Part - I

Chapter – II
Compliance Audit observations relating to Power Sector Undertakings

Chapter-II

Compliance Audit observations relating to Power Sector Undertakings

Audit of Transactions

Important audit findings emerging from test check of transactions of State Government companies of the power sector have been included in this chapter.

Punjab State Power Corporation Limited

2.1 Unjustified payment of oil consumption based generation incentive

Failure of the Company to align its oil consumption based generation incentive policy with PSERC norms resulted in unjustified payment of ₹ 19.96 crore to its employees.

Punjab State Power Corporation Limited (Company)[1] has an incentive scheme, wherein its employees are paid a percentage of pay linked to consumption of oil in power generation.

The scheme, as amended in December 1998 envisaged payment of incentive at the rates mentioned below:

Sl. No.	Oil Consumption (ML/KWH)	Incentive as percentage of Pay
1.	5.0	1 *per cent* of Pay
2.	4.0	2 *per cent* of Pay
3.	3.0	3 *per cent* of Pay
4.	2.5	4 *per cent* of Pay
5.	2.0 and below	6 *per cent* of Pay

Punjab State Electricity Regulatory Commission (PSERC), taking note of norms of oil consumption of 0.50 ml/ kwh as fixed by Central Electricity Regulatory Commission, adopted (August 2014) the same norms for the Company effective from 01 April 2014. The Cost Controller of the Company proposed (April 2016) to modify the generation incentive scheme in consonance with the PSERC norms, however, this proposal was not accepted on the ground that if it is implemented, oil consumption based generation incentive shall be negligible and may lead to demotivating the employees towards saving of oil consumption. Though the full facts were brought to the notice of the Board of Directors (BoDs) of the Company, yet, the BoDs approved (November 2016) the following modified scheme:

[1] Licensee.

Level of oil consumption	Incentive as percentage of Pay			
	PLF > 65 *per cent*	**PLF 45-65 *per cent***	**PLF 25-45 *per cent***	**PLF < 25 *per cent***
Less than 2.0 ML/KWH	1	0.8	0.6	0
Less than 1.5 ML/KWH	2	1.6	1.2	0
Less than 1.0 ML/KWH	4	3.2	2.4	0
Less than 0.5 ML/KWH	6	4.8	3.6	0

This revised incentive policy was not in consonance with the norms set by PSERC as it envisaged payment of incentive even when oil consumption was higher than the norms fixed by PSERC (0.5 ml/ kwh).

The consumption of oil in all the three thermal power stations[2] of the Company was in excess of norms prescribed by PSERC during 2014-15 to 2016-17 as detailed below:

Statement showing the Excess consumption of oil as compared to PSERC norms of 0.5 ML per KWH

(Consumption in ML per KWH and Amount in ₹ crore)

Year	GGSSTP			GHTP			GNDTP			Total Amount	GGSSTP	GHTP	GNDTP	Total
	Consumption			Consumption			Consumption				Amount of oil incentive paid			
	Actual	Excess	Amount#	Actual	Excess	Amount#	Actual	Excess	Amount#					
2014-15	0.93	0.43	11.50	0.71	0.21	4.09	1.28	0.78	5.35	20.94	3.94	1.47	1.94	7.35
2015-16	1.11	0.61	9.21	1.08	0.58	7.61	2.11	1.61	6.40	23.22	4.46	1.24	1.77	7.47
2016-17	1.49	0.99	7.40	1.11	0.61	5.20	1.49	0.99	1.90	14.50	2.64	1.05	1.45	5.14
Total			**28.11**			**16.90**			**13.65**	**58.66**	**11.04**	**3.76**	**5.16**	**19.96**

 # Money value of oil consumed in excess of norms.

This cost of excess oil consumed was not in financial interests of the Company as Regulation 10 of the PSERC Tariff Regulations, 2005, stipulated that any excess expenditure incurred by a licensee on account of deviation from norms fixed by PSERC would have to be borne by the licencees and shall not be passed on to consumers through higher tariff. The Company was paying incentives even when the operational efficiency was below norms. Thus, failure of the Company to align its oil consumption component of incentive policy, with PSERC norms, resulted in unjustified payment of ₹ 19.96 crore during 2014-15 to 2016-17 and put an additional burden on the Company.

After being pointed out (September 2017) by Audit, the Government directed (April 2018) the Company to stop the oil consumption based generation incentive payment and align the incentive with PSERC norms. However, the Company has not stopped the payment of oil consumption based generation incentive to its employees (November 2018).

It is recommended that the Company should immediately stop this incentive as directed by the State Government and fix responsibility on officials/ officers who have not implemented the Government directive of April 2018.

