

## Chapter

## VI

## Project Delivery

For timely execution of projects, it is important to accurately assess time required for completion of each activity, criticality of each activity and the sequence of activities to be initiated. A typical thermal power project executed by BHEL involves supply of equipment from a network of its 17 manufacturing units. Some material and equipment not manufactured by BHEL are procured from vendors. Services like civil construction and structural works, erection etc. are also outsourced.

Execution of projects are carried out through regional power sector offices under overall supervision of Project Management Group at corporate office. The manufacturing units/Regional Offices are required to prepare detailed timelines and sequence called L2 network. This is to ensure that availability of materials/equipment at site is not delayed in order to avoid any cascading impact on project execution, no supplies are made in advance of their actual requirement and the customer accepts the invoice raised as per billing schedule. Thus, monitoring of L2 network as per pre-decided sequence was necessary for timely project delivery.

### 6.1 Project execution by BHEL

**6.1.1** There were considerable delays in project execution by BHEL as detailed below:

- **Power sector:** 43 projects/orders were secured by Power Sector during 2012-13 to 2015-16, of which, 40 were on-going (March 2016). Audit noticed that in respect of 28 of these projects, 193 major milestones had fallen due by November 2016. Of these, only *seven* major milestones could be achieved within respective due dates, another 98 major milestones were achieved with delays ranging from one to 51 months while 88 milestones were yet to be completed (as on 30 November 2016) even after lapse of one to 36 months since their due dates.
- **Industry sector:** Out of 90 project/ orders secured by Industry Sector, 14 orders were completed within scheduled completion time, while 30 orders were completed with delays ranging from one to 21 months.
- **International operations:** Out of 16 orders secured by International Operations, three orders were subsequently cancelled by customers. Out of the remaining 13 projects, one was commissioned within scheduled completion time and another one was commissioned with delay of two months. The completion schedule of the balance 11 projects was beyond 31 March 2016.

**6.1.2** Review of project-wise status of scheduled and actual commissioning of 32 Power Sector (PS) projects, 16 Industry Sector (IS) projects and five International Operation (IO) projects selected for performance audit revealed that BHEL could not complete any of the projects within scheduled completion time. The projects were commissioned with delays of 3 to 84 months. As a result, customers withheld ₹1966.07 crore towards liquidated damages (LD) against these projects as detailed below:

**Table 6.1: Business sector-wise withheld amount on account of Liquidated Damages**

Name of business sector	No. of projects commissioned	No. of projects in which customer withheld amount on account of LD	Amount of LD withheld (₹ crore)
Power sector	32	27	1923.63*
Industry sector	16	8	38.44
International operation	5	2	4.00
<b>Total</b>	<b>53</b>	<b>37</b>	<b>1966.07</b>

\*including ₹496.70 crore which were withheld by customer but got released by submitting Bank Guarantees of equal amounts.

Reasons for delay in project execution were attributed to both customers and BHEL. Reasons attributable to customers included delays in handing over site, approval of drawings and vendors, availability of fuel, water and power evacuation system etc. Reasons for delay attributable to BHEL included un-synchronised deliveries and site activities<sup>32</sup> by BHEL units/agencies, delay in site opening, delay in finalisation of Balance of Plants<sup>33</sup> and other enabling and mechanical contractors, delay in transportation, lack of coordination between different BHEL units, inadequate mobilisation of resources (manpower, construction equipment etc.) by BHEL and its sub-contractors. Project-wise reasons of delay attributable to BHEL, as noticed in Audit, are given in **Annexure 6.1**. For reasons attributable to customer or force majeure conditions, BHEL gets time extension. Audit noticed that Management has not lodged any claims on customers.

Ministry stated (May 2017) that for making true assessments, overall context of customer references and related activities ought to be analysed. During execution, there were several interfaces of information, inputs and erection fronts between BHEL and the customers including other contractors. Sometimes, delays were due to force majeure conditions making it difficult to quantify claims on account of delays in intermediate project activities. Comprehensive time extension and delay analysis was taken up only during later stage of the project when discussion on reasons that had caused delay and LD waiver was carried out as a part of commercial settlement. BHEL also lodged claims in case projects were delayed due to reasons attributable to customers and has been compensated in 4x250 MW Nabinagar, 5x270 MW Nasik Phase-I and 2x660 MW Banharpalli projects.

