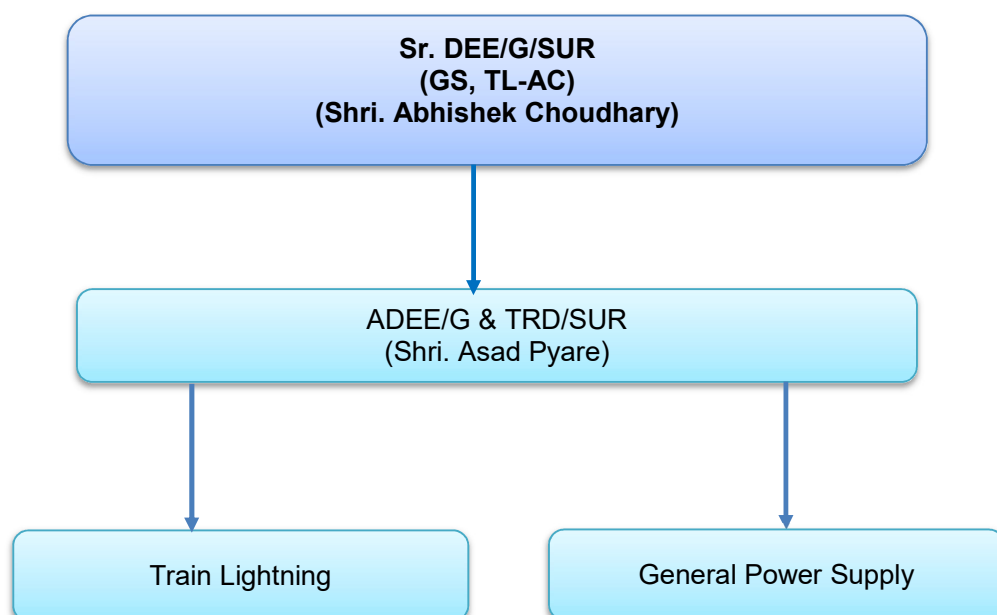


ELECTRICAL DEPARTMENT ORGANIZATION STRUCTURE



CADRE POSITION

Cadre	SS	MOR	Total Vac.	Total Vac %
OSM	240	180	60	25.00
TLAC	219	205	14	06.39
Ministerial	37	23	14	37.84
TOTAL	496	408	88	17.74

Activities of Electrical Department

Electrical department (GS) of Solapur Division plays vital role to fulfill the Power supply requirement of commuters & Railway employees.

Electrical Department caters following services:

- A. Out station maintenance service.
- B. Train lighting & Air conditioning.
- C. Monitoring work of commissioning of ELS DD Loco shed carried out by IRCON.

Other Infrastructure	Unit of Measure ment	Annual Target 2023-24	Performa nce for the month of Dec-23	Cumulative performance up to month	Cumulative performance up to the month in previous year
Lifts	Nos	2	0	0	0
Escalators	Nos	0	0	0	0

ELECTRICAL (General)

1. ORGANISATION:

Gazetted			
GRADE	SS	MOR	Vac
JAG/SG	01	01	00
SS	00	00	00
JS	01	01	00
TOTAL	02	02	00

Non-Gazetted (OSM)			
GRADE	SS	MOR	Vac
Group C	147	115	32
Group D	93	65	29
	-	-	
TOTAL	240	180	61

Non-Gazetted (TL-AC)			
GRADE	SS	MOR	Vac
Group C	157	149	08
Group D	62	56	06
	-	-	
TOTAL	219	205	14

2. ASSETS:

Out station maintenance service:

Activities covered are to get supply from various supply authorities & provide various Railway stations, service buildings, Railway quarters, Pump house & maintenance/upkeep of lifts, escalators etc. Entire Solapur Division is being covered for maintenance with 06 depots which are asunder.

