

Final Report

Annual Energy Audit Report (FY 2022-2023)

December 2023



Chamundeshwari Electricity Supply Corporation Limited
Mysuru

Prepared by



Enzen Global Solutions Pvt Ltd,
Madiwala, Bangalore, Karnataka

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AEA-175

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ACKNOWLEDGEMENT

We, **ENZEN Global Solutions Pvt Ltd** would like to thank all the members of the CESC Mysuru who are all supported the Energy audit team to conduct the annual Energy Audit for the financial year 2022-2023 successfully as per BEE regulations.

Name	Designation
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Sri Umesh Chandra	Director (Tech)
Sri Shaik Mohammed Mahimulla	Chief Financial Officer
Sri. Lokesh	General Manager (Tech)
Smt. Sujatha M.K.	Deputy General Manager(Coml)
Sri Basavaraju	Assistant General Manager(Revenue)
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EXECUTIVE SUMMARY

The performance of CESC Mysore improved when compared with the previous financial years. The percentage Distribution loss reduced from 10.4% in the FY 2021-22 to 9.13% in the energy audit FY 2022-23. This has happened due to various steps taken to implement energy conservation measures.

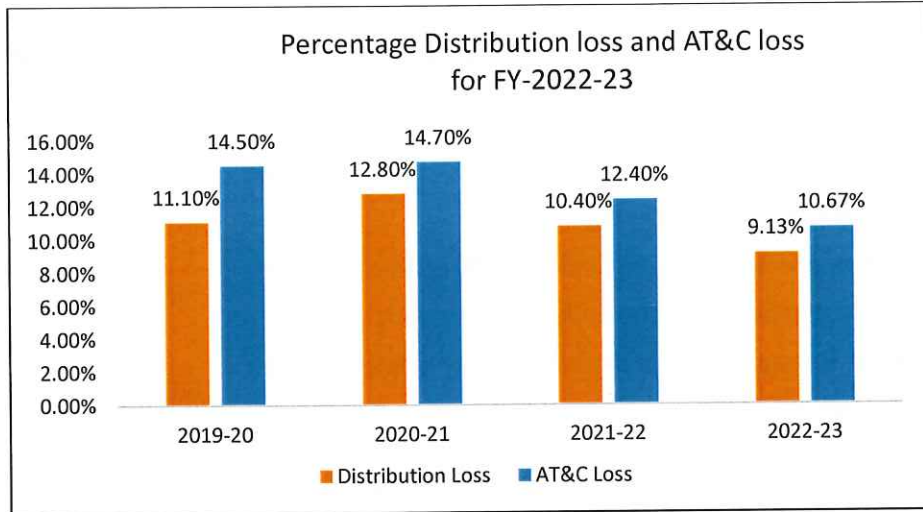


Figure 1 percentage T&D loss and AT&C loss

Similarly, the AT&C losses reduced from 12.4% in the FY 2021-22 to 10.67% in the energy audit FY 2022-23. This is quite encouraging because for the same period the collection efficiency also improved. The following graph depicts the fact how collection efficiency is improved.

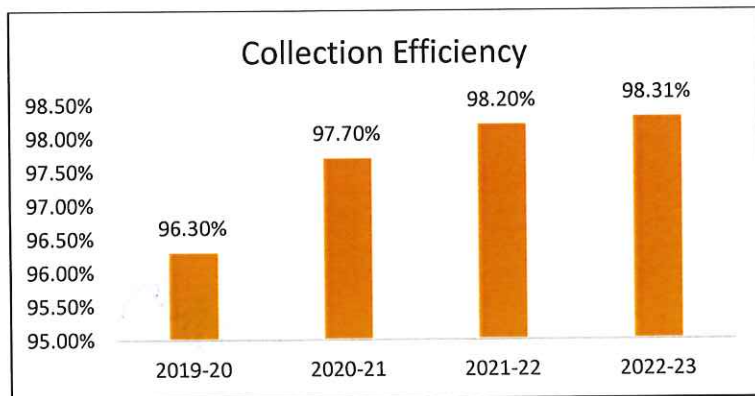


Figure 2 Collection Efficiency

1.1 Energy Performance of CESC for the FY 2022-23

The performance summary of the CESC Mysore is summarised on the following table.

Table 1 Performance Summary of CESC for the FY 2022-23

Period of Information Year of (FY) information including Date and Month (Start & End)		From 01-April-2022 to 31-March-2023
(a)	Energy Input Details	
(i)	Input Energy Purchase (From Generation Source)	7537.27 Million kwh
(ii)	Net input energy (at DISCOM Periphery after adjusting the transmission losses and energy traded)	7282.06 Million kwh
(iii)	Total Energy billed (is the Net energy billed, adjusted for energy traded))	6616.88 Million kwh
(b)	Transmission and Distribution (T&D) loss Details	665.18 Million kwh
	Collection Efficiency	9%
		98%
(c)	Aggregate Technical & Commercial Loss	11%

The percentage of total sale of energy decreased when compared to the previous financial year by 2%.

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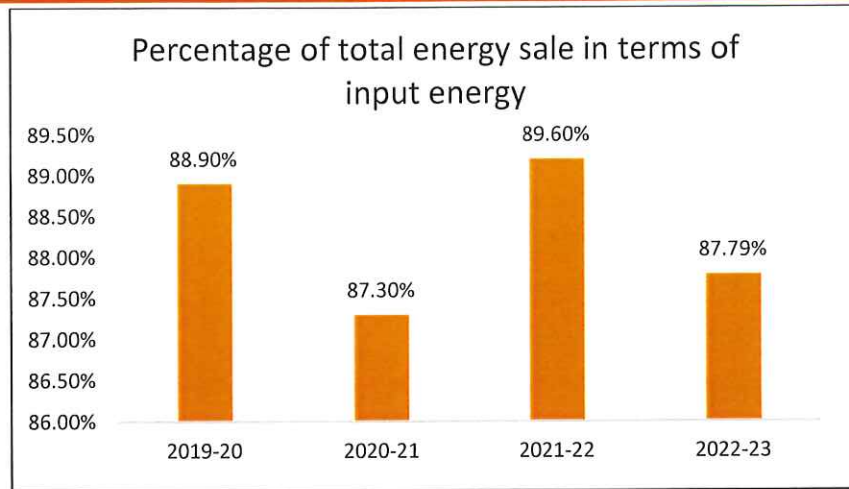


Figure 3 Percentage of total energy sale

1.2 Details about the Input Energy of CESC for the FY 2022-23

The CESC Mysore purchased 7537.3 MU of energy for 3703855 consumers in the FY 2022-23. In this, 100% metering is available at both 66/33kV and 11kV voltage levels. Around 657.62 MU of electricity was consumed by EHT users and 14.3 MU of energy was consumed by the open access consumers. The details of input energy of CESC Mysore for the FY 2022-23 is summarised in Table 2.

Table 2 Details of input energy of CESC for the FY 2022-23

Input Energy related parameters for Period From 01-April -2022 to 31-March-2023	
Input Energy purchased (MU)	7537.3
Energy sold outside the periphery(MU)	9.44
Open access sale (MU)	14.30
EHT sale	657.62
Net input energy (received at DISCOM periphery or at distribution point)-(MU)	7282.1
Is 100% metering available at 66/33 kV	Yes
Is 100% metering available at 11 kV	Yes

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No of feeders at 66kV voltage level	0
No of feeders at 33kV voltage level	1
No of feeders at 11kV voltage level	2265
No of LT feeders level	0
Line length (ckt. km) at 66kV voltage level	0
Line length (ckt. km) at 33kV voltage level	4.5
Line length (ckt. km) at 11kV voltage level	207385.5
Line length (km) at LT level	374278.4
Length of Aerial Bunched Cables	3980.4
Length of Underground Cables	328.4
HT/LT ratio	1:1.4

1.3 Energy consumption balance of CESC for the FY 2022-23

The Energy consumption balance of the FY 2022-23 is given in Table-3.

Table 3 CESC's energy accounts for the year 2022-23

Summary of Energy				
From 01-April-2022 to 31-March-2023				
S.N	Type of Consumers	Category of Consumers (EHT/HT/LT/Others)	No of Consumers	Total Consumption (In MU)
1	Domestic	LT-1, LT2A	2724220	1217.11
2	Commercial	LT-3	299144	366.54
3	IP Sets	LT-4 A & B	468644	2750.13
4	Hor. & Nur. & Coffee/Tea & Rubber (Metered)	LT4C	11706	21.73
5	Heating and Motive Power	LT-5	50627	177.35
6	Water Supply	LT-6A	32419	269.75
7	Public Lighting	LT-6B	27880	99.45
8	HT Water Supply	HT-1	201	513.87
9	HT Industrial	HT-2A	1347	899.41
10	HT Commercial	HT2B	931	134.55

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11	Applicable to Government Hospitals & Hospitals	HT2C	380	62.54
12	Lift Irrigation Schemes/Lift Irrigation Societies	HT-3	138	57.52
13	HT Res. Apartments Applicable to all areas	HT-4	51	4.03
14	Others-1 (if any , specify in remarks)	LT-2B, LT-7, HT-5 & AUXILIARY	86167	42.91
Totals			3703855	6616.88

The sector wise energy share for the year 2022-23 is shown in Fig 4:

Sector wise percentage energy share FY 2022-23

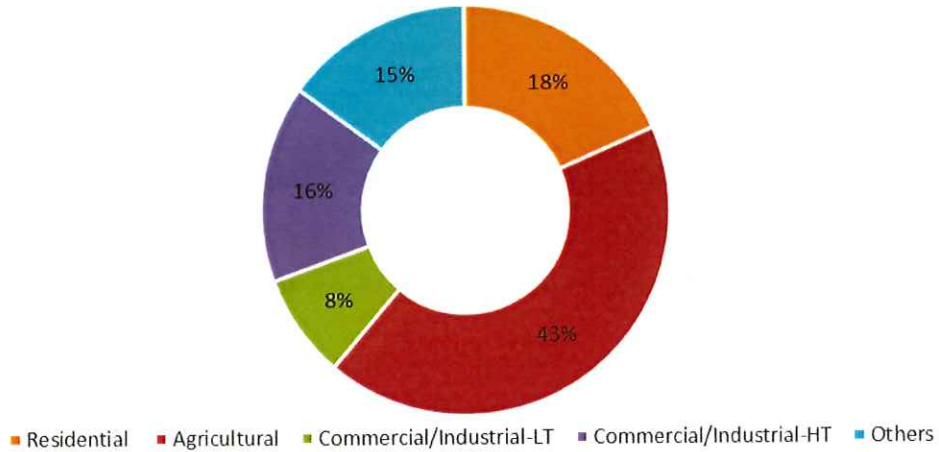


Figure 4 Sector wise percentage energy share

The agricultural sector is the largest consumer of energy, at 43%. The residential sector is the second largest consumer, at 18%. The commercial/industrial-HT sector is the third largest consumer, at 16%. The commercial/industrial-LT sector is the fourth largest consumer, at 8%.

From the graph it is very clear that 43% of the energy is sold to agricultural sector which contributes the major portion. To increase the efficiency of CESC these unmetered agricultural sector to be metered to increase the energy accountability of CESC.

The metered energy sales improved from 55.8% to 59% when compared the previous FY.

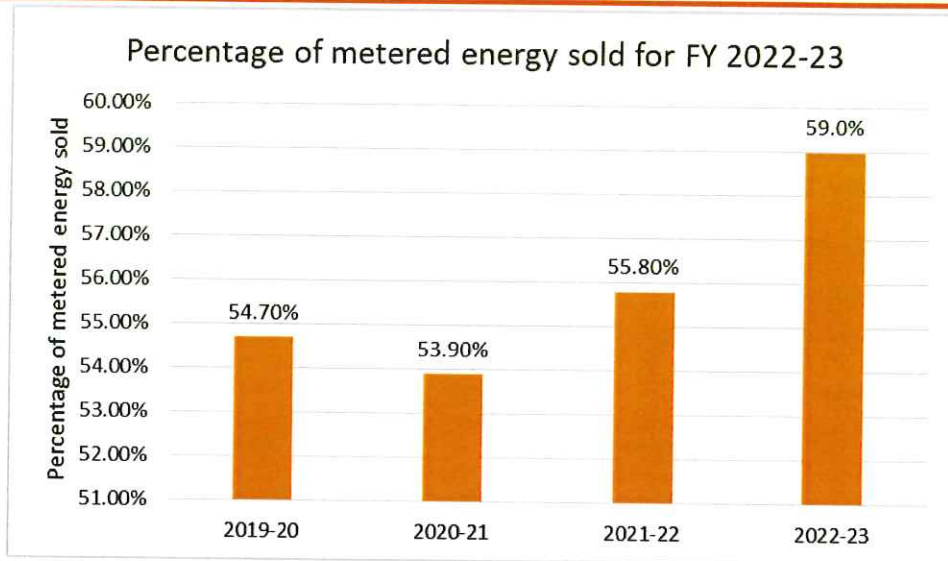


Figure 5 Percentage of metered energy sold

The percentage of metered energy sold in the CESC fluctuated between 2019 and 2023. It decreased from 54.70% in 2019-20 to 53.90% in 2020-21, but then increased to 55.80% in 2021-22 and 59.00% in 2022-23. Overall, the trend in metered energy sold has been positive in recent years.

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SUMMARY OF CRITICAL ANALYSIS BY ENERGY AUDITOR AND MANAGEMENT ANALYSIS

1.1 Energy Accounts and Performance of FY 2022-23

The performance summary of the CESC Mysore is summarised on the following table.

Table 4 Performance summary

Performance Summary of Electricity Distribution Company		
(a)	Energy Input Details	
(i)	Input Energy Purchase (From Generation Source)	7537.27 Million kWh
(ii)	Net input energy (at DISCOM Periphery after adjusting the transmission losses and energy traded)	7282.06 Million kWh
(iii)	Total Energy billed (is the Net energy billed, adjusted for energy traded))	6616.88 Million kWh
(b)	Transmission and Distribution (T&D) loss	665.18 Million kWh
	Details	9.1%
	Collection Efficiency	98.3%
(c)	Aggregate Technical & Commercial Loss	10.7%

1.2 Division Wise Performance

Table 5 Division Wise performance summary

Description	Data
Distribution loss	9%
Distribution loss Range	4-15%
Division With highest Distribution loss	Madekeri
Division With lowest Distribution loss	V V Mohalla
Collection Efficiency	98.31%

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Collection Efficiency Range	93-102%
AT & C loss (%)	12.0%
AT & C loss Range	2.0-18.0%
Division With highest AT&C loss	Kollegala
Division With lowest AT&C loss	V.V Mohalla

1.3 Compliance to BEE regulations

The periodic energy accounting for Q1, Q2, Q3 and Q4 have been prepared and submitted to BEE and SDA for the financial year 2022-2023. The energy accounts and details have been posted on the website of CESC Mysore. CESC also constructed an Energy Audit Cell as per the BEE regulations.

