

# Compliance of BEE Regulation 2021 ANNUAL ENERGY AUDIT Of CHHATTISGARH STATE POWER DISTRIBUTION COMPANY LIMITED



CHHATTISGARH STATE POWER DISTRIBUTION COMPANY LTD  
CSPDCL, DANGANIA, RAIPUR  
[Website : www.cspdcl.co.in](http://www.cspdcl.co.in)

Prepared By -



**Audittech Industrial Services Private Limited**  
Contact- 9827143100/8103651115  
[Website - www.audittech.co.in](http://www.audittech.co.in) [Email- info@audittech.co.in](mailto:info@audittech.co.in)

FY 2021-2022

## TABLE OF CONTENTS

ACKNOWLEDGEMENT .....	3
CERTIFICATION .....	4
1. EXECUTIVE SUMMARY & CRITICAL COMMENTS.....	6
1.1 GENERAL / ESTABLISHMENT DESCRIPTION .....	6
VIDYUT SEVA BHAVAN, DANGANIYA, RAIPUR (CG) 492013.....	7
INTRODUCTION ABOUT AUDIT FIRM.....	8
1.2 THE STUDY TEAM FOR ENERGY AUDIT TEAM.....	9
1.4 CSPDCL ENERGY FLOW ANALYSIS.....	16
2. CSPDCL : ENERGY ACCOUNTS AND PERFORMANCE IN FY 2021-22 .....	17
2.1 DISCOM ENERGY ACCOUNTING.....	17
2.2 THE TOTAL SALES (METERED AND ASSESSED) FOR VARIOUS CONSUMER CATEGORIES.....	18
2.3 CATEGORY WISE CONSUMER TYPES IN DISCOM LEVEL IN THE FY 2021- 22 AS SHOWN .....	20
2.4 SUMMARY OF CRITICAL ANALYSIS OF ENERGY AUDITOR AND MANAGEMENT ANALYSIS.....	22
2.5 BACKGROUND.....	19
2.6 ENERGY AUDIT: OBJECTIVES & METHODOLOGY.....	22
2.7 PERIOD OF ENERGY AUDIT .....	27
3. INTRODUCTION TO DC .....	29
4. DETAILS OF INPUT ENERGY SOURCES OF CSPDCL.....	37
5. EVALUATION OF TRANSMISSION & DISTRIBUTION LOSS (%T&D LOSS).....	40
6. EVALUATION OF AGGREGATE & TECHNICAL LOSSES (AT&C).....	45
7. LOSS REDUCTION SCHEME IMPLEMENTED IN CSPDCL .....	47
8. ANNEXURE .....	50

## ACKNOWLEDGEMENT

---

**M/s. AUDITTECH INDUSTRIAL SERVICES PVT LTD** would like to thanks to **Chhattisgarh State Power Distribution Company Limited , Danganiya Raipur , Sunder Nagar-492013** providing us an opportunity to conduct Annual Energy Audit of CSPDCL. We are thankful to all the officials and staff of CSPDCL for showing keen interest in the study and for the help and cooperation extended to the team during the audit resulting in the successful completion of this project.

We would like to express our deep sense of gratitude to the other departments also who helped us with infrastructure / arrangements and encouragement in our endeavour. We do hope that you will find the recommendations given in this report useful in helping you save energy. While we have made every attempt to adhere to high quality standards, in both data collection and analysis, as well as in presentation through the report, we would welcome any suggestions from your side as to how we can improve further.

**For, Audittech Industrial Services Pvt. Ltd.**


**Authorized Signatory**

## CERTIFICATION

---

I/We Audittech Industrial Services Pvt. Ltd. the Accredited Energy Auditor, have undertaken a thorough independent evolution of the activities and measures taken by **Chhattisgarh State Power Distribution Company Limited (CSPDCL), Chhattisgarh** a designated consumer in compliance with the energy consumption norms and standards specified under the Energy conservation Act-2001, notified by the Government of India Ministry of Power. It is certify that-

**(a)** The verification of the data collection in relation to energy import/export and power injection including distribution loss data has been carried out diligently and truthfully.

**(b)** The verification of the identified energy efficiency measures/schemes and the progress of their implementation is enclosed in the report and has been carried out diligently and truthfully.

**(c)** The verification of the compliance with energy consumption norms and standard has been carried out diligently and truthfully.

**(d)** All reasonable professional skill , care and diligence have been taken during verifying the various verification activities , finding and conclusions, documents, reports , preparing the documents the content's thereof are a true representation of the facts.

Signature,



**Mr. Rakesh Khichariya**

**Accredited Energy Auditor (AEA-0295)**



## BUREAU OF ENERGY EFFICIENCY

Examination Registration No.: ..... **EA-5514** .....  
Accreditation Registration No.: ..... **AEA-0295** .....



### Certificate of Accreditation

This is to certify that Mr./Ms..... **Rakesh Khichariya** .....having its trade/registered office at ..... **Bhilai** ..... has been given accreditation as accredited energy auditor. The certificate shall be effective from ..... **11<sup>th</sup>** day of **February, 2019** .....


The certificate is subject to the provisions of the Bureau of Energy Efficiency (Qualifications for Accredited Energy Auditors and Maintenance of their List) Regulations, 2010.

This certificate shall be valid until it is cancelled under regulation 9 of the Bureau of Energy Efficiency (Qualifications for Accredited Energy Auditors and Maintenance of their List) Regulations, 2010.

On cancellation, the certificate of accreditation shall be surrendered to the Bureau within fifteen days from the date of receipt of order of cancellation.

Your name has been entered at AEA No..... **0295** ..... in the register of list of accredited energy auditors. Your name shall be liable to be struck out on the grounds specified in regulation 8 of the Bureau of Energy Efficiency (Qualifications for Accredited Energy Auditors and Maintenance of their List) Regulations, 2010.

Given under the seal of the Bureau of Energy Efficiency, Ministry of Power, this **19<sup>th</sup>** day of **March, 2019**

  
Secretary,  
Bureau of Energy Efficiency  
New Delhi



## 1. EXECUTIVE SUMMARY & CRITICAL COMMENTS

---

### 1.1 General /Establishment description

Erstwhile Chhattisgarh State Electricity Board (CSEB) was responsible for Generation, Transmission and Distribution of electricity in Chhattisgarh State. In accordance with the provisions contained in the Section 131-134 of Electricity Act 2003, Govt. of Chhattisgarh has reorganized erstwhile CSEB into following five companies vide Notification No. F1-8/ 2008/ 13/ 1 dated 19.12.2008

- **Chhattisgarh State Power Holding Company Limited,**
- **Chhattisgarh State Power Generation Company Limited,**
- **Chhattisgarh State Power Transmission Company Limited,**
- **Chhattisgarh State Power Distribution Company Limited and**
- **Chhattisgarh State Power Trading Company Limited**

The Chhattisgarh State Electricity Board (CSEB) was restructured by the Government of Chhattisgarh (GoCG) in pursuance of the provisions of Part XIII of the Electricity Act, 2003. GoCG, vide notification No. 1-8/2008/13/1 dated December 19, 2008. The erstwhile CSEB was unbundled into five different Companies, viz., Chhattisgarh State Power Generation Company Limited (CSPGCL), Chhattisgarh State Power Transmission Company Limited (CSPTCL), Chhattisgarh State Power Distribution Company Limited (CSPDCL), Chhattisgarh State Power Trading Company Limited (CSPTCL), and Chhattisgarh State Power Holding Company Limited (CSPHCL).

The assets and liabilities of the erstwhile CSEB have been allocated to the successor Companies w.e.f. January 1, 2009 according to the provisions of the CSEB Transfer Scheme Rules, 2010.

Accordingly Chhattisgarh State Power Distribution Company Limited (CSPDCL) came into existence w.e.f. 01.01.2009. CSPDCL provides electricity to consumers across the Chhattisgarh State.

#### **Registration No.**

Chhattisgarh State Power Distribution Company Limited has been registered by the 'Registrar of Companies MP & CG' with Registration No. U40108 CT 2003 PLC 15822.

**CIN No. :CIN No. of CSPDCL U40108 CT 2003 SGC 015822.**

**Registered Office : Vidyut Seva Bhavan, Danganiya, Raipur (CG) 492013**

### Company Mission

To establish Chhattisgarh State Power Distribution Company Limited as one of the best power distribution company in India by

- **Providing power supply to the consumers 24 Hours x 365 days**
- **Reducing distribution losses**
- **Providing reliable and quality power to the consumers at affordable rates**
- **Adopting best business practices**
- **Implementing modern technology in the business**
- **Providing consumer satisfaction through service excellence**
- **Implementing policies supporting faster economic growth of CG State**

Some characteristics of Distribution System of Chhattisgarh state , managed by CSPDCL, are:

- CSPDCL serves more than 60 Lakh of consumers across 18 Circle of CSPDCL
- The billing efficiency in FY 2020-21 was 83.16%
- The Collection efficiency in FY 2020-21 was 92.43%
- The AT&C loss in FY 2020-21 was 23.14%
- HT: LT Ratio of ~0.70
- DT failure rate of 7.92%
- ACS-ARR Gap (on subsidy received basis) of Rs.0.52 per unit

Name of Consumer	Address
Chhattisgarh State Power Distribution Company Limited, Danganiya Raipur	Vidyut Seva Bhavan, Danganiya, Raipur (CG) 492013
<b>Certified Energy Manager</b>	<b>Authorized Signatory</b>
Shri Aashish Bafna (EA-28916)	Smt. Saroj Tiwari (Chief Engineer -Revenue)

## INTRODUCTION ABOUT AUDIT FIRM

M/s. Audittech Industrial Services Pvt. Ltd. is an Empanelled Accredited Energy Audit firm from Bureau of Energy Efficiency, Ministry of Power, Government of India and one of the fast-growing Energy Audit & services providing company. Company executed several projects covering 23 nos. states of India so far. The directors and associate team members are very well experienced in the field of Energy Audit and executed more than 100 nos. Detailed Energy Audit covering all type of Energy Intensive Industries and Commercial buildings

The associate team and expert are highly qualified and experienced in the field of Energy Audit and Services. Individual credential of each member in the field of Energy Audit is very rich due to their past association with very reputed organization of Energy Audit Services.

<b>Name of Firm:</b>	<b>Audittech Industrial Services Private Limited</b>
<b>Address:</b>	Opposite Mahavir Bhawan , Ward No.-4 Tikara Para Balod, PIN-491226 [C.G.]
<b>Contact details:</b>	9827143100 / 9109875738, Email id: <a href="mailto:info@audittech.co.in">info@audittech.co.in</a>

Company has its Head office at Raipur (C.G.) & Branch offices at Durg, Bhopal, Nasik, Chennai& Delhi.

### Directors Details

Sr. No.	Name	Designation / Technical Experience	Technical Experience /Qualification
1	Mr. Aashish Bafna	Managing Director -11yrs	B.E (E&I). , MBA(Energy Management), Certified Energy Auditor, Surveyor & Loss Assessor
2	Mr .Rakesh Khichariya	Director- 26 Yrs	B.E (Elect.), Accredited Energy Auditor
3	Mr. Ramesh Patel	Director- 26 Yrs	B.E.(Mech), Govt Approved Valuer, Competent Person for Factory Act
4	Mr. Isshant Chainani	Director- 12 Yrs	B.E. (Elect & telecom)
5	Mrs. Shikha Golchha	Director- 11 yrs	B.E., MBA (Finance)



Auditors have critically examined the various systems, schemes, devices employed as well as the associated documents at CSPDCL for all voltage Level so as to ascertain its adequacy and efficacy as per the directives of the BEE and guidelines as per regulation.

## 1.2 The Study Team for Energy audit team

As per regulation Following are the team involved in the Detail Energy Audit of CSPDCL from DISCOM & Audittech to conduct the energy accounting for 2020-21.

### Auditor Team

SN.	Name	Designation/ Qualification	Contact Details
1	Mr. Rakesh khichariya	Accredited Energy Auditor (AEA-0295)	9827411444
2	Mr. Aashish Bafna	Certified Energy Auditor (EA-28916)	9827143100
3	Mr. Tarun Khichariya	Sector Expert DISCOM	6260006876
4	Mr. Isshant Chainani	Certified Energy Manager (EA-29062)	9407702444
5	Mr. Tukeshwar Yadav	Energy Engineer	6260997416

### CSPDCL TEAM

SN	Name	Designation/ Qualification	Contact Details
1	Mr. M.Vishwakarma	SE O/o CE (Revenue)	8982011382
2	Mrs. Archana Nagrale	EE O/o CE (Revenue)	7869631444

### Methodology

The methodology adopted,

1. Kick of meeting with CSPDCL team to finalised the sample size
2. Survey of the Distribution network
3. Collection of the Primary Data and finalization of the sample seize check

4. Site visit and Energy Meter data collection
5. Collection of the Metered Energy Data for the respective voltage level as per the sample size
6. Scrutiny of collected data and Data gaps of the submitted data
7. Loss calculation for the network segment then if required normalization
8. Compilation of the Draft report
9. Presentation on Draft report
10. Final report with incorporation of comments.

### 1.3 STATUS OF METERING INFRASTRUCTURE FOR ENERGY ACCOUNTING AND AUDITING

5	Pre-requisites for annual energy audit and periodic energy accounting	a	Identification and mapping of all of the electrical network assets	RAPDRP Areas and IPDS (Integrated Power Distribution Scheme) 20 towns has been completed. For the remaining areas, DC proposes to complete under the Revamped Distribution Sector Scheme (RDSS) of REC.
		b	Identification and mapping of high tension and low-tension consumers	All the HT and LT consumers have been mapped but LT consumers are still not proper mapped.
		c	Development and implementation of information technology enabled energy accounting and audit system, including associated software	DC has energy accounting and audit system for R-APDRP Towns. For rest area DC has initiated process under RDSS.
		d	Electricity distribution company ensures the installation of functional meters for all consumers, transformers and feeders. Meter installation is done in a phased manner within a period of three financial years from the date of the commencement of these regulations in accordance with the trajectory set out in the First Schedule.  <b>d.1.</b> 100% Communicable Feeder Metering integrated	5142 no 11 kv Feeders are metered out of 5231 feeders in which 4698 are AMR and are integrated in NPP too.  As of 31st March 2022, out of the total 2,01,581 distribution transformers, 79,888 distribution transformers have been metered. Of the 2,01,581 nos. of unmetered distribution transformers, which will be covered in RDSS.  <b>d.1.</b> 100% of the feeders are having DLMS (Device Language Message Specification - Communicable Meters).

		<p>with AMI, by 31st December 2022 along with replacement of existing non-communicable feeder meters.</p> <p><b>d.2.</b> All Distribution Transformers (other than HVDS DT up to 25kVA and other DTs below 25 kVA) shall be metered with communicable meters. Communicable DT Metering for the following areas/ consumers to be completed by December 2023 and in balance areas by December 2025:</p> <p><b>d.2.1.</b> All Electricity Divisions of 500 AMRUT cities, with AT&amp;C Losses &gt; 15%</p> <p><b>d.2.2.</b> All Union Territories (for areas with technical difficulty, non-communicable meters may be installed)</p> <p><b>d.2.3.</b> All Industrial and Commercial consumers</p> <p><b>d.2.4.</b> All Government offices at Block level and above</p> <p><b>d.2.5.</b> Other high loss areas i.e. rural areas with losses more than 25% and urban areas with losses more than 15%</p>	<p><b>d.2.1.</b> DC will cover 100% metering in RDSS as per timelines.</p> <p><b>d.2.2.</b> Not Relevant for DC.</p> <p><b>d.2.3.</b> DC has installed 100% AMR (Communicable) meter in 100% HT industrial consumers and in LT industrial consumer in (15 HP above) 22711 (62%) are AMR installed and non-manual billings are generated.</p> <p><b>d.2.4.</b> DC intends to install ,communicable meters with AMI for Government offices at Block level(Mandal) and above under Revamped Distribution Sector Scheme (RDSS) of REC.</p> <p><b>d.2.5.</b> DC intends to install communicable meters with AMI for other high loss areas i.e. rural areas with losses more than 25% and urban areas with losses more than 15% under Revamped Distribution Sector Scheme (RDSS) of REC.</p>
--	--	--	--

			<p><b>d.3.</b> Prepaid Smart Consumer Metering to be completed for all directly connected meters and AMR in case of other meters, by December 2023 in the following areas:</p> <p><b>d.3.1.</b> All Electricity Divisions of 500 AMRUT cities, with AT&amp;C Losses &gt; 15%;</p> <p><b>d.3.2.</b> All Union Territories (for areas with technical difficulty, prepaid meters to be installed);</p> <p><b>d.3.3.</b> All Industrial and Commercial consumers;</p> <p><b>d.3.4.</b> All Government offices at Block level and above;</p> <p><b>d.3.5.</b> Other high loss areas i.e. rural areas with losses more than 25% and urban areas with losses more than 15%.</p>	<p>DC intends to install consumer meters with AMI for commercial and industrial consumers under Revamped Distribution Sector Scheme (RDSS)</p>
			<b>d.4.</b> Consumer Metering: 98% by FY 2022-23 99% by FY 2023-24	Already done
			<b>d.5.</b> Targets for functional meters— Meter FY 22-23 FY 23-24 FY24-25 Feeder metering 98.5% 99.5% 99.5% DT metering 90% 95% 98% Consumer metering 93% 96% 98	Feeder will be taken up under RDSS.
		e	e.1. All distribution transformers (other than high voltage distribution system up to 25kVA and other distribution system below 25 kVA) is metered with	e.1. DC intends to install communicable meters with AMI for all distribution transformers (other than high voltage distribution system up to

			communicable meters.  e.2. And existing non communicable distribution transformer meters is replaced with communicable meters and integrated with advanced metering infrastructure.	25kVA and other distribution system below 25 kVA) under Revamped Distribution Sector Scheme (RDSS) of REC.  e.2. DC intends to install communicable meters with AMI for existing non communicable distribution transformer meters under Revamped Distribution Sector Scheme (RDSS) of REC.
		f	Electricity distribution company has established an information technology enabled system to create energy accounting reports without any manual interference and such systems may be within a period of three years from the date of the commencement of these regulations in case of urban and priority area consumers; and within five years from the date of the commencement of these regulations in case of rural consumers	DC has energy accounting and audit system in RAPDRP Towns remaining would cover in RDSS.
		g	Electricity distribution company has a centralized energy accounting and audit cell comprising of— (i) a nodal officer, an energy manager and an information technology manager, having professional experience of not less than five years; and (ii) a financial manager having professional experience of not less than five years	DC has centralized energy accounting and audit cell comprising with the following staff 1. A nodal officer- CE (Revenue) 2. Designated energy manager who is a qualified energy auditor- EA/EM 3. A qualified information technology manager- AE/IT 4. A qualified financial manager- DGM(Fin)
6	Reporting requirements for annual energy audit and periodic energy	a	Electricity distribution company has a nodal officer, who is a full time employee of the electricity distribution company in the rank of the Chief Engineer or above, for the purpose of reporting of the	The DC is complying with this requirement



	accounting		annual energy audit and periodic energy accounting and communicate the same to the Bureau.	
		b	Electricity distribution company ensures that the energy accounting data is generated from a metering system or till such time the metering system is not in place, by an agreed method of assumption as may be prescribed by the State Commission	DC has energy accounting and audit system (for RAPDRP) (For Non RAPDRP). The agricultural un-metered energy is accounted based on KERC guidelines.
		c	Metering of distribution transformers at High Voltage Distribution System up to 25KVA is done on cluster meter installed by the electricity distribution company	DC intends to install metering of distribution transformers at High Voltage Distribution System up to 25KVA is done by following the approach of cluster metering under Revamped Distribution Sector Scheme (RDSS) of REC.
		d	The energy accounting and audit system and software is developed to create monthly, quarterly and yearly energy accounting reports.	The DC has to develop software's for energy accounting and audit and the software's are having the capability to create monthly, quarterly and yearly energy accounting reports.
		e	Electricity distribution company has provided the details of the information technology system in place as specified in clause (f) of regulation 5 that ensures minimal manual intervention in creating the energy accounting reports and any manual intervention of any nature, in respect of the period specified therein, shall be clearly indicated in the periodic energy accounting report	The DC has to develop software's for energy accounting and audit and the software's are having the capability to create monthly, quarterly and yearly energy accounting reports.

