufacture of machinery for mining, quarrying and construction"** This Index is on a downward spiral since the past many years whereas the actual cost of equipments is going up. This needs a review because although the Index used for calculation of Price Variation is on reducing the actual cost of equipments have gone up drastically and is still increasing Year on Year basis.

- Further, the weightages towards co-efficients as provided by the customer sometimes does not reflect the actuals. Accordingly, the bidders may please be allowed to define the weightages during tender stage which may be reviewed by the customer during bid evaluation.

e) Adjustments for changes in law:

This clause is more or less standardized only. Not much tinkering required. Only thing is that in some of the projects we have observed that there remains some dispute regarding variation in prices of Royalties of Mineral Materials. This may please be clearly specified such that there are absolutely no ambiguities with respect to the entitlement of the Contractor.

f) Payment:

In order to ensure that the Cash Flow and Working Capital situation of the Contractor's are well maintained during execution, following may please be considered. It is imperative to mention that healthy financials of Contractor will ensure timely and quality execution of works at site

- Interest Free 10% Mobilization Advance. Recovery in between 20%-90% of IPC Value
- Interest Free 5% Equipment Advance. Recovery in between 20%-90% of IPC Value

Larsen & Toubro Limited,
Construction
Heavy Civil Infrastructure
No. 12/4, 3rd Floor,
Delhi Mathura Road,
Sector - 27D, Faridabad,
Haryana - 121 003, INDIA
Tel : +91-129-4891000
Dir : +91-129-4891303
www.Lntecc.com

- Progressive Payment: 80% of IPC Value within 7-10 days; Balance within 42 days
- Retention: No Cash Retention; BG to be taken in Advance on Quarterly/Half Yearly Basis. Validity till issue of taking over certificate
- Performance Bank Guarantee: 5% of CV; Validity till DLP
- **Escrow Account:** Escrow Account should not be mandatory for all the bidders and should be linked with the credit rating of the Contractor

g) Exceptional Geological Occurrences:

Generally, in EPC Jobs, there is a ceiling of 5% or 7.5% towards EGO's and there is no mechanism mentioned in case the EGO's exceeds the ceiling limit. During tender stage neither the Employer, nor the Contractor can anticipate the limit of EGO's; hence there should not be any ceiling fixed and the Contractor should be compensated at actuals, for both in terms of cost and time

h) Sufficiency of Bids:

Contractor should not be held accountable for the errors or discrepancies in the tender data, GBR, GTR etc. During Bidding stage, it is not possible to do detailed Geotechnical tests and Investigations and the Bidder has to base his estimation of quantities and costs on the Geotechnical reports as provided by the owner in the tender document which forms the Geotechnical Base Line Report for the Bidder. Under these circumstances putting the onus of errors, accuracy, adequacy of the information provided in the tender document entirely on the Contractor is not in the good spirit of the Contract.

Accordingly, it is requested to refer to clause 1.9 of FIDIC Conditions of Contract for UG Works and the same may be implemented.

1.9 Errors in the Employer's Requirement and/or in the Geotechnical Base Line Report:

If the Contractor finds an error, fault or detect in Employer's Requirements and/or the Geotechnical Base Line Report as a result of scrutinizing them, the Contractor shall give a notice to the Engineer within the period stated in the Contract Data (If not stated, within 42 days) calculated from the commencement date. If, after the expiry of this period, the Contractor finds an error, fault, or defect in the Employer's Requirement and/ or in the Geotechnical Base Line Report, the Contractor shall also give a Notice to the Engineer describing the error, fault, or defect.
The Engineer shall then proceed to agree or determine
a) Whether or not there is an error, fault, or defect in the Employer's Requirement

Larsen & Toubro Limited,
Construction
Heavy Civil Infrastructure
No. 12/4, 3rd Floor,
Delhi Mathura Road,
Sector - 27D, Faridabad,
Haryana - 121 003, INDIA
Tel : +91-129-4891000
Dir : +91-129-4891303
www.Lntecc.com

b) Whether or not (taking account of time and cost) an experienced Contractor exercising due care would have discovered the error, fault, or other defects:

- *While examining the site and the Employer's requirement and before submitting the Tender or;*
- *If the Contractor's Notice is given after the expiry of the period stated in the first paragraph of this sub-clause, when scrutinizing the Employer's Requirement and the Geotechnical Base line Report*

c) What measures (if any) the Contractor is required to take to rectify the error, fault, or defect If there is an error, fault, or defect in the Employer's requirement and/or in the Geotechnical Base Line Report under sub-paragraph (b) above and if an experienced Contractor would not have discovered the error, fault or other defect:

- *Sub-Clause (Variation by Instruction) shall apply to the measures that the Contractor is required to take (if any); and*
- *If the Contractor suffers delays and/or incurs cost as a result of the error, fault or defect, the Contractor shall be entitled subject to Sub- Clause [Claims for Payment and/or EOT] to EOT and/or payment of such cost-plus profit*

i) Insurance Requirement:

Project Insurance to be under Employer's scope. In present Insurance market, it is very difficult for Contractor to arrange Insurance policies for long period jobs. Moreover, the Insurance Quotes as provided by the Insurance agencies are abnormally higher and we feel that if PSU's/Govt. agencies approaches the Insurance agencies; better premium quotes can be obtained. Accordingly, the same should be under Employer's scope and can be taken in parts.

Also, in some of the Hydro Power Projects, it is mandated that the Insurance Cover shall be taken on 125% of the overall project estimate. This requirement of additional 25% for the total project duration unnecessarily increase the project estimate and can be reviewed.

j) Quantity Variation Clause:

Variation clause to be applicable for both positive and negative variations**.** Fixed timeline for finalization of rates for variation Items

k) Incentive Clause for early completion of works:

In order to expedite the project execution to ensure early completion, the Contractor had to mobilize additional resources Viz. Equipments, Manpower, Staffs etc.

Larsen & Toubro Limited,
Construction
Heavy Civil Infrastructure
No. 12/4, 3rd Floor,
Delhi Mathura Road,
Sector - 27D, Faridabad,
Haryana - 121 003, INDIA
Tel : +91-129-4891000
Dir : +91-129-4891303
www.Lntecc.com

In the recent tenders floated by NHPC; Incentive for early completion of works has to be fully distributed among the labours working at site. In this scenario, there is no real benefit to the Contractor to try and expedite the works at site by mobilizing additional resources and incurring cost. This may deter the Contractors to accelerate the works at site for early completion. Accordingly, it is requested to have a re-look of the condition and ensure that the benefit for early completion is passed onto the Contractor's also.

l) Risk Sharing Matrix:

There should be a robust Risk Sharing Matrix in the tender such that the interests of both – the Contractor as well as the develop are safeguarded. Project developer/Customer should understand the fact that the entire onus of Risks can not be diverted solely to the Contractor. For example, Risks such as blockages/damage of Approach Roads; Unforeseen circumstances such as local Issues, Strikes etc. which are well beyond the control of the Contractor are also thrusted on Contractor's head which is not a healthy approach. It is the responsibility of the Developer/Customer to protect the Contractor from Unforeseen situations which were not considered while quoting the bid price.

m) Force Majeure Clause:

Force Majeure Clause as mentioned in the FIDIC to be considered as it is without any modifications except for additional of "Pandemic/Covid-19"

n) Idling Cost to the Contractor:

In the recent NHPC tenders, Guidelines as to how the Idling Cost Claims will be calculated is provided. As per the guidelines provided;
For Contractor's own equipment – 67% of Depreciation is admissible
For Overheads – 5% as per Hudson Formula is admissible

It is to mention here that there is no basis of 67% of Depreciation. Whether a equipment is idle or working; depreciation of the equipment will be same. This is quite evident from the fact that even if NHPC considers the depreciation of equipment as 67% only; they are not increasing the life of the equipment. For example:
Life of an Excavator as per CWC Guidelines: 10 Years
Present Excavator Life: 8 Years
Idle Period: 2 Years

Larsen & Toubro Limited,
Construction
Heavy Civil Infrastructure
No. 12/4, 3rd Floor,
Delhi Mathura Road,
Sector - 27D, Faridabad,
Haryana - 121 003, INDIA
Tel : +91-129-4891000
Dir : +91-129-4891303
www.Lntecc.com

In this scenario, NHPC will pay 67% depreciation of Excavator for 2 years and if the idling continues beyond 2 years; NHPC will stop paying the depreciation stating that the scheduled life of 10 years has been completed. However, in reality for the last 2 years NHPC has effectively paid depreciation for only 1.34 years and the scheduled life of excavator is still 9.34 years only. This is an ambiguity which needs to be given due consideration.

Moreover, if an equipment is rendered idle; their depreciation accelerates and additional cost towards regular repair and maintenance is being incurred by the Contractor which is in no way getting compensated. This also needs review and incorporation in the guidelines.

Regarding Overheads, the Contractor has to incur overheads both at site and at Head Quarters. The stipulated 5% of the Overheads is very less and needs review. We feel that at bare minimum it should be 15%.

Thanking you and assuring you of our best services.

For Larsen & Toubro Limited

Manish Dubey
Sr. Manager,
Business Development

R. M. SINHA & CO.

(AN ISO 9001:2015, 14001:2015, 27001:2013 CERTIFIED COMPANY)

Hydro Mechanical Equipment Specialist. Structural, Mechanical, Electrical and Automation Engineers

OFFICE:
P-2, Kasba Industrial
Estate Phase II,
Kolkata – 700 107, India

CONTACT:
+ 91 33 46001821 / 40081708
contact@rmsinha.com
www.rmsinha.com

Ref: HJ/THDC/2021/466 **Date: 30.12.2021**

To,
Sri Sanjay Singhal,
Addl. General Manager In-charge,
Thermal, Renewable energy,
THDC India Ltd., Kaushambi,
Ghaziabad – 201010 (U.P.)
Email: hemendrasingh@thdc.co.in

Sub: Views on contract clauses & different modes of contracting in hydro-power projects.

Dear Sir,

In response to your letter no. THDCIL/NCR/Arbitration Committee/F-220B/606 dated 22/12/2021 in regard to the subject we furnish our views below.

1. For contracts which is of grass root type, EPC can be followed. The various items can be worked out correctly in terms of quantity. In the case of repair, replacement, maintenance works item rate contracts are more viable. Reason being the items and quantity may vary during execution of work due to uncertain changes or modification may be necessary because of the site and equipment condition.
2. Comments on the following clauses –
   a) Qualification / Eligibility requirement – It is observed that the qualification for the contractors for similar job and turnover are asked on higher side in terms of percentage. For example, the percentage of job execution and turnover of the contractors are asked to the tune of 50 to 60 percent and about 95 percent respectively. Whereas state irrigation departments ask~~ed~~ for around 30 percent for both the cases.
   b) Scope of Work – To arrest the additional work / extra work during the execution of projects it is necessary to hold a detailed Pre-bid conference. The points raised during the pre-bid conference require proper analysis by the dept. and proper modification of the scope of work to be undertaken before the tender is floated.

      The extra works create lot of burden to the contractor and the payment is not released until or unless the approval is obtained by the dept. A rational approach should be given in this particular case. We suggest that more than 5% of the contract amount should be restricted in case of additional work as per the rate of the contract. Beyond 5% of additional work can be carried out by the contractor and for that a negotiated rate should be applicable.
   c) Variation and Adjustment – Once the proper analysis of the entire job is carried out by the department after the Pre-bid meeting, the variation shall automatically be minimized.
   d) Payment – Progressive payment to be made to the contractor once the progress of work, in terms of monetary value, executed between 15 to 20 percent of the contract value. However, this may vary depending upon the total contract value.

e) Procedure for the payment of idling clause – In many occasions contractors suffer loss due to idling of manpower and machineries because of no fault on their account. Payments towards such idling may be made to the contractor on per day basis. The cost can be calculated on the basis of per day wages as per the Central Govt. laid down policy.

f) Incentive Clause – This clause may be introduced to encourage the contractor to complete the work before the contractual period.

g) Construction Methodology – Some State Govt. Irrigation dept. ask for the detail methodology for construction and that to be submitted along with the tender. This gives a clear idea to the Dept. on the capabilities and knowledge of the contractor for that particular project. We recommend introduction of such methodology details to be submitted by the contractors while submitting tender.

h) Equipent / Mobilization advance – In many organizations the mobilization advance is paid to the contractors to the tune of 5% of contract value to expedite the initial start of the work. This will improve the progress of work and completion in a time bound manner.

i) The progressive payment may be given to the contractor in time to enable them to carry out the work without any financial hindrance and in line with the said procedure and time.

j) It is often observed that tenders are cancelled by the dept. and retendering are done. Since nowadays the cost of tenders and cost towards submitting tenders, contractors have to bear a substantial amount of money. In such cases of cancellation of tenders, the cost of tenders should be refunded to the contractors.

In two bid tenders it is often found that opening of financial part takes too much of time after opening of technical bid. This gap should be maintained for a period of maximum 15 days and the EMD should be refunded to the unsuccessful contractors within 10 days of finalisation of the contract. This procedure should be followed strictly by the department. This will give a great relief to the contractors since their money would be released promptly.

We submit our above suggestions looking into the various aspects for benefit to the client as well as the contractors and will help completion of job with quality and scheduled time.

Thanking You,

Yours faithfully,

R. M. SINHA & CO. 40081708 46001821 KOLKATA

For **R. M. SINHA & CO.**

Annexure-XI

Sandeep Shrivastav
New Delhi
ANDRITZ HYDRO

p: +91-11 4937 2940;
m:+91 98711 74262
Sandeep.Shrivastav@andritz.com

Jan 05, 2022

Shri Sanjay Singhal
AGM- Thermal, RE department
THDC India Limited
Plot No-20t, Sector-14
Kaushambi,
Ghaziabad- 201010

Subject: Views regarding different modes of contracting in hydro-power projects

Ref: THDC Letter dated 22.12.2021

Dear Sir,

At the outset, we would like to thank Ministry of Power and the Committee members for giving us this opportunity to present our views on the subject.

We would like to have the kind privilege of introducing ourselves to you. ANDRITZ Hydro is one of the leading global suppliers of electro-mechanical and hydro-mechanical systems and services for hydropower plants. ANDRITZ Hydro has more than 175 years of accumulated experience in turbine design, over 30,000 turbines (more than 420,000 MW) installed globally, over 120 years of experience in electrical experience.

We, ANDRITZ Hydro Private Ltd. are a wholly-owned subsidiary in India of ANDRITZ, which is one of the largest technology groups from Austria. ANDRITZ Hydro aligns itself well with the esteemed 'Make-in-India' initiative of the Government of India. We are one of the first global companies to recognize the potential of manufacturing in India and established two state-of-the-art manufacturing facilities at Prithla, Haryana, and Mandideep, near Bhopal, Madhya Pradesh for manufacturing of electro-mechanical and hydro-mechanical equipment to locally contribute our best in the growth of the country's hydropower sector. We are also a large exporter of the plant and equipment manufactured out of our set-up in India.

In India, we have supplied equipment of over 18,000 MW to projects such as Baglihar HEP Stage I & II (900 MW), Teesta HEP-III (1200 MW), Karcham Wangtoo HEP (1000 MW), Shongtong Karcham HEP (450 MW), and several others prestigious Hydro Projects. We are also pleased to inform you that we have recently been awarded the prestigious contracts for the supply of electro-mechanical equipment for Kiru HEP (624 MW) of CVPPPL in J&K, Kutehr HEP (240MW) of JSW Group in HP, and Pinnapuram pumped storage plant (1200MW) of Greenko Group; the largest pumped storage project (PSP) in India.

ENGINEERED SUCCESS

In regard to hydro-mechanical systems, ANDRITZ Hydro has more than 70 years of accumulated experience in design, manufacturing, supply, and installation of HM equipment and has successfully executed more than 1000 projects to date. We are among very few organizations in the world having experience in the field of design and fabrication of massive penstock and gates. Some of the landmark projects executed by us include:

Penstocks

- Tarbela Dam (4,888 MW) with penstock of 13.26 M dia, 16.34 M bifurcation, and tonnage of 11,808 MT; one of the world's largest diameter in the world.
- Cleuson Dixence HEP (1200 MW) with 3.1 M dia, Design head of 2070 M, and total tonnage of 12,680 MT; one of the largest design heads.

Gates

- Belo Monte HEP (11,233 MW) - Radial Gates with the size of (20 M X 22 M); one of the world's largest spillways.
- Mauvoisin Dam (363 MW) – Sliding Gates having the head of 190 M; one of the largest heads for sliding gates.

About the subject matter, we strongly suggest that tenders for upcoming projects be considered to be announced on **separate packages i.e. separate tenders for Civil, Hydro-mechanical (HM), and Electro-mechanical (EM) works instead of one EPC / Turnkey tender basis.** It has been seen that a separate package-based mode of procurement (Tendering) is not only cost-effective but also apt to select the best techno-commercially suited contractors/suppliers with clearly defined roles and responsibilities for their projects. This approach has been adopted by most of the public and private utilities like CVPPL, NHPC, UJVNL, GMR, JSW on the project-to-project basis.

Further, we would like to bring the following points to your notice:

a) In the past, it has been seen that the projects issued under the EPC modality have experienced time and cost overruns. For instance, in the case of Kishanganga, Dulhasti, Uri, Chamera-II, there have been major cost and time overruns.
b) In EPC contracts, there have been risk loadings by the EPC contractor thereby, increasing the overall cost of the project.
c) There are limited number of competent and financially strong EPC players.
d) With separate packages, there is a better degree of flexibility and control on the contractors.

e) If the main EPC contractor is unable to perform its obligation due to reasons like poor financial health or bankruptcy, the progress of the whole project is jeopardized.
f) EPC players are mainly civil companies that mostly do not have technical expertise in electromechanical and hydro-mechanical packages. Therefore, leads to poor interfaces between the packages leading to execution delays.
g) EPC contracts are usually executed where technology partners for execution of Electromechanical package are asked to enter into a Joint Deed undertaking, the partners do not like to share the risk of the entire project. For instance, the EM/ HM package in a project constitutes around 20% of the total project cost only, sharing of project risk for EM/HM contractors is unfair.

Taking this opportunity, we would also like to bring to your ready reference the following outcomes of recent tenders on a separate package basis thereby proving it to be quite beneficial for the Employers.