*While Audit appreciates that some project delays were attributable to the customers or force majeure conditions, it was noticed that out of 53 projects commissioned with delays, customers had withheld amounts towards liquidated damages in 37 projects indicating that the customers held BHEL responsible for the delay in these projects. In fact, Audit noticed that in 17 projects, customers finalised LD of ₹512.16 crore, out of which BHEL has written off ₹378.41 crore. In respect of 32 power sector commissioned projects selected for audit, no compensation claim was pursued by BHEL, except one project (2x270 MW GVK Goindwal) which subsequent to commissioning was put on-hold. BHEL was deprived of fund inflow from these projects and also sustained interest loss.*

<sup>32</sup> Delay in supply of critical material required for erection, supply of material much in advance of requirement at site

<sup>33</sup> Balance of Plants are the products, systems and services which may not be in the manufacturing range of BHEL, but which form part of BHEL's scope of project requirement

**Case Study 1: Undue favour to private party (M/s GVK Power Limited)**

The work of construction of 2x270 MW Goindwal Sahib TPS was awarded (November 2007) to BHEL by M/s GVK Power Goindwal Sahib Limited (GPGSL) at a cost of ₹1155 crore. After synchronisation of the two units on 06.7.2012 and 04.3.2014, respectively, BHEL put the project on hold (20.05.2014) due to non-availability of coal and non-payment of outstanding dues. Following a high level meeting (03.12.2015) between M/s GVK and BHEL in presence of Minister of State (HI &PE) and Joint Secretary (MHI), it was agreed to revive the project on condition that GVK would (i) release all outstanding dues (₹47.08 crore against this project and ₹50 crore against Srinagar Hydropower Project, which was to be paid in four equal instalments by March 2016); (ii) furnish a Corporate Guarantee of ₹110 crore; (iii) give time extension up to June 2016 without levy of LD; and (iv) additional claims and counter claims submitted by BHEL would be settled by 15.1.2016.

M/s GVK released (10.12.2015) ₹42.34 crore and submitted (16.2.2016) a Corporate Guarantee but did not confirm time extension without levy of LD, neither cleared the dues against Srinagar project nor addressed BHEL's claims for time over run. Despite non-fulfilment of these conditions by M/s GVK, BHEL resumed project activities and achieved full load of Unit-1 on 14.2.2016 and Unit-2 on 15.3.2016. On 15.3.2016, BHEL put the project again on hold citing non-fulfilment of commitments by M/s GVK (extension of time without LD, payment of dues against Srinagar project and settlement of claim/counter claims).

The resumption of the project by BHEL led to completion and commissioning of the project. Since April 2016, the project was in operation and generating electricity (as per generation data available on CEA's website, the project generated 223.91 GWh power from April to August 2016). BHEL, however, could not encash the guarantee as it had not completed the performance guarantee test. Audit noticed that BHEL had accepted a corporate guarantee of ₹110 crore in place of the committed Bank Guarantee which was financially imprudent. Resumption of the project activities and subsequent commissioning without resolving the un-fulfilled commitments proved detrimental to the interests of BHEL.

Management stated (February 2017) that (i) BHEL accepted Corporate Guarantee of GVK energy on no choice basis; (ii) In the interest of project and to utilize the available resources at site, the 2<sup>nd</sup> unit was commissioned on 15.3.2016, (iii) After putting the hold on project on 15.3.2016 there has been no involvement of BHEL in any commissioning activity at project site. Ministry added (May 2017) that based on the agreement (07.12.2015), BHEL has been able to liquidate the outstanding due as on the date of the agreement and also has a legally enforceable Corporate Guarantee for bills raised after lifting the hold.