## 1.4 CSPDCL ENERGY FLOW ANALYSIS

- 1. Compliance to BEE regulations-** CSPDCL quarterly energy accounts as per BEE regulations. However, - CSPDCL and available on their website as per BEE regulations. - CSPDCL also created Dedicated **Energy Audit Cell** in compliance of regulation 2021.

### 1.1(a) Infrastructure details of CSPDCL

S.No.	Particulars	As on Mar 2022
1	Line length (Ckt km) at 33 KV voltage level	23773
2	Line length (Ckt km) at 11 KV voltage level	126448
3	Line length (Ckt km) at LT voltage level	217354
4	Length of areal bunch cable	39106 km
5	Length of underground cable	758
6	HT/LT Ration	0.69
7	No. of 33/11 KV substation	
8	Total 11/0.4 KV substation	201581
9	No. of EHV substation	115

#### Detailed Description:-

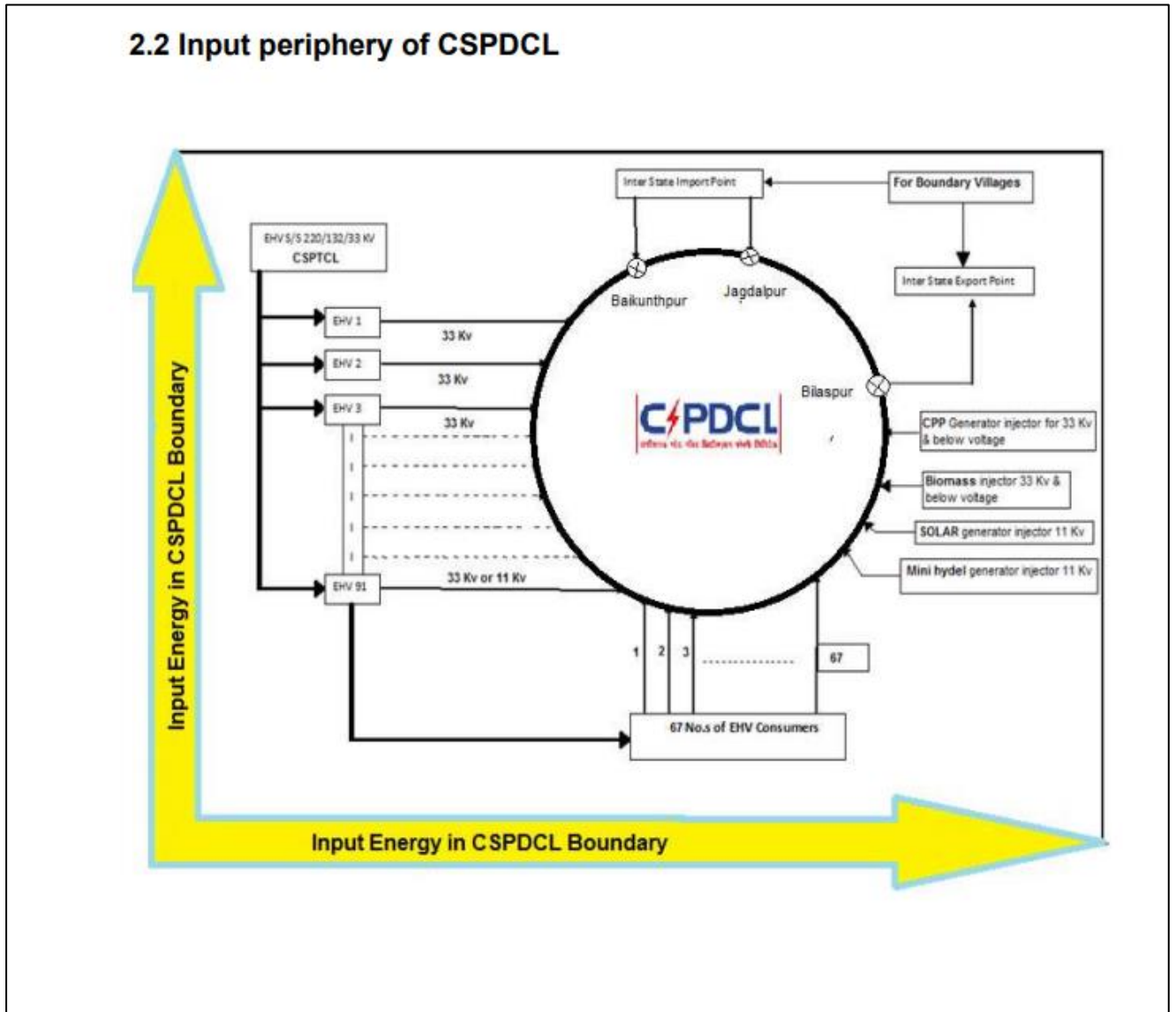
- (a) Evaluation of energy input through 33 KV grid.
- (b) compile state level details for sale of EHV, HV & LT consumer i.e. detail abstract of HT & LT, R15 generated by SAP in every month.
- (c) Every circle/division are rigidly ring fenced are reading done by AMR or joint visit by authorised team.

CSPDCL has been created a separate Energy Audit cell in DISCOM level. A complete & rigid energy auditing procedure adopted by this cell for ensuring all types of input at 33 Kv, 11 Kv from transmission companies EHV (132/33 Kv ) substations and all various types of renewable generators ( CPP , Biomass , Solar ,Mini hydel etc.) collected from every division (64 Nos.) and circles (18 Nos.) . Similarly, energy sales in every voltage level i.e. EHV, HV (33,11 Kv), & LT through monthly sales maintained through SAP ERP SYSTEM including billing revenue collection every month

CSPDCL has implemented SAP-ERP for monthly billing. Hence, system generated billing has been adopted by CSPDCL for proper accountability of billing & revenue returns / reports are generated at divisions & circle levels in appropriate manners. Thus the energy auditing procedure adopted and maintained by CSPDCL found proper and in compact ways. All the circles, divisions are properly ring fenced. In present Import & export boundary points are not 100% metered at all voltage level, hence assessment are being done as per loading of the feeder.

There are 7 Nos. (MT) divisions in discom who maintain EHV, HV meter testing & healthiness of all EHV, HV consumers and 18 Nos. (STM) divisions who maintain healthiness of meters installed at boundary points.

1.4 Brief Description of Electrical Distribution Networks



2.CSPDCL : ENERGY ACCOUNTS AND PERFORMANCE In FY 2021-22

2.1 DISCOM ENERGY ACCOUNTING

Form-Input energy (Details of Input Energy & Infrastructure)		
Sr. No	Parameters	Value
1	Input Energy purchased (Million Unit (MU))	37950.8
2	Transmission loss (%)	3.30
3	Transmission loss (MU)	1255.08
4	Energy sold outside the periphery (MU)	5962.27
5	Open access sale (MU)	0
6	EHT sale	3791.72
7	<b>Net input energy (received at DISCOM periphery)-(MU)</b>	<b>30733.3</b>

The **Distribution Losses** and **Aggregate technical & commercial (AT&C)** losses for FY 2021-2022 are hereunder.

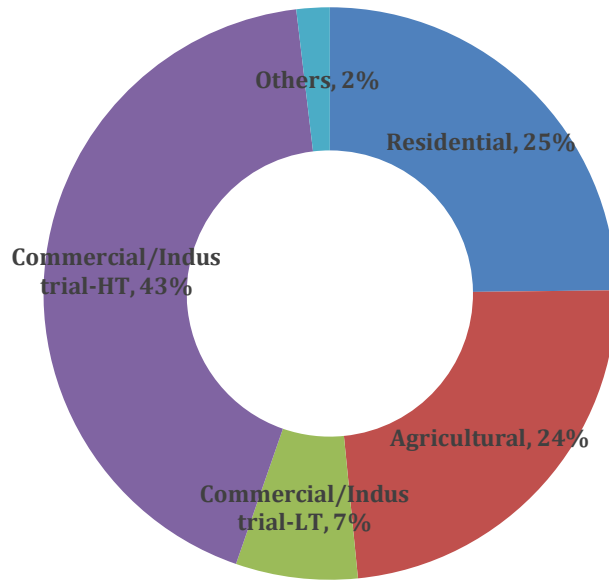
FY 2021-2022	T&D Losses		AT & C loss (%)
	T&D loss (MU)	T&D loss (%)	
	5571.92	18.12	17.92

**2.2 THE TOTAL SALES (METERED AND ASSESSED) FOR VARIOUS CONSUMER CATEGORIES ARE PRESENTED IN THE FOLLOWING TABLE FOR FY 2020-21**

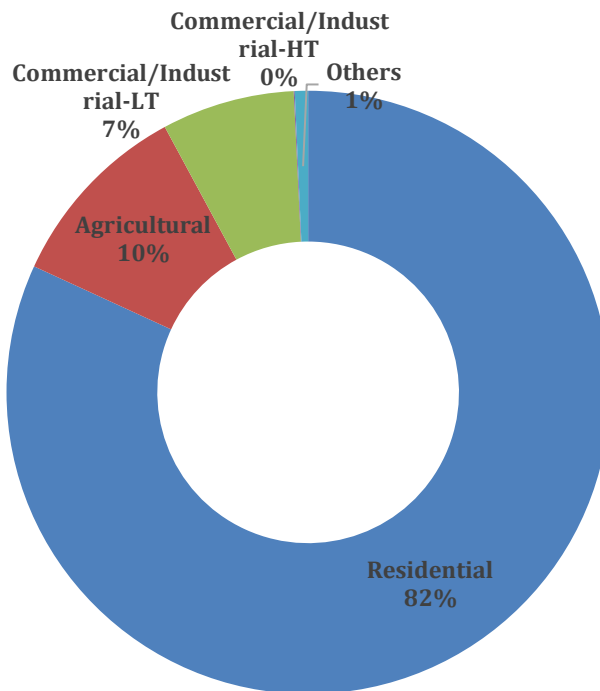
Name	Financial Year (2020-21)						
	Consumer category	Input energy (MU)	Energy parameters			Losses	
			Billed energy (MU)			T&D loss (MU)	T&D loss (%)
			Metered energy	Unmetered/assessment energy	Total energy		
CSPDCL	Residential	28092.96	6235.73	0.00	6235.73	4731.37	16.84%
	Agricultural		4965.55	0.00	4965.55		
	Commercial/Industrial-LT		1508.65	0.00	1508.65		
	Commercial/Industrial-HT		9223.052	0.00	9223.052		
	Others		1428.6	0.00	1428.6		
	<b>Total</b>		<b>28092.96</b>	<b>23361.58</b>	<b>0.00</b>		

Name	Financial Year (2021-22)						
	Consumer profile	Input energy (MU)	Energy parameters			Losses	
	Consumer category		Billed energy (MU)			T&D loss (MU)	T&D loss (%)
			Metered energy	Unmetered/assessment energy	Total energy		
CSPDCL	Residential	30732.64	535.48	5733.42	6268.91	5474.52	18%
	Agricultural		3503.59	2460.87	5964.47		
	Commercial/Industrial-LT		31.064	1707.87	1738.94		
	Commercial/Industrial-HT		10812.04	0	10812.04		
	Others		44.00	429.73	473.73		
	<b>Total</b>		<b>30732.64</b>	<b>14926.2</b>	<b>10331.91</b>		

### Energy Consumption during 2021-22



### category wise consumers during 2021-22



### 33 KV Metering

During site visit it was concluded that the 100% of 33KV incoming feeders are metered but the AMR/Smart meters yet not installed by CSPDCL. The 33 KV metering is basically under the jurisdiction of CSPTCL (Transmission company). hence is a constraint for automatic meter reading at 33kV level. At present meter readings are based on MRI data. The data are still on manual operations but it makes delay in compilation of all 115 EHV Substations and 745 nos 33 KV incoming feeders.

### 11 KV metering

The DISCOM has 100% metering for all the 11 kV feeders including AMR installation. A separate dedicated AMR Cell regularly monitors metering, working of modem and readability of all 11 KV feeders (5231 no's). The process of checking the functioning and calibration of the 11 KV feeder meters is an on-going process.

We recommend that DISCOM should exerts more efforts to get 100% readability so as to maintain losses of all 11 KV feeders in RDSS schemes all the efforts on made to achieve timeline in metering.

Particulars	Total	Metered	Percentage (%)
11 Kv Urban feeders	1404	1394	99.28
11 Kv Rural Feeders	3827	3748	97.93
<b>Total</b>	<b>5231</b>	<b>5142</b>	<b>98.29</b>

### DT Metering

DT level metering is very poor. Primarily the metering has been done in R- APDRP towns But no regular monitoring found. There is no data maintained at DT level losses . Hence the loss of DT TO LT level is Still a big project for CSPDCL.

### 2.3 CATEGORY WISE CONSUMER TYPES IN DISCOM LEVEL IN THE FY 2021-22 AS SHOWN IN TABLE:

S.No.	Parameters	Total
i	Number of circles	18
ii	Number of divisions	64
iii	Number of subdivisions	444
iv	Number of feeders	5231
v	Number of DTs	201581
vi	Number of consumers	6027151
<b>2</b>	<b>Parameters</b>	<b>DISCOM LEVEL</b>
i	Number of conventional metered consumers	6001084
ii	Number of consumers	00



	with 'smart' meters	
<b>iii</b>	Number of consumers with 'smart prepaid' meters	00
<b>iv</b>	Number of consumers with 'AMR' meters	26061
<b>v</b>	Number of consumers with 'non-smart prepaid' meters	0
<b>vi</b>	Number of unmetered consumers	0
<b>vii</b>	<b>Number of totals consumers</b>	6027151
<b>b.i</b>	Number of conventionally metered Distribution Transformers	73778
<b>ii</b>	Number of DTs with communicable meters	6110
<b>iii</b>	Number of unmetered DTs	121693
<b>iv</b>	Number of total Transformers	201581

**VOLTAGE WISE FEEDER METERING STATUS**

<b>2</b>	<b>Parameters</b>	<b>33kV</b>	<b>11/22kV</b>	<b>LT</b>
<b>i</b>	Total Number of feeders	748	5231	-
<b>ii</b>	Metered feeders	748	5142	-
<b>iii</b>	Number of feeders with communicable meters	748	4784	-
<b>iv</b>	Number of unmetered feeders	0	89	-

## Details of Parameters of Financial and Operational Health of CSPDCL for 2020-21 and 2021-22

S.No.	Particular	Unit	FY 2020-21	FY 2021-22
1	Gross purchase	MU	35302.2	37950.81
2	Inter State sale /energy traded	MU	5882.89	5962.27
3	Net Input Energy (excluding transmission loss)	MU	28093	30733.36
4	Energy Sales	MU	23361	25161.44
5	Distribution Loss (Technical)	%	16.84	5571.91
6	Distribution Loss (Technical) [Approved by SERC/JERC]	%	16.84	18.12
7	Billing Efficiency	%	83.16	81.88
8	Collection Efficiency	%	92.43	100.25
9	AT&C Loss	%	23.14	17.92
10	Hours of Supply [Rural]	HH:MM	23.37	
11	Hours of Supply [Urban]	HH:MM	23.82	
12	DT Failure Rate	%	7.92	

## 2.4 SUMMARY OF CRITICAL ANALYSIS OF ENERGY AUDITOR AND MANAGEMENT ANALYSIS

### 2.4 Summary of Critical Analysis by Energy Auditor and Management analysis

**2.4.1 Compliance to BEE regulations-** The DISCOM has been submitting quarterly energy accounts as per BEE regulations however the DISCOM has not posted them on their website as per BEE regulations. The DISCOM also formed Energy Audit Cell as per the regulations. Agricultural Consumption: The DISCOM has segregated the 11 kV feeders under Atal Jyoti Feeder Yojana into mixed feeders and agricultural feeders and all the 11 kV feeders are metered. The rural feeders are provided power 24/7 whereas, the agricultural feeders are provided power for 18 hours per day. The un-metered agricultural consumption is estimated as per guideline of CSERC. The DISCOM could use the standardized ISI methodology (as has been approved by CEA) for assessment of agricultural energy consumption.

**Management Analysis:** Going forward, the quarterly reports shall be uploaded onto the website of the DISCOM. Agricultural energy consumption assessment methodology is based

on the CSERC guidelines and same methodology is being followed by all the DISCOM's of CG.

**2.4.2 11KV feeder metering and energy audit-** The DISCOM has 99.5% metering for all the 11 kV feeders but the data of input source are 33 KV feeders. The worthily consumptions of all 33 KV feeder has been review by EA. The process of checking the functioning and calibration of the 11 KV feeder meters is an on-going process. DISCOM informed that there is difference of (145 MU) of Input energy. We recommend that DISCOM should device a mechanism/methodology to adjust for this difference so that the Input energy and sales/consumption data is more accurately reported for estimation of T&D Loss.

**Management Analysis:** In CSPDCL, 100% Feeder metering with communicable features work has been completed for all 11kV feeders. The input source in CSPDCL one all 33 KV (748 No) feeder emanating from 115 EHV 8/5 feeding 18 majors of state as per methodology adopted from CEA input worked out from power purchase and input from feeder, there is difference of 145 MU.

