



WELCOME

**23rd National Award for Excellence in
Energy Management**



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IRSEE

Senior Divisional Electrical Engineer
Secunderabad Division
South Central Railway

Brief introduction



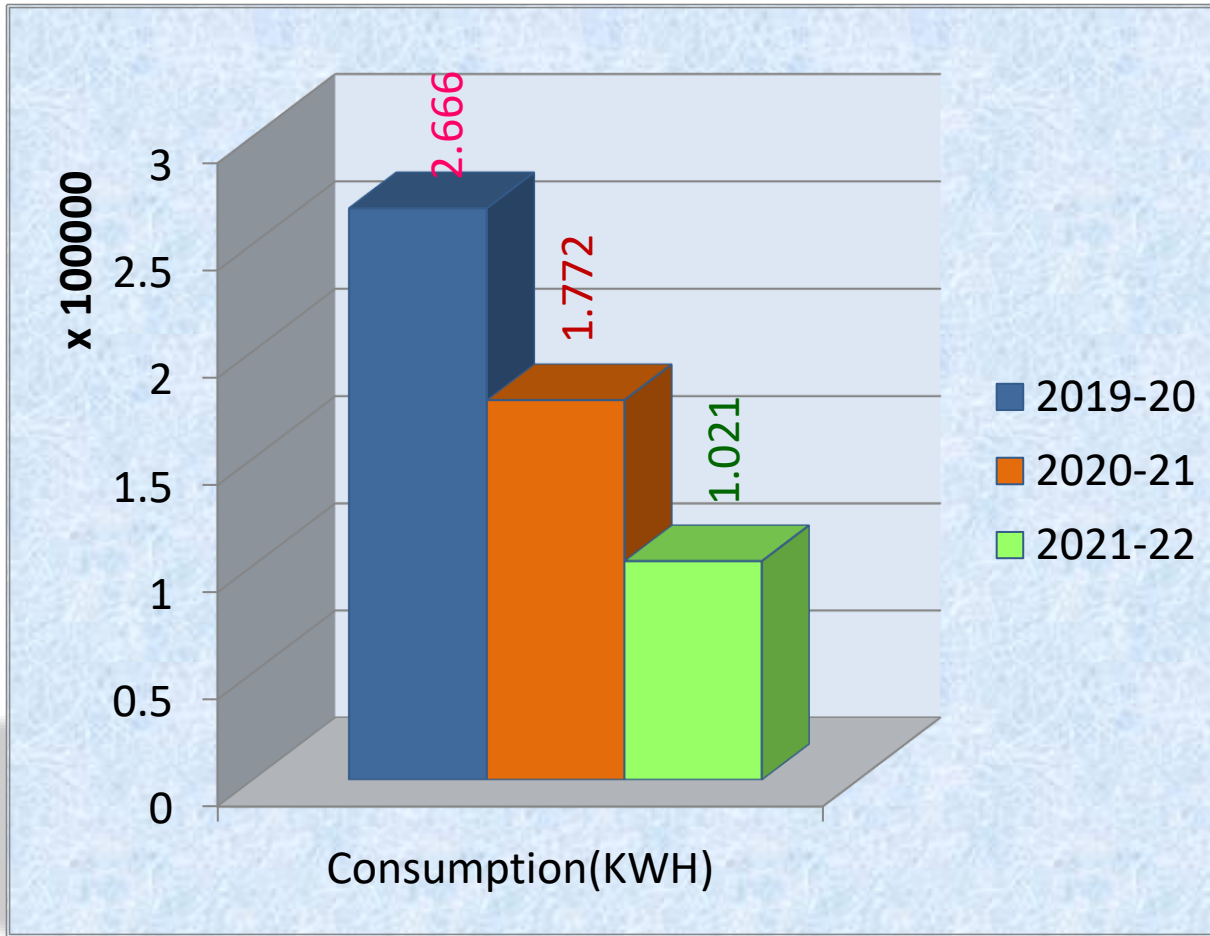
- Lingampalli Railway station falls under NSG-3 category in Secunderabad Division is one of the major railway station between Secunderabad- Mumbai route.
- It is also a Terminal Station for MMTS trains.
- The total electrical connected load of the building is 350 KW.
- Power supply is provided through HT connection by 2x250KVA Transformers installed at 11KV/415Volts Substation and an LT connection.
- 100 KVA Diesel Generator sets have been installed for backup supply.
- The Building is 100% LED LIT.