*The reply is not acceptable. By accepting corporate guarantee in place of Bank Guarantee, Management compromised BHEL's interests as it was aware of financial condition of GVK. Ministry's reply that all outstanding dues on the date of agreement were liquidated is incorrect. Out of the total dues of ₹47.08 crore against this project and ₹50 crore against the Srinagar project, only ₹42.34 crore was paid with ₹54.74 crore still outstanding.*

**6.2 Non-compliance of conditions leading to delayed receipt of advances for orders**

Orders secured by PS-Marketing generally provided for payment of interest free advance equal to 10/15 per cent of supply component of contract price. BHEL would be eligible for the advance following satisfaction of a set of pre-conditions, namely, submission of advance bank guarantee (BG), performance BG and BG against Deed of Joint Undertaking (DJU). In the sample studied, Audit observed that in case of four orders, BHEL took substantial time in fulfilling such conditions leading to delayed receipt of advance.

Ministry stated (May 2017) that several rounds of negotiations were held with the collaborators to seek settlement of contractual issues and finalisation of best price/ terms. This resulted in some delay in submission of DJU and BG by the collaborators.

*The reply, however, has to be viewed against the fact that BHEL could not obtain the interest free advances on time in these cases.*

### 6.3 Advance/ Delayed supplies

L2 Network date mandates the date of supply of component items of a project. Adherence to this date is important for protecting the financial interests of the Company, early dispatch may lead to avoidable blocking of funds and consequent higher interest during development, while late dispatch may result in levy of liquidated damages on the Company. Audit reviewed the dates of scheduled vis-à-vis actual dispatch for work orders related to sample projects at BHEL manufacturing units and noticed as under:

- (i) In Trichy unit, the purchase orders for material were not placed in line with the L2 network schedule. 2119 purchase orders (POs) valuing ₹201.11 crore were placed after terminal date with 78 of these placed three years after delivery date. At the same time, 12454 POs valuing ₹220.93 crore were placed before requirement. In fact, 42 POs valuing ₹25.43 crore were placed 900 days before terminal date, the earliest PO being placed 1593 days in advance.
- (ii) In Hyderabad unit, 121 dispatches valuing ₹765.65 crore were made six to 31 months in advance of the L2 network date (out of a sample of 477 dispatches above ₹1 crore, valuing ₹2269 crore studied in Audit). On the other hand, out of 7638 work order wise dispatches valuing ₹5461 crore (above ₹10 lakh value), 6183 valued at ₹4133 crore were dispatched with over three to 84 months delay from the L2 Network date.
- (iii) In Industrial Systems Group, Bengaluru, of 1369 dispatches, 838 dispatches were made six to 44 months in advance from the L2 Network dates. On the other hand, 531 dispatches were made with delays of three to 78 months from L2 Network dates. Value of such delayed supplies worked out to ₹286.83 crore.

Ministry stated (May 2017) that utmost care was taken that delay in supplies do not affect completion of the project. Also, time extension was generally granted by customers for reasons not attributable to BHEL/its subcontractors/ vendors. In respect of project for which advance supplies were made, the customer had given necessary clearances and documentation required for dispatch of materials, accepted the same and made payment as per contractual terms.

*The reply needs to be seen against the considerable mismatch in actual vs scheduled delivery dates which has a significant financial impact on BHEL.*

### 6.4 Project execution by BHEL vis-à-vis competitor

Rajasthan Rajya Vidyut Utpadan Nigam Limited (RRVUNL) awarded (March/April 2013) contracts for commissioning four units of 660 MW each at its Chhabra project in Suratgarh (Rajasthan) on Engineering, Procurement and Construction basis. The contract for two of these units (unit 5 & 6) was awarded to M/s L&T while the balance two (unit 7 & 8) was awarded to BHEL. Unit # 5 and Unit #7 were to be commissioned by September 2016 while Unit #6 and #8 were to be commissioned by December 2016. Audit noticed that none of these units have been commissioned yet (June 2017). However, L&T could synchronise Unit #5 in October 2016 (02.10.2016) preparatory to commissioning. BHEL has been unable to synchronise Unit #7 till date (June 2017).

Management stated (February 2017) that each project has different peculiarities such as locational impediments, availability of resources, interfacing systems etc. Chhabra unit # 5 & 6 were yet to be commissioned; delay in execution of Suratgarh project was attributed to change in layouts, delay in finalisation of drawings, delay in vendor approval/ sub-vendor approval of Balance of Plants.