Details of tenders issued as separate packages:

Project	Package	No of Bidders	Contract Awarded	Estimated budget value (In Cr)	Award Value (In Cr)	% below estimate
Pakal Dul HEP (1000 MW)	E&M	5	Voith	1302	703	-46.93%
Pakal Dul HEP (1000 MW)	HM	6	PES	INR 484	INR 286.58	-41%
Kiru HEP (624 MW)	E&M	5	Andritz	1022	552	-45.97%
Kiru HEP (624 MW)	HM	5	PES	INR 252	INR 202	-19.84%
Arun-III HEP (900 MW)	HM	5	OM Metals	INR 192	INR 155	-19.27%
Naitwar Mori (60 MW)	HM	5	GMW	INR 48.4	INR 34.5	-22%
Kuther (240 MW)	HM	6	PES	INR 70	INR 52	-25%

As is evident, in all the above cases, the awarded value of projects has been much below the budget value; which is in the interest of the project as well as the developer.

Details of HM clubbed with Civil:

Wherever HM package has been under Civil scope, it has been observed that HM packages have always been above the budget estimates as highlighted below:

Project	Package	No of Bidders	Contract Awarded to EPC	Estimated budget value (In Cr)	Award Value (In Cr)	% above estimate
Shongtong Karcham (450 MW)	HM	6	Patel	90 Cr	110 Cr	+22%
Sainj (100 MW)	HM	5	HCC	55 Cr	65 Cr	+18%
Lata tapovan HEP (171 MW)	HM	3	L&T	75 Cr	85 Cr	+13%
Rampur HEP (420 MW)	HM	4	Patel	36 Cr	42 Cr	+6%

We would also like to highlight certain projects as case studies enclosed as Annexure-I, wherein the EPC (Single Package) mode of procurement was adopted. Most of these projects faced hurdles in terms of time and cost overruns. Also, some of these tenders were cancelled and later, separate packages were announced leading to delays.

We would also like to make our submission in regard to the points highlighted in your letter, point-wise response is enclosed as Annexure-2.

Based on our above humble submissions, may we request your kind consideration on adopting of **separate packages mode of procurement (Tendering) for upcoming hydroelectric projects.**

We look forward to your further kind guidance/suggestions. Thanking you for

your kind attention

Yours sincerely,
ANDRITZ Hydro Private Limited

Sandeep Shrivastav
Senior Vice President
Market Management

Khyati Gupta
Additional General Manager
Market Management &
Business Development

Annexure- 1

EPC Tenders for Large Hydro Projects- Case Studies

- **Kishanganga – 3x110MW in J&K, Developer: NHPC Ltd.**
  - NHPC floated tenders on an EPC basis - 3 bidders participated.
  - Tendering process was 18 months
  - Price levels; approx. 3 times higher than the budget estimates.
  - Recently, it has been reported in the news media that NHPC has invoked the Bank Guarantee of the EPC contractor citing reasons that the balance works remain incomplete. Even the Hon'ble Supreme Court of India dismissed the EPC contractor's plea against NHPC invoking their bank guarantee.

- **Vishnugad Pipalkoti – 4 x 111 MW in Uttarakhand, Developer: THDC Ltd**
  - PQ Tender for EPC execution floated in April 2007.
  - Tender cancelled; disinterest from electro-mechanical suppliers to participate as Joint & Several liable partners with Civil work Contractor.
  - Limited bidders
  - Expectation of higher prices
  - Tender was re-floated later; split into two packages – Civil with HM works and EM works
  - Project is now under execution.

- **Lata Tapovan – 3 x 57 MW in Uttaranchal, Developer: NTPC Ltd.**
  - Tenders floated on a Turnkey EPC basis with the limited liability of E&M contractors in Sep '07
  - Bid submission postponed five times
  - No EM contractors was said to be willing to participate
  - It is said that Civil companies made representations to NTPC - not receiving offers from EM contractors due to the bid structure.
  - Finally, the EPC tender was scrapped and separate tenders for Civil, HM and EM were floated.
  - Project under execution now.

- **Pakal Dul -1000 MW in J&K , Developer: NHPC**
  - In the year 2016, CVPPPL Board had cancelled Pakal Dul HEP's EPC / Turnkey Tender (Single Package basis) citing reasons that L1 Bidder price was substantially higher than the estimated cost of works.
  - The reasons are said to be that the price bid was inappropriately structured having an unbalanced distribution of risks due to various work components (especially HM and EM). Hence, unnecessary loadings/overheads and hedging of risks lead to higher prices and also did not give enough confidence to CVPPPL for successful completion of project works in this EPC-single package mode.
  - Accordingly, EPC / Turnkey tender was canceled, and a separate package mode of Procurement (Tendering) was adopted.

- Some of the other Projects, which faced similar issues;
    - Rammam HEP – 3 x 40 MW, NTPC
    - Pallivasal HEP – 2 x 30 MW, KSEB Ltd.

Annexure-2

Our comments/suggestions on contract clauses for execution of Hydro-power projects:

S. No.	Relevant Clause	Comments/Suggestions	Justification
1.	Qualification/Eligibility requirement	a) Hydro business is peculiar in nature, prior experience of executing complex projects of similar nature is a must.	a) It is desirable that the bidders possess relevant technical skills and previous operational experience. Prior experience in executing similar projects is necessary for the successful and timely completion of a project. For the selection of EM contractor, it should be ensured that the contractor should have an in-house manufacturing facility for at least major items like turbine and generator.
		b) Qualitative and Quantitative-both factors should be considered while evaluating bidders.	b) Procuring entities currently resort to the least cost method for selecting successful bidders. A competitive process of procurement should be devised that considers both qualitative and cost parameters while selecting the contractors for the execution of works. The nature of business for executing hydro projects is highly specialized and complex. For such jobs, the technical competence of the contractor is of utmost importance so that the work can be carried out timely and with high technical standards.
		c) Financial capability of the bidders matching the size of the project should be ensured.	c) Financial capability of the bidder should be ensured for smooth execution of the project.

S. No.	Relevant Clause	Comments/Suggestions	Justification
2.	Scope of Work	Separate tenders for all 3 packages: - EPC of EM - EPC of HM - EPC of Civil	It is suggested that tender for hydro projects should come in separate packages: Electro-mechanical, Hydro-Mechanical and Civil, as it gives the best price for the client. In the past, it has been noticed that projects awarded in separate packages have come much below the budget while overruns in terms of cost and time have been seen in projects executed under EPC mode. To name a few – Kishanganga, Chamera, Dulhasti, Uri.
3.	E-reverse Bidding Process	E-reverse bidding should not be followed for project business. It is best suited for the procurement of standardized products.	It has been noted that every utility follows its own process of e-Reverse Auction for awarding of works. This creates confusion for the bidder to formulate a uniform market strategy for the country, especially for a new entrant. We are of the opinion that in the current situation, when the government is promoting make in India and trying to attract foreign investors, a uniform and a simplified approach should be adopted to create a conducive environment for the investors/new entrants. Also, if this is a regulatory requirement and needs to be followed, we would like to suggest following modality, which is also adopted by CPSUs like NHPC and SJVN: • If the evaluated L1 bid price is lower than the technical sanctioned estimates, then L1 bidder should be awarded the contract else, e-RA process may be followed. • There should not be any restriction on the number of bidders participating in e-RA

S. No.	Relevant Clause	Comments/Suggestions	Justification
			process, all the eligible bidders should be permitted to create a level-playing field. Also, it is suggested that technically sanctioned estimates decided by any entity should be reasonable and reflect prevailing market conditions, one of the ways could also be based the budgetary offers from the manufacturers for the desired scope of work. Additionally, under "Make in India" initiative, there is a margin of purchase preference of 20% available to the domestic bidders (with 50% local content) when competing against an international bidder. In such a scenario, e-RA is contradictory. This also restricts any new foreign entrant to explore Indian hydro market, restricting the competition. Moreover, electro-mechanical and hydro-mechanical packages are highly specialised tasks where multiple qualitative variables are involved and therefore, discovering the best price through e-RA is not advisable.
4.	Variation and Adjustment	Each utility follows a different approach of allowing price variation on account increase in the price of raw material, labour etc. Moreover, some contracts are even awarded on firm price where no price variation is permitted. The methodology adopted by some of the CPSUs does not cover the variation in price in its entirety. This further gets worsens when a maximum ceiling is also defined, say 25%	Recently, the global markets have seen unprecedented rise in the prices of copper and steel, which is way above the fundamentals. This in turn has resulted in significant rise in the price of various components which has a cascading effect on the overall project cost. To mitigate such risks which are beyond the control of any contractor, price variation should anyway be permitted.

S. No.	Relevant Clause	Comments/Suggestions	Justification
		irrespective of the actual increase in the price of the components. Therefore, ceiling limit should be removed. One single formula does not hold true for components used in EM package as the material composition in each system/sub-system would differ. This has been very well addressed by IEEMA formula, which has also selectively employed Rangit-IV, electrical BoP package.	It is suggested that a uniform approach may be followed by all CPSUs. It is worth to mention that in a hydropower project, steel and copper are the key metals used in the manufacturing of components of an electromechanical and hydromechanical package. The sharp and extraordinary rise in the price of these metals has caused increase in the overall costs of electro-mechanical as well as hydro-mechanical supplies. Such unprecedented rise in prices of steel and copper have made the execution of contracts unviable and impractical within the awarded price. Hence, hampering the progress of the project.
5.	Adjustment for Change in Law	The change in law clause should be wide enough to not only cover the law of the land where the project is situated, but also the law of the land where the bidder is incorporated/the equipment is manufactured.	In some projects where the foreign bidders are allowed to bid for projects, a foreign contractor may suffer due to new / amended law of the land where it is incorporated / the equipment is manufactured. Accordingly, necessary amendment should be made in such clause to mitigate such risk.
6.	Payment (down payment, interest-bearing payment, progressive payment-related clauses, Bank guarantee etc)	Presently, advance payment extended by utilities is interest bearing. We suggest this should be interest-free advance in order to serve the purpose. To address this, CVC vide its circular no 02/02/11 dated 17th Feb 2011 suggests that BG of 110% be taken in case of interest free advance. Interim advances should be introduced in reasonable timeframes to ensure smooth cash flows thereby, smoother execution of the projects. Also, milestone payments should be a mandatory payment option, wherein the payments are linked to not only critical	Advance amount is utilized by contractors for mobilisation of activities. Paying interest on this amount becomes a burden for contractor, hence, defeats the very purpose.

S. No.	Relevant Clause	Comments/Suggestions	Justification
		milestones (such as dispatch/delivery, erection and commissioning and provisional/final acceptance) but also to interim milestones such as multiple stage payments during manufacturing phase and inspection phase. Pro-rata dispatches and receipt at site - upto 90% of pro-rata payment should be released. Payment security needs to be ensured, preferably through Letter of Credit. The buyer should include an option in tenders wherein retention amount (if any) can be released at the request of the contractor provided a bank guarantee of equivalent amount is provided to the buyer by the contractor.	
7.	Claims procedure	Sufficient time period should be defined in claims procedure provision, wherein a contractor is allowed to raise claim. Additionally, the long stop date for submitting the claims should be at least ninety (90) days.	In normal parlance, a contractor gets delayed in filing claim due to various reasons including but not limited to non-receipt of requisite information on time, however such delay should not result in rejection of the claim by the buyer, if same is raised within a reasonable timeline.
8.	Force majeure	A defined cost compensation should be awarded to a contractor in case of force majeure, in addition to extension of time. Additionally, a separate COVID-19 provision should be inserted as a sub-set of force majeure provision, wherein if there is any impact on the contractor due to ongoing COVID-19, the time and cost impact should be suitably awarded to the contractor.	Presently, consequences of a force majeure event are suspension of obligations of a contractor and extension of time, however, no cost compensation is awarded to the contractor because of such suspension, wherein the suspension is not due to act or omission of the contractor. Further, considering the ongoing COVID-19 in different parts of world including India and its consequential impact, a contractor is suffering from huge time and cost impact, which is not rightly compensated to a

S. No.	Relevant Clause	Comments/Suggestions	Justification
			contractor under any other contract provision. Accordingly, a suitable provision should be introduced to protect the interest of a contractor.
9.	Risk Sharing methodology	The list of buyer's risks normally defined in a contract should be more elaborative list so as to cover certain other risk which are beyond the control of a contractor, for instance: (a) risk/delay caused due to act or omission of buyer, its other contractors or any third party, (b) unforeseen events, which are not adequately covered/insured by reliable insurance providers, (c) information/documents related to the project, which was not made aware to the contractor at the time of bid submission, or such information/documents provided by the buyer is inaccurate/incomplete.	Generally, the contracts do not define a path in terms of mitigation in relation to said mentioned risks, which consequentially results in a contractor facing a financial impact. Considering such risks are beyond the control of the contractor, the same should fall in the basket of the buyer and accordingly, if there is any financial impact, the buyer should be held responsible for the same.
10.	Procedure for payment of idling cost to the contractor	Such provisions should be clearly defined in the tender to avoid dispute at the later stage. For instance, NHPC has also included such clause in its recent tenders.	
11.	Incentive clause for early completion of works of works	A bonus provision should be defined wherein a contractor is awarded a bonus (at a defined rate) in case of early completion of the project before scheduled project completion date.	Such enabling provision incentivise a contractor to complete a project before agreed date and on the other hand it enable a buyer to early use the project for commercial use and generate revenue out of the same.
12.	Construction methodology	-	-
13.	Equipment Advance	-	-

S. No.	Relevant Clause	Comments/Suggestions	Justification
14.	Any other addition in contractual condition for which contractors may like to propose for smooth execution of works.	A dispute resolution should include an amicable settlement at first instance and subsequently an adjudication through arbitration (without having any recourse through dispute adjudication board). Additionally, the payment of 5% of the disputed amount to opposite party as a security in case of raising dispute should be deleted.	The adjudication through dispute adjudication board results in delay of justice as the said process consumes a lot of time and additionally the orders passed by such board are generally appealed before arbitration. Further, in certain instances such as non-payment of outstanding amount, the contractor not only suffers non-payment but also additional 5% for such event for which it is not liable.
		A defined liability cap (i.e. 100% of the contract price) should be defined in a contract and an exclusion in relation to indirect and consequential damages should be defined without any exceptions.	Now a days, there are certain tender documents, wherein liability cap is not defined and/or the indirect and consequential damages exclusion provision defines a list of exception, which are negotiated at multiple times in order to arrive at a consensus. Accordingly, to avoid such negotiations during tender phase, it is generally advisable to have such important provisions defined at first instance itself.
		Suspension and termination right of the contractor should be specifically included.	Generally, the tender documents do not list down the right of a contractor in case of breach of provisions of contract by the buyer, which only leaves a contractor to governing law to enforce its rights. Accordingly, suspension and termination right of contractor should be defined in tender documents.
		Intellectual Property Rights provision should be suitable drafted and included in tender documents to safeguard the interest of both contractor and buyer.	The tender documents normally provide for IP provisions which protects IP owned or controlled by buyer. However, considering that a contractor also provides an IP owned/controlled by it,

S. No.	Relevant Clause	Comments/Suggestions	Justification
		Procurement and risk/liability associated with EAR/CAR insurance should lie with buyer and not with the contractor.	necessary provisions should be defined to protect its interest. The procurement of EAR/CAR insurance has become a difficult task for Contractor as the reliable insurance/reinsurance companies does not want to underwrite the risk in certain flood/landslide regions, which eventually results in non-availability of a reliable insurance for such projects. Considering the buyer is aware of such project region and its associated risk while releasing a tender, the entire responsibility in relation to procurement and risk/liability associated with EAR/CAR insurance should fall on buyer.
15.	Additional Suggestion	Please note that an EM contractor can only bid through joint venture (incorporated), consortium, or as subcontractor of EPC contractor, in case of EPC/turnkey route. The bidding through joint venture (incorporated) is generally not preferred considering a new JV company is required to be formed and subsequently, all operations are carried out through JV entity. In case of bidding as a consortium partner, the said arrangement exposes an EM contractor to unexpected liability as in normal parlance the consortium arrangements are being pursued basis the understanding that each consortium partner shall be liable on joint and several basis for entire scope of work. In case of bidding through subcontractor route, an EM contractor faces another set of commercial challenges, the details of few are set out below: (a) **Limitation of Liability**: Generally, the liability of a contractor is capped at 100% of the contract price, however, we have observed that in case of EPC/Turnkey mechanism, the liability of an EM contractor exceeds 100% of its sub-contract price. For instance, in Ratle Project, an EM subcontractor was required to execute two (2) different set of documentation while bidding for the project under subcontractor route. 1st set of documentation includes a subcontract agreement which was required to be executed between EPC contractor and EM contractor (including bank guarantees of 3% to be provided to EPC contractor), wherein the limitation of liability agreed is 100% of subcontract price (subject to certain exceptions) in order to safeguard the interest of EPC contractor on back-to-back basis. Another set of documentation involves joint deed of	

S. No.	Relevant Clause	Comments/Suggestions	Justification
		undertaking and parent company (including bank guarantees of 3% each to be provided by EM contractor and parent company (if EM contractor is bidding basis the qualification of its parent company). Such documentation includes another liability cap of 100% of subcontract price (the subcontract price quoted by EPC contractor to be buyer as part of bid, which may be more than the subcontract price quoted by EM contractor to EPC contractor) so as to protect the interest of the buyer. Considering there was no tri-partite umbrella agreement to the above-mentioned transaction wherein the interest of EM contractor can be safeguarded by limiting the aggregate liability of EM contractor to 100% of subcontract price (quoted by EM contractor to EPC contractor) in favour of EPC contractor and buyer, the financial exposure of EM contractor was way high in comparison to what normally an EM contractor agrees to (i.e. 100% of its subcontract price) in case of EM as a separate package. (b) **Transfer of Risk of Loss**: Another issue which an EM contractor tends to face in EPC/Turnkey tenders is the transfer of risk of loss to the buyer. The risk of loss passes to the buyer only if the entire project is being taken over by the buyer in accordance with the terms of EPC contract. You may note that in normal parlance, there are civil delays in a project which may be due to act or omission of civil contractors/third parties, which results in extension of project completion date, which may consequently impact an EM contractor in terms of time and cost and cause huge time and financial loss to the EM contractor. For such delays, an EM contractor are not generally compensated by the buyer and/or the EPC contractor (except to extension of time). Further, the deeming provisions generally provided in EPC contract to counter such risk also does not get triggered automatically taking into consideration the underlying project is an EPC project and not a standalone EM project. (c) **Performance Guarantees**: As per Rule 171 of General Financial Rules (GFRs) 2017 read with office memorandums dated November 12, 2020 and December 30, 2021 issued by the Ministry of Finance, a bidder is required to provide a performance security for an amount of three (3) percent of the value of the contract to ensure due performance of contract. However, in case of EPC/Turnkey projects, an EM contractor is required to provide performance security of more than 3% of its subcontract price. For instance, in Ratle project, an EM contractor was required to provide two (2) set of performance guarantees, one to the EPC contractor (under subcontract agreement) and other to the buyer under joint deed of undertaking, which altogether exposes the financial liability of an EM contractor under performance security to more than 3% of the sub-	

S. No.	Relevant Clause	Comments/Suggestions	Justification
		contract value, which is contrary to the above-mentioned notifications of the Ministry of Finance dated November 12, 2020 and December 30, 2021. Additionally, the performance security provided to the buyer under joint deed of undertaking is generally more than 3% of subcontract price as in normal parlance EPC contractor quotes the price for EM portion of EPC contract to the buyer with its margin to the price quoted by EM contractor to EPC contractor, which adds additional financial burden on an EM contractor and the buyer and altogether hinders the transparency among the relevant parties.	