Energy Scenario



Parameter	Unit	2019-20	2020-21	2021-22
Annual Electrical Energy Consumption, purchased from utilities	kWh	266578	177213	102117
Annual Electricity Generation (in-situ), through Diesel Generating (DG)/Gas Generating (GG) Set(s)	kWh	1856	2033	1873
Total Annual Electricity Consumption, Utilities + DG/GG Sets	kWh	268434	179246	103990
Annual Cost of Electricity Consumed from utilities	Rs	2212597	1488589	888417
Annual Cost of Electricity generated through DG/GG Sets	Rs	55680	60990	56190
Total Annual Electricity Cost, Utilities + DG/GG Sets	Rs	2268277	1549579	944607
Built Up Area	Sq. Mtrs	7856	7856	7856
Connected load	kW	300	320	352

Energy Scenario



- Consumption has reduced by 61.69% from 2019-20 to 2021-22

Energy Parameters of Lingampalli Railway station building

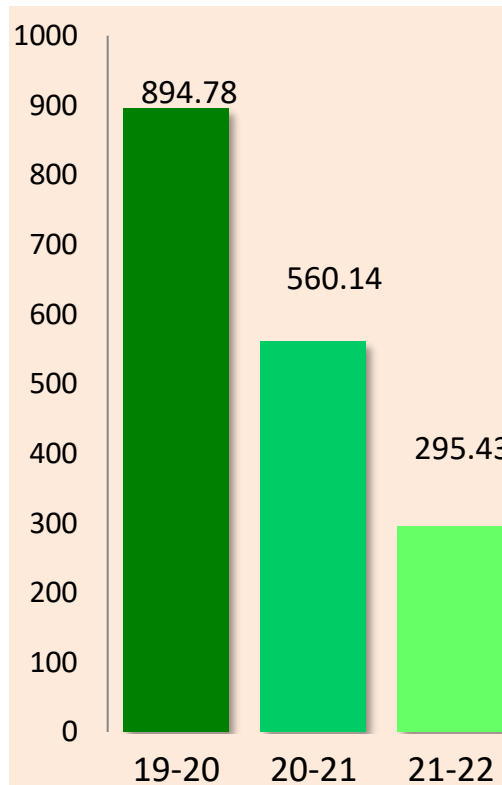
SEC (KWH/KW)

SEC has been reduced by 61.26 % from 2019-20 to 2021-22.

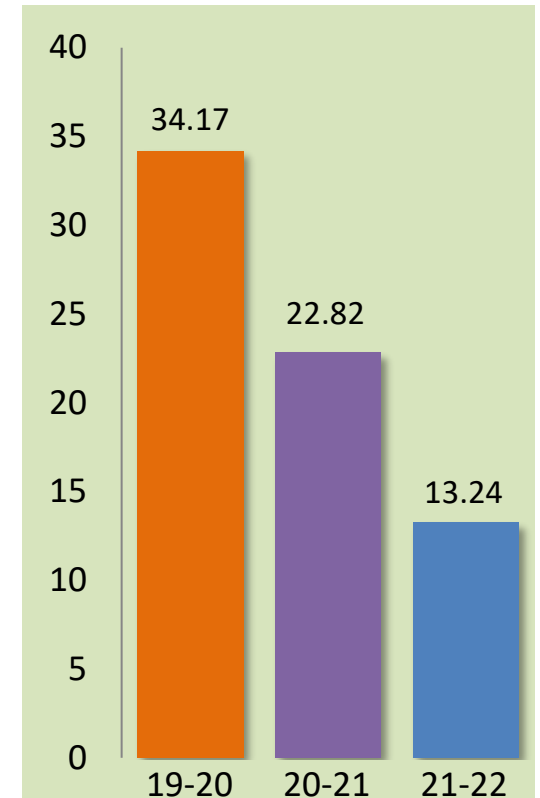
EPI (KWH/Sq. Mtrs)

EPI has been reduced by 66.98 % from 2019-20 to 2021-22.

