

Chapter - 4

Project Execution

4.1 Introduction

Award of contract for execution of transmission projects face high uncertainty from a number of factors that increase the project costs and risks such as non-fixation of final scope of work to be executed, inadequate experience, inadequate production capacity etc. This makes it necessary for PGCIL to apply for forest clearance timely, adequately fix the pre-bid criteria and thoroughly assess the bids submitted by the bidders against that criteria as many participants, submit aggressive and unviable bids and later on, either delay or abandon the work, resulting in delay of transmission lines.

PGCIL had developed Work and Procurement Policy and Procedure (WPPP) September 2001 which was subsequently revised in November 2016 to standardise systems and procedures during pre-award and post award stages. It also benchmarked the time frame for various activities.

Audit examined the changes in the procurement policy, pre bid, evaluation of bids and execution activities in respect of 120 contracts pertaining to 18 projects selected for audit awarded at corporate office and noticed the following in respect of Pre-award stage which covers two activities i.e., pre-bid activities and post-bid activities:

4.2 Forest clearance

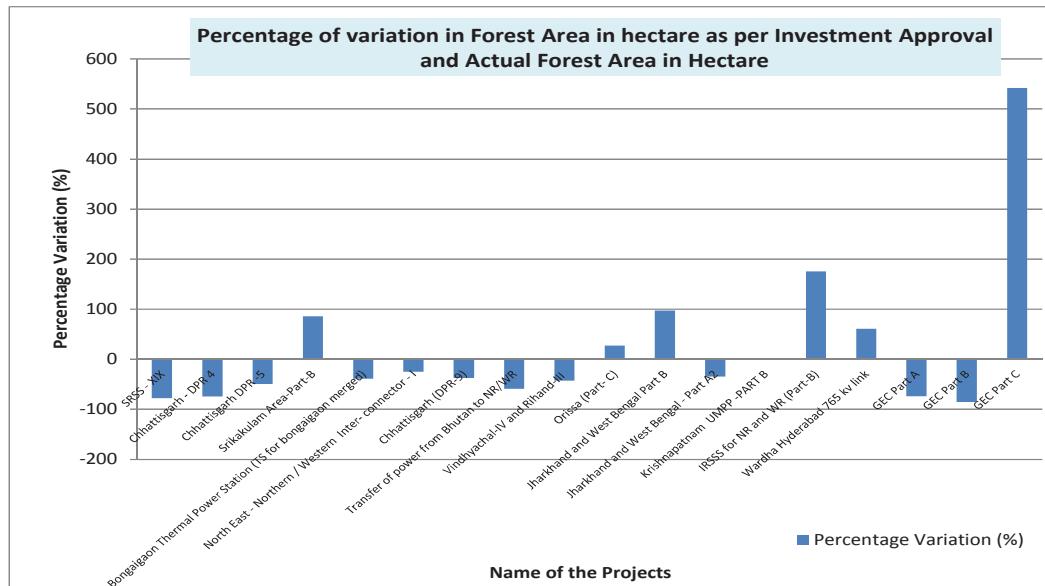
The Electricity Act, 2003 empowers the licensee with the Right of Way (ROW) under the Telegraph Act 1885. In 2011, CEA estimated that 23 out of 120 transmission projects faced delays because of the developer's inability to get ROW or acquire land and get timely clearances from the host of stakeholders like Forest Department, Aviation Department, Defence, and Power and Telecommunication Coordination Committee. Audit also noticed the following observations in respect of forest clearances for transmission lines executed by PGCIL:

4.2.1 Non-conducting detailed survey of forest stretches before preparation of cost estimates

WPPP of PGCIL required that detailed survey of forest stretches and river crossing should be carried out before preparation of Bill of Quantities (BOQ) and Notice Inviting Tender (NIT) cost estimates.

Audit observed that PGCIL encountered variation of forest land as detailed survey of forest stretches was not conducted at the time of BOQ and NIT cost estimates as per WPPP of PGCIL in all the 18 selected projects. In 11 projects, the actual forest area was found less than the assessment of area ranging between 25.30 *per cent* and 85.37 *per cent* as per Investment Approval (wherein BOQ and cost estimates were approved) while in six projects the actual forest area was

found to be more than assessment of area ranging between 27.01 *per cent* and 542.04 *per cent*. In one³⁴ project, although a forest stretch of 45.17 hectares was assessed during Investment approval, no forest stretch was found during actual survey conducted for the project. The variations in assessed forest area as compared to actual forest area encountered ranged between 20 and 30 *per cent* in two cases while it was more than 30 *per cent* in 15 projects as depicted in the following chart:



Audit observed that forest areas initially submitted by PGCIL had to be re-submitted due to re-alignment of forest area. Audit further analysed the reasons for variation in forest area and observed that such re-alignment had arisen due to various reasons like errors in assessing actual forest area, change in area after verification etc. as detailed in *Annexure-3*.

Due to change in the forest area of project, the line length of projects also increased/ decreased. In 18 selected projects, actual line length of all the 71 transmission lines had variations as compared to the line length of the project in the investment approval. In 40 transmission lines, actual length was less while in 31 transmission lines, the actual executed length was more. The difference in executed length as compared to Investment approval length was less than 10 *per cent* in 28 cases, between 10-20 *per cent* in 14 cases, between 20-30 *per cent* in 9 cases and more than 30 *per cent* in 20 cases.