**2.4.3 Category wise subsidy:** - Govt of CG provides subside in agriculture pumps upto 3 HP and above under Krishak Jeevan Jyoti and Uthan Yojna and their annual consumption upto 6000 units and 750 units respectively. Also Govt of CG provide subsidy to domestic consumers 50% upto 400 units as consumption under Half Bijli Yojna also there is subsidy for BPL consumers upto 30 units rebate.

Particulars	Subsidy claimed	Subsidy Received	Balanced at beginning
Pump	2679.53	2500	3340.50
Domestic	1251.68	1300	156
Steel industries	30.15	1	116.79

**Management analysis:** Balance subsidy to be received is carried forward and shall be received from Government of CG in due course.

#### 2.4.4 Analysis on T&D Losses and AT&C Losses

- **% Distribution Losses**-The overall distribution loss 18.13% and overall AT&C Loss 17.92% for FY 2021-22. This reflects overall collection efficiency of 100.25%.

**Management analysis:** - Energy accounting at all voltage levels shall be carried out in due course and metering of 11KV, DTs is in progress under RDSS.

**Circle wise % Losses-** The following Circles of the DISCOM are having T&D Losses more than the average value of 15% and requires attention.

Name of Circle	T&D Loss	AT&C Loss
RAIPUR CITY CIRCLE - I	5.97	9.34
RAIPUR CITY CIRCLE - II	4.18	1.26
RAIPUR O&M CIRCLE	11.57	10.78
B-BAZAR O&M CIRCLE	29.51	24.72
MAHASAMUND CIRCLE	27.17	27.44
DURG CITY CIRCLE	14.79	16.16
DURG O&M CIRCLE	13.81	12.91
RAJNANDGAON O&M CIRCLE	10.92	10.22
KAWARDHA O&M CIRCLE	27.70	27.78
JAGDALPUR O&M CIRCLE	11.69	13.04
KANKER O&M CIRCLE	16.42	14.35
BILASPUR CITY CIRCLE	13.24	11.98
BILASPUR O&M CIRCLE	30.33	32.73
KORBA O&M CIRCLE	24.00	24.22
RAIGARH O&M CIRCLE	25.73	25.28
JANJGIR O&M CIRCLE	25.73	25.47
AMBIKAPUR O&M CIRCLE	35.66	36.46
BAIKUNTHPUR O&M CIRCLE	31.60	32.04
<b>STATE TOTAL</b>	<b>18.13</b>	<b>17.92</b>

## 2.5 Background

### **EXTENT REGULATIONS AND ROLE OF BEE**

Bureau of Energy Efficiency (BEE) notified the Bureau of Energy Efficiency (Manner and Intervals for Conduct of Energy Audit (Accounting) in Electricity Distribution Companies) Regulations, 2021 on 6<sup>th</sup> October 2021. As per the regulation, all Electricity Distribution Companies are mandated to conduct annual energy audit and periodic energy accounting on quarterly basis.

Owing to the impact of energy auditing on the entire distribution and retail supply business and absence of an existing framework with dedicated focus on the same, it was imperative to develop a set of comprehensive guidelines that all Distribution utilities across India can follow and adhere to.

These Regulations for Energy audit in Electricity Distribution Companies provides broad framework for conduct of Annual Energy Audit though and Quarterly Periodic Energy Accounting with necessary Pre-requisites and reporting requirements to be met.

The extant regulations relevant or reproduced as under:

**Pre-requisites for annual energy audit and periodic energy accounting** — Save as otherwise provided, every electricity distribution company shall undertake all actions as maybe required for the annual energy audit and periodic energy accounting before the start of the relevant financial year, including the following actions, namely: —

- (a) the identification and mapping of all of the electrical network assets;
- (b) the identification and mapping of high tension and low-tension consumers;
- (c) the development and implementation of information technology enabled energy accounting and audit system, including associated software;
- (d) the electricity distribution company shall ensure the installation of functional meters for all consumers, transformers and feeders:  
Provided that meter installation may be done in a phased manner within a period of three financial years from the date of the commencement of these regulations in accordance with the trajectory set out in the First Schedule;
- (e) all distribution transformers (other than high voltage distribution system upto 25kVA and other distribution system below 25 kVA) shall be metered with communicable meters. And existing non-communicable distribution transformer meters shall be replaced with communicable meters and integrated with advanced metering infrastructure;
- (f) the electricity distribution company shall establish an information technology enabled system to create energy accounting reports without any manual interference:  
Provided that such system may be established—
  - (i) within a period of three years from the date of the commencement of these regulations in case of urban and priority area consumers; and

- (ii) within five years from the date of the commencement of these regulations in case of rural consumers;
- (g) the electricity distribution company shall create a centralized energy accounting and audit cell comprising of—
  - (i) a nodal officer, an energy manager and an information technology manager, having professional experience of not less than five years; and
  - (ii) a financial manager having professional experience of not less than five years;
- (h) any other requisite that Bureau may direct for energy audit and accounting purpose.

**Reporting requirements for annual energy audit and periodic energy accounting-**

- (1) Every electricity distribution company shall designate a nodal officer, who shall be a full-time employee of the electricity distribution company in the rank of the Chief Engineer or above, for the purpose of reporting of the annual energy audit and periodic energy accounting and communicate the same to the Bureau.
- (2) Every electricity distribution company shall ensure that the energy accounting data is generated from a metering system or till such time the metering system is not in place, by an agreed method of assumption as may be prescribed by the State Commission.
- (3) Metering of distribution transformers at High Voltage Distribution System upto 25KVA can be done on cluster meter installed by each electricity distribution company.
- (4) The energy accounting and audit system and software shall be developed to create monthly, quarterly and yearly energy accounting reports.
- (5) Every electricity distribution company shall provide the details of the information technology system in place as specified in clause (f) of regulation 5 that ensures minimal manual intervention in creating the energy accounting reports and any manual intervention of any nature, in respect of the period specified therein, shall be clearly indicated in the periodic energy accounting report.

**Manner of annual energy audit and periodic energy accounting. -**

- (1) Every annual energy audit and periodic energy accounting under these regulations shall be conducted in the following manner, namely: —
  - (a) verification of existing pattern of energy distribution across periphery of electricity distribution company; and
  - (b) verification of accounted energy flow submitted by electricity distribution company at all applicable voltage levels of the distribution network, —
    - (i) energy flow between transmission and 66kV/33kV/11kV incoming distribution feeders;
    - (ii) energy flow between 66kV/33kV outgoing and 11kV/6.6kV incoming feeders;
    - (iii) energy flow between 11 kV/6.6kV feeders and distribution transformers, or high voltage distribution system;
    - (iv) energy flow between distribution transformer, or high voltage distribution system to end consumer, including ring main system;
    - (v) energy flow between Feeder to end-consumer; and
    - (vi) energy flow between 66/33/11 kV directly to consumer.



- (a) The accredited energy auditor, in consultation with the nodal officer of the electricity distribution company shall, develop a scope of work for the conduct of energy audit required under these regulations;
  - (b) agree on best practice procedures on accounting of energy distributed across the network; and
  - (c) collect data on energy received, and distributed, covered within the scope of energy audit.
- (3) The accredited energy auditor shall—
- (a) verify the accuracy of the data collected in consultation with the nodal officer of the electricity distribution companies as per standard practice to assess the validity of the data collected; and
  - (b) analyse and process the data with respect to—
    - (i) consistency of data monitoring compared to the collected data;
    - (ii) recommendations to facilitate energy accounting and improve energy efficiency; and
    - (iii) with respect to the purpose of energy accounting in reducing losses for the electricity distribution company.

**Prioritization and preparation of action plan. –**

- (1) The annual energy audit report submitted by accredited energy auditor in consultation with the nodal officer and periodic energy accounting report submitted by energy manager of the electricity distribution company shall include following activities, namely: —
- (I) data collection and verification of energy distribution—
- (a) monthly energy consumption data of consumers and system metering from electricity distribution company at following voltage levels —
    - (i) 33/66/132 kV levels, including 33/66/132kV feeder and Sub-station;
    - (ii) 11/22 kV levels, including 11/22 kV feeder and Distribution Sub-station;
    - (iii) 440 V level, including Distribution Transformer and low-tension consumer;
  - (b) input energy details for all metered input points;
  - (c) boundary meter details;
  - (d) source of energy supply (e.g., electricity from grid or self-generation), including generation from renewables.
  - (e) review of the current consumption practices in order to identify the energy loss in the system;
- (II) data verification, validation and correction—
- (a) a monitoring and verification protocol to quantify on annual basis the impact of each measure with respect to energy conservation and cost reduction for reporting to Bureau and the concerned State designated agency;
  - (b) verification and correction of input energy, taking into account the following—
    - (i) recorded system meter reading by metering agency;
    - (ii) all the input points of transmission system;
    - (iii) details provided by the transmission unit;
    - (iv) relevant records at each electricity test division for each month;
    - (v) recorded meter reading at all export points (where energy sent outside the State is from the distribution system); and
    - (vi) system loading and corresponding infrastructure;

## 2.6 Energy Audit: Objectives & Methodology

### 2.6.1 Purpose of Audit

Today Indian Power Sector is facing major challenges, with the introduction of Reforms and Globalization. Despite the planners attaching utmost importance to energy sector since beginning, energy and peak power shortages are not only continuing, but also further increasing. The quality of the power supply in respect of reliability, stability and security is not ensured. The reasons for energy crunch are due to: Population explosion and Elevation in living standards. Hence the only way is to use the available energy in a much planned and productive way than ever before. So the time has come when each and every power user has to think for efficient use of power. The need of hour is therefore „Energy Auditing“. This really means to reduce the load demand by applying well established principles and techniques through efficient energy auditing.

The distribution systems have suffered mainly from the following reasons.

1. High level of technical energy losses
2. Very high commercial energy losses
3. Unbalanced load
4. Poor voltage regulation
5. Poor metering
6. Conductor heating / Equipment damages

Electric utilities in India are facing the pressure of reducing costs and improving the quality and reliability of supply. Though the generation and transmission systems have been considerable technical development and capital investment, the distribution systems been neglected and suffered due to poor operating efficiencies leading to high losses. The work is aimed at Energy Auditing of Distribution Feeder and preparing perfect energy balance sheet of Distribution Feeder with recommendations to improve overall efficiency of the system.

As per the schedule of the Energy conservation (EC), Act, 2001, industries in 15 energy intensive sectors have been identified as a “Designated Consumer (DC)”. Electricity Distribution companies (DISCOMs) are one of the identified energy Intensive industries under the Act and has recently been notified as a DC'. Purpose is to carry out Energy Audit of Distribution Network of CSPDCL.

## 2.6.2 Scope of Work

The Scope of Work will include the following: -

1. Verification of existing pattern of energy distribution across periphery of electricity distribution company
2. Collection and verification of energy flow data of electricity distribution company at all applicable voltage level of distribution network (please refer energy audit regulation)
3. Collection of data on energy received and distributed by DISCOM and verify the accuracy of data
4. Collection & analysis the data and prepare the same with report;
  - I. Input energy details:
    - a. Collection of input energy from recorded system meter reading
    - b. All the inputs points of transmission system
    - c. Details provided by transmission unit
    - d. Recorded meter reading at all export points (where energy sent outside the State (interstate as well as intrastate) is from the distribution system);
    - e. System loading and Captures infrastructure details (i.e. no of circle, division, sub-division, feeders, DTs, & Consumers)
  - II. Parameters for computation of distribution losses:
    - a) Details of open access, EHT sale, HT sale, LT sale and transmission losses
    - b) Number of consumers category wise in each circle
    - c) Consumers connected load category wise in each circle
    - d) Details of billed and un-billed energy category wise of each circle
    - e) Metered and un-metered details.
    - f) Circle wise losses of all circles under DISCOM periphery
    - g) Boundary meter details
    - h) Energy Cost and Tariff data
    - i) Source of energy Supply (e.g. electricity from grid or self-generation), including generation from renewables;
    - j) Energy supplied to Open Access Consumers which is directly purchased by Open Access Consumers from any supplier other than electricity distribution company
  - III. Monitoring and verifications of input energy and consumption pattern at various voltage levels
  - IV. Identify the areas of energy leakage, wastage or inefficient use;
  - V. Identify high loss-making areas/networks, for initiating target

- based corrective action;
- VI. Identify overloaded segments of the network for necessary capacity additions.
  - VII. Computation of agriculture consumption (approved by SERC)
  - VIII. Methodology for loss computation various losses.
  - IX. Computation of Average Billing Rate (ABR)
    - a) Total revenue billed category wise.
    - b) Category wise ABR with tariff subsidy.
    - c) Category wise ABR without tariff subsidy.
  - X. Collection Efficiency (Category wise) and computation of AT&C loss.
5. Observe and compile various Energy Conservation (ENCON) options implemented by the DISCOM and prepared report containing details of expenditure made by DC along with saving and payback period.
  6. Recommendations to facilitate energy audit, energy accounting and improve energy efficiency
  7. Study the details of loss/gain of DISCOM, analysis of Average Cost of Supply (ACS) and Average Revenue realized (ARR) gap, details of energy charges/Power purchase cost along with the financial analysis.
  8. Current System Metering Status at various voltage level of DISCOM
    - Status of Functional meters for all consumers, transformers and feeders.
    - Status of default meters (non-functional meters) for all consumers, transformers and feeders
  9. Current status of pre-requisites mentioned in regulations (Please refer energy accounting regulation).
  10. Copies of relevant authentic and certified documents should support the report. Each document should be sealed and signed by DISCOM authorized representative as well as by agency's AEA.
  11. Prepare final report of DISCOM as per the scope of work and as per the regulation of Energy Audit, 2021, in a standard format duly indexed, covering profile of the unit and its details of energy related data w.r.t DISCOMs Sector, analytical & Statistical details and any other relevant information.

## **12. Status of the Energy Metering and Energy Accounting**

- (i) Identify a power sub-station at 220 kV level having input energy injection points Audit/verification of metering.
- (ii) Verify the status of energy metering along with their healthiness of incoming / outgoing feeders at 22-kV at identified power sub-substation. The same may also be verified/cross checked at field. It

should also be ascertained that whether regular testing of meters, meter calibration frequency and the replacement of faulty meters is being done as per guidelines.

(iii) From the identified power sub-station, ascertain the number of 22kV/440V Distribution transformers along with their capacity. The status of energy metering on these distribution transformer and type of metering should be ascertained along with their healthiness and meter calibration frequency. The same should also be verified/cross checked through field visit. It should also be ascertained that replacement of faulty meter is being done as per guidelines.

(iv) Ascertain the status of consumer metering, their type and healthiness for various category of consumers, meter calibration frequency. The time taken for replacement of faulty meters should also be ascertained.

Based on the above metering you have to submit your report. The report should give the status of metering along with recommendations/various steps required to be taken by the employer with regard to metering which can help in further improvement of the energy metering and energy accounting.

### **13. Audit Verification of Distribution Losses**

(i) Verification of energy sales (metered and unmetered) in the identified Power substation.

(ii) Energy Audit exercise should be taken under the followings mentioned voltage levels:

- **Above 11kV Level,**
- **11kV Level &**
- **Below 11kV Level.**

(iii) Computation of Losses:

- **Above 11kV Level :**

1. Compute grid losses by using grid balancing approach.
2. Verify the healthiness and life of Power transformer.
3. Computation of energy handled and power transformer losses at each voltage level (like 33, 33/11, 66/11kV).

- **11kV Level :**

1. Compute feeder wise losses of all 11kV feeders emanating from identified power sub-station.

- **Below 11kV level :**

1. Compute DT wise losses down to LT level consumers.

### 2.6.3 Methodology of Electrical Distribution Network Energy Audit

The exercise of energy audit aims to balance the total energy inputs with its outflows in various energy streams. To achieve this, one has to have energy meters at all incoming & outgoing energy streams i.e., 33 kV & 11 kV feeders, 33/11kV & 11kV/415 Volts Transformers, & all consumers.

- Power distribution system is a dynamic system wherein the energy parameters are changing at every moment. Hence, in addition to installation of meters at all input & output nodes, the other requirement of establishing energy balance is to get simultaneous (Coherent) readings of all these meters in particular period i.e. at beginning of the period & at the end of the period. (This function is better served if the SCADA system is installed to acquire the meter reading data continuously at regular interval or historical data in memory of electronic meters is downloaded using meter reading instrument.)
- Owing to dynamism of the distribution system, simultaneous meter readings of all meter on incoming and outgoing nodes is the primary requisite for energy audit exercise. However, it is difficult to meet this condition when computing the energy flow for individual consumers who are spread over entire territory of sq. Km & are provided with conventional meters. Hence it is necessary to carry out this exercise in lowest denomination of the distribution system i.e. Distribution transformer wise & integrate it with supplying feeder.
- In order to accomplish this, it is necessary to install meter for each distribution transformer & tag the consumers with its feeding transformer & supply feeder. With such exercise of consumer indexing & provision of meters for all distribution transformers, the DTC wise & feeder wise energy audit can be carried out.
- The various steps in the methodology for conducting a detailed energy audit for an industry may be outlined as follows:
  1. Gathering and collating information in a specially designed, "Energy Systems Questionnaire" format, for the industry under study
  2. Inter- and intra-industry comparison of the collected data.
  3. Assessment of present efficiency index for energy consumption in the industry/process.
  4. In-depth study of plant operations, equipment and systems for a general review of the energy systems to assess the operational efficiency and potential for economizing.
  5. Evaluation of the detailed recommendations for energy saving/conservation,
  6. Formulation of detailed action plans/strategies in consultation with plant management for implementation of the identified energy saving measures.
  7. Training operating personnel in the specifics of energy conservation to enable them to implement the recommendations and also to monitor the progress on a periodic basis.



- The technical losses are due to energy dissipation in the conductors and the equipment used for transmission and distribution of power.
- Commercial losses are caused due to pilferage of energy, defective meters, meter reading errors and energy not accounted for (Table).
- Proper and accurate meters, meter reading, meter testing and calibration, billing and collection systems are essential for effective and accurate energy accounting and audit.
- The meters for energy accounting and audit are termed as system meters which basically are meters at S/S, outgoing feeders, distribution transformers, etc. The role of meters for energy accounting and audit, i.e., system meters is to arrive at operating and performance parameters, energy accounting and energy audit. System meters are generally not used for measuring energy for commercial purposes, and hence need not cater to any tariff structure.
- Conducting an effective energy audit will be possible only through a perfect mechanism where the required facilities are available.

## **2.7 Period of Energy Audit**

The verification period for the annual Energy Audit is FY 2021-2022.

<b>Nature of audit</b>	<b>Type of report</b>	<b>Frequency of audit</b>
Periodic energy accounting	First report	Quarterly
	Subsequent report	
	Subsequent reports (from third financial year)	
Annual Energy Audit	First report	Annual
	Subsequent report	

### COMPLIANCE TO BEE REGULATIONS

The compliance status of DISCOM to various provisions of BEE Regulations 2021 is analysed and presented below.

