WELCOME

22nd National Award for Excellence in Energy Management

Shri. M. Prasada Rao
IRSEE
Senior Divisional Electrical Engineer
Secunderabad Division
South Central Railway

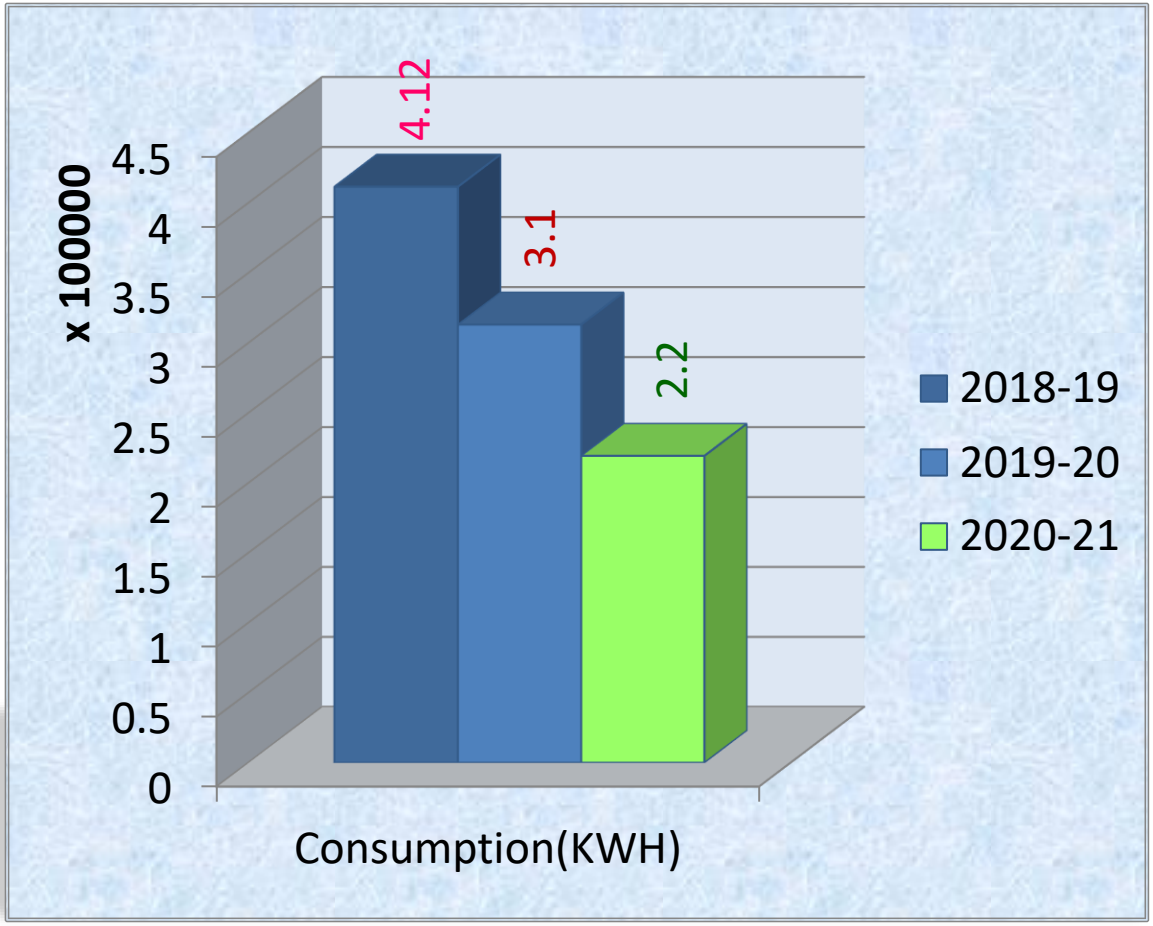
Brief introduction

- Ramagundam Railway station falls under NSG4 category in Secunderabad Division which was built in the year 1929, is one of the major railway station between SC-New Delhi routes.
- The total electrical connected load of the building is 176 KW.
- Power supply is provided through 2x500KVA Transformers installed at 11KV/415Volts Substation.
- 100 KVA Diesel Generator sets have been installed at the Divisional office for backup supply.
- The Building is 100% LED LIT.

Energy Scenario

	Parameter	Unit	2018-19	2019-20	2020-21
	Annual Electrical Energy Consumption, purchased from utilities	kWh	401794	304335	211758
	Annual Electricity Generation (in-situ), through Diesel Generating (DG)/Gas Generating (GG) Set(s)	kWh	9769	8832	7641
	Total Annual Electricity Consumption, Utilities + DG/GG Sets	kWh	411563	313167	219399
	Annual Cost of Electricity Consumed from utilities	Rs	33,30,000	25,20,000	17,70,000
	Annual Cost of Electricity generated through DG/GG Sets	Rs	2,63,000	2,38,000	2,00,000
	Total Annual Electricity Cost, Utilities + DG/GG Sets	Rs	35,93,000	27,58,000	19,70,000
	Built Up Area	Sq. Mtrs	11900	11900	11900
	Connected load	kW	141	175	196