Ministry added (May 2017) that a patch of land between intake water pump house and raw water reservoir through which pipeline carrying water required for commissioning had to be erected was not acquired by the customers. As a result, synchronization of Unit#7 was delayed. The land was handed over to BHEL on 04 March 2017.

*The reply has to be viewed against the fact that both the projects were awarded on EPC basis at the same time and with same terms and conditions. Audit noticed that non-availability of land was not discussed in the meeting of June 2016 when BHEL committed to complete synchronisation of Unit #7 by December 2016.*

## **6.5 Quality issues of BHEL supplies**

Production units of BHEL are required to supply material/equipment compliant with quality standards, so that these perform at intended performance level and the Company does not face delays in erection and commissioning due to repairs/ re-work. BHEL had traditionally scored over its competitors on quality. However, Audit observed quality/ workmanship issues at all stages of project execution, viz., (i) manufacturing stage, (ii) commissioning stage, and (iii) operational stage/ during warranty period. Quality/ workmanship related issues noticed in PS, IS and IO are given in **Annexure 6.2**. These issues led to Trichy and Haridwar units incurring ₹138.44 crore towards cost of re-work in the sample projects selected for review by Audit.

Management stated (February 2017) that cost of re-work/rejection as mentioned by Audit works out to less than one *per cent* of turnover of Trichy and Haridwar units for five years (2011-16). Ministry stated (May 2017) that quality issues noticed during erection/ commissioning/ warranty period were addressed/ being addressed.

*Considering that a sample check has indicated re-work cost of ₹ 138.44 crore, the actual cost may be higher. In view of the reducing margins of BHEL, the re-work cost cannot be neglected.*

### **6.5.1 Resolution of quality complaints**

To assess the resolution of complaints regarding quality of BHEL supplies, the Trichy manufacturing unit was reviewed. The Quality Assurance Department receives complaints relating to the problems faced during erection of the materials/items/components supplied by the Trichy unit. In case the materials sent by Trichy unit require modification/rework, at the time of disposition, Quality Assurance Department requests concerned BHEL site to carry out re-work and modification work on cost debit to Trichy unit.

Audit noticed that over 2011-12 to 2015-16,

- 80 *percent* of the complaint cases and their cost debits have been accepted by the Trichy unit (5705 cases out of 7168 complaints). Further review of the accepted complaint cases indicated that the majority of them (~60 *percent* cases) were on account of design and engineering defects.
- 730 out of 7168 complaints were attributable to sub-contractors/vendors. As per the outsourcing contract, if any work had been executed with unsound, imperfect or bad workmanship or with materials of inferior quality, the fabricator/vendor is responsible for rectifying it in whole or in part at their own cost. In the event of failure to do so within reasonable period, BHEL would rectify or re-execute the work at the risk and cost of the fabricator/vendor. However, the details of such costs incurred by the unit on behalf of sub-

contractors/ vendors were not found on record. No incidence of recovery made from sub-vendors/action taken on third party inspection for the period under review was furnished to Audit.

- The Site Action Reports (SARs) and Commissioning Action Reports (CARs) were to be disposed within ten days' time. In 28 percent of SARs (over 2011-16) and 52 percent of CARs (2015-16), the time taken for the disposal was beyond this stipulation.

Management stated (September 2016/ February 2017) that complaints took more than ten days for disposal as they were cleared with the involvement of vendors. Most of the cases pertained to bought out items which involve lot of persuasions and follow-ups with vendors. Management assured that adequate measures would be taken to strengthen the quality and utmost care would be exercised to minimise recurrence of such defects in future. Ministry added (May 2017) that as against 28 per cent SARs and 52 per cent CARs disposed beyond ten days during 2011-12 to 2015-16 on an average, 9.31 per cent SARs and 52.50 per cent CARs were disposed beyond 10 days in 2016-17. Ministry stated that a provision was made in Trichy local system to generate a report of SAR cases involving cost recovery from vendors. Besides, filling of the field 'actual cost incurred by the site' has been made mandatory in the BHEL corporate SAR/CAR system in February 2017 to capture the actual cost incurred by the sites in attending the re-work/repair at site. Thus, SAR/CAR cases involving cost recovery from vendors would be effectively dealt with by the units