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BACKGROUND

1.4 Extant Regulation and Role of BEE

The regulations namely, the Bureau of Energy Efficiency (Manner and Intervals for Conduct of Energy Audit in Electricity Distribution Companies) Regulations, 2021, were published vide notification No.18/1/BEE/DISCOM/2021, dated the 15th April, 2021 in the Gazette of India. This regulation has been issued under the ambit of Energy Conservation Act, 2001, with an overall objective to involve distribution sector in improving energy efficiency and reducing distribution losses thereby moving towards economic viability of DISCOMs.

BEE has certified a pool of National Accredited Energy Auditors and Energy Managers who possess expertise in preparing energy accounting and audit reports, duly providing recommendations for loss reduction and other technical measures. The aforesaid regulations were pre-published in April 2021 for seeking public comments and thereafter Ministry of Power held detailed discussions with various stakeholders before finally issuing these regulations.

In September 2020, through a separate notification, all the Electricity Distribution Companies were notified as Designated Consumers (DCs) under the EC Act. Owing to the potential benefits of energy auditing on the entire distribution system and retail supply business, it was imperative to develop a set of comprehensive guidelines and framework such that all Distribution utilities across India can adhere to and formulate actions.

1.5 Purpose of Annual Energy Audit

Power Ministry mandates energy accounting of DISCOMs with a view to reduce electricity losses. As an important step under the ongoing power sector reforms, Ministry of Power today mandated electricity distribution companies to undertake annual energy audit. The regulation in this regard was issued by Bureau of Energy Efficiency (BEE) with the approval of Ministry of Power, under the provisions of Energy Conservation (EC) Act, 2001. The notification stipulates annual energy audit by an independent Accredited Energy Auditor. This report will be published in the public domain. Annual Energy Audit

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report will provide detailed information about electricity consumption by different categories of consumers & the transmission and distribution losses in various areas. It will identify areas of high losses and theft and enable corrective action. This measure will also enable fixation of responsibility on officers for losses and theft. The data will enable the DISCOMS to take appropriate measure for reducing their electricity losses. The DISCOMS will be able to plan for suitable infrastructure up-gradation as well as demand side management (DSM) efforts in an effective manner.

Annual Energy Auditing prescribes accounting of all energy inflows at various voltage levels in the distribution periphery of the network, including renewable energy generation and open access consumers, as well as energy consumption by the end consumers. Energy accounting on periodic basis and subsequent annual energy audit, would help to identify areas of high loss and pilferage, and thereafter focused efforts to take corrective action. The Regulations issued today provides much awaited broad framework for Electricity Distribution Companies to carry out Annual Energy Audit with necessary Pre-requisites and reporting requirements to be fulfilled.

Objectives to be achieved through annual energy audit are:

- Development of a comprehensive energy accounting system to quantify and determine actual losses in the power distribution system.
- Identify areas of leakage, theft, wastage or inefficient use, thereby paving the way for tackling the present challenges of high Transmission and Distribution (T&D) losses.
- Enable and ensure an independent 3rd party energy audit of the distribution system to arrive at a true and fair picture of T&D losses.
- To enable the Distribution utilities to undertake targeted efficiency improvement activities to reduce T&D losses in priority areas / customer segments.
- Providing a basis for prioritizing energy capital investments.
- Identification of overloaded segments of the network for necessary capacity additions.



1.6 Period of Annual Energy Auditing in DISCOM

It is mandatory to conduct an annual energy audit for every financial year and submitted the annual energy audit report to the Bureau and respective State Designated Agency and also make it available on the website of the electricity distribution company within a period of four months from the expiry of the relevant financial year.

Intervals of time for conduct of annual energy audit:

Every electricity distribution company shall conduct an annual energy audit for every financial year and submit the annual energy audit report to the Bureau and respective State Designated Agency and also make it available on the website of the electricity distribution company within a period of four months from the expiry of the relevant financial year.

Provided that on the commencement of these regulations, the first annual energy audit of every electricity distribution company shall be conducted within six months from the date of such commencement, by taking into account the energy accounting of electricity distribution company for the financial year immediately preceding the date of the commencement of these regulations.

INTRODUCTION - CESC MYSURU

1.7 CESC at a glance

Chamundeshwari Electricity Supply Corporation Limited (CESC) with its Headquarters at Mysore is a Company incorporated under the Company's Act - 1956 vide GO No. EN 98 PSR 2004 Bangalore dated 19th Aug 2004 duly bifurcating MESCOM in respect of retail supply of electric power for five districts in the State of Karnataka, viz., Mysore, Mandya, Chamarajanagar, Kodagu and Hassan. Madikeri District was included in the jurisdiction of CESC as per GOK order dated EN 95 PSR 2005 dated 29.03.06 with effect from 01.04.2006. CESC is a Distribution Licensee under the provisions of section 14 of the Electricity Act, 2003.

CESC has commenced functioning as Electricity Distribution Company from 01.06.2005, by virtue of Transfer Scheme Rules made under Karnataka Electricity Reforms Act. 1999, distribution system of 33 KV and below along with specified lines, posts and personnel have been transferred to the company from the MESCOM. The Chamundeshwari Electricity Supply Corporation has 18 O & M Divisions, 62 Sub-Divisions and 267 O&M Units.

The CESC is responsible for purchase of power, distribution and retail of electricity to its consumers and also providing infrastructure for Open Access, Wheeling of energy in its area of operation in the five Districts of the State as indicated below:



Figure 6 Area of operation of CESC

1.7.1 Name and Address of Designated Consumer

The name and address of CESC is given in Table-6.

Table 6 General Information

General Information			
1	Name of the DISCOM	Chamundeshwari Electricity supply Corporation Limited	
2	i) Year of Establishment	2005	
	ii) Government/Public/Private	A Government of karnataka undertaking	
3	DISCOM's Contact details & Address		
i	City/Town/Village	Mysuru	
ii	District	Mysuru	
iii	State	Karnataka	Pin 570017
iv	Telephone	0821-2417101	Fax 0821-2417110
4	Registered Office		
i	Company's Chief Executive Name	Sri Sridhar C.N. K.A.S.	
ii	Designation	Managing Director	
iii	Address	# 29, Vijayanagar 2 nd Stage, Hinkal, Mysuru	
iv	City/Town/Village	Mysuru	P.O. Mysuru
v	District	Mysuru	
vi	State	Karnataka	Pin 570017
vii	Telephone	9480512270	Fax 0821-2417110
5	Nodal Officer Details*		
i	Nodal Officer Name (Designated at DISCOM's)	Sri Lokesh	
ii	Designation	General Manager(Tech), CESC, Mysuru	
iii	Address	Corporate office, CESC, Mysuru	
iv	City/Town/Village	Mysuru	P.O. Mysuru
v	District	Mysuru	
vi	State	Karnataka	Pin
vii	Telephone		Fax
6	Energy Manager Details*		
i	Name	Sri Manjunath T.C.	
ii	Designation	Energy Manager	Whether EA or EM
iii	EA/EM Registration No.	10926	
iv	Telephone	-	Fax -
v	Mobile	9480841177	E-mail ID eesksp@cescmysore.org
7	Period of Information		
	Year of (FY) information including Date and Month (Start & End)	From 01-April-2022 to 31-March-2023	

1.8 Summary profile of CESC

1.8.1 CESC's area of operation

CESC has divided their areas into different sections for the ease of operations, they are mainly zones, circles and divisions. CESC's area of operations is structured as follows:

Table 7 CESC's area of operation

O&M Zones	O&M Circles	O&M Divisions
Mysore Zone	Mysuru Circle	VV Mohalla
		NR Mohalla
		Nanjangud
		Hunsur
		K R Nagara
	Chamaraj nagara-Kodagu Circle	Chamaraj nagara
		Kollegala
		Madikeri
		Mandya
	Mandya Circle	Pandvapura
		Nagamangala
		Maddur
		KR Pete
Hasan Zone		Hasan Circle
	Sakaleshpura	
	CR Patna	
	Arasikere	
	Holenarasipura	

The company has eighteen numbers of Divisions and these O&M divisions of the CESC are further divided into Sixty two O&M Sub divisions with accounting/non-accounting sections in each of the O&M sub-divisions. The section offices are the base level offices looking into operation and maintenance of the distribution system in order to provide reliable and quality power supply to the CESC's consumers.

1.8.2 Profile of CESC

A tabular form of administration, business, and network profile of CESC is given in Table-8

Table 8 CESC's profile

Details		
ADMINISTRATION	AREA	27772.82 Sq. Kms
	DISTRICTS	5
	ZONES	2
	CIRCLE	4
	DIVISIONS	18
	SUB-DIVISIONS	62
BUSINESS	CONSUMERS	3703855
	AGRICULTURAL IPSETS	468644
	PROVISIONAL ANNUAL ENERGY INPUT(2022-23)	7537.27 MU
NETWORK	Number of feeders	2265
	Number of DTs	172689
	Number of sub stations 220 KV, 110 KV, 66 KV (of KPTCL)	
	Number of 33 KV sub stations	4
	HT Line length (in CKMs)	207389.98
	LT line length (in CKMs)	374278.36
	HT/LT ratio	1:1.4

1.8.3 Consumer and metering details

CESC is responsible for power distribution over five districts of Karnataka state and they are distributing power to 3703855 customers in FY 2022-23. CESC's consumer and metering details are given in Table-9:

Table 9 Consumer Details

SI No.	Parameters	66kV and above	33kV	11/22kV	LT
i	Number of conventional metered consumers				531412
ii	Number of consumers with 'smart' meters			153	22184
iii	Number of consumers with 'smart prepaid' meters				
iv	Number of consumers with 'AMR' meters	41	1	2918	2681222
v	Number of consumers with 'non-smart prepaid' meters				14189
vi	Number of unmetered consumers				451735
vii	Number of Total Consumers	41	1	3071	3700742

1.8.4 Input Energy Sources

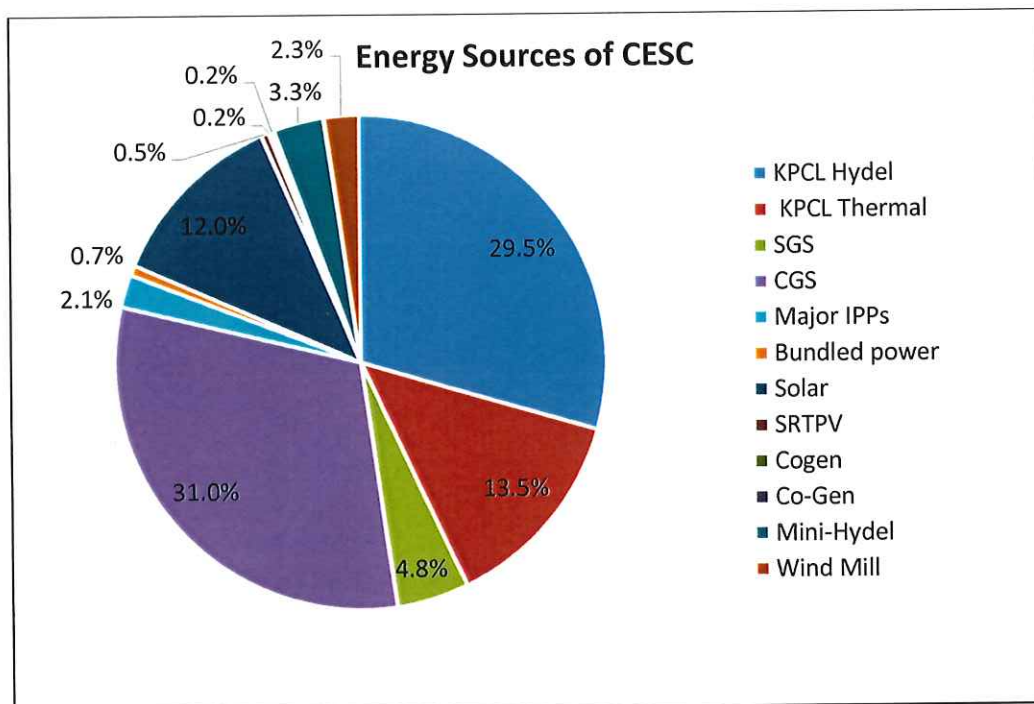
CESC Mysore purchased 7537.27 Million Unit of energy in the FY 2022-2023. In this, the major sources of energy are hydel power plants and thermal power plants. The use of renewable energy sources like solar, wind and biomass are contributing more than 20% of the input energy. There is a reasonable percentage (13%) of input energy from solar power plants due to the recent encouragements and initiatives of solar power productions. CESC bought around 38.2 MU of energy from Solar Roof Top PV units. The details of power purchase agreements are given in the appendix.

Major Energy Sources are,

1. Central Generating Stations like NTPC, NTPC VVNL, NLC, NPCIL, NTECL, NTPL & NTPC NSM (Bundled Solar Power).
2. State owned generating stations Viz,
 - a. KPCL – Hydel, Thermal

b. Raichur Power Corporation Ltd. - Thermal.

3. Major Independent Power Producer- Udupi Power Company Ltd.
4. Independent power producers from non-conventional Sources like Wind, Solar & Mini hydel.
5. Telangana State Power Generation Corporation Ltd., (Priyadarshini Jurala)
6. Damodar Valley Corporation Ltd.
7. Short term & Medium Term (Co-gen).



1.8.5 Energy Flow

Table 10 Summary of Energy Performance

Period of Information Year of (FY) information including Date and Month (Start & End)		From 01-April-2022 to 31-March-2023
(a)	Energy Input Details	
(i)	Input Energy Purchase (From Generation Source)	7537.27 Million kwh
(ii)	Net input energy (at DISCOM Periphery after adjusting the transmission losses and energy traded)	7282.06 Million kwh
(iii)	Total Energy billed (is the Net energy billed, adjusted for energy traded))	6616.88 Million kwh

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(b)	Transmission and Distribution (T&D) loss Details	665.18 Million kwh
		9%
	Collection Efficiency	98%
(c)	Aggregate Technical & Commercial Loss	11%

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DISCUSSION AND ANALYSIS

1.9 Energy Accounts for Previous Years

The CESC Mysore is audited by an accredited energy auditor for the first time under BEE Regulations 2021. The summary of the energy accounts for the previous three years is given in the following table.

Table 11 CESC's energy accounts for the previous 4 years

Sl.No	Particulars	2018-19	2019-20	2020-21	2021-22
1	Energy Input in MU	7225.7	7208.3	7223.7	8378.88
2	Total Energy Sales in MU	6355.6	6406.6	6302.8	6753.47
3	Metered Sales in MU	3500.7	3504.0	3394.4	3738.03
4	Unmetered Sales in MU	2854.8	2902.6	2908.5	3015.44
5	Distribution Loss %	12.0	11.1	12.8	10.4
6	AT & C loss %	15.8	14.5	14.7	12

1.10 Energy Accounts and Performance in FY 2022-2023

The Energy consumption balance details of the FY 2022-23 is given in the following table.

