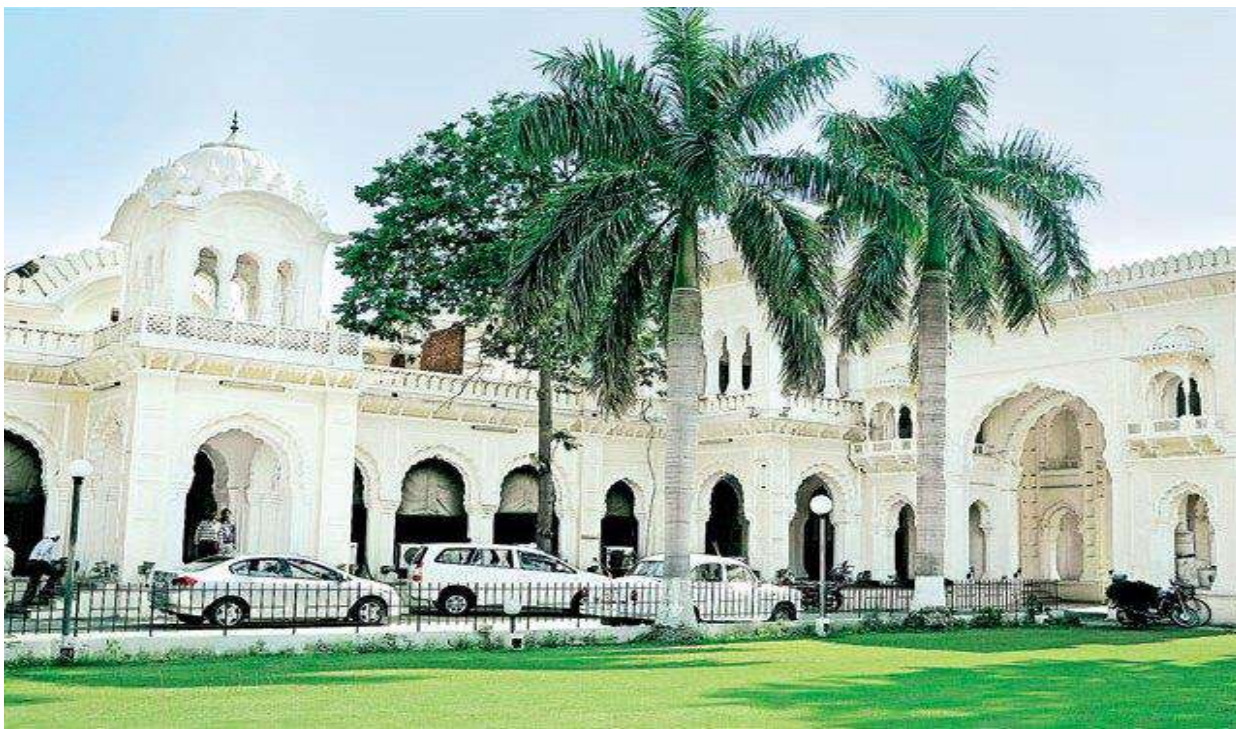


Check Verification Report

(PAT CYCLE- II)



DESIGNATED CONSUMER

M/s Punjab State Power Corporation Limited
(PSPCL-DIS0014PB)
PSPCL, The Mall, Patiala-147001
Punjab

CONDUCTED BY

M/s. MCJ Energy Engineers Pvt. Ltd.
Emp Accredited Energy Auditor- 22
244, Chouhan Estate, G.E. Road, Supela, Bhilai (C.G.)
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FINAL REPORT
June'2021

ACKNOWLEDGEMENT

We express our sincere gratitude to the Bureau of Energy Efficiency, Ministry of Power for giving the opportunity to be a part of this PAT Scheme and prepare the check verification report. We thankfully acknowledge the support and guidance provided by all concerned officials during the conduct of this exercise.

Mr. Abhay Bakre	:	Director General
Mr. Milind Deore	:	Director
Ms. Surya Yadav	:	Project Engineer

We are also thankful to all the officials of PSPCL involved in this project & for their positive support in undertaking this intricate task of Check Verification study. The data verification process would not have been completed on time without their interaction and timely support. We are grateful for their co-operation during check verification and provision of data for the study. We would like to particularly thank the following officials.

Names	Designations
Er. Jasbir Singh	Chief Engineer, Energy Audit & Enforcement
Er. Ravi Verma	Addl. Superintending Engineer, Energy Auditor (CEA-7969)
Er. Parupkar Singh	Addl. Superintending Engineer, Energy Auditor (CEA-7256)
Er. Lovleen Gupta	Additional Executive Engineer, Energy Manager (EA-17113)
Er. Sandeep Alipuria	Addl. Superintending Engineer
Er. Ranjit Singh	Senior Executive Engineer
Er. Rajnish Kumar	Senior Executive Engineer (DSM)
Er. Paramjit Singh	Additional Executive Engineer (DSM)
Er. Vikram Sharma	Additional Assistant Engineer (DSM)

and all other supporting staff who have given full co-operation and support. They took keen interest and gave valuable inputs during the course of study.

For, MCJ Energy Engineers (P) Ltd.

29/6/21
(Moolchand)

Accredited Energy Auditor, BEE (AEA-030)

STUDY TEAM

Sl. No.	Name	Qualification	Sector Expert/EA/AEA/EmAEA Reg No (022)	Experience in Years
Team Leader				
1	Mr. Moolchand Jain	B.E. (Electrical)	AEA – 030	47 years
Team Members				
2	Mr. Manoj Dey	B.E. (Electrical)	DISCOM Sector Expert	47 years
3	Ms. Dipti Jain	B. E. (Computer Science)	CEA-17470	11 years
4	Ms. Swagatika Sahoo	M. Tech (Power & Energy System)	Senior Engineer	3 years



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EXECUTIVE SUMMARY

Objective of Study

The Perform Achieve and Trade (PAT) Scheme is a regulatory instrument to reduce specific energy consumption in energy intensive industries. Under this scheme reductions in specific energy saving targets are assigned to Designated Consumers (DCs) for a three-year cycle based on their current levels of energy efficiency, and one of such sectors is Electricity Distribution Companies or DISCOMs. The PAT scheme was initiated by the Bureau of Energy Efficiency (BEE) under the National Mission on Enhanced Energy Efficiency (NMEEE).

The objective of the PAT check verification of M & V Audit is to validate the distribution losses of a designated consumer in the Base year as well as Target year through a systematic approach:

- To verify the designated consumer's energy purchase, category wise energy consumption and Annual performance Report for the Base year (FY 2014-15) & Assessment year (FY 2018-19);
- To list down measurable and traceable documents for verification of the DC's performance;
- To review the Distribution losses in the Base Line & Assessment year and compare it with the M & V Audit report submitted to BEE;
- To review ESCerts based on DC's assessment year performance w.r.t baseline period, and latest revised notified target. The revised Form-C will be issued by incorporating the corrections, if any.

Brief Overview of Designated Consumer (DC)

The Punjab State Electricity Board (PSEB) was a statutory body formed on February 1, 1959, under the Electricity Supply Act, 1948. Subsequently, with the reorganization of erstwhile state of Punjab under the Punjab Re-organization Act, 1966, the PSEB in its present form came into existence from May 1967. When Punjab was re-organized, the own installed generation

Capacity in the state was 58 MW and it relied mainly on its share of 552 MW from Bhakra-Nangal project. In later years, PSEB endeavored to augment and strengthen the power generation under its ownership and apart from Punjab's share in the BBMB and central sector projects. The PSEB constructed and maintained its transmission and distribution system for providing efficient services to the various categories of electricity consumers in the state. In later years, Punjab State Electricity Board played a crucial role in the success of Green Revolution as well as industrial and infrastructure development.

Unbundling or restructuring of state electricity utility became necessary after the Electricity Supply Act, 1948 was replaced by the Electricity Act, 2003. The new Act stipulates that the state electricity utilities be converted into company/ companies governed under the Company Law. It

also calls for separating trading and transmission activities. The true hour in Punjab came on April 16, 2010 with the unbundling of PSEB into Punjab State Power Corporation Limited (PSPCL) & Punjab State Transmission Corporation Limited (PSPCL). PSPCL was entrusted with the responsibility of generation and distribution of power.

Important parameters

Based on Check Verification the important parameters are as under:

Sl. No	Parameters	Unit	M & V Audit Report		Check Verification Audit	
			FY 2014-15	FY 2018-19	FY 2014-15	FY 2018-19
1	Input Energy Purchased	MU	29604.51	57631.09	29604.51	57804.90
2	Net input energy at DISCOM periphery	MU	47647.44*	53490.75	48111.00	53490.75
3	Billed energy	MU	40402.82	47672.07	40402.00	47043.42
4	T&D loss	MU	7244.62	5818.68	7709.00	6447.33
5	T&D loss	%	15.20	10.88	16.02	12.05

With the result of Check Verification of M & V Audit, reduction of T & D losses arrived from 16.02% (Baseline year) to 12.05% the Assessment Year. While in the M & V Audit Report the reduction in T & D losses was 15.20% (Baseline year) to 10.88% the Assessment Year. The supporting documents for energy purchased and consumption during the baseline and assessment period were re-verified from **Management Information Report quarter ending March 2020 of PSPCL cost controller, PSPCL, Annexure B & Tariff Order for PSPCL MYT Control Period from FY 2017-18 to FY 2019-20 (Volume-1), Tariff Order for PSPCL for FY 2018-19, Tariff Order for FY 2020-21 and ARR for 2nd MYT Control Period FY 2020-21 to FY 2022-23. (Table-9, Column-IV, Page No. 44 for Input Energy & Column-VI Sl.o.1 for Billed Energy computed by the commission with Actual losses.**

Assessment of ESCerts as per revised notification 1st Oct 2018

Energy Saving Certificates (ESCert) calculations:

- Baseline T & D Losses: 16.5%
- Baseline Net Energy Consumption: 48113.24 MU
- Notified Target: 14.00%
- Achieved T & D Losses in Assessment Year: 12.05 %
- ESCerts Calculation: $(14.00 - 12.05) * 48113.24 * 860 / 1000 = 80686$ ESCerts

Based on Check Verification Audit, the DC is eligible to be issued **80686 ESCerts**, which is recommended in **Form-C (For Form-C refer Serial No. 9.1 Page No. 34)**

MAJOR OBSERVATIONS & CRITICAL COMMENTS

1. MCJEEPL has conducted the check verification Audit of **M/s. Punjab State Power Corporation Limited (PSPCL), Patiala, Punjab from 5th Nov 2020 to 6th Nov 2020 for PAT Cycle-II.**
2. The Form-1/ Form-Sj Containing input Energy & Billed Energy with T & D Loss submitted during M & V Audit was rechecked by MCJEEPL Audit Team with the authentic sources of PSPCL "Tariff Order from FY 2017-18 to FY 2019-20, Tariff Order for PSPCL for FY 2018-19 & Tariff Order for FY 2020-21 and ARR for 2nd MYT Control Period FY 2020-21 to FY 2022-23".
3. The Following variations are noticed with respect to Sector Specific Form of PSPCL. As informed by PSPCL officials the reason for variation is due to unapproved & approved Energy Input & Sales data.

FY 2014-15				
Source Energy Balance FY 2014-15 (Table-2.6)				
SL. No.	Category	Form-Sj	Now submitted by PSPCL in ARR (Column IV)	BEE Notification
1	Net input Energy	47647.44	48111	48113.24
2	Billed Energy	40402.82	40402.00	-
3	T & D Loss (MU)	7244.62	7709.00	-
4	T & D Loss (%)	15.20	16.02	-
5	Target from BEE	-	-	14%

Note: Table 2.6 of Tariff order for FY 2017-18 to FY 2019-20 (Energy Balance FY 2014-15) is explained about "**Now submitted data by PSPCL in ARR, Now approved by the commission and Sales & actual T & D losses as per approved energy available**". The data consider was **Now submitted by PSPCL in ARR (Column-IV)** as per net input energy notified in revised Gadget Notification.

FY 2018-19				
Details of Input & Sales Energy for FY 2018-19				
SL. No.	Category	Revised Form-1	Unit	Supporting Documents
1	Energy Purchase	57804.90	MkWh	Energy Requirement of PSPCL determined by the commission for FY 2018-19 (Annexure-B, Table-9, Column- IV)
2	Sales Outside State	-2268.42	MkWh	
3	Sales to common Pod Consumer	-301.20	MkWh	

4	Transmission Losses	-1744.53	MkWh	Actual as declared by PSPCL
5	Net Input Energy at PSPCL Periphery	53490.75	MkWh	
6	Billed Energy	47043.42	MkWh	Computed by commission after revising AP Cons
7	T&D Losses	6447.05 12.05%	MkWh %	

1. The net input energy 53490.75 Million kWh submitted by PSPCL during M&V Audit was matching with the actual input energy data finalized during Check Verification Audit.
2. As per serial number II, Column IV of table-9 in tariff order 2020-21 (Annexure-B) PSPCL in its ARR has submitted the total energy purchase requirement of 57804.9 Million kWh and 55235.28 Million kWh for sales within the state including transmission losses.
3. Input energy at periphery for sales within the state after subtracting the actual transmission loss of 1744.53 MkWh, comes to 53490.75 MkWh, which is now submitted by PSPCL to BEE after check verification audit.
4. Further in ARR, PSPCL submitted total energy sales within the state as 47394.65 MkWh (Including AP Consumption of 11187.39 MkWh.) However, PSERC re-calculated the AP consumption and revised energy sales to 47043.42 MkWh with reduced AP Consumption of 10836.16 MkWh.
5. Data verified as per Sector Specific Proforma & Supporting documents available with DISCOM

As per Sector Specific Proforma & Supporting documents available with DICSOM (PSPCL)				
Sl. No.	As per Sector Specific Proforma (According to M & V Audit)	Supporting Documents available for check verification	DATA	
1	Form-Input Energy FY 2014-15	No authentic records available with DISCOM, neither soft copy nor Hard copy	Net input energy at DISCOM periphery (MU)	*46999.80
2	Form-Sj FY 2014-15		Input energy (MU)	*47647.44
			Billed energy (MU)	40402.82
			T&D loss (MU)	7244.62
			T&D loss (%)	15.20
3	Form-Input Energy FY 2018-20	Tarif order for 2020-21, Table-9, Column-IV for Input Energy & Column-VI for Billed Energy.		
4	Form-Sj FY 2018-19		Input energy (MU) at DISCOM Periphery	53490.75
			Billed energy (MU)	47043.42
			T&D loss (MU)	6447.33
			T&D loss (%)	12.05

***Note: There is a difference between Net Energy Input filled in Form-Input Energy & Form-Sj for FY 2014-15.**

4. The Variation in % T & D Losses noticed during the Check Verification of FY 2018-19 which was as under

Sl. No	FY 2017-18	Unit	As per M & V audit	Check Verification
1	T&D loss	%	11.00	12.05

1. INTRODUCTION OF EMPANELLED ACCREDITED ENERGY AUDITING FIRM [EMAEA]

1.1 Name of the Firm

MCJ Energy Engineers Private Limited

We started in year 1987 as M/s. M.C. Jain & Associates which was later on converted into M/s. MCJ Energy Engineers Pvt. Ltd in 2003 with a vision to improve the energy usage pattern in India. Over the years, we have amassed immense experience in the field of energy consultancy and now have in our arsenal many successful energy efficiency projects performed at the request of Indian corporations.

We are a team of highly skilled professionals from multiple disciplines. Our team has experienced Energy Auditors who are certified by B.E.E. (Bureau of Energy Efficiency), Ministry of Power, Govt. of India.

Our areas of specialization are:

- Lender Engineer Services
- Designing / Publishing of Energy Conservation Promotional materials.
- TEFR/DPR for Biomass Power Projects, Co-generation & WHRS projects.
- Energy Consultancy Projects / Energy Auditing in Industries & Commercial Complex/ IGA's providing assistance to SDA's in implementation of EC Act- 2001.
- Waste Heat Recovery based Power Projects.
- Energy Survey (Biomass Assessment Study, Load Survey)
- PAT Consultancy
- Empanelled Accredited Energy Auditor for PAT M&V.

EXPERIENCE (Since 1987 to till date): 33 Years

1. Mandatory Energy Audits: 47 Nos.

- Iron & Steel Sector: 28 Nos
- Cement Sector :10 Nos
- Thermal Power Plant :04 Nos
- Sand mining plant: 01 No
- Building: 02 Nos
- Pulp & Paper :01 No
- DISCOM: 01 No

2. PAT Monitoring & Verification Audit in PAT Cycle-I & II: 60 Nos.
 - Iron & Steel Sector: 17 Nos
 - Cement Sector: 24 Nos
 - Thermal Power Plant Sector: 15 Nos
 - DISCOM Sector: 01 No
 - Fertilizer Sector: 3 Nos
3. Baseline Data Collection and Verification Audit: 55 Nos.
 - Iron & Steel Sector: 25 Nos
 - Cement Sector : 08 Nos
 - Thermal Power Plant : 22 Nos
4. Energy Audits in Industries & Nagar Nigam: 118 Nos.
5. Energy Survey, Biomass Potential Survey for : 200 Nos. in 18 States Power Projects
6. Preparation of Detailed Project Report for Biomass: 45 Nos. Based Power Generation & Waste to Energy Plant
7. Energy Conservation Project for implementation of: 20 EC Act-2001
8. Integrated Rural Energy Planning Projects: 50 nos. in 8 States
9. Feasibility Study in Ceramic, Glass, Zinc & Copper Division
10. Potential Assessment Study in Sponge Iron Units: 29 Nos
11. Check Verification on DISCOM Sector in process: 2 Nos

1.2 Registration Number

MCJ Energy Engineers Pvt. Ltd. has been listed under Empanelled Accredited Energy Auditor serial number 22 by BEE.



ऊर्जा दक्षता ब्यूरो

(भारत सरकार, विद्युत मंत्रालय)

BUREAU OF ENERGY EFFICIENCY

CONSERVE IT

(Government of India, Ministry of Power)

39/01/AEA/PAT/BEE/12015 / 233-85

April 7, 2014

Mr. Moolchand Jain
Accredited Energy Auditor
MCJ Energy Engineers Pvt. Ltd.
244, Chouhan Estate, G. E. Road, Supela,
Bhilai – 490023 (C.G.)

Subject: List of Empanelled Accredited Energy Auditor Firms for PAT M & V

Sir,

As mentioned in Rule 9 of 269 of (E) PAT Rules (2012), Bureau of Energy Efficiency has finalized the list of Empanelled Accredited Energy Auditor Firms for PAT M&V (Verification and Check verification of Performance achieved in Assessment year 20014-15) (List sent by e-mail and also uploaded on BEE website).

While offering your services as Empanelled accredited energy auditor firm to Designated Consumers, mandate as provided in Rule 10 of 269 (E) PAT Rules, 2012 to be kept in view.

Yours Sincerely,

(K. K. Chakarvarti)

(K. K. Chakarvarti)
Energy Economist

Encl: List of Empanelled Accredited Energy Auditor Firms for PAT M&V

2. INTRODUCTION OF DESIGNATED CONSUMER

The Punjab State Electricity Board (PSEB) was a statutory body formed on February 1, 1959, under the Electricity Supply Act, 1948. Subsequently, with the reorganization of erstwhile state of Punjab under the Punjab Re-organization Act, 1966, the PSEB in its present form came into existence from May 1967. When Punjab was re-organized, the own installed generation

Capacity in the state was 58 MW and it relied mainly on its share of 552 MW from Bhakra-Nangal project. In later years, PSEB endeavored to augment and strengthen the power generation under its ownership and apart from Punjab's share in the BBMB and central sector projects. The PSEB constructed and maintained its transmission and distribution system for providing efficient services to the various categories of electricity consumers in the state. In later years, Punjab State Electricity Board played a crucial role in the success of Green Revolution as well as industrial and infrastructure development.

Unbundling or restructuring of state electricity utility became necessary after the Electricity Supply Act, 1948 was replaced by the Electricity Act, 2003. The new Act stipulates that the state electricity utilities be converted into company/ companies governed under the Company Law. It also calls for separating trading and transmission activities. The true hour in Punjab came on April 16, 2010 with the unbundling of PSEB into Punjab State Power Corporation Limited (PSPCL) & Punjab State Transmission Corporation Limited (PSPCL). PSPCL was entrusted with the responsibility of generation and distribution of power.

Details about the designated consumer and responsible professionals for dealing with the PAT scheme are highlighted below.

2.1 Sector

Sector: DISCOM Sector

Unit Type: PSPCL

Registration No. DIS0014PB

2.2 Name and address of Designated Consumer

Punjab State Power Corporation Limited (PSPCL), Patiala

The Mall, Patiala- 147001

Punjab

2.3 Name and details of Energy Manager and Authorized Signatory of DC

Details	Authorized Signatory	Energy Manager
Name	Er. Gopal Sharma	Er. Ravi Verma
Designation	Er-In-Chief (Energy Audit & Enforcement)	ASE
EM/EA No.	-	EA- 7969
E mail ID	ce-enf@pspcl.in	ivarverma76@gmail.com
Contact No.	0175-2212005	96461 18800

3. BACKGROUND

3.1 Introduction to PAT Scheme

The Ministry of Power (MoP) and BEE were entrusted with the task of preparing the implementation plan for the national mission for enhanced energy efficiency (NMEEE). One of the initiatives of NMEEE is Perform, Achieve and Trade (PAT). The key goal of PAT is to mandate specific energy efficiency improvements for most energy intensive industries. PAT flows out of the Energy Conservation Act, 2001 (amended in 2010). The relevant announcements pertaining to this exercise are given below:

The Ministry of Power, in consultation with the Bureau of Energy Efficiency, has prescribed energy consumption norms and standards, in the exercise of the power conferred under clause (g) and (n) of section 14 of the Energy conservation Act 2001 (amended in 2010) for Designated Consumers (DCs) – vide SO 687 (E) [Energy Conservation (Energy Consumption Norms and Standards for Designated Consumers, Form, Time within which, and Manner of Preparation and Implementation of Scheme, Procedure for Issue of Energy Savings Certificates and Value of per Metric Tonne of Oil Equivalent of Energy Consumed) Rules, 2012] dated 30 March, 2012 (containing baseline Specific Energy Consumption, Product Output and target Specific Energy Consumption for Designated Consumers).

The above notification is based on the rules under GSR 269 (E) [Energy Conservation (Energy Consumption Norms and Standards for Designated Consumers, Form, Time within which, and Manner of Preparation and Implementation of Scheme, Procedure for Issue of Energy Savings Certificates and Value of per Metric Tonne of Oil Equivalent of Energy Consumed) Rules, 2012] dated 30 March, 2012, herein referred as PAT Rules, 2012. Perform Achieve, and Trade (PAT) is a market-based mechanism to make improvements in energy efficiency in energy-intensive large industries and facilities making it more cost-effective by certification of energy savings that could be traded. The methodology adopted is simple and easy to use. It is based on specific energy consumption (SEC) reduction on a gate-to-gate basis to achieve targeted savings in the first commitment period of 3 years (2012-2015) under PAT cycle-1, which was envisaged to reduce the SEC of 478 designated consumers (DCs) from eight energy intensive sectors viz. Aluminium, Cement, Chlor- Alkali, Fertilizer, Iron & Steel, Paper & Pulp, Thermal Power Plant and Textile. The reduction of targets under PAT cycle-1 for overall DCs was notified in March, 2012 and all DCs together are to achieve a 4.05% reduction in the average energy consumption by 2014-15. This implies a reduction of about 6.686 MTOE in their annual energy consumption and a reduction of 23 million tonnes of carbon dioxide emission annually. The achievement in PAT Cycle-I is 8.67 MTOE which is an over achievement of about 30 percent in comparison to the assigned targets. This energy saving translates into reduction in 31 million tonnes of CO₂ emission.

