

Chapter-III

Power Sector- Compliance Audit Observations

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3 Power Sector- Compliance Audit Observations

Significant audit findings emerging from test check of transactions of State Government Companies of the power sector are included in this Chapter.

Haryana Power Generation Corporation Limited

3.1 Avoidable expenditure

The Company paid ₹ 27.29 crore as compensation for short lifting of coal during 2016-17, as it did not initiate timely action for reduction of Annual Contracted Quantity of coal with Coal India Limited in line with the revised operational requirement of its Panipat Thermal Power Station.

Haryana Power Generation Corporation Limited (Company) had long term Coal Supply Agreements (CSAs) with three subsidiary companies of Coal India Limited (CIL) for a total Annual Contracted Quantity (ACQ) of 66 lakh Tonne¹ to meet out the coal requirements of eight units (1,360 MW capacity) of its Panipat Thermal Power Station (PTPS). As per terms and conditions of the CSAs, the purchaser was liable to pay compensation for short lifting of coal, if in any year the level of lifting fell below 90 *per cent* of the ACQ.

The Company, as per decision taken (9 December 2015) by the State Government, phased out Units 1 to 4 (440 MW capacity) of PTPS with effect from 9 December 2015 as these units had outlived their useful commercial lives. These units were not getting schedule² due to their high generation costs and were finally closed by January 2016. The closure of the units entailed lesser requirement of coal. Consequently, the Company should have taken simultaneous action to reduce its ACQ to avoid payment of compensation for short lifting of coal in terms of the CSA.

Audit observed that the Company did not assess the requirement of coal in wake of the reduction in plant capacity and initiate proactive measure for reduction of ACQ. It was only on 24 June 2016, when CIL unilaterally decided to reduce ACQ of PTPS from 66 lakh Tonnes to 44.65 lakh Tonne as also change the quantity to be supplied by Central Coalfields Limited (CCL) and Bharat Coking Coal Limited (BCCL). The Company, in a meeting with CIL, emphasised (29 July 2016) that ACQ of CCL for PTPS be kept intact and, in lieu, the ACQ of BCCL be reduced correspondingly. In the meantime, CCL and BCCL requested (July-August 2016) the Company for execution of side agreements for reduced ACQ as decided by CIL in June 2016.

¹ Bharat Coking Coal Limited (BCCL): 33.50 lakh Tonne, Central Coalfields Limited (CCL): 29.50 lakh Tonne and Western Coalfields Limited (WCL): 3.00 lakh Tonne.

² Merit order prepared by DISCOMs for purchase of power on basis of cost.

The Company decided (9 September 2016) to sign side agreement with BCCL for reduced quantity of 22.65 lakh Tonne after obtaining approval from State Government which was received (6 January 2017). The side agreement was executed (18 January 2017) with BCCL for reduced ACQ of 22.65 lakh Tonne. The CIL further rationalised (March 2017) the coal sources of PTPS and additional side agreements with CCL (for reduced ACQ of 26.65 lakh Tonne) and BCCL (for further reduced ACQ of 15.00 lakh Tonne) were signed on 30 March 2017 and 12 May 2017 respectively effective from 1 April 2017. Thus, full benefit of reduced ACQ, in the form of lesser compensation, could be availed from 2017-18 onwards.

The Company paid ₹ 58.07 crore to BCCL on account of compensation for short lifting of coal for financial year 2016-17. Had the Company taken up the matter proactively with CIL for reduction of ACQ immediately after de-commissioning of its units in December 2015 and signed the side agreements w.e.f. 1 April 2016 to the required level of 15 lakh Tonne, the compensation payment of ₹ 27.29 crore³ for short lifting in 2016-17 could have been avoided.

The Government stated (June 2019) that approval of Central Electricity Authority regarding phasing out of old units was pre-requisite and the contracted quantity of coal could have been reduced thereafter.