Energy Scenario



- Consumption has reduced by 46.69% from 2018-19 to 2020-21

Energy Parameters of Ramagundam Railway station building

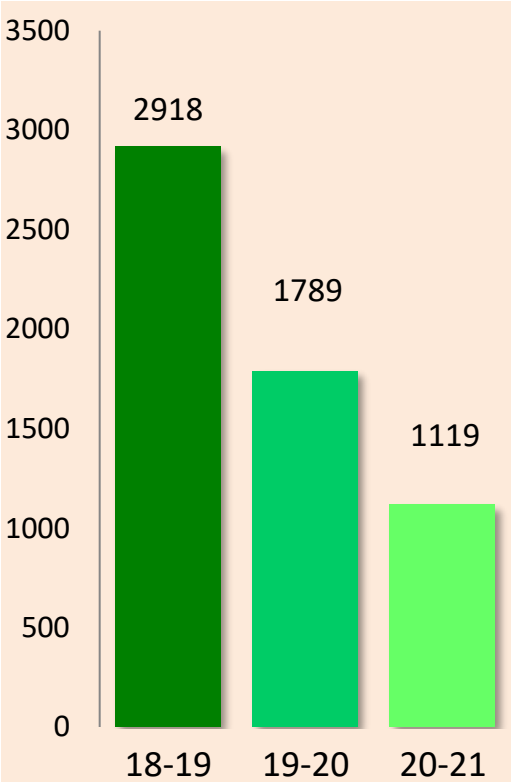
SEC (KWH/KW)

SEC has been reduced by 61.65% from 2018-19 to 2020-21.

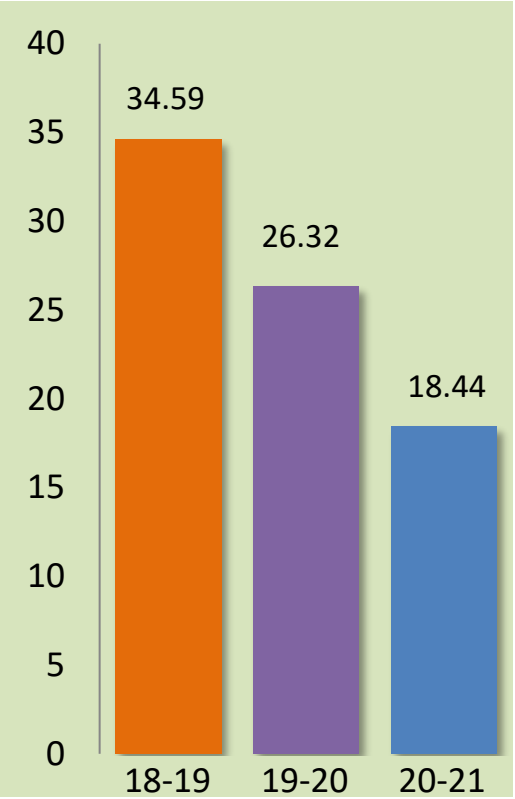
EPI (KWH/Sq. Mtrs)

SEC has been reduced by 46.68% from 2018-19 to 2020-21

SEC (KWH/KW)