PAT scheme was expanded to new sectors and new DCs from the existing sectors. For PAT Cycle –II, three new sectors viz. Railways, Refineries and Electricity Distribution Companies

(DISCOMs) were included. PAT Cycle-II has been notified on 31st March, 2016 and aims to achieve an overall energy consumption reduction of 8.869 MTOE. Under PAT Cycle-II, energy reduction targets have been assigned and notified to 621 DCs (448 existing, 89 additional DCs from existing sectors and 84 DCs from new sectors viz. Railways, Electricity DISCOMs and Refineries) in 11 sectors (eight existing sectors and three new sectors).

The PAT framework includes the following elements:

1. Methodology for setting specific energy consumption (SEC) for each DC in the baseline year;
2. Methodology for setting the target to reduce the Specific Energy Consumption (SEC) by the target year from the baseline year;
3. The process to verify the SEC of each DC in the baseline year and in the target year by an accredited verification agency;
4. The process to issue energy savings certificates (ESCerts) to those DCs who achieve SEC lower than the specified value;
5. Trading of ECerts;
6. Compliance and reconciliation of ECerts.

BEE has entrusted us to carry out check verification Audit to re-assess the SEC achieved by DC in assessment year (2018-19).

3.2 Purpose of Verification Report

The verification report is aimed at assessing the adherence of Designated Consumer with the requirements laid down by Bureau of Energy Efficiency, with regard to compliance with Energy Consumption norms and standards.

The process involves an EmAEA to verify the energy performance of designated consumers taking normalization and other relevant factors into consideration as defined by the PAT rules. The process of verification will ensure that the information and data in Form 1 and Pro-forma (submitted by DC for baseline year) are free from material omissions, misrepresentations and errors. This document helps develop clarity on the verification process as it:

- Provides Designated Consumers and EmAEA a set of guidelines to establish methods for assessment of specific energy consumption.
- Defines broad techniques for assessing/determining factors that affect the performance of the unit.
- Provides general terms, which are applicable to all sectors, and also terms specific to individual sectors.
- Guides according to Rule 3 of PAT Rules 2012 that lays the norms and standards of energy consumption.

4. APPROACH, SCOPE AND METHODOLOGY

4.1 Approach

The general approach to be followed by EmAEA is clearly indicated in the PAT consultation documents. A well-structured Monitoring and Verification (M & V) & check verification guidelines for each stake holder is provided. It is defined that check verification is the process to re-verify the distribution losses of a designated consumer through verifiable means in the baseline year and in the assessment year. The monitored data by DC to be taken into account should be consistent, transparent and acceptable to all consents. The data accounted during M & V Audit, should be re-checked and verified at the given point of time.

The following step by step approach has been adopted to carry out the Check Verification Audit:

Step 1: Review of baseline data submitted to BEE

1. Reverification of data submitted in Form 1 and Pro-forma for baseline year i.e. FY 2014-15, Baseline energy audit report.
2. Re-verification of the general correctness, completeness and interpretation of information.
3. Re-verification of formulae used in Form 1 and Pro-forma and calculation of distribution losses (as per the new methodology finalized by BEE).
4. Re-verification of the baseline distribution loss figure arrived.

Step 2: Review of data for PAT Cycle II

1. Check Verification of the general correctness, completeness and interpretation of information submitted in Form 1, reconfirmation of any changes from the baseline like gate-to-gate boundary, inclusions/exclusions etc.
2. Review of M&V relevant records and formats maintained at DC.

Step 3: Review of Data Sources

1. Re-verification of authenticity of data submitted in Base lines & Assessment year.
2. Distribution losses achieved at end of PAT cycle II (normalized as per finalized normalization methodology).

Step 4: Re-verification of Form A & Form B and submission of Form C

4.2 Methodology

Re-verification of M & V audit study based on review of available primary and secondary documents at DC and direct meetings with various management staff members. The methodology proposed to conduct check verification audit is as per the standardized procedure prescribed by BEE.

4.3 Work Order copy from DC

BEE placed a work-order with MCJEEPL for carrying out Check Verification audit during Nov 2020.

Work Order Number – 45/08/PAT/CV/20/1803 on dated 05/10/2020

4.4 Period of Check Verification

The check verification process was conducted during 5th & 6th Nov 2020 with M & V Audit report, MEA Report & other relevant data. The verification process started with an inception meeting and MCJEEPL team briefed the management staff about various tasks.

4.5 Composition of Team

The team from MCJEEPL assigned for check verification process is of multi-disciplinary. The team consists of one Accredited Energy Auditor, Sector expert, one Certified Auditor & one Sr. Energy Engineer.

Sl. No.	Name	Qualification	Sector Expert/EA/AEA/EmAEA Reg No (022)	Experience in Years
Team Leader				
1	Mr. Moolchand Jain	B.E. (Electrical)	AEA – 030	47 years
Team Members				
2	Mr. Manoj Dey	B.E. (Electrical)	DISCOM Sector Expert	47 years
3	Ms. Dipti Jain	B. E. (Computer Science)	CEA-17470	11 years
4	Ms. Swagatika Sahoo	M. Tech (Power & Energy System)	Senior Engineer	3 years

4.6 Assignments to the Team

Sl. No.	Name	Position	Activities	Days
1	Mr. Moolchand Jain	Accredited Energy Auditor/ Team Head	Data verification, Review of report, Issue of Form C, Report preparation	2
2	Ms. Dipti Jain	Certified Energy Auditor/ Team Leader	Planning, Communication to DC, Data verification, Review of EC measures, Review of report	2
3	Mr. Manoj Dey	Sector Expert	Data verification, Review of EC measures, Report preparation	2
4	Ms. Swagatika Sahoo	Sr Energy Engineer	Data verification, Review of EC measures, Report preparation	2

4.7 Minutes of Meeting with DC and Check Verification Team

At the end of the check verification process and after detailed presentation, a minutes of meeting (MOM) was prepared which was included as an internal document and the same has been attached below:

Check verification Audit of PSPCL (5th & 6th Nov 2020)

Minutes of Meeting (MOM)

Date: 06/11/2020

For M/s. Punjab State Power Corporation Limited (PSPCL) (DC):

Mr. Ranjit Singh	:	Executive Engineer (DSM)
Mr. Ravi Verma	:	Energy Auditor (CEA-7969)
Mr. Parupkar Singh	:	Addl. Superintending Engineer, Energy Auditor (CEA-7256)
Mr. Sandeep Alipuria	:	Addl. Superintending Engineer

M/s. MCJ Energy Engineers Pvt. limited Team (EmAEA):

Mr. Moolchand Jain	:	Accredited Energy Auditor (AEA-030)
Mr. Manoj Dey	:	DISCOM Sector Expert
Mrs. Dipti Jain	:	Certified Energy Auditor (CEA-17470)
Ms. Swagatika Sahoo	:	Senior Energy Engineer

1. MCJEEPL has conducted the check verification Audit of **M/s. Punjab State Power Corporation Limited (PSPCL), Patiala, Punjab** from 5th Nov 2020 to 6th Nov 2020 for PAT Cycle-II.
2. The Form-1/ Form-Sj Containing input Energy & Billed Energy with T & D Loss submitted during M & V Audit was rechecked by MCJEEPL Audit Team with the following authentic sources of PSPCL "Tariff Order from FY 2017-18 to FY 2019-20, Tariff Order for PSPCL for FY 2018-19 & Tariff Order for FY 2020-21 and ARR for 2nd MYT Control Period FY 2020-21 to FY 2022-23".



Page 1 of 4

Checked Data		Sources
Base Year 2014-15		
Input & Billed Energy	:	Tariff Order for PSPCL MYT Control Period from FY 2017-18 to FY 2019-20 (Volume-1)
FY 2016-17		
Input & Billed Energy	:	Tariff Order for PSPCL for FY 2018-19
FY 2017-18		
Input & Billed Energy	:	Tariff Order for PSPCL for FY 2018-19
Assessment Year 2018-19		
Input & Billed Energy	:	Tariff Order for FY 2020-21 and ARR for 2nd MYT Control Period FY 2020-21 to FY 2022-23

Note: The BY 2014-15 & AY 2018-19 data is verified from the above Tariff Orders.

3. The Following variations are noticed with respect to Sector Specific Form of PSPCL. As informed by PSPCL officials the reason for variation is due to unapproved & approved Energy Input & Sales data.

FY 2014-15			
Source Energy Balance FY 2014-15 (Table-2.6)			
SL. No.	Category	Form-Sj	Now submitted by PSPCL in ARR (Column IV)
1	Net input Energy	47647.44	48111
2	Billed Energy	40402.82	40402.00
3	T & D Loss (MU)	7244.62	7709.00
4	T & D Loss (%)	15.20	16.02

Note: Table 2.6 of Tariff order for FY 2017-18 to FY 2019-20 (Energy Balance FY 2014-15) is explained about "Now submitted data by PSPCL in ARR, Now approved by the commission and Sales & actual T & D losses as per approved energy available". The data consider was **Now submitted by PSPCL in ARR (Column-IV)** as per net input energy notified in revised Gadget Notification.

Ram Singh

Ram Singh

[Signature]

Page 2 of 4

FY 2018-19			
Energy requirement of PSPCL determine by the commission for FY 2018-19 (Table-9)			
SL. No.	Category	Form-Sj	Computed by the commission with actual losses
1	Net input Energy	53490.75	54037.64
2	Billed Energy	47672.07	47043.42
3	T & D Loss (MU)	5818.68	6994.22
4	T & D Loss (%)	10.88	12.94

Note: Table 9 Energy requirement of PSPCL determined by the commission for true up for FY 2018-19 in Tariff order FY 2020-21 for PSPCL is explained **Submitted by PSPCL (vide email dated 06.02.2020), Determined by the commission with target T & D losses & Computed by the commission with actual losses.** The data consider was from the column- VI **Computed by the commission with actual losses.**

4. The certified copies of all the supporting documents has been collected by MCJEEPL Team.
5. As informed by PSPCL officials the true up data for FY 2018-19 is sent to Competent authority of PSPCL for their necessary approval. As soon as the approval is accorded, the final data will be communicated by PSPCL official to BEE & check verification auditors for necessary revision, if any.
6. During the process of check verification, it has been noticed that there is some variation in data between Sector Specific Form FY 2014-15 (Form-1, Form- Input energy & Form- Sj), initially filled & submitted and below mention points of Tariff order for MYD control period from FY 2017-18 & FY 2019-20 (table 2.6)
 - a. Approved by the Commission in T. O. FY 2015-16 in review
 - b. Now submitted by PSPCL in ARR
 - c. Now approved by the commission
 - d. Sales & actual T & D losses as per approved energy available.





7. During the process of check verification, it has been noticed that there is some variation in data between Sector Specific Form (Form-1, Form- input energy & Form- Sj), filled & submitted and below mentioned points of PSPRC Tariff order FY 2020-21 for PSPCL (table 9).
- Approved by the Commission in T. O. FY 2019-20 for FY 2019-20
 - Submitted by PSPCL (vide email dated 06.02.2020)
 - Determined by the commission with target T & D losses
 - Computed by the commission with actual losses.

Sl. No.	For PSPCL,	For MCJEEPL
1	Ram Singh	
2	Ravindra	
3		
4		Swagatika



4.8 Checklist prepared by EmAEA

The detailed checklist was prepared on receipt of the work order and the same was forwarded to the DC to keep all the relevant documents ready.

1. List of Form 1 submitted to SDA and BEE for financial years 2014-15, 2018-19.
2. DISCOM Annual reports for the financial years 2016-17, 2017-18, 2018-19.
3. M & V Audit Report.
4. Mandatory Energy Audit Report

5. BASELINE AND ASSESSMENT YEAR SCENARIO

5.1 PSPCL details

The key details of the PSPCL are given in Table 5.1.

Table 5.1: Key figures of PSPCL as on 2018-19

Parameters	FY 2014-15	FY 2018-19
No of feeders at 66kV voltage level	120	134
No of feeders at 33kV voltage level	4	5
No of feeders at 11kV voltage level	9100	11101
No of LT feeders level	0	0
Line length (ckt. km) at 66kV voltage level	8789	10099
Line length (ckt. km) at 33kV voltage level	382	87
Line length (ckt. km) at 11kV voltage level	214860	242012
Line length (km) at LT level	149698	147083
HT/LT ratio	1.435	1.645

The consumer base of the Company as on 31st March 2015 and 2019 were collected for comparison. The customer base of PSPCL in the BY and AY is given in Table 5.2.

Table 5.2: The customer base of PSPCL in the BY and AY

Sl. No.	Particulars	Unit	M & V Audit Report & Sector Proforma		Check Verification	
			2014-15	2018-19 (Provisional)	2014-15	2018-19
1	Energy Input in MU	MU	46999.80*	53490.75	48111	53490.75
2	Total Energy Sales in MU	MU	40402.82	47672.07	40402	47043.42
3	Metered Sales in MU	MU	29744.41	36477.28	29744	36272.97
4	Unmetered Sales in MU	MU	10658.41	11194.78	10658	10770.45
5	Distribution Loss	%	15.20%	10.88%	16.02%	12.05%

* There is a variation in Net input energy data entered in Form- Input Energy (46999.80) & Form-Sj (47647.44) of FY 2014-15.

1. The Baseline Energy Input & Sales data are taken from Tariff Order for MYT Control Period from FY 2017-18 to FY 2019-20 for PSPCL. **(Refer Annexure No. 10.1 Page No. 35)**
2. The Assessment Year Energy Input & Sales data are taken from PSPCL Tariff Order for FY 2020-21 and ARR for 2nd MYT Control Period FY 2020-21 to FY 2022-23. **(Refer Annexure No. 10.2 Page No. 40)**
 - I. Input energy Table-9, Column-IV, Page No. 45, subtracting actual transmission losses.
 - II. Billed Energy, Table-8, Column-IV, Page No. 44, Total Energy Sales (2018-19)

5.2 Purchased energy in Baseline and Assessment Year

As per M & V Audit (Audit Report & Sector Specific Proforma) Net Input Energy received at DISCOM Periphery is 46999.80* MU for Baseline Year 2014-15 & 53490.75 MU for FY 2018-19 which is collected from 66kV, 33kV & 11kV. During Check Verification it is found out that Net Input Energy received at DISCOM Periphery is 48111 MU for Baseline Year 2014-15 & 54037.64 MU for FY 2018-19. The details of the Purchased Energy, Net input energy at the DISCOM periphery along with billed energy and distribution losses for baseline and assessment year are given in Table 5.3:

Table 5.3: Baseline and assessment year details as per M & V Audit & Sector Specific Proforma

Sl. No	Parameters	Unit	M & V Audit & Sector Specific Proforma		Check Verification	
			2014-15	2018-19 (Provisional)	2014-15	2018-19
1	Net input energy (received at DISCOM periphery or at distribution point, after adjustment)	MU	46999.80*	53490.75	48111	53490.75
2	Distribution loss	MU	7244.62	5818.68	7709.00	6447.33
3	% Loss	%	15.20	10.88	16.02	12.05

* There is a variation in Net input energy data entered in Form- Input Energy (46999.80) & Form-Sj (47647.44) of FY 2014-15.

5.3 Electricity Consumption parameters

The Electricity Consumption figures of different categories which are available with the commercial division for the Baseline & Assessment Years is given in Table 5.4.

Table 5.4 gives the energy sales for BY and AY (As per M & V Audit & Check Verification)

M & V Audit Report & Sector Specific Proforma (Form-Sj)										
Consumer category	Baseline year (2014-15) Billed energy (MU)					Assessment Year (2018-19) Billed energy (MU)				
	Input Energy (MU)	Metered Energy	Unmetered/ Assessment Energy	Total Energy	Energy Consumption (%)	Input energy (MU)	Metered Energy	Unmetered/ Assessment Energy	Total Energy	Energy Consumption (%)
Residential	47647.44	11287.98	0.00	11287.98	27.94%	53490.75	13622.86	0.00	13622.86	28.58%
Agricultural		237.73	10658.41	10896.13	26.97%		155.51	11194.78	11350.29	23.81%
Commercial/ Industrial- LT		6441.87	0.00	6441.87	15.94%		8229.62	0.00	8229.62	17.26%
Commercial/ Industrial- HT		10808.31	0.00	10808.31	26.75%		13371.31	0.00	13371.31	28.05%
Others		968.52	0.00	968.52	2.40%		1097.99	0.00	1097.99	2.30%
At Company level	47647.44	29744.41	10658.41	40402.82	100%	53490.75	36477.28	11194.78	47672.07	100.00%

Check Verification										
Consumer category	Baseline year (2014-15) Billed energy (MU)					Assessment Year (2018-19) Billed energy (MU)				
	Input Energy (MU)	Metered Energy	Unmetered/ Assessment Energy	Total Energy	Energy Consumption (%)	Input energy (MU)	Metered Energy	Unmetered/ Assessment Energy	Total Energy	Energy Consumption (%)
Residential	48111	11483	0	11483	28.42%	54037.64	13222.95	0.00	13222.95	28.11%
Agricultural			10658	10658	26.38%		65.71	10770.45	10836.16	23.03%
Commercial/ Industrial- LT		6190	0	6190	15.32%		7391.98	0.00	7391.98	15.71%
Commercial/ Industrial- HT		11097	0	11097	27.47%		14055.59	0.00	14055.59	29.88%
Others		974	0	974	2.41%		1536.74	0.00	1536.74	3.27%
At Company level	48111	29744	10658	40402	100%	54037.64	36272.97	10770.45	47043.42	100.00%

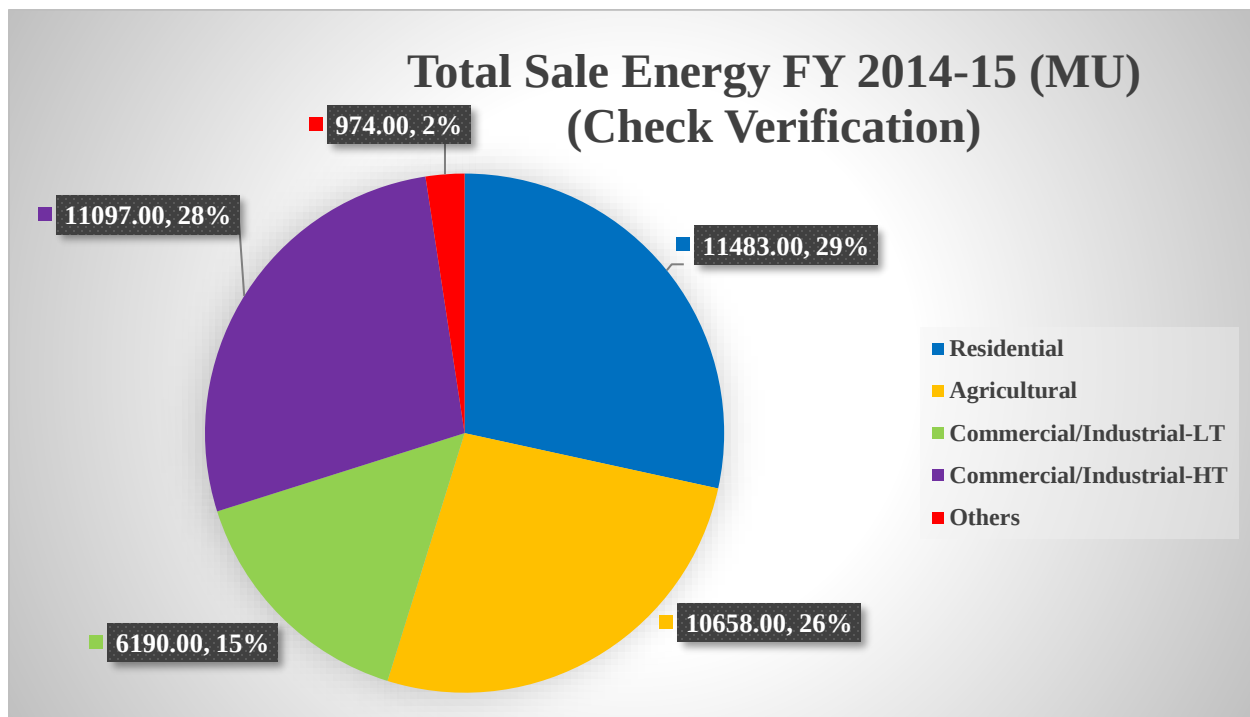


Fig: Total Sale Energy Customer Category-wise FY 2014-15 as per Check Verification

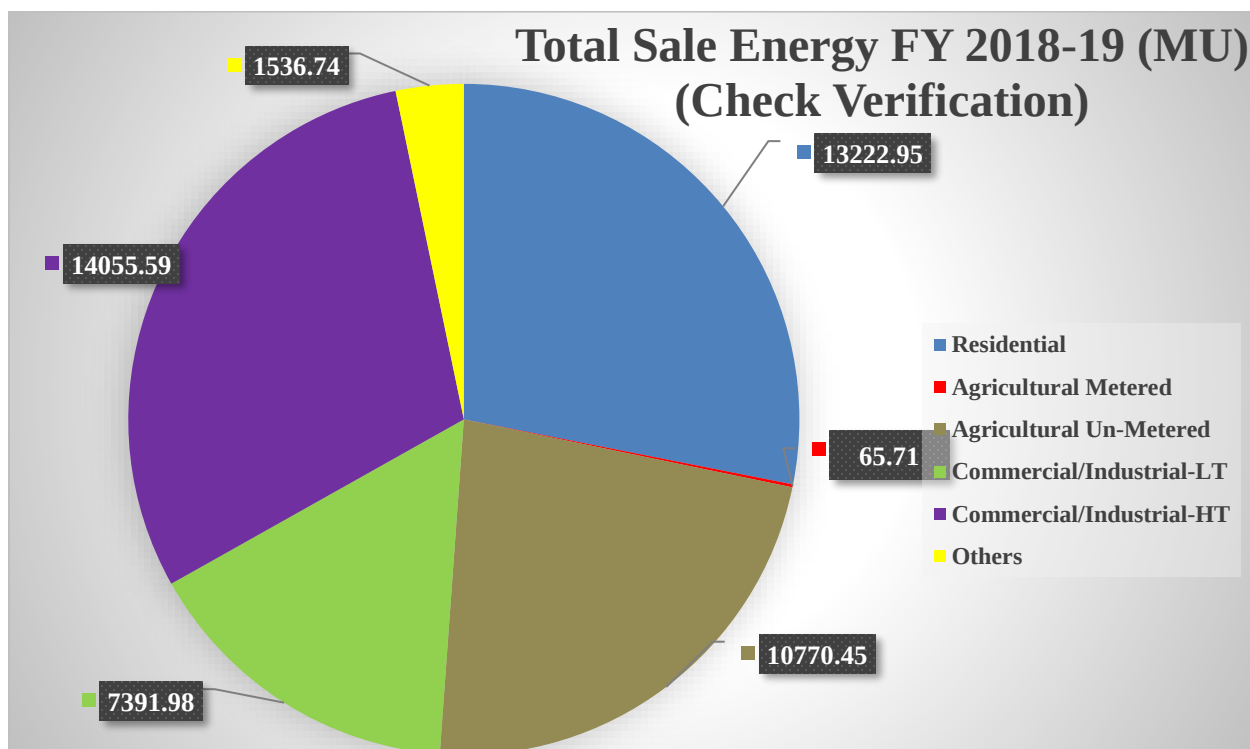


Fig: Total Sale Energy Customer Category-wise FY 2018-19 as per Check Verification

The category wise sales approved by the Commission in the Tariff Order of FY 2018-19 for PSPCL, revised in review in the Tariff Order of FY 2019-20, which is tabulated below (refer **Annexure No. 10.2 Page No 40 to 45**).