Annexure-XII

AFCONS INFRASTRUCTURE LIMITED | Shapoorji Pallonji

Ref No. HYDRO / SGP/2273

Date 29.12.2021

To
The Addl. General Manager – Incharge
Thermal, Renewable Energy Department
THDC India Limited
Plot No. 20, Sector-14, Kaushambi,
Ghaziabad – 201010 (U.P.)

Sub: Views on contract clauses & different modes of contracting in hydro-power projects.

Ref. Your Letter no. THDCIL/NCR/Arbitration Committee/F-220B/606 dated 22.12.2021

Dear Sir,

We are in the receipt of your letter referred above. We thank you for providing us opportunity to give our Views on contract clauses & different modes of contracting in hydro-power projects. We are enclosing herewith our pointwise views / suggestions for your kind consideration please.

Thanking you and assuring you our best attention always,

Wishing you a very Happy & Prosperous New Year 2022!!!

Yours faithfully,

For AFCONS Infrastructure Ltd.,

AFCONS INFRASTRUCTURE LIMITED MUMBAI

(S G Paretkar)
Director - Hydro & U/G Works.
E-mail : sparetkar@afcons.com / purnendu.parui@afcons.com

Encl. As above.

Subject: Views on contract clauses & different modes of contracting in hydro-power projects

(i) Viability of EPC Contracts or Item Rates Contracts along with Circumstances thereof –

Timely completion of any Hydroelectric project basically depends on Geology & logistic approach. Hydroelectric projects are largely constructed in Himalayan range, the rock is comparatively young in nature and vulnerable. Therefore, with comparison to other projects like Industrial structures, Metro rails, Roads etc. the uncertainty, risk and chance of variation is more.

Geological & hydrological investigation takes a substantial time period, where the employer took more than a decade for detail investigation and conclude the project viability / estimate, which cannot be done by any contractor during the short period of tendering. Hence, total evaluation of tendering is to be done by the contractor based on the geological data provided by the Employer.

In previous days, it is observed many projects like Parbati II Powerhouse, tunnel, Dulhasti etc., there was a substantial variation in geology than it was envisaged before commencement of the works. Therefore, project completion time and cost was increased manyfold due to re-designing of the works, time overrun etc.

If Contractor Considers all these risks in their bid, then the bid prices are much higher than the Client estimate, due to which Client could not award the project. Or if Contractor ignore these risks while bidding then he bags the project but at the time of execution the Project Progress will hamper which will result into substantial Claims, Arbitrations etc.

In these scenario Client should consider the monetary losses he will suffer due to delay in generation of electricity caused by Cancellation of Tender and then retendering or by delay in project execution.

Therefore, in our view preference should be given to **"Item Rate Contract"**..

(ii) Comments on various contract clauses of different hydro CPSUs contracts :

a. Qualification / Eligibility requirement –

The methodology and equipment are similar for any dam / barrage project or any underground construction activity. Number of equipment will be increased based on the size of the project. Therefore, in view of this we suggest that the Technical Qualification criteria shall be on quantity basis instead of component wise basis. This practice is followed in SJVNL and also in some tenders of NHPC. This is also in line with MOP guidelines.

- **Technical Criteria:**

For Dam / barrage:

AFCONS INFRASTRUCTURE LIMITED ★ MUMBAI

Bidder should have experience in excavation and concreting from any dam / barrage project. The quantity should be 25%-50% of estimated quantity / with required progress rate.

For Tunnel / Powerhouse:
Bidder should have experience in excavation and concreting from any Underground works. The quantity should be 25%-50% of estimated quantity / with required progress rate.
Financial soundness of the Contractor help for better performance & timely completion of the project we suggest following conditions to be added in the financial criteria.

- **Financial Criteria**

Profitability - The bidder should on an average be profit making after tax over 3 (three) years out of last five Financial Years.
Debt-Equity Ratio - The Debt Equity Ratio of bidder / Lead member of the JV should not be more than 1.00 to 1.50.

b. **Scope of work –** When different type of specialized works are quoted in JV, the individual partners are qualifying & capable of executing work in their fields only. However, when Client invites tender on Turnkey basis there is Condition of "Joint and Several Responsibility" in that case if any of the partner fails to perform his obligation then other partner needs to fulfil his duty which is technically not correct. A Civil Company cannot execute the E&M works or HM Works on its own likewise E&M Works company cannot execute the Civil works.
Therefore, in our view there should be Separate tender for:
   - Civil works
   - Hydro-Mechanical works
   - Electro-Mechanical works

   This will also avoid for building any additional risk in tender quote. Of course, above will need a lot of interfacing work between the designers of different components but can be mitigated through client monitoring.

c. **E-reverse bidding process –** For any EPC or major tender, the bidder prepares it by putting all efforts by evaluating the design parameter, the best market rates & risks etc. Also, he tries to be absolute competitive in his price.
After opening if any other bidder becomes L1 he accepts it with no regrets.
However, in reverse auctioning it is total uncertainty of price bidding. Even L1 is not sure of his price as a wining price. After knowing all the prices, the desperate bidder can win it in reverse auctioning and may not be a performer in long term.
So, to keep the sanctity of price bidding we suggest to scrap Reverse Auctioning. Also, this may be in line with CVC guidelines.

AFCONS INFRASTRUCTURE LIMITED ★ MUMBAI

Also, we feel that when option of reducing the price is compulsory given to bidders, they may not give you their best lowest price and may keep margin for Auction, which can be general human tendency. So, department's view that by reverse auction they are getting best lowest price, perhaps is not correct and in fact they are losing their right to negotiate with L1 bidder effectively.

e. Adjustment for Change in Law

Clause 13.6 of FIDIC® Conditions of Contract for CONSTRUCTION FOR BUILDING AND ENGINEERING WORKS DESIGNED BY THE EMPLOYER Second Edition 2017 (FIDIC RED BOOK 2017), is adequate and covers all aspects. This Clause is proposed to be used without any modification in Particular Condition

Adjustments for Changes in Laws

Subject to the following provisions of this Sub-Clause, the Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change in:

(a) the Laws of the Country (including the introduction of new Laws and the repeal or modification of existing Laws);

(b) the judicial or official governmental interpretation or implementation of the Laws referred to in sub-paragraph (a) above;

(c) any permit, permission, license or approval obtained by the Employer or the Contractor under sub-paragraph (a) or (b), respectively, of Sub-Clause 1.13 [Compliance with Laws]; or

(d) the requirements for any permit, permission, licence and/or approval to be obtained by the Contractor under sub-paragraph (b) of Sub-Clause 1.13 [Compliance with Laws],

made and/or officially published after the Base Date, which affect the Contractor in the performance of obligations under the Contract. In this Sub-Clause "change in Laws" means any of the changes under sub-paragraphs (a), (b), (c) and/or (d) above.

If the Contractor suffers delay and/or incurs an increase in Cost as a result of any change in Laws, the Contractor shall be entitled subject to Sub-Clause 20.2 [Claims For Payment and/or EOT] to EOT and/or payment of such Cost. If there is a decrease in Cost as a result of any change in Laws, the Employer shall be entitled subject to Sub-Clause 20.2 [Claims For Payment and/or EOT] to a reduction in the Contract Price.

If any adjustment to the execution of the Works becomes necessary as a result of any change in Laws:

(i) the Contractor shall promptly give a Notice to the Engineer, or
(ii) the Engineer shall promptly give a Notice to the Contractor (with detailed supporting particulars).

AFCONS INFRASTRUCTURE LIMITED ★ MUMBAI

Thereafter, the Engineer shall either instruct a Variation under Sub-Clause 13.3.1 [Variation by Instruction] or request a proposal under Sub-Clause 13.3.2 [Variation by Request for Proposal].

g. Claims Procedure

The existing Clauses in the ongoing projects are not adequate and only specifies the obligations & timelines to be fulfilled by the Contractor in submission of claims. However, the reciprocal obligations, steps & timeline for determination of claims, to be fulfilled by the Engineer / Employer is not adequately specified in these Contracts, Therefore, the objective of time bound fair determination of claims are not being succeeded. Claims are kept undermined for prolonged period / not adequately & fairly being determined. In this regard, Clause 3.7 and Clause 20 of FIDIC® Conditions of Contract for CONSTRUCTION FOR BUILDING AND ENGINEERING WORKS DESIGNED BY THE EMPLOYER Second Edition 2017 is proposed to be used. These Clauses sufficiently provides obligation & timelines and procedures of both the parties in submission & determination of claim.

3.7 Agreement or Determination

When carrying out his/her duties under this Sub-Clause, the Engineer shall act neutrally between the Parties and shall not be deemed to act for the Employer.

Whenever these Conditions provide that the Engineer shall proceed under this Sub-Clause to agree or determine any matter or Claim, the following procedure shall apply:

3.7.1 Consultation to reach agreement

The Engineer shall consult with both Parties jointly and/or separately, and shall encourage discussion between the Parties in an endeavour to reach agreement. The Engineer shall commence such consultation promptly to allow adequate time to comply with the time limit for agreement under Sub-Clause 3.7.3 [Time limits]. Unless otherwise proposed by the Engineer and agreed by both Parties, the Engineer shall provide both Parties with a record of the consultation.

If agreement is achieved, within the time limit for agreement under Sub-Clause 3.7.3 [Time limits], the Engineer shall give a Notice to both Parties of the agreement, which agreement shall be signed by both Parties. This Notice shall state that it is a "Notice of the Parties' Agreement" and shall include a copy of the agreement.

AFCONS INFRASTRUCTURE LIMITED ★ MUMBAI

If:

(a) no agreement is achieved within the time limit for agreement under Sub-Clause 3.7.3 [Time limits]; or

(b) both Parties advise the Engineer that no agreement can be achieved within this time limit

whichever is the earlier, the Engineer shall give a Notice to the Parties accordingly and shall immediately proceed as specified under Sub-Clause 3.7.2 [Engineer's Determination].

3.7.2 Engineer's Determination

The Engineer shall make a fair determination of the matter or Claim, in accordance with the Contract, taking due regard of all relevant circumstances.

Within the time limit for determination under Sub-Clause 3.7.3 [Time limits], the Engineer shall give a Notice to both Parties of his/her determination. This Notice shall state that it is a "Notice of the Engineer's Determination", and shall describe the determination in detail with reasons and detailed supporting particulars.

3.7.3 Time limits

The Engineer shall give the Notice of agreement, if agreement is achieved, within 42 days or within such other time limit as may be proposed by the Engineer and agreed by both Parties (the "time limit for agreement" in these Conditions), after:

(a) in the case of a matter to be agreed or determined (not a Claim), the date of commencement of the time limit for agreement as stated in the applicable Sub-Clause of these Conditions;

(b) in the case of a Claim under sub-paragraph (c) of Sub-Clause 20.1 [Claims], the date the Engineer receives a Notice under Sub-Clause 20.1 from the claiming Party; or

(c) in the case of a Claim under sub-paragraph (a) or (b) of Sub-Clause 20.1 [Claims], the date the Engineer receives:

(i) a fully detailed Claim under Sub-Clause 20.2.4 [Fully Detailed Claim]; or
(ii) in the case of a Claim under Sub-Clause 20.2.6 [Claims of continuing effect], an interim or final fully detailed Claim (as the case may be).

The Engineer shall give the Notice of his/her determination within 42 days or within such other time limit as may be proposed by the Engineer and agreed by both Parties (the "time limit for

AFCONS INFRASTRUCTURE LIMITED MUMBAI

determination" in these Conditions), after the date corresponding to his/her obligation to proceed under the last paragraph of Sub-Clause 3.7.1 [Consultation to reach agreement].

If the Engineer does not give the Notice of agreement or determination within the relevant time limit:

(i) in the case of a Claim, the Engineer shall be deemed to have given a determination rejecting the Claim; or

(ii) in the case of a matter to be agreed or determined, the matter shall be deemed to be a Dispute which may be referred by either Party to the DAAB for its decision under Sub-Clause 21.4 [Obtaining DAAB's Decision] without the need for a NOD (and Sub-Clause 3.7.5 [Dissatisfaction with Engineers determination] and sub-paragraph (a) of Sub-Clause 21.4.1 [Reference of a Dispute to the DAAB] shall not apply).

3.7.4 Effect of the agreement or determination

Each agreement or determination shall be binding on both Parties (and shall be complied with by the Engineer) unless and until corrected under this Sub-Clause or, in the case of a determination, it is revised under Clause 21 [Disputes and Arbitration].

If an agreement or determination concerns the payment of an amount from one Party to the other Party, the Contractor shall include such an amount in the next Statement and the Engineer shall include such amount in the Payment Certificate that follows that Statement.

If, within 14 days after giving or receiving the Engineer's Notice of agreement or determination, any error of a typographical or clerical or arithmetical nature is found:

(a) by the Engineer: then he/she shall immediately advise the Parties accordingly; or
(b) by a Party: then that Party shall give a Notice to the Engineer, stating that it is given under this Sub-Clause 3.7.4 and clearly identifying the error. If the Engineer does not agree there was an error, he/she shall immediately advise the Parties accordingly.

The Engineer shall within 7 days of finding the error, or receiving a Notice under sub-paragraph (b) above (as the case may be), give a Notice to both Parties of the corrected agreement or determination. Thereafter, the corrected agreement or determination shall be treated as the agreement or determination for the purpose of these Conditions.

3.7.5 Dissatisfaction with Engineer's determination

AFCONS INFRASTRUCTURE LIMITED ★ MUMBAI

If either Party is dissatisfied with a determination of the Engineer:

(a) the dissatisfied Party may give a NOD to the other Party, with a copy to the Engineer.

(b) this NOD shall state that it is a "Notice of Dissatisfaction with the Engineer's Determination" and shall set out the reason(s) for dissatisfaction.

(c) this NOD shall be given within 28 days after receiving the Engineer's Notice of the determination under Sub-Clause 3.7.2 [Engineer's Determination] or, if applicable, his/her Notice of the corrected determination under Sub-Clause 3.7.4 [Effect of the agreement or determination] (or, in the case of a deemed determination rejecting the Claim, within 28 days after the time limit for determination under Sub-Clause 3.7.3 [Time limits] has expired); and

(d) thereafter, either Party may proceed under Sub-Clause 21.4 [Obtaining DAAB's Decision].

If no NOD is given by either Party within the period of 28 days stated in sub-paragraph (c) above, the determination of the Engineer shall be deemed to have been accepted by both Parties and shall be final and binding on them.

If the dissatisfied Party is dissatisfied with only part(s) of the Engineer's determination:

(i) this part(s) shall be clearly identified in the NOD;
(ii) this part(s), and any other parts of the determination that are affected by such part(s) or rely on such part(s) for completeness, shall be deemed to be severable from the remainder of the determination; and
(iii) the remainder of the determination shall become final and binding on both Parties as if the NOD had not been given.

In the event that a Party fails to comply with an agreement of the Parties under this Sub-Clause 3.7 or a final and binding determination of the Engineer, the other Party may, without prejudice to any other rights it may have, refer the failure itself directly to arbitration under Sub-Clause 21.6 [Arbitration] in which case the first and the third paragraphs of Sub-Clause 21.7 [Failure to Comply with DAAB's Decision] shall apply to such reference in the same manner as these paragraphs apply to a final and binding decision of the DAAB.

Clause 20 Employer's and Contractor's Claims

20.1 Claims

AFCONS INFRASTRUCTURE LIMITED ★ MUMBAI

A Claim may arise:

(a) if the Employer considers that the Employer is entitled to any additional payment from the Contractor (or reduction in the Contract Price) and/ or to an extension of the DNP;
(b) if the Contractor considers that the Contractor is entitled to any additional payment from the Employer and/or to EOT; or
(c) if either Party considers that he/she is entitled to another entitlement or relief against the other Party. Such other entitlement or relief may be of any kind whatsoever (including in connection with any certificate, determination, instruction, Notice, opinion or valuation of the Engineer) except to the extent that it involves any entitlement referred to in sub-paragraphs (a) and/or (b) above.

In the case of a Claim under sub-paragraph (a) or (b) above, Sub-Clause 20.2 [Claims For Payment and/or EOT] shall apply.

In the case of a Claim under sub-paragraph (c) above, where the other Party or the Engineer has disagreed with the requested entitlement or relief (or is deemed to have disagreed if he/she does not respond within a reasonable time), a Dispute shall not be deemed to have arisen but the claiming Party may, by giving a Notice refer the Claim to the Engineer and Sub-Clause 3.7 [Agreement or Determination] shall apply. This Notice shall be given as soon as practicable after the claiming Party becomes aware of the disagreement (or deemed disagreement) and include details of the claiming Party's case and the other Party's or the Engineer's disagreement (or deemed disagreement)

20.2 Claims For Payment and/or EOT

If either Party considers that he/she is entitled to any additional payment by the other Party (or, in the case of the Employer, a reduction in the Contract Price) and/or to EOT (in the case of the Contractor) or an extension of the DNP (in the case of the Employer) under any Clause of these Conditions or otherwise in connection with the Contract, the following Claim procedure shall apply:

20.2.1 <u>Notice of Claim</u>

The claiming Party shall give a Notice to the Engineer, describing the event or circumstance giving rise to the cost, loss, delay or extension of DNP for which the Claim is made as soon as practicable, and no later than 28 days after the claiming Party became aware, or should have become aware, of the event or circumstance (the "Notice of Claim" in these Conditions).

If the claiming Party fails to give a Notice of Claim within this period of 28 days, the claiming Party shall not be entitled to any additional payment, the Contract Price shall not be reduced (in the case of the Employer as the claiming Party), the Time for Completion (in the case of the Contractor as

AFCONS INFRASTRUCTURE LIMITED ★ MUMBAI

the claiming Party) or the DNP (in the case of the Employer as the claiming Party) shall not be extended, and the other Party shall be discharged from any liability in connection with the event or circumstance giving rise to the Claim.