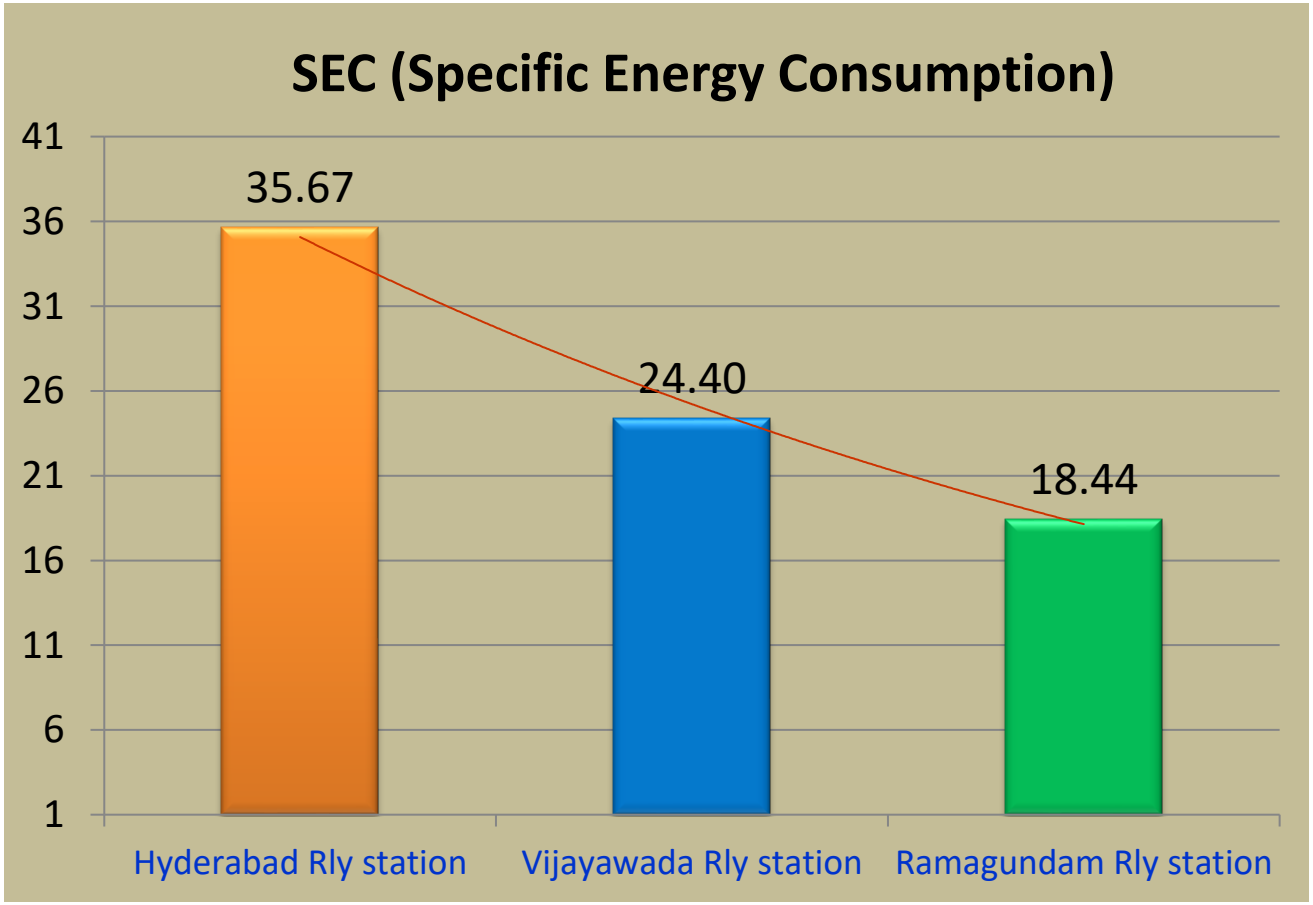


EPI(KWH/Sq. Mtrs)

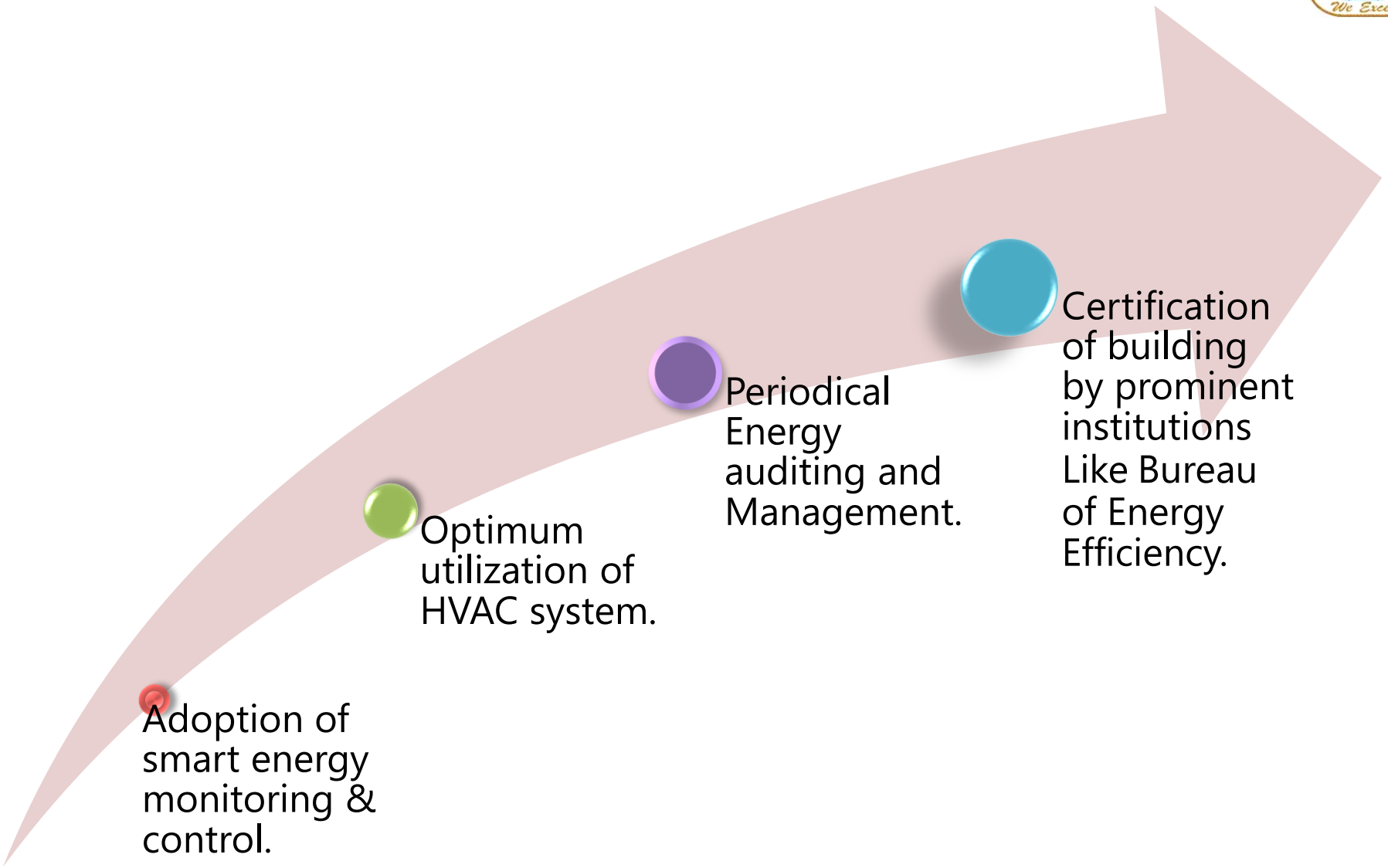


Information on Competitors/National Benchmarking

Direct Competitors & National Benchmarking :



Road Map to achieve Global Bench Marking



Short Term Targets/Major En.Con projects planned FY 2021-22

- Solar Natural water coolers in place of conventional water coolers to utilize maximum renewable energy sources.
- Provision of BLDC fans in place of conventional non star rated ceiling fans

Sl No	Project Description	Savings in kWh/Annum	Investment in Rs.	Savings in Rs.	Payback period in years
1	Solar Natural water coolers (4 Nos)	8600	₹ 6.00 Lakhs	₹ 1.4 Lakhs	4.25
2	Provision of BLDC fans	14000	₹ 2.30 Lakhs	₹1.19 Lakhs	1.93
	Anticipated Savings	22600	₹ 8.30 Lakhs	₹ 2.59 Lakhs	3.2

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.
- Installation of suitable On grid solar power plant (On site/off site).