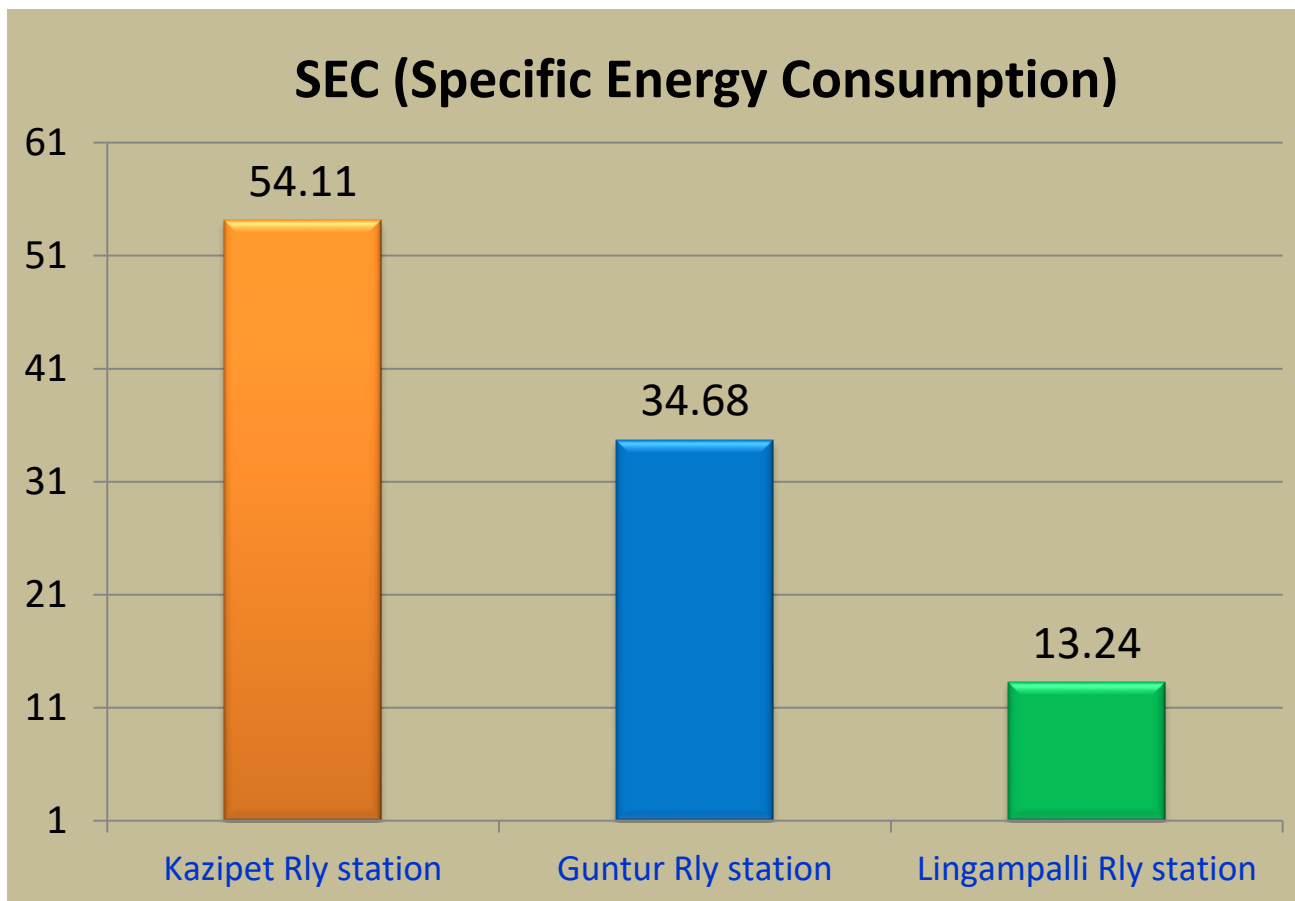
SEC (KWH/KW)



EPI(KWH/Sq. Mtrs)



Direct Competitors & National Benchmarking :



Road Map to achieve Global Bench Marking



Adoption of smart energy monitoring & control.

Optimum utilization of HVAC system.

Periodical Energy auditing and Management.

Certification of building by prominent institutions Like Bureau of Energy Efficiency.

Short Term Targets/Major En.Con projects planned FY 2022-23

- Quick watering system for tains to reduce the time taken for filling the water in the coaches
Target time for filling the water for entire rake as per CAMTECH recommendation to be less than 5 minutes.