20.2.2 Engineer's initial response

If the Engineer considers that the claiming Party has failed to give the Notice of Claim within the period of 28 days under Sub-Clause 20.2.1 [Notice of Claim] the Engineer shall, within 14 days after receiving the Notice of Claim, give a Notice to the claiming Party accordingly (with reasons).

If the Engineer does not give such a Notice within this period of 14 days, the Notice of Claim shall be deemed to be a valid Notice. If the other Party disagrees with such deemed valid Notice of Claim the other Party shall give a Notice to the Engineer which shall include details of the disagreement. Thereafter, the agreement or determination of the Claim under Sub-Clause 20.2.5 [Agreement or determination of the Claim] shall include a review by the Engineer of such disagreement.

If the claiming Party receives a Notice from the Engineer under this Sub-Clause and disagrees with the Engineer or considers there are circumstances which justify late submission of the Notice of Claim, the claiming Party shall include in its fully detailed Claim under Sub-Clause 20.2.4 [Fully detailed claim] details of such disagreement or why such late submission is justified (as the case may be).

20.2.3 Contemporary records

In this Sub-Clause 20.2, "contemporary records" means records that are prepared or generated at the same time, or immediately after, the event or circumstance giving rise to the Claim.

The claiming Party shall keep such contemporary records as may be necessary to substantiate the Claim.

Without admitting the Employer's liability, the Engineer may monitor the Contractor's contemporary records and/or instruct the Contractor to keep additional contemporary records. The Contractor shall permit the Engineer to inspect all these records during normal working hours (or at other times agreed by the Contractor), and shall if instructed submit copies to the Engineer. Such monitoring, inspection or instruction (if any) by the Engineer shall not imply acceptance of the accuracy or completeness of the Contractor's contemporary records.

20.2.4 Fully detailed Claim

AFCONS INFRASTRUCTURE LIMITED ★ MUMBAI

In this Sub-Clause 20.2, "fully detailed Claim" means a submission which includes:

(a) a detailed description of the event or circumstance giving rise to the Claim;
(b) a statement of the contractual and/or other legal basis of the Claim;
(c) all contemporary records on which the claiming Party relies; and
(d) detailed supporting particulars of the amount of additional payment claimed (or amount of reduction of the Contract Price in the case of the Employer as the claiming Party), and/or EOT claimed (in the case of the Contractor) or extension of the DNP claimed (in the case of the Employer).

Within either: (i) 84 days after the claiming Party became aware, or should have become aware, of the event or circumstance giving rise to the Claim,

or (ii) such other period (if any) as may be proposed by the claiming Party and agreed by the Engineer

the claiming Party shall submit to the Engineer a fully detailed Claim.

If within this time limit the claiming Party fails to submit the statement under sub-paragraph (b) above, the Notice of Claim shall be deemed to have lapsed, it shall no longer be considered as a valid Notice, and the Engineer shall, within 14 days after this time limit has expired, give a Notice to the claiming Party accordingly.

If the Engineer does not give such a Notice within this period of 14 days, the Notice of Claim shall be deemed to be a valid Notice. If the other Party disagrees with such deemed valid Notice of Claim the other Party shall give a Notice to the Engineer which shall include details of the disagreement. Thereafter, the agreement or determination of the Claim under Sub-Clause 20.2.5 [Agreement or determination of the Claim] shall include a review by the Engineer of such disagreement.

If the claiming Party receives a Notice from the Engineer under this Sub-Clause 20.2.4 and if the claiming Party disagrees with such Notice or considers there are circumstances which justify late submission of the statement under sub-paragraph (b) above, the fully detailed claim shall include details of the claiming Party's disagreement or why such late submission is justified (as the case may be).

If the event or circumstance giving rise to the Claim has a continuing effect, Sub-Clause 20.2.6 [Claims of continuing effect] shall apply.

20.2.5 Agreement or determination of the Claim

AFCONS INFRASTRUCTURE LIMITED ★ MUMBAI

After receiving a fully detailed Claim either under Sub-Clause 20.2.4 [Fully detailed Claim], or an interim or final fully detailed Claim (as the case may be) under Sub-Clause 20.2.6 [Claims of continuing effect], the Engineer shall proceed under Sub-Clause 3.7 [Agreement or Determination] to agree or determine:

(a) the additional payment (if any) to which the claiming Party is entitled or the reduction of the Contract Price (in the case of the Employer as the claiming Party); and/or

(b) the extension (if any) of the Time for Completion (before or after its expiry) under Sub-Clause 8.5 [Extension of Time for Completion] (in the case of the Contractor as the claiming Party), or the extension (if any) of the DNP (before its expiry) under Sub-Clause 11.3 [Extension of Defects Notification Period] (in the case of the Employer as the claiming Party),

to which the claiming Party is entitled under the Contract.

If the Engineer has given a Notice under Sub-Clause 20.2.2 [Engineer's initial response] and/or under Sub-Clause 20.2.4 [Fully detailed Claim], the Claim shall nevertheless be agreed or determined in accordance with this Sub-Clause 20.2.5. The agreement or determination of the Claim shall include whether or not the Notice of Claim shall be treated as a valid Notice taking account of the details (if any) included in the fully detailed claim of the claiming Party's disagreement with such Notice(s) or why late submission is justified (as the case may be). The circumstances which may be taken into account (but shall not be binding) may include:

• whether or to what extent the other Party would be prejudiced by acceptance of the late submission;

• in the case of the time limit under Sub-Clause 20.2.1 [Notice of Claim], any evidence of the other Party's prior knowledge of the event or circumstance giving rise to the Claim, which the claiming Party may include in its supporting particulars; and/or
• in the case of the time limit under Sub-Clause 20.2.4 [Fully detailed Claim], any evidence of the other Party's prior knowledge of the contractual and/or other legal basis of the Claim, which the claiming Party may include in its supporting particulars.

If, having received the fully detailed Claim under Sub-Clause 20.2.4 [Fully detailed Claim], or in the case of a Claim under Sub-Clause 20.2.6 [Claims of continuing effect] an interim or final fully detailed Claim (as the case may be), the Engineer requires necessary additional particulars:

(i) he/she shall promptly give a Notice to the claiming Party, describing the additional particulars and the reasons for requiring them;

AFCONS INFRASTRUCTURE LIMITED ★ MUMBAI

(ii) *he/she shall nevertheless give his/her response on the contractual or other legal basis of the Claim, by giving a Notice to the claiming Party, within the time limit for agreement under Sub-Clause 3.7.3 [Time limits];*

(iii) *as soon as practicable after receiving the Notice under sub-paragraph (i) above, the claiming Party shall submit the additional particulars; and*

(iv) *the Engineer shall then proceed under Sub-Clause 3.7 [Agreement or Determination] to agree or determine the matters under sub-paragraphs (a) and/or (b) above (and, for the purpose of Sub-Clause 3.7.3 [Time limits], the date the Engineer receives the additional particulars from the claiming Party shall be the date of commencement of the time limit for agreement under Sub-Clause 3.7.3).*

20.2.6 Claims of continuing effect

If the event or circumstance giving rise to a Claim under this Sub-Clause 20.2 has a continuing effect:

(a) the fully detailed Claim submitted under Sub-Clause 20.2.4 [Fully detailed Claim] shall be considered as interim.
(b) in respect of this first interim fully detailed Claim, the Engineer shall give his/her response on the contractual or other legal basis of the Claim, by giving a Notice to the claiming Party, within the time limit for agreement under Sub-Clause 3.7.3 [Time limits];
(c) after submitting the first interim fully detailed Claim the claiming Party shall submit further interim fully detailed Claims at monthly intervals, giving the accumulated amount of additional payment claimed (or the reduction of the Contract Price, in the case of the Employer as the claiming Party), and/or extension of time claimed (in the case of the Contractor as the claiming Party) or extension of the DNP (in the case of the Employer as the claiming Party); and
(d) the claiming Party shall submit a final fully detailed Claim within 28 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the claiming Party and agreed by the Engineer. This final fully detailed Claim shall give the total amount of additional payment claimed (or the reduction of the Contract Price, in the case of the Employer as the claiming Party), and/or extension of time claimed (in the case of the Contractor as the claiming Party) or extension of the DNP (in the case of the Employer as the claiming Party).

20.2.7 General requirements
After receiving the Notice of Claim, and until the Claim is agreed or determined under Sub-Clause 20.2.5 [Agreement or determination of the Claim], in each Payment Certificate the Engineer shall include such amounts for any Claim as have been reasonably substantiated as due to the claiming Party under the relevant provision of the Contract.

AFCONS INFRASTRUCTURE LIMITED ★ MUMBAI

The Employer shall only be entitled to claim any payment from the Contractor and/or to extend the DNP, or set off against or make any deduction from any amount due to the Contractor, by complying with this Sub-Clause 20.2.

The requirements of this Sub-Clause 20.2 are in addition to those of any other Sub-Clause which may apply to the Claim. If the claiming Party fails to comply with this or any other Sub-Clause in relation to the Claim, any additional payment and/or any EOT (in the case of the Contractor as the claiming Party) or extension of the DNP (in the case of the Employer as the claiming Party), shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the Claim by the Engineer

h. Force Majeure

Clause 18 of FIDIC® Conditions of Contract for CONSTRUCTION FOR BUILDING AND ENGINEERING WORKS DESIGNED BY THE EMPLOYER Second Edition 2017, is proposed to be used without any modification in Particular Condition.

Clause 18 Exceptional Events

18.1 Exceptional Events

"Exceptional Event" means an event or circumstance which:

(i) is beyond a Party's control;
(ii) the Party could not reasonably have provided against before entering into the Contract;
(iii) having arisen, such Party could not reasonably have avoided or overcome; and
(iv) is not substantially attributable to the other Party.

An Exceptional Event may comprise but is not limited to any of the following events or circumstances provided that conditions (i) to (iv) above are satisfied:

(a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies;

(b) rebellion, terrorism, revolution, insurrection, military or usurped power, or civil war;

(c) riot, commotion or disorder by persons other than the Contractor's Personnel and other employees of the Contractor and Subcontractors;

(d) strike or lockout not solely involving the Contractor's Personnel and other employees of the Contractor and Subcontractors.

(e) encountering munitions of war, explosive materials, ionising radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity; or

AFCONS INFRASTRUCTURE LIMITED ★ MUMBAI

(f) natural catastrophes such as earthquake, tsunami, volcanic activity, hurricane or typhoon.

18.2 Notice of an Exceptional Event

If a Party is or will be prevented from performing any obligations under the Contract due to an Exceptional Event (the "affected Party" in this Clause), then the affected Party shall give a Notice to the other Party of such an Exceptional Event, and shall specify the obligations, the performance of which is or will be prevented (the "prevented obligations" in this Clause).

This Notice shall be given within 14 days after the affected Party became aware, or should have become aware, of the Exceptional Event, and the affected Party shall then be excused performance of the prevented obligations from the date such performance is prevented by the Exceptional Event. If this Notice is received by the other Party after this period of 14 days, the affected Party shall be excused performance of the prevented obligations only from the date on which this Notice is received by the other Party.

Thereafter, the affected Party shall be excused performance of the prevented obligations for so long as such Exceptional Event prevents the affected Party from performing them. Other than performance of the prevented obligations, the affected Party shall not be excused performance of all other obligations under the Contract.

However, the obligations of either Party to make payments due to the other Party under the Contract shall not be excused by an Exceptional Event.

18.3 Duty to Minimise Delay

Each Party shall at all times use all reasonable endeavours to minimise any delay in the performance of the Contract as a result of an Exceptional Event.

If the Exceptional Event has a continuing effect, the affected Party shall give further Notices describing the effect every 28 days after giving the first Notice under Sub-Clause 18.2 [Notice of an Exceptional Event].

The affected Party shall immediately give a Notice to the other Party when the affected Party ceases to be affected by the Exceptional Event. If the affected Party fails to do so, the other Party may give a Notice to the affected Party stating that the other Party considers that the affected Party's performance is no longer prevented by the Exceptional Event, with reasons.

18.4 Consequences of an Exceptional Event

AFCONS INFRASTRUCTURE LIMITED ★ MUMBAI

If the Contractor is the affected Party and suffers delay and/or incurs Cost by reason of the Exceptional Event of which he/she gave a Notice under Sub-Clause 18.2 [Notice of an Exceptional Event], the Contractor shall be entitled subject to Sub-Clause 20.2 [Claims For Payment and/or EOT] to:

(a) EOT; and/or

(b) if the Exceptional Event is of the kind described in sub-paragraphs (a) to (e) of Sub-Clause 18.1 [Exceptional Events] and, in the case of sub-paragraphs (b) to (e) of that Sub-Clause, occurs in the Country, payment of such Cost.

i. Risk Sharing Methodology

A Risk Register specifying the Risk and obligations thereof may be included in the Tender.

However, this should be drafted in line with Risk Sharing provisions arising out of FIDIC RED BOOK 2017 . In case of any contradiction between Risk Register and FIDIC RED BOOK 2017, the later should prevail.

j. Procedure for the payment of the idling Cost to the Contractor

The valuation of Contractor's entitled Cost, as specified in Clause 2.1 (Right of Access to the Site), Clause 4.6 (co-operation), 4.12 (Unforeseeable Physical conditions), 4.15 (Access Route), 4.23 (Archaeological and Geological Findings), 7.4 (Testing by the Contractor), 8.10 (Consequences of Employer's Suspension), 8.12 (Prolonged Suspension), 18 (Exceptional Event) , to cover the following as given below but is not limited to:-

(A) Cost of owned Equipment

Cost of owned Equipment will be based on IS 11590:1995 (Guidelines for working out unit rate cost of the Construction equipment used for River Valley Projects). It comprises of the following elements:

i. Depreciation Cost

(A) Annual Depreciation w.r.t. life in years = 0.9 x Book Value/Life in years.
(B) Annual Depreciation w.r.t. life in hours = 0.9 x Book Value/Life in hours.
(C) Average Annual Depreciation = {(A + B) / 2}

Depreciation cost = {(Claim period in days/200) x Average Annual Depreciation}.

ii. Interest on capital Investment: (Rate of Interest/100) × Average Annual Cost

AFCONS INFRASTRUCTURE LIMITED ★ MUMBAI

The average annual cost is determined as follows:

Average Annual Cost = Book value of Equipment × (n+1)/2n Where:

- *"n" refer for number in years of life of equipment.*
- *Book value = purchase price plus freight, insurance, all taxes and duties, port clearance charges, erection and commissioning charges and other incidental charges.*

 # the interest rate shall be the rate of interest applicable for Construction Equipment advance in the Contract

The Contractor shall submit month-wise deployment reports of equipment and the same shall be verified by the Engineer on monthly basis and any discrepancy thereof shall be communicated to the Contractor forthwith. While determining the cost of equipment, the Engineer should rely upon these deployment reports.

iii. Insurance Charges

Insurance charges in respect of Contractor's Plant & Machinery (CPM) policy shall be Considered as per actuals.

(B) Cost of leased/hired Equipment

In case of leased/hired equipment, the hire charges shall be admissible for the hindrance period. The value of the claim amount shall be assessed by the Owner/Employer keeping in view documentary evidence provided by the Contractor, prevailing market rate and reasonableness of the claim.

NOTE:- Cost of equipment either at (a) or (b) above shall be applicable for the specific equipment i.e. owned or hired or leased as the case may be.

(C) Cost of Labour

The labour directly engaged for the works at Site by the Contractor or through Sub- contractor, as verified by the Engineer-In-Charge/Engineer, will be reimbursed for hindered period in case Contractor produces proof that labour has been paid wages during the period of idling.

Cost of equipment related labour, as verified by Engineer-In-Charge/Engineer, will be worked out as per CWC norms limited to actual whichever is lower.

The above cost will be considered for payment based on the supporting details such as attendance sheet, receipt of deposit of provident fund duly certified by the Contractor.

AFCONS INFRASTRUCTURE LIMITED ★ MUMBAI

In addition to actual cost of labour, indirect charges shall be considered. The indirect charges (other than salary) shall be 85% and 60% for skilled and unskilled labour respectively. Indirect charges shall be applicable on the basic wages. Basic wages means component of wages on which statutory deductions like Employee Provident Fund is deposited to the statutory authority.

The Contractor shall submit month-wise deployment reports and the same shall be verified by the Engineer on monthly basis and any discrepancy thereof shall be communicated to the Contractor forthwith. While determining the cost of Labour, the Engineer should rely upon these deployment reports. In order to certify the payment made to the Labour, the Engineer may consider the certificate from the Statutory Auditor certifying the payment made to the Labour in claim period.

(D) *Cost of Site staff*

The Cost of site executives/supervisory staff shall be considered for payment as per actual. The site staff implies all the staff posted at the site including staff posted at the Head office. Cost of site staff shall be supported by relevant documents. The cost shall be considered for payment based on the supporting details in form of pay ledger, bank details, detailed pay slips, Form 16 of Income tax issued by the Contractor as well as Sub-Contractor's and receipt of deposit of Provident Fund duly certified by the Contractor.

In order to certify the payment made to the staff, the Engineer also to consider the certificate from the Statutory Auditor certifying the payment made to the Site Staff in claim period.

(E) *Interest on Mobilization Advance*

The Contractor shall give amount of expenditure along with their period duly certified by their statutory auditors towards the utilization of the mobilization advance for the Works. On the basis of the certification made by the Statutory Auditor an average investment for the period may be considered and the amount of interest on mobilization advance worked out accordingly. Further, for the purpose of calculation of interest on mobilization advance, interest rate as mentioned in the relevant Contract shall be considered. The cost of construction equipment purchased by the Contractor out of the mobilization advance on which interest on capital investment is already considered at Sl.No. a (ii) above shall be excluded for the purpose of working out interest on Mobilization advance.

However, where the events giving rise to admissible cost claim to the Contractor do not disrupt whole of the Works but only particular component/structure of the Project, then the admissible interest on mobilization advance payable to the Contractor shall be worked out on prorata basis.

(F) *Bank Guarantees and Insurance charges*

AFCONS INFRASTRUCTURE LIMITED ★ MUMBAI

These charges are to be considered towards cost compensation separately based upon documentary evidence of payment of premium amount by the Contractor towards extensions of Performance Bank Guarantee, Retention Money Bank Guarantee and Contractor's All Risk (CAR) Insurance Policy.