*Audit appreciates the corrective action taken by the management, effectiveness of which would be verified in future.*

#### **Case Study 2: Loss of ₹24.70 crore due to poor quality of Bushings**

Bushing is a vital component that connects the transformer with the associated electrical system of bulk electrical power transmission. Bushings are used as terminal insulators for transformers/reactors of various ratings. Bushing failure were reported in Generator Transformers (GTs) of ratings above 200 MVA since 2010.

Based on a study, the failure of Bushings was due to the phenomenon called 'Thermal Run away'. BHEL decided (May 2014) to recall all Bushings installed in GTs which had been commissioned during last three years and replace them with equivalent bushings procured from outside sources. Till April 2015 BHEL Bhopal unit procured 236 Bushings (192 Nos. of 420 kV 1250 Ampere rating Bushings and 44 Nos. of 420 kV 2000 Ampere rating Bushings) at a total cost of ₹14.87 crore.

Audit noticed that based on the recommendations of a task-force, the problem of Bushings of higher current application has now been resolved (April 2016). Type-test on such improved Bushings were under progress. However, between October 2013 and January 2015, six GTs under three projects were damaged due to Bushings failure and BHEL had to incur ₹9.83 crore on repair of such damaged GTs. Thus, BHEL suffered loss of ₹ 24.70 crore (₹ 14.87 crore + ₹ 9.83 crore) due to replacement of Bushings and repair of GTs

Ministry stated (May 2017) that the manufacturing process for 420 kV Bushings for GTs has been improved upon by improving the vacuum drying process, and quality of insulating paper by procuring paper from imported sources.

*However, issues relating to failure of Bushings were resolved in 2016 as against the failures reported since 2010, that is, after six years.*

## **6.6 Procurement of material**

BHEL procures materials/ equipment for its manufacturing units/ projects. The following issues were noticed in procurement of material by BHEL.

### 6.6.1 Item-wise quantity variations

As per 'Variation of Contract Value' of General Conditions of Contract (GCC) used for procurement of material by BHEL, prices shall remain firm for any increase or decrease in the order/contract value up to 30 *per cent* within two years unless specified otherwise. In the sample of 155 purchase orders (POs) selected for review in Project Engineering Management/Noida, Audit noticed that only 38 POs included this clause. It was seen that in the contracts where this clause was included, the 30 *per cent* variation was considered vis-à-vis the overall contract value, rather than item-wise. This meant that the positive variation in some items were adjusted against the negative variations in other items. Audit further noticed that 14 POs, where final quantity variations had been approved by management, included 128 items with positive variation beyond 30 *per cent* (ranging from 31.25 to 1950 *per cent*) and 61 items with negative variation beyond 30 *per cent* (ranging from 33.20 to 100 *per cent*). This indicated that the Bill of Quantities (BOQ) was not assessed appropriately.

Ministry stated (May 2017) that considering audit observation, a circular has been issued (April 2017) to the Units/Regions to restrict variations in both contract value and quantities to a minimal level based on past experience.

*Audit appreciates the corrective action in this regard, implementation of which would be reviewed in future audits.*

### 6.6.2 E-procurement in BHEL units

e-Procurement was identified as a priority area in the Strategic Plan 2012-17 of BHEL. In November 2011, a target of 80 *per cent* e-procurement (by value) was set. BHEL Corporate Office instructed (23.03.2013) units to speed-up implementation of e-Procurement and directed that 100 *per cent* single-part bids from 01.04.2013 be issued mandatorily through e-Procurement. Audit noticed that:

- Trichy unit could achieve 60 *per cent* of total procurement through e-Procurement till 2015-16.
- Hyderabad unit could achieve only 8.07 *per cent* of total value of procurement through e-Procurement till 2015-16.
- Bengaluru units (Electronic Division and Industrial Systems Group) could achieve 17.25 *per cent* and 10.72 *per cent*, respectively of total procurements through e-Procurement till 2015-16.