[2] Guru Nanak Dev Thermal Plant, Bhatinda; Guru Gobind Singh Super Thermal Power Plant, Ropar and Guru Hargobind Power Plant, Lehra Mohabat

2.2 Non-application of correct tariff

The Company did not apply correct tariff on a consumer who was availing continuous supply of electricity which led to non-recovery of ₹ 2.33 crore and interest burden of ₹ 0.44 crore.

Punjab State Power Corporation Limited (Company) as per its circular (June 2000) decided to give uninterrupted electricity through independent feeders to establishments attending to emergency/ accident cases on the pattern of essential services including privately managed commercial heart care and MRI/ CT scan[3] units. For this purpose, the Company was to charge extra tariff at the rate of 25 *per cent*. The Schedules of Tariff approved by Punjab State Electricity Regulatory Commission for the years 2013-14 to 2017-18 provided tariff rates to be increased by 25 *per cent* when continuous electricity supply to private hospitals and MRI /CT Scan centers is through independent feeder under non-residential supply (NRS) Schedule. The Electricity Supply instruction Manual of the Company provides that there are five types of feeders[4].

Audit observed (October 2016) that a private hospital (consumer) at Ludhiana applied (April 2012) to the Company for NRS supply through an independent feeder. The independent feeder was to be erected at the cost of consumer. The Company, after recovering ₹ 25.78 lakh as cost of erecting independent feeder, executed the work in June 2013 and released the electricity supply in July 2013 through an independent feeder. The Equipment Maintenance Register (EMR) maintained by the Company for this feeder mentioned the category as category-4. However, the Company did not increase the tariff rate of this consumer by 25 *per cent,* as applicable.

After being pointed out (October 2016) by Audit, the Additional Superintending Engineer (ASE), Meter and Metering Testing Equipment Squad of the Company conducted an inspection in November 2016 and stated that connection of the consumer was running on an independent feeder and getting continuous supply of electricity, hence, recommended to increase the tariff rates by 25 *per cent*. Further, Senior Sub-station Engineer of the Company (In-charge of this independent feeder) also confirmed (August 2018) that the connection was initially released as category-4, which was subsequently changed to category-1 and later as category-3. However, neither category-1 (mixed load) nor category-3 (Arc/Induction furnace) were applicable in the instant case as the consumer had an independent feeder for hospital.

However, the Company did not take cognizance of the inspection report of ASE. As such, non-application of correct tariff rate led to non-recovery of

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[3] Magnetic resonance imaging, computed tomography scan

[4] Category-I: Urban/Industrial Feeders-mixed load, Category-II: Separate/Independent feeders of consumers which have not been declared as continuous process, Category-III: Arc/Induction furnace consumers fed through separate / independent feeders, Category-IV: Independent feeders feeding only continuous process / essential industries and Category-V: 24 hours urban pattern supply 3-phase 3-wire feeders.

energy charges[5] of ₹ 2.33 crore (***Annexure 3***) during August 2013 to November 2017. The Company had to bear interest burden of ₹ 0.44 crore[6] also.

The Management stated (May 2018) that the consumer did not obtain the required sanction for availing continuous supply of electricity. The connection of consumer was released under category-I feeder (i.e. urban/industrial feeders) and was not getting continuous supply and was subject to all power cuts imposed by the Power Controller, Patiala.

The reply is not acceptable as the Company released the connection of this consumer under category-IV independent feeder (only continuous process/essential services). However, the required documentation (i.e. application from the consumer for continuous supply) was not got completed by the Company despite full cost of independent feeder paid by the consumer. Moreover, it was the responsibility of the Company to have checks on consumers getting supply from independent feeder to safe guard its financial interest.

It is recommended that the Company by taking cognizance of the inspection report submitted by ASE should conduct detailed investigation in the case.

The matter was referred to the Government (January 2018); their reply was awaited (November 2018).

2.3 Advertisement expenses

Payment of ₹ 72.99 lakh on account of advertisement expenditure on behalf of Department of Power was irregular.

Department of Power (DoP), Punjab, intimated (11 July 2016) Punjab State Electricity Regulatory Commission (PSERC) that Government of Punjab (GoP) had decided a special tariff of ₹ 4.99 per kilo volt amperes hours (KVAH) for the new/ prospective industries which came through Progressive Punjab Investors Summit[7], 2015, for a fixed period of five years. PSERC directed (19 July 2016) the GoP to convey its commitment to pay the subsidy (difference of tariff applicable to the existing industries and special tariff of ₹ 4.99 per KVAH). Accordingly, DoP conveyed its commitment (25 July 2016) to PSERC.