1. Ahmednagar, 2. Daund, 3.Kurduwadi, 4.Solapur, 5.Kalburagi, 6.Wadi.

Items	Nos.	Location
22 KV Sub Stations	05	Daund- Power house -1, DD F type -1, DD Hanuman Mandir-1 , DD C&W-1, DD Sonawadi Pump house-1
11 KV Sub Stations	22	WD-4, GR-2, TJSP-1, SUR-7, KWV-3, LUR-1, PVR-1, ANG-1, PB-1, SNSI-1
Electrical Pumps	351	Major pump house at Kunoor WD (100 HP- 1, 90 HP-1, 50 HP-1, 30 HP-1); Settling Pump house WD (30 HP-2); Sonewadi DD-(200 HP-1, 150 HP- 2), Other small pumps- 342
D.G. Sets (Major)	33	SUR-6, KWV-1, PVR-1, LUR-2, DD-5, WD-3 SDB-1, KLBG-2, BBD-1, TJSP-1, ANG-3, PB-1, KPG-1, SNSI-2, BAP-1, UMD-1, BTW-1
A.C. Units	479	SUR-226, PK-4, WD-43, KLBG-24, AKOR-2, GDGN-4, GUR-2, SVG-4, BBD-4, NGS-2, BOT-2, TLT-2, DUD-2, HG-6, KWV-26, PVR- 6, LUR-27, KEM-2, BLNI-2, DHS-2, DD- 44, ANG- 9, KPG-1, KUI-2, PB-9, KPG-1, SNSI-22
Water coolers	105	SUR-22, WD-10, SDB-2, KLBG-7, GUR-2, DUD-1, AKOR-2, HG-1, KWV-10, PVR-4, BTW-1, UMD-1, LUR-5, JEUR-1, BGVN-1, DD-13, ANG-6, RRI-1, BAP-3, PB-1, KPG-4, SNSI-7
Refrigerators	31	31- At Various sites
Transformers	67	WD-11, SDB-02, GR-04, TJSP-02, SUR-17, KWV-11, DD-14, ANG-02, SNSI-02, PB-02

2.1 KVA portable generators	93	At Various sites
High Mast	96	ANG-5, RRI-3, BAP-3, SNSI-2, KPG-3, YL-4, DD-12, BGVN-4, MLM-2, JNTR-1, PRWD-2, WSB-2, PPJ-1, KWV-2, PVR-3, UMD-2, LUR-3, BTW-2, SUR-18, BALE-3, HG-1, KLBG-6, GUR-1, WD-7, TJSP-4
Centralized Air Cooling Units	02	SUR-2
Nos. of Escalators	06	Gulbarga-2, SUR-2, ANG-2
Nos. of Lifts	15	DD-4, SUR-3, SNSI-2, KLBG-4, KPG-2
Stations having T.L. Battery Charging facilities	09	WD-53, SUR-188, KWV-13, DD-140, LUR-30, PVR-31, SNSI-46, ANG-6, KLBG-68 (Total charging points- 575)
Stations having A/C coach pre-cooling arrangements	09	WD-15, SUR-83, KWV-2, DD-26, LUR-8, PVR-10, SNSI-24, ANG-1, KLBG-43 (Total pre-cooling - 212).

SUPPLY POINTS

Items	Nos.
HT Supply (consumer nos.)	18
LT Supply (consumer nos.)	280
Direct Connections	1174

STAND-BY SUPPLY

Items	Nos.	Location
At stations by generator (capacity ranging from 20 to 320 KVA)	31	SUR-6, KWV-1, PVR-1, DD-5, WD-3, SDB-1, KLBG-2, BBD-1, TJSP-1, ANG-3, PB-1, KPG-1, SNSI-2, LUR-2, BAP-1
At PRS's by generators (2.1 KVA)	4	UMD-1, PVR-1, LUR-1, JEUR-1

NON-CONVENTIONAL SOURCES OF ENERGY

Items	Nos.	Details
Solar water heaters	18	WD-4, KLBG-1, SUR-8, LUR-1, DD-3, PB-1
Solar Emergency lights by LED system (Standby)	59	LC Gates
Solar Panel/ Solar Pump	02	PK, MO
10 kWp solar grid connecting system	01	SUR Rly Hospital
20 kWp solar grid connecting system	01	Arag Rly Station
3.5 kWp Solar Off grid Solar	01	Rahuri Station
2.5 kWp Solar Off grid Solar	01	Puntamba Station
2.5 kWp Solar Off grid Solar	01	Akolner Station
15 kWp Solar On grid connected	01	Barshi Town
20 kWp Solar On grid connected	01	Osmanabad station
10 kWp Solar On grid connected	01	Wadshinge station
10 kWp Solar On grid connected	01	Tilati station
15 kWp Solar On grid connected	01	Salgare station
10 kWp Solar On grid connected	01	Mohol
10 kWp Solar On grid connected	01	Parewadi