The reply is not acceptable as the State Government, in December 2015, decided to phase out units 1 to 4 of PTPS after Central Electricity Authority's recommendation of September 2015. Besides, Central Electricity Authority's approval of April 2016 was only for deletion of capacity of retiring units from installed capacity of the country which did not prevent the Company to take up revision of ACQ with CIL. It could be seen that the Company failed to secure its interest with prompt initiatives, and depended entirely on initiatives of the CIL. Due to this inactive approach, revision of the required quantity could not take place during the year 2016-17, resulting in payment of penalty to the benefit of CIL.

It is recommended that responsibility may be fixed for the delayed action of the Company in the matter.

3.2 Injudicious Procurement of Generator Transformer

The Company made imprudent procurement of Generator Transformer worth ₹ 9.35 crore for its Panipat Thermal Power Station.

Haryana Power Generation Corporation Limited (Company) issued (June 2014) Purchase Order (PO) for procurement of a new Generator Transformer⁴ (GT) from Bharat Heavy Electricals Limited (BHEL) at a cost of ₹ 7.64 crore

³ ₹ 58.07 crore (compensation for short lifting actually paid to BCCL for 2016-17 with ACQ of 22.00 lakh MT) – ₹ 30.78 crore (compensation which would have been paid had the ACQ been reduced to 15.00 lakh MT)

⁴ Generator Transformer is the critical link between power station and transmission network. It connects the generator output to the grid. There is one GT for each generating unit.

(exclusive of freight and taxes), for Unit-5⁵ (with alternate arrangement for use in Unit-6⁶) of Panipat Thermal Power Station (PTPS) in view of the breakdown (April 2013) of existing GT of Unit-5 and its aging factor. The terms and conditions of the PO provided that BHEL would deliver the GT strictly as per delivery schedule and if it failed to deliver the same within the delivery period, the Company would have the right to refuse to accept the supply even on reduced rates. BHEL was to deliver the GT by 8 October 2015. BHEL, however, could only offer the GT for pre-despatch inspection on 15 December 2015 *i.e.*, after the scheduled delivery period.

In the meantime, the Company submitted (November 2015) a proposal to Haryana Electricity Regulatory Commission (HERC) for carrying out Residual Life Assessment of Boiler Turbine Generator for renovation and modernisation of the Unit-5 for its approval. The HERC, however, rejected (March 2016) the Company's proposal stating that substantial capital expenditure required to be incurred on renovation and modernisation of such an old unit would not be justified in the light of revised emission standards notified (December 2015) by the Ministry of Environment, Forest and Climate Change, Government of India.

In May 2016, the Company observed that Units-5 and 6 of PTPS remained shut down for six to eight months period due to low demand and the purchase of GT would involve high financial implication, therefore, asked (May 2016) BHEL to confirm whether there was requirement of this GT in any other power utility. BHEL stated (May 2016) that the subject GT would not suit the requirement of any other power utility. As such, the Company decided (August 2016) to accept the delivery of the GT citing contractual obligation, though it could have refused to accept the same due to delayed offer. The BHEL supplied the GT on 26 October 2016. As the warranty period (18 months) of the GT was going to expire on 23 March 2018, the Company installed (9 March 2018) the new GT on Unit-6 by replacing the existing working GT at a cost of ₹ 9.35 crore⁷ after 16 months of its receipt in PTPS.

Audit observed that the Company was well aware of the fact that the power demand scenario had changed entirely because of availability of power at cheaper rates⁸ to the state power distribution companies which would have resulted in unit remaining boxed up despite this investment. Further, HERC had clearly rejected renovation and modernisation expenditure on the old Unit in March 2016 and the Company was within its rights to refuse acceptance of delayed delivery as per the terms of PO but it did not exercise its mandate. Thus, the decision of the Company to accept delayed delivery of the GT with reduced warranty period, was imprudent which resulted in avoidable expenditure of ₹ 9.35 crore.

⁵ Commissioned on 28 March 1989.

⁶ Commissioned on 31 March 2001.