Table 12 CESC's energy accounts for the year 2022-23

Summary of Energy				
From 01-April-2022 to 31-March-2023				
S. No	Type of Consumers	Category of Consumers (EHT/HT/LT/Others)	No of Consumers	Total Consumption (In MU)
1	Domestic	LT-1, LT2A	2724220	1217.11
2	Commercial	LT-3	299144	366.54
3	IP Sets	LT-4 A & B	468644	2750.13
4	Hor. & Nur. & Coffee/Tea & Rubber (Metered)	LT4C	11706	21.73

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5	Heating and Motive Power	LT-5	50627	177.35
6	Water Supply	LT-6A	32419	269.75
7	Public Lighting	LT-6B	27880	99.45
8	HT Water Supply	HT-1	201	513.87
9	HT Industrial	HT-2A	1347	899.41
10	HT Commercial	HT2B	931	134.55
11	Applicable to Government Hospitals & Hospitals	HT2C	380	62.54
12	Lift Irrigation Schemes/Lift Irrigation Societies	HT-3	138	57.52
13	HT Res. Apartments Applicable to all areas	HT-4	51	4.03
14	Others-1 (if any , specify in remarks)	LT-2B, LT-7, HT-5 & AUXILIARY	86167	42.91
Total			3703855	6616.88

1.10.1 Input Energy of CESC FY 2022-23

The details of input energy of CESC Mysore for the FY 2022-23 is summarised in table-2.

Table 13 Details of input energy of CESC for the FY 2022-23

Summary of energy input & Infrastructure	
Period From 01-April -2022 to 31-March-2023	
Parameters	
Input Energy purchased (MU)	7537.269
Distribution loss (%)	9
Distribution loss (MU)	665.18
Energy sold outside the periphery(MU)	9.44
Open access sale (MU)	14.30
EHT sale	657.62
Net input energy (received at DISCOM periphery or at distribution point)-(MU)	7282.06
Is 100% metering available at 66/33 kV	Yes

Officer

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Is 100% metering available at 11 kV	Yes
No of feeders at 66kV voltage level	0
No of feeders at 33kV voltage level	1
No of feeders at 11kV voltage level	2265
No of LT feeders level	0
Line length (ckt. km) at 66kV voltage level	0
Line length (ckt. km) at 33kV voltage level	4.5
Line length (ckt. km) at 11kV voltage level	207385.4799
Line length (km) at LT level	374278.3602
Length of Aerial Bunched Cables	3980.396
Length of Underground Cables	328.359
HT/LT ratio	01:01.4

1.11 Division Wise Performance

Detailed division wise performance of the CESC is tabulated in this section. Some of the observations are given below:



1.11.1 Division wise metered and un-metered connections for the year 2022-23

Division wise metered and un-metered number of connections and the respective connected load is given in Table-7 for the FY 2022-23.

Table 14 CESC's Division wise number of metered and un-metered connections for the year 2022-23

Sl.No	Name of circle	Name of Division	No of connections (Nos)			Connected Load (MW)		
			Metered	Un-metered	Total Nos	Metered	Un-metered	Total Load
1		N.R.Mohalla	362655	7283	369938	617.16	27.53	644.69
2		V.V.Mohalla	317127	7399	324526	806.98	27.70	834.68
3	Mysuru	Nanjanagud	236356	34170	270526	347.37	130.64	478.02
4		Hunsur	179062	45114	224176	146.00	169.25	315.25
5		K.R.Nagara	168531	31505	200036	152.27	118.07	270.34
6		Chamarajanagara	203668	41381	245049	181.88	212.32	394.20
7	Chamarajanagara & Kodagu	Kollegala	148128	28958	177086	106.65	120.49	227.14
8		Madekeri	250289	21	250310	419.31	0.04	419.35
9		Mandya	174748	18823	193571	220.00	74.93	294.93
10		Maddur	202625	40301	242926	235.52	158.72	394.24
11	Mandya	Pandavapura	138749	17240	155989	188.40	60.68	249.08
12		K R Pete	88970	23659	112629	73.23	78.89	152.12
13		Nagamangala	73930	18097	92027	66.89	65.10	131.99
14		Hassan	189476	23572	213048	390.28	504.47	894.75
15	Hassan	Sakaleshpura	151437	17426	168863	160.53	63.50	224.03
16		Channarayapatna	115396	37145	152541	136.29	141.28	277.57

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17	Arasikere	113615	24665	138280	97.95	91.71	189.67
18	Holenarasi pura	137358	34976	172334	131.45	121.21	252.66
	Total	3252120	451735	3703855	4478.16	2166.55	6644.70

1.11.2 Division wise Input energy, Consumed energy and Distribution losses for the year 2022-23

Division wise Input Energy, Consumed energy and distribution losses accounted for the year FY 2022-23 is given in the following table.

Table 15 CESC's Division wise Input energy, energy consumption and distribution losses for the year 2022-23

Sl. No	Name of circle	Name of Division	Input energy (MU)	Billed Metered energy (MU)	Billed Unmetered assessed energy (MU)	Billed Total energy (MU)	T&D loss (MU)	T&D loss (%)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency	AT & C loss (%)
1		N.R.Mohalla	590.78	504.29	41.80	546.09	44.69	8%	501.51	492.65	98%	9%
2		V.V.Mohalla	694.35	633.16	31.34	664.50	29.85	4%	620.34	632.46	102%	2%
3	Mysuru	Nanjanagud	643.73	359.88	228.52	588.40	55.33	9%	508.53	497.14	98%	11%
4		Hunsur	365.65	125.63	199.54	325.16	40.49	11%	261.50	248.04	95%	16%
5		K.R.Nagara	275.48	108.36	135.74	244.09	31.39	11%	194.45	195.21	100%	11%
6	Chamaraja nagara &	Chamaraja nagara	471.87	169.97	248.01	417.98	53.89	11%	331.23	317.99	96%	15%
7	Kodagu	Kollegala	347.87	93.33	213.50	306.83	41.04	12%	234.94	218.25	93%	18%
8		Madekeri	274.31	233.19	0.00	233.19	41.12	15%	211.79	208.16	98%	16%
9	Mandya	Mandya	319.28	148.35	140.82	289.17	30.11	9%	236.37	231.73	98%	11%
10		Maddur	834.69	501.32	272.94	774.26	60.43	7%	562.34	551.78	98%	9%

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11		Pandavapura	366.57	156.81	173.69	330.50	36.07	10%	260.86	249.85	96%	14%
12		K R Pete	292.17	51.99	209.50	261.49	30.68	11%	194.25	191.47	99%	12%
13		Nagamangala	193.54	48.34	124.29	172.63	20.91	11%	133.71	134.52	101%	10%
14		Hassan	567.99	416.29	112.43	528.72	39.27	7%	462.47	462.38	100%	7%
15		Sakaleshpura	216.70	100.44	91.90	192.34	24.36	11%	163.32	161.25	99%	12%
16	Hassan	Channarayapat na	320.37	87.85	196.38	284.22	36.15	11%	221.58	220.50	100%	12%
17		Arasikere	226.95	67.99	135.15	203.14	23.81	10%	161.72	161.05	100%	11%
18		Holenarasi pura	279.52	88.98	157.80	246.78	32.74	12%	196.88	200.17	102%	10%
		Total	7282.06	3903.54	2713.34	6616.88	665.18	9%	5466.98	5374.65	98.31%	11%

1.11.3 Sector wise metered and un-metered connections for the year 2022-23

Sector wise metered and un-metered number of connections and the respective connected load is given in the following for the FY 2022-23.

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Table 16 CESC's Sector wise number of metered and un-metered connections for the year 2022-23

Sl. No	Consumer sector category	No of connection metered (Nos)	No of connection Un-metered (Nos)	Total Number of connections (Nos)	% of connections	Connected Load metered (MW)	Un-metered Load (MW)	Total Connected Load (MW)	% of connected load
1	Residential	2724271	0	2724271	73.55%	1875.26	0.00	1875.26	28.22%
2	Agricultural	28753	451735	480488	12.97%	66.95	2166.55	2233.49	33.61%
3	Commercial/Industrial-LT	349771	0	349771	9.44%	941.84	0.00	941.84	14.17%
4	Commercial/Industrial-HT	2278	0	2278	0.06%	745.35	0.00	745.35	11.22%
5	Others	147047	0	147047	3.97%	848.76547	0.00	848.76	12.77%
	Total	3252120	451735	3703855	100%	4478.16	2166.55	6644.70	100%

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1.11.4 Sector wise Input energy, Consumed energy and Distribution losses for the year 2022-23

Sector wise Input Energy, Consumed energy and distribution losses accounted for the year FY 2022-23 is given in the following table.

Table 17 CESC's Sector wise Input energy, energy consumption and distribution losses for the year 2022-23

Sl.No	Consumer category	Input energy (MU)	Billed Metered energy (MU)	Billed Unmetered/assessment energy (MU)	Total Billed energy (MU)	% of energy consumption	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency
1	Residential		1221.14	0.00	1221.14	18%	1012.92	1008.52	100%
2	Agricultural		116.03	2713.34	2829.37	43%	1987.96	1880.14	95%
3	Commercial/Industrial-LT	7282.06	543.89	0.00	543.89	8%	613.69	616.58	100%
4	Commercial/Industrial-HT		1033.96	0.00	1033.96	16%	1045.89	1050.43	100%
5	Others		988.52	0.00	988.52	15%	806.51	818.98	102%
	Total	7282.06	3903.54	2713.34	6616.88	100%	5466.98	5374.65	98%

10/10/23

1.12 Energy conservation measures already taken

Various energy conservation measures and equivalent projects that have been implemented over the years at CESC Mysore are given in table-18.

Table 18 Various Energy Conservation measure implemented at CESC Mysore

SI No	Energy Saving Measures	Completion year
1	Loss Reduction by installing capacitor banks at load ends of IP Feeders	2020
2	Capacity enhancement of Distribution Transformers	2020
3	Energy efficient Agricultural Pumps	2020
4	Voltage Optimization at 66kV Levels	2020
5	Feeder Reconductoring	2015
6	Capacitor Replacement on 11kV feeder	2019
7	Implementing AgDSM Programs	2019
8	Roof Top Solar	2019
9	ProjectsStar rated	2019
10	Decentralized Distributed Generators	2019
11	Deen Dayal Upadyay Grameen Jyothi Yojane	2019
12	DLEP Programme	2019
13	DTC Metering	2019
14	Loss reduction due to change in HT/LT ratio	2019
15	Integrated Power Development Scheme Phase-I	2018
16	Integrated Power Development Scheme Phase-II	2019
17	Modernisation of Sub Division under CESC	2019
18	Niranthara Jyothi Yojana	2019
19	Rajiv Gandhi Grameena Vidyuth yojane XII Plan	2019

1.13 Energy conservation measures proposed for the future

Various energy conservation measures and equivalent projects that has been planned to implement for the coming years at CESC Mysore are given in table-16.

Table 19 Various Energy Conservation measure planned for implementation at CESC Mysore

SI No	Energy Saving Measures	Date of completion/likely completion
1	Providing Transformers under Ganga Kalyana Works	2025
2	Providing infrastructure to the irrigation pumps (General IP & Shreegra samparka)	2025
3	Construction of 11KV Link lines	2025
4	Reconductoring of 11KV lines	2025
5	Providing Additional Transformers for the existing overloaded Transformers	2025

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1.14 Critical Analysis

1.14.1 Status of compliance of BEE regulations

Table 20 Status of Compliance of BEE Regulations

Clause No	Clause details	Sub Clause Number	Sub clause Details	Present Status
3	Intervals of time for conduct of annual energy audit	a	Conducted an annual energy audit for every financial year and submitted the annual energy audit report to the Bureau and respective State Designated Agency and also made available on the website of the electricity distribution company within a period of four months from the expiry of the relevant financial year	CESC Mysore conducted Annual energy audit for the last 2 financial years involving Accredited energy auditor. Report will be submitted to BEE and SDA. Report will also be uploaded on CESC website
4	Intervals of time for conduct of periodic energy accounting.	a	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 Q1, Q2, Q3 and Q4 have been prepared and submitted to BEE by CESC.
		b	Submitted the periodic energy accounting report to the Bureau and respective State Designated Agency and also made available on the website of electricity distribution	Periodic energy accounting for Q1, Q2, Q3 and Q4 have been prepared and submitted to BEE and SDA.

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		company within forty-five days from the date of the periodic energy accounting.	
	c	Electricity distribution company conducted its first periodic energy accounting, for the last quarter of the financial year immediately preceding the date of such commencement (i.e. 6th October 2021).	CESC has submitted its first periodic energy accounting for Q2 FY21-22 and subsequently followed to submit all the quarters till now.
	d	Electricity distribution company conducted its subsequent periodic energy accounting for each quarter of the financial year for a period of two financial years from the date of such commencement, and submit the periodic energy accounting report within sixty days from the date of periodic energy accounting.	CESC started submitting its periodic energy audit report from Q2 FY21-22 and is following the guidelines and preparing and submitting thereafter.
5	a	Pre-requisites for annual energy audit and periodic energy accounting	All the electrical network assets have been mapped.
	b	Identification and mapping of high tension and low-tension consumers	All the HT and LT consumers have been mapped.
	c	Development and implementation of information technology enabled energy accounting and audit system, including associated software	CESC is doing energy accounting and implemented smart grid pilot project which partially helps in energy accounting and billing.
	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	All feeders up to 11kV have been metered. All consumers have been metered except consumers under agriculture category.