Management explained (February 2017) that during implementation, e-Procurement had its own challenges, viz., variety of templates, customisation requirements for variety of procurements, testing, bug removals, updates, course corrections, tardy vendor response to Digital Signature requirements and resulting change management did affect the actual achievements vis-à-vis targets. To induce faster implementation, stretched targets were included in the Balance Score Cards. Ministry did not offer any comment on this.

*None of the BHEL units could achieve the target envisaged in the Strategic Plan 2012-17.*

## 6.7 Low vendor base for procurement

**6.7.1** As per Purchase Policy 2013, whenever the number of registered suppliers in Product Material Directory (PMD) is less than four, Management should resort to registration of additional

vendors through publication on website of the unit and BHEL and the fact of such publication on website are to be advertised at least once in a year in minimum two national dailies. It was, however, noticed that during 2012-13 to 2015-16, three BHEL units (PEM/Noida, Ranipet, Trichy) finalised 5292 orders valuing ₹2324.69 crore<sup>34</sup> based on one/two/three vendor base. Another unit, Industrial Systems Group (ISG)/Bengaluru, did not issue advertisements inviting applications for registration of vendors except once in the year 2011-12.

Ministry stated (May 2017) that most of the procurements were made through open tendering and all qualified vendors against open tender were approached for vendor registration and accordingly, registration in PMD was done. However, advertisement for inviting vendor registration for one/ two/ three material category shall be published from this year onwards.

*The assurance of the Ministry is noted and would be verified in future audits.*

### **6.7.2 Delay in processing vendors' registration**

As per Supplier Evaluation, Approval and Review Procedure (SEARP) 2010, on receipt of a potential vendor's self-assessed form, evaluation should be completed within three months in case visit to the vendor premises is not required, and within four months in case a visit to the vendor premises is required. Audit reviewed records related to registration of vendors and noticed considerable delay in registration of vendors

- **Project Engineering Management (PEM), Noida:** During 2012-13 to 2015-16, PEM registered 343 new vendors. However, 255 vendors (74.34 per cent) were registered after three months' time. Management took up to 341 days more than prescribed time for registration of vendors. Besides, percentage of vendors registered within prescribed time decreased from 41.34 per cent in 2013-14 to 21.11 per cent in 2014-15 and 14.08 per cent in 2015-16, in spite of repeated emphasis of Management Committee<sup>35</sup> for faster disposal of pending applications within stipulated time frame of SEARP.
- **Boiler Auxiliary Plant (BAP), Ranipet:** During 2013-14 to 2015-16, registration of 50 per cent (103 out of total 206 cases) vendors were finalised with delay of more than 90 days.
- **High Pressure Equipment Plant (HPEP), Hyderabad:** Out of 926 applications received during 2011-12 to 2015-16 for registration, 29 were processed taking a period of more than 2 to 4 years as against the prescribed period of three months. In 124 cases, registration process took 1 to 2 years and in 243 cases, registration was completed in a period of 6 months to 1 year.

Management stated (February 2017) that as per SEARP, only 15 days were to be given to suppliers for submission of documents. However, many suppliers do not submit documents for registration within this time frame. After recommendation of survey by respective Material Identification and Supplier Control Committee (MISCC), availability and readiness of supplier was also the reason for delay in registration. However, to reduce delay in registration of new vendor, steps like development

---

<sup>34</sup> Project Engineering Management/Noida- 90 POs valuing ₹154.66 crore, Boiler Auxiliary Plant/Ranipet- 2325 POs valuing ₹1548 crore, High Pressure Boiler Plant/Trichy- 2877 POs valuing ₹622.03 crore

<sup>35</sup> 287<sup>th</sup> Management Committee meeting held on 19.8.2011 emphasized quick liquidation of pending vendor registration and expeditious disposal of large number of development and trial codes and implementation of guidelines in SEARP. 288<sup>th</sup> MCM held on 22.9.2011 reiterated for faster disposal of pending applications within stipulated time frame in SEARP. 294<sup>th</sup> MCM held on 11.4.2012 stated that specific targets be drawn to add vendors in single vendor/two vendor/three vendor categories and high value items. 330<sup>th</sup> MCM held on 22-25 July 2015 desired that there was need for a system of auto registration/rejection beyond 3 months

of IT system to monitor and ensure that registrations within time have been initiated. Ministry did not offer any comment.