SI No	Project Description	Savings in kWh/Annum	Investment in Rs.	Savings in Rs.	Payback period in years
1	Quick watering system	13000	₹ 20 Lakhs	₹ 1.3 Lakhs	8.23

Long Term Targets/Action plan

- All the Major loads (HVAC plants, AHU, Pumps, etc.) will be monitored online for early identification and rectification for avoiding equipment failures thereby promoting effective utilization of assets.

Energy Saving Projects implemented in last 3 years

- Reducing the Energy consumption by Focussing on Energy efficient alternatives, latest advance technology for energy monitoring & optimization of consumption.

Major En.con projects implemented in 2019-20

SI No	Project Description	Savings in kWh/Annum	Investment in Rs.	Savings in Rs./Annum	Payback period in years
1	Operating temperature of water coolers is increased from 18°C to 22°C . Resulted in saving of 6% of consumption for each degree	3942	0.00	32718	0
2	Operating temperature of AC units is increased from 22°C to 26°C . Resulted in saving of 6% of consumption for each degree	32377	0.00	268729	0
3	Bifurcation of 30% & 70% of platform lighting circuits	3716	20000	30842	0.7
4	30% & 70% of fans circuit: fans circuits bifurcated into 30% & 70% on platforms at non seated areas as per train timings as an energy conservation measure.	4783	18000	39698	0.45
5	Energy Efficient LED lighting in place of conventional Lighting	29930	370000	251412	1.5
	Total	74748	408000	623399	1.52

Energy Saving Projects implemented in last 3 years



Major En.con projects implemented in 2020-21

SI No	Project Description	Savings in kWh/Annum	Investment in Rs.	Savings in Rs./Annum	Payback period in years
1	selection of right sizing capacity of pumps	10890	76000	91476	1.20
2	Energy efficient star rated geysers: 3 nos of BEE 5 star rated energy efficient geysers were provided in place of non star rated old geysers.	2190	21000	18396	0.87
3	55 kWp On grid solar power plant commissioned under PPA	76285	0.00	640794	0.00
	Total	89365	97000	750666	2.07

Energy Saving Projects implemented in last 3 years



Major En.con projects implemented in 2021-22

	Project Description	Savings in kWh/Annum	Investment in Rs.	Savings in Rs.	Payback period in years
1	45 kWp BIPV on grid solar plant commissioned in November-2021.	65700	1728000	565020	0.32
2	138 nos of BLDC energy efficient star rated fans provided in place of conventional non star rated ceiling fans.	16119	303000	138623	0.45
3	occupancy sensors provided in AC waiting hall, Reserved lounge & toilets of all waiting halls.	4860	28000	41796	1.49
4	Inverter type AC units: 21 nos of energy efficient inverter type AC units provided in place of non star rated AC units.	12045	737000	103587	0.14
5	Solar natural water cooler: 1 no of 150 ltrs capacity solar based natural water cooler provided in place of existing conventional water cooler.	4526	158000	38923	0.24
6	Energy efficient star rated pumps: 2 nos of 5 star rated energy efficient pumps provided in place of non star rated pumps.	7261	75000	62444	0.83
7	Timer units for Water coolers: 3 nos of timer switches provided for water coolers for pre set timings for instant use of cold drinking water.	3285	15000	28251	1.88
	Total	113796	3044000	978646	0.32

Summary of projects implemented in last three years

Year	No of Energy saving projects	Investment (in INR million)	Electrical savings (Million kWh)	Savings (INR Million)
FY 2019-20	Five	₹0.4	0.074	₹ 0.62
FY 2020-21	Three	₹0.097	0.089	₹ 0.75
FY 2021-22	Seven	₹ 3.04	0.11	₹ 0.97

Renewable energy projects implemented

- ❑ 55 kWp ON Grid solar rooftop power plant.
- ❑ 45 kWp ON Grid BIPV (Building integrated solar Photo Voltaic) solar plant provided in station building.
- ❑ 1 No of solar natural water cooler installed on platform



- With the above, we are able to generate 0.69 Lakh units per annum
- This contributes 40.5 % of total energy consumption
- Reduction of carbon emissions by 138 Tons per annum.