<b>Year</b>	<b>Periodic and Annual energy accounting of CSPDCL</b>	
	<b>Clause Details</b>	<b>Present Status</b>
<b>2020-21</b>	Intervals of time for conduct of annual energy audit	Annual energy audit for FY 2020-2021 conducted. Report submitted to BEE and SDA. Report
<b>2021-22</b>	All feeder wise, circle wise and division wise periodic energy accounting is conducted by the energy manager of the electricity distribution company for each quarter of the financial year.	Periodic energy accounting for Q2, Q3 & Q4 FY21-22, have been submitted by the DC.
<b>2021-22</b>	Intervals of time for conduct of annual energy audit	Annual energy audit for FY 2020-2021 conducted. Report submitted to BEE and SDA. Report

### 3. Introduction to DC

#### 3.1 General information

General Information			
1	Name of the DISCOM	CHHATTISGARH STATE POWER DISTRIBUTION COMPANY	
2	i) Year of Establishment	2009	
	ii) Government/Public/Private	Government	
3	DISCOM's Contact details & Address		
i	City/Town/Village	Raipur	
ii	District	Raipur	
iii	State	Chhattisgarh	Pin 492013
iv	Telephone		Fax 0771-2576754
4	Registered Office		
i	Company's Chief Executive Name	MR. MANOJ KHARE	
ii	Designation	Managing Director (CSPDCL)	
iii	Address	Sewa Bhawan Danganiya Head office CSEB Raipur Chhattisgarh	
iv	City/Town/Village	Raipur	P.O. Raipur
v	District	Raipur	
vi	State		Pin
vii	Telephone	9826182352	Fax 0771-2574200
5	Nodal Officer Details*		
i	Nodal Officer Name (Designated at	Smt Saroj Tiwari	
ii	Designation	Chief Enginner	
iii	Address	CSPDCL Office of CE(REV) ,Danganiya,Raipur	
iv	City/Town/Village	Raipur	P.O. Raipur
v	District	Raipur	
vi	State	Chhattisgarh	Pin 492013
vii	Telephone	9871876452	Fax 0771-2576754
6	Energy Manager Details*		
i	Name	Aashish Bafna	
ii	Designation	ENERGYMANAGER	Whether EA or EM
iii	EA/EM Registration No.		
iv	Telephone		Fax
v	Mobile	9827143100	E-mail ID <a href="mailto:aashishbbl@gmail.com">aashishbbl@gmail.com</a>
7	Period of Information		
	Year of (FY) information including	1st Apr, 2021 - 31th March, 2022	

### 3.2. CSPDCL Infra Structure Details

Performance Summary of Electricity Distribution Companies			
<b>1</b>	Period of Information Year of (FY) information including Date and Month (Start & End)	1st Apr, 2021 - 31th March, 2022	
<b>2</b>	<b>Technical Details</b>		
<b>(a)</b>	<b>Energy Input Details</b>		
(i)	Input Energy Purchase (From Generation Source)	Million kwh	37950.81
(ii)	Net input energy (at DISCOM Periphery after adjusting the transmission losses and energy traded)	Million kwh	30732.64
(iii)	Total Energy billed (is the Net energy billed, adjusted for energy traded))	Million kwh	25258.12
<b>(b)</b>	Transmission and Distribution (T&D) loss Details	Million kwh	5474.52
		%	0.18
	Collection Efficiency	%	100%
<b>(c)</b>	Aggregate Technical & Commercial Loss	%	18%

### 3.2 Input Energy & Input Infra Structure

<b>Form-Details of Input Infrastructure</b>					
<b>1</b>	<b>Parameters</b>	<b>Total</b>	<b>Covered during in audit</b>	<b>Verified by Auditor in Sample Check</b>	<b>Remarks (Source of data)</b>
i	Number of circles	18			
ii	Number of divisions	64			
iii	Number of sub-divisions	444			
iv	Number of feeders	5231(11 kv)			
v	Number of DTs	201581			
vi	Number of consumers	6027151			
<b>2</b>	<b>Parameters</b>	<b>66kV and above</b>	<b>33kV</b>	<b>11/22kV</b>	<b>LT</b>
a. i.	Number of conventional metered consumers	0	0	0	6001084
ii	Number of consumers with 'smart' meters	0	0	0	0
iii	Number of consumers with 'smart prepaid' meters	0	0	0	0
iv	Number of consumers with 'AMR' meters	86	2338	932	22791
v	Number of consumers with 'non-smart prepaid' meters	0	0	0	0
vi	Number of unmetered consumers	0	0	0	0
vii	<b>Number of total consumers</b>	86	2338	932	6023875
b.i.	Number of conventionally metered Distribution Transformers			73778	
ii	Number of DTs with communicable meters			6110	
iii	Number of unmetered DTs			121693	
iv	<b>Number of total Transformers</b>	0	0	201581	0
c.i.	Number of metered feeders		748	5142	
ii	Number of feeders with communicable meters		748	4784	
iii	Number of unmetered feeders		0	89	
iv	<b>Number of total feeders</b>		745	5231	
d.	Line length (ct km)	23773 (33kv) + 126448 (11 kv) + 217354 (LT)			
e.	Length of Aerial Bunched Cables	39106 km			
f.	Length of Underground Cables	758 KM			

## 3.4 Circle Wise Consumer Details of CSPDCL as per the category

S.No	Name of circle	FY - 2021-2022								
		Consumer profile								
		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
1	Raipur City 1	Residential	230569	0	230569	81%	527.14039	0	527.14039	60%
		Agricultural	765	0	765	0%	2.261	0	2.261	0%
		Commercial/Industrial-LT	50068	0	50068	18%	238.27094	0	238.27094	27%
		Commercial/Industrial-HT	315	0	315	0%	90.42385	0	90.42385	10%
		Others	2097	0	2097	1%	14.303	0	14.303	2%
<b>Sub-total</b>			<b>283814</b>	<b>0</b>	<b>283814</b>	<b>100%</b>	<b>872.39918</b>	<b>0</b>	<b>872.39918</b>	<b>100%</b>
2	Raipur City 2	Residential	101144	0	101144	83%	157.62	0	157.61912	12%
		Agricultural	909	0	909	1%	2.69	0	2.694	0%
		Commercial/Industrial-LT	18798	0	18798	15%	155.93	0	155.92984	12%
		Commercial/Industrial-HT	592	0	592	0%	995.20	0	995.19815	76%
		Others	1118	0	1118	1%	5.35	0	5.352	0%
<b>Sub-total</b>			<b>122561</b>	<b>0</b>	<b>122561</b>	<b>100%</b>	<b>1316.7931</b>	<b>0</b>	<b>1316.79311</b>	<b>100%</b>
3	Raipur O&M	Residential	388773	0	388773	77%	252.46	0	252.4644	30%
		Agricultural	72124	0	72124	14%	176.63	0	176.62549	21%
		Commercial/Industrial-LT	41115	0	41115	8%	158.92	0	158.92277	19%
		Commercial/Industrial-HT	562	0	562	0%	247.42	0	247.42085	29%
		Others	3461	0	3461	1%	18.93	0	18.93395	2%
<b>Sub-total</b>			<b>506035</b>	<b>0</b>	<b>506035</b>	<b>100%</b>	<b>854.36746</b>	<b>0</b>	<b>854.36746</b>	<b>100%</b>

4	Baloda Bazzar	Residential	225688	0	225688	83%	100.29	0	100.2946	27%
		Agricultural	27681	0	27681	10%	68.21	0	68.213	18%
		Commercial/Industrial-LT	16670	0	16670	6%	80.08	0	80.08055	21%
		Commercial/Industrial-HT	73	0	73	0%	118.89535	0	118.89535	32%
		Others	2097	0	2097	1%	5.81	0	5.806	2%
<b>Sub-total</b>			<b>272209</b>	<b>0</b>	<b>272209</b>	<b>100%</b>	<b>373.2895</b>	<b>0</b>	<b>373.2895</b>	<b>100%</b>
5	Mahasmund	Residential	287026	0	287026	75%	98.14	0	98.13819	26%
		Agricultural	72221	0	72221	19%	160.16	0	160.155	43%
		Commercial/Industrial-LT	17583	0	17583	5%	66.63	0	66.62768	18%
		Commercial/Industrial-HT	96	0	96	0%	40.3465	0	40.3465	11%
		Others	3866	0	3866	1%	8.14	0	8.14	2%
<b>Sub-total</b>			<b>380792</b>	<b>0</b>	<b>380792</b>	<b>100%</b>	<b>373.40737</b>	<b>0</b>	<b>373.40737</b>	<b>100%</b>
6	Durg City	Residential	213865	0	213865	85%	411.45	0	411.44899	45%
		Agricultural	1693	0	1693	1%	4.09	0	4.085	0%
		Commercial/Industrial-LT	33466	0	33466	13%	155.79	0	155.79147	17%
		Commercial/Industrial-HT	262	0	262	0%	337.12	0	337.117	37%
		Others	1525	0	1525	1%	10.50	0	10.495	1%
<b>Sub-total</b>			<b>250811</b>	<b>0</b>	<b>250811</b>	<b>100%</b>	<b>918.93746</b>	<b>0</b>	<b>918.93746</b>	<b>100%</b>
7	Durg O&M	Residential	483639	0	483639	74%	240.88	0	240.8766	27%
		Agricultural	120013	0	120013	18%	347.53	0	347.532	39%
		Commercial/Industrial-LT	40593	0	40593	6%	142.59	0	142.59117	16%
		Commercial/Industrial-HT	272	0	272	0%	152.38855	0	152.38855	17%
		Others	4889	0	4889	1%	14.68	0	14.679	2%
<b>Sub-total</b>			<b>649406</b>	<b>0</b>	<b>649406</b>	<b>100%</b>	<b>898.06732</b>	<b>0</b>	<b>898.06732</b>	<b>100%</b>

8	Rajnandgaon	Residential	323726	0	323726	77%	167.25	0	167.248	30%
		Agricultural	62732	0	62732	15%	142.72	0	142.721	26%
		Commercial/Industrial-LT	28993	0	28993	7%	101.17	0	101.165	18%
		Commercial/Industrial-HT	205	0	205	0%	126.0878	0	126.0878	23%
		Others	2928	0	2928	1%	11.26	0	11.264	2%
<b>Sub-total</b>			<b>418584</b>	<b>0</b>	<b>418584</b>	<b>100%</b>	<b>548.4858</b>	<b>0</b>	<b>548.4858</b>	<b>100%</b>
9	Kawardha	Residential	140706	0	140706	76%	43.09	0	43.085	24%
		Agricultural	34901	0	34901	19%	88.15	0	88.153	49%
		Commercial/Industrial-LT	9090	0	9090	5%	39.63	0	39.627	22%
		Commercial/Industrial-HT	19	0	19	0%	5.70095	0	5.70095	3%
		Others	1295	0	1295	1%	3.81	0	3.812	2%
<b>Sub-total</b>			<b>186011</b>	<b>0</b>	<b>186011</b>	<b>100%</b>	<b>180.37795</b>	<b>0</b>	<b>180.37795</b>	<b>100%</b>
10	Jagdarpur	Residential	354336	0	354336	92%	123.93	0	123.93057	30%
		Agricultural	10584	0	10584	3%	27.24	0	27.239	7%
		Commercial/Industrial-LT	18709	0	18709	5%	75.11	0	75.11469	18%
		Commercial/Industrial-HT	107	0	107	0%	179.72	0	179.71815	43%
		Others	1366	0	1366	0%	7.22	0	7.22	2%
<b>Sub-total</b>			<b>385102</b>	<b>0</b>	<b>385102</b>	<b>100%</b>	<b>413.22241</b>	<b>0</b>	<b>413.22241</b>	<b>100%</b>
11	Kanker	Residential	305460	0	305460	82%	121.16	0	121.16034	40%
		Agricultural	47956	0	47956	13%	111.22	0	111.219	37%
		Commercial/Industrial-LT	17725	0	17725	5%	57.57	0	57.57117	19%
		Commercial/Industrial-HT	23	0	23	0%	5.98785	0	5.98785	2%
		Others	1032	0	1032	0%	4.62	0	4.618	2%
<b>Sub-total</b>			<b>372196</b>	<b>0</b>	<b>372196</b>	<b>100%</b>	<b>300.55636</b>	<b>0</b>	<b>300.55636</b>	<b>100%</b>



12	Bilaspur city	Residential	111107	0	111107	82%	198.80	0	198.80265	57%
		Agricultural	1074	0	1074	1%	2.91	0	2.91	1%
		Commercial/Industrial-LT	21576	0	21576	16%	87.53	0	87.52713	25%
		Commercial/Industrial-HT	117	0	117	0%	51.0359	0	51.0359	15%
		Others	982	0	982	1%	7.10	0	7.103	2%
<b>Sub-total</b>			<b>134856</b>	<b>0</b>	<b>134856</b>	<b>100%</b>	<b>347.37868</b>	<b>0</b>	<b>347.37868</b>	<b>100%</b>
13	Bilaspur	Residential	382700	0	382700	84%	178.87	0	178.86929	32%
		Agricultural	48198	0	48198	11%	130.60	0	130.595	24%
		Commercial/Industrial-LT	24195	0	24195	5%	95.62	0	95.62309	17%
		Commercial/Industrial-HT	179	0	179	0%	140.12595	0	140.12595	25%
		Others	2782	0	2782	1%	9.03	0	9.031	2%
<b>Sub-total</b>			<b>458054</b>	<b>0</b>	<b>458054</b>	<b>100%</b>	<b>554.24433</b>	<b>0</b>	<b>554.24433</b>	<b>100%</b>
14	Korba	Residential	189825	0	189825	89%	124.92	0	124.91665	35%
		Agricultural	7008	0	7008	3%	15.33	0	15.329	4%
		Commercial/Industrial-LT	14255	0	14255	7%	67.12	0	67.11739	19%
		Commercial/Industrial-HT	74	0	74	0%	147.16545	0	147.16545	41%
		Others	2528	0	2528	1%	5.12	0	5.123	1%
<b>Sub-total</b>			<b>213690</b>	<b>0</b>	<b>213690</b>	<b>100%</b>	<b>359.65149</b>	<b>0</b>	<b>359.65149</b>	<b>100%</b>
15	Janjgir-Champa	Residential	255564	0	255564	79%	189.68	0	189.67896	26%
		Agricultural	43235	0	43235	13%	143.86	0	143.861	19%
		Commercial/Industrial-LT	19353	0	19353	6%	93.81	0	93.80586	13%
		Commercial/Industrial-HT	92	0	92	0%	297.0422	0	297.0422	40%
		Others	6711	0	6711	2%	16.36	0	16.362	2%
<b>Sub-total</b>			<b>324955</b>	<b>0</b>	<b>324955</b>	<b>100%</b>	<b>740.75002</b>	<b>0</b>	<b>740.75002</b>	<b>100%</b>

16	Raigarh	Residential	286028	0	286028	85%	174.25	0	174.25	38%
		Agricultural	25448	0	25448	8%	62.19	0	62.191	14%
		Commercial/Industrial-LT	22000	0	22000	7%	92.32	0	92.323	20%
		Commercial/Industrial-HT	190	0	190	0%	122.20135	0	122.20135	27%
		Others	2710	0	2710	1%	6.54	0	6.541	1%
<b>Sub-total</b>			<b>336376</b>	<b>0</b>	<b>336376</b>	<b>100%</b>	<b>457.50635</b>	<b>0</b>	<b>457.50635</b>	<b>100%</b>
17	Ambikapur	Residential	442745	0	442745	90%	144.83	0	144.83308	44%
		Agricultural	25078	0	25078	5%	51.15	0	51.147	15%
		Commercial/Industrial-LT	21714	0	21714	4%	99.44	0	99.43994	30%
		Commercial/Industrial-HT	79	0	79	0%	30.10265	0	30.10265	9%
		Others	787	0	787	0%	4.77	0	4.769	1%
<b>Sub-total</b>			<b>490403</b>	<b>0</b>	<b>490403</b>	<b>100%</b>	<b>330.29167</b>	<b>0</b>	<b>330.29167</b>	<b>100%</b>
18	Baikunthpur	Residential	210737	0	210737	87%	70.80	0	70.79878	24%
		Agricultural	16878	0	16878	7%	36.64	0	36.642	13%
		Commercial/Industrial-LT	13079	0	13079	5%	45.68	0	45.68112	16%
		Commercial/Industrial-HT	99	0	99	0%	136.86555	0	136.86555	47%
		Others	503	0	503	0%	2.42	0	2.418	1%
<b>Sub-total</b>			<b>241296</b>	<b>0</b>	<b>241296</b>	<b>100%</b>	<b>292.40545</b>	<b>0</b>	<b>292.40545</b>	<b>100%</b>
19	Consumer Profile at State Level CSPDCL	Residential	4933638	0	4933638	82%	3325.5556	0	3325.55561	33%
		Agricultural	618498	0	618498	10%	1573.5725	0	1573.57249	16%
		Commercial/Industrial-LT	428982	0	428982	7%	1853.2098	0	1853.20981	18%
		Commercial/Industrial-HT	3356	0	3356	0%	3223.8241	0	3223.82405	32%
		Others	42677	0	42677	1%	155.96995	0	155.96995	2%
<b>At State Level CSPDCL</b>			<b>6027151</b>	<b>0</b>	<b>6027151</b>	<b>100%</b>	<b>10132.132</b>	<b>0</b>	<b>10132.13191</b>	<b>100%</b>

#### 4. Details of Input Energy Sources of CSPDCL

CSPDCL purchases power from difference sources such as Central Generating Stations (CGS), CSPGCL generating stations, Renewable Energy (RE) sources such as Bio-mass, Solar, Wind and other RE sources, Concessional power from Independent Power Producers (IPPs) through Chhattisgarh State Power Trading Company Limited (CSPTrdCL) and other sources such as Power Exchanges, etc., to meet the energy requirement of the State.