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 2018-19

Sl No	Project Description	Savings in kWh/Annum	Investment in Rs.	Savings in Rs./Annum	Payback period in years
1	Provision of APFC panel	20760	₹ 0.5 Lakh	₹ 1.70 Lakh	0.3
2	100% LED lighting: Entire the station building provided with high efficacy LED lighting	62598	₹ 3.30 Lakh	₹ 5.13 Lakh	0.65
3	Use of renewable sources: Commissioned 10 kWp on grid solar plant	16425	₹ 7.0 Lakh	₹ 1.34 Lakh	5.22
	Cumulative	99783	₹ 10.8 Lakh	₹ 8.17 Lakh	1.32

Energy Saving Projects implemented in last 3 years

Major En.con projects implemented in 2019-20

Sl No	Project Description	Savings in kWh/Annum	Investment in Rs.	Savings in Rs./Annum	Payback period in years
1	Bifurcation of 30% &70% lighting circuits	8239	₹ 0.45 lakh	₹ 0.69 Lakh	0.65
2	Provision of 1000 LPD solar water heating system	9709	₹ 0.66 Lakh	₹ 0.80 Lakh	0.82
3	Bifurcation of 30% &70% Fans circuits	3500	₹ 0. 11 Lakh	₹ 0.29 Lakh	0.38
4	Bifurcation of 30% & 70% high mast lighting	25952	₹ 0.05 Lakh	₹ 2.15 Lakh	0.02
5	90 Nos of BLDC fans provided in place of non star rated conventional fans	12614	₹ 1.89 Lakh	₹ 1.04 Lakh	1.83
6	22 Nos of BEE 5 star rated Inverter type split AC units provided in place of old non star rated AC units	32120	₹ 15.40 Lakh	₹ 2.70 Lakh	5.70
	Savings Achieved	92,134	₹ 18.56 Lakh	₹ 7.65 lakh	2.43

Energy Saving Projects implemented in last 3 years

Major En.con projects implemented in 2020-21

	Project Description	Savings in kWh/Annum	Investment in Rs.	Savings in Rs.	Payback period in years
1	Installation of 80 kWp solar power plant under PPA	87600	Nil (₹50 Lakh)	₹ 7.35 Lakh	
2	Occupancy sensors for air conditioned rooms	10617	₹ 0.99 Lakh	₹ 0.89 Lakh	1.11
	Savings Achieved	98217	₹ 0.99 Lakh	₹ 8.24 Lakh	

Summery of projects implemented in last three years

Year	No of Energy saving projects	Investment (in INR million)	Electrical savings (Million kWh)	Thermal savings (Million kCal/MTOE)	Savings (INR Million)	Impact on SEC (Elect, thermal)
FY 2018-19	Three	₹ 1.08	0.099	-	₹ 0.82	-
FY 2019-20	Six	₹1.85	0.092	-	₹ 0.76	-
FY 2020-21	Two	₹ 0.1	0.098	-	₹ 0.82	-

Utilization of Renewable Energy sources

Renewable energy projects implemented

- 90 kWp ON Grid solar rooftop power plant.
- 2 Nos of solar pumps (5 HP & 3 HP) installed
- 2000 LPD Solar rooftop hot water plants for hot water requirement.

- With the above, we able to generate 1.84 Lakh units per annum
- This contributes 46 % of total energy consumption
- Reduction of carbon emissions by 175 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	90 kWp	0.147	36.62%
Solar PV	Electrical	Onsite	2000 LPD	0.023	5.85%
Solar PV	Electrical	On site	8Kwp(5+3)	0.013	3.25%