⁷ Basic price: ₹ 7.64 crore, Excise duty: ₹ 95.50 lakh, Central Sales Tax: ₹ 17.19 lakh, Freight: ₹ 22.50 lakh and dismantling of existing GT and erection, testing and commissioning of new GT: ₹ 35.99 lakh

⁸ Four units of Sasan Power Limited Ultra Mega Power Project, in which Haryana's allocation was 445.5 MW, were commissioned in April 2014, May 2014, December 2014 and March 2015. In May 2015, per unit variable cost of power generated by SASAN was ₹ 1.15 while it was ₹ 3.71 for unit 5 and 6 of PTPS.

The Government stated (May 2019) that decision to accept GT after expiry of its scheduled date of delivery was reviewed prudentially keeping in view the circumstances prevailing at that time and it was decided by the Management to procure this GT for further use in Unit-6 foreseeing more running of Unit-6 than Unit-5.

The reply is not acceptable because by the time BHEL offered (December 2015) the GT for pre-despatch inspection, electricity demand scenario had changed because of availability of power at more competitive rates. Further, originally installed GT of Unit-6 had completed only 16 years out of total 25 years useful service life and was running trouble free. As such, there was no requirement for a new GT. Thus, by accepting delayed supply, the Company acted in disregard to its rights under the PO and its own financial interest as well.

It is recommended that Management may fix the responsibility for imprudent procurement of GT.

Dakshin Haryana Bijli Vitran Nigam Limited

3.3 Undue benefit to contractor

The Company changed the basis for calculation of AT&C losses as agreed in the contract and extended undue benefit of ₹ 1.97 crore to the contractor.

To reduce Aggregate Technical and Commercial (AT&C) losses, Dakshin Haryana Bijli Vitran Nigam Limited (Company), after inviting e-tenders, appointed (April 2016) M/s Raj Associates, Sirsa (contractor) as retail supply franchisee for Rania city feeder under operation circle Sirsa, on additional revenue sharing basis for a period of one year (2016-17). The terms of the Notice Inviting Tender (NIT)/work order, *inter-alia*, provided that:

- the contractor may carry out its own due diligence to validate the data of monthly realisations, collection efficiency and AT&C losses and the Company and the contractor would jointly carry out the exercise for calculation of base line data.
- before submitting the bid, the bidder may inspect and examine the area involved and satisfy itself regarding field conditions and no claim for change in bid or terms and conditions would be entertained on the ground that the conditions were different than what contemplated.
- after finalisation of base loss levels, the same would be reduced by 10 *per cent* in first quarter and by five *per cent* each in remaining three quarters. In consideration, the Company would share with contractor 30/20 *per cent* of incremental revenue in case of achievement/partial achievement of loss reduction targets.
- in case of increase in losses from base AT&C loss level or non-achievement of target losses in line with reduction trajectory, penalty as per prescribed formulae was to be recovered from the contractor. The

incentive/penalty for achievement/non-achievement of loss reduction target was to be assessed on quarterly basis.

The base AT&C loss level was fixed at 44.4 *per cent*⁹ jointly by the Company and the contractor. However, the actual AT&C losses in first and second quarters of 2016-17 were 58.45 *per cent* and 65.16 *per cent*, respectively. As such, penalty of ₹ 2.53 crore¹⁰ was leviable on the contractor as per terms of work order. Since in the third and fourth quarters such losses were recorded as (-) 0.02 *per cent* and 13.04 *per cent*, respectively, incremental revenue to be shared with contractor for these quarters was ₹ 0.40 crore¹¹. Thus, a net amount of ₹ 2.13 crore (₹ 2.53 crore - ₹ 0.40 crore) was to be recovered from the contractor. The Company asked (12 April 2017) the contractor to deposit the penalty amount within 15 days.

The contractor, instead of making payment, represented that he has been penalised on the basis of quarterly statement whereas base line data of the contract pertain to complete year. The Company considered that in view of seasonability involved in DISCOM operations, loss level in every quarter should be compared with that of corresponding quarter of previous year and decided (8 December 2017) to impose penalty of ₹ 15.74 lakh only which was deposited (2 April 2018) by the contractor.