The Director, Information and Public Relations, Punjab (DIPR) informed (August 2016) the Punjab State Power Corporation Limited (Company) that

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[5] Excluding electricity duty, octroi and other applicable charges thereon.

[6] Calculated at the rate of 9.36 *per cent* per annum as per minimum interest rate for working capital requirement approved by PSERC during 2013-14 to 2017-18 for the Company.

[7] Hosted during October 2015 by Government of Punjab to attract investments in the State.

on the directions of GoP, advertisements announcing availability of cheap power to new industries of Punjab had been displayed in 38 daily newspapers in July 2016 and asked the Company to bear the expenses for these advertisements. The Company accorded (November 2016) its approval for payment of ₹ 72.99 lakh which was released during December 2016 and February 2017.

As per Clause 7 of Advertisement Policy-2015 (November 2015) of GoP, the liability for making payment of advertisement expenses was with the department on whose behalf, either on their request or as decided by Government, the advertisement had been released by the DIPR, which in the present case was the DoP. Thus, the payment of advertisement expenses by the Company on behalf of DoP was irregular and a burden on its financial resources.

The Management replied (April 2018) that it was the Company's policy to offer cheapest power to new/prospective industries and the advertisements in this regard were got published to highlight industry friendly policy of the Company, through DIPR. The payment of ₹ 72.99 lakh was made after obtaining administrative approval (November 2016) of the Board of Directors. The Government endorsed (April 2018) the reply of the Management.

The reply is not acceptable as it was the GoP's decision to offer special tariff to new/ prospective industries and as per the advertisement policy of GoP for issuance of advertisements, the responsibility for payments was of DoP and not of the Company.

It is recommended that the Company may take up the matter with Department of Power as per clause 7 of Advertisement Policy, 2015 for reimbursement of advertisement expenses of ₹ 72.99 lakh.

2.4 Electricity dues

Non-recovery of electricity dues and late payment surcharge resulted in accumulation of dues of ₹ 2.59 crore.

Punjab State Electricity Regulatory Commission (PSERC) in exercise of the powers conferred on it by the Electricity Act, 2003 issued Regulations on Electricity Supply Code and Related Matters, 2014 (Supply Code).

Regulation 34.3 of the Supply Code of the Punjab State Power Corporation Limited (Company) provides that in the event of disconnection of electricity to a consumer for a period more than six months on account of default in payment of dues, power supply will be restored only after the consumer has deposited the entire outstanding amount along with monthly minimum charges for the period of disconnection and security and reconnection fee as applicable. Regulation 34.2, *ibid*, lays down that if a consumer seeks reconnection within six months of disconnection, the supply shall be restored within 24 hours from the time the consumer makes good the default or makes

payment of the 1st installment of outstanding amount. The General Conditions of Tariff of the Company provides that in the event of delayed payment, late payment surcharge at the rate of 1.5 *per cent* per month on gross unpaid amount[8] is also to be levied on such defaulting consumers after expiry of 15 days from the due date of the bill till the deposit of outstanding amount. Also, Regulation 16.4 of the Supply Code provides that every consumer shall maintain with the licensee, a security of an amount equivalent to one and a half month of average consumption charges.

A consumer of the Company's distribution circle, Ludhiana, defaulted in payment of electricity dues during December 2013 to November 2014. The Company disconnected supply to the consumer in December 2014 by which time the outstanding dues had risen to ₹ 2.83 crore. The Company held security deposit of ₹ 0.52 crore from the consumer. On the request (January 2016) of the consumer seeking reconnection by agreeing to pay dues in installments, the Company, invoking Regulation 34.2 (a) of the Supply Code, restored (April 2016) the electricity supply after allowing the consumer to deposit ₹ 0.66 crore as minimum monthly charges for disconnection period and payment of the outstanding amount of ₹ 2.83 crore in 12 equal monthly installments along with late payment surcharge. The consumer defaulted in paying the sixth installment due in October 2016 whereupon the Company disconnected (October 2016) the electricity supply. The outstanding electricity dues from the consumer were ₹ 1.63 crore.