The details of Power purchase as approved by the CSERC during the True Up of FY 2021-22 is

S.No.	Particulars	Total FY 2021-22		
		Unit (MU)	Amount (Cr.)	Rate (Rs. per unit)
<b>1</b>	<b>State Generating Station (CSPGCL)</b>	16416.06	6263.00	3.82
<b>i</b>	<b>CSPGCL- Thermal &amp; Hydro</b>	16384.26	6251.58	3.82
<b>ii</b>	<b>CSPGCL- Renewables</b>	31.81	11.42	3.59
<b>2</b>	<b>Through CSPTrdCL (Concessional power)</b>	2185.62	397.77	1.82
<b>3</b>	<b>Central Generating Station(i+ii+iii+iv+v+vi+vii)</b>	15429.44	6022.97	3.90
<b>i</b>	NTPC (National Thermal Power Corporation Limited)	14124.92	5505.34	3.90
<b>ii</b>	NPCIL (Nuclear Power Corporation of India Limited)	347.09	117.47	3.38
<b>iii</b>	NSPCL (NTPC-SAIL Power Company Limited)	272.28	127.69	4.69
<b>iv</b>	OHPCL (Odisha Hydro Power Corporation Ltd.)	16.44	2.96	1.80
<b>v</b>	NHPCL (National Hydroelectric Power Corporation of india Limited)	445.70	184.78	4.15
<b>vi</b>	NEEPCO (North Eastern Electric Power Corporation Limited)	55.01	22.03	4.00
<b>vii</b>	NVVNL Bundled Thermal Power (25 MW)	168.00	62.70	3.73
<b>4</b>	<b>Short Term (i+ii)</b>	260.97	230.62	8.84
<b>i</b>	Short Term (DEEP Portal)	0.00	0.00	#DIV/0!
<b>ii</b>	IEX (Purchase)	260.97	230.62	8.84
<b>5</b>	<b>Renewable Sources (i+ii+iii+iv+v+vi)</b>	2337.84	1348.95	5.77

## Annual Energy Audit of CSPDCL Raipur

i	Biomass Power	948.76	670.92	7.07
ii	Solar Power (Private Generators)	324.08	171.91	5.30
iii	Small Hydel Power (Private Generators)	168.04	90.79	5.40
iv	M/s Madhya Bharat Power Coporation Ltd., Sikkim (Hydel Power) (Rongnichu) (113 MW HPO)	286.83	201.06	7.01
v	Solar Energy Corporation of India (70MW)	120.12	66.07	5.50
vi	NVVNL Bundel Solar Power (25 MW)	34.09	36.53	10.71
vii	Solar Energy Corporation of India (250 MW) (M/s MRPL)	455.92	111.67	2.45
<b>6</b>	<b>Unscheduled Power</b>	<b>337.78</b>	<b>44.12</b>	<b>1.31</b>
<b>7</b>	<b>Border Village</b>	<b>1.56</b>	<b>1.24</b>	<b>7.97</b>
<b>8</b>	<b>UI Inter-state(over Drawl)</b>	<b>79.26</b>	<b>172.92</b>	<b>21.82</b>
<b>9</b>	<b>UI intra-state(over Drawl)</b>	<b>64.99</b>	<b>42.40</b>	<b>6.52</b>
<b>10</b>	<b>UI (CSPGCL)(over Drawl)</b>	<b>263.14</b>	<b>106.91</b>	<b>4.06</b>
<b>11</b>	<b>UI (Open Access)(over Drawl)</b>	<b>4.35</b>	<b>1.26</b>	<b>2.89</b>
<b>12</b>	<b>Banking import</b>	<b>308.67</b>	<b>0.00</b>	<b>0.00</b>
<b>A</b>	<b>Total Power Purchase (1+2+3+4+5+6+7+8+9+10+11+12)</b>	<b>37950.81</b>	<b>14632.15</b>	<b>3.86</b>
		<b>4601.14</b>	<b>0.00</b>	<b>0.00</b>
1	CSPTCL	0.00	0.00	0.00
2	PGCIL PoC	0.00	0.00	0.00
3	PGCIL LTA	0.00	0.00	0.00
4	OPTCL @ 25 paisa/unit	0.00	0.00	0.00
5	WRLDC fee & Charges	0.00	0.00	0.00
6	SLDC MoC & SoC Charges	0.00	0.00	0.00

## Annual Energy Audit of CSPDCL Raipur

7	NVVN (Tranmission charges-Rajasthan)	0.00	0.00	0.00
8	IEX Charges	0.00	0.00	0.00
9	Transmission Charges (For Consessional Power)	0.00	0.00	0.00
<b>B</b>	<b>Total Transmission &amp; other charges</b>	0.00	0.00	0.00
<b>C</b>	<b>G.Total</b>	0.00	0.00	0.00
<b>E</b>	<b>IEX sale</b>	0.00	0.00	0.00
<b>F</b>	<b>Telangana</b>	0.00	0.00	0.00
<b>13</b>	<b>Telangana sale</b>	1631.25	699.36	4.29
<b>14</b>	<b>IEX (sale)</b>	3214.89	1125.45	3.50
<b>15</b>	<b>UI Inter-state(under Drawl)</b>	272.29	102.09	3.75
<b>16</b>	<b>UI intra-state(under Drawl)</b>	15.09	12.29	8.15
<b>17</b>	<b>UI (CSPGCL)(under Drawl)</b>	92.35	20.94	2.27
<b>18</b>	<b>UI (Open Access)(under Drawl)</b>	17.72	8.22	4.64
<b>19</b>	<b>Banking export</b>	718.68	0.00	0.00
<b>B</b>	<b>Total Sale (13+14+15+16+17+18+19)</b>	5962.27	1968.36	3.30
<b>20</b>	<b>Transmission Charges (Intra state)</b>		981.49	
<b>21</b>	<b>Transmission Charges (Inter state)</b>		825.35	
<b>C</b>	<b>Total Transmission charges (20+21)</b>		1806.84	
<b>D</b>	<b>Net Power Purchase (A-B+C)</b>	<b>31988.54</b>	<b>14470.64</b>	<b>4.52</b>

## 5. Evaluation of Transmission & Distribution Loss (%T&D Loss)

### 5.1 Circle Wise Transmission & Distribution Losses

S.No	Name of circle	FY - 2021-2022							
		Consumer profile	Energy parameters					Losses	
		Consumer category	Input energy (MU)	Billed energy (MU)			% of energy consumption	T&D loss (MU)	T&D loss (%)
	Metered energy	Unmetered/assessment energy		Total energy					
1	Raipur City 1	Residential	1202.016	4.12	698.281479	702.404521	62%	71.95337	6%
		Agricultural		0.03	3.718587	3.744133	0%		
		Commercial/Industrial-LT		0.74	202.159393	202.903315	18%		
		Commercial/Industrial-HT		202.130	0	202.13	18%		
		Others		0.29	18.592931	18.880422	2%		
<b>Sub-total</b>			<b>1202.016</b>	<b>207.31</b>	<b>922.75239</b>	<b>1130.062391</b>	<b>100%</b>	<b>71.95337</b>	<b>6%</b>
2	Raipur City 2	Residential	5384.102	1.66	237.880792	239.543462	5%	233.4107	4%
		Agricultural		0.15	4.256368	4.402891	0%		
		Commercial/Industrial-LT		0.93	149.129824	150.055844	3%		
		Commercial/Industrial-HT		4748.514	0	4748.514403	92%		
		Others		0.24	7.937047	8.174947	0%		
<b>Sub-total</b>			<b>5384.102</b>	<b>4751.488</b>	<b>399.204031</b>	<b>5150.691547</b>	<b>100%</b>	<b>233.4107</b>	<b>4%</b>
3	Raipur O&M	Residential	2284.551	18.22	492.5033605	510.7220875	25%	264.2655	12%
		Agricultural		345.48	251.731866	597.212444	30%		
		Commercial/Industrial-LT		2.58	157.993478	160.574963	8%		
		Commercial/Industrial-HT		708.13	0	708.130506	35%		
		Others		1.69	41.95659548	43.64585848	2%		
<b>Sub-total</b>			<b>2284.551</b>	<b>1076.101</b>	<b>944.1853</b>	<b>2020.285859</b>	<b>100%</b>	<b>264.2655</b>	<b>12%</b>

4	Baloda Bazar	Residential	1286.798	46.33	230.511709	276.844436	29%	329.936	26%
		Agricultural		308.63	54.073933	362.705409	38%		
		Commercial/Industrial-LT		1.40	94.138784	95.543355	10%		
		Commercial/Industrial-HT		200.73	0	200.731695	21%		
		Others		3.06	17.978972	21.036749	2%		
<b>Sub-total</b>			<b>1286.798</b>	<b>560.1582</b>	<b>396.703398</b>	<b>956.861644</b>	<b>100%</b>	<b>329.936</b>	<b>26%</b>
5	Mahasamund	Residential	1898.097	49.66	217.114601	266.774791	19%	518.1358	27%
		Agricultural		833.73	91.477768	925.209298	67%		
		Commercial/Industrial-LT		3.37	63.010397	66.383083	5%		
		Commercial/Industrial-HT		94.37	0	94.366267	7%		
		Others		7.43	19.801093	27.227765	2%		
<b>Sub-total</b>			<b>1898.097</b>	<b>988.5573</b>	<b>391.403859</b>	<b>1379.961204</b>	<b>100%</b>	<b>518.1358</b>	<b>27%</b>
6	Durg City	Residential	1762.777	7.35	499.384177	506.731051	34%	261.662	15%
		Agricultural		0.62	8.599147	9.223665	1%		
		Commercial/Industrial-LT		1.26	119.091486	120.347478	8%		
		Commercial/Industrial-HT		847.50	0	847.49827	56%		
		Others		1.42	15.893773	17.314455	1%		
<b>Sub-total</b>			<b>1762.777</b>	<b>858.1463</b>	<b>642.968583</b>	<b>1501.114919</b>	<b>100%</b>	<b>261.662</b>	<b>15%</b>
7	Durg O&M	Residential	2309.628	54.79	437.738632	492.527147	25%	319.038	14%
		Agricultural		708.72	219.813102	928.536571	47%		
		Commercial/Industrial-LT		2.55	133.782981	136.336024	7%		
		Commercial/Industrial-HT		391.65	0	391.64589	20%		
		Others		5.71	35.836757	41.544151	2%		
<b>Sub-total</b>			<b>2309.628</b>	<b>1163.418</b>	<b>827.171472</b>	<b>1990.589783</b>	<b>100%</b>	<b>319.038</b>	<b>14%</b>
8	Rajnandgaon	Residential	1430.006	5.28	345.722187	350.997727	28%	155.7045	11%
		Agricultural		225.97	222.269303	448.24425	35%		
		Commercial/Industrial-LT		0.76	87.710531	88.470718	7%		
		Commercial/Industrial-HT		359.69	0	359.694796	28%		
		Others		0.76	26.138568	26.893635	2%		
<b>Sub-total</b>			<b>1430.006</b>	<b>592.4605</b>	<b>681.840589</b>	<b>1274.301126</b>	<b>100%</b>	<b>155.7045</b>	<b>11%</b>

9	Kawardha	Residential	716.0009	27.67	104.762936	132.432616	26%	198.3057	28%
		Agricultural		291.06	42.06273	333.120887	64%		
		Commercial/Industrial-LT		0.75	36.78643	37.537038	7%		
		Commercial/Industrial-HT		5.85	0	5.852619	1%		
		Others		2.51	6.246235	8.752082	2%		
<b>Sub-total</b>			<b>716.0009</b>	<b>327.8369</b>	<b>189.858331</b>	<b>517.695242</b>	<b>100%</b>	<b>198.3057</b>	<b>28%</b>
10	Jagdapur	Residential	986.4198	44.87	206.351104	251.220428	29%	111.3574	11%
		Agricultural		70.12	14.763574	84.886595	10%		
		Commercial/Industrial-LT		2.03	78.229032	80.261978	9%		
		Commercial/Industrial-HT		441.60	0	441.595456	50%		
		Others		1.80	15.294428	17.097959	2%		
<b>Sub-total</b>			<b>986.4198</b>	<b>560.4243</b>	<b>314.638138</b>	<b>875.062416</b>	<b>100%</b>	<b>111.3574</b>	<b>11%</b>
11	Kanker	Residential	921.8241	14.44	212.220968	226.660012	28%	115.8234	13%
		Agricultural		95.57	407.471344	503.0431	62%		
		Commercial/Industrial-LT		0.67	55.185644	55.859579	7%		
		Commercial/Industrial-HT		9.20	0	9.197437	1%		
		Others		0.38	10.864252	11.240596	1%		
<b>Sub-total</b>			<b>921.8241</b>	<b>120.2585</b>	<b>685.742208</b>	<b>806.000724</b>	<b>100%</b>	<b>115.8234</b>	<b>13%</b>
12	Bilaspur city	Residential	654.896	3.15	278.171669	281.318472	50%	86.74827	13%
		Agricultural		0.03	8.527193	8.558537	2%		
		Commercial/Industrial-LT		0.86	78.716208	79.576577	14%		
		Commercial/Industrial-HT		154.67	0	154.665057	27%		
		Others		2.34	41.693829	44.02904	8%		
<b>Sub-total</b>			<b>654.896</b>	<b>161.0388</b>	<b>407.108899</b>	<b>568.147683</b>	<b>100%</b>	<b>86.74827</b>	<b>13%</b>
13	Bilaspur	Residential	2281.487	44.70	399.153891	443.851817	28%	691.9181	30%
		Agricultural		480.85	123.031157	603.878176	38%		
		Commercial/Industrial-LT		1.92	96.348056	98.264603	6%		
		Commercial/Industrial-		401.55	0	401.553167	25%		



		HT							
		Others		1.07	40.946836	42.02091	3%		
<b>Sub-total</b>			<b>2281.487</b>	<b>930.0887</b>	<b>659.47994</b>	<b>1589.568673</b>	<b>100%</b>	<b>691.9181</b>	<b>30%</b>
14	Korba	Residential	1216.189	71.37	197.989785	269.356008	29%	291.9139	24%
		Agricultural		0.49	47.853636	48.34673	5%		
		Commercial/Industrial-LT		2.82	57.323406	60.146224	7%		
		Commercial/Industrial-HT		528.04	0	528.03964	57%		
		Others		6.89	11.501763	18.386801	2%		
<b>Sub-total</b>			<b>1216.189</b>	<b>609.6068</b>	<b>314.66859</b>	<b>924.275403</b>	<b>100%</b>	<b>291.9139</b>	<b>24%</b>
15	Janjgir	Residential	2348.546	5.26	298.947059	304.205427	17%	594.3629	25%
		Agricultural		0.12	473.40881	473.52904	27%		
		Commercial/Industrial-LT		0.87	83.955448	84.821862	5%		
		Commercial/Industrial-HT		828.15	0	828.149778	47%		
		Others		0.58	62.900528	63.477239	4%		
<b>Sub-total</b>			<b>2348.546</b>	<b>834.9715</b>	<b>919.211845</b>	<b>1754.183346</b>	<b>100%</b>	<b>594.3629</b>	<b>25%</b>
16	Raigarh	Residential	1588.61	8.91	354.359174	363.266584	31%	400.8513	25%
		Agricultural		18.88	250.282515	269.166765	23%		
		Commercial/Industrial-LT		0.69	92.509496	93.200315	8%		
		Commercial/Industrial-HT		416.48	0	416.477057	35%		
		Others		1.93	43.717741	45.647747	4%		
<b>Sub-total</b>			<b>1588.61</b>	<b>446.8895</b>	<b>740.868926</b>	<b>1187.758468</b>	<b>100%</b>	<b>400.8513</b>	<b>25%</b>
17	Ambikapur	Residential	1291.219	72.55	379.733663	452.284063	54%	459.5967	36%
		Agricultural		97.78	126.706817	224.486348	27%		
		Commercial/Industrial-LT		3.70	83.985479	87.681846	11%		
		Commercial/Industrial-HT		56.97	0	56.969433	7%		
		Others		1.92	8.277668	10.200977	1%		
<b>Sub-total</b>			<b>1291.219</b>	<b>232.919</b>	<b>598.703627</b>	<b>831.622667</b>	<b>100%</b>	<b>459.5967</b>	<b>36%</b>

18	Baikunthpur	Residential	1169.472	55.17	142.599709	197.770386	25%	369.5383	32%
		Agricultural		25.35	110.83137	136.182981	17%		
		Commercial/Industrial-LT		3.16	37.823862	40.979552	5%		
		Commercial/Industrial-HT		416.83	0	416.832892	52%		
		Others		4.02	4.151959	8.168225	1%		
<b>Sub-total</b>			<b>1169.472</b>	<b>504.5271</b>	<b>295.4069</b>	<b>799.934036</b>	<b>100%</b>	<b>369.5383</b>	<b>32%</b>
19	DISCOM Level at CSPDCL	Residential	30732.64	535.4841	5733.426896	6268.911036	25%	5474.522	18%
		Agricultural		3503.599	2460.87922	5964.47782	24%		
		Commercial/Industrial-LT		31.06442	1707.879935	1738.944354	7%		
		Commercial/Industrial-HT		10812.04	0	10812.04436	43%		
		Others		44.00858	429.7309755	473.7395585	2%		
20	<b>At company level</b>		<b>30732.64</b>	<b>14926.2</b>	<b>10331.91703</b>	<b>25258.11713</b>	<b>100%</b>	<b>5474.522</b>	<b>18%</b>

## 6. Evaluation of Aggregate & Technical Losses (AT&C)

### 6.1 Year Wise Comparison of AT&C losses at Discom Level of CSPDCL

The AT&C loss levels of CSPDCL is 17.92 %in FY 2021-22. The Distribution Loss and AT&C Losses are calculated under compliance of CEA guideless for calculation of AT&C Losses considering subsidy realization. CSPDCL DISCOM LEVEL AT&C Losses are being prepared on the said guideline considering actual subsidy realization from govt. The AT&C loss levels of CSPDCL for the last 3 years are presented as below: AT&C Loss Levels (%) of CSPDCL

S.No.	Year	AT&C Loss Levels (%)
1	FY 2021-22	17.92%
2	FY 2020-21	23.14%
3	FY 2019-20	17.31%

A quick detail analysis of billing efficiency indicates that overall billing efficiency of CSPDCL in FY 2021-22 was 81.88%. The details of circle wise billing efficiency are provided below:

Name of Circle	T&D Loss	Collection efficiency	AT&C Loss
RAIPUR CITY CIRCLE - I	5.97	96.43	9.34
RAIPUR CITY CIRCLE - II	4.18	103.22	1.26
RAIPUR O&M CIRCLE	11.57	100.90	10.78
B-BAZAR O&M CIRCLE	29.51	101.23	24.72
MAHASAMUND CIRCLE	27.17	99.81	27.44
DURG CITY CIRCLE	14.79	98.44	16.16
DURG O&M CIRCLE	13.81	101.04	12.91
RAJNANDGAON O&M CIRCLE	10.92	100.76	10.22
KAWARDHA O&M CIRCLE	27.70	99.89	27.78
JAGDALPUR O&M CIRCLE	11.69	98.02	13.04
KANKER O&M CIRCLE	16.42	97.96	14.35
BILASPUR CITY CIRCLE	13.24	101.46	11.98
BILASPUR O&M CIRCLE	30.33	97.06	32.73
KORBA O&M CIRCLE	24.00	99.71	24.22
RAIGARH O&M CIRCLE	25.73	100.04	25.28
JANJGIR O&M CIRCLE	25.73	99.68	25.47

<b>AMBIKAPUR O&amp;M CIRCLE</b>	35.66	98.65	36.46
<b>BAIKUNTHPUR O&amp;M CIRCLE</b>	31.60	99.36	32.04
<b>STATE TOTAL</b>	<b>18.13</b>	<b>100.24</b>	<b>17.92</b>

**Reasons for low billing efficiency in certain circles are summarised as below**

- As per the present scenario, CSPDCL is carrying out billing for various categories such as BPL category, agricultural category on assessment basis due to location of agriculture and BPL connections at distant places, prolonged locked premises, and resistance of consumers towards meter replacement. This leads to under reporting of energy consumption of some categories.
- Another reason for low billing efficiency is high technical loss levels. Though the existing systems is optimally managed but as part of the RDSS scheme, CSPDCL is giving a significant focus on loss reduction by HVDS and agriculture feeder segregation to bring the technical losses to industry standards.
- Further, due to COVID-19, the CSPDCL has not been able to bill the consumers so effectively thereby resulting in reduction in billing efficiency.