Thus, due to change in forest area and line length of project, there was quantity variation which resulted in cost variation from (-)₹174.62 crore to ₹266.91 crore in 12 projects for which Revised Cost Estimates were approved. PGCIL had to incur an extra cost on account of quantity variation of ₹118.31 crore³⁵.

³⁴ Transmission System for Krishnapatnam UMPP-Part B project

³⁵ ₹669.97 crore excess cost less ₹551.66 crore saving

Management stated (January 2019) that:

- (i) It is accepted that carrying out detailed survey in forest in advance expedites forest clearance process.
- (ii) In most instances line length indicated in the Feasibility Report (FR) was tentatively chosen based on walk over survey. However, during actual execution of work, line length changed based on the detailed survey of the line.

Management's reply confirms the audit observation that the detailed survey of forest stretches and river crossing was not carried out before preparation of BOQ and NIT cost estimates as mandated by its own WPPP which resulted in variations in forest areas/ line lengths/ quantities etc.

Ministry stated (June 2019) that it may not be feasible to complete the detailed survey before preparation of BOQ due to constraints. However, PGCIL is in the process of revising the provisions of WPPP.

Reply of the Ministry is to be viewed against the fact that delays in forest clearances were one of the main reasons for delay in implementation of transmission lines. This fact was also highlighted by the NEP 2012 while discussing the challenges in the implementation of 11th Plan.

Therefore, for timely completion of transmission projects, practice of survey of forest stretches after award of contracts needs to be reviewed.

4.2.2 Delay in submission of forest proposal to forest authority

Advance action for survey in forest area saves considerable time involved in identification of forest area and helps in preparation of forest proposal to enable its submission within prescribed time after investment approval.

Initially, PGCIL had not laid down any timelines for submission of application for forest clearance after investment approval of the respective projects. However, in compliance of Audit Report No 18 of the C&AG of India for the year 2014, PGCIL fixed (August 2014) a target time or submission of forest proposals, i.e., within three months of investment approval.

Audit observed that in three projects for which investment approval was accorded after August 2014, the earliest applications for forest clearance were submitted with delays ranging from three to eight months. Audit also noticed that in the remaining 11 out of 17 projects³⁶ where forest stretch was involved, Management took two to 39 months for submission of earliest applications for forest clearance.

Management/ Ministry stated (January/ June 2019) that:

- (i) even after identification of forest areas and completion of detailed survey of forest stretches, many other preparatory aspects like land scheduling with Revenue Department, NoC from various other State Authorities, PWD, Irrigation

³⁶ *No forest stretch was involved in one project, viz; Transmission System for Krishnapatnam UMPP -PART B*

and District Collector, cost benefit analysis etc. are also required and completion of these activities usually takes considerable time.

(ii) the process for submission of forest proposals has been made online with effect from 15 August 2014, and the online portal requires more detailed information in addition to what was specified in the Forest (Conservation) Rules, 2003 issued by Ministry of Environment, Forest and Climate Change (MoEFCC).

Reply of the Management's/ Ministry is to be viewed in light of the following facts that:

(i) PGCIL itself had fixed a target timeline for submission of forest proposals within three months of investment approval, and as such, all the activities associated with forest proposals need to be completed within this time frame.

(ii) The timeline of three months for submission of forest proposals was made effective by PGCIL from 28 August 2014, i.e. after the commencement of online application system for forest application. Hence, it follows that PGCIL considered three months from the date of investment approval as sufficient time to fulfil all formalities associated with submission of forest proposals on the online web portal as well.

Audit further observed that forest clearances were delayed because of re-alignment of forest area by PGCIL after submission of forest clearance proposal, re-submission of forest proposal because of non-submission of relevant documents at the time of initial forest proposal and delay in submission of forest proposal to the Forest Authority. Some cases of interest have been elaborated below:

4.2.3 Re-submission of forest proposal because of non-submission of relevant documents at the time initial forest proposal

As per check-list of documents/ information required for proposal for diversion of forest land for non-forest use under Forest (Conservation) Act, 1980, various documents³⁷ were required to be mandatorily submitted at the time of application for forest proposal.

However, as per the records made available to Audit, it was observed that forest proposals pertaining to eight out of 18 selected transmission projects were returned to PGCIL by Forest Authorities on several occasions due to non-submission of the prescribed documents and due to other deficiencies like incompleteness/ mistakes/ shortcomings etc. in the submitted proposals. This added to unnecessary delays in forest clearance process and in the overall commissioning of the associated transmission project.

³⁷ Such as certificate in compliance with Scheduled Tribes and Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, Width of the Right of Way for transmission line, Maps showing the required forest land, Cost Benefit Analysis, purpose-wise breakup of total land required etc.

Management stated (January 2019) that compilation of documents for submission on the online portal consumes a lot of time and in case of absence/ incompleteness of documents, proposals are being referred back by Nodal Officers. It was further stated that in many cases, resubmission is necessitated due to encroachment of forest land for cultivation and this issue comes to light only during joint verification. Ministry added (July 2019) that after the introduction of online system, different States have finalised their own checklists which include State specific requirements beyond the MoEF checklist. The Nodal Officer is returning the proposal on non-submission of various State specific documents such as NoCs from departments of irrigation, PWD etc.