The Chief Engineer (Commercial) of the Company reported (April 2016) at the time of decision that in this case the disconnection was for more than six months, so the same cannot be reconnected without relaxation in Supply Code regarding deposit of entire outstanding amount alongwith the concurrence of PSERC to allow payment of outstanding amount in installments. However, the BoDs of the Company violated the provisions of Supply Code while restoring (April 2016) the supply by incorrectly invoking Regulation 34.2 (a) which is applicable only when the request for restoration of supply is made within six months of disconnection. Hence, the Company instead of recovering the entire outstanding amount before re-connection, as stipulated, allowed the consumer to pay electricity dues in installments without concurrence of PSERC and did not levy late payment surcharge of ₹ 0.87 crore[9]. Non-recovery of electricity dues and late payment surcharge resulted in accumulation of dues of ₹ 2.59[10] crore.

Further, the security held by the Company from the consumer was due for annual reassessment in terms of the supply code. The security deposit was required to be raised to ₹ 1.00 crore based on one and half month's average consumption during the period April 2013 to March 2014. Had the Company

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8 Electricity charges and late payment surcharge.

9 ₹ 2.83 crore X 1.5 *per cent* compounded monthly for 18 months (December 2014 to May 2016).

10 Outstanding electricity dues: ₹ 1.63 crore + Late payment surcharge: ₹ 1.48 crore (December 2014 to May 2016: ₹ 0.87 crore and November 2016 to April 2018: ₹ 0.61 crore) *less* Security: ₹ 0.52 crore.

assessed and collected the full amount of security at the time of reconnection, its outstanding dues from the consumer would have reduced by ₹ 0.48 crore.

The Management while accepting (July 2018) the audit observations stated that they have requested PSERC to allow amendment in clause 34.3 of supply code to permit recovery of electricity dues in installments. The civil suit was filed against the consumer in May 2018 and is pending as on date (October 2018).

It is recommended that the Company may ensure compliance to Regulation 34.3 of the Supply Code in future and recover ₹ 2.59 crore from the consumer referred to in the paragraph.

The matter was referred to the Government (February 2018); their reply was awaited (November 2018).

2.5 Memorandum of Understanding with Indiabulls Power Limited

The Company employed 14 persons of such families whose land was acquired for setting up a power plant by IBL in contravention of its MoU and NRRP, 2007 resulted in avoidable expenditure of ₹ 1.91 crore.

In accordance with Generation Policy of State Government, a Memorandum of Understanding (MoU) was entered into (August 2010/ April 2011) between Indiabulls Power Limited (IBL) and the Company for developing 1320 MW Thermal Power Plant (TPP) near Mansa. For this purpose, 723 acres of land was acquired by the Government of Punjab (GoP), payment being made by IBL.

The GoP decided (September 2011) to provide employment to one family member whose land was acquired. GoP while forwarding the applications and documents of the candidates to the Company, directed (December 2011) that the Company may consider the applications of the candidates at their own level. Accordingly, the Company appointed (2012-13 to 2017-18) 14 persons involving financial implication of ₹ 1.91 crore (upto October 2018). Audit observed (November 2017) that as per MoU read with National Rehabilitation and Resettlement Policy (NRRP), 2007, employment was to be given by IBL. At that time, the Company should have apprised the State Government that as per NRRP, 2007, it is the responsibility of IBL to provide employment to one family member whose land was acquired. The land is still in the possession of IBL and the project has not been materialised till date (October 2018).

Thus, the Company employed 14 persons of such families whose land was acquired for setting up a power plant by IBL in contravention of its MoU and NRRP, 2007 that resulted in avoidable expenditure of ₹ 1.91 crore.

It is recommended that the Company should estimate the present value of financial obligations already incurred and to be incurred in future as a result of giving employment to 14 persons from displaced families and seek to recover the same from IBL.

The matter was referred to the Company and the Government (March 2018). Their replies were awaited (November 2018).

2.6 Non-realisation of billing dues

The Company provided free electricity to gaushalas without enabling notification of the State Government resulting in non-realisation of funds of ₹ 4.13 crore.

The Electricity Act, 2003 has provisions to enable grant of subsidy by State Governments to consumers in the power tariff determined by the State Electricity Regulatory Commissions. Section 65 of the Act, *ibid*, provides that if the State Government desires to grant subsidy to any class of consumers, they have to pay the subsidy amount to the concerned power distribution entity in advance and in such manner as may be directed by the power regulator. A notification has to be issued by the State Governments for providing such tariff subsidy. Regulation 53 of the Punjab State Electricity Regulatory Commission (PSERC) (Conduct of Business) Regulation, 2005 provides that the PSERC upon receiving proposal for grant of subsidy from the state Government shall determine the amount to be paid as subsidy and the terms and conditions of such payment including the manner of payment of subsidy amount.