REWIRING OF STAFF QUARTERS

Item	Nos.
Total Nos. of Electrified Quarters:	4955

No. of quarters due for rewiring:

639

3. NON TRACTION ENERGY CONSUMPTION & REBATE GAINED:

SN	Item	Unit	2021-2022	2022-2023	2023-2024 (up to Nov-23)
1	Total Consumption	kWh	1,39,80,396	1,41,49,007	1,02,42,695
2	Total Electricity Bill	Rs.	12,67,50,802	14,08,96,572	11,19,08,646
	Rebate				
a	Prompt Payment Incentive	Rs.	8,28,501	9,78,874	6,90,283
b	Power factor rebate (Rs.)	Rs.	50,055	66,047	53,920
c	N.C. Allowance rebate (Rs)	Rs.	0	32097	1,24,814
d	Incremental consumption rebate	Rs.	2,39,805	4,16,312	75,78,04
e	Go Green Discount	Rs.	0	11,500	18,400
	Total rebate (a+b+c+d+e)	Rs.	11,18,361	15,04,830	16,45,221

SN	Item	Unit	2021-2022	2022-2023	2023-24	% Change Over last year
			(Up to Nov-21)	(Up to Nov-22)	(Up to Nov-23)	
1	Total Consumption	kWh	95,38,205	97,04,555	1,02,42,695	5.55
2	Avg. Connected Load	kW	19346	19916	20693	3.90
3	SEC (MU/MW)	-	0.493	0.487	0.495	1.58

For the year 2021-22 because of covid-19 pandemic, consumptions was abnormally lower. There is increase Electricity consumption during 2022-23 and 2023-24 due to opening of lockdown and increase train operations, also connected load increased due to addition of new assets.

4. ENERGY CONSERVATION MEASURES**a) Solar Generation (in kWh)**

Location of Solar Plant	Capacity of plant (KWP)	Unit Generation (KWH)		
		2020-21	2022-2023	2023-2024 (Up to Dec -2023)
Divisional Railway Hospital, Solapur	10	14759	14,649	11,501
TKWD station	3	97	22	0
SGLA station	4	98	111	56
ARAG Station	20	17225	15433	17,687
RPF Barrack ANG	10	0	8140	10,564
Rahuri Station	3.5	0	1067	1,946
Puntamba Station	2.5	0	676	1420
Akolner Station	2.5	0	1091	1521
Barshi Twon	15	0	0	3255
Total	70.5	32,179	41,189	47,950

b) Provision of Energy efficient fixture:

Item	Unit	2021-2022	2022-2023	2023-24 (Up to Dec-23)
LED Lights	Nos.	1043	1052	1020
Provision of BLDC energy efficient Ceiling Fan	Nos.	80	444	976
Replacement of existing AC's by inverter type Split AC	Nos.	0	0	0
Replacement of existing Water coolers by energy efficient water coolers	Nos.	0	0	0

Lift/Escalator Details: KWV-LUR: NIL

5. TL & AC PERFORMANCE:

ITEM	2020-21		2021-22		2023-24 (up to Dec-2023)	
	Incidence	Trains	Incidence	Trains	Incidence	Trains
Punctuality Loss (Ownership)						
TL coach account	1	1	1	1	2	2
AC coach account	0	0	1	1	1	1
Total	1	1	2	2	3	3
Punctuality loss (Territorial)						
TL coach account	0	0	1	1	0	0
AC coach account	2	2	0	0	0	0
Total	2	2	1	1	0	0