Management's reply is to be viewed against the fact that in all the instances pointed out by Audit (except for Green Energy Corridors Part B and Part C), forest proposals were submitted prior to August 2014, i.e., before the commencement of system of submission of forest proposals via the online portal. Moreover, PGCIL has to submit complete documents (whether on the online portal or otherwise and whether required by MOEF or States) at the time of submission itself, in order to negate instances of non-acceptance of forest proposals by Nodal Officers. Besides, Management has accepted that in case of absence/ incompleteness of documents, proposals are being referred back by Nodal Officers. Lastly, PGCIL is expected to be aware of State-specific requirements, as it is a core of area of functioning.

In the Exit Conference, Ministry directed (January 2020) Management to prepare standard checklist for submission of proposals.

Award of contracts

4.3 Pre-bid activities

Pre-bid activities include the steps/ procedures taken by PGCIL before issuance of bids for procurement of goods and services from the manufacturers/ suppliers. It includes contract packaging, cost estimation, planning of qualifying criteria and technical specifications and bidding documents as per WPPP, CVC circulars, statutory provisions, etc.

Qualifying criteria covers various basic requirements, which a bidder must possess to bid for a particular contract/ package. It helps in identifying such bidders who have the experience of delivering the required goods and services to be procured. Audit examined various qualifying criteria and observed the following:

4.3.1 Adoption of balance capacity assessment criteria without basis

WPPP (November 2016) of PGCIL requires assessment of the manufacturing capacity of the bidders for execution of the works (like tower parts, conductors, insulators etc.) to be awarded by PGCIL. WPPP further states that the prospective bidder shall be considered to have the manufacturing capacity during a financial

year provided the annualized requirement of the item in question for which bids have been opened during the said financial year does not exceed 0.67 times the annual manufacturing capacity of the bidder (considering that the balance bid capacity is utilised for contracts awarded by other organisations).

Thus, as per WPPP, analysis of the pending orders with the bidder was done away with and it was presumed by PGCIL that manufacturing capacity of all the bidders to the extent of *67 per cent* would be available for orders awarded by it. The reasons and basis for taking *67 per cent* capacity of all the bidders were not available on record.

During review of contracts awarded to M/s Prem Cables Limited for supply of conductors, audit noticed that during the period 2011-12 to 2014-15 the supply of conductors to other organisations ranged from *48 per cent* to *100 per cent*. Moreover in case of Apar Industries Limited, the supply of conductor for the years 2013-14 and 2014-15 to other organisations was more than *33 per cent*.

The Management/ Ministry replied (January 2019 and June 2019) that the criteria relating to manufacturing capacity wherein PGCIL takes exposure on a particular bidder by placing orders in a year upto *67 per cent* of the bidder's total manufacturing capacity is a step to enhance transparency and objectivity.

The reply is to be seen in light of the fact that the Management has not indicated the basis for fixing the criteria of *67 per cent*. Further, the revised criteria overlooked the actual spare capacity available with the bidder, which may be more or less than *67 per cent*. Thus, PGCIL's assumption regarding utilisation of *67 per cent* capacity of all its suppliers/ contractors by them may not be considered appropriate as it leaves scope of under/ over assessment of manufacturing capacity of bidders, which might either result in awarding of order to incapable parties or rejection of bids of the capable parties.

4.3.2 Ambiguity in clause regarding fatal accidents

In bidding documents, it is *inter-alia* stated that “*Subsequent to Bidder's involvement in three cumulative fatal accidents during any financial year, bids submitted by such bidder for all packages whose date of bid opening, originally scheduled and/ actual, falls within the three months period reckoned from date of the last fatal accident shall be considered non-responsive. However, if there is no bid from bidder during said three months, any one bid submitted after three months will be considered non-responsive.*”

Audit noticed that:

- (i) Three fatal accidents occurred during 2014-15 (third fatal accident on 10 December 2014) at PGCIL's worksites of the contractor i.e. M/s Kalptaru Power Transmission Ltd. (KPTL). As such, this contractor was not eligible for any contract whose bids were opened upto 10 March 2015. However, PGCIL

awarded three³⁸ contracts valuing ₹316.60 crore to this contractor whose bids were opened before 10 March 2015.

(ii) In terms of Model Request for Proposal issued (April 2014) by the Planning Commission for infrastructure projects including construction of transmission lines, there is a need to collect details of fatal accidents reported during the past five years. PGCIL did not capture the data specifically of the fatal accidents of the bidders from them in the bid documents. In the absence of such details, PGCIL considered information of accidents only in respect of past works executed by those prospective bidders for PGCIL instead of details of all the fatal accidents of the bidders. It would be pertinent to mention that other CPSEs like NTPC while inviting the bids were asking details from the bidders about the fatal accidents occurred during the last three years at works executed by them. Besides, PGCIL has not provided the complete list of fatal accidents occurred on work sites of PGCIL for the period 2012-17 despitely³⁹

(iii) PGCIL also did not specify, which one bid submitted after three months will be considered non-responsive, if there is no bid from bidder during the three months from the occurrence of last fatal accident.