The Government of Punjab decided (December 2014) to supply free electricity to gaushalas in the State and referred the matter (February 2015) to the Punjab State Power Corporation Limited (Company). The Company asked (March 2015 to March 2016) the State Government to issue the enabling notification. Audit observed that the Company, without waiting for the Government notification, decided (March 2016) to supply free electricity to 366 identified registered gaushalas with effect from April 2016 and issued a commercial circular. The Company again took up (May 2016) the matter for issuance of notification with the State Government and concurrently applied (May 2016) to PSERC to approve the subsidy which was worked out as approximately ₹ 3.00 crore to be claimed from the State Government. The State Government conveyed (July 2016) their inability to bear the subsidy burden due to resource constraints. The PSERC disallowed (July 2016) the subsidy citing non observance of Regulation 53 of the PSERC (Conduct of Business) Regulations, 2005 since the Government of Punjab had not submitted any proposal to PSERC for granting subsidy. Company's repeat petition (October 2016) in the matter to PSERC was also dismissed (October 2017). However, the Company continued to supply free electricity to gaushalas up to June 2017 by which time it had supplied electricity worth ₹ 4.13 crore to 299 gaushalas which has not been reimbursed by the State Government. Thereafter, the Company started raising bills on gaushalas at non-subsidised rates.

Thus, the Company's decision to provide free electricity to gaushalas without any enabling notification of the State Government was a violation of *ibid*

Regulation and resulted in non-realization of electricity dues amounting to ₹ 4.13 crore.

The Management/Government stated (August/September 2018) that instructions to recover the outstanding amount from respective consumers has been issued in June 2018 and matter is also being referred to the Government of Punjab for issuing notification. The fact remains that there was violation of Electricity Act, 2003, besides the recovery of electricity dues from Gaushalas is still pending.

It is recommended that the Company should not provide subsidized electricity to any segment of the society without issuance of notification by the State Government.

2.7 Late payment surcharge

The Company failed to pay its power purchase bills by due dates as a consequence of which it had to pay ₹ 7.15 crore as late payment surcharge.

Punjab State Power Corporation Limited (Company) sources energy from its own generating stations and through purchase from central generating stations, independent power producers, short term purchase/spot trade and new and renewable sources of energy (NRSE) projects. For power procured from sources other than its own generating stations it has entered into various long term power purchase agreements (PPAs). As per the terms of payment of the PPAs, the Company is required to pay its power purchase bills by due dates i.e. 60 days from the date of billing and any delay attracts late payment surcharge (LPS) at rates of interest ranging between 15 *per cent* to 18 *per cent* per annum[11].

Audit observed (December 2017) that during 2014-17, the Company did not make payment of its power purchase bills to various parties by the due dates and consequently paid late payment surcharge of ₹ 24.91 crore. During the same period, the Company was arranging loans for its working capital requirements from banks/ financial institutions at rates of interest ranging between 11.25 *per cent* and 12.50 *per cent* per annum. These rates of interest were less than the rates of late payment surcharge charged by power suppliers. The Company, with prudent financial planning, could have paid its power purchase bills by their due dates by arranging working capital loans on time which were available at lower rates of interest instead of paying LPS. It could have avoided additional financial burden of ₹ 7.15 crore (***Annexure 4***) owing

[11] At the rate of 1.50 *per cent* per month (i.e. 18 *per cent* per annum) in case of PPAs with central generating stations in accordance with Central Electricity Regulatory Commission Regulations and at the rate of 1.25 *per cent* per month (15 *per cent* per annum) or at the rate of State Bank of India's short term prime lending rate per annum plus two *per cent* in respect of other power producers.

to difference of 2.5 *per cent* to 5.5 *per cent* per annum between LPS rates (from 15 *per cent* to 18 *per cent*) and cost of working capital loans (maximum rate of 12.50 *per cent* used for comparison on conservative basis). It was also observed that the payments were delayed despite cushion being available with the Company for negotiating further loans in its borrowing limits approved[12] by Board of Directors and limit of working capital loans as advised under Ujwal DISCOM Assurance Yojana[13] (UDAY scheme). The UDAY Scheme had prescribed a limit of 25 *per cent* of previous year's annual revenue as working capital loan limit in power distribution business. The Company consistently under utilised its working capital loan limit of ₹ 6,018.63 crore during 2016-17 except in the months of April and May 2016.

Thus, had the Company exercised prudence and paid all its power purchase bills by their due dates by arranging further working capital loans, it could have avoided financial burden of ₹ 7.15 crore paid as late payment surcharge.

The Management/Government stated (August/September 2018) that payment to Power Suppliers in time would have resulted into delay in payment to other stake holders viz; material suppliers, Coal India, Railways, payment of salary and pension, Banks and Financial Institutions etc. Non-payment of these dues has different implications[14] for the Company.