**Low Collection Efficiency in certain circles are summarised as below:**

- Due to COVID-19 pandemic, the government enforced lockdown w.e.f. from 23/03/2020 which resulted in suspension of physical meter reading, bill delivery, closure of CSPDCL collection centres and revenue collection through offline modes.
- Non-payment of electricity bills by government department/Attached Offices/ Local Bodies/ Autonomous Bodies/ Boards/ Corporation etc.
- Non-payment of subsidies for the previous year as well as current year.
- Further the CSERC vide its Suo Moto Order in Petition No. 47 of 2020 dated May 06, 2020 provided that:

## 7. Loss Reduction Scheme implemented in CSPDCL

---

### 1. Restructured Accelerated Power Development and Reforms Programme Part-B (R-APDRP)

**R-APDRP Part-A:-** Accurate assessment of energy loss in cities with population of more than 30,000 by The Ministry of Power, Government of India and bringing it down to less than 15 percent the RAPDRP scheme was launched.

Part-A of the scheme involves accurate calculation of energy loss through information technology. 20 cities were selected under this scheme. The total sanctioned cost of the scheme is Rs. 122.45 crore. As on March 2017, work on all 20 cities has been completed. In this scheme, an expenditure of Rs.116 crore has been incurred and the completion report of the project will also be submitted to the Nodal Agency of the Government of India.

**Scope and Achievement of the Scheme:** 22 cities namely Ambikapur, Raigarh, Kanker, Jagdalpur, Chirmiri, Manendragarh, Korba, Naila-Janjgir, Champa, Mungeli, Bilaspur, Kawardha, Dongargarh, Rajnandgaon, Bhilai city, Durg, Bhilai-Charoda, Dallirajhara, Bhatapara, Raipur, Mahasamund and Dhamtari were selected and included. Under this scheme, a state-of-the-art and high-tech centralized call center has been established in Raipur city, under which the above 22 cities whenever complaint related to electricity can be lodged at any time through telephone, mobile, online or e-mail, and in the past one can know the status of the complaint lodged.

**R-APDRP Part-B:** Upgradation and expansion of existing power infrastructure was undertaken to reduce power loss in the second part of the scheme. Project Cost- Rs. 710 crores.

**Scope and Achievement of the Scheme:** 20 cities of the state namely Ambikapur, Raigarh, Kanker, Jagdalpur, Chirmiri, Manendragarh, Korba, Naila-Janjgir, Champa, Mungeli, Bilaspur, Kawardha, Dongargarh, Rajnandgaon, Durg-Bhilai-Charoda, Dalli-Rajhara, Bhatapara, Raipur, Mahasamund and Dhamtari. Under Part-B of the Scheme, Rs. 19 cities with energy losses of more than 15% were sanctioned at a cost of Rs. 710 crores. All the works provided in the scheme of all the sanctioned cities have been completed by 31.03.2017.

Under the scheme , 415.05 crores were spent in the last 08 years. Information about the completed works is as follows:

### 2. Deendayal Upadhyaya Gram Jyoti Yojana; Conduct

Approval of Deendayal Upadhyaya Gram Jyoti Yojana for continuation of Rajiv Gandhi Gramin Vidyutikaran Yojana infrastructure and residential electrification scheme in the twelfth five year plan by Joint Secretary, Government of India Office Memorandum No. 44/44/2014-RE dated 3/12/ Reported through 2014. Under the scheme, the work of feeder separation has been done to provide 24 hours uninterrupted and quality power supply to the non-agricultural pump consumers living in rural areas of the state, in view of the installed electricity load in rural areas and the increase in future load, the distribution system has been strengthened. It is necessary to go so that while keeping the distribution loss under control, quality, uninterrupted and reasonable power supply can be ensured to the consumers. The scheme also includes the work of un-electrified village/majra-tola. For this, the Government of India has given Rs. 1257.16 crore project has been approved. Under Deendayal Upadhyay Gram Jyoti Yojna, electrification of 127 un-electrified villages

and intensive electrification of 2672 villages has been done fully electrified, all 80 new 33/11 KV approved. Sub-centres have been established.

Under the scheme, 1297.82 crores were spent in the last 08 years. Information about the completed works is as follows: -

#### Sl. Details of Work Unit Provision Functional

S.No	Particular	Unit	Provision	Work Completed
1	33/11 KV Power Sub Station - New	No.	80	80
2	33/11 KV ATIO Power Transformer Installation	No.	20	20
3	Capacity Addition of 33/11 KV Power Transformer	No.	81	81
4	33 KV Line Construction	Km	750	750
5	11 KV Line Construction	Km	7774	8790
6	Down pressure line	Km	9047	8600
7	New Distribution Transformer	No.	12155	10822
8	Villages Electrification	No.	127	127
9	Intensive Electrification of Villages	No.	2672	2672
10	Feeder Separation	No.	347	264

### 3. Integrated Power Development Scheme; pneumatic

O.M. of the Ministry of Power, Government of India. No. 26/1/2014-.Chapter No. "Integrated Electricity Development Scheme (PWD)" has been started vide date 03.12.2014. Under this scheme, strengthening the distribution system, installation of solar panels, distribution transformers / 11 KV. Metering of feeders/consumers, IT in distribution sector Work was done to promote the use. Under the Integrated Power Development Scheme, electrification works have been done in 182 cities of Chhattisgarh state to reduce the distribution loss. The cost of the project is 514.52 crores.

Under the scheme, 489.76 crores were spent in the last 08 years. Information about the completed works is as follows: -



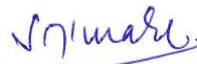
S.No	Particular	Unit	Provision	Work Completed
1	33/11 K. V. Sub-Station	No.	32	32
2	33/11 KV ATI. Installation of Transformer	No.	22	22
3	33/11 kv power trans. Capacity Addition	No.	42	42
4	33 K . V. Line construction	km	275	226

## Annual Energy Audit of CSPDCL Raipur

5	11 K. V. Line construction	km	872	814
6	Construction of low-pressure line m. 147 100	km	147	100
6	By changing the wires of the low-pressure lines a. B. The act of putting a cable	km	3474	2610
7	New Distribution Transformer	No.	1824	1701
8	Total expenditure	Crores		489.76

## 8. Annexure

### 8.1 Submitted Proforma of FY 2021-2022

	<p><b>CHHATTISGARH STATE POWER DISTRIBUTION COMPANY LTD</b> <b>छत्तीसगढ़ स्टेट पावर डिस्ट्रीब्यूशन कम्पनी लिमिटेड</b> (A Government of Chhattisgarh Undertaking) (A Successor Company of CSEB) (CIN : U40108CT2003SGC015822) OFFICE OF CHIEF ENGINEER(Rev) CSPDCL, DANGANIA, RAIPUR Phone: 0771-2574901/2574902 Fax: 0771-2574900/2574922 Website : www.cspdcl.co.in</p>	
<p><b>To,</b></p> <p><b>Ms.Surya Yadav</b> <b>Project Engineer, BEE</b> <b>4<sup>th</sup> Floor Sewa bhavan</b> <b>R.K. Puram, New Delhi</b></p>		
<p><b>Sub:- Submission of Annual Energy Audit Report for Year 2021-22 of CSPDCL.</b></p>		
<p>Under compliance of BEE Regulation 2021, Annual Energy Audit Report for Year 2021-22 of CSPDCL is attached herewith as needful. Soft copy of Same is also been mailed in respective mail for uploadation at BEE .</p>		
<p style="text-align: right;"> <b>Smt Saroj Tiwari</b> <b>Chief Engineer (Rev)</b> <b>CSPDCL Raipur</b></p>		
<p>Copy to:-</p> <p>01.Mr. Milind Deore, Director (BEE), 4<sup>th</sup> Floor Sewa bhavan. R.K. Puram, New Delhi.</p> <p>02. Chief Engineer (CREDA)VIP Road, Near Education park.Devpuri, Raipur.</p>		



## General information

General Information			
1	Name of the DISCOM	CHHATTISGARH STATE POWER DISTRIBUTION COMPANY LTD.	
2	i) Year of Establishment	2009	
	ii) Government/Public/Private	Government	
3	DISCOM's Contact details & Address		
i	City/Town/Village	Raipur	
ii	District	Raipur	
iii	State	Chhattisgarh	Pin 492013
iv	Telephone		Fax 0771-2576754
4	Registered Office		
i	Company's Chief Executive Name	MR. MANOJ KHARE	
ii	Designation	Managing Director (CSPDCL)	
iii	Address	Sewa Bhawan Danganiya Head office CSEB Raipur Chhattisgarh	
iv	City/Town/Village	Raipur	P.O. Raipur
v	District	Raipur	
vi	State		Pin
vii	Telephone	9826182352	Fax 0771-2574200
5	Nodal Officer Details*		
i	Nodal Officer Name (Designated at DISCOM's)	Smt Saroj Tiwari	
ii	Designation	Chief Engineer	
iii	Address	CSPDCL Office of CE(REV) ,Danganiya,Raipur	
iv	City/Town/Village	Raipur	P.O. Raipur
v	District	Raipur	
vi	State	Chhattisgarh	Pin 492013
vii	Telephone	9871876452	Fax 0771-2576754
6	Energy Manager Details*		
i	Name	Aashish Bafna	
ii	Designation	ENERGY MANAGER	Whether EA or EM EM
iii	EA/EM Registration No.		
iv	Telephone		Fax
v	Mobile	9827143100	E-mail ID aashishbbl@gmail.com
7	Period of Information		
	Year of (FY) information including Date and Month (Start & End)	1st Apr, 2021 - 31th March, 2022	

## Performance Summary of CSPDCL for FY 2021-22

Performance Summary of Electricity Distribution Companies			
<b>1</b>	Period of Information Year of (FY) information including Date and Month (Start & End)	1st Apr, 2021 - 31th March, 2022	
<b>2</b>	<b>Technical Details</b>		
<b>(a)</b>	<b>Energy Input Details</b>		
(i)	Input Energy Purchase (From Generation Source)	Million kwh	37950.81
(ii)	Net input energy (at DISCOM Periphery after adjusting the transmission losses and energy traded)	Million kwh	30732.64
(iii)	Total Energy billed (is the Net energy billed, adjusted for energy traded))	Million kwh	25258.12
<b>(b)</b>	Transmission and Distribution (T&D) loss Details	Million kwh	5474.52
		%	0.18
	Collection Efficiency	%	100%
<b>(c)</b>	Aggregate Technical & Commercial Loss	%	18%

I/We undertake that the information supplied in this Document and Pro-forma is accurate to the best of my knowledge and if any of the information supplied is found to be incorrect and such information result into loss to the Central Government or State Government or any of the authority under them or any other person affected, I/we undertake to indemnify such loss.

Authorised Signatory and Seal

*Vijay Kumar*  
 Name of Authorised Signatory  
 Name of the DISCOM:  
 Full Address:  
**CHIEF ENGINEER (Revenue)**  
**C.S.P.D.C.L., RAIPUR**

Signature:- *Aashish Babna*  
 Name of Energy Manager\*: *Aashish Babna*  
 Registration Number: *EA-19874*

Seal

## Input Infrastructure

Form-Details of Input Infrastructure					
1	Parameters	Total	Covered during in audit	Verified by Auditor in Sample Check	Remarks (Source of data)
i	Number of circles	18			
ii	Number of divisions	64			
iii	Number of sub-divisions	444			
iv	Number of feeders	5231(11 kv)			
v	Number of DTs	201581			
vi	Number of consumers	6027151			
2	<b>Parameters</b>	<b>66kV and above</b>	<b>33kV</b>	<b>11/22kV</b>	<b>LT</b>
a. i.	Number of conventional metered consumers	0	0	0	6001084
ii	Number of consumers with 'smart' meters	0	0	0	0
iii	Number of consumers with 'smart prepaid' meters	0	0	0	0
iv	Number of consumers with 'AMR' meters	86	2340	930	22791
v	Number of consumers with 'non-smart prepaid' meters	0	0	0	0
vi	Number of unmetered consumers	0	0	0	0
vii	<b>Number of total consumers</b>	<b>86</b>	<b>2340</b>	<b>930</b>	<b>6023875</b>
b. i.	Number of conventionally metered Distribution Transformers			73778	
ii	Number of DTs with communicable meters			6110	
iii	Number of unmetered DTs			121693	
iv	<b>Number of total Transformers</b>	<b>0</b>	<b>0</b>	<b>201581</b>	<b>0</b>
c. i.	Number of metered feeders		748	5142	
ii	Number of feeders with communicable meters		748	4784	
iii	Number of unmetered feeders		0	89	
iv	<b>Number of total feeders</b>		<b>745</b>	<b>5231</b>	
d.	Line length (t. km)		23773 (33kv) + 129448 (11 kv) + 217354 (LT)		
e.	Length of Aerial-Bunched Cables		39106 km		
f.	Length of Underground Cables		758 KM		
3	<b>Voltage level</b>	<b>Particulars</b>	<b>MU</b>	<b>Reference</b>	<b>Remarks (Source of data)</b>
i	66kV and above	Long-Term Conventional	33,598	Includes input energy for franchisees	
		Medium Conventional	--		
		Short Term Conventional	1206.64		
		Banking	308.67		
		Long-Term Renewable energy	2707.4519		
		Medium and Short-Term RE	64.99	Includes power from bilateral/ PX/ DEEP	
		Captive, open access input		Any power wheeled for any purchase other than sale to DISCOM. Does not include input for franchisee.	
		Sale of surplus power	13.59%		
		Quantum of inter-state transmission loss		As confirmed by SLDC, RLDC etc	
		<b>Power procured from inter-state sources</b>		37,886	Based on data from Form 5
<b>Power at state transmission boundary</b>		37,886			
		Long-Term Conventional			

*Subhash*



		Medium Conventional			
		Short Term Conventional			
		Banking			
ii	33kV	Long Term Renewable energy	67		
		Medium and Short Term RE			
		Captive, open access input			
		Sale of surplus power			
		Quantum of intra-state transmission loss	0		
		<b>Power procured from intra-state sources</b>	<b>67</b>		
iii		<b>Input in DISCOM wires network</b>	<b>37,952</b>		
iv	33 kV	Renewable Energy Procurement			
		Small capacity conventional/ biomass/ hydro plants Procurement			
		Captive, open access input			
v	11 kV	Renewable Energy Procurement			
		Small capacity conventional/ biomass/ hydro plants Procurement			
		Sales Migration input			
vi	LT	Renewable Energy Procurement			
		Sales Migration input			
vii		<b>Energy Embedded within DISCOM wires network</b>	<b>0</b>		
viii		<b>Total Energy Available/ Input</b>	<b>37,952</b>		
<b>4</b>	<b>Voltage level</b>	<b>Energy Sales Particulars</b>	<b>MU</b>	<b>Reference</b>	
i	LT Level	DISCOM' consumers	14,350	Include sales to consumers in franchisee areas, unmetered consumers	
		Demand from open access, captive		Non DISCOM's sales	
		Embedded generation used at LT level		Demand from embedded generation at LT level	
		Sale at LT level	14,350		
		Quantum of LT level losses	5,201		
		Energy Input at LT level	19,551		
ii	11 kV Level	DISCOM' consumers	271	Include sales to consumers in franchisee areas, unmetered consumers	
		Demand from open access, captive		Non DISCOM's sales	
		Embedded generation at 11 kV level used		Demand from embedded generation at 11kV level	
		<b>Sales at 11 kV level</b>	271		
		Quantum of Losses at 11 kV	66		
		Energy input at 11 kV level	337		
iii	33 kV Level	DISCOM' consumers	6,749	Include sales to consumers in franchisee areas, unmetered consumers	
		Demand from open access, captive		Non DISCOM's sales	
		Embedded generation at 33 kV or below level		This is DISCOM and OA demand met via energy generated at same voltage level	
		<b>Sales at 33 kV level</b>	6,749		
		Quantum of Losses at 33 kV	344		
		Energy input at 33kV Level	7,093		
iv	33 kV	DISCOM' consumers	3791.72	Include sales to consumers in franchisee areas, unmetered consumers	
		Demand from open access, captive		Non DISCOM's sales	
		Cross border sale of energy			