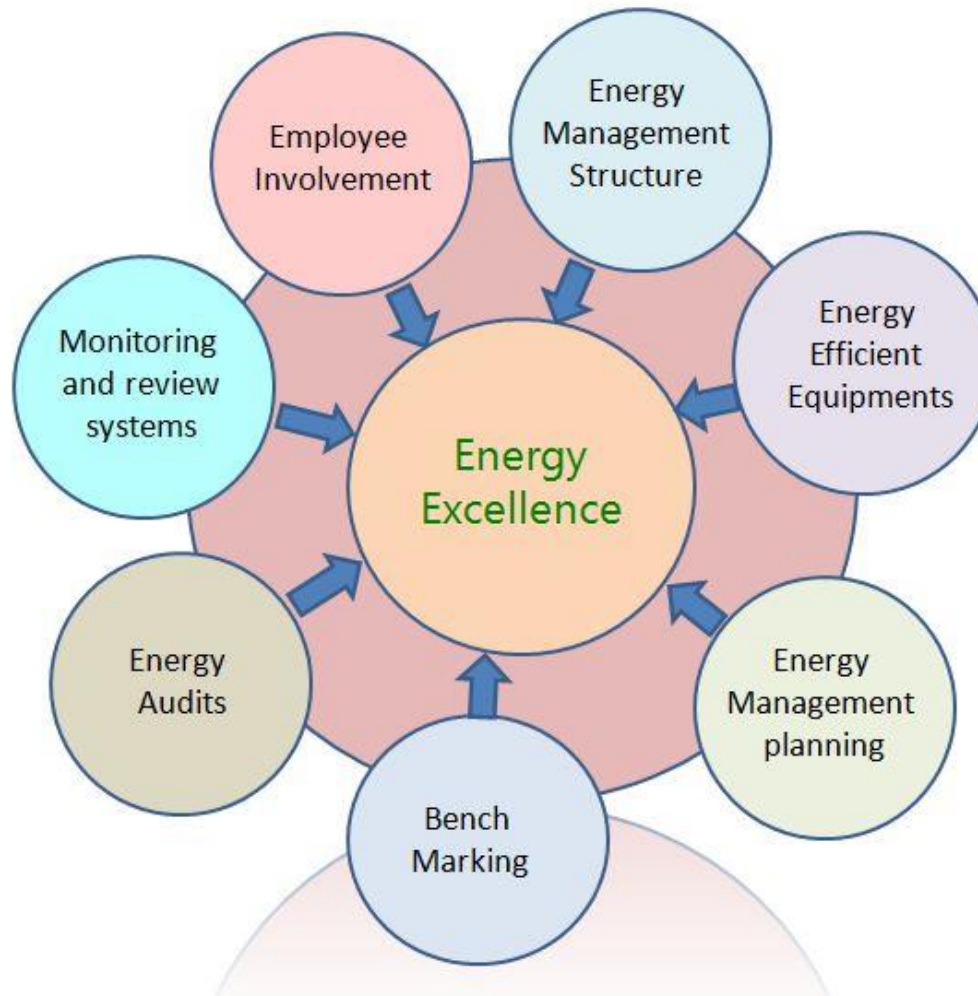
Utilisation of Renewable Energy sources



Technology	Type of Energy	Onsite/ Offsite	Installed Capacity (kWp)	Generation (Million kWh)	% of overall electrical energy
Solar PV	Electrical	Onsite	55 kWp	0.08	32.12
Solar PV	Electrical	Onsite	45 kWp	0.06	26.28
Solar PV	Electrical	On site	150 Ltrs capacity water cooler	0.004	1.75

Energy Objectives

- To Conserve Energy
- To increase the use of Renewable energy
- To reduce the energy losses.



Benefits achieved by implementing of



Energy efficient inverter type AC units



Super energy efficient BLDC Fans



Provision of Occupancy sensors

All the 13 Nos AC units at are energy efficient BEE 5 Star rated Inverter type .

- Energy Conserved: 0.12Lakh units/Annum

111 Nos of super energy efficient BLDC fans were provided in place of conventional ceiling fans.

- Energy Conserved: 0.16Lakh Unit/Annum

Occupancy sensors provided in officers chambers for switching of lighting load & AC units as per occupancy.

Benefits achieved by implementing of low cost technologies



30%-70% Fans, Lights & Water Coolers circuits

Timers provided for 30% and 70% of lighting, Fans and water Coolers as per requirement

- Energy Conserved: 0.12Lakh Units/Annum



100% High efficacy LED Lighting

This station has been provided with 100% High efficacy LED luminaries.