Audit observed that the Company extended undue favour to the contractor by reducing penalty amount from ₹ 2.13 crore to mere ₹ 15.74 lakh by changing the terms and conditions of the contract afterwards. The contractor was aware of AT&C losses data from April 2015 to January 2016, based on which base AT&C loss was worked out, as the same was also indicated in the contract agreement. The terms of NIT clearly stipulate the contractor to carryout due diligence and inspect the field conditions before signing the contract. Any relaxation in the terms of contract agreement, afterwards, tantamount to undue favour.

The Management stated (June 2019) that on representation by the contractor, the BoDs decided to allow comparison of quarterly AT&C loss with AT&C loss of the same quarter of previous year instead of base line data for the purpose of levy of penalty as well as for sharing incremental revenue. The reply is not acceptable as the Company has changed the very basis of the calculation for AT&C losses and the base loss calculation done at the start of the contract (44.4 *per cent*) became redundant, which is a clear violation of the contract agreement.

The matter was referred (October 2019) to the Government and the Company; their replies were awaited (August 2020).

It is recommended that the Company before entering into a retail supply franchisee agreement ensure the justification of the conditions of contract and strictly follow the same once an agreement is concluded.

⁹ Average of monthly AT&C losses from April 2015 to January 2016 (10 months).

¹⁰ ₹ 0.85 crore for first quarter and ₹ 1.68 crore for second quarter.

¹¹ ₹ 0.27 crore for third quarter and ₹ 0.13 crore for fourth quarter.

3.4 Acceptance of cables not conforming to agreed specifications

The Company accepted 35.268 km cables valuing ₹ 53.15 lakh not conforming to specifications in the Purchase Order.

DHBVNL (Company) placed (January and March 2016) Purchase Orders (POs) on a firm for procurement of Low Tension (LT) aerial bunched cable of different description and quantities with cross link polyethylene insulations, at a total cost of ₹ 2.98 crore on rate contract basis. The material was to be supplied in five equal lots of 20 *per cent* of ordered quantity. The terms of conditions of PO provided that each lot of cables would be accepted and issued to field office only after passing of sample by a National Accreditation Board for Testing & Calibration of Laboratories (NABL) accredited Laboratory. However, in case of urgency, the material could be issued before receipt of test report, after obtaining an undertaking from the vendor to bear the replacement cost in case of failure of sample. In addition, Liquidated Damages (LD) @ 10 *per cent* of cost of rejected lot was to be imposed.

Out of 56.689 km cables valuing ₹ 67.53 lakh received in five lots, 25.464 km cables worth ₹ 42.02 lakh were issued to field offices before receipt of NABL test reports on the basis of the undertaking (September 2016) from the firm. The PO wise quantity and value of cables received, used and lying in the stores of the Company is detailed in the table below:

Table 3.1- Details of cables received, used and lying in the stores

PO No. and Date	Total Material received		Material used in the field before NABL test report		Unused Material lying in the stores	
	Quantity (km)	Cost (₹ in lakh)	Quantity (km)	Cost (₹ in lakh)	Quantity (km)	Cost (₹ in lakh)
DH-1290 of January 2016	40.786	59.42	23.018	40.77	17.768	18.64
DH-1313 of March 2016	15.903	8.11	2.446	1.25	13.457	6.87
Total	56.689	67.53	25.464	42.02	31.225	25.51

Source: Data compiled from Company's records

Audit observed that the samples of cables of these lots failed (October 2016) as their insulation melted before specified time limit of 15 minutes. Though the Company intimated (October 2016) firm about the failure of subject samples, but it did not ask the firm to replace the entire stock of cables, *i.e.*, used as well as unused cables. However, subsequently, it issued (January 2017) notices to firm to deposit cost of only unused rejected material of 31.225 km cables (₹ 25.51 lakh) and LD at 10 *per cent* of cost of entire rejected material. As the firm did not comply, the Company encashed (May 2017) its Bank Guarantee (BG) of ₹ 44.79 lakh.