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	<p>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</p>	<p>As of 31st march 2022 of the total of 3167136 consumers have been metered. The agricultural consumers of 438152 is un-metered.</p>
	<p>d.1. 100% Communicable Feeder Metering integrated with AMI, by 31st December 2022 along with replacement of existing non-communicable feeder meters.</p>	<p>d.1. Need to be strengthened</p>
	<p>d.2. 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: d.2.1. All Electricity Divisions of 500 AMRUT cities, with AT&C Losses > 15% d.2.2. All Union Territories (for areas with technical difficulty, non-communicable meters may be installed) d.2.3. All Industrial and Commercial consumers d.2.4. All Government offices at Block level and above</p>	<p>d.2.1. DT level meters need to strengthened with communicable meters d.2.2. Not Relevant for CESC. d.2.3. CESC need to strengthen their metering system with communicable metering for HT consumers and LT, industrial and commercial consumers. 2.4 CESC need to strengthen this.</p>



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	d.2.5. Other high loss areas i.e. rural areas with losses more than 25% and urban areas with losses more than 15%	d.2.5. CESC intends to install communicable meters with AMI
	d.3. 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: d.3.1. All Electricity Divisions of 500 AMRUT cities, with AT&C Losses > 15%; d.3.2. All Union Territories (for areas with technical difficulty, prepaid meters to be installed); d.3.3. All Industrial and Commercial consumers; d.3.4. All Government offices at Block level and above; d.3.5. Other high loss areas i.e. rural areas with losses more than 25% and urban areas with losses more than 15%.	d.3.1. Not applicable as AT&C loss is less than 15%. d.3.2. Not Relevant for CESC. d.3.3. CESC intends to install consumer meters with AMI for commercial and industrial consumers d.3.4. CESC need to strengthen this area. d.3.5. CESC does not have such magnitude of losses in urban (15%).
	d.4. Consumer Metering: 98% by FY 2022-23 99% by FY 2023-24	Implementation in progress
	d.5. Targets for functional meters— Meter FY 22-23 FY 23-24 FY24-25 Feeder metering 98.5% 99.5% 99.5% DT	Implementation in progress



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			metering 90% 95% 98% Consumer metering 93% 96%	
		98		
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 communicable meters. e.2. And existing non communicable distribution transformer meters is replaced with communicable meters and integrated with advanced metering infrastructure.	e.1. CESC intends to install communicable meters with AMI for all distribution transformers e.2. CESC intends to install communicable meters with AMI for existing non communicable distribution transformer meters.
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	Implementation in progress
6	Reporting requirements for annual energy audit and periodic	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 annual energy audit and periodic energy	The CESC is complying with this requirement

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energy accounting	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	CESC has energy accounting and audit system in place.
c	Metering of distribution transformers at High Voltage Distribution System up to 25KVA is done on cluster meter installed by the electricity distribution company	CESC intends to install metering of distribution transformers at High Voltage Distribution System up to 25KVA
d	The energy accounting and audit system and software is developed to create monthly, quarterly and yearly energy accounting reports.	Advanced software need to be strengthened
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	Advanced software need to be strengthened



NOTES OF THE EA/EM ALONG WITH QUERIES AND REPLIES TO DATA GAPS

Table 21 Queries and notes of EA and responses

Sr. No	Query by EA	Response by EM of DISCOM	Notes by EA
1	Renewable energy balance need to be provided to check the new additions	CESC will share separate excel sheet with all the renewable energy purchased	The information freshly shared substantiates the requirement.
2	Agricultural feeders are un-metered. How this energy is accounted?	CESC is having a separate assessment methodology for accounting agricultural energy estimation. The un-metered agricultural consumption is estimated by the formulae (Input energy - Metered Sales - Allowable Loss (10% of the input energy)).	Going forward, smart energy meters need to be installed for accurate accounting.
3	Karnataka Government has recently provided subsidised power to all consumers. Can we get the details of the subsidised bill for the period April-22 to Mar-2023?	CESC will share the Quarterly Consumer Category-wise Subsidy Billed/Received/Due for period April-22 to March-2023.	Rs 2116.86 Cr is received as subsidy from the State Government. The details for the year is provided in Appendix.
4			



ANNEXURES

ANNEXURE I INTRODUCTION TO VERIFICATION FIRM

Enzen Global Solutions Pvt Ltd. is a global knowledge enterprise specializing in the energy and water industries. Our mission is to make these two life essentials more affordable, accessible and sustainable to all. Through deep domain expertise, innovative technologies and collaboration with the best and brightest people, Enzen's objective is to influence the energy and water industries to drive positive change around the world. Combining experience of real-world practical application with high value delivery and end-to-end solutions for customers, we offer global thinking and local strategy that deliver the best outcomes and help leave a cleaner planet for future generations.

Enzen is also an accredited energy auditing company under Bureau of Energy Efficiency (BEE), Ministry of Power. Some of the projects handled by Enzen are given below.

- Enzen is doing energy efficiency studies, energy audits in energy intensive industries, DISCOMs and municipal systems, municipal demand side management, agricultural demand side management, energy audits in industries for the past 15 years in India.
- Enzen done projects in the state of Karnataka, Kerala, Tamilnadu, Telangana, Andhra Pradesh, Chhattisgarh, Uttar Pradesh, Gujarat, Madhya Pradesh, Rajasthan, Jharkhand, Uttarkhand covering Process Industries, Thermal power plants, DISCOMs. So, access to these regions are already familiar
- Enzen has implemented RAPDRP program for KSEB, Kerala
- Enzen is doing Energy and Resources mapping project for MSME sector under Bureau of Energy Efficiency (BEE), Ministry of Power, India
- Enzen has implemented a number of energy efficiency initiatives in the areas of smart cities, commercial buildings, demand side management in agriculture / municipalities, SME's and large industries including the assessment and verification of process for development of energy consumption norms for industrial sub sectors, capacity building of energy intensive industries to implement the same.
- Enzen has done Enumeration of IP sets of 5 circles of BESCO under the DSM program.
- Enzen is a ESCO and implemented Agriculture Demand Side Management (AgDSM) program under public private partnership (PPP) model
- Enzen has done Investment Grade energy audit under Belagavi Smart City Ltd to convert that in to a PPP model for ESCO companies to invest and save energy.
- Enzen has conducted more than 70 energy audits and consulting assignments in energy intensive industries, municipal establishments, buildings, MSMEs in India.

- Enzen has successfully completed ESCO project under energy efficient pumping under BESCO and implemented and maintained for 10 years
- Enzen has successfully completed ESCO project under energy efficient pumping under HESCOM and implemented and maintained for 5 years
- Replaced more than 900 inefficient pump sets with efficient pump sets under public private partnership model and maintaining for the project duration
- Integrated and Implemented 287 standalone solar pump sets
- Enumerated 1 million agriculture pump sets and created baseline database
- Successful implementation of Smart Grid pilot project in Mysore under Demand side management program in DISCOMs
- As pioneers in rural power distribution in asset lean model, catering 8.5 lakh consumers in Odisha and implemented best practices and customer centric strategies to liberate inefficiencies in the distribution sector
- Published policy report on Agriculture Demand Side Management and shared knowledge and best practices in various forums
- Enzen is creating list of pipeline of ESCO implemented projects under PRSF scheme of SIDBI in the Southern and Western states of India
- Wish Energy Solution, wholly owned by Enzen group implemented several grid connected roof top solar and wind solar hybrid projects



ANNEXURE II MINUTES OF MEETING WITH DISCOM TEAM

MINUTES OF MEETING WITH CESC

Meeting date:	04 January 2024	Time:	10:30 hrs	Duration:	3 hours
Document date:	04 January 2024	Place:	CESC head office, Mysore	Follow-up meeting:	Next 1 week
Purpose :	Annual Energy Audit of CESC, Mysore for the year 2022-23				
Agenda:	Site visit, data collection, meetings with the key stack holders, discussion of energy input to DISCOM, distribution and sales; Losses estimation and accounting				
Distribution date:	-	Distributed by:	I.Thanumoorthi		
Attendees:	<p>CESC: Sri Lokesh L, General Manager(Tech); Smt. Sujatha M.K., Deputy General Manager(Coml), Mrs.Hemalatha, Deputy General Manager(DSM), Mrs.Chayakumari, Assistant General Manager(Coml), Mrs. Sandhya Rani, Assistant General Manager(DSM), Mrs.Savitha G, Manager(Tech-2)</p> <p>ENZEN: Mr I.Thanumoorthi, Accredited Energy Auditor (AEA 175); Mr Lathesh, DISCOM Project manager, Mr Sreepathi A, Energy auditor, Mr Ramanujam, DISCOM Expert; Mr Sunil Kumar, DISCOM Expert</p>				
Discussion Summary:	<p>Enzen team discussed in details about the following:</p> <ol style="list-style-type: none"> 1. Power purchase agreements; Input energy at injection points 2. Contribution of renewable power and their details for the year 2022-23 3. Annual 2022-23 CESC Mysuru Proforma 4. Performance of distributed energy for the year 2022-23 5. Infrastructure details (DTs, smart meters, feeders, lines) 6. Division wise Distribution losses and AT&C losses 7. Balance of energy for domestic, Industries, Agricultural and others 8. Details of consumers and how energy is distributed 9. Single line diagram of electrical distribution 10. Energy conservation measures implemented 11. Energy conservation measures planned for near future 12. Enzen team individually met commercial & DSM key personnel 				
Open issues:	1. Addition of subsidy power in the report				

Decisions taken:	1. Final report would be submitted within 10 days				
Action items:	Details	Responsibility	Target Closure Date	Revised Closure Date	Actual Closure Date
1	Annual Energy audit Final report	Enzen	12 th January - 2024		

Chayathu
 4/1/2024
 Dy General Manager (Commercial)
 Corporate Office,
 CESC, Mysuru

Sankar
 Manager (Tech-2)

Chayathu
 4/1/2024
 Dy General Manager
 (Commercial)
 Corporate Office,
 CESC, Mysuru

[Signature]

[Signature]
 4/1/24

General Manager (Tech)
 Corporate Office
 CESC, Mysuru

[Signature]

[Signature]
 (Karthick)

ANNEXURE III CHECK LIST PREPARED BY ENERGY AUDITOR

SI No	Area	Name	Remarks
1	Input Energy	Input Energy (MU)	
		Renewable Energy Input	
		Details of Power Purchase Agreements	
2	Division Losses	No of connection metered (Nos)	
		No of connection Un-metered (Nos)	
		Connected Load Metered (MW)	
		Connected Load Un-metered (MW)	
		Input Energy (MU)	
		Metered energy (MU)	
		Unmetered energy/Assessment Energy (MU)	
		T&D Losses (MU)	
		Billed Amount	
Collected Amount			
3	Details of Input Energy Sources	AT&C Loss	
		Generation at Transmission Periphery (Details)	
4	Details of Feeder wise Losses	Embedded Generation in DISCOM Area	
		Feeder wise Energy Accounting	
5	Energy Conservation Measures	Energy Conservation Measures implemented	
		Energy Conservation Measures Planned for the Future	
6	Previous Year Performance	Energy Accountings for the previous years	
7	Diagrams	Single Line Diagrams of the Distribution	

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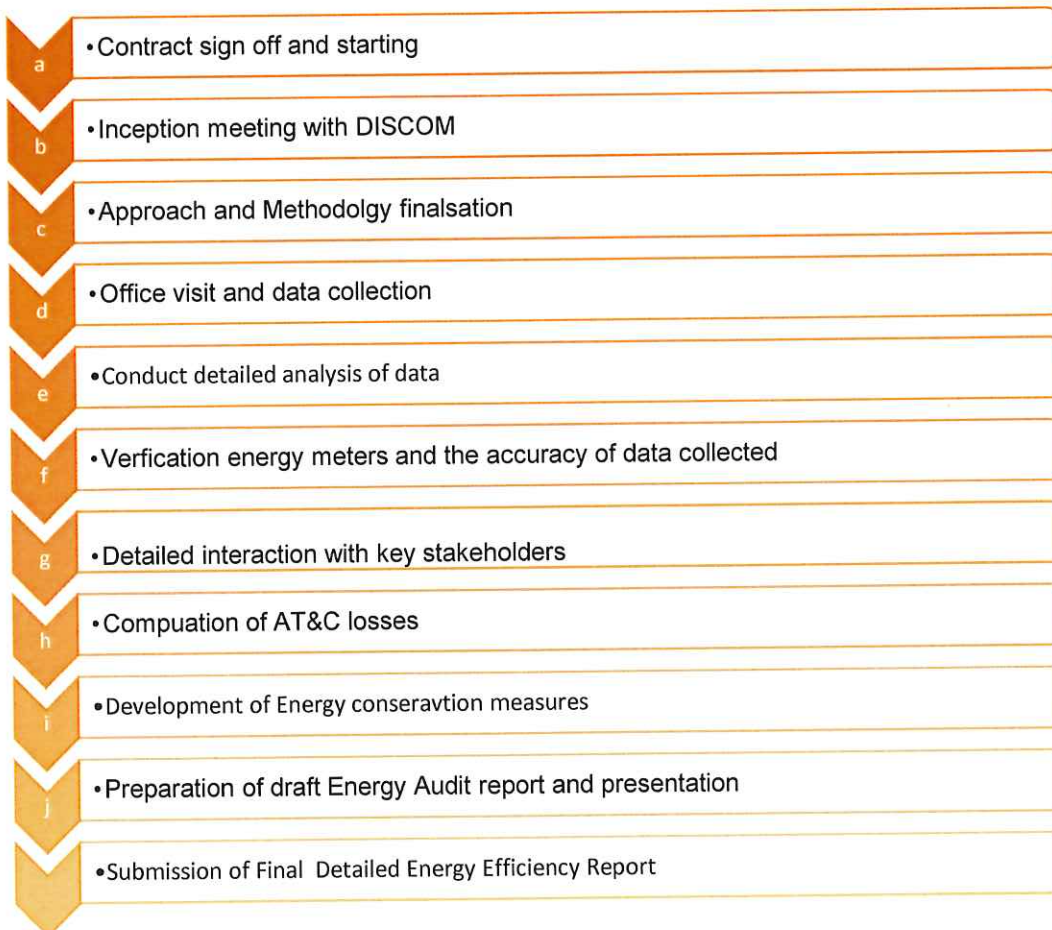
ANNEXURE IV BRIEF APPROACH, SCOPE AND METHADODOLOGY FOR AUDIT

Objective

The objective of this assignment is to carry out the Annual Energy Audit as per the prescribed formats of regulation to conduct Energy Audit in DISCOMs issued by Bureau of Energy Efficiency, Ministry of Power Government of India.

Approach

The approach is highlighted in the flow diagram and detailed methodology is given in the table below:



Methodology

Plan of action		Purpose/Result
Step-1	Program Management	<ul style="list-style-type: none"> • Confirm the resources/manpower and their CVs involved for the 1 month tenure of the project • Approach and methodology finalization • Check list, Templates, questionnaires, data sheets circulation to DISCOM • Meetings with Senior management team, Energy manager and Executives of DISCOM • Complete co-ordination for the complete tenure of the project
Step-2	Inception Meeting	<ul style="list-style-type: none"> • Build cooperation • Present questionnaire, templates and datasheets • Scope briefing and finalisation • Approach and Methodology briefing • Check list and actions
Task-1: Data collection and Analysis		
Step-3	Team visit to headquarters of DISCOM and data collection	<ul style="list-style-type: none"> • Meeting with all the key stallholders • Providing the templates for data collection • Reviewing the current data collection template and the data already available with DISCOM • Collect the energy related data for the last financial year • Collect the energy flow data of DISCOM at all applicable voltage level of distribution network • Collection of data on energy received and distributed by DISCOM • Monitoring of input energy and consumption pattern at various voltage levels
Step-4	Review the existing energy efficiency related data and policies	<ul style="list-style-type: none"> • Review the energy related data for the last financial year in the pro-forma • Review all the existing policies related to energy accounting • Discuss the existing KPIs followed by DISCOM

Step-5	Verification of Existing systems	<ul style="list-style-type: none"> • Verify the existing pattern of energy accounting at various levels of DISCOM • Verify the existing pattern of energy distribution across the periphery of DISCOM • Verify the accuracy of energy data received and distributed by DISCOM • Verifications of input energy and consumption pattern at various voltage levels
Step-6	Collection and Analysis of input energy data	<ul style="list-style-type: none"> • Collection of input energy from recorded system meter reading • All the inputs points of transmission system • Details provided by transmission unit • Recorded meter reading at all export points (where energy sent outside the State (interstate as well as intrastate) is from the distribution system); • System loading and Captures infrastructure details (i.e. no of circle, division, sub-division, feeders, DTs, & Consumers) • Verify the accuracy of energy data received and distributed by DISCOM
Task-2: Detailed Analysis of parameters for computation of Distribution losses		
Step-7	Conduct a detailed collection and analysis of distributed energy	<ul style="list-style-type: none"> • Monitoring and verifications of input energy and consumption pattern at various voltage levels • Number of consumers category wise in each circle • Consumers connected load category wise in each circle • Source of energy Supply (e.g. electricity from grid or self-generation), including generation from renewables; • Energy Cost and Tariff data
Step-8	Conduct a detailed collection and analysis about energy meters	<ul style="list-style-type: none"> • Metered and un-metered details • Circle wise losses of all circles under DISCOM periphery • Boundary meter details • Current System Metering Status at various voltage level of DISCOM