- Energy Conserved: 0.3Lakh kWh/Annum



BEE 5 Star rated & Selection

Overaged & oversized pumps were replaced with Energy Efficient Pumps

- Energy Conserved: 0.12Lakh kWh/Annum

Energy Policy & Salient features



Promoting

- Promoting and increasing use of Renewable energy

Conducting

- Conducting energy audits and implementing all improvement measures

Monitoring

- Monitoring and review of energy performances

Sharing

- Sharing our experiences on energy conservation with other Divisions & Zones over Indian Railways

Awareness

- Creating awareness on energy conservation amongst all employees

Energy Policy & Salient features



We have our own energy policies to meet energy demands and to conserve energy as part of Green Energy.

The major policies includes ...

- State of art technology electrical appliances
- Increasing use of Renewable energy resources
- Conducting periodic Energy Audit and implementing all improvement measures.



SOUTH CENTRAL RAILWAY

SECUNDERABAD DIVISION

ENERGY POLICY

Secunderabad Division, South Central Railway is committed towards Nation's Mission for Enhanced Energy Efficiency by making continuous efforts to optimize use of energy and to bring about improvement in the energy efficiency in all our operations & maintenance of train services in an environmentally responsible manner through

- ✓ Adopting /going for energy efficient and environment friendly equipment - technologies.
- ✓ Promoting and increasing Use of Renewable energy resources.
- ✓ Adopting National Energy Conservation norms and codes in new building constructions as well as in Existing buildings.
- ✓ Conducting periodic Energy Audit and implementing all improvement measures.
- ✓ Creation of awareness on energy conservation amongst all employees.
- ✓ Monitoring and review of energy performances vis-à-vis targets.
- ✓ Sharing and enriching our experiences on energy conservation with in our Division, other Divisions and also on other Zones over Indian Railways.

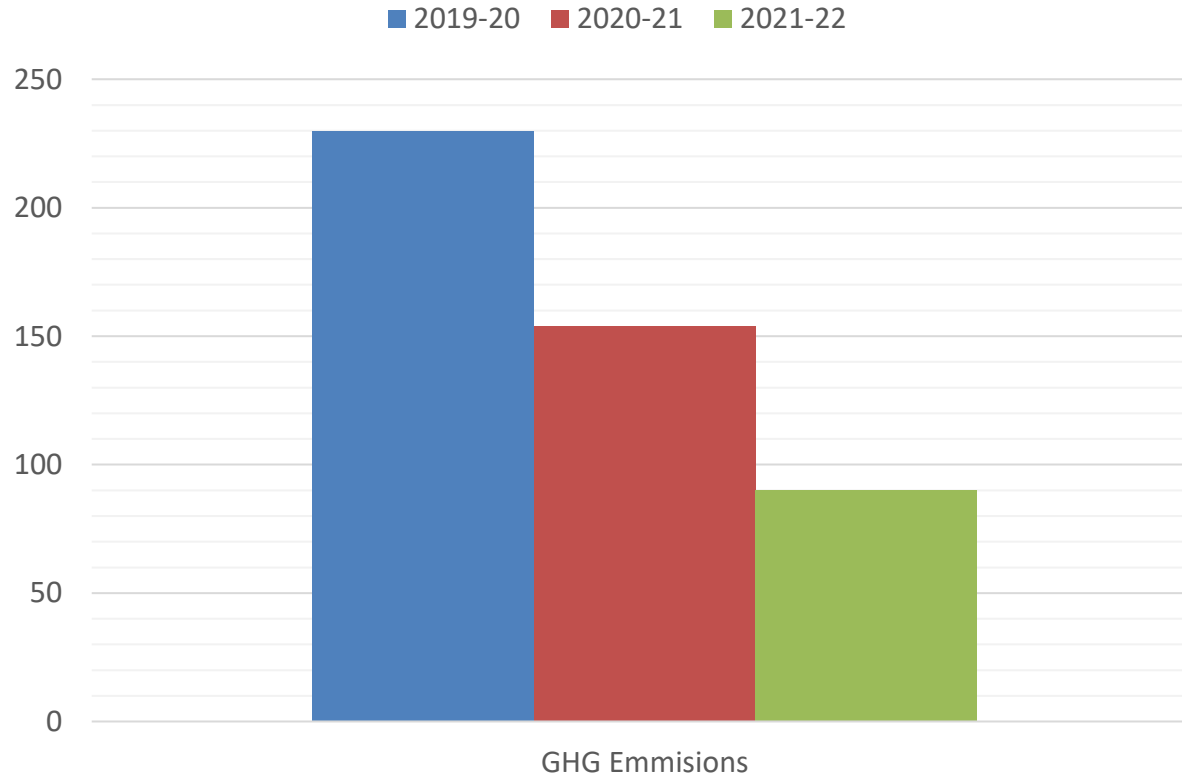
Secunderabad Division as a part of our energy efficiency improvement strategy will make every effort to reduce our specific energy consumption by 5 to 10% per year by promoting culture of innovation, creativity and commitment at all levels.