Table 5.5: Metered Energy Sales within the State for AY 2018-19

Sl. No.	Category	Consumer Category	Submitted by PSPCL for True Up Revised vide reply on 06.02.2020
1	Domestic	Residential	13222.95
2	Non-Residential	Commercial/ Industrial-LT	3988.17
3	Small Power Ind.		805.57
4	Medium Supply Ind.		2598.24
5	Large Supply Ind	Industrial-HT	14055.59
6	Public Lighting	Others	157.83
7	Bulk Supply		602.89
8	Railway Traction		221.01
9	AP High Tech/ High Density Farming		0.11
10	Compost/ Solid waste Management Plants		0.38
11	Start-up Power for generators/CPPs		149.55
12	Temporary Supply		123.02
13	Adjusted Units		281.95
	Total		36207.26

Table 5.6: AP consumption determined by the Commission for AY 2018-19

Sl. No.	Description	MU
1	Energy pumped during the year:	
(i)	3-phase 3-wire AP feeders	11413.55*
(ii)	3-phase 4-wire AP feeders	^a 2.92
(iii)	Kandi Area mixed feeders feeding AP load	^b 557.47
(iv)	Kandi Area pure AP feeders	7.4
	Total	11981.34
2	Less losses @10.11% (85% of 11.89%)	^c 1213.89
3	Net AP consumption (Un-metered)	10773.45
4	Metered AP consumption	65.71
5	Total AP consumption for FY 2018-19	10839.16

Note: As per the data of pumped energy supplied by PSPCL (Tariff Order FY 2020-21 for PSPCL)

^aCalculated by multiplying the number of 3-phase 4-wire AP feeders for each month with AP consumption per feeder for that month of 3-phase 3-wire AP feeders.

^bCalculated by assuming the AP load on Kandi area mixed feeders feeding mixed load, as 30%.

^cThe loss @10.11%(11 kV and below) for FY 2018-19 has been worked out as per the target of distribution loss of 11.89% fixed in the Tariff Order for FY 2017-18.

Table 5.7: Total Energy Sales for AY 2018-19

Sl. No.	Particulars	Approved by the Commission for True Up
1	Metered sales within State	36207.26
2	AP consumption	10836.16
	Total sales within State	47043.42

5.4 T & D losses in Baseline year and Assessment year

Table 5.6 gives the performance of PSPCL Min terms of distribution losses. Though there is an increase in the purchased energy and in the net input energy to the DISCOM periphery, there is a reduction in the T & D losses from BY to AY. According to M & V Audit the T & D losses reduced from 15.20% to 10.88%. In Check Verification it is found out that the T & D Losses reduced from 16.02 to 12.05%. This is due to different DSM activities implemented along with implementation of several projects which has resulted in reduction in distribution losses. The losses in BY and AY are given in Table 5.9

Table 5.8: Gives the energy purchased, net input, billed and losses for BY and AY (As per M & V Audit & Check Verification)

Sl. No.	Parameter	Unit	M & V Audit & Sector Specific Proforma		Check Verification	
			BY (2014-15)	AY (2018-19) (Provisional)	BY (2014-15)	AY (2018-19)
(i)	Input energy purchase	MU	29604.51	57631.09	29604.51	57804.90
(ii)	Net input energy (DISCOM Periphery)	MU	47647.44*	53490.75	48111.00	53490.75
(iii)	Energy billed	(MU)	40402.82	47672.07	40402.00	47043.42
(iv)	T&D loss	(MU)	7244.62	5818.68	7709.00	6447.33
(v)	T&D loss	%	15.20%	10.88%	16.02%	12.05%

6. DATA REPORTS BY DCs

6.1 Brief write up on Reports submitted by DC

The PSPCL has submitted Form-1 of baseline period as per norms to the SDA and BEE and completed the e-filing process in stipulated time. The submitted data to BEE has been shared by the PSPCL along with Form-1 for 2018-19 and the check verification process was carried out by verifying the pro-forma documents provided by the DC and also verifying the primary source data for some of the major parameters affecting the T & D losses of the DISCOM.

PSPCL provides month wise energy purchased and Energy consumption report for monitoring and analysis. During the check verification audit, Tariff Order Report along with Sector Specific Proforma of Baseline & last three financial years (2014-15, 2016-17, 2017-18 and 2018-19) were collected. At the time of Check Verification Audit, the data filled up in Sector Specific Proforma & in M & V Audit Report was verified from following sources of data. **(For Tariff Order refer Annexure No. 10.1 to 10.3 Page No. 35 to 56)**

Table 6.1: Source of Energy & Production data with their recording details

Sl. No.	Checked Data	Sources
1	Base Year 2014-15	
	Input & Billed Energy	Tariff Order for PSPCL MYT Control Period from FY 2017-18 to FY 2019-20 (Volume-1)
2	FY 2016-17	
	Input & Billed Energy	Tariff Order for PSPCL for FY 2018-19
3	FY 2017-18	
	Input & Billed Energy	Tariff Order for PSPCL for FY 2018-19
4	Assessment Year 2018-19	
	Input & Billed Energy	Tariff Order for FY 2020-21 and ARR for 2nd MYT Control Period FY 2020-21 to FY 2022-23

6.1.1 DISCOM Performance on Energy Consumption in last three Years

During the Check verification Audit, Baseline data and Form-1 for 2014-15 and 2018-19 was collected and the data was verified based on primary and secondary sources. The comparison details for the last three financial years are given in Table 6.2.

Table 6.2: Performance of FY 2016-17

			As per Sector Specific Proforma	Check Verification
Sl. No	Parameter	Unit	2016-17	2016-17
1	Net input energy (DISCOM Periphery)	MU	52206.35	52206.35
2	Energy billed	(MU)	44241.42	44241.42
3	T&D loss	(MU)	7964.93	7964.93
4	T&D loss	%	15.26	15.26

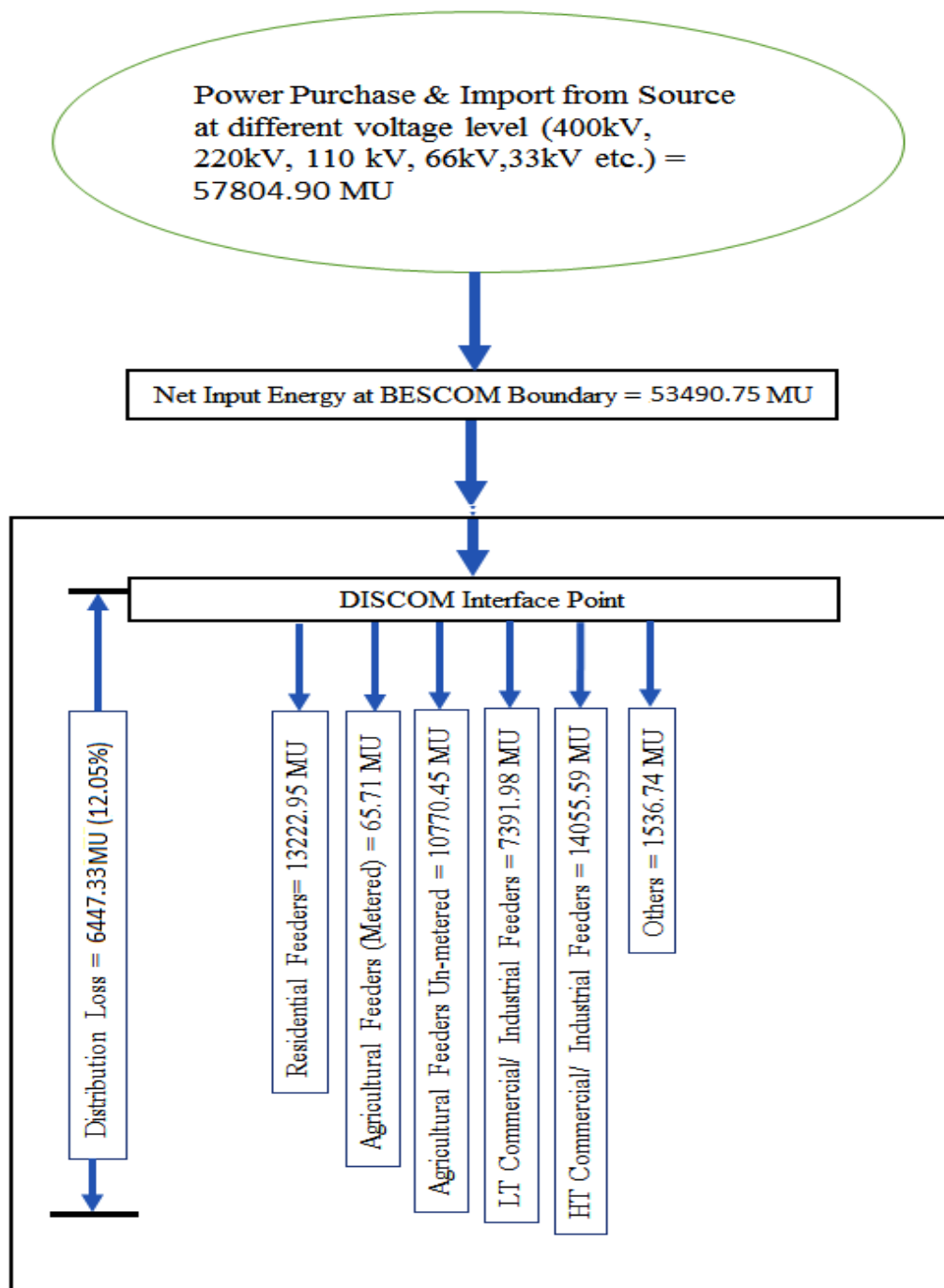
During Check Verification, the Data of FY 2016-17 is verified from “Now submitted by PSPCL in the ARR” of Table 2.7 Energy Balance for FY 206-17 Column IV of Tariff Order for PSPCL for FY 2018-19.

Table 6.3: Performance of FY 2017-18

			As per Sector Specific Proforma	Check Verification
Sl. No	Parameter	Unit	2017-18	2017-18
1	Net input energy (DISCOM Periphery)	MU	147952.52	55423.43
2	Energy billed	(MU)	131283.73	47248.47
3	T&D loss	(MU)	16668.79	8174.96
4	T&D loss	%	11.00	14.75

During Check Verification, the Data of FY 2017-18 is verified from “Submitted by PSPCL in the ARR/RE” of Table 3.5A Energy Requirement Column VII of Tariff Order for PSPCL for FY 2018-19.

7. GATE TO GATE DIAGRAM AY 2018-19



8. PROFORMA VERIFICATION DURING CHECK VERIFICATION AUDIT

8.1 Findings on linking errors, calculation errors

MCJEEPL have verified calculations and linking incorporated in the Pro-forma sheet prepared by BEE for DISCOM sector during Check Verification. There is a variation in Net input energy data entered in Form- Input Energy (46999.80) & Form-Sj (47647.44) of FY 2014-15 which is linking errors in the Pro-forma sheet.

8.2 Discrepancies in calculations in Pro-forma and Normalization sheets

- As per Revised Notification on dated 1st Oct 2018 of PAT Cycle-II for DISCOM, the Notified Baseline % T & D Losses is 16.5%, but as per M & V Audit & Sector Specific Proforma the Baseline % T & D losses is changed to 15.2% and during Check Verification it is verified to 16.02%.
- The Assessment Year % T & D losses is 10.88% according to M & V Audit & Sector Specific Proforma. During Check Verification it is verified to 12.05%.

8.3 Check Verification of Baseline & Assessment Year

8.3.1 List of documents verified with each parameter

Each of the parameter in Proforma (Form-1, Form-Input Energy & Form-Sj) is verified with the supporting document provided by the PSPCL which is mentioned below Table 8.1.

Table 8.1: List of documents verified for respective parameters

S. No	Particulars	FY 2014-15 Source of Data	FY 2018-19 Source of Data
1	Net Input Energy	Tariff Order for PSPCL MYT Control Period from FY 2017-18 to FY 2019-20 (Volume-1)	Tariff Order for FY 2020-21 and ARR for 2nd MYT Control Period FY 2020-21 to FY 2022-23
2	Residential		
3	Agricultural		
4	Commercial/ Industrial- LT		
5	Commercial/Industrial- HT		
6	Others		
7	Billed Energy		
8	T & D Losses		

8.4 Percentage of Transmission & Distribution Losses

The details of T % D losses for the Baseline Year and Assessment Year are mentioned below Table 8.2. Table 8.2: % of T & D Losses for Baseline & Assessment year

Sl. No.	Particulars	Unit	BY 2014-15	AY 2018-19
1	Percentage of Transmission & Distribution Losses	%	16.02	12.05

8.5 Details of Energy Saving Projects

AGRICULTURE SOLAR PUMPSETS



INAUGURATION OF CONSUMER APP



INAUGURATION OF SUBSTATION AT THAPER



INAUGURATION OF UJWALA SCHEME



PSPCL PAYMENT KIOSKS FOR PUBLIC



PSPCL REPLACING OLD METERS WITH NEW METERS



9. CONCLUSION WITH ENERGY SAVING CERTIFICATES CALCULATION

During Check Verification Audit, some linking error & ESCerts calculation error is noticed, which is corrected & accordingly Form-C is issued.

Energy Saving Certificates (ESCert) Calculations:

Total ESCerts = Difference in %T&D Losses (Target – Achieved) * Notified Baseline Net Input Energy (MU) * 860/1000

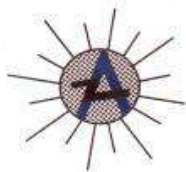
Table 9.1: ESCerts Calculation for PSPCL

ESCert Eligibility for PSPCL						
Sl. No.	Parameters	Baseline Energy in MU	Base line T & D Loss (%)	Target (%)	Achieved (%)	ESCert
1	As per Revised Notification	48113.24	16.5	14	-	-
2	As per M & V Audit Report	48113.24	16.5	14	10.88	$= (14.00-10.88) * 48113.24 * 860/1000$ = 129180
3	As per Check Verification	48111	16.02	-	12.05	$= (14.00-12.05) * 48113.24 * 860/1000$ = 80686

The ESCerts Calculation has been done according to Target & Input Energy Notified in Revised Notification S.O. 5045 (E) dated 1st Oct 2018.

The ESCerts eligibility is 80686 **Nos** according to Check Verification Audit & accordingly Form-C is issued as per Energy Conservation Act, PAT Rules. **(For Form-C Refer Serial No 9.1 Page No.34)**

9.1 Form-C



MCJ ENERGY ENGINEERS (P) LTD.

ACCREDITED ENERGY AUDITOR, BEE

AN ISO 9001 : 2015 COMPANY



MCJEE/C-11/PAT C-V/PSPCL/2021-22/036(R)

Date: 17.06.2021

Form C
(See rule 7)

Certificate of Check - Verification

I/We **M/s MCJ Energy Engineers Pvt. Ltd.**, the accredited energy auditor, have undertaken a thorough independent evaluation of the activities undertaken by **M/s Punjab State Power Corporation Limited (PSPCL)**, a designated consumer for compliance to the energy consumption norms and standards specified under the Government of India, Ministry of Power notification numbers **S.O. 5045(E)**, dated the **1st Oct, 2018** during the target year compared to the baseline year and consequent entitlement or requirement of energy savings certificates, mentioned in the Performance Assessment Document in Form 'A' and compliance of energy consumption norms and standard document in Form 'D' and certify that-

- the check-verification of the data collection in relation to energy consumed and specific energy consumption per unit of production in the baseline year and in the target year in Form I under Rules 2007 or Rules 2008, has been carried out diligently and truthfully;
- the check-verification of the identified energy efficiency measures, and the progress of their implementation given in Form II and Form III under Rules 2008 has been carried out diligently and truthfully;
- the check-verification of the compliance with energy consumption norms and standards during the target year has been carried out diligently and truthfully;
- the check-verification of the total amount of energy saved, year-wise, after the baseline year and until target year or otherwise and request made by the designated consumer, the entitlement of **80686** (Nos) energy savings certificate (s) **required to be issued or purchased** by him have been carried out diligently and truthfully;
- all reasonable professional skill, care, and diligence have been taken in check-verifying the various verification activities, findings and conclusions, documents, reports, preparing the documents including the information given in the Performance Assessment Document in Form 'A' and verification report submitted by the accredited energy auditor appointed by the designated consumer **M/s Punjab State Power Corporation Limited (PSPCL)** for verification and the contents thereof are a true representation of the facts.

Signature:

Name of accredited energy auditor for check-verification: **M. C. Jain**

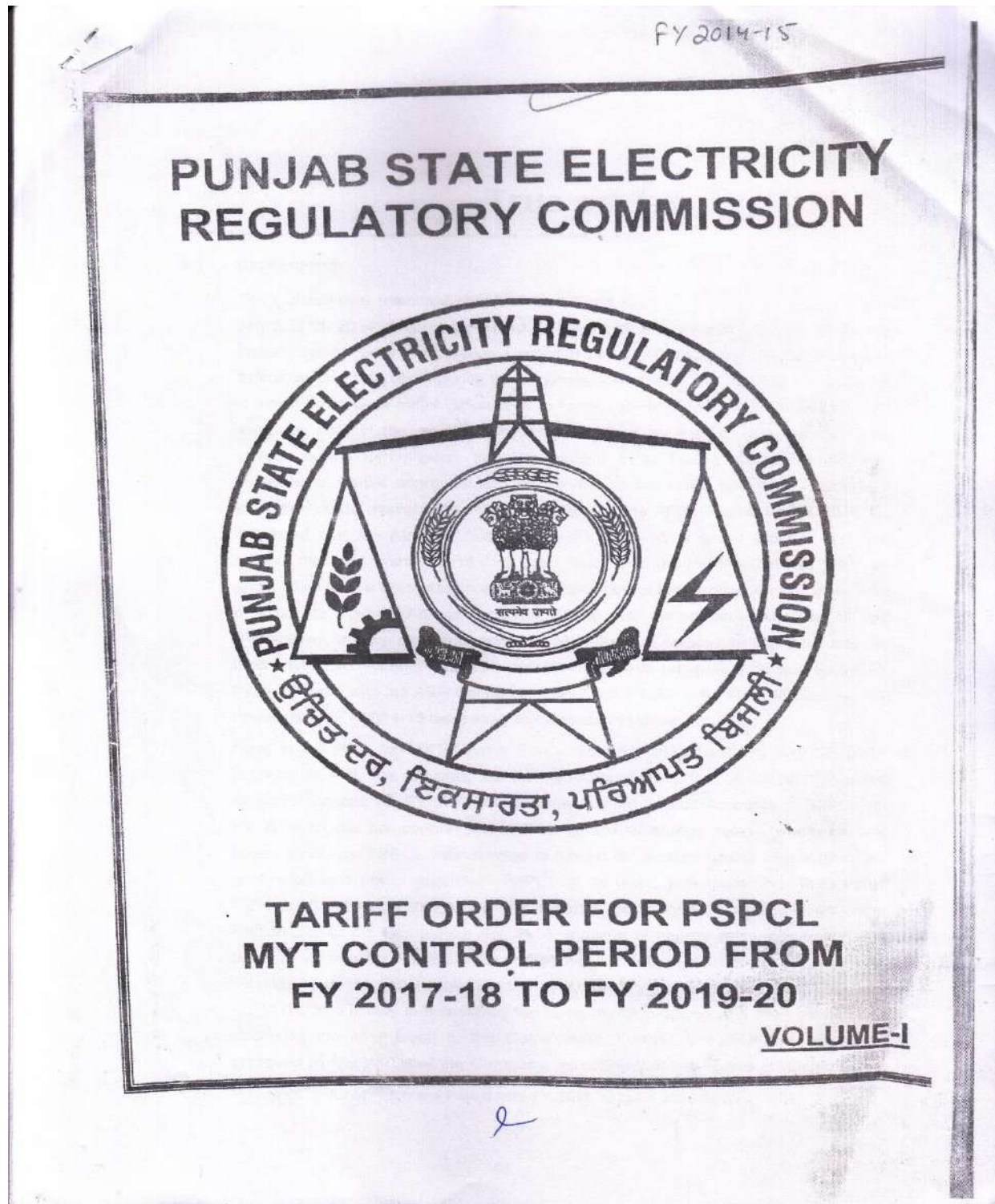
Designation: Empanelled Accredited Energy Auditor, BEE (EmAEA-022)

Name of the Empanelled Accredited Energy Auditor Firm: **MCJ Energy Engineers Pvt. Ltd.**

Please reply to Regd. Off. : 244, Chouhan Estate, G.E. Road, Supela, Bhilai - 490023 (C.G.) India
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10. ANNEXURE**10.1 FY 2014-15- Tarif Order for PSPCL MYT Control period from FY 2017-18 to FY 2019-20 (Volume-1)**

Chapter 2

True up for FY 2014-15

2.1 Background

The Commission approved the ARR and Tariff for FY 2014-15 in its Tariff Order dated 22.08.2014, which was based on the costs and revenues estimated by the Punjab State Power Corporation Limited (PSPCL). PSPCL had furnished revised estimates for FY 2014-15 during the determination of ARR and Tariff for FY 2015-16, in which there were major differences in certain items of costs as well as projected revenues both in the revised estimates furnished by PSPCL and the approvals granted by the Commission. The Commission, in its Tariff Order of FY 2015-16, reviewed its earlier approvals and re-determined the same based on the revised estimates made available by PSPCL. PSPCL, in its ARR Petition for FY 2016-17, submitted that the Audit of Accounts for FY 2014-15 is under process and had prayed that the truing up of the costs and revenue for FY 2014-15 may be undertaken by the Commission after the finalisation of the Audited Annual Statement of Accounts (Audited Annual Accounts) of the year. As per provisions under Tariff Regulations, true up can be undertaken only after the Audited Annual Accounts are made available. As such, the Commission decided to undertake the true up for FY 2014-15 along with the ARR Petition of PSPCL for FY 2017-18, when Audited Annual Accounts for FY 2014-15 were likely to be made available.

Now, in the ARR for MYT Control Period from FY 2017-18 to FY 2019-20 (ARR petition), PSPCL has furnished the Audited Annual Statement of Accounts (Audited Annual Accounts) for FY 2014-15. But, the Audited Annual Accounts of PSPCL for FY 2014-15 did not contain the audited figures of energy sales, generation and power purchase. PSPCL was directed to furnish the audited figures of energy sales, generation and power purchase. PSPCL in its reply, vide memo no. 1178 dated 23.12.2016 submitted that as per the duties of Statutory Auditors laid down under section 227 of the Companies Act, 1956, auditing of energy sales, generation and power purchase figures are over and above the scope of Statutory Audit. It was submitted that the figures taken in the ARR are duly signed by the Chief Engineer/ARR&TR, who is duly authorised by the company for preparing the ARR petition and disclosing the information to the Commission. Further, the ARR has been duly approved by the WTDs of the Company, indicating that the figures of energy sales,

PSERC – Tariff Order for MYT Control Period from FY 2017-18 to FY 2019-20 for PSPCL

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generation and power purchase are also approved by the WTDs. After considering the reply of PSPCL, the Commission decided to take into consideration the energy sales, generation and power purchase figures as submitted by PSPCL in the ARR petition. However, the Commission once again directs PSPCL to submit these figures duly audited in future.

The figures supplied by PSPCL vary somewhat from the figures taken into account in the Review for FY 2014-15 by the Commission. This Chapter contains a final true up of FY 2014-15, based on figures submitted by PSPCL in the ARR petition.

2.2 Energy Demand (Sales)

2.2.1 The sales projected by PSPCL during the determination of ARR for FY 2014-15, sales approved by the Commission in the Tariff Order of FY 2014-15, revised estimates furnished by PSPCL during determination of ARR of FY 2015-16, sales revised by the Commission in review, sales figures now given by PSPCL and approved by the Commission are summarized in Table 2.1.

Table 2.1: Energy Sales – FY 2014-15

Sr. No.	Category	Projected by PSPCL during determination of ARR FY 2014-15	Approved by the Commission in T.O. FY 2014-15	Revised Estimates by PSPCL during determination of ARR FY 2015-16	Revised by the Commission in Review	Energy Sales figures now submitted by PSPCL for true up	Now approved by the Commission
I	II	III	IV	V	VI	VII	VIII
1.	Domestic	11683	11637	11489	11490	11483	11483
2.	Non-Residential	3347	3331	3246	3245	3266	3266
3.	Small Power	981	981	924	925	915	915
4.	Medium Supply	1998	1996	1943	1942	2009	2009
5.	Large Supply	10248	10172	11252	11252	11097	11097
6.	Public Lighting	170	170	187	185	183	183
7.	Bulk Supply	619	619	633	634	639	639
8.	Railway Traction	130	130	153	151	152	152
9.	Total metered Sales (within the State)	29176	29036	29827	29824	29744	29744
10.	Common Pool	289	289	309	309	307	307
11.	Outside State sales	129	54	73	73	157	73*
12.	Total metered Sales (9+10+11)	29594	29379	30209	30206	30208	30124
13.	AP consumption	11586	9749	10832	10264	10658	9630**
14.	Total Sales (12+13)	41180	39128	41041	40470	40866	39754

* as discussed in para 2.2.2

** as discussed in para 2.2.3

PSPCL has furnished the total sales at 40866 MU for FY 2014-15, in the ARR petition, as shown column VII of Table 2.1.