Ministry stated (June 2019) that there should not be any specific criteria for treating bids submitted after three months to be unresponsive because if two or more bids of such bidder are opened on the same day after three months, making a particular one bid out of them as unresponsive would enable the bidder to choose to avoid bidding in a particular package, thereby derailing the entire process. There could be a possibility of reporting of fatal accident by other organization without having a comprehensive framework in place.

Reply is to be viewed in light of the fact that failure to collect details of fatal accidents from bidder is non-compliance of guidelines issued by Planning Commission.

4.3.3 Finalisation of the Types of tower and its procurement

NEP 2012 suggested adoption of emerging technologies like satellite imaging for carrying out detailed survey and route alignment. It further provided that wind zone mapping and standard design of various types of towers and soil investigation should be done in advance, so that, construction time for the transmission system could be substantially reduced.

However, review of contract agreements for tower erection packages disclosed that:

(i) Satellite imaging for carrying out detailed survey and route alignment as required in NEP was not being done. Instead detailed survey including route

³⁸ *Three contracts having NOA no 5217, 5312 and 5311 having LOA value ₹110.37 crore, ₹102.87 crore and ₹103.36 crore respectively*

³⁹ *Requisition dated 16.10.2019, reminder dated 14.11.2019, and 05.12.2019 to Director (Finance)*

alignment, profiling, was carried out by the contractors after award of work. Similarly, soil investigation was not being done as per NEP in advance, rather the contractors in their detailed survey, carried out soil investigation (type of soil whether fissured rock, hard rock, river crossing etc.).

(ii) Design (tower type), fabrication of towers and foundation drawings for all type of towers were proposed by the contractors to PGCIL after conducting detailed survey subsequent to the award of work. The same was then required to be approved by PGCIL within two months of award of work to the contractors.

(iii) During review of execution of the contracts, delay ranging from three months to 13 months in seven contracts was noticed on account of various reasons, inter-alia including modification/ removal of defect of design of tower and change in quantity of tower etc.

The Management/ Ministry replied (January 2019 and June 2019) that only walkover/ preliminary survey is undertaken separately before NIT due to shortage of times and detailed survey is carried out by the contractor during execution stage. Various designs of standard type towers and standard foundations are developed by PGCIL generally in advance. Only in some cases location specific foundations are designed based on the soil conditions/ other inputs received from site.

The reply is to be viewed in light of the fact that though PGCIL had developed standard towers and pile foundation designs, full benefit thereof (in terms of saving of time of construction as envisaged by NEP) could not be reaped as spotting of different types, design and quantities of tower was finalised based on detailed survey only after award of work leading to delay ranging from three to 13 months in seven contracts as mentioned above. Moreover, in the said contracts the time taken by PGCIL between project conceptualisation/ approval and start of implementation/ issuance of NIT was 1.5 years to 7 years against the normal time of one year for carrying out detailed survey allowed to the contractors.

4.3.4 Delay in achieving various pre-award milestones

WPPP of PGCIL prescribes timelines for the entire process of award of contracts considering the date of in-principle approval of project by the CEA as zero date. However, w.e.f. January 2011 Empowered Committee (instead of CEA⁴⁰) decides whether the project is to be awarded to PGCIL or through TBCB. Audit observed that PGCIL had not modified the zero date as the date of approval of project by the Empowered Committee. Hence, WPPP may need a review.

Further, the delay in achieving various pre-award milestones were mainly due to delays in approval of DPR from the last date of standing Committee meeting, delays in initiating application for forest clearance and non-completion of

⁴⁰ *Audit has calculated delay in four schemes (which were approved w.e.f. January 2011) from date of approval by Empowered Committee and from in-principle approval of CEA in other schemes*

intermediate activities like request from the bidders to extend time for bid submission, delay in evaluation of bids etc. The details of the delays in various pre-award activities are summarised in table 4.1 below:

Table 4.1

Delay beyond the prescribed timeline	Period	No of Cases		
		Delay in issue of NIT from in-principle approval of CEA/ approval by Empowered Committee	Delay in Opening of bids from in-principle approval of CEA/ approval by Empowered Committee	Delay in notification of award from in-principle approval of CEA/ approval by Empowered Committee
30 to 50 weeks		17	18	10
50 to 100 weeks		31	49	57
100 to 150 weeks		11	17	13
More than 150 weeks		14	13	13
Total		73	97	93

The delay in achieving pre award milestones contributed to the overall delay in final execution of the line. Out of 18 selected projects, only two projects were completed within the scheduled time upto December 2018 and 13 projects were completed with delays ranging from 4 to 71 months. The remaining three projects were to be completed with anticipated delays ranging from 6 to 109 months.

Management/ Ministry stated (January/ June 2019) that assessment of vendors, amendment to bid documents, poor response from vendors, clearing from funding agencies, forest stretches encountered etc. impacted the process leading to award of contracts.

The fact remained that the reasons leading to delay as mentioned by PGCIL are either general factors common for the projects and are well considered at the time of fixation of the timelines for various milestones in WPPP or were possible to be controlled by better Management like proper survey before making forest applications, etc. which have been discussed in the paras above.

4.4 Post-bid activities (evaluation of bids)

Post-bid activities include evaluation of bidders' capacity and capability against the prescribed qualifying criteria. It also includes examination of bids in consonance with guidelines of Central Vigilance Commission (CVC), lending agencies like World Bank, etc. and WPPP of PGCIL. Audit reviewed the evaluation procedures and observed non-compliance of different guidelines and improper/ non-assessment of bidders' capacity.