*Surinder*

Form Sj for FY 2021-22

Details of Division Wise Losses (See note below**)																						
S.No	Name of circle	Circle code	Name of Division	Division Wise Losses															AT & C loss (%)			
				Consumer category	Consumer profile				Energy parameters					Losses		Commercial Parameter						
					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)	Metered energy	Unmetered/assessment energy	Total energy	% of energy consumption	T&D loss (MU)		T&D loss (%)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore
1	Raipur City 1			Residential	230569	0	230569	81%	527.14039	0	527.14039	60%	1202.016	4.12	698.281479	702.404521	62%	71.95337	6%	353.416	359.110	101.61%
				Agricultural	765	0	765	0%	2.261	0	2.261	0%		0.03	3.718587	3.744133	0%			2.374	2.470	104.05%
				Commercial/Industrial-LT	50068	0	50068	18%	238.27094	0	238.27094	27%		0.74	202.159393	202.903315	18%			187.951	191.291	101.78%
				Commercial/Industrial-HT	315	0	315	0%	90.42385	0	90.42385	10%		0	202.13	202.13	18%			194.428	156.992	80.75%
				Others	2097	0	2097	1%	14.303	0	14.303	2%		0.29	18.592931	18.880422	2%			35.405	36.110	101.99%
<b>Sub-total</b>				<b>283814</b>	<b>0</b>	<b>283814</b>	<b>100%</b>	<b>872.39918</b>	<b>0</b>	<b>872.39918</b>	<b>100%</b>	<b>1202.016</b>	<b>207.31</b>	<b>922.75239</b>	<b>1130.062391</b>	<b>100%</b>	<b>71.95337</b>	<b>6%</b>	<b>775.57376</b>	<b>745.972898</b>	<b>96.43%</b>	
2	Raipur City 2			Residential	101144	0	101144	83%	157.62	0	157.61912	12%	5384.102	1.66	237.880792	239.543462	5%	233.4107	4%	113.439	116.450	102.65%
				Agricultural	909	0	909	1%	2.69	0	2.694	0%		0.15	4.256368	4.402891	0%			2.967	2.990	100.76%
				Commercial/Industrial-LT	18798	0	18798	15%	155.93	0	155.92984	12%		0.91	149.129824	150.055644	3%			121.911	124.387	102.03%
				Commercial/Industrial-HT	592	0	592	0%	995.20	0	995.19815	76%		4748.514	0	4748.514403	92%			3015.095	3114.141	103.28%
				Others	1118	0	1118	1%	5.35	0	5.352	0%		0.23	7.937047	8.174947	0%			12.205	12.660	103.73%
<b>Sub-total</b>				<b>122561</b>	<b>0</b>	<b>122561</b>	<b>100%</b>	<b>1316.7931</b>	<b>0</b>	<b>1316.79311</b>	<b>100%</b>	<b>5384.102</b>	<b>4751.488</b>	<b>399.204031</b>	<b>5150.691547</b>	<b>100%</b>	<b>233.4107</b>	<b>4%</b>	<b>3265.61735</b>	<b>3370.62716</b>	<b>103.22%</b>	
3	Raipur O&M			Residential	388773	0	388773	77%	252.46	0	252.4644	30%	2284.551	18.31	492.5033605	510.7220875	25%	264.2655	12%	232.868	233.450	100.25%
				Agricultural	72124	0	72124	14%	176.63	0	176.62549	21%		145.48	251.731866	597.212444	30%			292.854	294.220	100.47%
				Commercial/Industrial-LT	41115	0	41115	8%	158.92	0	158.92277	19%		2.58	157.993478	160.574963	8%			131.260	133.633	101.81%
				Commercial/Industrial-HT	562	0	562	0%	247.42	0	247.42085	29%		708.13	0	708.130506	35%			552.453	559.376	101.25%
				Others	3463	0	3463	1%	18.93	0	18.93395	2%		1.69	41.9659548	43.6458848	2%			18.691	18.450	98.71%
<b>Sub-total</b>				<b>506035</b>	<b>0</b>	<b>506035</b>	<b>100%</b>	<b>854.36746</b>	<b>0</b>	<b>854.36746</b>	<b>100%</b>	<b>2284.551</b>	<b>1076.101</b>	<b>944.1853</b>	<b>2020.285859</b>	<b>100%</b>	<b>264.2655</b>	<b>12%</b>	<b>1228.12587</b>	<b>1239.12962</b>	<b>100.90%</b>	
4	Baloda Bazaar			Residential	225688	0	225688	83%	100.29	0	100.2946	27%	1286.798	46.33	230.511709	276.844436	29%	329.936	26%	134.473	137.162	102.00%
				Agricultural	27681	0	27681	10%	68.21	0	68.213	18%		308.63	54.073933	362.705409	38%			150.957	150.440	99.66%
				Commercial/Industrial-LT	16670	0	16670	6%	80.08	0	80.08055	21%		1.40	94.138784	95.543355	10%			77.225	78.493	101.91%
				Commercial/Industrial-HT	73	0	73	0%	118.8935	0	118.8935	32%		200.73	0	200.731695	21%			152.173	155.091	101.92%
				Others	2097	0	2097	1%	5.81	0	5.806	2%		3.96	17.978972	21.036749	2%			17.705	17.700	99.97%
<b>Sub-total</b>				<b>272209</b>	<b>0</b>	<b>272209</b>	<b>100%</b>	<b>373.2095</b>	<b>0</b>	<b>373.2095</b>	<b>100%</b>	<b>1286.798</b>	<b>560.18327</b>	<b>386.33398</b>	<b>646.516444</b>	<b>100%</b>	<b>329.936</b>	<b>26%</b>	<b>533.33298</b>	<b>538.886255</b>	<b>101.23%</b>	
5	Mahasamund			Residential	281026	0	281026	75%	98.15	0	98.13819	26%	1898.097	7.35	499.381177	506.731051	34%	518.1358	27%	239.718	239.530	99.93%
				Agricultural	72221	0	72221	19%	160.16	0	160.155	43%		831.71	91.477768	925.209798	67%			327.837	328.440	100.18%
				Commercial/Industrial-LT	17583	0	17583	5%	66.63	0	66.62768	18%		1.17	63.010397	66.383083	5%			56.757	56.976	100.39%
				Commercial/Industrial-HT	96	0	96	0%	40.3465	0	40.3465	11%		94.37	0	94.366267	7%			74.638	73.265	98.42%
				Others	3866	0	3866	1%	8.14	0	8.14	2%		7.47	19.801093	27.227765	2%			31.833	31.000	97.38%
<b>Sub-total</b>				<b>380792</b>	<b>0</b>	<b>380792</b>	<b>100%</b>	<b>373.40737</b>	<b>0</b>	<b>373.40737</b>	<b>100%</b>	<b>1898.097</b>	<b>988.5573</b>	<b>391.403859</b>	<b>1379.961204</b>	<b>100%</b>	<b>518.1358</b>	<b>27%</b>	<b>623.728504</b>	<b>622.541341</b>	<b>99.81%</b>	
6	Durg City			Residential	213865	0	213865	85%	411.45	0	411.44899	45%	1762.777	0.62	8.599147	9.223665	1%	261.662	15%	4.826	4.810	99.67%
				Agricultural	1693	0	1693	1%	4.09	0	4.085	0%		1.26	119.091486	120.347478	8%			108.375	110.713	102.16%
				Commercial/Industrial-LT	33466	0	33466	13%	155.79	0	155.79147	17%		847.50	0	847.49827	56%			693.798	674.859	97.27%
				Commercial/Industrial-HT	262	0	262	0%	337.12	0	337.117	37%		1.42	15.891773	17.314455	1%			23.222	23.770	100.20%
				Others	1525	0	1525	1%	10.50	0	10.495	1%		1.62	15.891773	17.314455	1%			23.222	23.770	100.20%
<b>Sub-total</b>				<b>250811</b>	<b>0</b>	<b>250811</b>	<b>100%</b>	<b>918.93746</b>	<b>0</b>	<b>918.93746</b>	<b>100%</b>	<b>1762.777</b>	<b>858.1462</b>	<b>642.968583</b>	<b>1501.114919</b>	<b>100%</b>	<b>261.662</b>	<b>15%</b>	<b>1070.4355</b>	<b>1053.70229</b>	<b>98.44%</b>	
7	Durg O&M			Residential	483639	0	483639	74%	240.88	0	240.8766	27%	2409.628	54.79	437.738612	492.527147	25%	319.038	14%	223.577	232.520	104.00%
				Agricultural	120113	0	120113	18%	347.53	0	347.532	39%		708.72	219.813102	928.536371	47%			464.294	465.110	100.20%
				Commercial/Industrial-LT	40593	0	40593	6%	142.5917	0	142.59117	16%		2.55	133.782981	136.336024	7%			115.658	116.803	100.99%
				Commercial/Industrial-HT	272	0	272	0%	152.38855	0	152.38855	17%		391.65	0	391.64589	20%			327.682	329.364	100.51%
				Others	4889	0	4889	1%	14.679	0	14.679	2%		5.71	35.836757	41.544151	2%			35.927	35.440	98.65%
<b>Sub-total</b>				<b>649406</b>	<b>0</b>	<b>649406</b>	<b>100%</b>	<b>898.06732</b>	<b>0</b>	<b>898.06732</b>	<b>100%</b>	<b>2309.628</b>	<b>1163.418</b>	<b>827.171472</b>	<b>1990.589783</b>	<b>100%</b>	<b>319.038</b>	<b>14%</b>	<b>1167.04743</b>	<b>1179.23676</b>	<b>101.04%</b>	
8	Rajnandgaon			Residential	123726	0	123726	77%	167.25	0	167.248	30%	1440.006	5.28	145.722187	350.997727	28%	155.7045	11%	160.781	167.212	104.00%
				Agricultural	62732	0	62732	15%	142.72	0	142.721	26%		225.97	227.269303	448.24425	35%			206.377	206.110	99.87%
				Commercial/Industrial-LT	28993	0	28993	7%	101.17	0	101.165	18%		0.76	87.219531	88.470718	7%			75.714	74.559	98.47%
				Commercial/Industrial-HT	205	0	205	0%	126.0878	0	126.0878	23%		359.69	0	359.694796	28%			257.526	258.244	100.28%
				Others	2928	0	2928	1%	11.26	0	11.264	2%		0.76	26.138568	26.893635	2%			57.424	57.420	99.99%
<b>Sub-total</b>				<b>418584</b>	<b>0</b>	<b>418584</b>	<b>100%</b>	<b>548.4858</b>	<b>0</b>	<b>548.4858</b>	<b>100%</b>	<b>1430.006</b>	<b>592.4605</b>	<b>681.840589</b>	<b>1274.301126</b>	<b>100%</b>	<b>155.7045</b>	<b>11%</b>	<b>757.823066</b>	<b>763.546383</b>	<b>100.76%</b>	
9	Kawardha			Residential	140706	0	140706	76%	43.09	0	43.085	24%	716.0009	37.67	104.762936	132.432616	26%	198.3057	28%	64.676	65.321	101.00%
				Agricultural	140401	0	140401	19%	88.15	0	88.153	49%		791.66	42.06273	333.120887	64%			175.402	175.020	99.78%
				Commercial/Industrial-LT	9090	0	9090	5%	39.63	0	39.627	22%		0.74	36.786423	37.537038	7%			30.387	30.628	100.79%
				Commercial/Industrial-HT	19	0	19	0%	5.70095	0	5.70095	3%		5.85	0	5.852619	1%			6.985	7.101	101.66%
				Others	1295	0	1295	1%	3.81	0	3.812	2%		2.51	6.246235	8.752082	2%			24.036	23.074	96.00%
<b>Sub-total</b>				<b>186011</b>	<b>0</b>	<b>186011</b>	<b>100%</b>	<b>180.37795</b>	<b>0</b>	<b>180.37795</b>	<b>100%</b>	<b>716.0009</b>	<b>327.8369</b>	<b>189.858331</b>	<b>517.695242</b>	<b>100%</b>	<b>198.3057</b>	<b>28%</b>	<b>301.487303</b>	<b>301.146718</b>	<b>99.89%</b>	
10	Jagdalpur			Residential	354336	0	354336	92%	123.93	0	123.93057	30%	986.4198	44.87	206.451104	251.220428	29%	111.3574	11%	117.439	111.296	94.77%
				Agricultural	10584	0	10584	3%	27.24	0	27.239	7%		70.12	14.763574	84.886595	10%			73.867	73.26	



12	Bilaspur City	Residential	111.07	0	111107	82%	198.80	0	198.80265	57%	654.896	315	278.17164	281.318472	50%	86.74827	13%	142.627	143.220	160.42%		
		Agricultural	1074	0	1074	1%	2.91	0	2.91	1%		0.01	8.52719	8.558537	2%		37.123	37.110	99.97%			
		Commercial/Industrial-LT	21576	0	21576	16%	87.53	0	87.52713	25%		0.80	78.716208	79.576577	14%		73.218	78.723	107.52%			
		Commercial/Industrial-HT	117	0	117	0%	51.0359	0	51.0359	15%		154.67	0	154.665057	27%		124.493	123.660	99.33%			
		Others	982	0	982	1%	7.10	0	7.103	2%		2.34	41.693824	44.02904	8%		12.112	12.550	103.62%			
<b>Sub-total</b>			<b>134856</b>	<b>0</b>	<b>134856</b>	<b>100%</b>	<b>347.37868</b>	<b>0</b>	<b>347.37868</b>	<b>100%</b>	<b>654.896</b>	<b>161.0388</b>	<b>407.108899</b>	<b>568.147683</b>	<b>100%</b>	<b>86.74827</b>	<b>13%</b>	<b>389.57308</b>	<b>395.262935</b>	<b>101.46%</b>		
13	Bilaspur	Residential	382700	0	382700	89%	178.87	0	178.86259	32%	2781.487	2.82	399.153891	433.851817	28%	691.9181	30%	221.981	222.350	100.17%		
		Agricultural	48198	0	48198	11%	130.60	0	130.595	24%		180.83	123.031177	603.878176	38%		267.454	267.880	100.16%			
		Commercial/Industrial-LT	24195	0	24195	5%	95.62	0	95.62309	17%		1.92	96.348054	98.264603	6%		82.499	83.198	101.09%			
		Commercial/Industrial-HT	179	0	179	0%	140.12593	0	140.12595	25%		401.55	0	401.553167	25%		273.251	245.660	89.90%			
		Others	2782	0	2782	1%	9.03	0	9.031	2%		1.07	40.946834	42.02091	3%		39.532	39.450	99.79%			
<b>Sub-total</b>			<b>458054</b>	<b>0</b>	<b>458054</b>	<b>100%</b>	<b>554.24433</b>	<b>0</b>	<b>554.24433</b>	<b>100%</b>	<b>2281.487</b>	<b>930.0887</b>	<b>659.47994</b>	<b>1589.568673</b>	<b>100%</b>	<b>691.9181</b>	<b>30%</b>	<b>884.717055</b>	<b>858.737632</b>	<b>97.06%</b>		
14	Korba	Residential	189825	0	189825	89%	124.92	0	124.91665	35%	1216.189	71.37	197.989785	269.356008	29%	291.9139	24%	150.935	149.220	98.86%		
		Agricultural	7008	0	7008	3%	15.33	0	15.329	4%		0.49	47.853631	48.34673	5%		40.956	40.546	99.00%			
		Commercial/Industrial-LT	14255	0	14255	7%	67.12	0	67.11739	19%		2.82	57.323406	60.146224	7%		53.268	52.835	99.19%			
		Commercial/Industrial-HT	74	0	74	0%	147.16543	0	147.16545	41%		528.04	0	528.03964	57%		531.121	531.420	99.68%			
		Others	2528	0	2528	1%	5.12	0	5.123	1%		6.89	11.501763	18.386801	2%		33.445	35.372	105.76%			
<b>Sub-total</b>			<b>213690</b>	<b>0</b>	<b>213690</b>	<b>100%</b>	<b>359.65149</b>	<b>0</b>	<b>359.65149</b>	<b>100%</b>	<b>1216.189</b>	<b>609.6068</b>	<b>314.66859</b>	<b>924.275403</b>	<b>100%</b>	<b>291.9139</b>	<b>24%</b>	<b>811.724936</b>	<b>809.92856</b>	<b>99.71%</b>		
15	Raigarh	Residential	255564	0	255564	79%	189.68	0	189.67896	26%	2148.546	5.26	298.947079	304.205427	17%	594.3629	25%	159.735	160.440	100.44%		
		Agricultural	43235	0	43235	13%	143.86	0	143.861	19%		0.12	473.40881	473.52904	27%		205.047	204.110	99.54%			
		Commercial/Industrial-LT	19353	0	19353	6%	93.81	0	93.80586	13%		0.87	83.955448	84.821862	5%		75.572	76.741	101.55%			
		Commercial/Industrial-HT	92	0	92	0%	297.1422	0	297.0422	40%		828.15	0	828.149778	47%		573.716	572.965	99.87%			
		Others	6711	0	6711	2%	16.36	0	16.362	2%		0.58	62.900528	63.427239	4%		55.360	55.560	100.36%			
<b>Sub-total</b>			<b>324955</b>	<b>0</b>	<b>324955</b>	<b>100%</b>	<b>740.75002</b>	<b>0</b>	<b>740.75002</b>	<b>100%</b>	<b>2348.546</b>	<b>834.9715</b>	<b>919.211845</b>	<b>1754.183446</b>	<b>100%</b>	<b>594.3629</b>	<b>25%</b>	<b>1069.42968</b>	<b>1069.81588</b>	<b>100.04%</b>		
16	Janjgir	Residential	286028	0	286028	85%	174.25	0	174.25	38%	1588.61	8.91	354.359174	363.266584	31%	400.8513	25%	177.969	177.660	99.83%		
		Agricultural	25448	0	25448	8%	62.19	0	62.191	14%		18.88	250.282575	269.166765	23%		132.880	133.550	100.50%			
		Commercial/Industrial-LT	22000	0	22000	7%	92.32	0	92.323	20%		0.69	92.509496	93.200315	8%		77.416	77.418	100.00%			
		Commercial/Industrial-HT	190	0	190	0%	122.20135	0	122.20135	27%		416.48	0	416.477057	35%		293.112	290.440	99.09%			
		Others	2710	0	2710	1%	6.54	0	6.541	1%		1.93	43.717741	45.647747	4%		36.952	36.950	99.99%			
<b>Sub-total</b>			<b>336376</b>	<b>0</b>	<b>336376</b>	<b>100%</b>	<b>457.50635</b>	<b>0</b>	<b>457.50635</b>	<b>100%</b>	<b>1588.61</b>	<b>446.8895</b>	<b>740.868926</b>	<b>1187.758468</b>	<b>100%</b>	<b>400.8513</b>	<b>25%</b>	<b>718.32934</b>	<b>716.018143</b>	<b>99.68%</b>		
17	Ambikapur	Residential	442745	0	442745	90%	144.83	0	144.83308	44%	1291.219	72.55	379.733643	452.284063	54%	459.5967	36%	239.747	239.440	99.87%		
		Agricultural	25078	0	25078	5%	51.15	0	51.147	15%		9.78	126.706817	124.486348	27%		127.577	126.301	99.00%			
		Commercial/Industrial-LT	21714	0	21714	4%	99.44	0	99.43994	30%		3.70	83.985479	87.681846	11%		76.935	75.571	98.23%			
		Commercial/Industrial-HT	79	0	79	0%	10.10265	0	10.10265	9%		56.92	0	56.96433	7%		60.673	56.726	93.48%			
		Others	787	0	787	0%	4.77	0	4.769	1%		1.92	8.277668	10.200977	1%		4.519	4.560	100.91%			
<b>Sub-total</b>			<b>490403</b>	<b>0</b>	<b>490403</b>	<b>100%</b>	<b>330.29167</b>	<b>0</b>	<b>330.29167</b>	<b>100%</b>	<b>1291.219</b>	<b>232.919</b>	<b>598.703627</b>	<b>831.622667</b>	<b>100%</b>	<b>459.5967</b>	<b>36%</b>	<b>509.4509</b>	<b>502.592036</b>	<b>98.65%</b>		
18	Balkurthpur	Residential	210737	0	210737	87%	70.80	0	70.79878	24%	1169.472	55.17	142.599709	197.770386	25%	369.5383	32%	102.373	104.550	102.13%		
		Agricultural	16878	0	16878	7%	36.64	0	36.642	13%		25.35	110.83137	136.182981	17%		98.013	98.770	100.77%			
		Commercial/Industrial-LT	13079	0	13079	5%	45.68	0	45.68112	16%		3.16	37.823862	40.979552	5%		36.291	35.460	97.71%			
		Commercial/Industrial-HT	99	0	99	0%	136.86555	0	136.86555	47%		416.83	0	416.832892	52%		397.935	391.220	98.31%			
		Others	503	0	503	0%	2.42	0	2.418	1%		4.02	4.151959	8.168225	1%		15.440	15.880	102.85%			
<b>Sub-total</b>			<b>241296</b>	<b>0</b>	<b>241296</b>	<b>100%</b>	<b>292.40545</b>	<b>0</b>	<b>292.40545</b>	<b>100%</b>	<b>1169.472</b>	<b>504.5271</b>	<b>295.4069</b>	<b>799.934036</b>	<b>100%</b>	<b>369.5383</b>	<b>32%</b>	<b>650.051514</b>	<b>645.879799</b>	<b>99.36%</b>		
19		Residential	0	0	0	0%	0	0	0	0%	0	0	0	0	0%	0	0%	0	0	0.00%		
		Agricultural	0	0	0	0%	0	0	0	0%		0	0	0	0		0%	0	0%	0	0	0.00%
		Commercial/Industrial-LT	0	0	0	0%	0	0	0	0%		0	0	0	0		0%	0	0%	0	0	0.00%
		Commercial/Industrial-HT	0	0	0	0%	0	0	0	0%		0	0	0	0		0%	0	0%	0	0	0.00%
		Others	0	0	0	0%	0	0	0	0%		0	0	0	0		0%	0	0%	0	0	0.00%
<b>Sub-total</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>100%</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>100%</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>100%</b>	<b>0</b>	<b>0%</b>	<b>0</b>	<b>0</b>	<b>0.00%</b>		
20		Residential	0	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	0	0%	0	0%	0	0	0.00%		
		Agricultural	0	0	0	#DIV/0!	0	0	0	#DIV/0!		0	0	0	0		0%	0	0%	0	0	0.00%
		Commercial/Industrial-LT	0	0	0	#DIV/0!	0	0	0	#DIV/0!		0	0	0	0		0%	0	0%	0	0	0.00%
		Commercial/Industrial-HT	0	0	0	#DIV/0!	0	0	0	#DIV/0!		0	0	0	0		0%	0	0%	0	0	0.00%
		Others	0	0	0	#DIV/0!	0	0	0	#DIV/0!		0	0	0	0		0%	0	0%	0	0	0.00%
<b>Sub-total</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>100%</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>100%</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>100%</b>	<b>0</b>	<b>0%</b>	<b>0</b>	<b>0</b>	<b>0.00%</b>		
21		Residential	0	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	0	0%	0	0%	0	0	0.00%		
		Agricultural	0	0	0	#DIV/0!	0	0	0	#DIV/0!		0	0	0	0		0%	0	0%	0	0	0.00%
		Commercial/Industrial-LT	0	0	0	#DIV/0!	0	0	0	#DIV/0!		0	0	0	0		0%	0	0%	0	0	0.00%
		Commercial/Industrial-HT	0	0	0	#DIV/0!	0	0	0	#DIV/0!		0	0	0	0		0%	0	0%	0	0	0.00%
		Others	0	0	0	#DIV/0!	0	0	0	#DIV/0!		0	0	0	0		0%	0	0%	0	0	0.00%
<b>Sub-total</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>100%</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>100%</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>100%</b>	<b>0</b>	<b>0%</b>	<b>0</b>	<b>0</b>	<b>0.00%</b>		
22		Residential	0	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	0	0%	0	0%	0	0	0.00%		
		Agricultural	0	0	0	#DIV/0!	0	0	0	#DIV/0!		0	0	0	0		0%	0	0%	0	0	0.00%
		Commercial/Industrial-LT	0	0	0	#DIV/0!	0	0	0	#DIV/0!		0	0	0	0		0%	0	0%	0	0	0.00%
		Commercial/Industrial-HT	0	0	0	#DIV/0!	0	0	0	#DIV/0!		0										