2.2.2 Metered Sales

In view of discussion as brought out in para 2.1 and on the basis of sales figures

supplied by PSPCL in the ARR petition, the Commission approves metered sales within the State at 29744 MU.

PSPCL has also submitted 157 MU of energy sales under the head "Outside State sale," consisting of 20 MU of sales to other States, 53 MU as royalty of Himachal Pradesh (HP) from Shanan and 84 MU as free share from RSD to HP. The Commission considers the Outside State sale of 73 MU, after excluding free share of HP in RSD from Outside State sales. Further, the Commission considers sales to common pool consumers as 307 MU on the basis of figures given in the ARR petition.

Thus, total metered sales now approved by the Commission are 30124 MU as shown in column VIII, Sr. No. 12 of Table 2.1.

2.2.3 AP Consumption

PSPCL in its ARR for FY 2014-15, projected the AP consumption as 11586 MU and the Commission, in its Tariff Order for FY 2014-15, approved AP consumption of 9749 MU, after applying 3 year CAGR from FY 2010-11 to FY 2013-14, which worked out to be 0.24%, over the consumption of 9726 MU approved by the Commission for FY 2013-14 (review) in the Tariff Order for FY 2014-15. In the ARR petition for FY 2015-16, PSPCL had revised the estimate of AP consumption to 10832 MU for FY 2014-15. The Commission, in the review of FY 2014-15 carried out in the Tariff Order for FY 2015-16, approved the AP consumption of 10264 MU for FY 2014-15, on the basis of energy pumped during April, 2014 to December, 2014 and on proportionate basis (in proportion to average of the percentages of AP consumption during the last three months to the first nine months of FY 2011-12, FY 2012-13 and FY 2013-14) for the period from January, 2015 to March, 2015. PSPCL has now submitted the energy sales to AP category for FY 2014-15 as 10658 MU, in the ARR petition.

PSPCL in the ARR has submitted as under:

- i) The Commission had approved the AP consumption of 9749 MU for FY 2014-15 in the Tariff Order, after applying 3-year CAGR of 0.24% from FY 2010-11 to FY 2013-14 (RE) over the AP consumption of 9726 MU approved by the Commission for FY 2013-14 (RE) in the Tariff Order for FY 2014-15, against 11586 MU projected by PSPCL in its ARR of FY 2014-15. In the revised estimate of FY 2014-15, the Commission determined the AP consumption based on the month-wise energy pumped in AP feeders. PSPCL has further submitted that the Commission has changed the methodology for AP consumption in the Tariff

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submitted power purchase during FY 2014-15 as 28906 MU (net), in the ARR petition. This matter is further discussed in para 2.8.

2.6 Energy Balance

- 2.6.1 The details of energy requirement and availability for FY 2014-15 approved by the Commission in review in the Tariff Order of FY 2015-16 and figures now furnished by PSPCL in the ARR are given in Table 2.6. PSPCL has prayed in the ARR petition to approve the energy balance as projected in the ARR and allow incentive for lower T&D losses of 15.20% against approved trajectory of 16.00% for FY 2014-15. The energy balance, including T&D losses along with sales and availability now approved by the Commission is depicted in column VI of Table 2.6.

Table 2.6: Energy Balance – FY 2014-15

					(MU)
Sr. No.	Particulars	Approved by the Commission in T.O. FY2015-16 in review	Now submitted by PSPCL in ARR	Now approved by the Commission	Sales & actual T&D losses as per approved energy available
I	II	III	IV	V	VI
A) Energy Requirement					
1.	Metered Sales	29824	29744	29744	29744
2.	Sales to Agriculture Pumpsets	10264	10658	9630	9630
3.	Total Sales within the State	40088	40402	39374	39374
4.	Loss percentage	16.00%	15.20%	16.00%	17.38%
5.	T&D losses	7636	7242	7500	8284
6.	Sales to Common pool consumers	309	307	307	307
7.	Outside State Sales	73	157	73	73
8.	Total requirement	48106	48106*	47254	48038
B) Energy Available					
9.	Own generation (Ex-bus)				
10.	Thermal	12592	10651	10662	10662
11.	Hydro(Including share from BBMB and common pool consumers)	8558	8554**	8470	8470
12.	Purchase (net)	26956	28906	28906	28906
13.	Total Available	48106	48111	48038	48038

*Against 7245 MU and 48111, wrongly calculated in the ARR.

** Including HP Share in RSD.

- 2.6.2 The total energy available with PSPCL works out to 48038 MU (net), considering all purchases and own generation (net). With this energy available, the Commission works out overall T&D losses as 17.38%. The difference of 784 MU (net) between energy requirement and energy availability is owing to the underachievement of T&D loss target as discussed in para 2.3 and depicted in column V & VI of Table 2.6.

**10.2 FY 2018-19- Tariff Order for FY 2020-21 and ARR for 2nd MYT
Control Period FY 2020-21 to FY 2022-23**

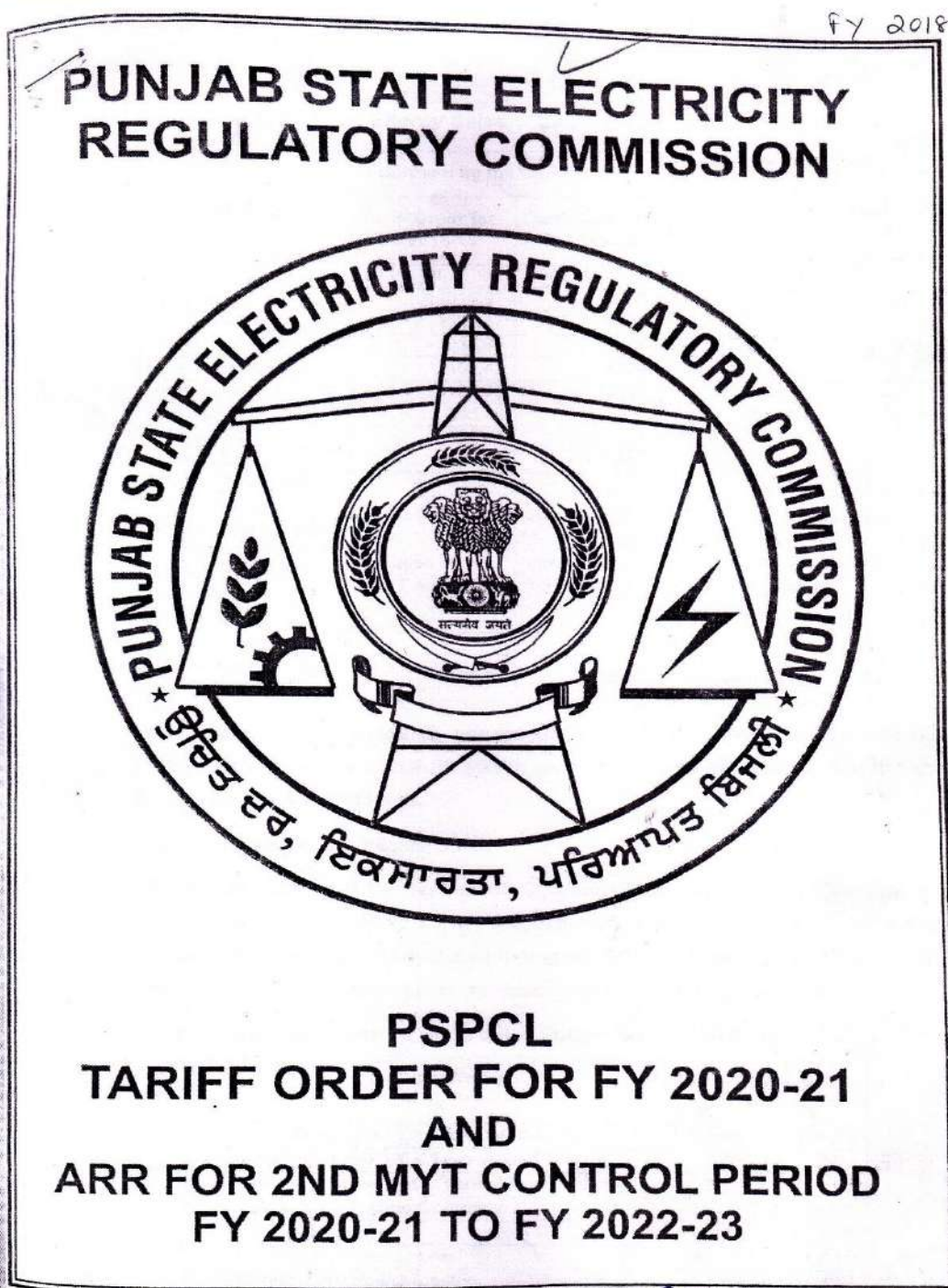


Table 1: Metered Energy Sales within the State for FY 2018-19

Sr. No	Category	Approved by the Commission		Submitted by PSPCL for True up	
		Tariff Order for FY 2018-19	Tariff Order for FY 2019-20	In the Petition	Revised vide reply dated 06.02.2020
I	II	III	IV	V	VI
1.	Domestic	14816.97	13733	14165.40	13222.95
2.	Non-Residential	4351.47	3723	3487.21	3988.17
3.	Small Power Ind.	1035.80	1016	942.79	805.57
4.	Medium Supply Ind.	2463.43	1884	1959.56	2598.24
5.	Large Supply Ind.	13187.05	13837	14055.59	14055.59
6.	Public Lighting	195.39	255	157.83	157.83
7.	Bulk Supply	694.47	711	602.89	602.89
8.	Railway Traction	224.02	240	221.01	221.01
9.	AP High Tech/ High Density Farming			0.11	0.11
10.	Compost/ Solid waste Management Plants	Included in 1 to 7 above	Included in 1 to 7 above	0.38	0.38
11.	Start-up Power for generators/CPPs			149.55	149.55
12.	Temporary Supply			195.06	123.02
13.	Adjusted Units	-	168	281.95	281.95
14.	Total metered Sales (within the State)	36968.60	35567	36219.33	36207.26

The Commission decides to accept the revised sales figures submitted by PSPCL and approves 36207.26 MWh as metered energy sales within the state for Truing-up of FY 2018-19.

B. Common Pool/Outside State Sales

PSPCL has submitted the figures of Common Pool and Outside State Sales as 301.20 MWh and 2268.42 MWh respectively for the True-up of FY 2018-19. In response to a query raised by the Commission, PSPCL, vide reply dated 12.01.2020 also submitted the breakup of source-wise outside State sales as under:

Table 2: Source-wise outside State sales submitted by PSPCL for FY 2018-19

Sr. No.	Source/Trader	MkWh	Rs. Crore
I	II	III	IV
1.	Mittal Processor (IEX Day Ahead Market)	1794.25	981.48
2.	Mittal Processor (IEX Term Ahead Market)	5.36	2.96
3.	Mittal Processor (PXIL Term Ahead Market)	2.18	1.46
4.	Tata Power Trading Company	159.24	66.04
5.	PTC India Limited	160.86	78.56
6.	Manikaran Power Limited	142.89	62.16
7.	Instinct Infra Power Limited	3.63	3.52
8.	Total	2268.42	1196.18

Accordingly, the Commission accepts 301.20 MWh and 2268.42 MWh as Common Pool and Outside State sales respectively for Truing-up of FY 2018-19.

2.2.2 AP Consumption

In the Tariff Order for FY 2018-19, the Commission had approved the projected AP consumption of 12124.20 MWh for FY 2018-19. Further, in the Tariff Order for FY 2019-20, the Commission revised the estimate of AP consumption for FY 2018-19 to 11,111 MWh.

PSPCL's Submissions:

PSPCL has submitted the figure of 11,187.39 MWh as AP consumption for True-up of FY 2018-19, stating that:

- i) PSPCL has determined the AP consumption on the basis of the month-wise energy pumped in AP feeders.
- ii) There are around 285 Kandi area mixed feeders in Ropar, Mohali, Hoshiarpur, Nawanshahar and Gurdaspur circles feeding both AP and other loads. PSPCL has stated that the segregation of Agriculture feeders in Kandi area which is likely to be completed in the near future. Till that time, AP consumption for Kandi area mixed feeders has to be calculated as per the existing approach. In order to determine the share of pumped energy towards AP unmetered consumers, the Commission has assumed that percentage usage of energy by AP consumers and Non-AP consumers in proportion to their load, as AP unmetered consumers load was found to be around 30%. It is submitted that share of load is not an appropriate indicator without considering the utilisation of load. The energy consumption of each consumer depends on his load as well as utilisation of such load during the specified period. Since, power to Kandi feeders is available 24x7 and AP motors are of high capacity because of higher depth of water level, AP consumption is bound to be higher than normal level.
- iii) For computation of share of AP consumption on mixed feeders in Kandi area, PSPCL has adopted the methodology based on the Supply Code Regulations. The formula for assessment of energy consumption is provided as under:

Units assessed = $L \times D \times H \times F$, where.

L is the load found connected during the course of inspection in kW

D is number of working days per month, during which unauthorized use/theft is suspected and shall be taken for different categories of use as below:

a) Continuous industry

30 days

Table 7: AP consumption determined by the Commission for FY 2018-19

Sr. No.	Description	MkWh
I	II	III
	Energy pumped during the year:	
1.	i) 3-phase 3-wire AP feeders	11413.55*
	ii) 3-phase 4-wire AP feeders	^a 2.92
	iii) Kandi Area mixed feeders feeding AP load	^b 557.47
	iv) Kandi Area pure AP feeders	7.40
	Total	11981.34
2.	Less losses @10.11% (85% of 11.89%)	^c 1210.89
3.	Net AP consumption	10770.45
4.	Metered AP consumption	65.71
5.	Total AP consumption for FY 2018-19	10836.16

* As per the data of pumped energy supplied by PSPCL. ✓

^a Calculated by multiplying the number of 3-phase 4-wire AP feeders for each month with AP consumption per feeder for that month of 3-phase 3-wire AP feeders.

^b Calculated by assuming the AP load on Kandi area mixed feeders feeding mixed load, as 30%.

^c The loss @10.11%(11 kV and below) for FY 2018-19 has been worked out as per the target of distribution loss of 11.89% fixed in the Tariff Order for FY 2017-18.

Unmetered
Metered

Thus, the Commission approves the AP Consumption of 10836.16 MkWh for True-up of FY 2018-19.

2.2.3 Total Energy Sales

The total energy sales submitted by PSPCL and approved by the Commission for True up for FY 2018-19 is as under:

Table 8: Total Energy Sales for FY 2018-19

Sr. No.	Particulars	Submitted by PSPCL	Approved by the Commission for True-up
I	II	III	IV
1.	Metered sales within State	*36207.26	36207.26
2.	AP consumption	11187.39	10836.16
3.	Total sales within State	47394.65	47043.42
4.	Common pool sale	301.20	301.20
5.	**Outside State sale	2268.42	2268.42
6.	Total	49964.27	49613.04

*Revised submission

**Royalty to HP from Shanar and share of HP in RSD is not considered in sales as it has been excluded from the net Generation.

2.3 Transmission and Distribution (T&D) Loss Target and Energy Requirement

The Commission in the Tariff Order for FY 2018-19, while retaining the overall loss target of 14.00% for FY 2018-19 given in the Tariff Order for FY 2017-18 decided to segregate the same into target of 11.89% for distribution losses for PSPCL considering the transmission loss level as 2.40%. In the Tariff Order for FY 2019-20, the Commission decided to consider the intra-State transmission losses for FY 2018-19 and FY 2019-20 at 2.50%. However, distribution loss target of 11.89% was retained for FY 2018-19. The Commission decides to consider the same for True-up.

up of FY 2018-19. Further, PSPCL is considering the NRSE generation available at 66/11 KV of its distribution system also for allowing the transmission losses which is not in order. The Commission decides to exclude the same as it does not flow through the intra-State Transmission system.

Accordingly, the energy requirement for FY 2018-19 approved in the Tariff Order for FY 2019-20, submitted by PSPCL vide its revised submission dated 06.02.2020 and determined by the Commission after prudence check is as under:

Table 9: Energy Requirement of PSPCL determined by the Commission for FY 2018-19

(MkWh)					
Sr. No.	Particulars	Approved in Review by the Commission in TO for FY 2019-20	Submitted by PSPCL (vide e-mail dated 06.02.2020)	Determined by the Commission with target T&D losses	Computed by the Commission with Actual Losses
I	II	III	IV	V	VI
1.	Energy Sales within the State	46678.00	*47392.57	47043.42	47043.42
2.	Target Distribution %	11.89%	**14.20%	11.89%	12.94%
	Loss MkWh	6298.96	7842.71	6348.27	6994.22
3.	Input Energy Required	52976.96	55235.28	53391.69	54037.64
4.	Gen. available at 66/11 KV			2080.37	✓2080.37
5.	Input Energy Required (excluding Gen. available at 66/11 KV)			51311.32	51957.27
6.	Target Transmission %	2.50%	Included in 2 above	2.50%	2.50%
	Loss MkWh	1358.38		1315.67	1332.24
7.	Total Energy Input Required (excluding Gen available at 66/11 KV)			52626.99	53289.51
8.	Total Energy Required for sale in the State	54335.34	55235.28	54707.36	55369.38
9.	Sales to Common pool consumers	305.40	301.20	301.20	301.20
10.	Outside State Sales	1822.94	2268.42	2268.42	2268.42
11.	Total Requirement/Trued-up*** at State periphery	56463.68 Say 56464	57804.90	57276.98	***57939.50

* Energy sales considered by PSPCL is different than indicated figure of 47,394.65 in Table 8

**Including transmission losses

***Trued up availability (Ref Table 12)

Accordingly, the Commission approves the total energy requirement of PSPCL at State periphery as 57276.98 MkWh for True-up of FY 2018-19. However, PSPCL has submitted a higher figure of 57804.90 MkWh as its actual requirement, which further increases to 57939.50 MkWh on truing up (Ref Table 12). Considering the trued-up figure of 47043.42 MkWh as Sales within the State, the actual distribution losses of PSPCL works out to be 12.94% against the target losses of 11.89%. And, considering 2.50% as transmission losses, the T&D losses work out to 15.04%. The impact of the same is discussed in Para 2.6.

Accordingly, the Commission approves PSPCL's net Hydel Generation as 7717.15 MkWh for True-up of FY 2018-19, as shown in the Table above.

2.6 Energy Balance/ Power Purchase

The Commission observes that, the Ministry of Power (GoI) vide Orders dated 30.9.2016 and 14.06.2017 granted waiver of ISTS charges and losses on transmission of electricity generated from solar and wind resources of energy under para 6.4(6) of the Tariff Policy, 2016 to the solar and wind projects awarded through competitive bidding process. Provision for the same was incorporated by CERC in its Regulations vide CERC (Sharing of Inter State Transmission Charges and Losses) (Fifth Amendment) Regulations, 2017. However, for FY 2018-19, PSPCL has shown inter-State losses of 1.71 MkWh and 1.35 MkWh on Solar power received from NVVN and SECI respectively.

Further, PSPCL has also shown inter-State losses of 126.20 MkWh on its net banking power. On query, it was informed that, imported as well as exported energy is settled at regional periphery and no separate losses on resultant net transaction may be considered. Thus, PSPCL has shown its net power purchase lesser to the extent of 129.26 MkWh, thereby also underestimating its requirement by this extent. Accordingly, energy requirement, availability and purchase determined by the Commission in the Tariff Order of FY 2019-20, submitted by PSPCL for True-up and approved by the Commission for True-up of FY 2018-19, is as under:

Table 12: Approved Energy Balance/Power Purchase for FY 2018-19

Sr. No.	Particulars	(Net MkWh)		
		Approved by the Commission in TO for FY 2019-20	Submitted by PSPCL for True-up	Approved by the Commission for True-up
I	II	III	IV	V
A.	PSPCL's Energy requirement (Table 9)	56464	57804.90	57276.98
B.	Energy Available			
	i) PSPCL's own Thermal	4275	3817.92	3817.92
	ii) PSPCL's own Hydro (Including from BBMB)	7210	7711.80	7717.15
	iii) UI OA		2.65	2.65
	Total	11485	11532.37	11537.72
C.	Power Purchase (A-B)	44979	46272.52	45739.26
D.	Increase in Power Purchase on account of addition of power shown as inter-State, losses on import of Solar power and Banking		129.26	
E.	Excess power purchase made by PSPCL		(46272.52+129.26-45739.26)=662.52	
F.	Actual Energy Input			57939.50

10.3 FY 2016-17 & FY 2017-18- Tariff Order for PSPCL for FY 2018-19

FY 2016-17
FY 2017-18

**PUNJAB STATE ELECTRICITY
REGULATORY COMMISSION**



**TARIFF ORDER FOR PSPCL
FOR FY 2018-19**

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PUNJAB STATE ELECTRICITY REGULATORY COMMISSION
SCO No. 220-221, SECTOR 34 A, CHANDIGARH



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from FY 2017-18 to FY 2019-20, revised by the Commission in review, figures now given by PSPCL and approved by the Commission are summarized in Table 2.1.

Table 2.1: Metered Energy Sales for FY 2016-17

(MU)

Sr. No.	Category	Projections		Revised Estimates		Trued up	
		Submitted by PSPCL during determination of ARR FY 2016-17	Approved by the Commission in T.O. FY 2016-17	Submitted by PSPCL during processing of ARR FY 2017-18	Revised by the Commission in Review in TO for FY 2017-18	Figures now submitted by PSPCL for true up	Now Trued up by the Commission
I	II	III	IV	V	VI	VII	VIII
1.	Domestic	13528.62	13528.62	13080.39	13080.39	13080.39	13080.39
2.	Non-Residential	3699.27	3699.27	3801.94	3801.94	3801.94	3801.94
3.	Small Power	936.60	936.60	983.83	983.83	983.83	983.83
4.	Medium Supply	2189.61	2189.61	2214.99	2214.99	2214.99	2214.99
5.	Large Supply	11611.47	11611.47	11115.19	11115.19	11115.19	11115.19
6.	Public Lighting	202.53	202.53	192.00	192.00	192.00	192.00
7.	Bulk Supply	697.18	697.18	661.06	661.06	661.06	661.06
8.	Railway Traction	166.79	166.79	183.04	183.04	183.04	183.04
9.	Total metered Sales (within the State)	33032.07	33032.07	32232.44	32232.44	32232.44	32232.44
10.	Common Pool	312.00	312.00	305.62	305.62	305.39	305.39
11.	Outside State sales						
a)	HP Royalty in Shanan	53.00	53.00	52.92	52.92	52.92	52.92
b)	HP Share (free) in RSD	68.00	—*	56.96	—*	56.96	56.96
c)	Sale through exchange	—	—	—	—	356.45	356.45
d)	Total Outside State sales	121.00	53.00	109.88	52.92	466.33	466.33
12.	Total metered Sales (9+10+11)	33465.07	33397.07	32647.94	32590.98	33004.16	33004.16

* HP share (free) in RSD not considered in sale as well as generation.

Accordingly, the Commission trued up the revised metered sales of 33004.16 MU as per details shown in Column VIII of Table 2.1.

2.2.2 AP Consumption

The Commission approved AP consumption of 11551.62 MU for FY 2016-17 in review, against 12265.37 MU of AP consumption projected by PSPCL for FY 2016-17 in the Tariff Order for FY 2017-18.