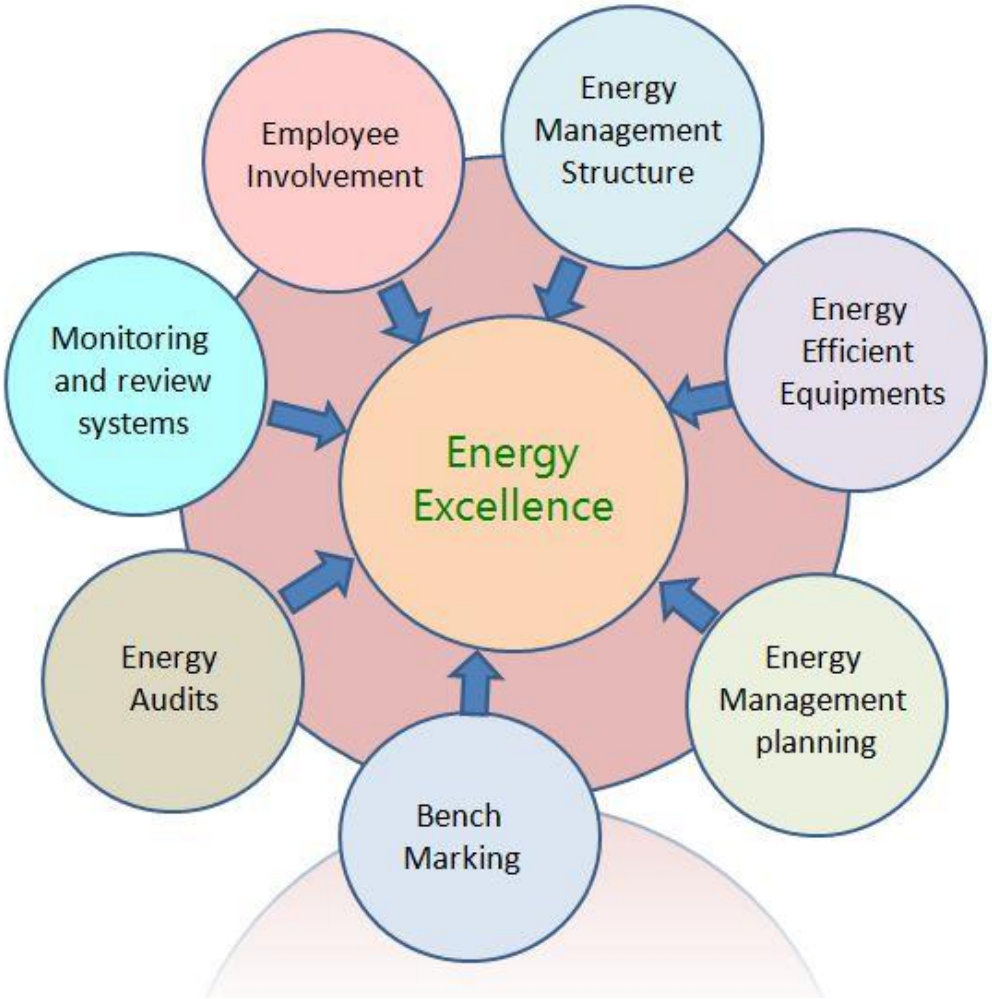
On site 90 kWp solar plant,

2000 LPD solar water heating system,

5 HP solar pump panels

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

All the 22 Nos AC units at are energy efficient Inverter type .

- Energy Conserved: 0.32Lakh kWH/Annum

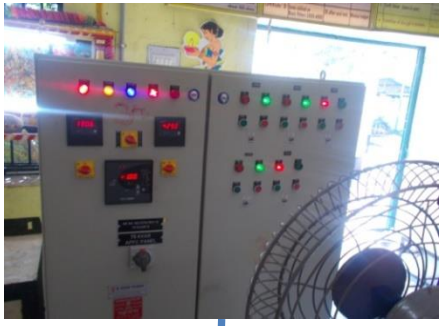
Super energy efficient BLDC Fans

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

- Energy Conserved: 0.12 Lakh kWH/Annum

BEE 5 star rated pumps

Modern energy efficient 2 x 30 KV UPS in place of Over aged &inefficient UPS.