		<ul style="list-style-type: none"> ✓ Status of Functional meters for all consumers, transformers and feeders. ✓ Status of default meters (non-functional meters) for all consumers, transformers and feeders
Step-9	Conduct a detailed collection and analysis of billing and open access	<ul style="list-style-type: none"> • Details of open access, EHT sale, HT sale, LT sale and transmission losses • Details of billed and un-billed energy category wise of each circle • Energy supplied to Open Access Consumers which is directly purchased by Open Access Consumers from any supplier other than electricity distribution company
Task-3: Energy loss reduction and energy conservation measures consolidation		
Step-10	Identification of losses and inefficiency	<ul style="list-style-type: none"> • Identify the areas of energy leakage, wastage or inefficient use • Identify high loss-making areas/networks, for initiating target based corrective action; • Identify overloaded segments of the network for necessary capacity additions. • Methodology for loss computation various losses
Step-11	Making an energy balance	<ul style="list-style-type: none"> • Making an energy balance from input to consumption accounting the transmission and distribution losses at each voltage levels • Computation of agriculture consumption (approved by SERC)
Step-12	Computation of average billing rate	<ul style="list-style-type: none"> • Total revenue billed category wise • Category wise ABR with tariff subsidy • Category wise ABR without tariff subsidy
Step-13	Computation of AT&C losses	<ul style="list-style-type: none"> • Compute the collection efficiency • Compute the AT&C losses

Step-14	Analysis of cost of supply and revenue generated	<ul style="list-style-type: none"> • Study the details of loss/gain of DISCOM, analysis of Average Cost of Supply (ACS) • Study the Average Revenue realized (ARR) gap, details of energy charges/Power purchase cost along with the financial analysis
Step-15	Energy conservation measures and recommendations	<ul style="list-style-type: none"> • Observe and compile various Energy Conservation (ENCON) options implemented by the DISCOM • Also get the prepared report containing details of expenditure made by DISCOM along with saving and payback period. • Recommendations to facilitate energy audit, energy accounting and improve energy efficiency
Task-4: Preparation of Report and submission		
Step-16	Preparation of report	<ul style="list-style-type: none"> • Prepare draft report of DISCOM as per the scope of work and as per the regulation of Energy Audit, 2021 • Report will cover in detail the energy related data DISCOM from input to consumption • Addresses all losses, calculation methodology and the AT&C losses • Analytical & Statistical details of the analysis done • Energy conservation measures and recommendations
Step-17	Draft report submission	<ul style="list-style-type: none"> • Present the draft report to the key stallholders of DISCOM • Take the comments and update the energy audit report
Step-18	Submission of Final Energy audit Report	<ul style="list-style-type: none"> • Submission of Final Reports to DISCOM after incorporating inputs suggested by the stallholders

ANNEXURE V INFRASTRUCTURE DETAILS

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	4			
ii	Number of divisions	18			
iii	Number of sub-divisions	62			
iv	Number of feeders	2265			
v	Number of DTs	172689			
vi	Number of consumers	3703855			
2	Parameters	66kV and above	33kV	11/22kV	LT
a.	Number of conventional metered consumers				531412
ii	Number of consumers with 'smart' meters			153	22184
iii	Number of consumers with 'smart prepaid' meters				
iv	Number of consumers with 'AMR' meters	41	1	2918	2681222
v	Number of consumers with 'non-smart prepaid' meters				14189
vi	Number of unmetered consumers				451735
vii	Number of total consumers	41	1	3071	3700742
b.i.	Number of conventionally metered Distribution Transformers			52642	
ii	Number of DTs with communicable meters			473	
iii	Number of unmetered DTs			10306	

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iv	Number of total Transformers			172689	For109268 (172689-63421=109268) No. of Trasfromers, do not require meters (Exclusive IP set DTCs on IP feeders & Single DTC for single installation)
c.i.	Number of metered feeders			2265	Feeders are available at 11kV Class
ii	Number of feeders with communicable meters			2265	
iii	Number of unmetered feeders				
iv	Number of total feeders			2265	6 feeders are imported from other ESCOMs
d.	Line length (ct km)	581663.8401			
e.	Length of Aerial Bunched Cables	3980.396			
f.	Length of Underground Cables	328.359			
3	Voltage level	Particulars	MU	Reference	Remarks (Source of data)
i	66kV and above	Long-Term Conventional		Includes input energy for franchisees	
		Medium Conventional			
		Short Term Conventional			
		Banking			
		Long-Term Renewable energy			
		Medium and Short-Term RE		Includes power from bilateral/ PX/ DEEP	
		Captive, open access input		Any power wheeled for any purchase other than sale to DISCOM.	

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				Does not include input for franchisee.	
		Sale of surplus power			
		Quantum of inter-state transmission loss		As confirmed by SLDC, RLDC etc	
		Power procured from inter-state sources	0	Based on data from Form 5	
		Power at state transmission boundary	0		
ii	33kV	Long-Term Conventional			
		Medium Conventional			
		Short Term Conventional			
		Banking			
		Long-Term Renewable energy			
		Medium and Short-Term RE			
		Captive, open access input			
		Sale of surplus power			
		Quantum of intra-state transmission loss	0		
		Power procured from intra-state sources	0		
iii		Input in DISCOM wires network	0		
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/			

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		biomass/ hydro plants Procurement			
		Sales Migration Input			
vi	LT	Renewable Energy Procurement			
		Sales Migration Input			
vii		Energy Embedded within DISCOM wires network	0		
viii		Total Energy Available/ Input	0		
4	Voltage level	Energy Sales Particulars	MU	Reference	
i	LT Level	DISCOM' consumers	4,937	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	4,937		
		Quantum of LT level losses	-4,937		
		Energy Input at LT level			
ii	11 kV Level	DISCOM' consumers	603	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	
		Sales at 11 kV level	603		

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		Quantum of Losses at 11 kV	-603		
		Energy input at 11 kV level			
iii	33 kV Level	DISCOM' consumers	6	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	
		Sales at 33 kV level	6		
		Quantum of Losses at 33 kV	-6		
		Energy input at 33kV Level			
iv	> 33 kV	DISCOM' consumers	1070.26 7528	Include sales to consumers in franchisee areas, unmetered consumers	
		Demand from open access, captive		Non DISCOM's sales	
		Cross border sale of energy			
		Sale to other DISCOMs			
		Banking			
		Energy input at > 33kV Level			
		Sales at 66kV and above (EHV)	1,070		
		Total Energy Requirement	0		
		Total Energy Sales	6,617		

ANNEXURE VI ELECTRICAL DISTRIBUTION SYSTEM

The Chamundeshwari Electricity Supply Corporation has 18 O & M Divisions, 62 Sub-Divisions and 268 O&M Units. The networks of the 220kV, 66kV, 33kV and 11kV lines are given in the Annexure VII. The tabulated summary of the distribution system is given in the following table.

Table 22 Details of electrical distribution system

Area of distribution and Supply (Sq.Km.)	27772.82
District	05
Total Population (as per census 2011)	8155369
Number of sub stations 220 KV, 110 KV, 66 KV (of KPTCL)	255
Number of 33 KV sub stations	04
Number of Distribution Transformers	172689
Length of LT Lines (in CKMs)	374278.36
Length of 11 KV lines (in CKMs)	207385.48
Length of 33 KV lines (in CKMs)	4.5

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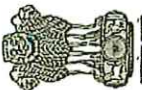
ANNEXURE VIII POWER PURCHASE AGREEMENTS

Table 23 Details of Energy Source

Sl No	Generation Source	Energy (MU)
1	KPCL Hydel	2475.07
2	KPCL Thermal	1134.08
3	SGS	399.31
4	CGS	2605.88
5	Major IPPs	178.96
6	Bundled power	56.56
7	Solar	1004.63
8	SRTPV	38.19
9	Co-Gen	57.00
10	Mini-Hydel	275.33
11	Wind Mill	195.52
12	Others	136.93
13	Exchange	-331.51
14	Energy Balancing	-688.68
	Total	7537.27

Some of the power purchase agreements are given below for the reference.

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Government of Karnataka

e-Stamp

Certificate No. : INKA3768551532426R
 Certificate Issued Date : 26-Jun-2019 03:48 PM
 Account Reference : KOKMCC (FY) 14242027 HEBBAU KA-MY
 Unique Doc. Reference : SUBIN-KAKACHRF0009188748578237R
 Purchased by : BALADEV SOLAR PARK PRIVATE LIMITED
 Description of Document : Article 12 Bond
 Description : SUPPLEMENTAL AGREEMENT
 Consideration Price (Rs.) : 0 (Zero)
 Fiscal Party : CHAMUNDESHWARI ELECTRICITY SUPPLY CORPORATION LTD
 Second Party : BALADEV SOLAR PARK PRIVATE LIMITED
 Stamp Duty Paid By : BALADEV SOLAR PARK PRIVATE LIMITED
 Stamp Duty Amount (Rs.) : 200 (Two Hundred only)

Please fill in or type below this line

SUPPLEMENTAL AGREEMENT

The Supplemental Agreement is executed of Mysore on 21.11.19... modifying the original PFA dated 01.12.2017, supplemental agreement dated 29.01.2018 & 05.10.2018 between Chamundeshwari Electricity Supply Corporation Limited, Mysore (A Government of Karnataka Undertaking) to Company formed and incorporated in India under the Companies Act, 1956, with its registered office located at #29, Vijayanagara 2nd stage, Hikal, Mysore-570017 Karnataka State, hereinafter referred to as the "CESC Mysore" (which expression shall, unless repugnant to the context or meaning thereof, include its successors and permitted assigns) as party of the first part and M/s. Baladev Solar Park Pvt. Ltd., hereinafter referred to as Special Purpose Vehicle (SPV) and having its registered office at No. 28, 2nd Main Road, Gandhinagar, Bengaluru - 560009 Karnataka, INDIA which expression shall, unless repugnant to the context or meaning thereof, include its successors and permitted assigns and subsidiaries) of the Other Part.
 The CESC Mysore and the SPV will be jointly known as the parties and will be individually known as party.
WHEREAS,
 a) Karnataka Renewable Energy Development Limited, ["KREDL"] incorporated under the companies Act, 1956 is a nodal agency of the Government of Karnataka for facilitating the development of renewable energy in Karnataka. This project is allotted under segment 1, category 1, of solar policy of CoK and in compliance of Government Order EN42 VSC 2014, Bangalore dated 24.08.2014.
 b) Pursuant to GO Iharelo, KREDL, had invited applications online on 09.10.2014.
 c) After evaluation of the applications received, the Committee has rejected the proposal of the applicant Sri M.R. Baladev (Register No. 159) for allotment of solar project due to mismatch in survey number entered in application and as in R/C.
 d) A GO no. EN 277 NCE 2015 dated 21.01.2017 has been issued by GOK along with a contingentum dated 04.02.2017 to consider the rejected [due to wrong entry of survey number] applications which are within the tenacity list of 300MW.
 e) KREDL has issued letter of allotment vide letter no. 0907-20.0.00707/relabaweg/0907-283 7/2017/1731-33 dated 04.03.2017 to Smti M.B. Vijayalakshmi with directions to execute the PFA with CESC, Mysore.
 f) CESC Mysore vide letter no. 23272 dated 17.03.2017 has sought the clarification regarding the survey numbers of the allotted project.
 g) KREDL vide letter no. 3512-13 dated 22.05.2017 has stated that they have sought the approval from the Government for the additional projects allotted under 1-3 MW land owning farmers scheme and as soon as the approval is received from Government, KREDL will intimate CESC about the action to be taken.

Witness 1
General Manager (Commercial)
CESC, Mysuru.

Witness 2
For Baladev Solar Park Private Limited
Director

Annual Energy Audit Report (FY 2022-2023): CESC Mysuru

5545

100
 MPLA10000-07 No. 103193
 Issued by
State Bank of Mysore
 Government of Karnataka
 Registration & Stamps Department

Certified that a sum of Rs. 100/- (Rupees One Hundred only) has been paid towards Karnataka Stamp duty by
 Sri/Smt. M. Suresh Kumar Sugan Co. Ltd.
 s.d/w/o _____ residing at _____
 MANDYA 035
 PIN: 571401
 Br Name: _____
 Date: _____

100

This Power Purchase Agreement is made at Corporate Office, CESC Mysuru
 this 23rd day of January Two thousand and Six between
CHAMUNDESHWARI ELECTRICITY SUPPLY CORPORATION LIMITED a Government of Karnataka undertaking a company formed and incorporated in India under the Companies Act, 1956, with its registered office located at No. 927, L.J. Avenue New Kaniharaj Urs Road, Saraswathipuram, Mysore - 570 009, Karnataka State, hereinafter referred to as CESC Mysore (which expression shall, unless repugnant to the context or meaning thereof, include its successors and permitted assigns) as party of the first part, and M/s. **THE MYSORE SUGAR COMPANY LIMITED**, a company formed and incorporated under the Companies Act, 1956 proprietary partnership firm / private limited / public limited company / co-operative society etc., and having its Registered Office at J.C. Road, Bangalore - 560002, hereinafter referred to as the "Company" (which expression shall, unless repugnant to the context or meaning thereof, include its successors, and permitted assigns) as party of the second part.

The CESC and the Company will be jointly known as the parties and will be individually known as party.

WHEREAS :

i) The Govt of Karnataka by its order Nos. 1) DE 10 NCE 98 Bangalore dated 05.05.1998 and 2) DE 10 NCE 98 Bangalore dated 03.09.1999 has accorded its sanction to the proposal of the Company for installation of a Bagasse based Cogeneration Electric Power Generating Station of 30 MW and exportable capacity 19.22 MW at Sugar Town, in Mandya, Mandya District, Karnataka state and permitted Corporation to enter into an agreement with the Company for purchase of Electricity corresponding to the Exportable Capacity as herein after defined.

No. of copies: one Attested MANAGER

Enzen Global Solutions Pvt Ltd

5545

100
 Government of Karnataka
 Registration & Stamps Department

Issued by **CD/2 836793**
State Bank of Mysore

Certified that a sum of Rs. 100/- (Rupees One Hundred only) has been paid towards Karnataka Stamp duty by
 Sri/Smt. M. Suresh Kumar
 s.d/w/o _____ residing at _____
 MANDYA 035
 PIN: 571401
 Br Name: _____
 Date: _____

100

-2-

ii) Pursuant to (i) above the Company plans to develop, design, engineer, procure finance, construct, own, operate and maintain a Cogeneration Electric Power Generating Station, hereinafter defined as the Project, with a gross capacity of 30 MW and exportable capacity 19.22 MW at Sugar Town, in Mandya, Mandya District and desires to sell Electricity to Corporation.
 However, consequent to the coming into force of Electricity Act 2003, Corporation is barred from trading in power and the projects have been allotted to respective ESCOMs based on the geographical location of the project vide G.O. No. EN 131 PSR 2003 dated 10-05-2005 of Government of Karnataka

iii) CESC which is at present engaged in the purchase, transmission and bulk supply of electricity has agreed to purchase the Electricity (as hereinafter defined) from the company to be generated at Sugar Town, in Mandya, Mandya District, subject to the conditions set forth herein.