Audit is not of the opinion that the Company should change the priority of its payments. Rather, it should make all its payments on time by arranging additional loans as there was cushion available with it.

It is recommended that the Company should opt for pragmatic financial planning to avoid unnecessary burden on its financial resources.

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[12] Limit approved in October 2013, limit was ₹ 30,000 crore which was revised in June 2015: ₹ 35000 crore and November 2016: ₹ 42,000 crore. Against this, loans raised as on March 2015 were ₹ 21,902.45 crore; March 2016: ₹ 25,466.72 crore and March 2017: ₹ 27,987.04 crore. This limit was for all the loans with no separate limit for working capital.

[13] Applicable from April 2016.

[14] Non-payment of advance freight to the Railway involves payment of surcharge @ 10 *per cent* if the freight is paid at un-loading station, Coal India dispatches coal to the power utility after receipt of advance payment, delay in release of salary and pension can cause resentment/unrest among employees/pensioners and affect the smooth functioning of the Company and delay in payment to material supplier attracts the levy of compound interest with monthly interest at three times the bank rate of 6.25 *per cent* declared by the RBI.

2.8 Loss of revenue due to allowing energy losses on independent feeders

Inaction on the part of the Company to arrest excessive energy losses in respect of independent feeders and to amend its sales manual pertaining to billing of consumers receiving supply from independent feeders, resulted in a revenue loss of ₹ 22.19 crore during 2016-17.

Supply Code of Punjab State Power Corporation Limited (Company) provides that the consumers who are catered supply at 11KV and are running essential services or continuous process industries irrespective of their load/contract demand or Agricultural Pump Set High Technology consumers with load more than 100 KW/KVA or other Industrial consumers with a contract demand exceeding 2500 KVA may apply for an independent 11 KV feeder[15] to avail the benefit of uninterrupted supply of electricity provided they agree to pay the cost of the independent feeder.

The instructions issued[16] (March 1987) by the Company require that in case of independent feeders, the energy consumption recorded by a meter installed at the consumer's premises should be compared with the energy consumption recorded by the meter installed at the feeding sub-station. The energy consumption recorded by the two meters should reasonably compare except for losses in the feeder. In case of wide variation in consumption, metering equipment of the consumer should be checked to ensure correct working of the meters.

Punjab State Electricity Regulatory Commission (PSERC) has not prescribed norms for line losses in respect of independent feeders. In the neighbouring States of Haryana and Himachal Pradesh, billing of consumers having independent feeder is being done at sub-station end[17] and all the energy losses are being borne by the consumers.

A comparison of the energy consumption recorded by meters installed at the consumers' premises and meters installed at the feeding substations revealed (December 2017) that energy losses in respect of 150 independent feeders of 14 operation divisions ranged between 0.32 *per cent* and 18.06 *per cent*. Consequently, the consumption recorded at the consumers' premises during 2016-17 was lesser to the extent of 368.04 lakh units involving revenue loss of ₹ 22.19 crore ***(Annexure 5).*** Further, out of these 150 consumers, the energy losses in respect of 66 consumers were more than five *per cent*.

This issue was earlier pointed out in paragraph 3.5 in the Report of Comptroller and Auditor General of India on Public Sector Undertakings

15 "Independent Feeder" means a feeder emanating from a Substation, for supply of electricity to a single consumer, or, a group of consumers having similar process on the same or contiguous premises.

16 Reiterated in March 2011 and June 2017 in the Electricity Supply Instruction Manual.

17 Haryana Electricity Regulatory Commission (HERC) issued notification number 12/2005 dated 26 July 2005 and Himachal Pradesh Electricity Regulatory Commission (HPERC) also issued supply code in May 2009 for billing of independent feeder consumers at sub-station end.

(Social, General and Economic sectors) for the year 2012-13 wherein it was recommended that the Company should take remedial measures to arrest revenue losses due to excessive energy losses on independent feeders. This paragraph has not been discussed in COPU till date.

However, the Company in violation of its *ibid* instructions had neither analysed the reasons for such wide variations in individual cases nor taken any remedial steps to arrest excessive energy losses. It had also not taken any step to amend its supply manual with the approval of PSERC to stipulate the billing of the Independent feeder consumers at sub-station end in line with the practice followed by the power utilities of Haryana and Himachal Pradesh. As a result, it had to bear a revenue loss of ₹ 22.19 crore during 2016-17 alone.