APFC panels

50 KVAR APFC panel provided in sub station to maintain logging of PF 0.9. S

- Energy Conserved 0.2 lakh/Annum

Benefits achieved by implementing of low cost technologies

Provision of Timers for 30% & 70% High mast

Timers provided for 30% and 70% of High mast lighting as per requirement

- Energy Conserved: 0.26Lakh kWH/Annum

100% High efficacy LED Lighting

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

- Energy Conserved: 0.62Lakh kWH/Annum

Provision of Timers for 30% & 70% fans and lighting circuits

Timers provided for 30% and 70% of fans & lighting as per requirement

- Energy Conserved: 0.19Lakh kWH/Annum
-

Provision of Occupancy sensors

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

Energy Policy & Salient features

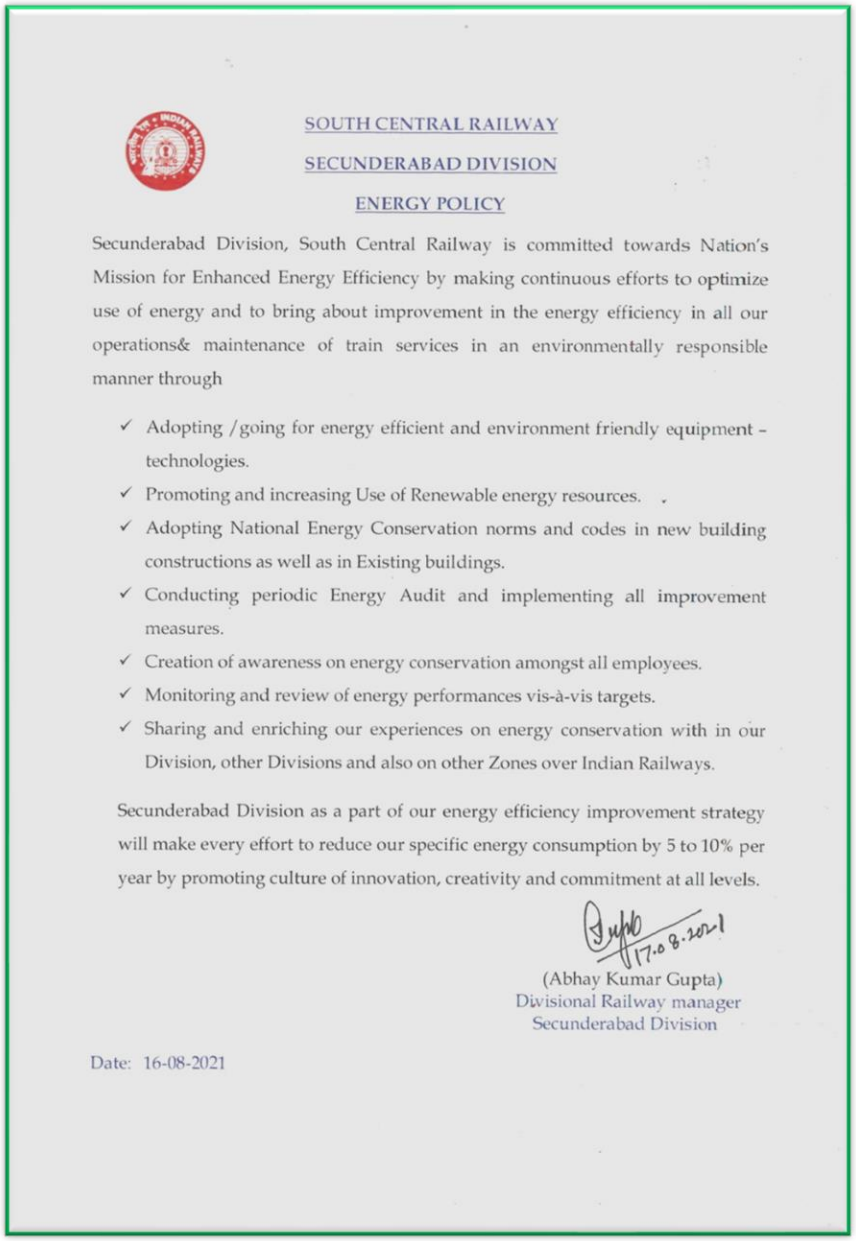
Promoting	• Promoting and increasing use of Renewable energy
Conducting	• Conducting energy audits and implementing all improvement measures
Monitoring	• Monitoring and review of energy performances
Sharing	• Sharing our experiences on energy conservation with other Divisions & Zones over Indian Railways
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.

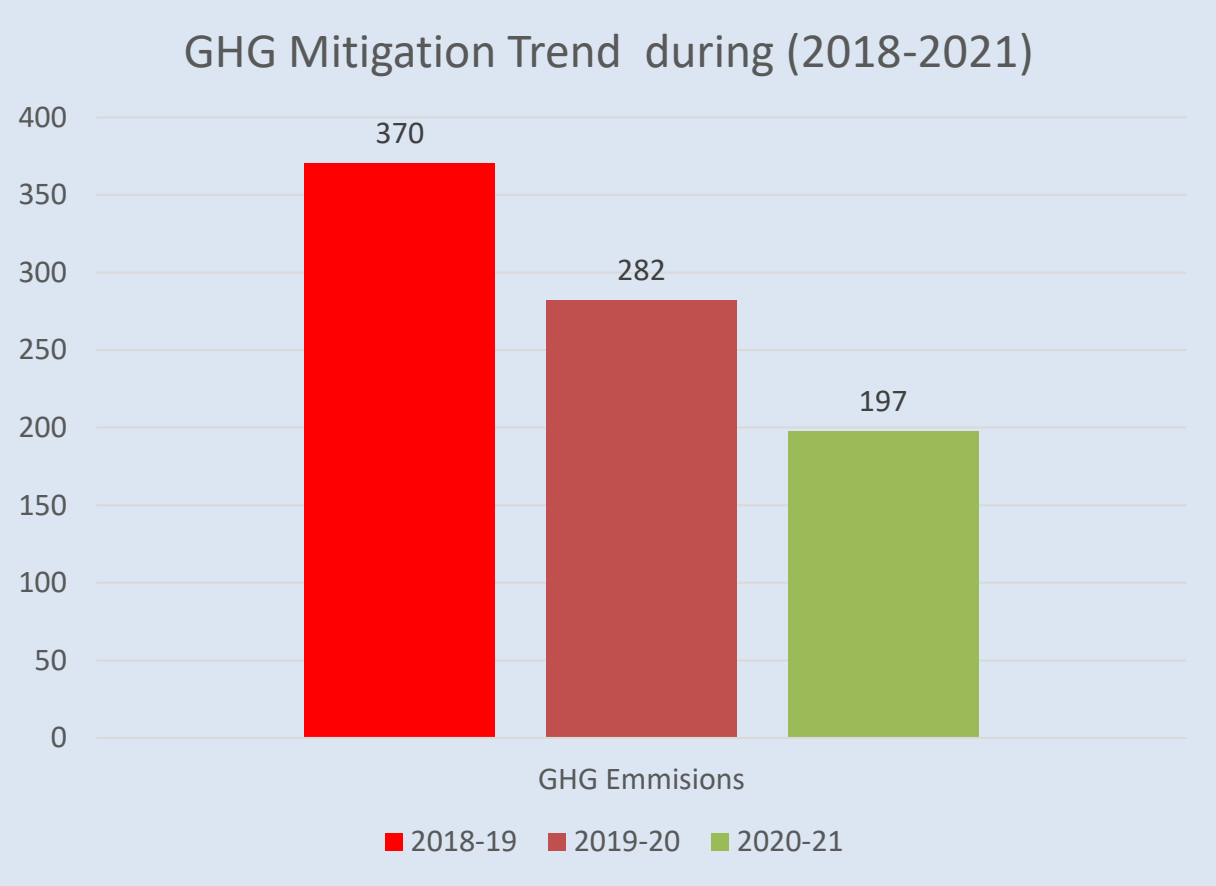
Secunderabad Division as a part of our energy efficiency improvement strategy will make every effort to reduce our specific energy consumption by 5 to 10% per year by promoting culture of innovation, creativity and commitment at all levels.