NOW THEREFORE IN VIEW OF THE FOREGOING PREMISES AND IN CONSIDERATION OF THE MUTUAL COVENANTS AND CONDITIONS HERINAFTER SET FORTH, CESC AND THE COMPANY, EACH TOGETHER WITH THEIR RESPECTIVE SUCCESSORS AND PERMITTED ASSIGNS, A PARTY AND COLLECTIVELY THE PARTIES, HEREBY AGREE AS FOLLOWS.

Apleen
 GENERAL MANAGER
 The Mysore Sugar Co., Ltd.,
 MANDYA-2.

M. Suresh Kumar
 Chairman
 Electricity Corporation Ltd.,
 Mysuru.

Annual Energy Audit Report (FY 2022-2023): CESC Mysuru



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Government of Karnataka

e-Stamp

Certificate No.	IN/KAS0819476463755K
Certificate Issued Date	24-Mar-2012 12:24 PM
Account Reference	NONACC/BRU/KAS08194/BANGALORE/KA-BA
Unique Doc. Reference	SUBIN/KAKAS08194/2880672485K
Purchased by	ARVIND V. JOSHI AND CO
Description of Document	Article 12 Bond
Description	POWER PURCHASE AGREEMENT
Consideration Price (Rs.)	0
	(Zero)
First Party	CEC-MYSORE
Second Party	ARVIND V. JOSHI AND CO
Stamp Duty Paid By	ARVIND V. JOSHI AND CO
Stamp Duty Amount (Rs.)	200
	(Two Hundred only)

WIND MILL

This Power Purchase Agreement is made at Mysuru this 29th day of March 2012 between **CHAUNDHESHWARI ELECTRICITY SUPPLY CORPORATION LIMITED, Mysuru** (A Government of Karnataka Undertaking) a company formed and incorporated in India under the Companies Act, 1956, with its Registered Office located at No 927 L.J. Avenue, New Kiritahalli, U.S. Sarawathi Nagar, Mysuru - 570009, Karnataka State, hereinafter referred to as "CEC-Mysuru" (which expression shall, unless repugnant to the context or meaning thereof, include its successors and permitted assigns) as party of the first part, and **M/s Arvind V. Joshi & Co.**, For Arvind V. Joshi & Co.

Arvind V. Joshi
Authorized Signatory

Channurashahar Electricity Supply Corporation Ltd.
Mysuru

a company formed and incorporated under the Companies Act, 1956 / proprietary / partnership firm / private limited company / public limited company / co-operative society etc., and having its registered office at Plot No. 24, Sector No. 10-C, MIDC area, Channurashahar (Kutch) 370, GUJARAT - INDIA, herein after referred to as the "Company" (which expression shall, unless repugnant to the context or meaning thereof, include its successors, and permitted assigns) as party of the second part.

The CESC Mysore and the Company will be jointly known as the parties and will be individually known as party

WHEREAS:

- (i) Government of Karnataka by Order No DE 98 NCE 2000, Bangalore, dated 10.07.2000 has allotted to M/s Suzon Energy Limited 23 MW capacity for installation of wind mill power project at Haradanahalli, Hassan District in Karnataka State.
- Government of Karnataka by Order No EN 102 NCE 2005 Bangalore, dated 21.04.2005 has permitted for the enhancement of wind power capacity from 23 MW to 84.5 MW in favour of M/s Suzon Energy Limited at Haradanahalli in Hassan District.
- Government of Karnataka by Order No EN 126 NCE 2007, Bangalore, dated 16.04.2007 has accorded approval for enhancement of wind power capacity from 17.4 MW to 43.5 MW at Madurugudda Region in Hassan District in favour of M/s Suzon Energy Limited.
- Government of Karnataka by Order No EN 130 NCE 2012, Bangalore, dated 26.03.2012 has accorded approval for transfer of 1.5 MW wind power capacity in favour of M/s Arvind V. Joshi & Co., out of 43.50 MW capacity sanctioned to M/s Suzon Energy Limited at Madurugudda site near **Siganahalli (MG-18)**, Holenarasipura Taluk, Hassan District and to enter into Power Purchase Agreement with CESC Mysore.
- (ii) Pursuant to (i) above the Company plans to develop, design, engineer, procure finance, construct, own, operate and maintain a Wind Energy based Electric Power Generating Station, hereinafter defined as the Project, with a gross capacity of 1.5 MW and Net capacity of 1.5 MW at Madurugudda site, Holenarasipura Taluk, Hassan District in Karnataka State and desires to sell Electricity to CESC Mysore.
- (iii) CESC Mysore, which is at present engaged in the purchase, supply and distribution of electricity, has agreed to purchase Electricity (as hereinafter defined) from the Company to be generated at Madurugudda site, Holenarasipura Taluk, Hassan District in Karnataka State subject to the conditions set forth herein.

For Arvind V. Joshi & Co.

Authorized Signatory

NOW THEREFORE IN VIEW OF THE FOREGOING PREMISES AND IN CONSIDERATION OF THE MUTUAL COVENANTS AND CONDITIONS HERINAFTER SET FORTH, THE CESC, MYSORE AND THE COMPANY, EACH TOGETHER WITH THEIR RESPECTIVE SUCCESSORS AND PERMITTED ASSIGNS, A PARTY AND COLLECTIVELY THE PARTIES, HEREBY AGREE AS FOLLOWS:

THE COMMISSION HAS CONFERRED ITS APPROVAL TO THIS PPA VIDE ITS LETTER No..... DATED.....

For CESC Mysuru
Channurashahar Electricity Supply Corporation Ltd.
Mysuru

Channurashahar Electricity Supply Corporation Ltd.
Mysuru

Annual Energy Audit Report (FY 2022-2023): CESC Mysuru

100 CD/1491308
 ISSUED BY STATE BANK OF MYSORE ON BEHALF OF GOVERNMENT OF KARNATAKA
 (Certified that a sum of Rs. 100/- (Rupees one hundred only) has been paid towards Karnataka Stamp duty
 by Sr. Smt. The Sandur Manganesa & Iron Ores Ltd
 s/d/w of _____ residing at _____
 Proper Officer's Signature
 Mr. Name _____
 Date 5 JAN 2004

This Power Purchase Agreement is made and entered into at Bangalore on this Eighth day of January Two Thousand and Four between KARNATAKA POWER TRANSMISSION CORPORATION LIMITED, incorporated in India under the Companies Act, 1956 and having its registered office located at Kaveri Bhavan, Bangalore, State of Karnataka hereinafter referred to as the "Corporation" (which expression shall, unless repugnant to the context or meaning thereof, include its successors and permitted assigns) as party on the first part, and THE SANDUR MANGANESE & IRON ORES LIMITED, a company formed and incorporated under the Companies Act, 1956, and a "Generating Company" under section 2 (4-A) of the Electricity (Supply) Act, 1948 having its registered office at Lakshminarayana Sandur - 583 119, Bellary District, hereinafter referred to as the "Company" (which expression shall, unless repugnant to the context or meaning thereof, include its successors, and permitted assigns) as party on the second part.

WHEREAS

- i) The Govt. of Karnataka by its Order No. DE/154/PPC/94(13) Bangalore dated 06.09.1994 and Letter No. DE/154/PPC/94 dated 03.09.1995 has accorded its sanction to the proposal of the Company for installation of a Mini Hydro Electric Power Generating Station of 16 MW capacity at Hemavathy Left Bank Canal, Gaur Village, Arakalgud Taluk, Hassan District, and permitted Corporation to enter into an agreement with the Company for purchase of Electricity.
- ii) Pursuant to (i) the Company has developed, designed, engineered, procured finance, constructed, owned and is operating and maintaining a Mini Hydro Electric Power Generating Station, hereinafter defined as the Project, with a gross capacity of 16 MW at Hemavathy Left Bank Canal, Gaur Village, Arakalgud Taluk, Hassan District and desires to sell Electricity to the Corporation.
- iii) Corporation which is engaged in the purchase, transmission, distribution and supply of electricity has agreed to purchase Electricity (as hereinafter defined) from the Company to be generated at 16 MW power project at Hemavathy Left Bank Canal, Gaur Village, Arakalgud Taluk, Hassan District, on the conditions set forth herein.

NOW THEREFORE IN VIEW OF THE FOREGOING PREMISES AND IN CONSIDERATION OF THE MUTUAL COVENANTS AND CONDITIONS HEREINAFTER SET FORTH, CORPORATION AND THE COMPANY, EACH HEREBY AGREE AS FOLLOWS:



Sd/-
 General Manager (Technical)
 KPTCL, Narvin Br. Mysuru
 Bangalore-560022

Sd/-

Table 24 Details of power purchase

Details of Input Energy Sources

Period From April-2022 to March-2023 (Provisional)

Details of Power Purchase by CESC as per GoK allocation from April-2022 to March-2023 (Provisional)

Sl. No	Name of Generation Station	Type of Station (generation Based-Solid/Liquid/Gas/Renewable/ Others	Type of Contract	Power Purchase by CESC as per GoK allocation (April-22 to March-23) in MU
	KPCL STATIONS			
	KPCL HYDEL			
1	Sharavathi Valley Project-Sharavathy GS	Hydel	Long term	730.58
2	Linganamakki Power House	Hydel	Long term	34.68
3	Kali Valley Project	Hydel	Long term	1119.03
4	Varahi Valley Project	Hydel	Long term	173.61
5	Kadra Power House	Hydel	Long term	48.35
6	Kodasalli Dam Power House	Hydel	Long term	46.92
7	Gerusoppa Power House	Hydel	Long term	77.82
8	Ghataprabha Hydro Electric Project	Hydel	Long term	12.15
9	Bhadra Power House	Hydel	Long term	13.97
10	Alamatti Dam Power House	Hydel	Long term	86.80
11	Varahi Unit 3 & 4	Hydel	Long term	
12	Kalmala	Hydel	Long term	
13	Genekal	Hydel	Long term	
14	Sirwar	Hydel	Long term	

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15	Mallapur & Others	Hydel	Long term	
16	MGHE-Jog	Hydel	Long term	75.99
17	Shiva	Hydel	Long term	37.09
18	Munirabad	Hydel	Long term	15.91
19	Shimsa	Hydel	Long term	2.18
				2475.07
	KPCL THERMAL			
1	RTPS -1 & 2	Thermal	Long term	64.00
2	RTPS 3	Thermal	Long term	86.47
3	RTPS 4	Thermal	Long term	76.24
4	RTPS 5 & 6	Thermal	Long term	145.39
5	RTPS 7	Thermal	Long term	68.82
6	RTPS 8	Thermal	Long term	92.72
7	BTPS-1	Thermal	Long term	181.05
8	BTPS-2	Thermal	Long term	169.69
9	BTPS-3	Thermal	Long term	249.69
				1134.08
	SGS			
1	Yermaras TPS (RPCL)	Thermal	Long term	399.31
	CGS			
1	N.T.P.C-Ramagundam 1 & 2	Thermal	Long term	259.28
2	N.T.P.C-Ramagundam 3	Thermal	Long term	68.09
3	NTPC-Talcher	Thermal	Long term	279.60
4	NTPC-Simhadri	Thermal	Long term	126.50
5	NTPC-Kudigi	Thermal	Long term	504.68
6	NTPC-Tamil Nadu Energy Company Ltd	Thermal	Long term	94.25
7	NLC TPS1-Expn	Thermal	Long term	62.81
8	NLC TPS 2-Stage-1	Thermal	Long term	94.83
9	NLC TPS 2-Stage-2	Thermal	Long term	71.63
10	NLC TPS 2-Exp	Thermal	Long term	43.51
11	NLC-Tamilnadu Power Limited	Thermal	Long term	126.88
12	Madras Atomic Power Station	Nuclear	Long term	11.15
13	Kaiga Generating Station-1&2	Nuclear	Long term	92.93

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14	Kaiga Generating Station-3&4	Nuclear	Long term	111.61
15	Kudankulam Nuclear Power Project	Nuclear	Long term	301.64
16	Damodar Valley Corporation-Mejia TPS	Thermal	Long term	139.71
17	Damodar Valley Corporation-Koderma TPS	Thermal	Long term	168.96
18	South Western Railways	Thermal	Long term	-2.61
19	Neyveli New Thermal Power Plant (NNTPP)	Thermal	Long term	50.43
				2605.88
	MAJOR IPPs			
1	Udupi Power Corporation Limited	Thermal	Long term	178.96
	Bundled power			
1	NTPC-VVNL (Bundled Power-Coal)	Thermal	Long term	45.24
2	NTPC-VVNL (Bundled Power-Solar)	Solar	Long term	11.32
				56.56
	NSM			
1	NTPC Bundled Power (NSM-Coal)	Thermal	Long term	
2	NTPC Bundled Power (NSM-Solar)	Solar	Long term	146.44
				146.44
	SOLAR			
1	Madhav Solar (Karnataka) Pvt Ltd-Project-1	Solar	Long term	8.08
2	Madhav Solar (Karnataka) Pvt Ltd-Project-2	Solar	Long term	8.16
3	Emami Power Ltd	Solar	Long term	16.96
4	CBM Enterprises	Solar	Long term	5.29
5	Chikku Energy Pvt Ltd	Solar	Long term	5.36
6	Saketh Solar Energy LLP	Solar	Long term	4.67
7	Gorich Energy Pvt Ltd	Solar	Long term	1.86
8	A.V.Anjaneya Prasad	Solar	Long term	1.38
9	Raygen Power Pvt Ltd	Solar	Long term	4.89
10	Tanivi Solar Pvt Ltd	Solar	Long term	4.64
11	Azure Sunrise Pvt Ltd	Solar	Long term	83.31
12	Asian Fab Tech Ltd	Solar	Long term	7.26
13	Raghu Infra Pvt Ltd	Solar	Long term	4.67
14	Avid Green Energy Pvt Ltd	Solar	Long term	4.36
15	Laxjeet Renewable Energy Pvt.LTD	Solar	Long term	8.60