(G) Overheads

Overhead costs include but not limited to Office and share of head office expenses, Legal charges, General establishment, Watch and Ward, Local conveyance, Travelling expenses, Social welfare, salaries of Managerial and clerical staff etc. and Publicity etc.

Overhead Charges= 15% of Contract price / Contractual Construction Period × authorized time extension entitling cost claim

(H) loss of profit

Loss of Profit= 10% of Contract price / Contractual construction Period × authorized time extension entitling cost claim

(I) Financing Charges

Financing Charges= (Total amount of Sr. No (a) to Sr. No (h)/ authorized time extension entitling cost claim × (Rate of Interest/100)

 # the interest rate shall be the prevailing rate of interest as per SBI PLR

(J) The taxes applicable on cost claims

The applicable taxes on the above elements of cost claim shall be reimbursed to the Contractor as per actuals based on the documentary evidence.

k. Incentive Clause for early completion of works

In the event that the Date of completion of Work, as specified in the 'Taking over Certificate' occurs prior to the 'Time for Completion' including Extension of Time for Completion, if any, the Contractor shall be entitled to receive a payment of bonus equivalent to 0.03% (zero point zero three per cent) of the Contract Price for each day by which the Date of completion of Work precedes the Time for Completion, including Extension of Time for Completion, if an, but subject to a maximum of 5% (five per cent) of the Contract Price. Provided, however, that the payment of bonus, if any, shall be made only after the issue of the Performance Certificate. For the avoidance of the doubt, the Parties agree that for the purpose of determining the bonus payable hereunder, the Contract Price shall always be deemed to be the amount specified in Clause 14.1.(Contract Price)

AFCONS INFRASTRUCTURE LIMITED ★ MUMBAI

m. Equipment Advance:

For avoiding loading of BG expenses in the bid price. Equipment Advance shall be provided against hypothecation of the equipment.

This practice is followed in various Hydro CPSUs.

(iii) Additional Suggestion, if Any

FIDIC has taken a balance approach towards sharing of Risk for best interest of the Project. Therefore, Clauses specified FIDIC® Conditions of Contract for CONSTRUCTION FOR BUILDING AND ENGINEERING WORKS DESIGNED BY THE EMPLOYER Second Edition 2017" (FIDIC RED BOOK 2017) proposed to be used in the Contract. Further, these FIDIC conditions should not be changed / deleted in Particular Condition, unless completely inconsistent with the Proposed Tender. The Particular Condition and Appendix to Tender should only be drafted considering the requirements specified in the GCC.

AFCONS INFRASTRUCTURE LIMITED ★ MUMBAI

Annexure-XIII

HYD-S/MT/003 6.01.22

To,
THDC INDIA LIMITED;
Plot No.20, Sector-14, Kaushambi,
Ghaziabad-201010 (U.P)
Tel: 0120-2816900-901,
Fax: 0120-2776499
E-mail: sanjaysinghal@thdc.co.in

Kind Attn	**:**	**Mr. Sanjay Singhal – Addl. General Manager** **Incharge - Thermal, R.E. Department**
Subject	**:**	Views on contract clauses & different modes of contracting in hydro-power projects
Reference	**:**	Your letter No. THDCIL/NCR/ Arbitration Committee/ F-220B/ 606 dated 22.12.2021

Dear Sir,

We thank you for the opportunity provided to the contractors to present their experiences, views and suggestions for logical and judicious report compilation on contract conditions and contract type for Hydro Power Projects. The subject is vast and is of paramount interest and importance to both the contractors and the Employer for successful completion of the projects with sustenance of contractors working in the sector.

HCC till date in it's life span of one century and being one of the oldest construction company of the world, has successfully handled and delivered all kinds of Hydro project contracts whether it is EPC or item rate. We are pleased to enclose herewith,

1. **Annexure A** – HCC, views and comments on contract clauses for your considerations and
2. **Annexure B** – Item rate Vs Turnkey EPC contracts

Feel free to call upon any additional information you may require providing which will be a pleasure.

Thanking you.

Yours faithfully,
For HINDUSTAN CONSTRUCTION CO. LTD.,

Manoj Thakur
General Manager – Business Development

Encl.:

1. **Annexure A** – Our views and comments on contract clauses for your consideration
2. **Annexure B** –Item rate Vs Turnkey EPC contracts

Annexure A – HCC, views and comments on contract clauses for your considerations and

Sr. No.	Subject	Suggested/ Desired
	Commercial Terms	
1.	FIDIC Contract Book to be followed	Typically, FIDIC 1999: red book for Items Rate contracts and Yellow book for Conditions of Contract for EPC/Turnkey Projects is followed. We suggest FIDIC conditions of contracts for underground Works, edition 2019 shall be more appropriate for Hydro projects and recommend to follow the same. Most importantly these FIDIC documents are fiddled with convenience to derisk Employer and incorporate changes through PCC and SCC to dump all possible risks to the contractor's account which imbalance the contract. This should be avoided in the interest of the project as contractor is only executing Employer's project for him and dumping him with imbalance contract is not going to help Employer either.
2.	Advance, Mobilisation	It is proposed that interest free mobilisation advance up to 10% of the contract value shall be given against identified mobilisation works and items and shall be recovered against completion of the same instead of recovery stretched along project duration items Alternatively minimum 10% Interest free advance shall be provided as most of the projects requires sizable infrastructure development to access and set up the site establishments to be recovered along with interest in equal instalments between actual billing cycle of 30 to 85% of the contract value and shall not be anyway linked to site handover.
3.	Secured Material Advance	Secured Material Advance of 80% of the Invoice Value should be provided on Cement, Steel, Diesel and explosives to help contractor in maintaining the positive cashflow in the interest of the project.
4.	Equipment, Plant and Machinery advance	P & M advance - The Hydro Projects requires huge no of machineries to be deployed for all kinds of heavy civil works to be undertaken in challenging geologies in difficult terrains. It is requested to provide Plant and Machinery Advance up to 25% of the contract value. The equipment advance shall be provided on 100% of the value of new equipment and 75% on the depreciated value of the old equipment. These advances are any way issued against necessary securities to the employer viz; against BG's or hypothecation of the equipment brought at site in favour of the Employer

5.	E Reverse Auction	The project bidding in the country follows genuine, established e-tendering bidding process wherein interest of both client and bidders is given a fair respect. In a project it is not just a material supply, bidder combines his all tangible and intangible costs based on his experiences, competencies and resource evaluation after accessing site specific geo, physical and environmental conditions and all possible risks to be encountered to place his best possible lowest offer for winning bid to execute the project. Reverse auction is a process more prevalent and recommended for supply/ manufactured items where manufacturer is fully aware of the cost. Reverse auction demoralises serious, experienced players and encourages and allows players to commit mistakes and play with the price where project, contractor and client all may have to bear the consequences which is net loss to public exchequer when projects of national importance are put to reverse auction process. It is basically a process to squeeze on project deliverables by tempting, pushing and squeezing bidders leaving no room to cater risks and eventualities as typically bound to be encountered during project execution. We therefore request you to delete reverse auction process which dilutes the sanctity of e-tendering process.
6.	PBG/ Security Deposit and Retention	Considering the present global scenario and stiff banking norms including anticipated ever lasting impact of Covid - 19 on Indian economy, it is proposed to accept 1% of the accepted contract amount towards Performance security and balance 2% of security deposit as retention from R.A. bills to be retained as retention deposit which can be released to contractor on submission of BG of equivalent amount. “The Performance Security of a joint venture shall be in the name of Joint Venture submitted by any partner of the Joint Venture utilizing his credit limit, as mutually agreed by the partners of Joint Venture Above is already directed by Ministry of Finance and is followed in Transport tenders with later being followed in recent Hydro tenders as well
7.	Commencement Date	It is requested that commencement date to be revised in accordance with the complete handover/ access to the full site

8.	LD - Interdependent Milestones	It is requested to levy delay damages on balance amount of works under that milestone and not on the contract value pertaining to the milestone It is requested to restrict the aggregate of liquidated damages payable shall not exceed 5% of the aggregate of the Contract Prices of all the contracts. The E-RA already tempts and squeezes contractor to best possible extent to leave any room to cater any project eventualities. Liquidated damages are to secure Employer's interest towards completion of the project with guaranteed performance. Values proposed here are in the interest of the project. Any values more than 5% push contractor to the so mush so negative side on monetary front such that it becomes impracticable for contractor to recover and come out of it.
9.	Incentive Clause	The construction schedule shall be revised for delays not attributable to the contractor and extensions granted e while calculating incentive. In certain contracts it is proposed to provide incentive to the workers who are more than 12 months on the job. This is neither of any use to the contractor nor to the workers defeating the very basic objective and purpose for which it is proposed. Project progress mainly depends upon contractor's planning, control and execution methodologies. Labour involvement in the project is basically contractor's expertise and is driven by contractor only. If given only to certain category of workers may create an unrest among local workers. With no direct motivation and benefit to the contractor out of it, this provision is of no use to the project. If given to the contractor, it will motivate contractor and for sure in a process will be passed on to the right end by the contractor with eye on tangible and intangible benefits upon early completion of the project. The incentives proposed shall be in accordance and proportionate to delay damages and shall follow same clause in a reverse manner to justify delay damages provision in the contract.
10.	Idling Payment Procedure	Idle charges shall be paid for contractor's Head office overheads i.e; specific expertise employed by the contractor to manage, control and execute the project at it's Head office. The delays in handing over to the site shall be adjusted under idle charges and shall be paid to the contractor Moreover, it is requested to normalise idling payment procedure across all hydro tenders with NHPC guidelines amended with above provisions
11.	Price Adjustment	For 'labour' indices shall be based on minimum wages which gives fair picture rather than linking it to consumer price index or WPI index, etc. The contractor shall be allowed to specify his weightages to material

		and labour components based on his construction planning and methodology. Ideally the tender document shall specify the base star rates. Any variation during execution in star rates shall be adjusted. The base rate for fuel shall be rate seven days prior to the bid submission date at a IOCL fuel station near to the site. Any variation during execution in this rate shall be adjusted. The variation amount finalisation and payment process need to be streamlined since lot of time is lost in conclusion of the same impacting contractor on cashflow account
12.	Insurance	It is requested Employer to obtain Car policy for the project. Contractor taking it and transferring benefits as required to the Employer is just adding process and cost to the project. In most of the cases where project duration is high the Insurance provider refrain providing services or quote abnormally high which ultimately unnecessarily gets loaded on the project.
13.	Payment Schedule	90% within 7 days from the date of submission of bill for approval Balance 10% within 21 days from the date of submission of bill and prior to next bill cycle. Interest to be paid to the contractor on delayed payments shall be @ SBI MCLR for 3 years + 150 basis Points
14.	Claims Procedure	Typically, contractor having claim will have to deposit a sum equal to 5% of the amount claimed under dispute in the form of a in Demand Draft / NEFT / RTGS and no other security such as Bank Guarantee etc. Contractor raises claim with no option left and having tried all resorts to get his stuck money to manage his cashflows. Asking contractor to further deposit 5% of claim amount in cash is in other words refraining and thereby denying him his right. It is requested to delete this clause.Compounded interest @ 18.0 % per annum shall be payable to the contractor on the awarded amount of the dispute/claim for the pre reference and pendente lite period.
15.	Force Majeure	Contractor should be compensated suitably for time and cost in case of any kind of socio-political unrest, riot and terrorism activity or pandemic situations and force majeure conditions halting works for more than 7 days. It is requested to reinstate original FIDIC clause: 19.4, 'Consequences of Force Majeure' to have a balanced contract
	Technical	
1.	Change in Quantities	rates of Items termed under fix rate items shall be revised annually/ half yearly in a volatile market condition say for eg. dewatering being associated with diesel rates Any increase or decrease in quantities shall be paid at actuals with suitable rate revisions

2.	Extra Works, Turnkey EPC Vs Item Rate Contract	When it comes to EPC, turnkey contracts, the projects being sizable in nature in terms of volume and value and located in geologically and logistically challenging site conditions with limitations and constraints of approaches and accessibility. Minimum 20% continency of the contract value shall be provided above contract price to cater unexpected, unprecedented situations and derisk the contractor from the same for timely completion of the project. You will appreciate that EPC, turnkey contracts have no provisions to take care of any eventualities and surprises and design changes and additional works encountered during project execution. The Employer is also tight handed and could not help even wished so in the interest of the project by virtue of contract conditions. Item rate contracts provides that provision to accommodate engineering and technical revisions and change of scope by virtue of contract provisions viz; as extra items and works
3.	Payment towards use of DG sets	In case of non-availability of grid power at site and works are to be carried out with DG sets, the contract shall have a provision of DG power rate revision wrt diesel prices
4.	Availability of land for Temporary Works	Employer need to necessarily identify and keep the provisions for contractor's set up and establishments in the interest of the project. This is very basic necessity for contractor to begin with.
5.	Clarity on clearances available and timelines for, 1. E&F, 2. CEA, 3. PIB, 4. IWT, 5. Defence, etc.	It is noticed that even in the absence of valid clearances bids are received and opened but could not be awarded due to want of clearances. It is requested to receive the bids upon having necessary clearances to award and start construction of the project. Employer shall obtain all statutory clearances and approvals as required to commence and construct the project since contractor has no authority and powers to obtain the same.
6.	Local Content Confirmation	Statutory/ cost auditors refrain issuing such certificate as the declaration about a particular usage percentage of local material for this project is a future event and they don't have expertise to evaluate, access or guestimate the same at the bidding stage. Moreover, it is a matter between bidder and Employer at the bidding stage and self-certification from bidder shall suffice at the time of bidding like it is followed in tenders in transport sector, Railways, Metros, etc.
7.	List of Key Equipment to be deployed	It is always demanded to deploy and maintain certain bare minimum equipment of certain capacities at site. This most of the times adds unnecessary loadings on the project cost. It is requested for contractor to allow, select and deploy suitable and adequate equipment commensurate with his construction methodology, availability of construction material and overall construction programme. The equipment estimated for the project also may vary based on model /make and capacities from different manufacturers.
8.	Makes of major bought out items	In case of steel, cement and other major bought out components instead of restricting to one or two makes, it is requested to allow all

		makes satisfying technical criteria and IS specifications
9.	Risk Allocation	Any variations occurred in geological data during execution than baseline geological data provided at the time of tendering shall be compensated suitably in terms of time and cost since contractor's bid cost is based on this data In the event of unforeseen conditions such as landslides, flush floods, earthquake, geological breakdowns, etc., the works pertaining to such conditions such as removal of landslides and disposal to designated locations, bailing out of water, removal of silt etc. shall be treated as additional works/ extra works and shall be paid at actuals plus overheads. Any increase in length and volume of the tunnel, dam, powerhouse due to change in alignment or employer requirements / site conditions after award of contract shall be compensated in terms of time and cost
10.	Bid Submission timeline	The hydro projects are sizable in nature wrt scope and value involving massive surface excavations mostly in geologically and logistically challenging site conditions. Most of the times projects are remotely located with limitations and constraints of approaches and accessibility and requires minimum one working week for site visit. The challenging geographical conditions warrants meticulous site visit to understand the scope wrt site locations and site conditions viz; soil strata, geology, available and possible approach roads, site accessibility wrt logistics for material and equipment movement, borrow and dumping areas, social environment, etc. Any techno commercial amendment warrants cross checking of all above parameters wrt project execution methodologies and costing. The EPC bids also requires bidder to deal with other partners, subcontractors viz; EM and HM players to validate design, construction methodologies and costing wrt amendments. It is therefore requested to provide minimum 90 days from the date of Prebid replies or from the date of techno commercial amendments for bid submission in case of EPC bids and minimum 60 days from the date of Prebid replies or 45 days from techno commercial amendments for bid submission in case of item rate tenders
	Pre-Qualification	
1.	Working Capital, new clause	In a balance sheet most of the remarks, observations and qualifications given are subjective due to obvious nature of it and are considered positively. This newly added clause in the NHPC tender document while bringing subjectivity dilutes sanctity of already audited balance sheet. We therefore request to delete this ambiguous tender clause.

2.	Financial Clauses to me met jointly by JV in case of Joint venture/Consortium Bidders	The Working Capital Criteria is to be met by Joint Venture/consortium members having joint and severable responsibility, proportionate to their JV share which is a standard condition followed across all tenders in the country and believe same is followed in the Hydro tenders though no written clarity is there about it in the tender documents Further to extract the complete benefit under this clause to the Employer on similar lines to amendment made under Performance Security clause recently by NHPC i.e; in case of a JV, Performance security from any JV partner on behalf of JV is accepted, working capital criteria shall be allowed to be met jointly by JV. This practice is followed in many tenders across the country for wider bid participation wherein technically competent companies can associate with financially sound JV partner to fulfil techno commercial prequalification criteria of the tender.
3.	Execution jointly by JV irrespective of technical PQ compliance	Once the project is bided by JV, it should be allowed to carry the work jointly as planned by JV which is jointly and severally responsible to the Employer for timely completion of the project without putting any restriction on the work to be carried out by each JV Partner

Annexure B – Item rate Vs Turnkey EPC contracts

When compared item rate contracts fared better in comparison with Turnkey EPC Contracts for obvious reasons

The hydro projects are sizable in nature wrt scope and value involving massive surface excavations mostly in geologically and logistically challenging site conditions. Most of the times projects are remotely located with limitations and constraints of approaches and accessibility. Item rate contracts provides flexibility and provision to accommodate shortfalls in survey, investigations and cost estimates based on that

Because of competition, the EPC risk is not apportioned appropriately in the bid cost by bidder because of fear of losing the bid. These things surfaces during construction of the project questioning viability of project with contractor's integrity

EPC, turnkey contracts have no provisions to take care of any eventualities and surprises and design, engineering changes to cater to these and additional works encountered during project execution thereby. The Employer is also tight handed and could not help even wished so in the interest of the project by virtue of contract conditions.

Item rate contracts provides that provision to accommodate engineering and technical revisions and change of scope by virtue of contract provisions viz; as extra items and works in the interest of the project.

With recent trend of combining all Civil, EM and HM work under one contract package is leading to multiplication of risk appropriation on project cost by bidder. Civil, EM and HM players individually load their envisaged risks in their price offer. The bidder integrating the package further load risks from his end on entire package towards risks and responsibilities ultimately allocated to him by virtue of contract conditions. If the same contract packages are segregated the risk loading multiplication will stop. The experts of each fraternity handling their share of works will be able to execute their scope in a far efficient manner.