17.08.2021

(Abhay Kumar Gupta)
Divisional Railway manager
Secunderabad Division

Date: 16-08-2021

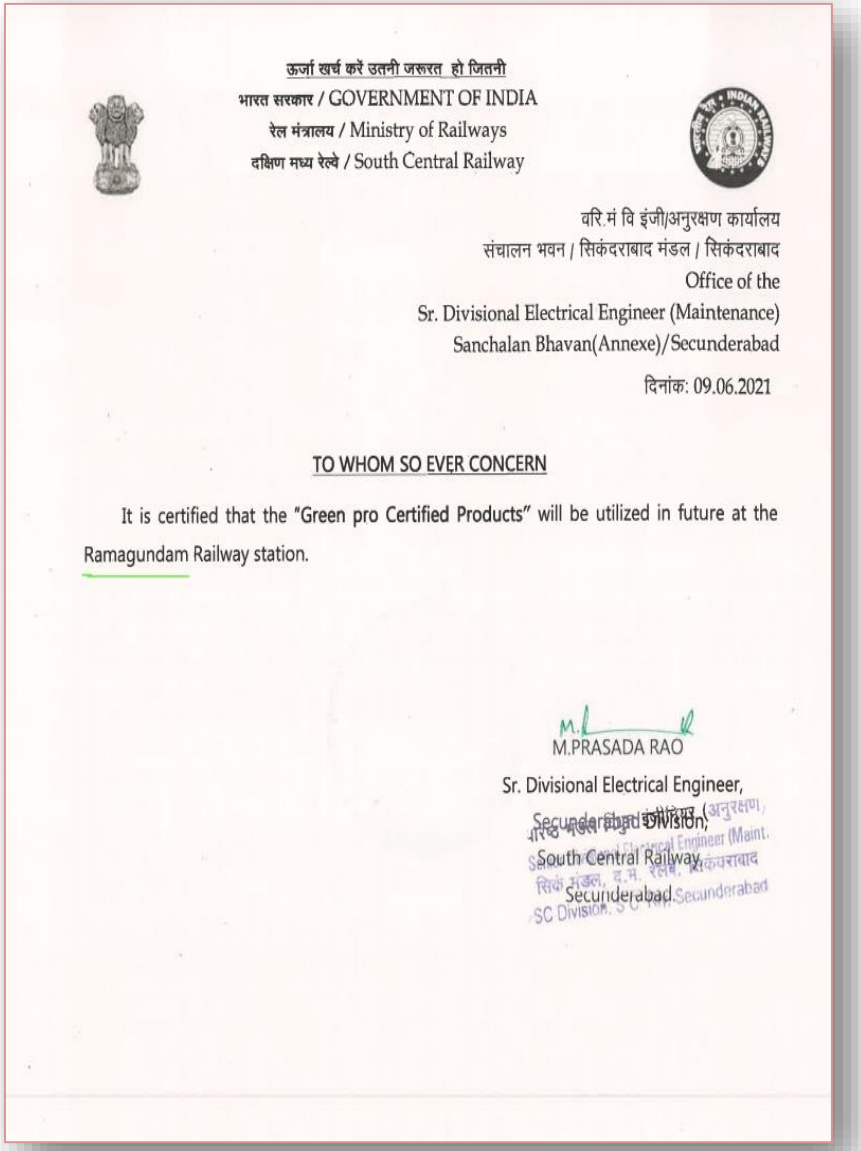
GHG Emissions



- GHG emissions reduced by over 46.75% 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



ऊर्जा खर्च करें उतनी जरूरत हो जितनी

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

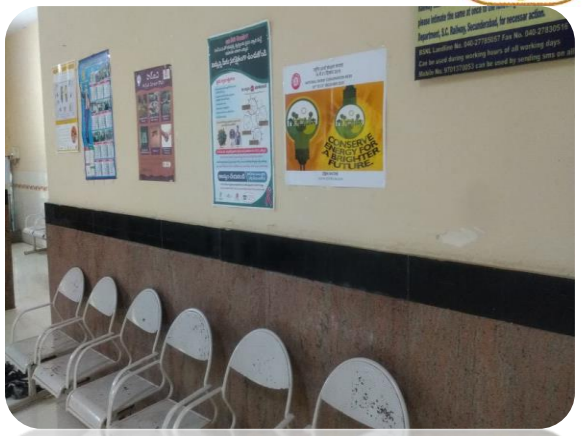
दिनांक: 09.06.2021

TO WHOM SO EVER CONCERN

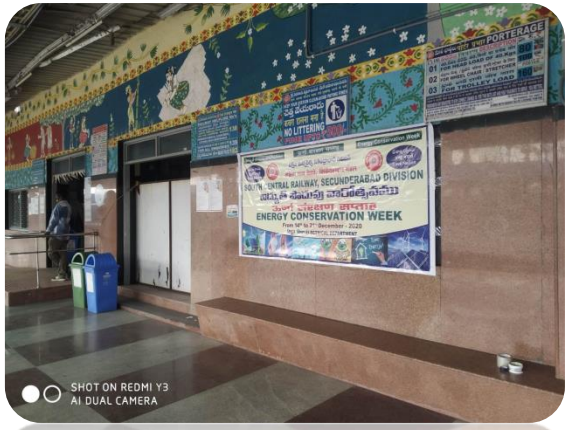
It is certified that the "Green pro Certified Products" will be utilized in future at the Ramagundam Railway station.