In the meantime, the firm filed (21 January 2017) a suit pleading that the Company did not provide them any opportunity to rectify defects and since the Company could not have rejected part quantity, encashment of the BG was illegal. However, in an 'out of court settlement' (June 2018), the firm agreed for LD charge at 10 *per cent* of the cost of entire rejected material (₹ 6.75 lakh)

and cost of unused rejected material (₹ 25.51 lakh) for revocation of BG invocation by the Company. During lifting of rejected cables by the Firm from Company's stores, it was revealed (December 2018) that 9.804 kms rejected cables (valuing ₹ 11.13 lakh), earlier reported to be lying in Nigam's Jind store, had been issued to field offices even after Company's directions (October 2016) to not to issue these cables.

The Company did not exercise its right to recover the replacement cost for the entire lot for which sample had failed the NABL test including the erected cables despite having the supplier's undertaking, and accepted 35.268 km substandard cables valuing ₹ 53.15 lakh by charging only 10 *per cent* LD, which, as per terms of PO, was leviable in addition to replacement of defective material. Further, by using substandard cables, the Company compromised effectiveness and safety of its infrastructure.

The Company stated (November 2019) that dismantlement of cables failed in NABL test was not possible as it got mixed up with healthy cables and were used in field in pieces. Further, warranty period of subject cables was up to November 2017 and no complaint had been received from the field. The Management reply is not acceptable as warranty period is for material conforming to norms and non-receipt of complaint so far does not guarantee that there would be no problem due to intrinsic defect of cable during its useful life of 25 years. Further, the Company while exercising right under PO to use material before NABL test results based on Firm's undertaking to bear replacement cost in case of sample failures, should have ensured enforcing the undertaking and safeguarded its interest.

The matter was referred (June 2019) to the Government; their reply was awaited (August 2020).

It is recommended that the Company may review its standard operating process relating to enforcement of undertakings obtained from suppliers to serve its commercial interest.

3.5 Loss due to non-revision of Security Deposit of consumers

The Company had to suffer a loss of ₹ 72.50 lakh due to not maintaining security deposit in line with HERC regulations.

Haryana Electricity Regulatory Commission (Electricity Supply Code) Regulations, 2014¹² provide that at the beginning of a financial year, the licensee (*i.e.*, DISCOM) would review the consumption pattern of consumer from April to March of previous year for adequacy of security deposit (Advance Consumption Deposit - ACD) and the customer would be required to maintain a sum equivalent to their average payment¹³ for the period of two billing cycles.

Audit observed the following at Operation Circle, Sirsa of Dakshin Haryana

¹² Notified on 8 January 2014.

¹³ Average payment shall be equal to average of actual bills paid in the last financial year.

Bijli Vitran Nigam Limited (Company):

- (i) A large supply consumer¹⁴ was granted (February 2013) connection with connected load of 1,100.395 kW which was extended (October 2013) to 1,797.159 kW. The Company got deposited total ACD of ₹ 13.49 lakh for this connection, however, as per HERC Regulations, 2014, the ACD was required to be revised as on 1 April 2014 on the basis of actual bills paid during previous financial year which worked out to ₹ 57.49 lakh. The consumer defaulted in payment of dues from December 2014 and the Company disconnected the connection on 30 January 2015. By that time, defaulting amount had increased to ₹ 134.07 lakh and after adjusting the available ACD of ₹ 13.49 lakh, the unpaid amount worked out to ₹ 120.58 lakh.
- (ii) Similarly, another large supply consumer¹⁵ was granted connection in June 1992 with connected load of 822.766 kW, which was extended (September 2012) to 1,119.301 kW. The Company was having total ACD of ₹ 20.35 lakh which was worked out in December 2013 but collected in installments up to November 2014. However, as per HERC regulations 2014, the ACD was required to be revised on 1 April 2014 on the basis of actual bills paid during previous financial year which worked out to ₹ 48.85 lakh. The consumer defaulted in payment of dues from December 2014 and the Company disconnected the connection on 30 January 2015. By that time, total dues had increased to ₹ 50.24 lakh and after adjusting the available ACD of ₹ 20.35 lakh, the total unpaid amount worked out to ₹ 29.89 lakh.