4.4.1 Non-judicious rejection of a qualified bidder

PGCIL had invited bids for Tower package for 765 kV S/C Varanasi-Balia Transmission Line on 09 May 2012. Eight bidders submitted their bids against the above tower package. Out of these eight bidders, seven bidders (including M/s KEC International Limited and M/s Gammon India Limited) were found

technically qualified. PGCIL awarded (29 January 2013) the Tower package to M/s KEC International Limited (M/s KIL) at a contract price of ₹172.78 crore.

In respect of the above, Audit noticed that M/s Gammon India Limited (GIL) and M/s KIL, were meeting the financial criteria as per their details given in their respective technical bids. However, prior to opening of price bids of all the bidders, financial capacity of M/s GIL, only, on the basis of its financial results was analysed by PGCIL. Based on the assessment, it was decided not to consider the financial bid of M/s GIL as its net profit during the year 2010-11 and 2011-12 was on a decreasing trend and it had negative cash generation from operation (after net of repayment of Long Term Loan and Dividend payment). However, Audit analysed the cash flows of M/s GIL and M/s KIL for four years i.e., from 2009-10 to 2011-12 and noticed that cash flow from operations (net of repayment of loans and dividends) were negative during two out of above three financial years for both the bidders. Moreover, overall rating in respect of M/s GIL was above the threshold rating considered for further award of contracts and it satisfied all technical qualifying criteria. In spite of the above, M/s GIL was non-judiciously disqualified and the contract was awarded to M/s KIL.

Management/ Ministry (January/ June 2019) replied that certain red flags about the financial capacity of GIL had been noticed, taking note of the same and the direction of BOD, it was considered prudent that the financial position of GIL be re-looked.

The reply is to be viewed in light of the fact that similar detailed financial analysis in respect of other bidders including M/s KIL was not carried out by PGCIL. Further, cash flow from operations (net of repayment of loans and dividends) were negative during three out of four financial years under consideration for M/s GIL and M/s KIL. Thus, the fact remained that the qualified bidder was non-judiciously rejected.

4.4.2 Improper capacity assessment of the bidders

As per WPPP 2001 (clause B.5.8.8), the assessment of bidders includes examination of their financial capacity, and analysis of spare capacity⁴¹ to execute the contract (net of current commitment).

4.4.2.1 Non-assessment of capacity of bidders

In 11⁴² out of 120 cases it was observed that the production capacity of bidder was not assessed. While assessing the capacity of the bidders, it was mentioned in the

⁴¹ Spare capacity is the project execution capacity

⁴² BHEL (Contract No. 459), (ii) JV of M/s GET&D India Ltd. and M/s Alstom Grid Energia Ltd Brazil (Contract No. 4718), (iii) TBEA Shenyang Transformer Group Co. Ltd (Contract No. 4724), (iv) L&T (5373,5371), (v) JV of ABB, India &ABB, AB Sweden (Contract No. 4873), (vi) Hyosung Corporation (Contract No. 4300), (vii) ABB (Contract No. 4317), (viii) Xian XD Switchgear Electric Co Ltd (Contract No. 5343), (ix) Techno Electric & Engg. Company Ltd (contract No. 5345) and (x)⁴² M/s GET&D India Limited, Noida and (xi) JV of M/s GET&D India Ltd. and M/s Alstom

evaluation report at the bidders had executed/ had been executing various contracts of similar nature and complexity of various utilities including PGCIL. Hence, in view of the above, all the bidders were considered to have requisite capacity to execute the subject package. Audit further observed that out of the above 11 contracts in two cases, there was delay in supply of insulators by the contractor⁴³ and scheduled date for supply was October 2015. This contract was short closed (March 2017) due to non-supply of insulators which consequently impacted avoidable delay of 18 months in commissioning of transmission line. In second contract⁴⁴, there was delay of 12 months on the part of contractor in supply of shunt reactors for Jhatikara substation which resulted in consequent avoidable delay in commissioning of transmission line for Ph-I generation projects in Jharkhand and West Bengal Part B. This indicated that non assessment of the balance capacity of the bidders with respect to its operating activities before award of the contract ultimately contributed to time overrun in execution of contracts.

Management/ Ministry stated (January 2019/ June 2019) that assessment of bidders is generally carried out for new bidders or when there are some issues like addition in manufacturing capacity, financial issues, etc.

Reply is to be viewed in light of the fact that in view of WPPP of PGCIL, assessment report of all bidders coming under the zone of consideration should contain the analysis of the net spare manufacturing erection capacity to execute the contract. The same was not adhered to which resulted in delay in commissioning of transmission lines as discussed above. In the Exit Conference, Ministry directed (January 2020) Management to maintain complete records indicating evaluation of the bid criteria.