M.PRASADA RAO
Sr. Divisional Electrical Engineer,
Secunderabad Division,
South Central Railway,
Secunderabad.

Team Work & Employee Involvement



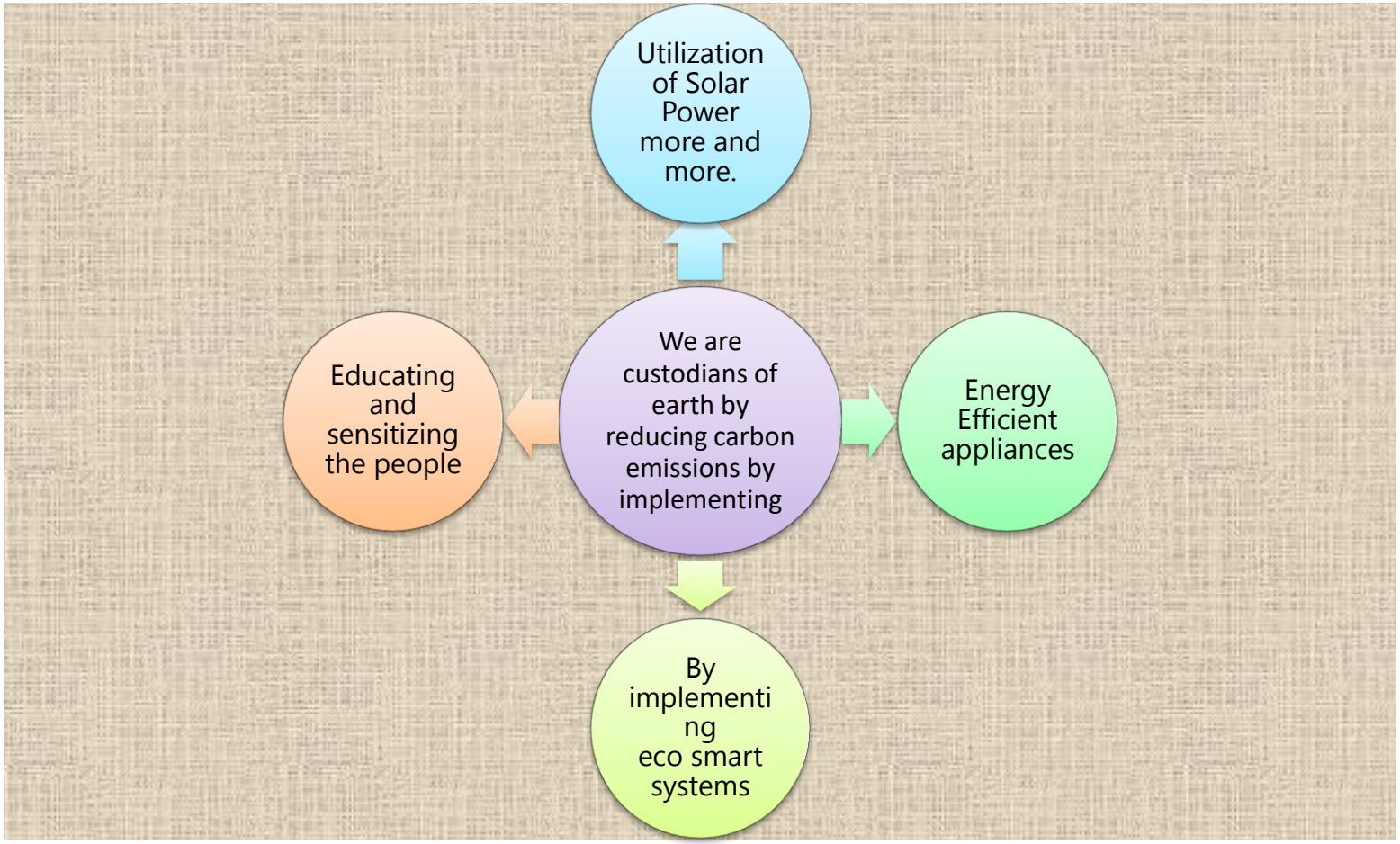
Performance Review Meeting regarding Energy Conservation, Posters on energy conservation



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.



Awards & Achievements

Awards

- Ramagundam Railway station of SC division has been selected for Telangana State Energy Conservation Awards 2020 – GOLD AWARD (1st prize) presented by Secretary to Department of Electricals of Telangana State and MD and Chairman of TSTRANSCO & TSGENCO of Telangana on 20.12.2020.

Receiving First Prize(Gold) in Railway station building category for the year 2020 from Telangana State

Awards & Achievements

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

Ramagundam Railway Station
Kundanpalli, Ramagundam - 505208, 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 Muncipal Authority.

:: Certificate No:: 24340-E14

Date of Initial Registration	06th November 2019
Date of Certificate	06th November 2019
Validity of Certificate	05th November 2022

Validity of this certificate is subject to annual surveillance audits

Director

IAS-ANZ M4640210IL

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT IAF

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

LMS Certification Private Limited

Thank You