With above basic reasons it is recommended to have item rate contracts than turnkey EPC contracts for Hydro power Projects

Voith Hydro : Feedback on contract clauses & different modes of contracting in hydro-power projects (EM perspective)

For the contracting of Hydro Power Projects we would like to put forth our recommendations as follows :

S.No.	Contract Clauses	Voith Feedback
1.	**Viability of EPC Contracts or Item Rate contracts alongwith circumstances thereof**	**The tender for the Electro Mechanical Scope should be done as separate EPC package and not combined as a single EPC package with Civil.** *The reasons for the above are:* i. We as EM companies have no expertise or experience for the Civil part of the scope of the HPPs ii. The proportion of EM in the total package of the HPP cost (including Civil) is quite less (less than 20 to 25% or lower). This proportion leads to disproportionate high LD and other risks to the EM Company in case of single package contracts. iii. A Payment security (by LC) which is mandatory for us for such large contracts is difficult/not possible to achieve with the civil company in case of single package contracts iv. Because of limited understanding of the civil and therefore the possibility to contribute, in the sharing of risk emanating from the civil scope is difficult for us to judge or quantify. v. In general there is a much higher level of coordination and risk factors, many of which are difficult to estimate. vi. Financial strength of the civil companies The above results in significant high risk for EM (in case of single package contract) which may lead to no bid or very high price. So it is beneficial for the owner to go for separate packages for Electro-Mechanical and for Civil Works.
2.	**Comments on various contract clauses of different hydro CPSUs contract, like :**	
a.	Qualifications/Eligibility Requirement	Qualification should be allowed on the basis of Parent company, as per standard of NHPC, SJVN etc. clause enclosed as *Annexure 1*.
b.	Scope of Work	Separate EPC Package for Electro Mechanical Works
c.	E-Reverse bidding	E-Reverse Auction Criterion shall be as follows: e-RA shall be followed after e-tender only, if number of eligible bidders at price bid stage is at least 2 (two) and the corrected evaluated bid price (including taxes & duties and loading of differential prices on account of guaranteed loss, efficiency, production capacity etc.) of the lowest evaluated techno commercially responsive Bidder is higher with respect to, Technically sanctioned estimate updated to the current Price Level, as hereunder: • More than 7.5% for a Package having Approved Cost estimate upto Rs 200 Cr. • More than 5% for a Package having Approved Cost estimate more than Rs 200 Cr and upto Rs 500 Cr. • More than 2.5% for a Package having Approved Cost estimate above Rs 500 Cr.

S.No.	Contract Clauses	Voith Feedback
d.	Variation and adjustment	Price Variation formula and application method should be as per SJVN Clause enclosed as *Annexure 2*. Due to highly volatile market - For small value & short duration projects (limited to 3 years) ceiling of price variation for supply can be limited to 25%. However, high value & more than 3 years duration projects shall be without any ceiling on price variation.
e.	Adjustment for change in laws	As per existing clause of PSUs such as NHPC, SJVN etc. NHPC Clause is enclosed as *Annexure 3* for reference.
f.	Payment (Down Payment, Interest bearing advance, Progressive payment, Bank Guarantee etc)	**Proposed Payment Terms** Minimum 10% advance without any interest or in the form of down payment (which is always without interest). 30% aggregate Progressive payment (as per cash flow requirement) for engineering, model test, Procurement & manufacturing. Various milestones of these activities can be defined or it can be linked to no. of months from award. 55% payment on pro-rata dispatch along with 100% taxes & duties 5% on unit wise commissioning. Payment thru at sight LC (except advance/down payment). Performance Bank Guarantee of 3% contract value valid till defect liability period. There should not be any retention from the bills/invoices.
g.	Claims procedure	As per existing clause of recent tenders of NHPC, SJVN etc.
h.	Force Majeure	As per existing clause of recent tenders of NHPC, SJVN etc. NHPC Clause is enclosed as *Annexure 4* for reference.
i.	Risk Sharing methodology	Not Applicable for E&M Scope
j.	Procedure for payment and idling cost to the contractor	As per the Clause of SJVN enclosed as *Annexure 5*.
k.	Incentive for early completion of works	Incentive of 5% for early completion of works can be included. NHPC clause of recent tender is enclosed as *Annexure 6*.
l.	Construction methodology	Not Applicable for E&M Scope
m.	Equipment advance	Not Applicable for E&M Scope
n.	**Any other**	
(i)	Liquidated Damages for Performance	Liquidate Damages on Performance shall be limited to 10% of the Contract Value.
(ii)	Liquidated Damages for Delay	Liquidate Damages should be applicable unit wise and on completion of Commissioning/taking over. Total cap of LD for delay should be limited to 10% of the Contract Value.
(iii)	Defect Liability Period	The Defect Liability Period shall be five hundred and forty (540) days from the date of Completion of the Facilities i.e. dry commissioning (or any part thereof) or one year from the date of Operational Acceptance of the Facilities (or any part thereof), whichever first occurs. In case of repair or replacement during defect liability period, such repair/replacement shall have the Defect Liability Period extended by a period of 12 months from the time such replacement/repair of the Facilities or any part thereof or upto twenty four (24) months from the date of Operational Acceptance of the Facilities (or any part thereof) whichever is earlier. At the end of the Defect Liability Period, the Contractor's liability ceases except for latent defects. The Contractor's liability for latent defects warranty shall be limited to a period of three (3) years from the end of Defect Liability Period.

S.No.	Contract Clauses	Voith Feedback
(iv)	Limitation of Liability	Limitation of Liability clause as per NHPC tenders: Except in cases of criminal negligence or willful misconduct, a) Neither Party shall be liable to the other Party, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, which may be suffered by the other Party in connection with the Contract, other than specifically provided as any obligation of the Party in the Contract, and b) the aggregate liability of the Contractor to the Employer, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment, or to any obligation of the Contractor to indemnify the Employer with respect to patent infringement.
(v)	Suspension and Termination rights of the Contractor	EM Contractor should have equitable rights of suspension and termination for any default of the Employer and/or events beyond control of the Contractor with price compensation as per existing clauses of NHPC enclosed as *Annexure 7*.
(vi)	Commencement Date	Commencement Date of the Project should be linked to release of advance and establishment of letter of credit by the Employer. Following clause should be included: The Time of Completion of the Facilities shall be determined from the "date" on which all of the following conditions have been fulfilled in the times indicated below: (a) This Contract Agreement has been duly executed for and on behalf of the Employer and the Contractor within 30 days from the Notification of Award; (b) The Contractor has submitted to the Employer the performance security and the advance payment guarantee; (c) Advance payment (if opted for) to be made by employer against advance payment security Each party shall use its best efforts to fulfill the above conditions for which it is responsible as soon as practicable. If the conditions listed above are not fulfilled within two (2) months from the date of Notification of Award because of reasons attributable to the Employer, the Contract would become effective only from the date of fulfillment of all the above mentioned conditions and, the parties shall discuss and agree on an equitable adjustment to the Contract Price and the Time for Completion and/or other relevant conditions of the Contract.
(vii)	Insurance	All Insurance limits should be capped. No insurance provider provides cover with open ended or uncapped limits as insurance covers are regulated by insurance regulatory authority i.e. IRDA.
(viii)	Deemed Commissioning	In case wet commissioning/acceptance/completion of the project gets delayed for the reasons not attributable to EM contractor, the project shall be deemed commissioned after successful acceptance of relevant site tests, trial run / dry commissioning as the case may be. Commissioning should be on unitwise basis.
(ix)	Employer's Obligations	Site related infrastructure i.e. Construction Power and Water, Storage at site (covered and open), Site Infrastructure for Contractors' personnel, basic safety & security etc. being common for all contractors, to be standardized and provided by Employer.

Annexure 1

Parent Company Clause

2.2.7 APPLICATIONS/ BIDS BY MERGED/ ACQUIRED/ SUBSIDIARY COMPANIES:

In case of a Bidder Company, formed after merger and/or acquisition of other companies, past experience and other antecedents of the merged/acquired companies will be considered for qualification of such Bidder Company provided such Bidder Company continues to own the requisite assets and resources of the merged/acquired companies needed for execution and successful implementation of the work package put to tender.

If the Bidder Company is a Subsidiary Company and applies for qualification on the unconditional technical and financial strength of the Parent/Holding Company, the same shall be considered provided the Parent/Holding Company commits to sign a Separate Agreement with NHPC Limited (as per Proforma enclosed at Form-14 or Form-15 of Vol-5 Forms and Procedures, as the case may be) confirming full support for the General, Specific and Financial requirements of the Subsidiary Company and commits to take up the works itself in case of non-performance by the Subsidiary Company in the event of award of the works to the Bidder Subsidiary Company. An undertaking by the Parent/ Holding Company to this effect shall be submitted along with the bid (as per Proforma enclosed at Form-13 of Vol. 5 Forms & Procedures). A Subsidiary Company intending to qualify on the strength of Parent/ Holding Company shall not be allowed to participate as a 'Sub-Contractor / Manufacturer'.

For the purpose stated herein above in this clause, 'Parent Company' shall mean the 'Holding Company' owning majority (more than 50%) shares of such Bidder (Subsidiary) Company. Similarly by extensions of this interpretation, if "A" is owned by a 'Holding Company' "B" which in turn is owned by another 'Holding Company' "C", then "C" is construed as the 'Parent Company' of "A" as well as "B" and so on. An apex 'Parent Company' may own number of independent Subsidiary/Group Companies and if any of these Subsidiary/Group Company commits assured support and unhindered access to its assets and resources to another Subsidiary/Group Company (Bidder in this case) under the same apex 'Parent Company' then experience and other credentials of such Subsidiary/Group Company shall be considered for qualification of the Bidder Subsidiary Company provided such commitment is

evidenced/ authorized and guaranteed by the apex 'Parent Company'.

In case Bidder Company (Subsidiary Company) gets qualified and awarded the work package, the Parent/ Holding Company will be required to furnish an additional performance bank guarantee of value equivalent to 5 (five) percent of the Contract Price or portion of work (Where the Subsidiary Company is Joint Venture Partner) as the case may be (as per Proforma enclosed at Form-16 of Vol. 5 Forms & Procedures), in addition to normal Performance Bank Guarantee to be submitted by the Bidder Company to the Employer besides entering into a separate Agreement (as per Proforma enclosed at Form-14 or Form-15 of Vol.5-Forms & Procedures, as the case may be). The experience of subsidiary companies of the Parent/ Holding Company will be considered experience of the Parent/ Holding Company.

However, for fulfillment of financial criteria, financial evaluation vis a vis the requirement as stipulated above shall be done on the basis of consolidated printed Annual Report for the immediately preceding 5 (five) years of the Parent Company/ Apex Parent Company submitted by the Bidder along with the Bid.

2.2.8 The Bidder against whom proceedings for insolvency under the Insolvency and Bankruptcy code 2016, or as amended from time to time, have started, shall not be eligible for bidding. The same shall also be applicable to the bidder company who has taken unconditional technical and/or financial support from their Parent/Holding Company, against whom proceedings for insolvency under the Insolvency and Bankruptcy code 2016, or as amended from time to time, have started. Self- declaration in this regard is to be submitted as per Proforma enclosed at Attachment - 12 (Vol. 5 Forms & Procedures).

2.3 No member of consortium/ Bidder (including sub-Contractor) should have been banned/ de-listed/ black listed/ debarred from business on the grounds mentioned in para 6 of Guidelines of Banning of Business Dealings and further have not been declared ineligible under para 6 of Guidelines of Banning of Business Dealings (Annexure-A) to Integrity Pact, ITB Clause 36. Self- declaration in this regard is to be submitted as per Proforma enclosed at Attachment - 7 (Vol. 5 Forms & Procedures).

Annexure 2

Price Variation Formula

Appendix – 2

PRICE ADJUSTMENT

(i) The Contract price shall be subject to price adjustment during performance of the Contract to reflect changes in the cost of labour and material components etc. in accordance with the provisions described below:

(ii) The price adjustment provisions shall be applicable separately for price components relating to Equipment, Installation works as per price break-up furnished by the Contractor in respective Schedules**.**

(ii a) The price adjustment shall be applied only if the resulting increase or decrease is more than 1% of the contract price.

(iii) Only following components of the Contract Price will be subject to Price adjustment:

(a) 90 (Ninety) % Ex-Works prices for the plant and equipment excluding Type Tests/ Model Test charges. The price adjustment amount towards these price components shall be without any ceiling.

If 10% interest bearing advance is not taken, the price adjustment shall be applicable for 100% of contract price.

(b) Erection portion Installation Price Component of Contract Price.

(iv) The indices for price adjustment shall be well established and nationally recognized in the country of manufacture. Preferably Government indices shall be used.

(v) The price adjustment formula for the components of the contract price, as mentioned at Sr. no. (iii) above shall be as stipulated hereinafter.

(vi) Ex-factory in case of Plant & Equipment excluding Type Tests/ Model Test charges:

It is understood that the price component of the equipment or any shipment/dispatch comprises a fixed portion (designated as 'F' and the value of which is specified hereunder) and variable portion linked with the indices for various materials and labour (description and co-efficient as enumerated below).

The amount of price adjustment towards variable /recoverable on each shipment/dispatch shall be computed as under:

EC1 will be computed as follows:

$$EC1 = EC0 \left(F + a\frac{A1}{A0} + b\frac{B1}{B0} + c\frac{C1}{C0} + Lb\frac{L1}{L0}\right) - EC0$$

Where

EC1= Adjustment price component expressed in the currency of the contract payable to the contractor for each shipment/ dispatch.

EC0= 90% Ex-Works price for the equipment/materials excluding type test / Model test charges of the Contract shipment/dispatch wise.

- The fixed portion of the ex-factory component of the Contract price (F) shall be 0.15.
- a, b, c, etc. shall be co-efficient of major material/ items involved in the ex-factory Component of the Contract price. The sum of these co-efficient shall be between 0.50 to 0.60.
- A, B, C etc. shall be published price indices of corresponding major materials/ items. Such indices shall necessarily be of the country of origin of goods.
- "Lb" shall be co-efficient for labour component in the ex-factory component of the Contract price which shall be between 0.25 to 0.35

'L' shall be labour index.

Sum of all the material co-efficient and the labour co-efficient shall be 0.85.

The price adjustment shall be applied only if the resulting increase or decrease is more than 1% of the contract price.

Price Adjustment on Ex-factory prices for the plant and equipment shall be without any ceiling.

In case of shipments/dispatch which are delayed beyond the scheduled date of shipment/dispatch for reasons attributable to the Contractor the price adjustment provision shall not be applicable for the period of time between the scheduled date of shipment/dispatch and the actual date of shipments/dispatch. For this purpose,

the scheduled date of shipment/dispatch shall be as identified in line with provisions of Time Schedule of Contract Agreement.

(vii) For Erection Portion of Installation Price Component of the Contact:

(a) It is understood that the price component for any erection portion of installation work comprises a fixed portion and variable portion linked with the index of labour (description and co-efficient as enumerated).

The monthly price adjustment amount for the erection portion of installation price component of the Contract Price will be computed to expatriate supervision/ labour as per the formula given below:

For Indian Rupee portion of the Erection Portion of Installation Price

$ER = ER1 - ER0$

ER1 will be computed as follows:

$$ER1 = ER0 \left(0.15 + 0.85 \frac{F1}{F0}\right)$$

Where:

ER =Adjustment to Erection portion of installation component of contract price payable to the contractor for each billing.

ER1 =Adjusted amount payable to the Contractor of Erection portion of Installation component of Contract Price.

ER0 = Value of the Erection work done in the billing period, which shall be calculated as under:

For the purpose of computing ER0, each erection bill (which is excluding initial Advance and amount payable on completion of the Facilities and on successful completion of guarantee Test) during the Erection period upto the 'Completion of the Facilities' shall be divided by a factor as indicated below **:**

{Erection Portion of installation component of the Contract Price - (Initial Advance amount + Erection Portion of Installation component of the Contract price payable on completion of the Facilities + Erection Portion of Installation component of the Contract Price payable on successful completion of guarantee test)} **/** Erection Portion of installation component of the Contract Price.

The payment of price adjustment amount so computed shall be made against a separate invoice, linking the corresponding invoice for Erection Portion of Installation payment after retaining the pro-rata amount due on completion of the Facilities and on Completion of the Guarantee Test. The amounts so retained shall be paid on completion of the Facilities and on successful completion of Guarantee Test respectively.

F = Indian field labour index namely, All India Consumer Price Index for Industrial Workers (All India Average) as published by Labour Bureau, Government of India.

(b) The price adjustment on Erection Portion of installation component of the contract price shall be without any ceiling.

In case the billing period of Erection work falls beyond the time period identified for Completion of Facilities as per the Contract for the reasons attributable to the contractor, the price adjustment provisions shall not be applicable for the period of time between such date identified in the contract for the Completion of Facilities and actual completion period/date.

(c) The following components of the contract price shall not be subject to price adjustment and shall remain firm during the execution of the contract:

(1) Ocean Freight and Marine Insurance for Plant and Equipment and Spare parts.
(2) Local Transportation, Inland Transit Insurance (including port clearance & port charges for plant & equipment and Spare Parts).
(3) Type Test Charges.
(4) Training Charges

(d) The source of applicable indices and their base values for the purpose of computing price adjustment under the contract shall be as under:

A. i) Ex-factory Price Component of the mechanical equipment covered in Chapter - 2,3,4,5,6,,20,21,22 & 23 of Technical Specifications (excluding type test charges):

S. No.	**Value of coefficient**	**Name of Material**	**Base Date Indices****	**Source of Indices**
1.	a= ….	Manufacture of basic metals	A=….	Whole sales price index number published by office of the Economic Advisor, Ministry of Industry, Government of India for the month.
2.	L_B…	Labour	L=…	All India average consumer price index number for industrial workers published by Labour Bureau, Govt. of India.

A. ii) Ex-factory Price Component of the Electrical equipments covered in Chapter 7,8,9,11,12,13,16,17,18,19,24,25 & 26 of Technical specifications(excluding type test charges):

S. No.	**Value of coefficient**	**Name of Material**	**Base Date Indices****	**Source of Indices**
1.	a= ….	Manufacture of basic metals	A=….	Whole sales price index number published by office of the Economic Advisor, Ministry of Industry, Government of India for the month.
2.	b=…..	Copper	B=….	Whole sales price index number

		(Shapes-Bars/rods/plates/strips)		published by office of the Economic Advisor, Ministry of Industry, Government of India for the month.
3.	L_B…	Labour	L=…	All India average consumer price index number for industrial workers published by Labour Bureau, Govt. of India.