4.4.2.2 Improper assessment of spare capacity of bidders

As per WPPP 2001, the assessment of capacity of a bidder should take into account the contracts awarded but pending execution by PGCIL as well as other power utilities. It was observed that in 24⁴⁵ contracts the entire details of work in hand as submitted by the bidders were not considered while evaluating the spare capacity. Audit further observed in one contract⁴⁶ pertaining to supply and erection of six sub stations under 765/ 400kv Raipur pooling Stations at Jabalpur, Jhatrikara, Gwalior, Wardha, Vindyachal, and Raipur. There was delay of 34 weeks (8 months) on the part of contractor for supply of ICTs which consequently impacted the commissioning of main and tie bays of both 765 KV & 400KV of Raipur Pooling Station by eight months.

⁴³ **BHEL**

⁴⁴ **JV of M/s GET&D India Ltd. and M/s Alstom**

⁴⁵ **LOA Nos: (1) 4930, (2) 4755, (3) 5487, (4) 5570, (5) 5260, (6) 5267, (7) 5614, (8) 5312, (9) 5310, (10) 5309, (11) 4729,(12) 4730, (13) 4701, (14) 4702, (15) 5811, (16) 4579, (17) 5339, (18) 5420, (19) 5613, (20) 2850, (21) 2851,(22) 5507,(23) 5728 & (24)5727**

⁴⁶ **M/s GET&D India Limited, Noida**

Management/ Ministry stated (January 2019 and June 2019) that collected commitment of manufacturing to other utilities by the manufacturer was taken into consideration at the time of evaluation.

The reply is to be viewed against the fact that even though PGCIL obtained the details of the commitments of bidders to other utilities as part of bid, the same had not been fully considered while assessing the spare capacity of the bidders as pointed out above. In the Exit Conference, Ministry directed (January 2020) Management to maintain complete records indicating evaluation of the bid criteria.

4.4.2.3 Improper analysis of financial capacity of the bidders

In terms of the Companies Act, 2013, turnover means the aggregate value of the realisation of amount made from the sale, supply or distribution of goods or on account of services rendered, or both, by PGCIL during a financial year. As per the approved Standard Qualifying Requirement (QR), Minimum Average Annual Turnover (MAAT) should be computed by excluding all non-recurring income.

Audit, however, noticed that the criterion for turnover was not consistent with definition of turnover given in the Companies Act, 2013. Besides, the QR Committee did not adopt a consistent methodology with regard to exclusion of all non-recurring income to work out MAAT. Further, detailed MAAT computation was also not found available on record despiters reminders. Thus, correctness of computation of MAAT could not be verified.

Management/ Ministry stated (January 2019 and June 2019) that based on the suggestion of Audit, as a step towards system improvement, PGCIL had decided to align “Turnover” as defined by the Companies Act, 2013.

Audit appreciates the assurance given by Management to adopt the turnover as defined in the Companies Act, 2013 for bid evaluation to avoid any ambiguity in computation of MAAT.

4.5 Execution and completion of projects

Execution of contracts is carried out through Regional Offices, which are supposed to ensure that the work is carried out as per the stipulated detailed timelines. Audit observed delays in execution of contracts awarded under various projects. The reasons for delays were analysed as below:

4.5.1 Analysis of delay in completion of contracts

At the time of seeking investment approval, scheduled timeline for completion of project is laid down by the Management. During review of execution of selected 120 contracts executed by PGCIL under 18 projects relating to transmission projects, delay in completion of the erection/ supplies ranging from one month to 40 months was noticed in 109 contracts. Out of the above 109 delayed contracts; reasons for delay in 24 contracts were *inter alia* on the part of contractor and LD in respect of only 13 contracts was levied. In seven contracts finalisation of time

extension/ liquidated damages was in process and in remaining four contracts LD was not levied.

The major reasons attributable to PGCIL for such long delay are summarised in table 4.2.

Table 4.2

Reasons for delay	Number of Contracts	Period of Delay in months
Delay in providing clear front site by PGCIL to the contractors for the start of work like substation lands at Champa & Banaskantha , site at Krishnapatnam etc.	23	3 to 36
Delay in owner's supply material like tower, stubs, conductor etc. mandatory spares.	21	3 to 36
Delay in tower quantity finalization, change in tower type after detailed survey.	11	9 to 31
Scope and Quantity variation after detailed/ check survey, hold imposed to control CWIP.	11	1 to 39
Delay in type testing of insulators/ statutory clearances .	6	1 to 14
Other reasons		
Delay in starting of manufacturing activities/ inadequate mobilisation of resources/ delay in supply by agency/ contractor.	24	2 to 40
Delay in obtaining Forest clearance/ railway crossing/ tree cutting permission etc.	18	5 to 40
Delay in obtaining right of way.	48	2 to 40

The above delays in execution of contracts along with delay in applications for forest clearance, Right of way and pre - award activities by PGCIL as discussed in the foregoing paragraph 4.2 ultimately led to cascading effect on completion of 16 out of 18 selected projects.

Management/ Ministry stated (January/ June 2019) that delays in receiving various clearances adversely affect encumbrance free sites to contractor for work and inputs for survey.

The reply needs to be viewed against the fact that delay in receiving clearances was also due to delayed submission of applications by PGCIL with forest department or submitting applications without complete documents, which was avoidable. Moreover, as accepted by PGCIL, detailed survey was carried out after the award of work which further delayed the execution due to various social & environmental issues not factored in the planning and pre-award stages. Therefore, there was scope to reduce the delay in project execution by better Management.