PSPCL's Submissions:

PSPCL in its True up petition has submitted the figures of actual AP consumption of 12008.98 MU for FY 2016-17, with submission that:

- (i) For estimation of agriculture sales it has adopted AP consumption based on pumped energy from FY 2016-17 and the actual AP consumption as recorded

Table 2.2: AP Consumption for FY 2016-17

(MU)		
Sr. No.	Description	Energy
(i)	Energy pumped during FY 2016-17 in case of 3-phase 3-wire AP feeders	12321.73
(ii)	Energy pumped during FY 2016-17 in case of 3-phase 4-wire AP feeders	2.18 ^a
(iii)	Energy pumped during FY 2016-17 in case of Kandi Area mixed feeders feeding AP load	572.67 ^b
(iv)	Energy pumped during FY 2016-17 in case of Kandi Area pure AP feeders feeding AP load	5.89
(v)	Total energy pumped during FY 2016-17 for AP supply {(i) + (ii) + (iii) + (iv)}	12902.47
(vi)	Correction @ (-) 1.044% of the total pumped energy {(v) * 1.044%}	134.70
(vii)	Total AP energy pumped for FY 2016-17 {(v) - (vi)}	12767.77
(viii)	Less losses @ 10.14% ^c (14.50 - (2.5 + 15% of 12.43)) {(vii) * 10.14%}	1294.65 ^c
(ix)	Net AP consumption for FY 2016-17 {(vii) - (viii)}	11473.12
(x)	AP consumption for load of 72.89 MW running on Urban Feeders [not included above at Sr. No. (ix)] {(ix) * 72.89 / 11480.31}	72.84 ^d
(xi)	Total AP consumption for FY 2016-17 {(ix) + (x)}	11545.96

(a) Calculated by multiplying the number of 3-phase 4-wire AP feeders for each month with AP consumption per feeder for that month in case of 3-phase 3-wire AP feeders.

(b) Calculated by assuming the AP load on Kandi area mixed feeders feeding mixed load, as 30%.

(c) The loss @ 10.14% (11 kV and below) for FY 2016-17 has been worked out as per the overall target of T&D loss of 14.50% fixed in the Tariff Order for FY 2016-17.

(d) AP load running on 3-phase 3-wire, 3-phase 4-wire and Kandi Area feeders is 11480.31 MW and load of AP connections (running on urban feeders) is 72.89 MW ending March, 2017, as submitted by PSPCL.

Thus, the Commission approves the AP Consumption of 11545.96 MU for FY 2016-17.

2.2.3 Total Energy Sales for FY 2016-17

The total energy sales submitted by PSPCL in the true-up petition and approved by the Commission are given in Table 2.3.

Table 2.3: Total Energy Sales for FY 2016-17

(MU)			
Sr. No.	Particulars	Submitted by PSPCL for True-up	Trued up by the Commission
I	II	III	IV
1.	Metered sales within State	32232.44	32232.44
2.	AP consumption	12008.98	11545.96
3.	Total sales within State	44241.42	43778.40
4.	Common pool sale	305.39	305.39
5.	Outside State sale	466.33	466.33
6.	Total Energy Sale	45013.14	44550.12

Thus, the Commission approves the total energy sales of 44550.12 MU for FY 2016-17.

2.5.2 The details of energy requirement, energy availability and the net purchase for FY 2016-17 approved by the Commission in review in the Tariff Order of FY 2017-18, figures now furnished by PSPCL and figures now approved by the Commission, is depicted in Table 2.7.

Table 2.7: Energy Balance for FY 2016-17

(MU)

Sr. No.	Particulars	Approved by the Commission in review of FY 2016-17	Now submitted by PSPCL in the ARR	Now approved by the Commission	Sales & actual T&D losses as per approved energy available
I	II	III	IV	V	VI
A) Energy Requirement					
1.	Metered Sales	32232.44	32232.44	32232.44	32232.44
2.	Sales to Agriculture Pumpsets	11551.62	12008.98	11545.96	11545.96
3.	Total Sales within the State	43784.06	44241.42	43778.40	43778.40
4.	T&D losses	(%)	14.50%	15.26%	14.50%
		(MU)	7425	7964.93	7424.41
5.	Energy Input Required (3+4)	51209.06	52206.35	51202.81	52249.44
6.	Sales to Common pool consumers	305.62	305.39	305.39	305.39
7.	Outside State Sales	52.92	466.33	466.33	466.33
8.	Total requirement (5+6+7)	51567.60	52978.07	51974.53	53021.16
B) Energy Available					
9.	Own generation (Ex-bus)				
10.	Thermal	5665.72	5622.37	5665.85	5665.85
11.	Hydro (Including share from BBMB and common pool consumers)	7903.76	7960.49	7960.10	7960.10
12.	Purchase (net)	37998.12	39395.21	38348.58	39395.21
13.	Total Available	51567.60	52978.07	51974.53	53021.16

2.5.3 The total energy available with PSPCL works out to 53021.16 MU (net), considering all purchases and own generation (net). With this energy available, T&D losses of PSPCL works out as 16.21% against the target of 14.50%. The difference of 1046.63 MU (net) between energy requirement worked out and energy availability is owing to the under achievement of T&D loss target as discussed in paras 2.2.2 & 2.3 and depicted in column V & VI of Table 2.7. Higher T&D loss over and above the level approved by the Commission has resulted in increased net power purchase to the extent of 1046.63 MU. The matter is further discussed in para 2.7.

Table 3.2: Metered Energy Sales

(MU)

Sr. No.	Category	Projected by PSPCL in the ARR for MYT Control Period		Approved by the Commission in TO for FY 2017-18		Submitted by PSPCL in APR/RE		Now revised by the Commission	
		FY 2017-18	FY 2018-19	FY 2017-18	FY 2018-19	FY 2017-18	FY 2018-19	FY 2017-18	FY 2018-19
I	II	III	IV	V	VI	VII	VIII	IX	X
1.	Domestic	14387.66	15597.33	14387.66	15597.33	13796.31	14816.97	13796.31	14816.97
2.	Non-Residential	4190.92	4527.60	4190.92	4527.60	4028.39	4351.47	4028.39	4351.47
3.	Small Power	1005.93	1023.63	1005.93	1023.63	1007.93	1035.80	1007.93	1035.80
4.	Medium Supply	2310.47	2421.70	2310.47	2421.70	2343.90	2463.43	2343.90	2463.43
5.	Large Supply	12072.94	12289.62	12072.94	12289.62	12647.99	13187.05	12647.99	13187.05
6.	Public Lighting	255.47	283.59	255.47	283.59	187.70	195.39	187.70	195.39
7.	Bulk Supply	744.99	782.65	744.99	782.65	673.87	694.47	673.87	694.47
8.	Railway Traction	187.22	200.38	187.22	200.38	206.55	224.02	206.55	224.02
9.	Metered Sales within the State	35155.60	37126.50	35155.60	37126.50	34892.64	36968.60	34892.64	36968.60
10.	Common Pool sales	311.68	341.64	311.68	341.64	308.99	341.64	308.99	341.64
11.	Outside State sale								
	HP Royalty in Shanan	52.66	52.66	52.66	52.66	52.92	52.92	52.92	52.92
	Free Share of HP in RSD	75.74	74.80	-*	-*	82.29	73.26	82.29	73.26
	Sale through PTC	-	-	-	-	218.67	-	218.67	-
	Total	128.40	127.46	52.66	52.66	353.88	126.18	353.88	126.18
12.	Total Metered Sales (9+10+11)	35595.68	37595.60	35519.94	37520.80	35555.51	37436.42	35555.51	37436.42

*HP share (free) in RSD not considered for sale as well as generation

Accordingly, the Commission approves the revised metered sales of 35555.51 MU for FY 2017-18 and 37436.42 MU for FY 2018-19, as per details shown in Column IX and X of Table 3.2.

3.2.2 AP Consumption

Against projections of 12336.54 MU and 12608.25 MU of AP consumption for FY 2017-18 and FY 2018-19 respectively, submitted by PSPCL in the ARR for MYT Control Period, the Commission approved the respective AP consumption of 11811.90 MU and 12078.05 MU, in the Tariff Order for FY 2017-18.

PSPCL's submissions:

PSPCL has submitted the revised AP consumption of 12355.83 MU for FY 2017-18 and 13313.88 MU for FY 2018-19, with submission that the AP consumption for FY 2017-18 has been re-estimated on the basis of actual consumption of 9100.88 MU

pumped for AP supply for October, 2017 vide email dated 09.01.2018. Accordingly, the assessment of AP consumption from April to October, 2017 has been made on the basis of pumped energy data. For estimation of consumption from November, 2017 to March 2018, the average of percentages of AP consumption during the last five months to the first seven months of FY 2014-15, FY 2015-16 and FY 2016-17 has been taken into consideration. Accordingly, the Commission has worked out the estimated AP consumption for FY 2017-18 in Table 3.3 A.

Table 3.3 A: AP Consumption for FY 2017-18

(MU)		
Sr. No.	Description	Energy FY 2017-18
1.	Energy pumped during April, 2017 to October, 2017	
	i) 3-phase 3-wire AP feeders	10364.33
	ii) 3-phase 4-wire AP feeders	2.79 ^a
	iii) Kandi Area mixed feeders feeding AP load	434.92 ^b
	iv) Kandi Area pure AP feeders	6.91
	Total	10808.95
2.	Estimated pumped energy for November, 2017 to March, 2018 {(1) * 21.07% ^c }	2277.45
3.	Total AP energy pumped for 2017-18 {(1) + (2)}	13086.40
4.	Less losses @9.94% (14.25-(2.5+15% of 12.05)) {(3)x9.94%}	1300.79 ^d
5.	Net AP consumption for FY 2017-18 {(3)-(4)}	11785.61
6.	AP consumption for load of 70.64 MW running on Urban Feeders (not included above) {(5)x 70.64/11595}	71.80 ^e
7.	Total AP consumption for FY 2017-18 {(5)+ (6)}	11857.41

(a) Calculated by multiplying the number of 3-phase 4-wire AP feeders for each month with AP consumption per feeder for that month in case of 3-phase 3-wire AP feeders.

(b) Calculated by considering the AP load on Kandi area mixed feeders feeding mixed load, as 30%.

(c) 21.07% (average of the percentages of AP consumption during the last five months to the first seven months of FY 2014-15, FY 2015-16 and FY 2016-17).

(d) The loss @9.94% (11 kV and below) for FY 2017-18 has been worked out as per the overall target of T&D loss of 14.25% (including Transmission loss of 2.5%) fixed in the Tariff Order for FY 2017-18.

(e) AP load running on 3-phase 3-wire, 3-phase 4-wire, Kandi Area feeders is taken as 11595 MW and load of AP connections running on urban feeders taken 70.64 MW (ending Sept., 2017), as submitted by PSPCL vide its letter no. 1146 dated 22.12.2017.

v) In the Tariff Order for FY 2017-18, the Commission had approved the AP sales for FY 2018-19 by applying increase of 2.25% (based on the 5 year CAGR) on the estimated sales for FY 2017-18. The same approach has been adopted to approve the revised estimates of FY 2018-19 as shown in the Table 3.3 B.

Table 3.3 B: AP Consumption for FY 2018-19

(MU)			
Projected by PSPCL in the ARR for MYT Control Period	Approved by the Commission in TO for FY 2017-18	Submitted by PSPCL in APR/RE	Estimated by the Commission for FY 2018-19 by applying CAGR of 2.25% on revised sales of FY 2017-18
12608.25	12078.05	13313.88	12124.20

Thus, the Commission approves the revised AP Consumption of 11857.41 MU for FY 2017-18 and 12124.20 MU for FY 2018-19. The Commission shall re-assess the AP Consumption at the time of true up of respective years after considering the efforts/physical progress made by PSPCL regarding the compliance of various directives given by the Commission and the consequential action required, if any.

3.3 Total Energy Sales

The metered energy sales, AP Consumption, Common Pool and Outside State Sales projected by PSPCL in APR/RE Petition and now revised by the Commission for FY 2017-18 and FY 2018-19 are given in Table 3.4.

Table 3.4: Total Energy Sales

Sr. No.	Particulars	(MU)			
		FY 2017-18		FY 2018-19	
		Submitted by PSPCL in the APR	Revised by the Commission for FY 2017-18	Submitted by PSPCL in the RE	Revised by the Commission for FY 2018-19
I	II	III	IV	V	VI
1.	Metered sales within State	34892.64	34892.64	36968.60	36968.60
2.	AP consumption	12355.83	11857.41	13313.88	12124.20
3.	Total sales within State	47248.47	46750.05	50282.48	49092.80
4.	Common pool sale	308.99	308.99	341.64	341.64
5.	Outside State sale	353.88	353.88	126.18	126.18
6.	Total Energy Sale	47911.34	47412.92	50750.30	49560.62

The Commission approves the revised total energy sales as 47412.92 MU for FY 2017-18 and 49560.62 MU for FY 2018-19.

3.4 Transmission and Distribution Losses (T&D Losses)

In its ARR petition for MYT Control Period, PSPCL had projected the overall T&D losses of 14.25% for FY 2017-18 and 14.00% for FY 2018-19. The same was accepted and accordingly the Commission in the Tariff Order for FY 2017-18, had fixed the overall target of T&D losses for FY 2017-18 and FY 2018-19 at 14.25% and 14.00% respectively, including transmission losses of 2.50%.

PSPCL's Submissions:

PSPCL has been taking steps to reduce the distribution loss through various loss reduction and network planning initiatives. Driven by the targets and directives given by the Commission, it is making concerted efforts to reduce and control the losses and is already recognized at par with some of the efficient utilities of the country. The main assumption is to continue to pursue the loss reduction programs initiated in

- (iii) **Payment to Patran Transmission Company of ₹11.36 crore:** On query by the Commission, PSPCL has intimated that this amount has been paid to Patran Transmission Company in compliance to CERC Order, which the Commission allows.
- (iv) **Expenses of ₹0.07 crore as Northern Region Power Committee (NRPC) fee:** The same is chargeable under A&G expenses being dealt under para 3.12.
- (v) **Additional UI charges:** On query by the Commission, PSPCL vide letter no. 1146 dated 22.12.2017 has submitted that it has paid ₹18.74 crore as additional UI charges. The Commission decides not to allow additional UI charges leviable/paid under Central Electricity Regulatory Commission (Deviation Settlement mechanism and related matters) Regulations, 2014, for over-draw of power, as the provision of the same has been made for the purpose of maintaining grid discipline.

3.9.6 Accordingly, the total cost of power purchase cost for FY 2017-18 and FY 2018-19, excluding cost of purchase of RECs, is worked out in Table 3.15.

Table 3.15: Power Purchase cost

Sr. No.	Description	FY 2017-18		FY 2018-19	
		Submitted by PSPCL	Approved by the Commission	Submitted by PSPCL	Approved by the Commission
1.	Power Purchase (Net)	42861.11 MU	41938.50 MU	46154.61 MU	44414.19 MU
2.	Inter State Power Purchase	23760.45 MU	23760.45 MU	24182.90 MU	24182.90 MU
3.	Intra State power purchase (IPPs/NRSE)	19100.66 MU	18178.05 MU	21971.71 MU	20231.52 MU
4.	External Losses	(%)	2.85%	2.93%	2.93%
		(MU)	698.12 MU	729.05 MU	729.05 MU
5.	Power Purchase (Gross)	43559.23 MU	42636.62 MU	46883.66 MU	45143.24 MU
6.	Cost of Power Purchase (excluding cost of purchase of RECs for FY 2017-18)				
	a) Fixed Cost	₹6697.49 crore	₹6697.49 crore	₹8094.81 crore	₹8094.81 crore
	b) Variable Cost	₹10100.48 crore	₹9886.55 crore*	₹10781.64 crore	₹10381.40 crore*
	c) Other Charges	₹178.13 crore	₹178.13 crore	₹154.10 crore	₹154.10 crore
	Total	₹16976.1 crore	₹16762.17 crore	₹19030.55 crore	₹18630.31 crore
7.	Cost of Purchase of RECs	₹326.96 crore	**	₹ 89.82 crore	**
8.	Less: Previous payments made during FY 2017-18 (H1)	(-) ₹301.48 crore	***		
9.	Power Purchase Cost	₹17001.58 crore	₹16762.17 crore	₹ 19120.37 crore	₹18630.31 crore
10.	Less: NRPC Fee		₹0.07 crore		
11.	Less: Additional UI charges paid by PSPCL during FY 2017-18 (H1)		₹18.74 crore		
12.	Total Power Purchase Cost	₹17001.58 crore	₹16743.36 crore	₹ 19120.37 crore	₹18630.31 crore

* On pro-rata basis.

** Considered under para 3.9.8 (RPO compliance).

*** Dealt under Prior Period Expenses head.

for distribution losses for PSPCL (as already worked out in Table 5.7 of Tariff Order for FY 2017-18).

3.5 Energy Requirement

- 3.5.1 The energy requirement for FY 2017-18 and FY 2018-19 projected by PSPCL in ARR for MYT Control Period, approved by the Commission in the Tariff Order for FY 2017-18 and submitted by PSPCL in APR/RE are as per Table 3.5 A.

Table 3.5 A: Energy Requirement

(MU)

Sr. No.	Particulars	Projected by PSPCL in ARR for MYT Control Period		Approved by the Commission in T.O. for FY 2017-18		Submitted by PSPCL in APR/RE	
		FY 2017-18	FY 2018-19	FY 2017-18	FY 2018-19	FY 2017-18	FY 2018-19
I	II	III	IV	V	VI	VII	VIII
1.	Total sales within the State	47492.14	49734.75	46967.50	49204.55	47248.47	50282.48
2.	T&D losses	%	14.25%	14.00%	14.25%	14.00%	14.75%
		MU	7892.28	8096.35	7805.00	8010.00	8174.96
3.	Total sales including losses	55384.42	57831.10	54772.50	57214.55	55423.43	58809.92
4.	Common pool sale	311.68	341.64	311.68	341.64	308.99	341.64
5.	Outside State sale	128.40	127.46	52.66	52.66	353.88	126.18
6.	Total energy input required	55824.50	58300.20	55136.84	57608.85	56086.30	59277.74

- 3.5.2 The Commission in the Tariff Order for FY 2018-19 for PSTCL has approved the transmission loss level of PSTCL as 2.50% and 2.40% respectively for FY 2017-18 and FY 2018-19. Accordingly, the revised total energy requirement for FY 2017-18 and FY 2018-19 worked out by the Commission, is given in Table 3.5 B.

Table 3.5 B: Revised Energy Requirement

(MU)

Sr. No.	Particulars	Now revised by the Commission	
		FY 2017-18	FY 2018-19
I	II	III	IV
1.	Metered sales within the State	34892.64	36968.60
2.	AP consumption	11857.41	12124.20
3.	Total sales within the State (1+2)	46750.05	49092.80
4.	Distribution losses on Sr.No.3	(%)	12.05%
		(MU)	6405.21
5.	Energy input required (3+4)	53155.26	55717.63
6.	Transmission losses on Sr. No. 5	(%)	2.50%
		(MU)	1362.96
7.	Total energy input required (5+6)	54518.22	57087.74
8.	Common pool sale	308.99	341.64
9.	Outside State sale	353.88	126.18
10.	Total Energy Required at State Periphery (7+8+9)	55181.09	57555.56

Table 3.50: Revenue from Sale of Power for FY 2018-19

Sr. No.	Description	Claimed by PSPCL				As approved by the Commission			
		Energy Sale (MU)	Revenue (₹crore)			Energy Sale (MU)	Revenue (₹crore)		
			Energy Charges	Fixed Charges	Total		Energy Charges	Fixed Charges	Total
1.	Domestic	14816.97	8972.70	300.89	9273.59	14816.97	8972.70	300.89	9273.59
2.	Commercial / Non-Residential Supply	4351.47	2963.81	293.00	3256.81	4351.47	2963.81	293.00	3256.81
3.	Public Lighting	195.39	140.88	4.26	145.14	195.39	140.88	4.26	145.14
4.	Industrial Consumers								
a)	Small Power	1035.80	567.62	89.61	657.23	1035.80	567.62	89.61	657.23
b)	Medium Supply	2463.43	1379.52	191.38	1570.90	2463.43	1379.52	191.38	1570.90
c)	Large Supply	13187.05	7645.56	1488.02	9133.58	13187.05	7645.56	1488.02	9133.58
5.	Bulk Supply								
a)	HT	650.94	380.80	59.81	440.61	650.94	380.80	59.81	440.61
b)	LT	43.53	27.21	3.99	31.20	43.53	27.21	3.99	31.20
6.	Railway Traction	224.02	149.20	18.81	168.01	224.02	149.20	18.81	168.01
7.	Sub-Total	36968.60	22227.30	2449.77	24677.07	36968.60	22227.30	2449.77	24677.07
8.	AP Consumption	13313.88	6736.82	-	6736.82	12124.20	6134.85	-	6134.85
9.	Total Sales within State	50282.48	28964.12	2449.77	31413.89	49092.80	28362.15	2449.77	30811.92
10.	Common Pool	341.64	159.38	-	159.38	341.64	159.38	-	159.38
11.	Outside State	126.18	50.78	-	50.78	126.18	50.78	-	50.78
12.	Recoveries for theft/malpractices, HV Rebate, Impact of ToD Tariff	-	-303.65	-	-303.65	-	-250.62	-	-250.62
13.	Total Sales	50750.30	28870.63	2449.77	31320.40	49560.62	28321.69	2449.77	30771.46

3.23 Prior Period Expenses**PSPCL's Submissions:**

PSPCL has claimed (-) ₹301.48 crore under the head of Power Purchase Cost relating to previous adjustments made during FY 2017-18.

Commission's Analysis:

As discussed in para 3.9.5 of this Order, an amount of (-) ₹301.48 crore relates to adjustment of prior period power purchase bills, the Commission allows (-) ₹301.48 crore as prior period expenses.