75			Residential	0	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0.00%		
			Agricultural	0	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0.00%		
Sub-total			0	0	0	100%	0	0	0	100%	0	0	0	100%	0	0%	0	0.00%		
76	Total	Residential	4933638	0	4933638	82%	3325.5556	0	3325.5556	33%	535.4841	5733.426896	6268.911036	25%	3075.11502	3098.36478	100.76%			
		Agricultural	618498	0	618498	10%	1573.5725	0	1573.57249	16%	3503.599	2460.87922	5964.47782	24%	2827.99991	2818.57707	99.67%			
		Commercial/Industrial-LT	428982	0	428982	7%	1853.2098	0	1853.20981	18%	31.06442	1707.879935	1738.944354	7%	1498.8389	1515.18324	101.09%			
		Commercial/Industrial-HT	3356	0	3356	0%	3223.8241	0	3223.82405	32%	10812.04	0	10812.04436	43%	7927.5217	7930.16994	100.03%			
		Others	42677	0	42677	1%	155.96995	0	155.96995	2%	44.00858	429.7309755	473.7395585	2%	505.819829	510.382374	100.90%			
77	At company level		6027151	0	6027151	100%	10132.132	0	10132.13191	100%	30732.64	14926.2	10331.91703	25258.11713	100%	5474.522	18%	15835.2954	15872.6774	100.24%

\*\* Note - It shall be mandatory to record the energy supplied separately for each category of consumers which is being provided a separate rate of subsidy in the tariff, by the state government, so that the subsidy due for the electricity distribution company is quarterly calculated by multiplying the energy supplied to each of such category of consumers by the applicable rate of subsidy notified by the state government.

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

I/We undertake that the information supplied in this Document and Pro-forma is accurate to the best of my knowledge and if any of the information supplied is found to be incorrect and such information result into loss to the Central Government or State Government or any of the authority under them or any other person affected, I/we undertake to indemnify such loss.

Authorised Signatory and Seal

Name of Authorised Signatory:

*Signature*

Name of the DISCOM:

Full Address:-

**CHIEF ENGINEER (Revenue)  
C.S.P.D.C.L., RAIPUR**

Seal

Signature:-

Name of Energy Manager:

Registration Number:

*Signature*  
**Aashish Babin**  
**EA-19874**



Input Energy Details with Sources of Input Energy for FY 2021-22

Form-Input energy(Details of input energy & Infrastructure)			
A. Summary of energy input & Infrastructure			
S.No	Parameters	Period From Apr _2021 To Mar_2022	
A.1	Input Energy purchased (MU)		
A.2	Transmission loss (%)		
A.3	Transmission loss (MU)	37950.81	
A.4	Energy sold outside the periphery(MU)	78	
A.5	Open access sale (MU)	1255.830254	
A.6	Self sale	5962.27	
A.7	Net input energy (received at DISCOM periphery or at distribution point) (MU)	0	
A.8	% 100% metering available at 66/33 kV (Select yes or no from list)	100%	
A.9	% 100% metering available at 11 kV (Select yes or no from list)	30733.36	
A.10	% of metering available at DT	66	
A.11	% of metering available at consumer end	86	
A.12	% of feeders at 66kV voltage level	100%	
A.13	% of feeders at 33kV voltage level	100%	
A.14	% of feeders at 11kV voltage level	NA	
A.15	% of LT feeders level	78	
A.16	Line length (KM) at 66kV voltage level	524113.881	
A.17	Line length (KM) at 33kV voltage level	0	
A.18	Line length (KM) at 11kV voltage level	0	
A.19	Line length (km) at LT level	20771	
A.20	Length of Aerial Bunched Cables	120488	
A.21	Length of Underground Cables	217154	
A.22	Ratio	89166	
		678	
		1	

*Handwritten signature*

Details of Input Energy Sources								
Period From Jan_22 To Mar_22								
A. Generation at Transmission Periphery (Details)								
S.No.	Name of Generation Station	Generation Capacity (In MW)	Type of Station Generation (Based- Solid ( Coal ,Lignite)/Liquid/Gas/Renewable ( biomass-bagasse)/Others)	Type of Contract (in years/months/days)	Type of Grid (Intra-state/Inter-state)	Point of Connection (POC) Loss MU	Voltage Level ( At input)	Remarks (Source of data)
1	KTPS, Korba(East)		Coal	Long Term	Intrastate		400/220 KV	
2	HTPS, Korba(West)		Coal	Long Term	Intrastate		400/220 KV	
3	DSPM, Korba(East)		Coal	Long Term	Intrastate		400/220 KV	
4	Korba (W) Ext.		Coal	Long Term	Intrastate		400/220 KV	
5	ABVTPS		Coal	Long Term	Intrastate		400/220 KV	
6	Hasdeo Bango		Coal	Long Term	Intrastate		400/220 KV	
7	Gangrel		Coal	Long Term	Intrastate		400/220 KV	
8	Sikasar		Coal	Long Term	Intrastate		400/220 KV	
9	Small Hydro Plant KW		Coal	Long Term	Intrastate		400/220 KV	
10	Co-Gen, Kawardha		Coal	Long Term	Intrastate		400/220 KV	
11	NTPC (National Thermal Power Corporatic		Coal	Long Term	Intrastate		400/220 KV	
12	NPCIL (Nuclear Power Corporation of India		Coal	Long Term	Intrastate		400/220 KV	
13	NSPCL (NTPC-SAIL Power Company Limi		Coal	Long Term	Intrastate		400/220 KV	
14	OHPL (Odisha Hydro Power Corporation		Coal	Long Term	Intrastate		400/220 KV	
15	NHPCL (National Hydroelectric Power Cor		Coal	Long Term	Intrastate		400/220 KV	
16	NEEPCO (North Eastern Electric Power Co		Coal	Long Term	Intrastate		400/220 KV	
17	NVVNL Bundled Thermal Power (25 MW)		Coal	Long Term	Intrastate		400/220 KV	
18	Short Term (DEEP Portal)			Short term	Intrastate		400/220 KV	
19	IEX (Purchase)			Short term	Intrastate		400/220 KV	
20	Biomass Power		Renewable	Long Term	Intrastate		132/33 KV	
21	Solar Power (Private Generators)		Renewable	Long Term	Intrastate		132/33 KV	
22	Small Hydel Power (Private Generators)		Renewable	Long Term	Intrastate		132/33 KV	
23	M/s Madhya Bharat Power Coporation Ltd., Sik		Renewable	Long Term	Intrastate		132/33 KV	
24	Solar Energy Corporation of India (70MW)		Renewable	Long Term	Intrastate		132/33 KV	
25	NVVNL Bundel Solar Power (25 MW)		Renewable	Long Term	Intrastate		132/33 KV	
26	Solar Energy Corporation of India (250 MW) (M		Renewable	Long Term	Intrastate		132/33 KV	
27	Unscheduled Power		Renewable	Short term	Intrastate		132/33 KV	
28	Border Village		Renewable	Short term	Intrastate		132/33 KV	
29	UI Inter-state(over Drawl)		Renewable	Short term	Intrastate		132/33 KV	
30	UI intra-state(over Drawl)		Renewable	Short term	Intrastate		132/33 KV	
31	UI (CSPGCL)(over Drawl)		Renewable	Short term	Intrastate		132/33 KV	
32	UI (Open Access)(over Drawl)		Renewable	Short term	Intrastate		132/33 KV	
33	Banking import		Renewable	Short term	Intrastate		132/33 KV	
34	C S Power Generation Co. Ltd			Long Term	Intrastate		132/33 KV	
35	M/s MVK Industries Pvt. Ltd., Bilaspur (previous		Biomass	Long Term	Intrastate		132/33 KV	

Bishnoi

36	M/s ISA Power Pvt. Ltd., Dhamtari	Biomass	Long Term	Intrastate		132/33 KV	
37	M/s Ecofren Power Project Ltd., Durg	Biomass	Long Term	Intrastate		132/33 KV	
38	M/s Agrawal Vidyut Ltd., Raipur	Biomass	Long Term	Intrastate		132/33 KV	
39	M/s Sudha Bio Power Pvt. Ltd., Bilaspur	Biomass	Long Term	Intrastate		132/33 KV	
40	M/s Neeraj Power Pvt. Ltd., Raipur	Biomass	Long Term	Intrastate		132/33 KV	
41	M/s Seeta Energen Pvt. Ltd., Bilaspur (previous	Biomass	Long Term	Intrastate		132/33 KV	
42	M/s Rukmani Power & Steel Ltd., Kharsia, Raipur	Biomass	Long Term	Intrastate		132/33 KV	
43	M/s B K Infrastructure Pvt. Ltd., Mahasamund	Biomass	Long Term	Intrastate		132/33 KV	
44	M/s Baija Power, Mahasamund	Biomass	Long Term	Intrastate		132/33 KV	
45	M/s Mahendra Power Pvt. Ltd., Janjgir-Champa	Biomass	Long Term	Intrastate		132/33 KV	
46	M/s Animesh Ispat Pvt. Ltd., Balodabazar	Biomass	Long Term	Intrastate		132/33 KV	
47	M/s Mahaveer Energy & Coal Benefication Pvt.	Biomass	Long Term	Intrastate		132/33 KV	
48	M/s Snyam Warehousing & Power Pvt. Ltd., Ja	Biomass	Long Term	Intrastate		132/33 KV	
49	M/s Indra Powergen Pvt. Ltd., Sarguja	Biomass	Long Term	Intrastate		132/33 KV	
50	M/s Shikhar Commodities, Bilasour (previously	Biomass	Long Term	Intrastate		132/33 KV	
51	M/s Shanti GD Ispat & Power Pvt. Ltd., Champ	Biomass	Long Term	Intrastate		132/33 KV	
52	M/s Smt Vishnu Power & Energy Ltd., Rajnand	Biomass	Long Term	Intrastate		132/33 KV	
53	M/s RR Energy Pvt. Ltd., Raigarh	Biomass	Long Term	Intrastate		132/33 KV	
54	M/s Lakh Purus Sardar Vallabh Bhai Patel Sak	Biomass	Long Term	Intrastate		132/33 KV	
55	Co-Generation, Kawardha (CSPGCL)	Biomass	Long Term	Intrastate		132/33 KV	
56	M/s Savitri Power Projects Pvt. Ltd., Dhamtari	Hydel	Long Term	Intrastate		132/33 KV	
57	M/s Jatashankari Hydro Power Pvt. Ltd. (Previd	Hydel	Long Term	Intrastate		132/33 KV	
58	M/s Chhattisgarh Hydro Power LLP, Gullu, Jas	Hydel	Long Term	Intrastate		132/33 KV	
59	M/s Venika Hydro Projects Pvt. Ltd., surajpur	Hydel	Long Term	Intrastate		132/33 KV	
60	SHP Gangrel (CSPGCL)	Hydel	Long Term	Intrastate		132/33 KV	
61	SHP Sikasar (CSPGCL)	Hydel	Long Term	Intrastate		132/33 KV	
62	SHP Korba (W) (CSPGCL)	Hydel	Long Term	Intrastate		132/33 KV	
63	M/s Madhya Bharat Power Coporation Ltd., Sik	Hydel	Long Term	Intrastate		132/33 KV	
64	M/s Chhattisgarh Investments Ltd., Kharora, Ra	Solar	Long Term	Intrastate		132/33 KV	
65	M/s Singhal Forestry Pvt. Ltd., Saraipali	Solar	Long Term	Intrastate		132/33 KV	
66	M/s Sarthak Energy Pvt. Ltd., Bhalai	Solar	Long Term	Intrastate		132/33 KV	
67	M/s Orchestrate System Pvt. Ltd., Tilga, Raipur	Solar	Long Term	Intrastate		132/33 KV	
68	M/s Azure Power India Pvt. Ltd. (Project-I)	Solar	Long Term	Intrastate		132/33 KV	
69	M/s Azure Power India Pvt. Ltd. (Project-II)	Solar	Long Term	Intrastate		132/33 KV	
70	M/s Azure Power India Pvt. Ltd. (Project-III)	Solar	Long Term	Intrastate		132/33 KV	
71	M/s ACME Raipur Solar Power Pvt. Ltd., Maha	Solar	Long Term	Intrastate		132/33 KV	
72	M/s Vipul Vidhyut Pvt. Ltd., Mahasamund Proje	Solar	Long Term	Intrastate		132/33 KV	
73	M/s Vipul Vidhyut Pvt. Ltd., Mahasamund Proje	Solar	Long Term	Intrastate		132/33 KV	
74	Solar Energy Corporation of India (100 MW) (M	Solar	Long Term	Intrastate		132/33 KV	
75	NVVNL(Bundel Power) solar (25 MW)	Solar	Long Term	Intrastate		132/33 KV	
76	Solar Energy Corporation of India (70 MW)	Solar	Long Term	Intrastate		132/33 KV	
77	Solar Energy Corporation of India (250 MW) (M	Solar	Long Term	Intrastate		132/33 KV	
78	NVVNL(Bundel Power) coal (25 MW)	Coal	Long Term	Interstate		132/33 KV	
79	M/s ACB (India) Ltd. (270 MW)	Coal	Long Term	Intrastate		132/33 KV	



Form-input energy(Details of Input energy & Infrastructure)		
A. Summary of energy input & Infrastructure		
S.No	Parameters	Period From Apr 2021 To Mar 2022
A.1	Input Energy purchased (MU)	17950.81
A.2	Transmission loss (%)	1%
A.3	Transmission loss (MU)	1255.830254
A.4	Energy sold outside the periphery(MU)	5962.27
A.5	Open access sale (MU)	0
A.6	11kV sale	1791.72
A.7	Net input energy (received at DISCOM periphery or at distribution point) (MU)	30733.36
A.8	% 100% metering available at 66/33 kV (Select yes or no from list)	100%
A.9	% 100% metering available at 11 kV (Select yes or no from list)	100%
A.10	% of metering available at DI	100%
A.11	% of metering available at consumer end	100%
A.12	No. of feeders at 66kV voltage level	NA
A.13	No. of feeders at 33kV voltage level	738
A.14	No. of feeders at 11kV voltage level	524311 kV
A.15	No. of LT feeders level	0
A.16	line length (kM) at 66kV voltage level	0
A.17	line length (kM) at 33kV voltage level	2677.9
A.18	line length (kM) at 11kV voltage level	125346
A.19	line length (km) at LT level	217174
A.20	length of Aerial Bunched Cables	49106
A.21	length of Underground Cables	408
A.22	U/G ratio	1

*Handwritten signature*