4.6 Impact of Delay

As per CERC (Terms and Conditions of Tariff) Regulations, 2009, applicable for the period 2009-2014, an additional Return on Equity at the rate of 0.5 *per cent* is allowed if projects are commissioned on or after 1st April 2009 within the timeline specified in Appendix-II of the CERC's regulations. Delays in execution of contracts as mentioned above led to delay in completion of different transmission lines ranging from 6 to 69 months from the scheduled date of completion. Therefore, PGCIL has forgone additional return on equity of

₹112.51 crore due to non-completion of projects within stipulated timeline from the date of commissioning till the end of CERC Tariff Regulation 2014-19. The reasons for such delays were primarily attributable to issues pertaining to Right of Way, Forest clearance, etc. as discussed in foregoing paras.

Management/ Ministry stated (Feb/ June 2019) that the additional RoE, which is an incentive, cannot be perceived as an automatic income/ earning. Stringent timelines are stipulated such that projects under normal circumstances cannot be implemented in these time schedules. In the Exit Conference, Ministry stated (January 2020) that PGCIL should have made efforts to accomplish the work within the time prescribed by CERC and endeavour to avail additional return on equity.

4.7 Utilisation of Completed lines

4.7.1 Non-charging of relinquishment of LTA charges from the customers

As per the Regulation -18 of the Grant of Connectivity, LTA and Medium Term Open Access in Inter-State Transmission and related matters Regulations, 2009 issued by Central Electricity Regulatory Commission, a long term customer may relinquish the long term access rights fully or partly before the expiry of the full term of long term access by making payment of compensation for stranded capacity.

During review of records relating to relinquishment of LTA partially/ fully by customers, it was observed that total 21,853 MW of LTA were surrendered by the customers from September 2010 to March 2018. In addition, customers with 4,983 MW of LTA had changed their target region which was also considered as reduction in LTA by CERC and was, thus, equivalent to relinquishment of LTA. However, no relinquishment charges have been collected from the customers till date. PGCIL filed petitions with CERC pleading difficulties in the identification/ utilization/ non-utilisation of transmission elements in a meshed network for a long period. CERC directed CEA to suggest methodology to work out stranded capacity and the formulae for calculating corresponding relinquishment charges of LTA keeping in view the load generation scenario and power flows considered at the time of planning and changes subsequent to proposed relinquishment. Till a decision is taken based on the recommendations of CEA, CTU shall continue to take the relinquishment charges in accordance with Regulation 18 of the Connectivity Regulations. However, no recovery has so far been made even though CTU has worked out an amount of ₹41.09 lakh per MW as an indicative figure.

Further, as per Regulation 18(3) of the connectivity Regulations, compensation paid by the long term customer for the stranded capacity shall be used for reducing transmission charges payable by other long term customers and medium term customers in the year in which such compensation payment is due in the ratio

of transmission charges payable for that year by such long-term customers and medium term customers.

Management/ Ministry stated (June 2019) that the methodology for calculation for relinquishment charges for different long term access customers have been enumerated by CERC vide order dated 8 March 2019. Based on the CERC directions, billing of the above relinquishment charges are under process from the respective LTA customers.

Further, as per information provided by Management (May 2020), total relinquishment charges recoverable from customers was ₹7,205.41 crore and after adjustment of the available bank guarantees available with PGCIL, an amount of ₹6,853.43 crore is yet to be recovered from the relinquished customers.

Management's reply underscores the fact that relinquishment charges from respective LTA customers are yet to be collected.

Hence, non-collection of compensation charges by PGCIL for stranded capacity as a result of relinquishment of transmission assets, consumers are being put under extra financial burden.

4.7.2 Assessment of utilisation of completed transmission lines of selected projects

PGCIL had not devised any mechanism or fixed any criteria/ benchmark for assessing the utilisation of the existing transmission lines.

In the absence of a regular line utilisation assessment system in place in PGCIL, Audit analysed utilisation of 30 completed transmission lines⁴⁷ (completed between December 2013 and March 2019) of the 18 selected projects based on the power flow data obtained from POSOCO. Analysis of the average power flows as well as maximum power flows at any point of time in these lines since the respective date of commissioning of each line upto March 2019 is detailed in *Annexure 4* and the results of audit analysis summarised in Table 4.3.

Table 4.3 Analysis of average power flows

Average power flows as a percentage of Maximum loadability of the line	Number of lines
Less than 10 per cent	12
Between 10 to 30 per cent	15
Between 30 to 60 per cent	2
Above 60 per cent	1
Total	30

The above indicates that 27 lines (90 per cent) had average power flows less than 30 per cent. Audit also noticed that maximum power flows in 18 out of 30 lines (60 per cent) remained below 40 per cent of their respective maximum loadability during the period since their inception to March 2019.

⁴⁷ Out of total 56 lines covered in 18 projects as per selected sample, 37 lines had length of more than 100 Km for which power flow data was requested from POSOCO. POSOCO provided data (June 2019) in respect of 30 lines which was analysed in audit

As already discussed in para 3.2.4 above, various Committees had studied and communicated (January 2013 and January 2015) measures to improve line loadability of various lines to mitigate congestion in the long run. However, PGCIL had not adequately taken action on the recommendations of the Committees to improve loadability of the identified lines some of which were found to be cautioning congestion even in October 2019.