*Audit noticed that in BAP, Ranipet, operation of an online system from 01 April 2015 for vendor registration did not result in desired improvement as 91.17 per cent vendors were registered after 90 days in 2015-16.*

### **6.7.3 Delayed action for expansion of vendor base for Auxiliary Oil Pump**

Auxiliary Oil Pumps (AOPs) are critical for successful commissioning and operation of thermal power plants as any outage of AOP will lead to consequential damages to main turbine. It was observed that various projects (NTPC and Non-NTPC) commissioned by BHEL complained high level of vibrations in the AOPs even during warranty period. Since the supplier of AOPs, M/s Kirlosker Brothers Limited (KBL), did not undertake any rectification measures, BHEL replaced 19 out of 37 AOPs and incurred extra cost of ₹1.27 crore. Audit noticed that though BHEL took up the matter with KBL, no rectification measures were proposed and undertaken by KBL for more than three years. Despite this, BHEL did not explore alternative suppliers and continued to depend on KBL. Only in January 2015, BHEL decided to replace the AOPs.

Management stated (February 2017) that one more vendor (M/s KSB AG) was added in the vendors list for supply of AOPs. Ministry stated (May 2017) that repair for two pumps have been undertaken and after successful testing of these repaired pumps, repair of remaining 16 AOPs shall be undertaken by M/s KBL at the rate of two AOPs per month (total 8 months).

## **6.8 High Purchase Indent to Purchase Order cycle**

**6.8.1** As per Purchase Policy, all BHEL units should evolve and fix norms for purchase lead time<sup>36</sup> for different types of materials/components, depending on complexity of product. BHEL Board, while approving (November 2011) Strategic Plan 2012-17, directed to reduce Purchase Indent (PI) to Purchase Order (PO) cycle time of 75 per cent orders in 60 days by 2016-17. In the sample selected by Audit, the following was noticed:

- **PEM Noida:** Out of 155 orders, ten orders (6.45 per cent) were converted from PI to PO within 60 days.
- **Power Sector Northern Region (PSNR) Noida:** Out of 64 orders, 11 orders (17.19 per cent) were converted from PI to PO within 60 days
- **Power Sector Eastern Region (PSER) Kolkata:** Out of 89 orders, 32 orders (35.95 per cent) were converted from PI to PO within 60 days.
- **BAP Ranipet:** Out of 2879 orders, 697 orders (24.21 per cent) were converted from PI to PO within 60 days.

Management stated (February 2017) that PI to PO conversion depends on the complexity of the items being procured by individual units and spectrum of purchases in BHEL varies widely. Ministry stated (May 2017) that PI to PO conversion in 60 days benchmark was 63.90 per cent in 2013-14, 62.40 per cent in 2014-15, 63 per cent in 2015-16 and 64.30 per cent in 2016-17.

*The reply, however, has to be viewed against the fact that the conversion of PI to PO in the sample examined in audit was much lower than the target (75 per cent) set in the Strategic Plan.*

<sup>36</sup> Time from the date of indent raising enquiry, order placement and receipt of material

## **6.8.2 Award of Balance of Plant packages beyond CEA prescribed timeframe**

As delay in finalisation of Balance of Plants (BOPs) packages would adversely affect commissioning of units of power projects later, CEA had instructed (February 2009) BHEL to finalise BOP packages within 7-10 months of zero date. It was, however, observed that in 17 projects, PEM Noida awarded 32 BOP packages 12 to 75 months after zero date. It was noticed that out of 17 projects against which BOP packages were awarded with delay, ten projects were completed with delay ranging from three months to 38 months, while the remaining seven projects were still under construction.