(Abhay Kumar Gupta)
Divisional Railway manager
Secunderabad Division

Date: 16-08-2021

GHG Mitigation trend during (2019-22)



- GHG emissions reduced by over 61% in a period of 3 years.

Green Supply Chain



Use of Renewable Energy Sources

Use of Energy efficient luminaries

Use of Super Energy efficient fans

Use of Solar power for Hot Water

Use of Energy efficient Pumps

Use of Natural water coolers



भारत सरकार / GOVERNMENT OF INDIA
रेल मंत्रालय / Ministry of Railways
दक्षिण मध्य रेलवे / South Central Railway



वरि.मं.वि.इंजी/अनुरक्षण कार्यालय
संचालन भवन / सिकंदराबाद, मंडल / सिकंदराबाद
Office of the
Sr. Divisional Electrical Engineer (Maintenance)
Sanchalan Bhavan(Annexe)/Secunderabad
दिनांक: 22.06.2022

TO WHOM SO EVER CONCERN

It is certified that the "Green pro Certified Products" will be utilized in future at the
Lingampalli Railway station.

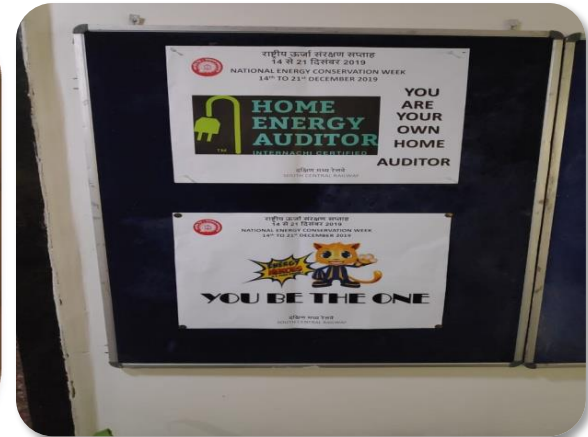

M. Prasada Rao

Sr. Divisional Electrical Engineer,
Secunderabad Division,
South Central Railway (Maint)
सिकंदराबाद, द.म. रेलवे, सिकंदराबाद
SC Division, Secunderabad

Team Work & Employee Involvement



Performance Review Meeting regarding Energy Conservation, Posters on energy conservation