TRAIN LIGHTING & A.C. COACH MAINTENANCE

Position of TL-AC staff in SUR division

Depot/ Station/Unit	SUR	DD	KLBG	WD	SNSI	KWV	KWV (W/S)	PVR	LUR	Total
SS	140	30	5	17	8	5	6	5	3	219
MOR	154	10	7	11	8	3	4	6	2	205
VAC	-14	20	-2	6	0	2	2	-1	1	14

Depot Wise Holding:

Coach Holding of Primary trains of Solapur Division

					Coaches Per Rake				Total Coaches			
Depot	Tr. No.	Tr. Name	Type of Rake	No. of Rakes	TL	A C	Pow cars	Total coaches	TL	A C	Pow cars	Total coaches
SUR	12116/15	Sidheshwar Exp.	LHB/EOG	4	12	9	1	22	48	36	4	88
	12158/57	SUR-PUNE Hutatma Exp.	LHB/EOG	2	14	1	1	16	28	2	2	32
	11311/12	SUR-Hasan Exp.	LHB/EOG	2	16	7	1	24	32	14	2	48
	22155/56	KLBG-MRJ SF Exp.	SG/ICF	1	15	2	0	17	15	2	0	17
	01435/36 and 01437/38	01435/36 SUR-LTT Express and 01437/38 SUR-TPTY Express	SG/ICF	1	17	2	0	19	17	2	0	19
	22226/25	Vande Bharat	LHB	1	0	16	0	16	0	16	0	16
SUR,WD,DD		BDT Coaches		1	17	0	0	0	17	0	0	17
Spare									7	5	1	13
		Total							164	77	9	250

Major Achievements of Electrical Department (General Service)

1	Awards and Certificates- 1. Rolling stock Shield for 2021-22 for TL-AC has been awarded to Solapur Division.
2	<p>Energy Conservation Measures & Expenditure Control:</p> <ol style="list-style-type: none"> 1) Total rebate (PF rebate, prompt payment incentive and Incremental consumption rebate) of Rs. 16.45 lakh is gained in Energy bills during period Apr-Nov 2023-24 which is 52% more as compared to Apr-Nov 2022-23 (Rs. 10.85 lakh). 2) 230 Nos. MSEDCL LT consumers of Solapur Division have opted for Go-Green initiative on MSEDCL web portal by adopting e-bills instead of printed copy, giving Go-Green discount of Rs. 10/- per consumer per month in energy bill, thus saving of Rs. 27,600/- annually. 1) 15 kWp Solar rooftop solar plant has commissioned in Oct-2023 at Barshi Town Railway Station and 10 kWp at Wadshinge in Dec-2023, 10 kWp at Tilati, 20 kWp at Osmanabad and 15 kWp at Salagare in Jan-2024. 2) Replacement of 976 Nos. conventional ceiling fans with energy efficient BLDC fans, resulting approximate saving of 1.60 lakhs electricity units annually. 3) 22 Nos. direct metering connection for staff quarter has been availed during Apr to Dec-2023 and cumulative 1174 Nos. till date thus saving of man power & expenditure on TA. 4) Total 47,950 Electricity unit generated up to Dec-2023 during 2023-24 from Solar plants installed at Arag station, Railway hospital Solapur, RPF barrack Nagar, Barshi Town and other three station in the Solapur Division.
3	<p>System Improvement</p> <ol style="list-style-type: none"> 1) 24 Nos. 1.5 Ton (1449 Watt each), inverter type split ACs along with voltage stabilizers have been provided in EI rooms at Madha (MA), Angar (AAG), Malikpeth (MKPT), Wakav (WKA) and Martur (MR) station. 2) 17 Nos. submersible pumps have been provided to cater the water requirement of station and staff quarters. 3) New station name boards have been provided at AKOR, LUR, PVR and UMD station. 4) 170 Nos. staff quarter rewiring work has been completed. 5) Illumination of Jahagirdar Wadi tunnel (1.2 KM) at Osmanabad station has been illuminated by providing 250 Nos. 60W LED flood lights from both side of the tunnel. This LEDs are powered by AT supply.
4	<p>Improvement in Passenger Amenities –</p> <ol style="list-style-type: none"> 1) 04 Nos. passenger lifts has been commissioned at Kalaburgi Railway station. 2) 02 Nos. passenger lifts has been commissioned at Kopargaon Railway station. 3) 01 No. passenger lifts has been commissioned at Solapur Railway station. 4) 1 Km length approach road from Upala-pati to Osmanabad Railway station is illuminated by providing 53 Nos. street light tubular poles facilitating the movement of passengers during night time.
5	<p>Major Works done in Train Lighting Depot:</p> <ol style="list-style-type: none"> 1) The flexible hose pipe of power is interconnected between two diesel tanks of power cars and has two valves; it was noticed that sometimes this pipe and valves was getting damaged due to ballast heating and miscreant activities, resulting diesel leakage from hose pipe. 2) Modification has been done by providing metal support from bottom and above of flexible