Further, PSPCL has filed Petition No.11 of 2018 with the Commission for approval of FCA for 3rd quarter of FY 2017-18. PSPCL in the said Petition has included payment of ₹322.28 crore to M/s Nabha Power Limited (NPL) towards washing cost of coal, the transportation of coal from the mine site via washery of coal to the project site

10.4 MANAGEMENT INFORMATION REPORT QUARTER ENDING MARCH 2020

CONFIDENTIAL

MEMORANDUM NO.288/CC/MIR
DATED. 26.06.2020

Management Information Report

QUARTER ENDING MARCH 2020



PSPCL

Powering Punjab, Enriching Lives

**Cost Controller
Punjab State Power Corporation Limited.
Patiala**

QUARTERLY MANAGEMENT INFORMATION REPORT

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AS PER PORTAL

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Comparative Statement of Units Pumped, Units Billed & Distribution Losses(including AP) of PSPCL

PROVISIONAL

Figures in Lus(KWh)

Name of Circle/ division	2018-19			2019-20			Inc/Dec over PY
	UptoMarch,2019			Upto March,2020			
	Energy Units			Energy Units			
	Input(Lus)	Billed(Lus)	% age Distribution Losses	Input(Lus)	Billed(Lus)	% age Distribution Losses	
BORDER ZONE							
GURDASPUR	21341.04	18892.14	11.48	22734.49	19844.12	12.71	1.24
SU AMRITSAR	25122.60	20082.35	20.06	25840.58	20199.92	21.83	1.77
TARN TARAN	20447.51	14065.02	31.21	20827.99	14238.42	31.64	0.42
CITY AMRITSAR	9212.08	8242.54	10.52	9428.60	8422.32	10.67	0.15
ZONE TOTAL	76123.23	61282.05	19.50	78831.66	62704.78	20.46	0.96
CENTRAL ZONE							
KHANNA	42709.03	41713.39	2.33	42108.31	42926.65	-1.94	-4.27
LUDHIANA WEST	35040.25	33284.42	5.01	34531.04	32847.82	4.87	-0.14
LUDHIANA SU	16802.93	15012.09	10.66	17528.60	15854.01	9.55	-1.10
LUDHIANA EAST	33197.89	32022.05	3.54	31566.38	30604.83	3.05	-0.50
ZONE TOTAL	127750.10	122031.95	4.48	125734.33	122233.31	2.78	-1.69
NORTH ZONE							
KAPURTHALA	18642.48	16333.53	12.39	19073.40	16757.39	12.14	-0.24
NAWANSHEHAR	12543.09	10929.15	12.87	12793.59	10771.15	15.81	2.94
JALANDHAR	29313.07	27648.11	5.68	29527.82	28181.41	4.56	-1.12
HOSHIARPUR	20743.19	19351.70	6.71	21294.36	19229.76	9.70	2.99
ZONE TOTAL	81241.83	74262.49	8.59	82689.17	74939.71	9.37	0.78
SOUTH ZONE							
PATIALA	33876.01	30363.63	10.37	35461.88	31447.83	11.32	0.95
ROPAR	32947.84	31301.78	5.00	32545.15	30469.58	6.38	1.38
SANGRUR	24451.15	19924.16	18.51	26990.45	22169.62	17.86	-0.65
MOHALI	27417.99	26198.44	4.45	28529.46	27146.64	4.85	0.40
BARNALA	25757.32	22421.78	12.95	26791.58	23208.09	13.38	0.43
ZONE TOTAL	144450.31	130209.79	9.86	150318.52	134441.76	10.56	0.70
WEST ZONE							
BATHINDA	39376.49	33844.97	14.05	40237.82	34961.88	13.11	-0.94
FEROZEPUR	19031.58	14700.05	22.76	19622.22	14481.24	26.20	3.44
FARIDKOT	27077.57	22648.33	16.36	28250.75	23284.10	17.58	1.22
MUKATSAR	19856.38	15942.09	19.71	20440.09	16538.29	19.09	-0.62
ZONE TOTAL	105342.02	87135.44	17.28	108550.88	89265.51	17.77	0.48
PSPCL AS A WHOLE	534907.49	474921.72	11.21	546124.56	483585.07	11.45	0.24

10.5 ANNEXURE-B (PSPCL Share from BBMB Ex-Bus Generation Schedule IN MUS FOR 2018-19)

Power Houses/Month	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Total
BHAKRA	102.01	192.60	205.56	185.58	193.65	195.52	155.36	119.02	163.20	198.75	148.72	194.43	2054.41
DEHAR	63.24	107.80	166.16	181.85	178.29	166.31	119.98	69.79	47.86	40.72	65.65	91.43	1299.08
PONG	3.24	9.91	11.73	20.35	17.34	36.40	44.98	36.26	42.99	38.04	32.98	21.71	315.92
TOTAL PSPCL share FROM BBMB	168.49	310.30	383.45	387.78	389.28	398.22	320.32	225.07	254.05	277.51	247.35	307.58	3669.41
PSPCL COMMON POOL SHARE	24.49	25.52	24.80	25.66	25.73	24.99	25.74	24.80	25.44	25.43	23.06	25.56	301.20

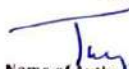
10.6 Sector Specific Proforma as per M & V Audit

10.6.1 FY 2014-15 v/s FY 2018-19

Form- Input energy and Sj (General Information)				
Electricity Distribution Companies				
1	Name of the DISCOM	Punjab State Power Corporation Limited (PSPCL)		
2	i) Year of Establishment	2010		
	(ii) Registration No (As provided by BEE)	DIS0014PB		
3	Contact details & Address			
a	DISCOM's address	The Mall, Patiala.		
i	City/Town/Village	Patiala		
ii	District	Patiala		
iii	State	Punjab	Pin	147001
iv	Telephone	0175-2212005	Fax	0175-2213199
b	DISCOM's Chief Executive Name	Sh. A Venu Parsad, IAS		
i	Designation	CMD PSPCL		
ii	Telephone with STD Code	0175-2212005	Fax	0175-2213199
iii	Mobile		E-mail	cmd-pspcl@pspcl.in
4	Registered Office			
i	Company's Chief Executive Name	Er. Jasbir Singh		
ii	Designation	Chief Engineer (Energy Audit & Enforcement)		
iii	Address	Shed No. B2, Shakti Vihar, Patiala		
iv	City/Town/Village	Patiala	P.O.	Patiala
v	District	Patiala		
vi	State	Punjab	Pin	147001
vii	Telephone	0175-2212005	Fax	0175-2213199
5	Energy Manager Details			
i	Name	Er. Ravi Verma		
ii	Designation	ASE	Whether EA or EM	EA
iii	EA/EM Registration No.	EA-7969		
iv	Telephone		Fax	
v	Mobile	96461 18788	E-mail ID	ivarverma76@gmail.com

I/we undertake that the information supplied in the Form Input Energy and Sj is accurate to the best of my knowledge.

Authorised Signatory and Seal


 Name of Authorised Signatory:
 (Er. Jasbir Singh)
 CE/EA & Enforcement
 Full Address:-

Seal

Signature:-

Name of Energy Manager:

Registration Number:

Signature of Accredited Energy Auditor

Name

Date


 EA 7969


 Er. Ravi Verma

Form 1

Details of information regarding Total Energy Consumed and Specific Energy Consumption Per unit of Production				
Section-A (General Information Details)				
Sr No.	General Details	Description		
1	Name of the Unit	Punjab State Power Corporation Limited (PSPCL)		
2	(i) Year of Establishment	2010		
	(ii) Registration No (As provided by BEE)	DIS0014PB		
3	Sector and Sub-Sector in which the Designated Consumer falls	Sector	Sub Sector	
		Electricity Distribution		
4 (i)	Complete address of DCs Unit location (including Chief Executive's name & designation) with mobile, telephone, fax nos. & e-mail	Sh A Venu Parsad, IAS, CMD PSPCL, 0175-2212005, 0175-2213199		
(ii)	Registered Office address with telephone, fax nos. & e-mail	Er. Jasbir Singh, Chief Engineer (Energy Audit & Enforcement), Shed No B2, Shakli Vihar, Patiala, Patiala, Patiala, Punjab, 147001, 0175-2212005, 0175-2213199		
(iii)	Energy Manager's Name, designation, Registration No., Address, Mobile, Telephone, Fax nos. & e-mail	Er. Ravi Verma, ASE, EA, EA- 9546118788		
Section - B (Production and Energy Consumption Details)				
5.1 Aluminium, Cement, Chlor Alkali, Iron & Steel, Fertilizer, Pulp & Paper, Textile, and Petro-Chemical sectors notified as				
(a) Production details				
	Name of Products	Unit	Previous Year	Current Year 2018-19
		(1)	(2)	(3)
(i)	Product 1	Tonne	N/A	N/A
(ii)	Product 2	Tonne	N/A	N/A
(iii)	Product 3	Tonne	N/A	N/A
(iv)	Product (Please add extra rows in case of additional products)	Tonne	N/A	N/A
(v)	Total Equivalent Product	Tonne	N/A	N/A
(b) Energy Consumption Details				
(i)	Total Electricity Purchased from Grid/Other Source	Million kwh	N/A	N/A
(ii)	Total Electricity Generated	Million kwh	N/A	N/A
(iii)	Total Electricity Exported	Million kwh	N/A	N/A
(iv)	Total Electrical Energy Consumption	Million kwh	N/A	N/A
(v)	Total Solid Fuel Consumption	Million kCal	N/A	N/A
(vi)	Total Liquid Fuel Consumption	Million kCal	N/A	N/A
(vii)	Total Gaseous Fuel Consumption	Million kCal	N/A	N/A
(viii)	Total Thermal Energy Consumption	Million kCal	N/A	N/A
(ix)	Total Energy Consumption (Thermal + Electrical)	TOE	N/A	N/A
(x)	Total Normalized Energy Consumption (Thermal + Electrical)	TOE	N/A	N/A
(c) Specific Energy Consumption Details				
(i)	Specific Energy Consumption (Without Normalization)	TOE/Tonne	N/A	N/A
(ii)	Specific Energy Consumption (Normalized)	TOE/Tonne	N/A	N/A
5.2 Thermal Power Stations (Coal/Oil/Gas/others) notified as Designated Consumer				
(i)	Total Capacity	MW	N/A	N/A
(ii)	Unit Configuration	No. of units with their capacity	N/A	N/A
(iii)	Annual Gross Generation	Million kWh	N/A	N/A
(iv)	Annual Plant Load Factor (PLF)	%	N/A	N/A
(v)	Station Gross Design Heat Rate	kcal/kWh	N/A	N/A
(vi)	Station Gross Operative Heat Rate	kcal/kWh	N/A	N/A
(vii)	Auxiliary Power Consumption	%	N/A	N/A
(viii)	Operative Net Heat Rate	kcal/kWh	N/A	N/A
(ix)	Operative Net Heat Rate (Normalized)	kcal/kWh	N/A	N/A
5.3 Petroleum Refinery notified as Designated Consumer				
(a) Crude Oil Processed Details				
(i)	Throughput (Total Crude Oil Processed)	Thousand Barrels (Mbb/s)	N/A	N/A
(ii)	NRGF (Without Normalization)		N/A	N/A
(iii)	NRGF (Normalized)		N/A	N/A
(b) Energy Consumption Details				
(i)	Total Electricity Purchased from Grid/Other Source	Million kwh	N/A	N/A
(ii)	Total Electricity Generated	Million kwh	N/A	N/A
(iii)	Total Electricity Exported	Million kwh	N/A	N/A
(iv)	Total Electricity Consumed in the Plant	Million kwh	N/A	N/A
(v)	Total Electrical Energy Consumption	SRFT	N/A	N/A
(vi)	Total Solid Fuel Consumption	SRFT	N/A	N/A
(vii)	Total Liquid Fuel Consumption	SRFT	N/A	N/A
(viii)	Total Gaseous Fuel Consumption	SRFT	N/A	N/A
(ix)	Total Thermal Energy Consumption	SRFT	N/A	N/A
(x)	Total Steam Exported/Consumed for Non-refinery operations	SRFT	N/A	N/A
(xi)	Total Energy Consumption (Thermal + Electrical)	MMBTU	N/A	N/A
(xii)	Total Normalized Energy Consumption (Thermal + Electrical)	MMBTU	N/A	N/A
(c) Specific Energy Consumption Details				
(i)	Specific Energy Consumption (Without Normalization)	MMBTU/Mbb/s/NGR F (MBN)	N/A	N/A

(ii)	Specific Energy Consumption (Normalized)	MMBTU/Mbbls/NRG F (MBN)	N/A	N/A
5.4	Electricity Distribution Companies notified as Designated Consumer			
(a)	Energy Input Details			
(i)	Input energy purchase	Million kwh	0.00	55235.28
(ii)	Net input energy (at DISCOM Periphery after adjusting the transmission losses and energy traded)	Million kwh	0.00	53490.75
(iii)	Total Energy billed (is the Net energy billed, adjusted for energy traded))	Million kwh	0.00	47043.42
(b)	Transmission and Distribution (T&D) loss Details			
		Million kwh	0.00	6447.33
		%		12.05
5.5	Railways units notified as Designated Consumer			
5.5.1	Zonal Units Notified as Designated Consumers			
(a)	Gross Tonne Kilometrage			
(i)	Gross Tonne Kilometrage (For Diesel-Passenger)	GTKm	N/A	N/A
(ii)	Gross Tonne Kilometrage (For Diesel-Goods)	GTKm	N/A	N/A
(iii)	Gross Tonne Kilometrage (For Electrical-Passenger)	GTKm	N/A	N/A
(iv)	Gross Tonne Kilometrage (For Electrical-Goods)	GTKm	N/A	N/A
(b)	Energy Consumption Details			
(i)	Diesel Consumption for Gross Tonne Kilometrage (for Passenger)	KL	N/A	N/A
(ii)	Diesel Consumption for Gross Tonne Kilometrage (for Goods)	KL	N/A	N/A
(iii)	Electricity Consumption for Gross Tonne Kilometrage (for Passenger)	Million kWh	N/A	N/A
(iv)	Electricity Consumption for Gross Tonne Kilometrage (for Goods)	Million kWh	N/A	N/A
(c)	Specific Energy Consumption Details			
(i)	Specific Energy Consumption of Diesel for Passenger (Without Normalization)	L/1000GTKm	N/A	N/A
(ii)	Specific Energy Consumption of Diesel for Goods (Without Normalization)	L/1000GTKm	N/A	N/A
(iii)	Specific Energy Consumption of Electrical for Passenger(Without Normalization)	kWh/1000GTKm	N/A	N/A
(iv)	Specific Energy Consumption of Electrical for Goods (Without Normalization)	kWh/1000GTKm	N/A	N/A
(v)	Specific Energy Consumption of Diesel for Passenger (With Normalization)	L/1000GTKm	N/A	N/A
(vi)	Specific Energy Consumption of Diesel for Goods (With Normalization)	L/1000GTKm	N/A	N/A
(vii)	Specific Energy Consumption of Electrical for Passenger(With Normalization)	kWh/1000GTKm	N/A	N/A
(viii)	Specific Energy Consumption of Electrical for Goods (With Normalization)	kWh/1000GTKm	N/A	N/A
5.5.2	Railway Production Units Notified as Designated Consumer			
(a)	Production Details			
(i)	Total Major Production	No of units	N/A	N/A
(ii)	Total Minor Production	No of units	N/A	N/A
(iii)	Total Other Product-1	No of units	N/A	N/A
(iv)	Total Other Product-2	No of units	N/A	N/A
(v)	Total Other Product-3	No of units	N/A	N/A
(vi)	Product (Please add extra rows in case of additional products)	No of units	N/A	N/A
(vii)	Total Equivalent Product	No of Equated Units	N/A	N/A
(b)	Energy Consumption Details			
(i)	Total Electricity Purchased from Grid/Other Source	Million kwh	N/A	N/A
(ii)	Total Electricity Generated	Million kwh	N/A	N/A
(iii)	Total Electricity Exported	Million kwh	N/A	N/A
(iv)	Total Electrical Energy Consumption	Million kwh	N/A	N/A
(v)	Total Solid Fuel Consumption	Million kCal	N/A	N/A
(vi)	Total Liquid Fuel Consumption	Million kCal	N/A	N/A
(vii)	Total Gaseous Fuel Consumption	Million kCal	N/A	N/A
(viii)	Total Thermal Energy Consumption	Million kCal	N/A	N/A
(ix)	Total Energy Consumption (Thermal + Electrical)	TOE	N/A	N/A
(x)	Total Normalized Energy Consumption (Thermal + Electrical)	TOE	N/A	N/A
(c)	Specific Energy Consumption Details			
(i)	Specific Energy Consumption(Without Normalization)	Kgoe/ Eq. Unit	N/A	N/A
(ii)	Specific Energy Consumption (Normalized)	Kgoe/ Eq. Unit	N/A	N/A
5.6	Commercial Building or establishments - Hotels notified as Designated Consumer			
(a)	Building Area			
(i)	Total Built up area	m ²	N/A	N/A
(ii)	Air-conditioned area	m ²	N/A	N/A
(iii)	Non-Airconditioned area	m ²	N/A	N/A
(iv)	Gross Floor area	m ²	N/A	N/A
(v)	Public area	m ²	N/A	N/A
(vi)	Service area	m ²	N/A	N/A
(vii)	Covered Parking Area	m ²	N/A	N/A

(b) Energy Consumption Details				
(i)	Total Electricity Purchased from Grid/Other Source	kwh	N/A	N/A
(ii)	Total Electricity Generated	kwh	N/A	N/A
(iii)	Total Electrical Energy Consumption	kwh	N/A	N/A
(iv)	Total Solid Fuel Consumption	Million kCal	N/A	N/A
(v)	Total Liquid Fuel Consumption	Million kCal	N/A	N/A
(vi)	Total Gaseous Fuel Consumption	Million kCal	N/A	N/A
(vii)	Total Thermal Energy Consumption	Million kCal	N/A	N/A
(viii)	Total Normalized Energy Consumption (Thermal + Electrical)	TOE	N/A	N/A
(c) Specific Energy Consumption Details				
(i)	Specific Energy Consumption (Without Normalization)	TOE/1000 m2/year	N/A	N/A
(ii)	Specific Energy Consumption (Normalized)	TOE/1000 m2/year	N/A	N/A
Section - C (Sector-wise as well as sub-sector wise pro-forma details)				
6	Name of the Sector	Sub-Sector	Pro-forma in which the details to be furnished	
(i)	Aluminium	Refinery/Smelter	Sa ₁	
(ii)	Cement	Cold Rolling Sheet	Sa ₂	
(iii)	Chlor-Alkali	Cement	Sb	
(iv)	Fertilizer	Chlor-Alkali	Sc	
(v)	Iron and Steel	Fertilizer	Sd	
(vi)	Pulp and Paper	Integrated Steel	Se ₁	
		Sponge Iron	Se ₂	
		Pulp and Paper	Sf	
(vii)	Textile	Composite	Sg ₁	
		Fiber	Sg ₂	
		Spinning	Sg ₃	
		Processing	Sg ₄	
(viii)	Thermal Power Plant	Thermal Power Plant (Coal/Oil/Gas)	Sh	
(ix)	Petroleum Refinery	Petroleum Refinery	Si	
(x)	Electricity Distribution Companies	Discoms	Sj	
(xi)	Railways	Zonal Railways	Sk ₁	
		Production	Sk ₂	
(xii)	Commercial Building	Hotels	Sl	
(xiii)	Petrochemicals	Petrochemicals	Sm	

I/we undertake that the information supplied in the Form 1 and pro- forma is accurate to the best of my knowledge and the data furnished in Form 1 has been adhered to the data given in the concerned pro forma.

Authorised Signatory and Seal

Name of Authorised Signatory:
 Name of the Designated Consumer:
 Full Address:
 CE/EA & Enforcement

Seal

Signature:-
 Name of Energy Manager:
 Registration Number:

Form-Input energy(Details of Input energy & Infrastructure)										
Sector-Electricity Distribution Companies										
A. Summary of energy Input & Infrastructure										
S.No	Parameters				Base line year	Target year (2018-19)	Remarks (Source of data)			
A.1	Input Energy purchased (MU)					55235.28	Total input energy available for sale in the State after deducting outside sales to common pool consumers and outside state sales from total requirement at state periphery i.e. 57804.90 Mus			
A.2	Transmission loss (%)					3.16%				
A.3	Transmission loss (MU)				0	1744.33				
A.4	Energy sold outside the periphery(MU)					-7569.62	ARR			
A.5	Open access sale (MU)					0				
A.6	EHT sale					0				
A.7	Net input energy (received at DISCOM periphery or at distribution point,after adjustment)-				0	53490.75	DD Portal			
A.8	Is 100% metering available at 66/33 kV (Select yes or no from list)				yes	yes				
A.9	Is 100% metering available at 11 kV (Select yes or no from list)				yes	yes				
A.10	% of metering available at DT					2.87%	IT			
A.11	% of metering available at consumer end					85.60%	IT			
A.12	No of feeders at 66kV voltage level					134	DD Portal			
A.13	No of feeders at 33kV voltage level					5	DD Portal			
A.14	No of feeders at 11kV voltage level					11101	DD Portal			
A.15	No of LT feeders level					0				
A.16	Line length (ckt. km) at 66kV voltage level					10099	Planning			
A.17	Line length (ckt. km) at 33kV voltage level					87	Planning			
A.18	Line length (ckt. km) at 11kV voltage level					242012	Planning			
A.19	Line length (km) at LT level					147083	Planning			
A.20	HT/LT ratio					1.65				
B. Meter reading of input energy Injection points										
S.No	Voltage level	Feeder ID	Feeder Name	Previous year(2014-15)		Import (MU)	Current year(2018-19)		Remarks (Source of data)	
				Meter S.No	CT/PT ratio		Meter S.No	Import (MU)		Export (MU)
B.1	11KV	7	SAUNDA	9157450			9157450	3.560	0	
B.2	11KV	9	SADHUGARH	8222661			8222661	2.134	0	
B.3	11KV	10	SANGATPURA	8222664			8222664	1.676	0	
B.4	11KV	11	MANDOFAL	2068782			2068782	1.790	0	
B.5	11KV	12	HUSSIANPURA	10282794			10282794	2.085	0	
B.6	11KV	13	MULLANPUR	8223765			8223765	1.474	0	
B.7	11KV	14	BORAN	10282876			10282876	1.531	0	
B.8	11KV	15	RAMGARH [MULLANPUR OLD]	123456			123456	0.843	0	
B.9	11KV	16	MULLANPUR NEW	12093452			12093452	2.718	0	
B.10	11KV	17	MAIN MAJRI	204508			204508	2.327	0	
B.11	11KV	18	KAMALI	204506			204506	3.116	0	
B.12	11KV	19	RORHGARH	8222920			8223845	3.766	0	
B.13	11KV	20	PANJOLA	2066970			2066970	3.493	0	
B.14	11KV	21	WAJIRABAD	2066992			2066992	1.659	0	
B.15	11KV	22	HANSALI	2067053			2067053	7.157	0	
B.16	11KV	24	HOSPITAL	2066317			124569	1.691	0	
B.17	11KV	25	CANNAL AP	145267			145267	0.000	0	
B.18	11KV	26	NATURAL	1245687			1245687	4.513	0	
B.19	11KV	27	SATPAL STRIPS	1235478			1235478	7.266	0	
B.20	11KV	28	DEV ALLOYS	Not available			Not available	0.000	0	
B.21	11KV	29	SAMCAST	124879			124879	4.781	0	
B.22	11KV	30	JATIN	124578			124578	20.485	0	
B.23	11KV	31	KAHNA	30267			30267	0.000	0	
B.24	11KV	32	GT ROAD 1	124788			124788	3.374	0	
B.25	11KV	33	GT ROAD 2	8223204			8223204	0.815	0	
B.26	11KV	34	TIWANA OIL	2066522			125479	5.672	0	
B.27	11KV	35	FATEHGARH SAHIB	123456			123456	12.933	0	
B.28	11KV	36	CITY ONE	123548			123548	11.695	0	
B.29	11KV	37	ANAJ MANDI	8222405			8222405	6.060	0	
B.30	11KV	38	NABIPUR	8223344			8223344	9.048	0	
B.31	11KV	39	MAJRI MAJRI	6761937			6761937	6.605	0	
B.32	11KV	40	CITY BASSI	124578			124578	11.067	0	
B.33	11KV	41	JALKHERI	2067700			2067700	5.163	0	
B.34	11KV	42	FATEHPUR	11114558			11114558	1.413	0	
B.35	11KV	43	MADHOPUR	Not available	2.2	8223104		2.055	0.00	
B.36	11KV	44	ATTEWALI	Not available	2	20994127		1.742	0.00	
B.37	11KV	45	MAHADIAN	Not available	4.4	2068128		1.843	0.00	
B.38	11KV	46	NOGAWAN	Not available	4.8	2066435		2.638	0.00	
B.39	11KV	47	KARIMPURA	Not available	3.6	2067200		2.253	0.00	
B.40	11KV	48	NANDPUR	Not available	4.9	5295694		5.202	0.00	
B.41	11KV	49	Bhuchi	Not available	0	2068030		0.000	0.00	
B.42	11KV	50	KALOUR	Not available	2.1	2067008		1.618	0.00	
B.43	11KV	51	BHERONPUR	Not available	2.7	9154228		1.919	0.00	
B.44	11KV	52	DUFERA	Not available	3.3	9141113		3.685	0.00	

	66KV	14198	66 KV Pragati Papers	Not available		0	Not available	4.585		
	66KV	14238	AB Sugar Mill	Not available		0	Not available	1.579		
	66KV	14271	ASIANFINE CEMENT	Not available		0	Not available	8.788		
	66KV	14386	ISER	Not available		0	Not available	11.568		
	66KV	14735	AIR PORT	Not available		0	Not available	1.260		
	66KV	14875	66 KV Varun Beverages IGC	Not available		0	Not available	0.392		
	66KV	14903	66 KV ITC	Not available		0	Not available	12.504		
B.1000	66KV		Difference in Input energy due to injection of renewal energy at 11/66 KV level in			###		0.00	0.00	
B.1001			Total (MU)			0.00	Total (MU)	53490.75	0.00	
B.1002			Net Input energy at DISCOM periphery (MU)			0.00	Net Input energy at DISCOM periphery (MU)			

Color code	Parameter
	Please enter voltage level or leave blank
	Please enter feeder id and name or leave blank
	Enter meter no or leave blank
	Enter CT/PT ratio or leave blank
0	Please enter numeric value or 0
	Please select yes or no from list
	Formula protected

I/we undertake that the information supplied in the Form Input Energy is accurate to the best of my knowledge

Authorised Signatory and Seal

Signature:-

Name of Energy Manager:

Registration Number:-

Rajneesh
BA-7969

RS
SA/En/Dsm

Signature of Accredited energy

Auditor

Name

Date

(Signature of Chief Executive)

(Er. Jashir Singh)

CE/EA & Enforcement

Form-Sj(Details of circle wise losses)

Sector-Electricity Distribution Companies

C. Circle wise losses																		
S.No	Name of circle	Circle code	Target year(2018-19)															
			Consumer profile							Energy parameters				Losses				
			Consumer category	No of connection (Nos)	No of connection Un-metered (Nos)	Total Number of connections (Nos)	% of number of connections	Connected Load (MW)	Connected Load Un-metered (MW)	Total Connected Load (MW)	% of connected load	Input energy (MU)	Metered energy	Unmetered/assessment energy	Total energy	% of energy consumption	T&D loss (MU)	T&D loss (%)
1	Barnala		Residential	271327		271327	68%	424.81	0.00	424.81	23.12%	2575.73	510.98		510.98	22.79%	333.91	12.96%
			Agricultural	104	81264	81368	20%	0.62	842.04	842.66	45.85%		1.17	951.51	952.68	42.50%		
			Commercial/Industrial-LT	43534		43534	11%	201.32	0.00	201.32	10.95%		191.67		191.67	8.55%		
			Commercial/Industrial-HT	778		778	0%	365.53	0.00	365.53	19.89%		573.92		573.92	25.60%		
			Others	100		100	0%	3.48	0.00	3.48	0.19%		12.57		12.57	0.56%		
Sub-total			315843	81264	397107	100%	995.76	842.04	1837.80	100.00%	2575.732	1290.311266	951.51	2241.82	100.00%	333.91	12.96%	
2	Bathinda		Residential	472007		472007	72%	696.22	0.00	696.22	28.74%	3937.65	975.94		975.94	28.84%	553.12	14.05%
			Agricultural	703	116091	116794	18%	6.14	935.84	941.98	38.89%		21.06	1203.85	1224.91	36.19%		
			Commercial/Industrial-LT	68672		68672	10%	322.82	0.00	322.82	13.33%		347.03		347.03	10.25%		
			Commercial/Industrial-HT	910		910	0%	410.05	0.00	410.05	16.93%		742.82		742.82	21.95%		
			Others	378		378	0%	51.16	0.00	51.16	2.11%		93.83		93.83	2.77%		
Sub-total			542670	116091	658761	100%	1486.39	935.84	2422.23	100.00%	3937.649	2180.685425	1203.85	3384.53	100.00%	553.12	14.05%	
3	City Amritsar		Residential	150795		150795	70%	405.41	0.00	405.41	50.60%	921.21	410.91		410.91	49.85%	96.96	10.53%
			Agricultural	355	0	355	0%	1.86	0.00	1.86	0.23%		3.41	0.00	3.41	0.41%		
			Commercial/Industrial-LT	62967		62967	29%	355.14	0.00	355.14	44.32%		375.02		375.02	45.50%		
			Commercial/Industrial-HT	116		116	0%	32.36	0.00	32.36	4.04%		18.20		18.20	2.21%		
			Others	271		271	0%	6.48	0.00	6.48	0.81%		16.70		16.70	2.03%		
Sub-total			214504	0	214504	100%	801.25	0.00	801.25	100.00%	921.208	824.249435	0.00	824.25	100.00%	96.96	10.53%	
4	Faridkot		Residential	358388		358388	68%	558.28	0.00	558.28	29.96%	2707.76	721.39		721.39	31.86%	443.21	16.37%
			Agricultural	420	113431	113851	22%	2.41	891.07	893.48	47.95%		7.91	1023.26	1031.16	45.54%		
			Commercial/Industrial-LT	53403		53403	10%	231.34	0.00	231.34	12.41%		259.52		259.52	11.48%		
			Commercial/Industrial-HT	644		644	0%	167.51	0.00	167.51	8.99%		226.82		226.82	10.02%		
			Others	126		126	0%	12.91	0.00	12.91	0.69%		25.65		25.65	1.13%		
Sub-total			412981	113431	526412	100%	972.44	891.07	1863.51	100.00%	2707.757	1241.286909	1023.26	2264.54	100.00%	443.21	16.37%	
5	Gurdaspur		Residential	541823		541823	74%	682.64	0.00	682.64	45.31%	2134.11	870.65		870.65	46.08%	244.73	11.47%
			Agricultural	1245	102749	103994	14%	6.73	383.59	390.32	25.91%		17.81	483.21	501.02	26.52%		
			Commercial/Industrial-LT	86325		86325	12%	276.08	0.00	276.08	18.33%		257.16		257.16	13.61%		
			Commercial/Industrial-HT	352		352	0%	103.50	0.00	103.50	6.87%		132.05		132.05	6.99%		
			Others	220		220	0%	53.91	0.00	53.91	3.58%		128.50		128.50	6.80%		
Sub-total			629965	102749	732714	100%	1122.86	383.59	1506.44	100.00%	2134.105	1406.169033	483.21	1889.38	100.00%	244.73	11.47%	
6	Hoshiarpur		Residential	436817		436817	76%	653.72	0.00	653.72	44.21%	2074.32	657.82		657.82	33.96%	137.37	6.62%
			Agricultural	652	59599	60251	10%	3.28	360.47	363.75	24.60%		1.77	462.07	463.84	23.95%		
			Commercial/Industrial-LT	76614		76614	13%	226.43	0.00	226.43	15.31%		234.67		234.67	12.12%		
			Commercial/Industrial-HT	264		264	0%	222.10	0.00	222.10	15.02%		549.69		549.69	28.38%		
			Others	172		172	0%	12.66	0.00	12.66	0.86%		30.92		30.92	1.60%		
Sub-total			514519	59599	574118	100%	1118.19	360.47	1478.65	100.00%	2074.318	1474.872	462.07	1936.95	100.00%	137.37	6.62%	
7	Firozpur		Residential	248276		248276	65%	315.36	0.00	315.36	27.72%	1903.16	455.01		455.01	30.95%	433.15	22.76%
			Agricultural	83	97051	97134	26%	0.40	582.71	583.12	51.26%		1.86	638.01	639.87	43.53%		
			Commercial/Industrial-LT	33705		33705	9%	127.86	0.00	127.86	11.24%		129.19		129.19	8.79%		
			Commercial/Industrial-HT	300		300	0%	88.37	0.00	88.37	7.77%		188.16		188.16	12.80%		
			Others	130		130	0%	22.97	0.00	22.97	2.02%		57.78		57.78	3.93%		
Sub-total			282494	97051	379545	100%	554.95	582.71	1137.66	100.00%	1903.157	831.997469	638.01	1470.00	100.00%	433.15	22.76%	
8	Jalandhar		Residential	429455		429455	75%	1061.70	0.00	1061.70	42.22%	2931.31	951.74		951.74	34.43%	166.88	5.69%
			Agricultural	527	25441	25968	5%	2.46	180.49	182.96	7.27%		4.49	217.06	221.55	8.01%		
			Commercial/Industrial-LT	113541		113541	20%	730.91	0.00	730.91	29.06%		716.61		716.61	25.92%		
			Commercial/Industrial-HT	956		956	0%	462.56	0.00	462.56	18.39%		713.05		713.05	25.79%		
			Others	814		814	0%	76.77	0.00	76.77	3.05%		161.46		161.46	5.84%		
Sub-total			545293	25441	570734	100%	2334.40	180.49	2514.89	100.00%	2931.306	2547.36048	217.06	2764.42	100.00%	166.88	5.69%	

9	Kapurthala	Residential	321393		321393	69%	547.03	0.00	547.03	37.55%	1864.25	590.08		590.08	36.09%	229.07	12.29%
		Agricultural	391	91032	91423	20%	2.31	585.08	587.38	40.32%		9.76	661.06	670.83	41.02%		
		Commercial/Industrial-LT	50857		50857	11%	165.31	0.00	165.31	11.35%		150.22		150.22	9.19%		
		Commercial/Industrial-HT	380		380	0%	143.31	0.00	143.31	9.84%		200.02		200.02	12.23%		
		Others	79		79	0%	13.71	0.00	13.71	0.94%		24.03		24.03	1.47%		
Sub-total			373100	91032	464132	100%	871.67	585.08	1456.75	100.00%	1864.247	974.118043	661.06	1635.18	100.00%	229.07	12.29%
10	Khanna	Residential	251409		251409	71%	435.47	0.00	435.47	21.09%	4770.90	540.22		540.22	12.84%	64.36	1.51%
		Agricultural	17	57567	57584	16%	0.10	443.29	443.40	21.47%		0.02	463.72	463.74	11.02%		
		Commercial/Industrial-LT	42593		42593	12%	235.10	0.00	235.10	11.38%		1420.90		1420.90	31.78%		
		Commercial/Industrial-HT	926		926	0%	948.02	0.00	948.02	45.90%		1768.69		1768.69	42.05%		
		Others	116		116	0%	3.24	0.00	3.24	0.16%		11.00		11.00	0.31%		
Sub-total			295061	57567	352628	100%	1621.92	443.29	2065.21	100.00%	4770.903	3742.874418	463.72	4206.54	100.00%	64.36	1.51%
11	Mohali	Residential	272010		272010	84%	942.54	0.00	942.54	43.35%	2741.80	682.96		682.96	26.07%	122.31	4.46%
		Agricultural	18	13149	13167	4%	0.17	123.90	124.07	5.71%		0.16	175.76	175.92	6.72%		
		Commercial/Industrial-LT	36637		36637	11%	496.16	0.00	496.16	22.82%		676.36		676.36	25.82%		
		Commercial/Industrial-HT	633		633	0%	565.14	0.00	565.14	25.99%		1012.08		1012.08	38.64%		
		Others	414		414	0%	46.30	0.00	46.30	2.13%		72.17		72.17	2.76%		
Sub-total			309712	13149	322861	100%	2050.31	123.90	2174.21	100.00%	2741.799	2443.727753	175.76	2619.48	100.00%	122.31	4.46%
12	Nawanshahar	Residential	290795		290795	76%	461.71	0.00	461.71	45.69%	1254.31	425.12		425.12	38.90%	161.39	12.87%
		Agricultural	385	46378	46763	12%	1.82	289.74	291.56	29.49%		3.04	386.14	389.18	35.61%		
		Commercial/Industrial-LT	42641		42641	11%	155.11	0.00	155.11	15.69%		140.52		140.52	12.86%		
		Commercial/Industrial-HT	162		162	0%	77.49	0.00	77.49	7.84%		132.56		132.56	12.13%		
		Others	25		25	0%	2.91	0.00	2.91	0.29%		5.54		5.54	0.51%		
Sub-total			334008	46378	380386	100%	699.05	289.74	988.78	100.00%	1254.309	706.778454	386.14	1092.92	100.00%	161.39	12.87%
13	Patiala	Residential	430246		430246	74%	842.50	0.00	842.50	34.26%	3387.60	925.26		925.26	30.47%	351.13	10.37%
		Agricultural	443	75226	75669	13%	2.99	791.11	794.11	32.29%		8.43	777.26	785.69	25.88%		
		Commercial/Industrial-LT	75814		75814	13%	391.01	0.00	391.01	15.90%		385.60		385.60	12.70%		
		Commercial/Industrial-HT	786		786	0%	386.54	0.00	386.54	15.72%		835.51		835.51	27.52%		
		Others	344		344	0%	44.95	0.00	44.95	1.83%		104.41		104.41	3.44%		
Sub-total			507633	75226	582859	100%	1668.00	791.11	2459.11	100.00%	3387.6	2259.209203	777.26	3036.47	100.00%	351.13	10.37%
14	Ropar	Residential	346428		346428	77%	636.52	0.00	636.52	34.83%	3294.79	581.82		581.82	18.57%	161.15	4.89%
		Agricultural	1947	50224	52171	12%	14.01	282.14	296.14	16.21%		1.49	429.93	431.41	13.77%		
		Commercial/Industrial-LT	50761		50761	11%	236.99	0.00	236.99	12.97%		252.13		252.13	8.05%		
		Commercial/Industrial-HT	560		560	0%	636.27	0.00	636.27	34.82%		1823.90		1823.90	58.20%		
		Others	236		236	0%	21.51	0.00	21.51	1.18%		44.36		44.36	1.42%		
Sub-total			399932	50224	450156	100%	1545.31	282.14	1827.44	100.00%	3294.785	2703.705622	429.93	3133.63	100.00%	161.15	4.89%
15	Sangrur	Residential	262907		262907	68%	365.78	0.00	365.78	21.45%	2445.11	480.15		480.15	24.10%	452.70	18.51%
		Agricultural	194	85932	86126	22%	1.54	1015.41	1016.96	59.66%		9.36	1021.73	1031.09	51.75%		
		Commercial/Industrial-LT	38663		38663	10%	158.27	0.00	158.27	9.28%		167.34		167.34	8.40%		
		Commercial/Industrial-HT	754		754	0%	160.18	0.00	160.18	9.40%		304.93		304.93	15.30%		
		Others	37		37	0%	3.44	0.00	3.44	0.20%		8.89		8.89	0.45%		
Sub-total			302555	85932	388487	100%	689.22	1015.41	1704.63	100.00%	2445.114	970.683713	1021.73	1992.42	100.00%	452.70	18.51%
16	Sri Muktsar Sahib	Residential	384994		384994	71%	498.24	0.00	498.24	39.12%	1985.64	761.13		761.13	47.64%	387.85	19.53%
		Agricultural	82	108007	108089	20%	0.50	440.54	441.04	34.63%		0.99	408.40	409.39	25.62%		
		Commercial/Industrial-LT	51522		51522	9%	206.42	0.00	206.42	16.21%		200.86		200.86	12.57%		
		Commercial/Industrial-HT	370		370	0%	121.09	0.00	121.09	9.51%		205.41		205.41	12.86%		
		Others	54		54	0%	6.77	0.00	6.77	0.53%		21.00		21.00	1.31%		
Sub-total			437022	108007	545029	100%	833.01	440.54	1273.55	100.00%	1985.638	1189.390638	408.40	1597.79	100.00%	387.85	19.53%
17	Suburban, Amritsar	Residential	368269		368269	74%	610.55	0.00	610.55	41.02%	2512.26	745.97		745.97	37.14%	503.87	20.06%
		Agricultural	1309	75966	77275	16%	6.12	407.23	413.35	27.77%		49.92	452.34	502.26	25.01%		
		Commercial/Industrial-LT	48684		48684	10%	276.36	0.00	276.36	18.57%		314.48		314.48	15.66%		
		Commercial/Industrial-HT	417		417	0%	153.38	0.00	153.38	10.30%		371.34		371.34	18.49%		
		Others	285		285	0%	34.94	0.00	34.94	2.35%		74.35		74.35	3.70%		

Organisation seal

10.6.2 FY 2016-17

Form-1

Details of information regarding Energy Input and Billed Energy

General Details		Description	
Name of the Unit		Punjab State Power Corporation Limited (PSPCL)	
(i) Year of Establishment		2010	
(ii) Registration No (As provided by BEE)		DIS0014PB	
Sector in which the Designated Consumers falls		Electricity Distribution Companies	
Complete address of DCs Unit location (including Chief Executive's name & designation) with mobile, telephone, fax nos. & e-mail.		Er. Baldev Singh Sran, CMD PSPCL, 0175-2212005, 0175-2213199,,	
(iii) Registered Office address with telephone, fax nos. & e-mail		Er. Baldev Singh Sran, CMD PSPCL, The Mall, Patiala, Patiala, Punjab, 147001, 0175-2212005, 0175-2213199	
(iv) Energy Manager's Name, designation, Registration No., Address, Mobile, Telephone, Fax nos. & e-mail		Er. Ravi Verma, ASE, EA, EA-7969, ,,,	

Energy Input Details			
Parameter	Unit	Previous year (2014-15)	Current year (2016-17)
(i) Input energy purchase	MU	29604.51	39995.84
(ii) Net input energy (DISCOM Periphery)	MU	47647.44	52206.35
T&D Loss			
(i) Energy billed	(MU)	40402.82	44241.42
(ii) T&D loss	(MU)	7244.62	7964.93
	%	15.20%	15.26%

I/We undertake that the information supplied in the Form 1 and pro- forma is accurate to the best of my knowledge and the data furnished in Form 1 has been adhered to the data given in the concerned pro forma. The Net Input Energy (D15, E15 in Form-1 & AC464 in Form S1) means energy available at PSPCL end which includes own generation, power purchase, BBMB share, central sector share, PED/A & other NRSE projects etc.

Authorised Signatory and Seal

Name of Authorised Signatory: **Er. Ravi Verma**
 Name of the Designated Consumer: **EA- 7968**
 Full Address:- **Energy Auditor**
PSPCL, Patiala.

Signature:- **Er. Lovleen Gupta**
 Name of Energy Manager: **EA- 17113**
 Registration Number: **Energy Manager**
PSPCL, Patiala.

Engineer-in-Chief/EA & Enforcement
 P.S.P.C.L., Patiala

Form-Input energy(Details of Input energy & Infrastructure)

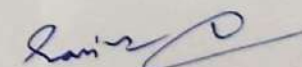
Sector-Electricity Distribution Companies

A. Summary of energy input & Infrastructure

S.No	Parameters	Previous year (2014-15)	Previous year (2016-17)	Remarks (Source of data)
A.1	Input Energy purchased (MU)	29604.51	39995.84	
A.2	Transmission loss (%)	3.23%	2.68%	
A.3	Transmission loss (MU)	956.226	1071.889	
A.4	Energy sold outside the periphery(MU)	-157.08	-466.33	
A.5	Open access sale (MU)	-0.04	-0.47	
A.6	EHT sale	0	0	
A.7	Net input energy (received at DISCOM periphery or at distribution point,after adjustment)-(MU)	46999.80	51774.63	
A.8	Is 100% metering available at 66/33 kV (Select yes or no from list)			
A.9	Is 100% metering available at 11 kV (Select yes or no from list)			
A.10	% of metering available at DT	3.59%	3.62%	
A.11	% of metering available at consumer end	100%	100%	
A.12	No of feeders at 66kV voltage level	120	125	
A.13	No of feeders at 33kV voltage level	4	4	
A.14	No of feeders at 11kV voltage level	9100	10400	
A.15	No of LT feeders level	0	0	
A.16	Line length (ckt. km) at 66kV voltage level	8789	10005	
A.17	Line length (ckt. km) at 33kV voltage level	382	120	
A.18	Line length (ckt. km) at 11kV voltage level	214860	232290	
A.19	Line length (km) at LT level	149698	152177	
A.20	HT/LT ratio	1.435	1.526	

B. Meter reading of Input energy injection points

S.No	Voltage level	Feeder ID	Feeder Name	BY(2014-2015)		BY(2016-2017)	
				Import (MU)	Export (MU)	Import (MU)	Export (MU)
B.1	11 KV	7	SAUNDA	2.755		3.130	
B.2	11 KV	9	SADHUGARH	2.807		2.757	
B.3	11 KV	10	SANGATPURA	2.518		2.954	
B.4	11 KV	11	MANDOFAL	2.196		2.382	
B.5	11 KV	12	HUSSIANPURA	2.590		2.804	
B.6	11 KV	13	MULLANPUR	1.697		1.685	
B.7	11 KV	14	BORAN	2.363		2.755	
B.8	11 KV	15	RAMGARH [MULLANPUR OL	4.841		6.343	
B.9	11 KV	16	MULLANPUR NEW	2.432		3.782	
B.10	11 KV	17	MAIN MAJRI	0.054		2.899	



10709	66KV	11242	OLIVER	0.986	1.334
10710	66KV	6700	Vardhman	2.748	2.963
10711	66KV	6300	ABC	0.473	0.484
10712	66KV	9806	Radiant Textile Mill	3.176	2.997
10713	66KV	3610	AVANI TEXTILE	3.929	3.368
10714	66KV	4464	IAL HARKISHANPURA	0.710	0.385
10715	66KV	4475	VARDHMAN POLYTEX	5.944	5.157
10716	66KV	7952	Birla plus	3.803	3.878
10717	66KV	4473	AIR FORCE	0.532	0.563
10718	66KV	4472	AMBUJA CEMENT	1.987	1.339
10719	66KV	2851	66 KV MES	0.348	0.378
10720	66KV	9924	MES	0.710	0.758
10721	66KV	9827	66 KV NESTLE	2.791	2.633
10722	66KV	10032	SPORTKING 66KV	8.000	8.239
10723	66KV	7950	66KV Garg Acrylics LTD	6.357	8.177
10724	66KV	7951	Satluj Spintex	4.263	3.938
10725	66KV	10389	SEL PUNJAWA	2.156	2.443
10726	66KV	10090	Satia Synthetics Mill	2.778	2.986
10727	66KV	10091	Satia Paper Mill (Rupana)	0.885	1.625
Total (MU)				46999.80	51774.63
Net input energy at				46999.80	51774.63

Color code	Parameter
	Please enter voltage level or leave blank
	Please enter feeder id and name or leave blank
	Enter meter no or leave blank
	Enter CT/PT ratio or leave blank
0	Please enter numeric value or 0
	Please select yes or no from list
	Formula protected

Signature of Energy Manager

Name

Date:

Lovleen Gupta
Er. Lovleen Gupta
 EA- 17113
 Energy Manager
 PSPCL, Patiala.

Ravi Verma
Er. Ravi Verma
 EA- 7963
 Energy Auditor
 PSPCL, Patiala.

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Engineer-in-Chief/EA & Enforcement
P.S.P.C.L., Patiala

7/12/19
12/07/19
12/7/19
Asst/DSM

Sub-total		247443	3169	250612	100%	1880.9895	19.58836519	1900.577868	100%	2835.5	2618.367	16.71	2635.07	100%	200.4261	7.07%	
Ludhiana West	Residential	262008		262008	76%	933.96	0.00	933.9565255	39%		013.38	0.00	813.38	28%			Resident
	Agricultural	928	4077	5005	1%	2.27	23.12	25.39164119	1%		2.04	20.59	22.63	1%			Agricultu
	Commercial/Industrial-LT	75718		75718	22%	825.02	0.00	825.0205281	34%	3723.97	705.04	0.00	705.04	24%	300.7733	9.33%	Commer
	Commercial/Industrial-HT	658		658	0%	594.38	0.00	594.3770624	25%		1292.08	0.00	1292.08	44%			Commer
	Others	503		503	0%	35.97	0.00	35.96694954	1%		90.06	0.00	90.06	3%			Others
Sub-total		339815	4077	343892	100%	2391.5891	23.12365208	2414.712707	100%	3223.97	2902.603	20.59	2923.20	100%	300.7733	9.33%	
Ludhiana Suburban	Residential	221280		221280	70%	389.43	0.00	389.4265457	34%		419.33	0.00	419.33	30%			Resident
	Agricultural	680	61821	62501	20%	2.49	468.15	470.6368681	41%		1.96	577.21	579.17	42%			Agricult
	Commercial/Industrial-LT	33781		33781	11%	149.82	0.00	149.8213937	13%	1628.346	128.47	0.00	128.47	9%	239.4841	14.71%	Comme
	Commercial/Industrial-HT	451		451	0%	144.62	0.00	144.617834	12%		247.35	0.00	247.35	18%			Comme
	Others	41		41	0%	4.61	0.00	4.610485093	0%		14.54	0.00	14.54	1%			Others
Sub-total		256233	61821	318054	100%	690.9628	468.1503255	1159.113127	100%	1628.346	811.6492	577.21	1388.86	100%	239.4841	14.71%	
Sub-total		0	0	0	100%	0	0	0	100%	0	0	0.00	0.00	100%	0	#DIV/0!	
Total	Residential	6006790	0	6006790	72%	10769.846	0	10769.84582	34%		11287.98	0.00	11287.98	28%			Reside
	Agricultural	12124	1213216	1225340	15%	82.491026	8587.551002	8670.042027	27%		237.7272	10658.41	10896.13	27%			Agricu
	Commercial/Industrial-LT	1083562	0	1083562	13%	5877.8936	0	5877.893637	19%	47647.44	6441.874	0.00	6441.87	16%	7244.622	15.20%	Comm
	Commercial/Industrial-HT	10092	0	10092	0%	5940.8053	0	5940.805251	19%		10808.31	0.00	10808.31	27%			Comm
	Others	4192	0	4192	0%	447.18725	0	447.1872513	1%		968.5244	0.00	968.52	2%			Other
At company level		7116760	1213216	8329976	100%	23118.223	8587.551002	31705.77398	100%	47647.44	29744.41	10658.41	40402.82	100%	7244.622	15.20%	

Parameter
Please enter name of circle
Please enter circle code
Please enter numeric value or 0
Formula protected

Ravi
Er. Ravi Verma
 EA- 7968
 Energy Auditor
 PSPCL, Patiala.