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16	Sourashakthi Energy Pvt.Ltd	Solar	Long term	2.95
17	Gaviranga Solar Pvt Ltd	Solar	Long term	1.69
18	Adani Green Energy (UP) Ltd-TN Pura	Solar	Long term	39.37
19	Swelect Power Systems Pvt Ltd	Solar	Long term	14.27
20	Heliocore Pvt Ltd	Solar	Long term	1.26
21	Anantapur Solar Parks Ltd	Solar	Long term	38.00
22	Shorapur Solar Power Ltd	Solar	Long term	14.07
23	Adani Green Energy (UP) Ltd-Magadi	Solar	Long term	37.23
24	Clean Solar Power (Tumkur) Pvt Ltd-Ch.Nagar	Solar	Long term	36.57
25	Clean Solar Power (Tumkur) Pvt Ltd-Gundlupet	Solar	Long term	35.99
26	Clean Solar Power (Tumkur) Pvt Ltd-Kollegal	Solar	Long term	36.72
27	Energon Soleq Ravi India Power Resources Pvt Ltd	Solar	Long term	202.16
28	Wardha Solar Maharashtra Pvt Ltd	Solar	Long term	22.44
29	Baladev solar Park Pvt Ltd	Solar	Long term	2.26
30	Avaada Solar Energy Pvt Ltd	Solar	Long term	109.30
31	Fortum Solar India Pvt Ltd	Solar	Long term	106.53
32	JRK Solar projects Pvt Ltd	Solar	Long term	9.86
33	Abha Sunlight Pvt Ltd	Solar	Long term	40.40
34	Izra Solar Energy Pvt Ltd	Solar	Long term	41.74
35	NokorBhoomi Pvt Ltd	Solar	Long term	42.33
				1004.63
	S RTPV			
1	S RTPV-Gross & Net Metering	Solar	Long term	11.24
	Other States			
1	Priyadarshini Jurala Hydro Electric Scheme	Hydel	Long term	32.30
2	TBHE	Hydel	Long term	4.95
3	KSEB		Long term	0.94
				38.19
	Medium Term			
1	M/s. Bhalkeshwar Sugars Ltd.	Cogen	Medium Term	0.00
2	M/s. Core Green Sugar & Fuels Pvt. Ltd.	Cogen	Medium Term	0.00
3	M/s. Davanagere Sugars Co.	Cogen	Medium Term	0.00
4	M/s. E.I.D Parry (India) Ltd.(Haliyal)	Cogen	Medium Term	0.00
5	M/s. E.I.D Parry (India) Ltd.(Sadashiva)	Cogen	Medium Term	0.00

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6	M/s. GEM Sugars Ltd.	Cogen	Medium Term	0.00
7	M/s. GM Sugar & Energy Ltd.	Cogen	Medium Term	0.00
8	M/s. Godavari Biorefineries Ltd.	Cogen	Medium Term	0.00
9	M/s. Indian Cane Power Ltd	Cogen	Medium Term	0.00
10	M/s. Jamkhandi Sugars Ltd.(Unit-I)	Cogen	Medium Term	0.00
11	M/s. Jamkhandi Sugars Ltd.(Unit-II)	Cogen	Medium Term	0.00
12	M/s. K.P.R Sugars Ltd.	Cogen	Medium Term	0.00
13	M/s. Manali Sugars Ltd.	Cogen	Medium Term	0.00
14	M/s. Nirani Sugars Ltd.	Cogen	Medium Term	0.00
15	M/s. NSL Sugars Ltd.(Aland)	Cogen	Medium Term	0.00
16	M/s. NSL Sugars Ltd.(Koppa)	Cogen	Medium Term	0.00
17	M/s. NSL Sugars Ltd.(Tungabhadra)	Cogen	Medium Term	0.00
18	M/s. Shiraguppi Sugar Works Ltd.	Cogen	Medium Term	0.00
19	M/s. Shivashakti Sugars Ltd.	Cogen	Medium Term	0.00
20	M/s. Shree Renuka Sugars Ltd.(Burlatti)	Cogen	Medium Term	0.00
21	M/s. Shree Renuka Sugars Ltd.(Havalga)	Cogen	Medium Term	0.00
22	M/s. Shree Renuka Sugars Ltd.(Munoli)	Cogen	Medium Term	0.00
23	M/s. Shri Prabhulingeshwar Sugars & Chemicals Ltd.	Cogen	Medium Term	0.00
24	M/s. Soubhagyalaxmi Sugars Ltd.	Cogen	Medium Term	0.00
25	M/s. Sri Chamundeswari Sugars Ltd.	Cogen	Medium Term	0.00
26	M/s. Vijayanagar Sugar Pvt. Ltd.	Cogen	Medium Term	0.00
27	M/s. Vishwaraj Sugar Industries Ltd.	Cogen	Medium Term	0.00
28	M/s. Athani Sugars Ltd.	Cogen	Medium Term	0.00
29	M/s. Bannari Amman Sugars Ltd. (Alaganchi-Line 2)	Cogen	Medium Term	0.00
30	M/s. Bannari Amman Sugars Ltd. (Kunthur)	Cogen	Medium Term	0.00
31	M/s. Satish Sugars Ltd.	Cogen	Medium Term	0.00
32	M/s. Shree Doodhaganga Krishna SSK Niyamit	Cogen	Medium Term	0.00
33	M/s. Shri Hiranyakeshi SSK Niyamit	Cogen	Medium Term	0.00
34	M/s. The Nandi SSK Niyamit	Cogen	Medium Term	0.00
35	M/s. The Ugar Sugar Works Ltd. (Malli)	Cogen	Medium Term	0.00
36	M/s. The Ugar Sugar Works Ltd. (Ugar Kurd)	Cogen	Medium Term	0.00
37	Unauthorised Energy			15.50

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				15.50
	NCE SOURCES			
	CO-GEN			
1	M/s. Bannari Amman Sugars Ltd. (16 MW)	Cogen	Long term	0.56
2	M/s. Sri Chamundeshwari Sugar Ltd-U-II	Cogen	Long term	20.19
3	M/s.Mysore Sugar Company Ltd	Cogen	Long term	0.00
				20.75
	BIO-MASS			
1	M/s. The South India Paper Mills Ltd.	Bio mass	Long term	0.00
2	Unauthorised Energy			
				0.00
	MINI-HYDEL			
1	M/s. Atria Brindavan Power Ltd. (04 MW)	Hydel	Long term	20.96
2	M/s. Atria Brindavan Power Ltd. (12 MW)	Hydel	Long term	39.77
3	M/s. Bhoruka Power Corporation Ltd. (MGR)	Hydel	Long term	5.27
4	M/s. Bhoruka Power Corporation Ltd. (MJK)	Hydel	Long term	14.77
5	M/s. Bhoruka Power Corporation Ltd. (MMT)	Hydel	Long term	22.61
6	M/s. Bhoruka Power Corporation Ltd. (SLS)	Hydel	Long term	20.59
7	M/s. Bhoruka Power Corporation Ltd. (SRK)	Hydel	Long term	0.00
8	M/s. Energy Development Company Ltd.(Hydel)	Hydel	Long term	0.00
9	M/s. Flax Hydro Energy Pvt. Ltd.	Hydel	Long term	2.75
10	M/s. Hemavathy Power & Light Pvt. Ltd. (HLBC)	Hydel	Long term	53.90
11	M/s. Hemavathy Power & Light Pvt. Ltd. (HRB)	Hydel	Long term	22.06
12	M/s. Minera Green Energy Pvt Ltd	Hydel	Long term	23.19
13	M/s. Mysore Mercantile Co. Ltd.	Hydel	Long term	5.95
14	M/s. Nagarjuna Hydro Energy Pvt. Ltd.	Hydel	Long term	36.96
15	M/s. Sai Nireeha Power Project Pvt. Ltd.	Hydel	Long term	0.00
16	M/s. Trishul Power Private Ltd.	Hydel	Long term	5.91
17	M/s. Venika Green Power Pvt. Ltd.	Hydel	Long term	0.29
18	M/s. Vijayalakshmi Hydro Power Pvt. Ltd.	Hydel	Long term	0.35
				275.33
	WINDMILLS-STAGE 1			

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1	M/s. Emkay Taps & Cutting Tools Pvt. Ltd.	windmill	Long term	1.73
2	M/s. Energy Development Company Ltd. (WIND)	windmill	Long term	3.03
3	M/s. Happy Valley Developers	windmill	Long term	1.62
4	M/s. Keerthi Industries Ltd.	windmill	Long term	2.63
5	M/s. NVR Vidyut Pvt Ltd. (H 36-38)	windmill	Long term	7.25
6	M/s. NVR Vidyut Pvt Ltd. (H-40))	windmill	Long term	2.04
7	M/s. NVR Vidyut Pvt Ltd. (H-43)	windmill	Long term	2.16
8	M/s. Kuminex Minerals Pvt. Ltd.	windmill	Long term	7.24
9	M/s. Mukund Kamath. S	windmill	Long term	2.03
10	M/s. Nu-Tech Associates	windmill	Long term	3.30
11	M/s. Nu-Tech Prasiddhi Consortium	windmill	Long term	2.95
12	M/s. Ramabhen Ukabhai	windmill	Long term	3.13
13	M/s. Ramco Industries Ltd.	windmill	Long term	2.71
14	M/s. Ratnagiri Impex Pvt. Ltd.	windmill	Long term	1.50
15	M/s. Renaissance Holdings & Developers Pvt. Ltd. (H-27&28)	windmill	Long term	5.65
16	M/s. Renaissance Holdings & Developers Pvt. Ltd. (H-33&35)	windmill	Long term	5.85
17	M/s. Saphthagiri Distilleries Pvt. Ltd.	windmill	Long term	6.48
18	M/s. Savita Oil Technologies Ltd. (H 05-07)	windmill	Long term	6.91
19	M/s. Savita Oil Technologies Ltd. (H-26)	windmill	Long term	2.70
20	M/s. Savita Oil Technologies Ltd. (H-32)	windmill	Long term	2.54
21	M/s. Savita Oil Technologies Ltd. (H-39)	windmill	Long term	2.21
22	M/s. Simran Wind Projects Pvt. Ltd. (H-29)	windmill	Long term	1.71
23	M/s. Simran Wind Projects Pvt. Ltd. (H-34)	windmill	Long term	2.13
24	M/s. Ushdev Engitech Ltd. (H-14)	windmill	Long term	2.82
25	M/s. Ushdev Engitech Ltd. (H-15)	windmill	Long term	2.84
26	M/s. Ushdev Engitech Ltd. (H-16)	windmill	Long term	3.47
27	M/s. Ushdev Engitech Ltd. (H-17)	windmill	Long term	3.01
28	M/s. Ushdev Engitech Ltd. (H-18)	windmill	Long term	3.21
29	M/s. The Chennai Silks	windmill	Long term	3.94
30	M/s. S Qube Energy Projects Pvt. Ltd.	windmill	Long term	2.81
				101.64
	WINDMILLS-STAGE 2			

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1	M/s. Arvind.V.Joshi & Co.	windmill	Long term	1.96
2	M/s. Avon Cycles Ltd. (GP-08)	windmill	Long term	2.54
3	M/s. Avon Cycles Ltd. (GP-09)	windmill	Long term	2.53
4	M/s. BVS Energy Systems (GP-11)	windmill	Long term	2.23
5	M/s. BVS Energy Systems (GP-12)	windmill	Long term	2.31
6	M/s. Eastman International	windmill	Long term	7.80
7	M/s. Friends Salt Works & Allied Industries (GP-14)	windmill	Long term	1.75
8	M/s. Friends Salt Works & Allied Industries (GP-16)	windmill	Long term	2.37
9	M/s. Friends Salt Works & Allied Industries (GP-20)	windmill	Long term	2.09
10	M/s. GAIL (India) Ltd. (MG 01-06)	windmill	Long term	14.46
11	M/s. GAIL (India) Ltd. (MG 07-13)	windmill	Long term	14.44
12	M/s. GAIL (India) Ltd. (MG 14-15)	windmill	Long term	4.97
13	M/s. GAIL (India) Ltd. (MG 16-17)	windmill	Long term	4.09
14	M/s. Hindustan Zinc Ltd. (GP 02-04)	windmill	Long term	6.00
15	M/s. Hindustan Zinc Ltd. (GP-17)	windmill	Long term	2.39
16	M/s. Hindustan Zinc Ltd. (GP 23-24)	windmill	Long term	5.07
17	M/s. Hindustan Zinc Ltd. (GP 28-31)	windmill	Long term	8.06
18	M/s. Durga Agencies (GP-19)	windmill	Long term	1.96
19	M/s. Pearlite Liners Pvt. Ltd.	windmill	Long term	2.42
20	M/s. Sree Minerals	windmill	Long term	2.27
21	M/s. Durga Agencies (GP-18)	windmill	Long term	2.16
22	Unauthorised Energy			
				93.88
	Bi-lateral/UI/Trading			
1	UI Charges			-22.62
2	IEX			-313.03
3	Others			4.14
4	SLDC Administrative Charges/Other Charges			
	Energy Balancing			
1	Energy Balancing-BESCOM			-196.37
2	Energy Balancing-MESCOM			-3.11

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3	Energy Balancing-HESCOM			-287.83
4	Energy Balancing-GESCOM			-201.37
				7537.27

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ANNEXURE IX CATEGORY OF SERVICE DETAILS

Table 25 Category of service details

Summary of Energy				
From 01-April-2022 to 31-March-2023				
S.No	Type of Consumers	Category of Consumers (EHT/HT/LT/Others)	No of Consumers	Total Consumption (In MU)
1	Domestic	LT-1, LT2A	2724220	1217.11
2	Commercial	LT-3	299144	366.54
3	IP Sets	LT-4 A & B	468644	2750.13
4	Hor. & Nur. & Coffee/Tea & Rubber (Metered)	LT4C	11706	21.73
5	Heating and Motive Power	LT-5	50627	177.35
6	Water Supply	LT-6A	32419	269.75
7	Public Lighting	LT-6B	27880	99.45
8	HT Water Supply	HT-1	201	513.87
9	HT Industrial	HT-2A	1347	899.41
10	HT Commercial	HT2B	931	134.55
11	Applicable to Government Hospitals & Hospitals	HT2C	380	62.54
12	Lift Irrigation Schemes/Lift Irrigation Societies	HT-3	138	57.52
13	HT Res. Apartments Applicable to all areas	HT-4	51	4.03
14	Others-1 (if any , specify in remarks)	LT-2B, LT-7, HT-5 & AUXILIARY	86167	42.91
Totals			3703855	6616.88

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ANNEXURE X SUBSIDY DETAILS

Quarterly Consumer Category-wise Subsidy Billed/Received/Due for period April-22 to March-2023															
Month/Year	Consumer Category (separate for each subsidized consumer category)	Billed Energy			Subsidized Billed Energy			Subsidy as notified by state govt.		Subsidy Due from state govt.			Actually Billed/claimed from State Govt. as against col.12 (in Rs Cr.)	Subsidy Received from State Govt. as against col.13 (in Rs Cr.)	Balance Subsidy yet to be Received from State Govt. (in Rs Cr.)
		Meter	Un-metered	Total	Meter	Un-metered	Total	Meter	Un-metered	Meter	Un-metered	Total			
		(in kwh)			(in kwh)			(in kwh)		(in Rs Cr.)					
1		2	3	4=2+3	5	6	7=5+6	8	9	10=5x8	11=6x9	12=10+11	13	14	15=13-14
	Residential	1221135780		1221135780	90709626		90709626	9.70		87.99	0.00	87.99	87.99	87.99	0.00
	Agriculture	58930537	2713346243	2772276780	36149679	2713342535	2749492214	8.03	8.03	29.03	2178.81	2207.84	2207.84	2028.87	178.97
	Commercial/Industrial- LT						0					0			
	Commercial/Industrial- HT						0					0			
	Other (specify)						0					0			
April-22 to March-2023	Total	1280066317	2713346243	3993412559	126859304	2713342535	2840201839			117.02	2178.81	2295.83	2295.83	2116.86	178.97

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ANNEXURE XI LIST OF DOCUMENTS VERIFIED

Sl No	Area	Name	Remarks
1	Input Energy	Input Energy (MU)	Power Purchase Agreements and Annual Energy Accounting sheets as per BEE.
		Renewable Energy Input	
		Details of Power Purchase Agreements	
2	Division Losses	No of connectionmetered (Nos)	Report Provided by DSM dept.
		No of connectionUn-metered (Nos)	
		Connected Load Metered (MW)	Report Provided by DSM dept.
		Connected Load Un-metered (MW)	
		Input Energy (MU)	Details from Energy Accounts and Bills
		Metered energy(MU)	
		Unmetered energy/AssessmentEnergy (MU)	As per Calculations from BEE
		T&D Losses (MU)	As per BEE data Sheet
		Billed Amount	Data provided by Revenue Dept.
		Collected Amount	
AT&C Loss	Internal Data base		
3	Details of Input Energy Sources	Generation at Transmission Periphery (Details)	Internal Data base
		Embedded Generation in DISCOM Area	
4	Details of Feeder wise Losses	Feeder wise Energy Accounting	
5	Energy Conservation Measures	Energy Conservation Measures implemented	Provided by the Energy Audit Cell
		Energy Conservation Measures Planned for the Future	
6	Previous Year Performance	Energy Accountings for the previous years	Annual Energy Accountings
7	Diagrams	Single Line Diagrams of the Distribution	



ANNEXURE XII LIST OF PARAMETERS ARRIVED THROUGH
CALCULATION

Calculation of % Distribution Loss

The % Distribution Loss of the DISCOM is calculated, taking EHT sales into consideration & excluding Open Access Energy.