To recover its unpaid electricity charges of ₹ 150.47 lakh (₹ 120.58 lakh and ₹ 29.89 lakh), the Company issued (4 March 2015) notices to the concerned surety's of the respective connections. The surety's however moved (March 2015) the Court praying for restraining the Company from taking coercive action against them and transferring the outstanding defaulted amount of electricity charges to their account, which was granted (July 2015). The surety's also became defaulters from January 2017 and November 2017 and they were also disconnected by the Company in January 2018. Since then, no action has been initiated by the Company for recovery of its dues in terms of Sales Manual (Instruction No. 7.3) which prescribes recovery of dues as arrears of land revenue under Haryana Electrical Undertakings (Dues Recovery) Act, 1970.

Audit observed that though the Company was required to maintain an ACD of ₹ 106.34 lakh (₹ 57.49 lakh and ₹ 48.85 lakh) from both the consumers during 2014-15 on the basis of consumption pattern of the year 2013-14, the Company had ACD of only ₹ 33.84 lakh (₹ 13.49 lakh and ₹ 20.35 lakh). It did not obtain the additional ACD of ₹ 72.50 lakh (₹ 106.34 lakh - ₹ 33.84 lakh) from the consumers as per HERC regulations. Had the Company revised the ACD in April 2014 as per HERC regulations, the non-recovery could have been reduced to the extent of ₹ 72.50 lakh.

¹⁴ Consumer Account No. AHHT-0001.

¹⁵ Consumer Account No. DRHT- 0003.

The Management stated (August 2019) that the ACD of consumers was already under revision as per old instructions and new regulations were notified in January 2014 but circulated on 1 April 2014 by SE/Commercial. Then, it was presumed that the next revision would be on 1 April 2015. Further, keeping in view the large number of consumers, it was not easy to revise/update the ACD of every consumer, but now, the ACD is being automatically revised by the billing system.

The reply is not acceptable because HERC Regulations, 2014 (notified on 8 January 2014) had superseded the Regulations of 2005 and were applicable from the notification date itself and not from the circulation of the same by SE/Commercial. Further, the Company should have revised the ACD of large supply consumer manually to safeguard its financial interests.

The matter was referred (June 2019) to the Government; their reply was awaited (August 2020).

It is recommended that the Management should evolve such a system so that ACD of each consumer is revised at its due time and fix the responsibility of the concerned officials/officers for non-revision of ACD.

Uttar Haryana Bijli Vitran Nigam Limited

3.6 Infructuous expenditure on unmanned sub-stations

The Company incurred avoidable expenditure of ₹ 11.14 crore on construction of unmanned sub-stations and their subsequent conversion into conventional ones.

On the proposal of its field offices, the Company approved (January 2007 - March 2009) creation of unmanned sub-stations without conducting any techno-economic study and constructed 15 Nos. 33 kV unmanned sub-stations at a total cost of ₹ 34.46 crore between August 2008 and April 2012. These sub-stations were to be linked to a remote controlled monitoring station using general packet radio service¹⁶ routers. The configuration software would automatically carry out ON/OFF operations, up-load the event/data and send message to the concerned field staff in case of call out by means of Short Messaging Service (SMS), voice call, e-mail *etc.*

The Company noted (March 2017) a general problem in the field offices to up-keep and maintain these sub-stations and difficulty to diagnose/repair any fault in the sub-station due to lack of expertise in the field offices. The Company, therefore, decided (October 2017) to convert six of these unmanned sub-stations into conventional type and awarded (May 2018) a work order at a cost of ₹ 6.22 crore. We observed that one unmanned sub-station was costlier by ₹ 41 lakh in comparison to conventional type at the time of their construction.