Lovleen
Er. Lovleen Gupta
 EA- 17113
 Energy Manager
 PSPCL, Patiala.

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 Engineer-in-Chief /EA & Enforcement
 PSPCL, Patiala

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100%	200.4261	7.07%		259635	3110	262745	100%	2104.92243	24.3532643	2029.275695	100%	2997.205	2776.6771	19.50778849	2796.185	100%	201.0201	6.71%
28%			Residential	277511	0	277511	76%	1041.78	0.00	2041.784758	39%		878.772		878.7725	29%		
1%			Agricultural	455	4392	4847	1%	2.41	30.12	32.5859995	1%		1.493	26.960	28.34321	1%		
24%	300.7733	9.33%	Commercial/Industrial-LT	81291	0	81291	22%	913.64	0.00	813.696971	34%	3342.803	829.087		829.0867	27%	287.048	8.59%
44%			Commercial/Industrial-HT	675	0	675	0%	655.46	0.00	655.48528	24%		1218.858		1218.858	40%		
3%			Others	572	0	572	0%	38.37	0.00	38.36216423	1%		100.695		100.6947	3%		
100%	300.7733	9.33%		360504	4392	364896	100%	2651.65896	30.1188831	2681.777847	100%	3342.803	3028.895	26.85998314	3055.755	100%	287.048	8.59%
30%			Residential	228028	0	228028	69%	423.03	0.00	423.0270631	31%		487.430		487.4298	32%		
42%			Agricultural	90	64710	64800	20%	0.50	616.32	616.3902554	45%	1773.587	1.568	620.758	622.3255	41%		
9%	239.4841	14.71%	Commercial/Industrial-LT	34913	0	34913	11%	168.35	0.00	168.3502554	12%		140.215		140.2155	9%	271.1311	15.29%
18%			Commercial/Industrial-HT	469	0	469	0%	161.97	0.00	161.970506	12%		237.053		237.0526	16%		
1%			Others	46	0	46	0%	4.78	0.00	4.782758933	0%		15.432		15.43247	1%		
100%	239.4841	14.71%		263546	64710	328256	100%	758.630929	616.31749	1374.94842	100%	1773.587	881.69819	620.757717	1502.456	100%	271.1311	15.29%
100%	0	#DIV/0!		0	0	0	100%	0	0	0	100%	0	0	0	0	100%	0	#DIV/0!
28%			Residential	6233233	0	6233233	75%	11882.0743	0	11882.07432	37%		13238.299	0	13238.3	33%		
27%			Agricultural	9908	1279233	1289141	15%	61.3212186	11456.927	11518.24812	36%	52206.35	161.53662	11851.91977	12013.46	30%		
16%	7244.622	15.20%	Commercial/Industrial-LT	1110406	0	1110406	13%	6521.27445	0	6521.27446	21%		7442.6971	0	7442.697	18%	7964.93	15.26%
27%			Commercial/Industrial-HT	10311	0	10311	0%	6405.26702	0	6405.267015	20%		10493.716	0	10493.72	25%		
2%			Others	4466	0	4466	0%	485.594005	0	485.5940046	2%		1053.2511	0	1053.251	3%		
100%	7244.622	15.20%		7368324	1279233	8647557	100%	25355.531	11456.927	36812.458	100%	52206.35	32389.500	11851.920	44241.42	100%	7964.93	15.26%

9/8

Signature of Energy Manager

Name

Date:

Place:

Er. Ravi Verma
EA- 7968
Energy Auditor
PSPCL, Patiala.

(Signature of Chief Executive)

Organisation seal

Er. Lovleen Gupta
EA- 17113
Energy Manager
PSPCL, Patiala.

Engineer-in-Chief / EA & Enforcement
P.S.P.C.L., Patiala

ASE/psm

10.6.3 FY 2017-18

Form-1				
Details of information regarding Energy Input and Billed Energy				
A.	General Details		Description	
1	Name of the Unit		Punjab State Power Corporation Limited (PSPCL)	
2	i) Year of Establishment		2010	
	(ii) Registration No (As provided by BEE)		DIS0014PB	
3	Sector in which the Designated Consumers falls		Electricity Distribution Companies	
4. (i)	Complete address of DCs Unit location (including Chief Executive's name & designation) with mobile, telephone, fax nos. & e-mail.		Er. Baldev Singh Sran, CMD PSPCL, 0175-2212005, 0175-2213199,,	
(ii)	Registered Office address with telephone, fax nos. & e-mail		Er. Baldev Singh Sran, CMD PSPCL, The Mall, Patiala, Punjab, 147001, 0175-	
(iii)	Energy Manager's Name, designation, Registration No., Address, Mobile, Telephone, Fax nos. & e-mail		Er. Ravi Verma, Addl. S.E., EA, EA-7969,,,	
B.	Energy Input Details			
	Parameter	Unit	Previous year (2017-18)	Current year (2018-19)
(i)	Input energy purchase	MU	43610.34	0.00
(ii)	Net input energy (DISCOM Periphery)	MU	54882.89	#VALUE!
C	T&D Loss			
(i)	Energy billed	(MU)	47374.47	0.00
(ii)	T&D loss	(MU)	7508.42	#VALUE!
		%	13.68%	#VALUE!

I/we undertake that the information supplied in the Form 1 and pro- forma is accurate to the best of my knowledge and the data furnished in Form 1 has been adhered to the data given in the concerned pro forma. The Net Input Energy (D15 in Form-1 & M464 in Form Sij) means energy available at PSPCL end which includes own generation, power purchase, BBMB share, central sector share, PEDAs & other NRSE projects etc.

Authorised Signatory and Seal

Name of Authorised Signatory:

Name of the Designated Consumer:

Full Address:-

Er. Ravi Verma

Seal

EA- 7968

Energy Auditor

PSPCL, Patiala.

Date:

Engineer-in-Chief/EA & Enforcement
P.S.P.C.L., Patiala

Signature:-

Name of Energy Manager:

Registration Number:

Er. Lovleen Gupta

EA- 17113

Energy Manager

PSPCL, Patiala.

Engineer-in-Chief/EA & Enforcement
P.S.P.C.L., Patiala

Form-Input energy(Details of Input energy & Infrastructure)				
Sector-Electricity Distribution Companies				
A. Summary of energy input & Infrastructure				
S.No	Parameters	Previous year (2017-18)	Previous year (2018-19)	Remarks (Source of data)
A.1	Input Energy purchased (MU)	43610.34		
A.2	Transmission loss (%)	3.00%	0.00%	
A.3	Transmission loss (MU)	1308.310	0	
A.4	Energy sold outside the periphery(MU)	-1353.2	0	
A.5	Open access sale (MU)	0	0	
A.6	EHT sale	0	0	
A.7	Net input energy (received at DISCOM periphery or at distribution point,after adjustment)-(MU)	53780.97	0.00	
A.8	Is 100% metering available at 66/33 kV (Select yes or no from list)			
A.9	Is 100% metering available at 11 kV (Select yes or no from list)			
A.10	% of metering available at DT			
A.11	% of metering available at consumer end	3.32%	0%	
A.12	No of feeders at 66kV voltage level	100%	0%	
A.13	No of feeders at 33kV voltage level	126	0	
A.14	No of feeders at 11kV voltage level	4	0	
A.15	No of LT feeders level	10842	0	
A.16	Line length (ckt. km) at 66kV voltage level	0	0	
A.17	Line length (ckt. km) at 33kV voltage level	9711	0	
A.18	Line length (ckt. km) at 11kV voltage level	87	0	
A.19	Line length (km) at LT level	237782	0	
A.20	HT/LT ratio	152012	0	
		1.564	#DIV/0!	

B. Meter reading of input energy injection points							
S.No	Voltage level	Feeder ID	Feeder Name	BY(2017-2018)		BY(2018-2019)	
				Import (MU)	Export (MU)	Import (MU)	Export (MU)
B.1	11 KV	7	SAUNDA	3.519			
B.2	11 KV	9	SADHUGARH	2.749			
B.3	11 KV	10	SANGATPURA	1.884			
B.4	11 KV	11	MANDOFAL	2.289			
B.5	11 KV	12	HUSSIANPURA	2.571			
B.6	11 KV	13	MULLANPUR	1.693			
B.7	11 KV	14	BORAN	2.294			
B.8	11 KV	15	RAMGARH [MULLANPUR OLD]	1.150			
B.9	11 KV	16	MULLANPUR NEW	3.548			
B.10	11 KV	17	MAIN MAJRI	2.788			

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8.11053	66 KV	4473	AIR FORCE	0.357			
8.11054	66 KV	4472	AMBUJA CEMENT	2.061			
8.11055	66 KV	2851	66 KV MES	0.342			
8.11056	66 KV	9827	66 KV NESTLE	2.962			
8.11057	66 KV	10032	SPORTKING 66KV	8.342			
8.11058	66 KV	7950	66KV Garg Acrylics LTD	8.151			
8.11059	66 KV	7951	Satluj Spintex	4.193			
8.11060	66 KV	10389	SEL PUNJAWA	3.712			
8.11061	66 KV	10090	Satia Synthetics Mill	2.874			
8.11062	66 KV	10091	Satia Paper Mill (Rupana)	0.368			
Total (MU)				53780.97	0	0	0
Net input energy at				53780.97		0	

Color code	Parameter
	Please enter voltage level or leave blank
	Please enter feeder id and name or leave blank
	Enter meter no or leave blank
	Enter CT/PT ratio or leave blank
0	Please enter numeric value or 0
	Please select yes or no from list
	Formula protected

Signature of Energy Manager
Name:
Date:

Er. Lovleen Gupta
12/7/19
EA- 17113
Energy Manager
PSPCL, Patiala.

Er. Ravi Verma
12/7/19
EA- 7968
Energy Auditor
PSPCL, Patiala.

Engineer-in-Chief / EA & Enforcement
P.S.P.C.L., Patiala

LS
12/7/19

Form-Sj (Details of circle wise load)																		
Sector-Electricity Distribution Co.																		
S.No	Name of circle	Circle code	Consumer profile							Energy parameters								
			Consumer category	No of connection metered (Nos)	No of connection Un-metered (Nos)	Total Number of connections (Nos)	% of number of connections	Connected Load metered (MW)	Connected Load Un-metered (MW)	Total Connected Load (MW)	% of connected load	Input energy (MU)	Billed energy (MU)			Losses		
													Metered energy	Unmetered/assessment energy	Total energy	% of energy consumption	T&D loss (MU)	T&D loss (%)
1	Barnala		Residential	263735		263735	68%	414.606		414.6060671	23%	2782.87	515.573		515.5727879	22%	444.1827	15.96%
			Agricultural	104	81715	81819	21%	0.619	836.364	836.9827553	46%		2.009	1105.455	1107.464054	47%		
			Commercial/Industrial-LT	42703		42703	11%	195.870		195.8699456	11%		183.470		183.4703198	8%		
			Commercial/Industrial-HT	723		723	0%	352.180		352.1800105	20%		520.326		520.3258473	22%		
			Others	94		94	0%	3.441		3.440900533	0%		11.855		11.85455754	1%		
			Sub-total	307359	81715	389074	100%	966.715	836.364	1803.079679	100%		2782.87	1233.233	1105.454896	2338.687567		
2	Bathinda		Residential	458799		458799	71%	675.430		675.4301185	29%	3892.202	963.194		963.1940096	30%	645.063	16.57%
			Agricultural	701	116003	116704	18%	6.129	930.877	937.0060509	40%		21.681	1161.696	1183.379174	36%		
			Commercial/Industrial-LT	66340		66340	10%	308.175		308.174594	13%		330.387		330.3870184	10%		
			Commercial/Industrial-HT	840		840	0%	382.425		382.4248179	16%		677.822		677.8218364	21%		
			Others	372		372	0%	43.940		43.93957152	2%		92.357		92.3566486	3%		
			Sub-total	527052	116003	643055	100%	1416.098	930.877	2346.975153	100%		3892.202	2085.441	1161.697731	3247.138687		
3	City Amritsar		Residential	146400		146400	70%	393.797		393.797049	50%	964.2377	410.883		410.883036	51%	151.8447	15.73%
			Agricultural	611	0	611	0%	2.505	0.000	2.505103287	0%		3.815	0.000	3.81470939	0%		
			Commercial/Industrial-LT	61674		61674	30%	343.496		343.4964506	44%		369.704		369.7644851	46%		
			Commercial/Industrial-HT	117		117	0%	32.578		32.57831456	4%		5.660		5.660469691	1%		
			Others	246		246	0%	7.483		7.48338501	1%		22.270		22.27034269	3%		
			Sub-total	209048	0	209048	100%	779.860	0.000	779.8603024	100%		964.2377	812.393	0	812.3930428		
4	Faridkot		Residential	347106		347106	68%	538.787		538.7867606	30%	2776.554	722.885		722.8850303	32%	517.0368	18.62%
			Agricultural	421	113268	113689	22%	2.407	889.921	892.3285922	49%		7.610	1037.155	1044.765421	46%		
			Commercial/Industrial-LT	51938		51938	10%	221.957		221.9565409	12%		221.782		221.7817548	10%		
			Commercial/Industrial-HT	627		627	0%	160.389		160.3894624	9%		248.670		248.6702781	11%		
			Others	113		113	0%	12.762		12.76195988	1%		23.414		23.41445462	1%		
			Sub-total	400205	113268	513473	100%	936.302	889.921	1826.223316	100%		2776.554	1222.362	1037.155185	2259.516979		
5	Gurdaspur		Residential	519839		519839	73%	653.179		653.1794938	44%	2197.158	853.181		853.1811303	46%	358.543	16.32%
			Agricultural	1165	102445	103610	15%	6.633	381.181	387.8140139	26%		15.230	450.771	466.0015577	25%		
			Commercial/Industrial-LT	83460		83460	12%	265.111		265.1109606	18%		247.721		247.7207517	13%		
			Commercial/Industrial-HT	337		337	0%	121.058		121.0580439	8%		146.345		146.3451749	8%		
			Others	219		219	0%	53.771		53.77142851	4%		125.366		125.366364	7%		
			Sub-total	605020	102445	707465	100%	1099.753	381.181	1480.933941	100%		2197.158	1387.844	450.7712468	1838.614979		
6	Hoshiarpur		Residential	425382		425382	76%	630.761		630.7612637	44%	2141.185	678.509		678.5089695	35%	205.9905	9.62%
			Agricultural	653	59864	60517	11%	4.076	360.563	364.6390486	25%		3.815	538.098	541.9137496	28%		
			Commercial/Industrial-LT	74300		74300	13%	218.873		218.8727997	15%		226.740		226.7397603	12%		
			Commercial/Industrial-HT	264		264	0%	207.510		207.5095474	14%		456.615		456.615101	24%		
			Others	171		171	0%	13.564		13.5640718	1%		33.417		33.41737969	2%		
			Sub-total	500770	59864	560634	100%	1074.784	360.563	1435.346731	100%		2141.185	1397.096	538.0984928	1935.19496		
7	Firozpur		Residential	238250		238250	65%	303.894		303.8936708	27%	1901.344	448.991		448.9914483	31%	440.9986	23.12%
			Agricultural	96348	0	96348	26%	0.000	578.847	578.8472105	52%		2.211	652.707	654.9177891	45%		
			Commercial/Industrial-LT	32700		32700	9%	123.313		123.3127366	11%		126.387		126.3874864	9%		
			Commercial/Industrial-HT	312		312	0%	87.808		87.80830977	8%		171.888		171.8880072	12%		
			Others	128		128	0%	22.845		22.84522508	2%		58.161		58.1611945	4%		
			Sub-total	271390	96348	367738	100%	537.860	578.847	1116.707153	100%		1901.344	807.637	652.7072335	1460.345926		
			Residential	414020		414020	75%	1025.433		1025.433253	42%		990.674		990.6743945	35%		
			Agricultural	643	25517	26160	5%	2.801	180.874	183.6749326	8%		4.530	274.211	278.740744	10%		

8	Jalandhar	Commercial/Industrial-LT	110308		110308	20%	708.557		708.5571415	29%	3060.002	705.553		705.5526553	25%	258.8722	8.46%
		Commercial/Industrial-HT	920		920	0%	438.628		438.6275234	18%		862.897		862.8966497	24%		
		Others	811		811	0%	76.582		76.58173578	3%		163.266		163.2659555	6%		
	Sub-total		526702	25517	552219	100%	2252.001	180.874	2432.874586	100%	3060.002	2526.919	274.2111776	2801.130039	100%	258.8722	8.46%
9	Kapurthala	Residential	310716		310716	69%	528.954		528.953906	37%	1962.995	590.373		590.3734505	35%		
		Agricultural	430	91329	91759	20%	2.822	584.795	587.6177785	41%		10.559	723.364	733.9615611	43%		
		Commercial/Industrial-LT	49594		49594	11%	160.985		160.9850605	11%		148.480		148.4893651	2%	270.7711	13.79%
		Commercial/Industrial-HT	383		383	0%	141.997		141.9967567	10%		194.867		194.8674561	12%		
		Others	80		80	0%	13.658		13.65785105	1%		24.532		24.5317278	1%		
	Sub-total		361203	91329	452532	100%	848.416	584.795	1433.211353	100%	1962.995	968.86	723.363564	1692.223561	100%	270.7711	13.79%
10	Kharina	Residential	246708		246708	71%	427.334		427.3341068	22%	4120.287	551.862		551.8620502	14%		
		Agricultural	11	57929	57940	17%	0.082	444.922	445.0041976	22%		0.000	540.095	540.0947057	14%		
		Commercial/Industrial-LT	41473		41473	12%	224.284		224.2840622	11%		1123.138		1123.13791	29%	240.5604	5.84%
		Commercial/Industrial-HT	886		886	0%	881.898		881.8981176	45%		1652.348		1652.348166	43%		
		Others	107		107	0%	3.143		3.14260269	0%		12.283		12.2833867	0%		
	Sub-total		289185	57929	347114	100%	1536.741	444.922	1981.663087	100%	4120.287	339.632	540.0947057	3879.725219	100%	240.5604	5.84%
11	Mohali	Residential	253386		253386	84%	862.591		862.5905653	43%	2769.557	684.029		684.0286942	27%		
		Agricultural	18	13197	13215	4%	0.129	123.943	124.0720745	6%		0.234	197.372	197.6055981	8%	200.9702	7.26%
		Commercial/Industrial-LT	34141		34141	11%	462.838		462.837536	23%		597.981		597.9812891	23%		
		Commercial/Industrial-HT	589		589	0%	530.521		530.5212167	26%		1019.445		1019.444939	40%		
		Others	399		399	0%	46.000		45.99972217	2%		69.527		69.5265462	3%		
	Sub-total		288533	13197	301730	100%	1902.078	123.943	2026.021115	100%	2769.557	237.1215	197.3720065	2568.587067	100%	200.9702	7.26%
12	Nawanshahr	Residential	283494		283494	76%	449.968		449.9678297	46%	1369.18	442.089		442.0892129	37%		
		Agricultural	388	46561	46949	13%	1.834	290.070	291.9033306	30%		3.378	493.290	496.6685672	42%		
		Commercial/Industrial-LT	41575		41575	11%	151.075		151.0753867	16%		140.677		140.6770643	12%	179.2236	13.09%
		Commercial/Industrial-HT	155		155	0%	73.294		73.2944736	8%		104.413		104.4131049	9%		
		Others	25		25	0%	2.905		2.905161598	0%		6.112		6.111632022	1%		
	Sub-total		325637	46561	372198	100%	679.077	290.070	969.1461821	100%	1369.183	696.693	493.2903007	1189.959581	100%	179.2236	13.09%
13	Patiala	Residential	415161		415161	73%	812.192		812.192197	34%	3692.29	998.449		998.4485278	30%		
		Agricultural	427	75651	76078	13%	2.867	792.152	795.0188725	33%		10.650	1005.729	1016.37899	31%		
		Commercial/Industrial-LT	73179		73179	13%	375.827		375.8273475	16%		402.654		402.6539067	12%	390.8274	10.58%
		Commercial/Industrial-HT	739		739	0%	369.974		369.9741253	15%		784.386		784.3856231	23%		
		Others	359		359	0%	43.831		43.83082749	2%		119.595		119.5951185	4%		
	Sub-total		489865	75651	565516	100%	1604.692	792.152	2396.84337	100%	3692.29	2295.733	1005.729025	3301.462166	100%	390.8274	10.58%
14	Ropar	Residential	335930		335930	77%	600.686		600.6860571	34%	3231.773	590.872		590.8721803	20%		
		Agricultural	1965	50380	52345	12%	13.954	281.674	295.6282789	17%		1212	465.418	466.6296695	16%		
		Commercial/Industrial-LT	49437		49437	11%	224.910		224.9095898	13%		247.828		247.8276092	8%	298.0723	9.22%
		Commercial/Industrial-HT	518		518	0%	603.185		603.1851745	35%		1591.020		1591.019855	54%		
		Others	227		227	0%	23.197		23.19739611	1%		37.352		37.35184145	1%		
	Sub-total		388077	50380	438457	100%	1465.932	281.674	1747.606496	100%	3231.773	2468.283	465.417755	2933.701155	100%	298.0723	9.22%
15	Sangrur	Residential	257537		257537	67%	354.431		354.4307126	21%	2707.155	494.214		494.214058	22%		
		Agricultural	194	86363	86557	23%	1.538	1017.962	1019.500649	61%		10.735	1278.167	1288.50204	59%		
		Commercial/Industrial-LT	36849		36849	10%	148.770		148.7698137	9%		163.054		163.053952	7%	508.9975	18.80%
		Commercial/Industrial-HT	700		700	0%	150.617		150.6174646	9%		242.887		242.8867959	11%		
		Others	37		37	0%	3.439		3.43890523	0%		9.101		9.100550329	0%		
	Sub-total		295317	86363	381680	100%	658.795	1017.962	1676.757546	100%	2707.155	919.9002	1278.167234	2198.157396	100%	508.9975	18.80%
16	Sri Muktsar Sahib	Residential	374303		374303	71%	481.812		481.8118727	39%	1967.59	780.263		780.2630678	49%		
		Agricultural	91	103762	103853	20%	0.415	422.896	423.3106158	35%		1.024	363.939	364.9633952	24%		
		Commercial/Industrial-LT	49676		49676	9%	197.461		197.4612	16%		194.386		194.3862037	13%	426.6125	21.68%
		Commercial/Industrial-HT	359		359	0%	116.152		116.1515931	9%		199.731		199.7309224	13%		
		Others	53		53	0%	6.736		6.736143925	1%		21.634		21.63420363	1%		
	Sub-total		424482	103762	528244	100%	802.576	422.896	1225.471426	100%	1967.59	1177.039	363.9392244	1540.977793	100%	426.6125	21.68%
17	Suburban, Amritsar	Residential	364760		364760	74%	596.024		596.0240309	41%	2595.86	707.221		707.220858	36%		
		Agricultural	1379	75886	77265	16%	6.262	406.535	412.7975034	28%		53.700	502.723	556.4227809	28%		
		Commercial/Industrial-LT	48463		48463	10%	273.620		273.6199315	19%		309.487		309.4873639	16%	610.7235	23.53%
		Commercial/Industrial-HT	396		396	0%	153.402		153.4019103	10%		335.926		335.9258718	17%		

12/7/19

Signature

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Er. Ravi Verma
EA- 7968
Energy Auditor
PSPCL, Patiala.

Engineer-in-Chief/EA & Enforcement
P.S.P.C.L., Patiala