A. iii) Ex-factory Price Component for Chapter 14 of Technical specifications(excluding type test charges):

S. No.	Value of coefficient	Name of Material	Base Date Indices**	Source of Indices
1.	a= ….	Manufacture of basic metals	A=….	Whole sales price index number published by office of the Economic Advisor, Ministry of Industry, Government of India for the month.
2.	b=…..	Aluminium/Alloy Conductor	B=….	Whole sales price index number published by office of the Economic Advisor, Ministry of Industry, Government of India for the month.
3.	L_B…	Labour	L=…	All India average consumer price index number for industrial workers published by Labour Bureau, Govt. of India.

B. Ex-factory Price Component for Chapter 10 of Technical Specifications (excluding type tests charges):

S. No.	Value of coefficient	Name of Material	Base Date Indices**	Source of Indices
1.	a= ….	Copper	A=…..	IEEMA
2.	b=…..	CRGO steel (ES)	B=…..	IEEMA
3.	c=…..	Transformer oil (TB)	C=…..	IEEMA
4.	L_B…	Labour	L=….	All India average consumer price index number for industrial workers published by Labour Bureau, Govt. of India.

C. **Installation price component**

S. No.	Item	Base Date Indices**	Source
1.	Indian Field Labour Index	F=…..	All India average consumer price index

			number for industrial workers published by Labour Bureau, Govt. of India.

D. i)Ex-factory Price Component for Chapter 15 (Power & Control cable of Copper) of Technical Specifications (excluding type tests charges):

S. No.	Value of coefficient	Name of Material	Base Date Indices**	Source of Indices
1.	a= ….	Manufacture of basic metals	A=….	Whole sales price index number published by office of the Economic Advisor, Ministry of Industry, Government of India for the month.
2.	b=….	Copper	B=….	IEEMA
3.	c=….	PVC insulated or XLPE compound (whichever is applicable)	C=….	Whole sales price index number published by office of the Economic Advisor, Ministry of Industry, Government of India for the month.
4.	L_B…	Labour	L=…	All India average consumer price index number for industrial workers published by Labour Bureau, Govt. of India.

D.ii)Ex-factoryPrice Component for Chapter 15 (Power & Control cable of Aluminum) of Technical Specifications (excluding type tests charges):

S. No.	Value of coefficient	Name of Material	Base Date Indices**	Source of Indices
1.	a= ….	Manufacture of basic metals	A=….	Whole sales price index number published by office of the Economic Advisor, Ministry of Industry, Government of India for the month.
2.	b=….	Aluminum/Alloy conductor	B=….	Whole sales price index number published by office of the Economic Advisor, Ministry of Industry, Government of India for the month.
3	c=….	PVC insulated	C=….	Whole sales price index number

		or XLPE compound (whichever is applicable)		published by office of the Economic Advisor, Ministry of Industry, Government of India for the month.
4.	L_B…	Labour	L=…	All India average consumer price index number for industrial workers published by Labour Bureau, Govt. of India.

***Note: The above information shall be filled in at the time of contract agreement signing based on price adjustment data offered by the successful bidder.**

viii) Subscript '0' date & subscript '1' date for A,B,C,L& F

1) Subscript '0' refers to indices as on 30 days prior to date of bid opening.

2)Subscript '1'referes to indices as of: (a) Three months prior to the date of shipment/dispatch for labour, and (b) at the expiry of two third (2/3) period from the date of notification of award to the date of shipment/dispatch for material .For the purpose of this clause the date of shipment/dispatch shall mean the contract date of shipment/dispatch or actual date of shipment/dispatch whichever is earlier.

ix) **Methodology in Price Adjustment to be followed in case of change in WPI series**

1.0 If the Index Series mentioned in the Contract are discontinued any time within the contract period and new / alternate series are made available by the relevant authority for Price Adjustment, then the following methodology shall be used for calculating Price Adjustment:

a.C alculation of Price Adjustment in such cases shall be done in two stages:

Stage-I [A]:

- Price Adjustment amount shall be calculated using original index series (as specified in the Contract) till the date up to which value of original indices is available (hereinafter referred as '**cut-off date'**).
- Subscript '0' date shall be as specified at Sr.No. (viii)(1)
- Subscript '1' date shall be as specified at Sr.No. (viii)(2) or the cut-off date, whichever is earlier.

Stage-II [B]:

- Price Adjustment amount for the remaining contract period shall be calculated using new series from the cut- off date till the Subscript '1' date as defined below.
- Subscript '0' date shall be the cut-off date.

- Subscript ‘1’ date shall be as specified at Sr.No. (viii) (2)
- The subscript '0' value to be used in [B] shall be the adjusted amount of the corresponding price component (Subscript '1' value) derived from [A].

b. If the scheduled/work done (whichever is earlier) date falls after the cut-off date, then Price adjustment amount shall be sum of price adjustment amount derived from **[A]** and **[B].**

c. If the contractual end date (subscript ‘1’ indices) are such that end date of few components fall on/ before cut-off date and end date of few components fall after cut-off date, then:

- Price Adjustment using **[A]** should be calculated considering end dates as per **Stage-I.**
- Price Adjustment using **[B]** should be calculated considering only such components whose end dates fall after cut-off date. The co-efficient of remaining component should be added to the Fixed component in **[B].**
- Total Price Adjustment payable shall be sum of Price Adjustments as per **[A]** and **[B].**

d. If any of the indices gets discontinued, appropriate new indices with similar trends available in the new Index series shall be considered in **[B].**

#Cut-Off Date - Means the date up to which value of original indices is available.

Annexure 3

Change in Law

36. **Change in Laws and Regulations**

36.1 If, after the date twenty-eight (28) days prior to the last date of Bid submission, in the country where the Site is located, any law, regulation, ordinance, order or by-law having the force of law is enacted, promulgated, abrogated or changed (which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the costs and expenses of the Contractor and/or the Time for Completion, the Contract Price shall be correspondingly increased or decreased, and/or the Time for Completion shall be reasonably adjusted to the extent that the Contractor has thereby been affected in the performance of any of its obligations under the Contract. Further, the change in the rates of corresponding HSN / SAC Code and Custom Duty shall only be considered for reimbursement / adjustment under this clause.

However, these adjustments would be restricted to direct transactions between the Employer and the Contractor and not on procurement of raw materials, intermediary components etc. by the Contractor.

Notwithstanding the foregoing, such additional or reduced costs shall not be separately paid or credited if the same has already been accounted for in the price adjustment provisions where applicable, in accordance with Appendix 2 to the Contract agreement. The variation in minimum wages as applicable shall not qualify for Payment under this clause.

If a law has been passed in appropriate legislature it would considered to be in existence from the day of its passing irrespective of its implementation status at any later date.

37. **Force Majeure**

37.1 "Force Majeure" shall mean any event beyond the reasonable control of the Employer or of the Contractor, as the case may be, and which is unavoidable notwithstanding the reasonable care of the Party affected and shall include, without limitation, the following:

(a) war and other hostilities (whether war be declared or not), invasion, act of foreign enemies, mobilisation, requisition or embargo;

(b) rebellion, revolution, insurrection, military or usurped power and civil war;

(c) ionising radiation or contamination by radio-activity

Annexure 4

Force Majeure

37. Force Majeure

37.1 "Force Majeure" shall mean any event beyond the reasonable control of the Employer or of the Contractor, as the case may be, and which is unavoidable notwithstanding the reasonable care of the Party affected and shall include, without limitation, the following:

(a) war and other hostilities (whether war be declared or not), invasion, act of foreign enemies, mobilisation, requisition or embargo;

(b) rebellion, revolution, insurrection, military or usurped power and civil war;

(c) ionising radiation or contamination by radio-activity from any nuclear fuel or from any nuclear waste from the combustion of nuclear fuel, radio-active toxic explosives, or other hazardous properties of any explosive nuclear assembly or nuclear components thereof;

(d) riot, commotion or disorder including the situation created by Bandhs or strikes called by any political party or outfit, unless solely restricted to the employees of the contractor or of his sub-contractors and arising from the conduct of works.

(e) Acts of God such as earthquake (above magnitude of 7 of Ritcher Scale), any natural calamity as notified by Government of India v.i.z. spread of virus (corona virus in instant case) beyond human control, lightening, unprecedented floods.

37.2 If either Party is prevented, hindered or delayed from or in performing any of its obligations under the Contract by an event of Force Majeure, then it shall notify the other in writing of the occurrence of such event and the circumstances thereof within fourteen (14) days after the occurrence of such event.

37.3 The Party who has given such notice shall be excused from the performance or punctual performance of its obligations under the Contract for so long as the relevant event of Force Majeure continues and to the extent that such Party's performance is prevented, hindered or delayed. The Time for Completion shall be extended in accordance with GCC Clause 40 (Extension of Time for Completion).

37.4 The Party or Parties affected by the event of Force Majeure shall use reasonable efforts to mitigate the effect thereof upon its or their performance of the Contract and to fulfil its or their obligations under the Contract, but without prejudice to either Party's right to terminate the Contract under GCC Sub-Clauses 37.6 and 38.5.

37.5 No delay or non-performance by either Party hereto caused by the occurrence of any event of Force Majeure shall

(a) constitute a default or breach of the Contract

(b) (subject to GCC Sub-Clauses 32.2, 38.3 and 38.4) give rise to any claim for damages or additional cost or expense occasioned thereby

if and to the extent that such delay or non-performance is caused by the occurrence of an event of Force Majeure.

37.6 If the performance of the Contract is substantially prevented, hindered or delayed for a single period of more than sixty (60) days or an aggregate period of more than one hundred and twenty (120) days on account of one or more events of Force Majeure during the currency of the Contract, the parties will attempt to develop a mutually satisfactory solution, failing which the dispute will be resolved in accordance with GCC, Clause 6.

37.7 Notwithstanding GCC Sub-Clause 37.5, Force Majeure shall not apply to any obligation of the Employer to make payments to the Contractor herein.

38. War Risks

38.1 "War Risks" shall mean any event specified in paragraphs (a) and (b) of GCC Sub-Clause 37.1 and any explosion or impact of any mine, bomb, shell, grenade or other projectile, missile, munitions or explosive of war, occurring or existing in or near the country (or countries) where the Site is located.

38.2 Notwithstanding anything contained in the Contract, the Contractor shall have no liability whatsoever for or with respect to

(a) destruction of or damage to Facilities, Plant & Equipment, or any part thereof

(b) destruction of or damage to property of the Employer or any third party

(c) injury or loss of life

if such destruction, damage, injury or loss of life is caused by any War Risks, and the Employer shall indemnify and hold the Contractor harmless from and against any and all claims, liabilities, actions, lawsuits, damages, costs, charges or expenses arising in consequence of or in connection with the same.

38.3 If the Facilities or any Plant and Equipment or Contractor's

Annexure 5

Idling cost

Appendix-9

Determination of Idling Time cost Claims

The idling time cost claims resulting from extension of Time for Completion under GC 40.1 (c) and (e) shall be determined as under:-

1. Cost of owned/ hired/ leased Equipment

Cost of owned/ hired/ leased equipment will comprise of the following elements:-

i. Depreciation Cost.

Annual Depreciation (Based on life in years) = 0.9 × Book Value/Life in years.

Depreciation cost= {(Idle period in days/365) **×** 0.5 **×** Annual Depreciation}.

However, if the equipment, as considered above, have completed their scheduled life in years in that case the depreciation shall be considered as zero.

ii. Interest on capital Investment: (Rate of Interest#/100) × Average Annual Cost

The average annual cost is to be determined as follows:-
Average Annual Cost = Book value of Equipment x (n+1)/2n
Where:

- "n" refer for number in years of life of equipment.
- Book value = purchase price plus freight, insurance, all taxes and duties, port clearance charges, erection and commissioning charges and other incidental charges.

the interest rate shall be at the rate of **10%** per annum.

2. Cost of Labour

The labour directly engaged for the works at Site by the Contractor or through sub-contractor, will be reimbursed for idle period in case contractor produces proof that idle labour has been paid wages during the period of idling. Cost of equipment related labour, will be worked out as per CWC norms limited to actual whichever is lower.

The above cost will be considered for payment based on the supporting details such as attendance sheet, receipt of deposit of Employees provident fund duly certified by the Contractor.

In addition to actual cost of labour, indirect charges shall be considered. The indirect charges (other than salary) shall be 55% for skilled and unskilled labour. Indirect charges shall be applicable on the basic wages. Basic wages means component of wages on which statutory deductions like Employee Provident Fund is deposited to the statutory authority.

3. Bank Guarantees and Insurance charges

These charges shall be paid beyond Scheduled completion period on authorized extension of completion period upon production of documentary evidence.4.

4. Charges on account of extension of Warranty

The Charges towards extensions of warranty are to be considered for only those equipments which have been supplied till the scheduled completion period/ extended completion period. Charges towards extended warranty shall be calculated upto 2.25% of composite contract price per annum on prorata basis.

5. Expenses on additional storage / preservation / transportation / double handling

Against submission of documentary evidence as per actual.

6. Overhead

Overhead costs include but not limited to Office and share of head office expens Legal charges, General establishment, Watch and Ward, Local conveyan Travelling expenses, Social welfare, salaries of Managerial and clerical staff etc. a Publicity etc.

Overhead Charges	=	2% of Contract price × authorized Time Extension entitling cost claim/
		Contractual Construction Period

The lump-sum component of overhead as 2% shall cover all other charges included expressly in any of the items of claim at Sl. 1 to 4 as above.

7. The taxes applicable on cost claims

The applicable taxes on the above elements of cost claims shall be reimbursed to the Contractor as per actual based on documentary evidence.

Annexure 6

Incentive for Early Completion

6.0 INCENTIVE FOR EARLY COMMISSIONING OF THE PROJECT

6.1 Incentive to Contractor

The Consortium shall be paid incentive for completion of any UNIT ahead of its respective Time for Completion (with respect to original schedule of completion) in Indian currency @ 0.005 % (zero point zero zero five percent) of aggregate of the Contract Prices of all the CONTRACTS, per UNIT per day. The aggregate of incentives so payable shall not exceed 5% (Five percent) of the aggregate of the Contract Prices of all the CONTRACTS.

6.2 Incentive to Labour

Out of the Incentive payable to the Consortium as per above (Article 6.1) for early completion of the Contract before the stipulated date of completion, the 50% incentive amount benefit is required to be paid by the Contractor to unskilled, semiskilled and skilled labourer(s) those are directly involved in the execution of works for not less than twelve months. The payment of incentive shall be proportionate to the amount of wages paid to respective labourer and shall be calculated as per the following formulae:

Amount of Incentive to be paid to labourer "L" = Total amount of Incentive x (Wages paid to concerned labourer "L" qualified for incentive / Total amount of wages paid to all labourers qualified for incentive)

The Contractor shall submit the eligibility along with amount to claim the Incentive benefit and upon approval of Engineer, shall pay such incentive benefit as per above formulae to the labourer (s) and shall seek reimbursement from the Engineer.

The above incentive will be reimbursed to the Contractor based on the submission of supporting details such as attendance sheet, wage sheet and certified copy of bank transfer detail to Engineer as proof of payment made to respective labourer within 45 days of such payment or such extended period as may be agreed between Engineer and Contractor after approval of reimbursement of incentive to Contractor.

Annexure 7

Suspension & Termination

GCC 40.1, the amount of such extra costs shall be added to the Contract Price.

41. **Suspension**

41.1 The Employer may request the Engineer In-Charge, by notice to the Contractor, to order the Contractor to suspend performance of any or all of its obligations under the Contract. Such notice shall specify the obligation of which performance is to be suspended, the effective date of the suspension and the reasons - therefor. The Contractor shall thereupon suspend performance of such obligation (except those obligations necessary for the care or preservation of the Facilities) until ordered in writing to resume such performance by the Engineer In-Charge.

If, by virtue of a suspension order given by the Engineer In-Charge, other than by reason of the Contractor's default or breach of the Contract, the Contractor's performance of any of its obligations is suspended for an aggregate period of more than ninety (90) days, then at any time thereafter and provided that at that time such performance is still suspended, the Contractor may give a notice to the Engineer In-Charge requiring that the Employer shall, within twenty-eight (28) days of receipt of the notice, order the resumption of such performance or request and subsequently order a change in accordance with GCC Clause 39 (Change in the Facilities), excluding the performance of the suspended obligations from the Contract.

If the Employer fails to do so within such period, the Contractor may, by a further notice to the Engineer In-Charge, elect to treat the suspension, where it affects a part only of the Facilities, as a deletion of such part in accordance with GCC Clause 39 (Change in the Facilities) or, where it affects the whole of the Facilities, as termination of the Contract under GCC Sub-Clause 42.1 (Termination for Employer's Convenience).

41.2 If

(a) the Employer has failed to pay the Contractor any sum due under the Contract within the specified period, has failed to approve any invoice or supporting documents without just cause pursuant to Appendix 1 (Terms and Procedures of Payment) to the Contract Agreement, or commits a substantial breach of the Contract, the Contractor may give a notice to the Employer that requires payment of such sum, with interest thereon as stipulated in GCC Sub-Clause 12.3, requires approval of such invoice or supporting documents, or specifies

the breach and requires the Employer to remedy the same, as the case may be. If the Employer fails to pay such sum together with such interest, fails to approve such invoice or supporting documents or give its reasons for withholding such approval, or fails to remedy the breach or take steps to remedy the breach within fourteen (14) days after receipt of the Contractor's notice or

(b) the Contractor is unable to carry out any of its obligations under the Contract for any reason attributable to the Employer, including but not limited to the Employer's failure to provide possession of or access to the Site or other areas in accordance with GCC Sub-Clause 10.2, or failure to obtain any governmental permit necessary for the execution and/or completion of the Facilities;

then the Contractor may by fourteen (14) days' notice to the Employer suspend performance of all or any of its obligations under the Contract, or reduce the rate of progress.

41.3 If the Contractor's performance of its obligations is suspended or the rate of progress is reduced pursuant to this GCC Clause 41, then the Time for Completion shall be extended in accordance with GCC Sub-Clause 40.1, and any and all additional costs or expenses incurred by the Contractor as a result of such suspension or reduction **as determined based on Annex-A to GCC i.e. Valuation of Idling Time Cost Claims)** shall be paid by the Employer to the Contractor in addition to the Contract Price, except in the case of suspension order or reduction in the rate of progress by reason of the Contractor's default or breach of the Contract.

41.4 During the period of suspension, the Contractor shall not remove from the Site any Plant and Equipment, any part of the Facilities or any Contractor's Equipment, without the prior written consent of the Employer which shall not be unreasonably withheld.

42. Termination

42.1 Termination for Employer's Convenience

42.1.1 The Employer may at any time terminate the Contract for any reason by giving the Contractor a notice of termination that refers to this GCC Sub-Clause 42.1.