pipe, so that there will no excessive damage to hose pipe and valves. This avoided any further diesel (fuel) leakage form pipe due to damages.



Before Modification



After Modification

- 3) New 11kV/750V sub-station has been commissioned at Solapur Coaching depot for testing and maintenance of LHB type coaches during maintenance. 750V power supply made available for 02 Nos. pit lines, thereby saving in HSD fuel of 6900 litres per month.



750 V Power Socket



Coach Coupler

- 4) **UIC Cable testing kit** has been developed at coaching depot Solapur to ensure healthiness of UIC coupler before HOG working.
- 5) Rain water arrester (Covering of RMPU roof with SS sheet) has been provided in all 83 AC LHB coaches to avoid rain water leakage on Electrical panels and fire hazard.
- 6) Switch for luggage light has been shifted to Guard compartment from panel compartment in all power cars as safety measure and easy control for switching.

Assistance required for Electrical department of SUR division

SN	Assistance required
1	<p>A) GS: - Vetted Proposal for creation of 01 No. revenue charged gazetted post (Sr. Scale) in Electrical general services cadre has been sent to HQ.</p> <p>B) TRS: - Construction of new electric loco shed at DD is under progress, vetted proposal for creation of 07 Nos. revenue charged Gazetted posts & 500 Nos. of non-gazetted posts for TRS organization has been sent to HQ.</p>

POSITION OF WORKS

Status of Umbrella works 2020-21 sanctioned for Electrical department.

a. Electrification of station: Nil

b. Electrification of staff quarters:

SN	PH	Name of the proposed work	Proposed allocation	Cost in 000's of Rs.	Remarks
1.	36	Rewiring of staff quarters and replacement of over aged/defective ceiling fans.	RRSK	14500	LOA issued on 01.09.2022. Physical Progress (%): 68 Financial Progress (%): 67

c. Provision of street lights in Railway colonies: Nil

d. Electrical General Works for Service Building, Pumps etc.

SN	PH	Name of the proposed work	Proposed allocation	Cost in 000's of ₹	Remarks
1	42	Provision of 750 V power supply for maintenance of LHB coaches at New coaching complex, Solapur.	CAP	4998	LOA issued on 11.05.2022. Transformer received Physical Progress (%): 100 Financial Progress (%): 80
2	36	Modification of overhead lines to underground cable, with augmentation of cable and Panels.	RRSK	19629	LOA issued on 07.07.2023 Physical Progress (%): Material under manufacturing. Financial Progress (%): 0
3	36	Provision of 90 kWp Rooftop solar system at 7 Railway Stations	CAP	21491	LOA issued on 16.02.2023. Physical Progress (%): 94 Financial Progress (%): 95
4	36	Illumination improvement at 20 Railway stations			LOA issued on 21.03.2023. Physical Progress (%): 80 Financial Progress (%): 85

e. Combined works where the cost of the Electrical portion is more than Rs. 25000

SN	PH	Name of the proposed work	Proposed allocation	Cost in 000's of Rs.	Remarks
1.	53	Provision of Lifts at Central Railway - Power supply arrangement at GUR on Solapur division.	RRSK	670	LOA issued on 13.09.2022 Physical Progress (%): 90 Financial Progress (%): 0
2.	53	Strengthening of water supply system for Railway station & Staff colonies.	CAP	3130	LOA issued on 22.04.2022 Physical Progress (%): 100 Financial Progress (%): 100