The above indicates that in some cases there was excess capacity, which was not being optimally utilised while in others there was need to enhance the capacity to mitigate congestion. This underscores the need for PGCIL to set up a system of regularly monitoring for line utilisation and take steps for optimum utilisation of assets.

Management stated (July 2019) that

- (i) There are wide variations in daily/ monthly/ seasonal loads and power systems are planned to facilitate evacuation of power in peak conditions.
- (ii) The above transmission lines were planned to transfer power from various generating projects many of which were abandoned.
- (iii) These corridors are linked to resource rich areas therefore with growing power requirements more power is likely to flow from these lines. The objective of tariff policy also implies optimal development of transmission network ahead of generation with adequate margin for reliability.

In the Exit Conference, Ministry (January 2020) stated that this was an important issue under analysis in the Ministry.

The reply needs to be viewed against the fact that

- (i) In 18 out of 30 selected lines even the maximum power flows remained less than the 40 *per cent* loadability of the lines.
- (ii) The reply indicates that the execution of transmission lines was not matched with the progress of corresponding generation projects resulting in stranded capacity.
- (iii) The reply does not indicate any concrete plans or projected timeframe in which the excess capacity is likely to be put to optimum use due to growing power requirements.

4.7.3 Non-utilisation of transmission lines/ substations due to non-commissioning of intra state/ downstream network

As per NEP, Central Transmission Utility (CTU) and State Transmission Utilities (STUs) are responsible for planning and development of the transmission system. NEP prepared by the CEA serves as guiding document in this process. CTU is responsible for the national and regional transmission system planning and development. STUs are responsible for planning and development of the intra-

state transmission system. CTU would have to coordinate with STUs and other stakeholders for preparing a well-coordinated transmission plan for the Country.

Audit observed that presently CTU as such was not having any institutional mechanism of coordination of inter-state and intra state transmission systems. Coordination of various agencies/ stakeholders was being carried out through the mechanism of discussions in the Standing Committee of CEA and Regional Power Committee.

A Sub-committee of Central Advisory Committee (CAC) on congestion, constituted by CERC (June 2015) highlighted the issue of mismatch between inter-state and intra-state transmission system and directed CTU to submit quarterly report on augmentation of transmission system in the country to CERC for better coordination and to avoid mismatch. However, compliance of the same had not been done by CTU. CERC further observed (26 March 2018) *inter alia* that the actions taken by CTU and CEA for coordination were not yielding the desired results in development of matching state network. CERC again directed (26 March 2018) CTU to submit six monthly exception reports in case of mismatch to CEA and CERC. The first such exception report was submitted to CERC on 13 February 2019 after almost 11 months.

Review of records disclosed the following:

(i) Out of the 18 selected projects some of the transmission assets in two⁴⁸ projects commissioned by PGCIL could not be utilized due to non-completion of associated network or mismatch in commissioning of upstream/ downstream network by States. Accordingly, CERC refused to approve the actual date of commercial operation as claimed by PGCIL due to non-completion of associated network or mismatch and did not award any tariff to PGCIL for these assets despite commissioning thereof.

(ii) In the meeting of Sub-committee (January 2015) constituted by CERC to examine the congestion in transmission system, POSOCO highlighted the issue of non-availability of underlying network⁴⁹ at four⁵⁰ sub-stations in three out of 18 selected projects which adversely affected the transfer capacity of lines. POSOCO in their operational feedback (April 2017) reiterated that due to non-availability of underlying network of three sub-stations *viz.* (Bhiwani, Kurukshetra and Chittorgarh) out of which Bhiwani sub-station was pointed out by them in January 2015 and yet to be completed by respective States were responsible for transmission constraints in the system.

Thus, it may be seen that there were instances of non-utilisation of interstate transmission line/ substations due to non-commissioning of downstream network, resulting in idle investment till the commissioning of associate or downstream/

⁴⁸ *Padge – kudus 400 kV transmission line and 02 Nos 400/ 220 kV, 500 MVA ICT & 08 nos 220 kV bays at Kurukshetra*

⁴⁹ *Connected intra-state network*

⁵⁰ *(i) Bhiwani, (ii) Sholapur (Pg), (iii) Pune and (iv) Aurangabad(Pg)*

upstream network. This situation adversely affected the smooth power flow as highlighted by POSOCO from time to time. Audit is of the opinion that PGCIL in its role as CTU should have taken proactive steps to ensure coordinated planning and execution of transmission system to avoid non-utilisation of inter-state transmission system due to non-commissioning of intra-state/down-stream transmission network.

Management stated (January 2019) that the recommendations of Sub-Committee on congestion constituted by CAC were advisory in nature and were accepted by CERC in its order dated 26 March 2018. Ministry added (June 2019) that six monthly exception reports in case of mismatch of Inter State transmission with Intra state transmission network has been now sent to CEA and CERC.

Reply of the management is to be viewed against the fact that CERC vide its order dated 26 March 2018 *inter alia* had stated that actions taken by CTU and CEA had not yielded the desired results in development of matching state network. Though CTU had belatedly submitted six monthly exception reports in case of mismatch to CEA/CERC, CTU/PGCIL may also take proactive action to resolve these mismatches as CERC had denied the tariff to PGCIL in case of non-commissioning of underlying network as discussed above.