The % Distribution Loss of the DISCOM is arrived at as per the following formula:

$$\% \text{ Distribution Loss} = \frac{(\text{Input Energy (MU)} - \text{Billed Energy (MU)})}{\text{Input Energy (MU)}} * 100$$

Calculation of % AT&C Loss

The % AT&C Loss of the DISCOM is calculated, including subsidies in both billed amount and collected amount.

% AT&C Loss of the DISCOM is arrived at as per the following formula:

$$\% \text{ AT\&C Loss} = \frac{(\text{Input Energy} - (\text{Sales}) * \text{Collection Efficiency})}{\text{Input Energy}} * 100$$

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Details of Division Wise Losses																					
Division Wise Losses																					
Period From 01-April -2022 to 31-March-2023																					
S. No	Name of circle	Name of Division	Consumer profile							Energy parameters					Losses		Commercial Parameter				
			No of connection	No of connection Un-metered	Total Number of connections (Nos)	% of number of connections	Connected Load (MW)	Un-metered Load (MW)	Total Connected Load (MW)	% of connected load	Input energy (MU)	Metered energy	Unmetered/assessments energy	Total energy	% of energy consumption	T&D loss (MU)	T&D loss (%)	Billed Amount in Rs. Crore	Collected Amount in Rs. Crore	Collection Efficiency	AT & C loss (%)
1	Mysuru	N.R.	283225	0	283225	0.77	328.33	0.00	328.33	0.51	221.69	0.00	221.69	0.41	44.69	0.08	175.95	176.40	1.00		
			245	7283	7528	0.02	0.63	27.53	28.16	0.04	590.78	0.61	41.80	42.41	0.08			29.30	28.85	0.98	
			59108	0	59108	0.16	145.59	0.00	145.59	0.23		92.12	0.00	92.12	0.17			105.51	104.42	0.99	

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		Commercial/Industrial-HT	427	0	427	0.00	70.37	0.00	70.37	0.11		103.69	0.19			113.3	112.7	0.99
		Others	19650	0	19650	0.05	72.24	0.00	72.24	0.11		86.18	0.16			77.42	70.27	0.91
	Sub-total		362655	728	369938	1.00	617.16	27.53	644.69	1.00	590.78	41.80	1.00	44.6	0.08	501.5	492.6	0.98
		Residential	264932	0	264932	0.82	384.35	0.00	384.35	0.46		213.86	0.32			174.4	173.3	0.99
		Agricultural	543	739	7942	0.02	1.77	27.70	29.46	0.04		34.17	0.05			23.89	21.69	0.91
		Commercial/Industrial-LT	35695	0	35695	0.11	141.79	0.00	141.79	0.17	694.35	86.61	0.13	29.8	0.04	97.39	97.69	1.00
		Commercial/Industrial-HT	579	0	579	0.00	192.66	0.00	192.66	0.23		260.15	0.39			262.8	264.3	1.01
		Others	15378	0	15378	0.05	86.42	0.00	86.42	0.10		69.70	0.10			61.74	75.41	1.22
	Sub-total		317127	739	324526	1.00	806.98	27.70	834.68	1.00	694.35	31.34	1.00	29.8	0.04	620.3	632.4	1.02
		Residential	203508	0	203508	0.75	82.85	0.00	82.85	0.17		66.91	0.11			59.57	58.11	0.98
		Agricultural	5828	341	39998	0.15	21.85	130.64	152.49	0.32	643.73	228.52	0.42	55.3		170.7	152.5	0.89
		Commercial/Industrial-LT	18720	0	18720	0.07	49.36	0.00	49.36	0.10		27.18	0.05	3		30.97	30.91	1.00
		Commercial/Industrial-HT	212	0	212	0.00	122.85	0.00	122.85	0.26		166.8	0.28			173.2	185.5	1.07
	Sub-total		203508	341	39998	0.15	21.85	130.64	152.49	0.32	643.73	228.52	0.42	55.3	0.09	170.7	152.5	0.89
		Commercial/Industrial-LT	18720	0	18720	0.07	49.36	0.00	49.36	0.10		27.18	0.05	3		30.97	30.91	1.00
		Commercial/Industrial-HT	212	0	212	0.00	122.85	0.00	122.85	0.26		166.8	0.28			173.2	185.5	1.07

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6	Chama rajanagara & Kodagu	Residential	175553	0	175553	0.72	60.02	0.00	60.02	0.15	471.87	51.12	0.00	51.12	0.12	48.02	44.86	0.93
			413	81	41600	0.17	212.3	2	213.14	0.54		17.69	248.01	265.70	0.64	180.8	171.0	0.95
			0	0	16702	0.07	36.46	0.00	36.46	0.09		21.99	0.00	21.99	0.05	24.76	25.05	1.01
			0	0	117	0.00	32.99	0.00	32.99	0.08		41.83	0.00	41.83	0.10	43.14	43.20	1.00
			0	0	11077	0.05	51.60	0.00	51.60	0.13		37.35	0.00	37.35	0.09	34.46	33.83	0.98
			413	81	245049	1.00	181.88	2	394.20	1.00		169.9	248.01	417.98	1.00	331.2	317.9	0.96
7	Chama rajanagara & Kodagu	Residential	128331	0	128331	0.72	52.33	0.00	52.33	0.23	347.87	44.46	0.00	44.46	0.14	39.70	34.45	0.87
			289	58	29055	0.16	120.4	9	120.49	0.53		1.19	213.50	214.69	0.70	148.0	147.1	0.99
			0	0	14421	0.08	28.44	0.00	28.44	0.13		16.57	0.00	16.57	0.05	18.51	18.47	1.00
			0	0	21	0.00	2.47	0.00	2.47	0.01		1.82	0.00	1.82	0.01	2.21	2.15	0.97
			0	0	5258	0.03	23.41	0.00	23.41	0.10		29.30	0.00	29.30	0.10	26.51	16.09	0.61
			289	58	177086	1.00	106.65	9	227.14	1.00		93.33	213.50	306.83	1.00	41.0	218.2	0.93
8	Chama rajanagara	Residential	191521	0	191521	0.77	187.39	0.00	187.39	0.45	274.31	100.9	0.00	100.96	0.43	78.81	79.54	1.01
			21	21	15211	0.06	36.24	0.04	36.28	0.09		39.38	0.00	39.38	0.17	32.85	0.00	0.00
Sub-total	Chama rajanagara	Residential	148128	289	177086	1.00	106.65	120.4	227.14	1.00	347.87	93.33	213.50	306.83	1.00	234.9	218.2	0.93
			58	58	15211	0.06	36.24	0.04	36.28	0.09	39.38	0.00	39.38	0.17	32.85	0.00	0.00	
Sub-total	Chama rajanagara	Residential	148128	289	177086	1.00	106.65	120.4	227.14	1.00	347.87	93.33	213.50	306.83	1.00	234.9	218.2	0.93
			58	58	15211	0.06	36.24	0.04	36.28	0.09	39.38	0.00	39.38	0.17	32.85	0.00	0.00	

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		Others	7530	0	7530	0.03	76.12	0.00	76.12	0.19		359.74	0.00	359.74	0.46			237.85	235.71	0.99		
Sub-total			202625	40301	242926	1.00	235.52	158.72	394.24	1.00	834.69	774.26	272.94	774.26	1.00	60.43	0.07	562.34	551.78	0.98		
11	Man dya	Pand ava pura	Residential	116201	0	116201	0.74	58.54	0.00	58.54	0.24		43.30	0.00	43.30	0.13		36.34	36.47	1.00		
			Agricultural	77	17240	17317	0.11	60.68	60.68	0.24				173.69	177.55	0.54	36.07		122.88	120.40	0.98	
			Commercial/ Industrial-LT	15802	0	15802	0.10	49.20	0.00	49.20	0.20	366.57		23.15	0.00	23.15	0.07	0.10		25.63	26.38	1.03
			Commercial/ Industrial-HT	106	0	106	0.00	35.65	0.00	35.65	0.14			28.94	0.00	28.94	0.09			30.00	30.27	1.01
			Others	6563	0	6563	0.04	45.02	0.00	45.02	0.18			57.56	0.00	57.56	0.17			46.00	36.33	0.79
Sub-total			138749	17240	155989	1.00	188.40	60.68	249.08	1.00	366.57	330.50	173.69	330.50	1.00	36.07	0.10	260.86	249.85	0.96		
12	Man dya	K R Pete	Residential	77713	0	77713	0.69	32.31	0.00	32.31	0.21		23.32	0.00	23.32	0.09			19.39	19.50	1.01	
			Agricultural	23	23659	23682	0.21	78.89	78.89	0.52				209.50	209.59	0.80			146.60	146.35	1.00	
			Commercial/ Industrial-LT	7992	0	7992	0.07	18.98	0.00	18.98	0.12	292.17		9.93	0.00	9.93	0.04	0.11		11.37	11.49	1.01
			Commercial/ Industrial-HT	16	0	16	0.00	5.38	0.00	5.38	0.04			5.74	0.00	5.74	0.02			6.08	6.08	1.00
			Others	3226	0	3226	0.03	16.57	0.00	16.57	0.11			12.92	0.00	12.92	0.05			10.81	8.03	0.74
Sub-total			88970	23659	112629	1.00	73.23	78.89	152.12	1.00	292.17	261.49	209.50	261.49	1.00	30.68	0.11	194.25	191.47	0.99		
																					0.12	

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13	Mandya	Nagamangala	Residential	62879	0	62879	0.68	30.89	0.00	30.89	0.23	193.54	19.51	0.00	19.51	0.11	20.9 1	0.11	16.95	17.59	1.04
			Agricultural	31	180	18128	0.20	0.00	65.10	0.49	0.02		124.29	124.32	0.72	86.91			86.87	1.00	
			Commercial/Industrial-LT	7248	0	7248	0.08	19.64	0.00	19.64	0.15		11.16	11.16	0.06	12.47			12.73	1.02	
			Commercial/Industrial-HT	24	0	24	0.00	4.89	0.00	4.89	0.04		4.08	4.08	0.02	4.84			4.84	1.00	
			Others	3748	0	3748	0.04	11.48	0.00	11.48	0.09		13.56	13.56	0.08	12.54			12.50	1.00	
Sub-total		73930	180	92027	1.00	66.89	65.10	131.99	1.00	193.54	193.54	1.00	48.34	124.29	172.63	1.00	20.9 1	0.11	133.7 1	134.5 2	1.01 1.01
14	Hassan	Hassan	Residential	158627	0	158627	0.74	131.99	0.00	131.99	0.15	567.99	77.64	0.00	77.64	0.15	39.2 7	0.07	63.73	64.14	1.01
			Agricultural	370	235	23942	0.11	0.81	504.4 7	505.28	0.56		0.52	112.43	112.95	0.21			79.66	78.61	0.99
			Commercial/Industrial-LT	24643	0	24643	0.12	63.84	0.00	63.84	0.07		43.59	43.59	0.08	48.26			48.74	1.01	
			Commercial/Industrial-HT	251	0	251	0.00	142.56	0.00	142.56	0.16		249.1 0	249.10	0.47	224.5 4			227.9 6	1.02	
			Others	5585	0	5585	0.03	51.10	0.00	51.10	0.06		45.44	45.44	0.09	46.28			42.92	0.93	
Sub-total		189476	235	213048	1.00	390.28	504.4 7	894.75	1.00	567.99	567.99	1.00	416.2 9	112.43	528.72	1.00	39.2 7	0.07	462.4 7	462.3 8	1.00 1.00
15	Hassan	Sakaleshpura	Residential	127587	0	127587	0.76	67.72	0.00	67.72	0.30	216.70	41.64	0.00	41.64	0.22	24.3 6	0.11	35.37	36.75	1.04
			Agricultural	5327	174	22753	0.13	3.22	63.50	66.73	0.30		10.37	91.90	102.27	0.53			76.01	64.39	0.85

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Residential	272427	0	272427	0.74	1875.26	0.00	1875.2	0.28	7282.06	1221.	0.00	1221.1	0.18	665.	0.09	1012.	1008.	1.00
	1		1			6				14	4	4	52					
Agricultural	28753	451	480488	0.13	66.95	2166.	2233.4	0.34	7282.06	116.0	2713.34	2829.3	0.43	665.	0.09	1987.	1880.	0.95
	735		9			55				3	7	7	14					
Commercial/Industrial-LT	349771	0	349771	0.09	941.84	0.00	941.84	0.14	7282.06	543.8	0.00	543.89	0.08	665.	0.09	613.6	616.5	1.00
										9			8					
Commercial/Industrial-HT	2278	0	2278	0.00	745.35	0.00	745.35	0.11	7282.06	1033.	0.00	1033.9	0.16	665.	0.09	1045.	1050.	1.00
										96		6	43					
Others	147047	0	147047	0.04	848.77	0.00	848.77	0.13	7282.06	988.5	0.00	988.52	0.15	665.	0.09	806.5	818.9	1.02
										2			8					
Total	325212	451	370385	1.00	4478.16	2166.	6644.7	1.00	7282.06	3903.	2713.34	6616.8	1.00	665.	0.09	5466.	5374.	0.98
	0	735	5			55	0			54		8		18		98	65	1

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