¹⁶ It is a cost effective packet oriented wireless data communication service which provides higher data transfer speed than fixed telecommunication networks. It provides instant connection and immediate data transfer. It also provides internet applications over mobile.

Thus, due to commissioning of unmanned sub-stations without conducting any techno-economic study, the Company had to incur an avoidable expenditure of ₹ 11.14 crore¹⁷.

The Management stated (December 2019) that earnest efforts were made to assimilate the new technology for creating robust electrical network within the State. However, due to non-availability of replacement for defective equipments in local market, original equipment manufacturer asking for more time and rates, annual maintenance contract related issues and frequent trippings and breakdowns, the Company decided to shift the functioning of unmanned sub-stations into conventional mode.

The reply is not acceptable as before going for the new technology, the Company could have done a feasibility study and the issues of replacement for defective equipments *etc.* could have been anticipated and addressed through suitable provisions in the contract with original equipment manufacturer. Moreover, the Company could have commissioned one unmanned sub-station on pilot basis instead of commissioning 15 sub-stations in one go.

The matter was referred (July 2019) to the Government; their reply was awaited (August 2020).

It is recommended that the Company may fix responsibility for commissioning of 15 sub-stations in one go instead of on a pilot basis.

3.7 Inadequacy of Automatic Power Factor Capacitors

The Company had to bear reactive energy charges of ₹ 59.83 crore due to inadequacy of functional Automatic Power Factor Capacitors.

An Automatic Power Factor Capacitor (APFC) is an electrical device which improves power factor¹⁸ by regulating current flow and voltage. The Indian Electricity Grid Code seeks the participants in the system to plan, develop, maintain and operate the power system in the most secure, reliable, economic and efficient manner. The Company appointed (December 2013) a consultant firm to carry out survey of all its 183 nos. 33 kV Sub-Stations (SSs) to identify the defects in existing APFCs. The consultant report showed that capacitor bank at only 17 SSs were functioning successfully. The Company floated (September 2014) tender for repair/replacement of APFCs. However, due to non-participation of bidders the same could not materialise.

Thereafter, the Company conducted another survey (July 2018) on the working of APFCs in 309 nos. SSs through its own Metering and Protection office. This study showed that APFCs in only 67 SSs (21.68 *per cent*) were functional; while in remaining 242 SSs (78.32 *per cent*) were damaged.

¹⁷ ₹ 6.22 crore on conversion of six unmanned SSs into conventional type SSs and ₹ 4.92 crore @ ₹ 41 lakh for 12 sub-stations (out of 15, three SSs were transferred to DHBVNL) being extra cost of an automatic SS as compared to conventional SS in 2009-10.

¹⁸ The power factor of an AC electrical power system is defined as the ratio of the real power absorbed by the load to the apparent power flowing in the circuit.

Audit noticed that even after two surveys, the Company did not take any action for repair of defective APFCs (March 2019). Due to inadequate functioning APFCs, the Company had to bear reactive energy¹⁹ charges of ₹ 59.83 crore during 2014-15 to 2018-19 which could have been avoided if the Company had taken action to install adequate APFCs and repair the damaged ones.

The Company stated (December 2019) that it had made mandatory to install APFCs in all newly created/augmented sub-stations from 2009-10. All non-operational APFCs are being made operational for which a NIT for procurement of new APFCs panels and repair of non-functional APFCs has been floated in March 2020.

The reply, does not explain continuing with faulty and non-functional APFCs reported in both the surveys, and lack of prompt action on the survey report which led to the incidence of reactive energy charges of ₹ 59.83 crore during 2014-15 to 2018-19.

The matter was referred (July 2019) to the Government; their reply was awaited (August 2020).

It is recommended that the Company may take action to install adequate APFCs and repair the damaged ones to avoid payment of reactive energy charges.

¹⁹ It is the power present in the power supply which does not do any useful work but simply moves back and forth in the power system lines.