42.1.2 Upon receipt of the notice of termination under GCC Sub-Clause 42.1.1, the Contractor shall

either immediately or upon the date specified in the notice of termination

(a) cease all further work, except for such work as the Employer may specify in the notice of termination for the sole purpose of protecting that part of the Facilities already executed, or any work required to leave the Site in a clean and safe condition

(b) terminate all subcontracts, except those to be assigned to the Employer pursuant to paragraph (d)(ii) below

(c) remove all Contractor's Equipment from the Site, repatriate the Contractor's and its Subcontractors' personnel from the Site, remove from the Site any wreckage, rubbish and debris of any kind, and leave the whole of the Site in a clean and safe condition; and

(d) subject to the payment specified in GCC Sub-Clause 42.1.3,

(i) deliver to the Employer the parts of the Facilities executed by the Contractor up to the date of termination

(ii) to the extent legally possible, assign to the Employer all right, title and benefit of the Contractor to the Facilities and to the Plant and Equipment of at the date of termination, and, as may be required by the Employer, in any subcontracts concluded between the Contractor and its Subcontractors; and

(iii) deliver to the Employer all non-proprietary drawings, specifications and other documents prepared by the Contractor or its Subcontractors as at the date of termination in connection with the Facilities.

42.1.3 In the event of termination of the Contract under GCC Sub-Clause 42.1.1, the Employer shall pay to the Contractor the following amounts:

(a) the Contract Price, properly attributable to the parts of the Facilities executed by the Contractor as of the date of termination

(b) the costs reasonably incurred by the Contractor in the removal of the Contractor's Equipment from the Site and in the

repatriation of the Contractor's and its Subcontractors' personnel

(c) any amounts to be paid by the Contractor to its Subcontractors in connection with the termination of any subcontracts, including any cancellation charges

(d) costs incurred by the Contractor in protecting the Facilities and leaving the Site in a clean and safe condition pursuant to paragraph (a) of GCC Sub-Clause 42.1.2

(e) the cost of satisfying all other obligations, commitments and claims that the Contractor may in good faith have undertaken with third parties in connection with the Contract and that are not covered by paragraphs (a) through (d) above.

42.2 **Termination for Contractor's Default**

42.2.1 The Employer, without prejudice to any other rights or remedies it may possess, may terminate the Contract forthwith in any of the following circumstances by giving a notice of termination and its reasons therefor to the Contractor, referring to this GCC Sub-Clause 42.2:

(a) if the Contractor becomes bankrupt or insolvent, has a receiving order issued against it, compounds with its creditors, or, if the Contractor is a corporation, a resolution is passed or order is made for its winding up (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), a receiver is appointed over any part of its undertaking or assets, or if the Contractor takes or suffers any other analogous action in consequence of debt

(b) if the Contractor assigns or transfers the Contract or any right or interest therein in violation of the provision of GCC Clause 43 (Assignment).

(c) If the Contractor, in the judgment of the Employer has engaged in corrupt or collusive or coercive or fraudulent practices in competing for or in executing the Contract.

For the purpose of this Sub-Clause:

"corrupt practice" means the offering,

giving, receiving or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution;

"fraudulent practice" means a misrepresentation/ omission of facts in order to influence a procurement process or the execution of a contract.

“Collusive practice” means a scheme or arrangement between two or more bidders, with or without the knowledge of the Employer, designed to establish bid prices at artificial, noncompetitive levels; and

“Coercive practice” means harming or threatening to harm, directly or indirectly, person or their property to influence their participation in a procurement process, or affect the execution of a contract.

42.2.2 If the Contractor

(a) has abandoned or repudiated the Contract

(b) has without valid reason failed to commence work on the Facilities promptly or has suspended (other than pursuant to GCC Sub-Clause 41.2) the progress of Contract performance for more than twenty-eight (28) days after receiving a written instruction from the Employer to proceed

(c) persistently fails to execute the Contract in accordance with the Contract or persistently neglects to carry out its obligations under the Contract without just cause

(d) refuses or is unable to provide sufficient materials, services or labour to execute and complete the Facilities in the manner specified in the program furnished under GCC Sub Clause 18.2 (Program of Performance) at rates of progress that give reasonable assurance to the Employer that the Contractor can attain Completion of the Facilities by the Time for Completion as extended

then the Employer may, without prejudice to any other rights it may possess under the Contract,

give a notice to the Contractor stating the nature of the default and requiring the Contractor to remedy the same. If the Contractor fails to remedy or to take steps to remedy the same within fourteen (14) days of its receipt of such notice, then the Employer may terminate the Contract forthwith by giving a notice of termination to the Contractor that refers to this GCC Sub-Clause 42.2.

42.2.3 Upon receipt of the notice of termination under GCC Sub-Clauses 42.2.1 or 42.2.2, the Contractor shall, either immediately or upon such date as is specified in the notice of termination,

(a) cease all further work, except for such work as the Employer may specify in the notice of termination for the sole purpose of protecting that part of the Facilities already executed, or any work required to leave the Site in a clean and safe condition

(b) terminate all subcontracts, except those to be assigned to the Employer pursuant to paragraph (d) below

(c) deliver to the Employer the parts of the Facilities executed by the Contractor up to the date of termination

(d) to the extent legally possible, assign to the Employer all right, title and benefit of the Contractor to the Facilities and to the Plant and Equipment as of the date of termination, and, as may be required by the Employer, in any subcontracts concluded between the Contractor and its Subcontractors

(e) deliver to the Employer all drawings, specifications and other documents prepared by the Contractor or its Subcontractors as of the date of termination in connection with the Facilities.

42.2.4 The Employer may enter upon the Site, expel the Contractor, and complete the Facilities itself or by employing any third party. The Employer may, to the exclusion of any right of the Contractor over the same, take over and use with the payment of a fair rental rate to the Contractor, with all the maintenance costs to the account of the Employer

and with an indemnification by the Employer for all liability including damage or injury to persons arising out of the Employer's use of such equipment, any Contractor's Equipment owned by the Contractor and on the Site in connection with the Facilities for such reasonable period as the Employer considers expedient for the supply and installation of the Facilities.

Upon completion of the Facilities or at such earlier date as the Employer thinks appropriate, the Employer shall give notice to the Contractor that such Contractor's Equipment will be returned to the Contractor at or near the Site and shall return such Contractor's Equipment to the Contractor in accordance with such notice. The Contractor shall thereafter without delay and at its cost remove or arrange removal of the same from the Site.

42.2.5 Subject to GCC Sub-Clause 42.2.6, the Contractor shall be entitled to be paid the Contract Price attributable to the Facilities executed as of the date of termination, the value of any unused or partially used Plant and Equipment on the Site, and the costs, if any, incurred in protecting the Facilities and in leaving the Site in a clean and safe condition pursuant to paragraph (a) of GCC Sub-Clause 42.2.3. Any sums due the Employer from the Contractor accruing prior to the date of termination shall be deducted from the amount to be paid to the Contractor under this Contract.

42.2.6 If the Employer completes the Facilities, the cost of completing the Facilities by the Employer shall be determined.

If the sum that the Contractor is entitled to be paid, pursuant to GCC Sub-Clause 42.2.5, plus the reasonable costs incurred by the Employer in completing the Facilities, exceeds the Contract Price, the Contractor shall be liable for such excess.

If such excess is greater than the sums due the Contractor under GCC Sub-Clause 42.2.5, the Contractor shall pay the balance to the Employer, and if such excess is less than the sums due the Contractor under GCC Sub-Clause 42.2.5, the Employer shall pay the balance to the Contractor.

The Employer and the Contractor shall agree, in writing, on the computation described above and the manner in which any sums shall be paid.

42.3 **Termination by the Contractor**

42.3.1 If

(a) the Employer has failed to pay the Contractor any sum due under the Contract within the specified period, has failed to approve any invoice or supporting documents without just cause pursuant to Appendix 1 (Terms and Procedures of Payment) of the Contract Agreement, or commits a substantial breach of the Contract, the Contractor may give a notice to the Employer that requires payment of such sum, with interest thereon as stipulated in GCC Sub-Clause 12.3, requires approval of such invoice or supporting documents, or specifies the breach and requires the Employer to remedy the same, as the case may be. If the Employer fails to pay such sum together with such interest, fails to approve such invoice or supporting documents or give its reasons for withholding such approval, fails to remedy the breach or take steps to remedy the breach within fourteen (14) days after receipt of the Contractor's notice, or

(b) the Contractor is unable to carry out any of its obligations under the Contract for any reason attributable to the Employer, including but not limited to the Employer's failure to provide possession of or access to the Site or other areas or failure to obtain any governmental permit necessary for the execution and/or completion of the Facilities, which the Employer is required to obtain as per provision of the Contract or as per relevant applicable laws of the Country.

then the Contractor may give a notice to the Employer thereof, and if the Employer has failed to pay the outstanding sum, to approve the invoice or supporting documents, to give its reasons for withholding such approval, or to remedy the breach within twenty-eight (28) days of such notice, or if the Contractor is still unable to

carry out any of its obligations under the Contract for any reason attributable to the Employer within twenty-eight (28) days of the said notice, the Contractor may by a further notice to the Employer referring to this GCC Sub-Clause 42.3.1, forthwith terminate the Contract.

42.3.2 The Contractor may terminate the Contract forthwith by giving a notice to the Employer to that effect, referring to this GCC Sub-Clause 42.3.2, if the Employer becomes bankrupt or insolvent, has a receiving order issued against it, compounds with its creditors, or, being a corporation, if a resolution is passed or order is made for its winding up (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), a receiver is appointed over any part of its undertaking or assets, or if the Employer takes or suffers any other analogous action in consequence of debt.

42.3.3 If the Contract is terminated under GCC Sub-Clauses 42.3.1 or 42.3.2, then the Contractor shall immediately

(a) cease all further work, except for such work as may be necessary for the purpose of protecting that part of the Facilities already executed, or any work required to leave the Site in a clean and safe condition

(b) terminate all subcontracts, except those to be assigned to the Employer pursuant to paragraph (d)(ii)

(c) remove all Contractor's Equipment from the Site and repatriate the Contractor's and its Subcontractor's personnel from the Site; and

(d) subject to the payment specified in GCC Sub-Clause 42.3.4,

(i) deliver to the Employer the parts of the Facilities executed by the Contractor up to the date of termination

(ii) to the extent legally possible, assign to the Employer all right, title and benefit of the Contractor to the Facilities and to the Plant and Equipment as of the date of termination, and, as may be required by the Employer, in any subcontracts

concluded between the Contractor and its Subcontractors; and

(iii) deliver to the Employer all drawings, specifications and other documents prepared by the Contractor or its Subcontractors as of the date of termination in connection with the Facilities.

42.3.4 If the Contract is terminated under GCC Sub-Clauses 42.3.1 or 42.3.2, the Employer shall pay to the Contractor all payments specified in GCC Sub-Clause 42.1.3, and reasonable compensation for all loss, **except for loss of profit** or damage sustained by the Contractor arising out of, in connection with or in consequence of such termination.

42.3.5 Termination by the Contractor pursuant to this GCC Sub-Clause 42.3 is without prejudice to any other rights or remedies of the Contractor that may be exercised in lieu of or in addition to rights conferred by GCC Sub-Clause 42.3.

42.4 In this GCC Clause 42, the expression "Facilities executed" shall include all work executed, Installation Services provided, and all Plant and Equipment acquired (or subject to a legally binding obligation to purchase) by the Contractor and used or intended to be used for the purpose of the Facilities, up to and including the date of termination.

42.5 In this GCC Clause 42, in calculating any monies due from the Employer to the Contractor, account shall be taken of any sum previously paid by the Employer to the Contractor under the Contract, including any advance payment paid pursuant to Appendix 1 (Terms and Procedures of Payment) to the Contract Agreement.

42.6 Any GST liability on account of Termination of Contract shall be borne by the Contractor.

43. Assignment

43.1 Neither the Employer nor the Contractor shall, without the express prior written consent of the other Party (which consent shall not be unreasonably withheld), assign to any third party the Contract or any part thereof, or any right, benefit, obligation or interest therein or thereunder, except that the Contractor shall be entitled to assign either absolutely or by way of charge any monies due and payable to it or that may become due and payable to it under the Contract.

*****

Annexure-XV

Comparison of FIDIC Yellow Book with Silver Book

S.No.	Yellow Book	Silver Book
1	This Contract model stipulates a single point responsibility on the Contractor to design and build a project fit for purpose stated in the Employer's requirement.	This Contract Model assigns a single point responsibility on Contractor to establish a turnkey project, capable of delivering the functional expectations and meet the performance criteria set out in the Employer's requirement.
2	When balanced risk sharing between Employer and Contractor is to be planned based on capacity to manage the respective risks by both the parties.	When Contractor is required to take wider range of risks including unexpected Site and Ground conditions at the project location and performance expectations.
3	When Employer is expecting lower price of Contract and is accepting further increase in costs only when the particular unforeseeable risks on his side actually eventuate.	When Employer is seeking certainty of final price and completion date but is willing to pay more for firm commitment of Contractor to deliver the expected performance.
4	Contractor is expected to quote competitive prices, since he need not evaluate those risk (taken by the Employer), which he cannot manage.	When Employer is willing to pay more since most of the risks are to be taken over by the Contractor.
5	The Contractor is expected to do detailed designing based on substantial guidance provided in Employer's requirement, about major features of the project.	Contractor is required to have competency to analyze Employer's requirement to convert it into the desired objective of expected project performance.
6	Contractor is required to face the Force Majeure events but is granted relief in time and cost to manage them properly.	Contractor is required to manage most of Force Majeure events, adversely affecting the project except for risks of war, terrorism, and civil disturbance, which will be compensated by the Employer.
7	Employer's requirement is provided with major choices and parameters and Contractor is required to convert into proper design and detailed engineering to meet the performance expectations.	Employer's requirement provided here is supposed to describe the principles and basic design concepts of the Plant, only on functional basis and the Contractor is required to convert it into working design, meeting the performance expectations.
8	Tendering procedure with normal time to assess and prepare the offer based on Employer’s major choices and general arrangement is sufficient for Contractor's offer.	Tendering procedure should allow sufficient time for investigation of site and initial design by the Contractor for proper pricing of the project.
9	Design engineering proposal in line with basic scheme suggested in the Employer's requirement.	Contractors would be allowed to offer design solution, best suited to his engineering capability and experience.
10	Tendring process will normally not require any interaction between Employer and Contractor since the basic design scheme is provided by the Employer.	Tendering process to permit discussion, if required between Employer and the Contractor about technology and commercial conditions.
11	The Contractor is expected to follow the time schedule mutually agreed by both the parties and to maintain it by corrective measures if it goes behind schedule during execution.	On award the Contractor should be allowed to plan and carryout the Work in his chosen manner, provided the end results meet the performance criteria set out by the Employer.

S.No.	Yellow Book	Silver Book
12	The Engineer appointed by the Employer can monitor the progress of Work regularly and seek revised schedule to completion, if the execution is behind schedule due to any reason.	Employer through its Representative should exercise limited control over the Contractor's work and should in general not interfere with the Contractor's work. Separate PMC Engineer shall not be appointed, and Employer's representative will look after the project.
13	The Employer's Engineer will have power to decide all matters referred to him by Contractor. The Engineer can review the progress from time to time and seek compliance about the quality control test specified in the Contract along with test results.	Employer can follow progress of the Work and be assured that the agreed time schedule is being followed and the quality of construction is being maintained.
14	The Contractor is required to meet the various tests specified under “Test on Completion” and “Test after Completion” to the satisfaction of the Employer's Engineer.	The Contractor has to prove the reliability and performance of his plant and equipment to the Employer's satisfaction despite the intermediate tests being otherwise satisfactory.
15	This model is suitable for following expectations of the Employer about the project: a) If Construction work involve substantial underground work or project areas which tenderer cannot inspect. b) If the Employer intends to closely supervise and control the Contractor's Work including review of most of the Construction drawings. c) If the Interim payments are to be released after the decision by an officer of the Employer on his assessment.	This model is not suitable for following expectations of the Employer about the project: a) If Construction work involve substantial underground work or project areas which tenderer cannot inspect. b) If the Employer intends to closely supervise and control the Contractor's Work including review of most of the Construction drawings. c) If the Interim payments are to be released after the decision by an officer of the Employer based on his assessment.
16	If there are any Errors in the Employer's requirement, the Contractor is expected to check or correct them except for those errors, which he will not be able to locate easily. Price variation shall be allowed for serious errors in Employer's data.	If there are any errors in the Employer's data, the Contractor is expected to notice it and correct it without seeking any relief from the Employer since he is fully responsible for proper performance of the project.
17	Yellow book is silent about any pre-tender meeting between Employer and Contractor, probably because the Employer's Requirement are stated in good details (which does not require meeting for any clarification).	Silver Book encourages the meeting of Tenderer before he submits his proposal for mainly design and scope related queries and discussion to understand the Employer's expectations.
18	The Employer shall appoint PMC/ Engineer to monitor and control the project on his behalf, with the Engineer’s power clearly mentioned in the General Conditions.	The Employer shall not appoint PMC/ Engineer to monitor the project. However, the Employer's Representative shall be appointed to supervise and control the Project as mentioned in General Conditions.
19	The Design Build project under Yellow Book will be monitored by PMC or Engineer on behalf of Employer in the meticulous details as provided in the	The EPC Turnkey Project under Silver Book will be supervised by Employer's Representative without going into very detailed monitoring of the progress

S.No.	Yellow Book	Silver Book
	General Conditions.	and the PMC/ Engineer shall not be appointed.
20	During the execution, if there are any claims issues related the variation in scope or delays to completion, the Employer's Engineer is authorized to agree by consensus of both the parties or to determine the issue by fair and neutral decision which both parties will have to abide by during execution and challenge it at DAAB body if required.	During the execution if there are any claim issues related to variation in scope or delays to the completion, the Employer's Representative is authorized to agree by consensus with the Contractor or determine the issue by his fair and neutral decision, which contractor will have to abide by though he can challenge the same with DAAB body If required.

Thus, the Contractors bear lesser risks in Yellow Book in comparison to Silver Book. In case the Employer has provided the design, he bears the responsibility for correctness of design in Yellow Book but not in Silver Book (where the Contractor is supposed to verify the design before accepting it). Similarly, the risks of unforeseen physical conditions are borne by Employer in Yellow Book, but this risk is transferred to Contractor in Silver Book. Of Course, these provisions could be modified to some extent through particular conditions on case-to-case basis.