Management stated (February 2017) that in case of BOP items, the requirements were finalised after receipt of inputs from various units/regions, site progress etc. Further, there were multiple interfaces with customers which involved necessary approvals. Ministry added (May 2017) that online input exchange system has been revisited and implemented covering all running projects and catering to all major units.

*Expeditious sharing of inputs among various units/regions of BHEL and co-ordination with customer need to be ensured for timely finalisation of BOP packages.*

## **6.9 Limited tendering**

Strategic Plan 2012-17 envisaged efficiency of operation by ensuring availability of inputs on time at competitive cost through scale up of procurement activities, competitive buying, tie-up for critical inputs and healthy vendor base. Purchase Policy of BHEL further provided for open tendering in all cases where order value is above ₹20 crore. Audit noticed that:

- In PEM Noida, out of 155 purchase orders selected, only 20 purchase orders (i.e., 12.90 per cent) were finalised through open tender. 13 cases ought to have been finalised through open tender, their value being more than ₹20 crore. PEM Noida, however, did open tendering in four cases.
- In HPEP Hyderabad, out of 80 purchase orders, only two orders (i.e., 2.50 per cent) were finalised through open tender. No open tendering was resorted to in 20 POs which were over ₹20 crore each.

Management stated (February 2017) that BHEL does not float open tender for every requirement since the vendor registration process was open throughout the year. All vendors get an opportunity to get inducted into the PMD and thereby supply to BHEL. Ministry added (May 2017) that Units/Regions were being advised to mandatorily include requirement of registration of new suppliers in all press advertisement for open tenders.

*The reply does not address non-compliance to the procurement policy of the Company.*

## **6.10 Supplier/Vendor evaluation**

As per Supplier Evaluation, Approval and Review Procedure (SEARP), supplier performance was to be assessed by taking into account quality (weightage: 60), delivery (weightage: 30) and service (weightage: 10) for each consignment/purchase order. If the score of a vendor is less than 60, business dealings with that supplier will be suspended. Audit reviewed the supplier performance system and the observations are discussed below:

**6.10.1 PEM Noida:**

- The sample of 155 POs selected for audit included 98 POs for Bought out Items (BOI) and 57 POs for Balance of Plants (BOPs). While execution of BOI packages was done through PEM, execution of BOP packages was done through Power Sector Regional Offices. Audit observed that PEM evaluated performance of BOI vendors and score obtained by the suppliers were used for deciding on future awarding. However, similar system was not found in place for evaluation of BOP vendors.
- Out 98 BOI packages awarded by PEM Noida, 80 packages were completed by 31 March 2016. 31 out of these 80 packages were completed with delays ranging from one to 59 months. However, poor delivery rating<sup>37</sup> in case of these vendors did not impact their suitability for further awarding as minimum score required (60 marks) for award consideration was met through 'Quality' parameter only.

Accepting the observation, Management stated (February 2017) that issues regarding weight of quality, delivery and service parameters were under review for improvement. Management also stated (March 2017) that a task force has been constituted to formulate processes for performance evaluation of BOP vendors. Ministry did not offer any comments.

*Audit appreciates the corrective measure proposed by the Management.*

**6.10.2 Trichy unit:**

During 2011-12 to 2015-16, Trichy unit placed 28755 POs on 1130 vendors. Review of Vendor Performance Rating (VPR) revealed that in 110 POs awarded to 68 vendors, the vendors had VPR of less than 60 *per cent*. However, 57 of these 68 vendors were not suspended from future award of purchase orders. Though the Trichy unit is on SAP, necessary control parameters to block the vendors with poor performance and prohibiting further awards to them were not in place.

Management stated (December 2016) that VPR was calculated annually for purchases made in the preceding year and not PO-wise as analysed by Audit. The Supplier Development Cell would initiate suitable provision in SAP module to block vendors with less than 60 *per cent* score from getting further POs. Management further stated (February 2017) that all vendors with less than 60 *per cent* rating (for the years prior to 2015-16) have since been weeded out.

*Audit appreciates the corrective action taken by the management.*

---

<sup>37</sup> 0-5 in three cases, 5-10 in four cases, 10-15 in two cases, 15-20 in eight cases and 20-30 in 13 cases