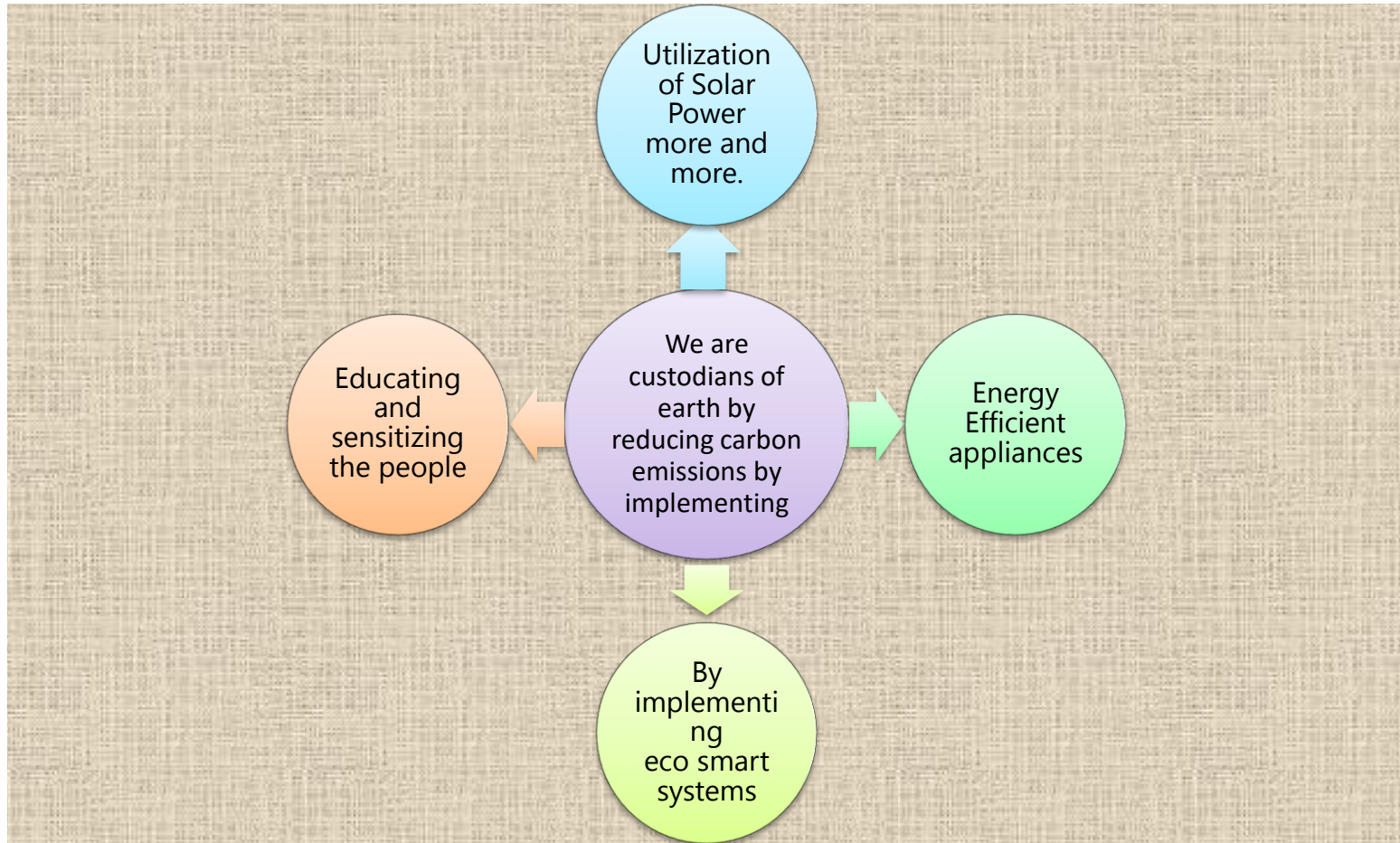


Pledge taken by employees on Energy conservation amongst staff

Long term vision on Energy Efficiency



We believe in adaption of Green Concepts in consultation with IGBC /CII in our premises to significantly contribute for environmental sustainability & enhancement of passengers experience.



Achievements

- Lingampalli Railway station is the first railway station in Secunderabad Division to be equipped with 45 kWp of BIPV Solar On-Grid Plant.

ISO 14001:2015 Certification for Environmental Management System



This certificate is applicable to the following service:

- ✓ provision of Services and Amenities for transportation of Passengers
- ✓ Maintenance of Cleanliness of Railway Station Premises
- ✓ and Disposal of Garbage to Municipal Authority.



Environmental Management System

Certification of Registration

This is to Certify that the
Environmental Management System
of

Lingampalli Railway Station
Serilingampalli, Hyderabad - 500019,
Telangana, India.

Has been assessed and is compliant
with the requirements of

ISO 14001 : 2015
Environmental Management System

This Certificate is applicable to the following product or service ranges:
*Provision of Services and Amenities for Transportation of Passengers.
Maintenance of Cleanliness of Railway Station Premises
and Disposal of Garbage to Municipal Authority.*

:: Certificate No.: 24622-E14

Date of Initial Registration	10 th March 2020
Date of Certificate	10 th March 2020
Validity of Certificate	09 th March 2023

Validity of this certificate is subject to annual surveillance audits


Director



LMS Certifications Private Limited
e-mail: iso@lmscert.com, www.lmscert.com



**Thank
You**