It is recommended that the Company should carry out analysis for wide variation between energy consumption of meter installed at the consumer's premises and energy consumption recorded by the meter installed at the feeding sub-station. Further, the Company may consider the practice followed by other power utilities where the billing is done at sub-station end.

The matter was referred to the Company and the Government (June 2018); their replies were awaited (November 2018).

2.9 Avoidable payment of energy charges

The Company not only violated the mandatory provisions of environmental laws but also paid avoidable energy charges of ₹ 961.71 crore on account of transportation of unwashed coal.

A Power Purchase Agreement (PPA) was entered (September 2008) between Punjab State Power Corporation Limited[18] (Company) and Talwandi Sabo Power Limited (TSPL) for procurement of power on long term basis from thermal power station of TSPL. As per Article 17.1 of the PPA, the agreement was governed by and construed in accordance with the laws of India. The Environment (Protection) Rules, 1986 (as amended in September 1997 and January 2014) made it mandatory for coal based thermal power plants to use coal with ash content not exceeding 34 *per cent.*

Coal for TSPL thermal power plant was being sourced from Mahanadi Coal Limited (MCL) which had higher ash content than permitted under environmental regulations. The ash content can be reduced by a process known as coal washing[19]. TSPL started (July 2014) its commercial operations by using washed coal and claimed washing charges in its energy bills.

The Company denied TSPL its washing charges claims in the absence of clear clause in PPA. TSPL filed (May 2014) petition in Punjab State Electricity

[18] Erstwhile Punjab State Electricity Board.

[19] The use of washed coal has its advantages in enhancing the calorific value and reduction in the ash content with resultant reduced transportation charges per unit of power purchased.

Regulatory Commission (PSERC) against the Company. Initially, PSERC and afterwards the Appellate Tribunal for Electricity (APTEL) denied (November 2015 and July 2017 respectively) the payment of washing charges to TSPL. Aggrieved by the decisions of PSERC and APTEL, TSPL filed an appeal in the Hon'ble Supreme Court. The Supreme Court decided (March 2018) to allow the payment of washing charges to TSPL.

Audit observed (February 2018) that TSPL stopped (December 2014) using the washed coal during the pendency of petitions before PSERC/APTEL/Supreme Court. The joint sampling conducted (December 2014 to February 2017) by the Company and TSPL reported the use of unwashed coal having ash content ranging between 25.94 *per cent* and 63.16 *per cent*. The legal councilor advised (October 2016/January 2017) the Company to take proactive steps on the compliance of the environmental laws for use of washed coal in place of unwashed coal. Instead of taking steps in this direction, the Company allowed the use of unwashed coal and thus, was a party to the violation of the environmental laws. The Company had also submitted to PSERC that using of washed coal results in saving of energy charges of ₹ 0.56 per unit[20] for power purchased on account of reduced transportation charges.

Thus, the Company not only violated the mandatory provisions of environmental laws but also paid avoidable energy charges of ₹ 961.71 crore on account of transportation of unwashed coal while purchasing 17173.40 MUs power during January 2015 to February 2018.

It is recommended that the Company should ensure the compliance to the Environment (Protection) Rules.

The matter was referred to the Company and the Government (March 2018); their replies were awaited (November 2018).

Punjab State Transmission Corporation Limited

2.10 Non-utilisation of Hot Line tools

Hot line maintenance of transmission lines was not being carried out in absence of trained manpower rendering the expenditure of ₹ 1.24 crore incurred on procurement of hot line maintenance tools unfruitful

Hot line maintenance is a technique of carrying out maintenance of critical transmission lines and electric sub stations without isolation i.e. without causing interruption in power supply. This is achieved with the help of specialised equipment which are rated and designed for the purpose. Central Electricity Authority (Grid Standards) Regulations, 2010 prescribe adoption of

[20] Saving in transportation cost ₹ 0.56 per Kwh (₹ 2.84 per Kwh transportation cost of unwashed coal- ₹ 2.28 per Kwh transportation cost of washed coal).

hot line techniques wherever possible. The Safety Manual of Punjab State Transmission Corporation Limited (Company) permits deployment of only qualified and duly trained employees for hot line maintenance works.

The Company for maintenance of 400 KV sub-stations at Dhuri, Makhu, Muktsar, Nakodar and Rajpura[21] and 400 KV transmission lines approved (July 2012) procurement of hot line tools. It placed (May 2013 and June 2014) two purchase orders for design, manufacture, testing, supply, delivery and demonstration of hot line maintenance tools valuing ₹ 1.31 crore.

Audit observed (January 2018) that though the ordered hot line maintenance tools were supplied (October 2013, December 2013 and March 2015), but the required training was not imparted to personnel deployed in the hot line divisions[22]. As a result, the tools acquired for hot line maintenance were not utilised even after a lapse of 33 to 50[23] months from the date of receipt. There were 371 instances[24] between 2015-2018 when the Company availed outages on its 400 KV transmission lines for periodical testing and general maintenance which could have been largely reduced had hot line maintenance techniques been deployed.

Thus, due to non-imparting of required training, hot line maintenance techniques were not used and the tools were lying unutilised and their warranty period[25] had also elapsed. The expenditure of ₹ 1.24 crore[26] on procurement of hot line tools had, therefore, been rendered unfruitful and these tools were lying unutilized for three to five years.

The Management replied (July 2018) that hot line maintenance divisions have fifty per cent of their sanctioned strength and efforts are being made to get sufficient strength of technical staff posted and ensure optimum utilization of hotline maintenance facilities. The reply is not acceptable as the training should have been provided to available manpower of 13 technical employees in Hot Line divisions.

It is recommended that the Company may ensure suitable training to staff of hot line divisions which will help in utilisation of hot line tools.

The matter was referred to the Government (May 2018); their reply was awaited (November 2018).

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[21] Commissioned on 17 January 2014, 12 August 2014, 23 May 2014 and 11 June 2014 respectively.

[22] There are two hot line divisions at Jalandhar and Ludhiana.

[23] Calculated upto December 2017.

[24] Outage programmes approved by Operation coordination sub committee meetings of NRPC.

[25] The warranty clause of these purchase orders made the supplier responsible for free of cost replacement of defective material within 12 months from date of commissioning or 18 months from date of dispatch, whichever expired earlier.

[26] After deduction of penalty for late delivery.

2.11 Replacement of insulators on 400 KV transmission lines

The construction of 400 KV transmission lines using conventional porcelain insulators and subsequent decision to replace these with porcelain long rod insulators rendered the cost of existing insulators redundant i.e. of ₹ 34.58 crore besides involving additional avoidable financial obligations amounting to ₹ 8.77 crore arising out of proposed replacement work

The committee constituted by Central Electricity Authority (CEA) to inquire into major fog related grid incident of January 2007 had recommended using anti fog insulators or porcelain long rod insulators in areas exposed to heavy fog and medium pollution levels. Subsequently, another committee constituted by CEA enquiring about the grid disturbances of January 2010 also recommended (June 2010) complete replacement of existing porcelain insulators of lines getting frequently affected due to fog with polymer/ anti fog insulators, especially in case of critical 400 KV and 200 KV lines and evacuation lines from the generating stations.

Ignoring *ibid* recommendations of CEA constituted Committees, Punjab State Transmission Corporation Limited (Company) completed the construction of 400 KV transmission system during February 2013 to August 2014 using conventional porcelain insulators at a cost of ₹ 34.58 crore.

Eventually, owing to frequent trippings on 400 KV lines during foggy season in polluted areas affecting the generation of power, a decision to replace porcelain insulator strings with porcelain long rod insulators (anti fog) having normal life of 40-50 years has been taken (November 2017/July 2018) by the Company in order to minimise trippings and ensure reliable power supply in the State.

Audit observed that the construction of 400 KV transmission lines using conventional porcelain insulators ignoring specific recommendations of CEA constituted committees for using anti fog insulators or porcelain long rod insulators in areas exposed to heavy fog and medium pollution levels and subsequent decision to replace these with porcelain long rod insulators within four to five years of completion of transmission lines has rendered the cost of existing conventional porcelain insulators redundant i.e. of ₹ 34.58 crore[27] besides involving additional avoidable financial obligations amounting to ₹ 8.77 crore[28] arising out of proposed replacement work (dismantling of porcelain insulators and erection of porcelain long rod insulators).

[27] Price of conventional porcelain insulators taken from contract agreement no. STP-2026 dated 6-Dec-11 with BHEL replacement cost taken from estimates for ongoing tender.

[28] Replacement cost taken from estimates of Company based on work order issued from similar work by PGCIL during February 2017.

The Management stated (July 2018) that the decision to erect 400 KV transmission lines with porcelain insulators was made by Power Grid Corporation of India Limited (PGCIL) being the consultant/ execution agency.

The reply is not acceptable as the Company should have taken cognizance of the existing recommendations of CEA constituted committees referred *ibid*, before agreeing with the specifications provided by PGCIL.

It is recommended that the Company may ensure due cognizance of recommendations of expert committees while undertaking construction of transmission assets in future.

The matter was referred to the Government (May 2018); their reply was awaited (November 2018).