24th NATIONAL AWARD FOR EXCELLENCE IN ENERGY MANAGEMENT-2023

Rail Nilayam

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Hyderabad Division, South Central Railway
Secunderabad

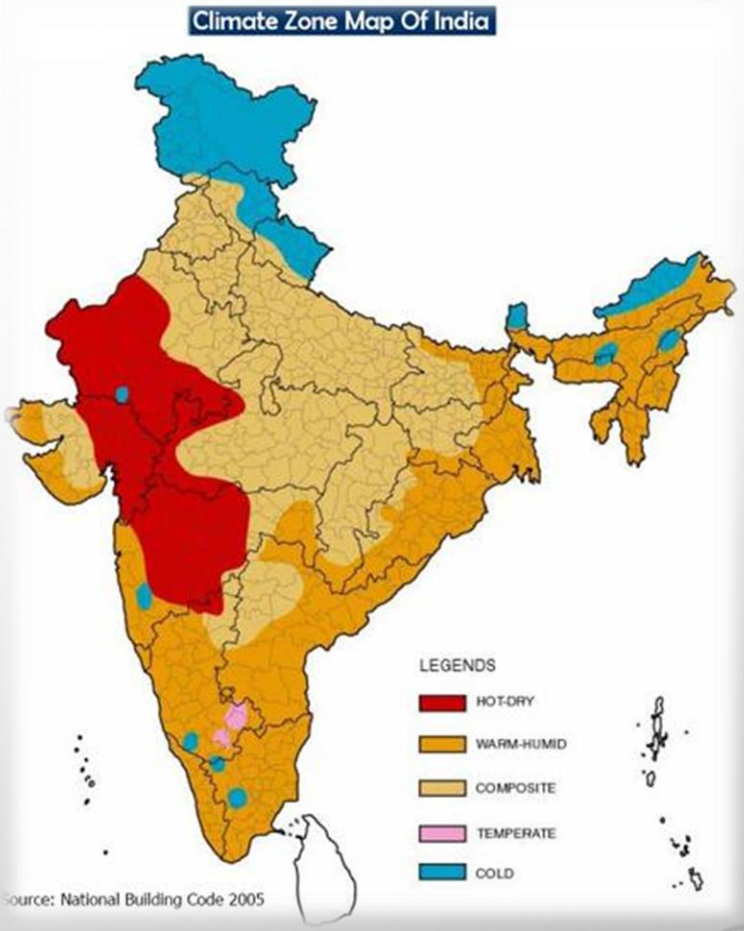
Rail Nilayam, General Manager's Office,
South Central Railway, Secunderabad

About Rail Nilayam

- Rail Nilayam was built in 1966.
- Main Function : Centralized Train Operations Control, Inter Zonal Coordination, Zonal Business Management.
- About 3200 officials and employees do work in building.
- The entire building was surrounded by Green patches to provide serene and lush green ambience which will also add to the conservation of energy.
- Has awarded with **Gold Rating** by IGBC.
- Has been certified with **ISO 50001:2018.**

KEY FEATURES-Rail Nilayam

- This building comes in the COMPOSITE Climatic Zone.
- Orientation : South - West direction
- 4 Integrated Blocks, 7 Storied Building
- Built Up Area: 40023 Sq. mtrs.
- Connected Electrical Load: 1.85 MW.
- Energy Sources:
  - 11 KV/440V Sub Station
  - Standby DG Sets
  - 0.22 MWp Rooftop SPV Plant

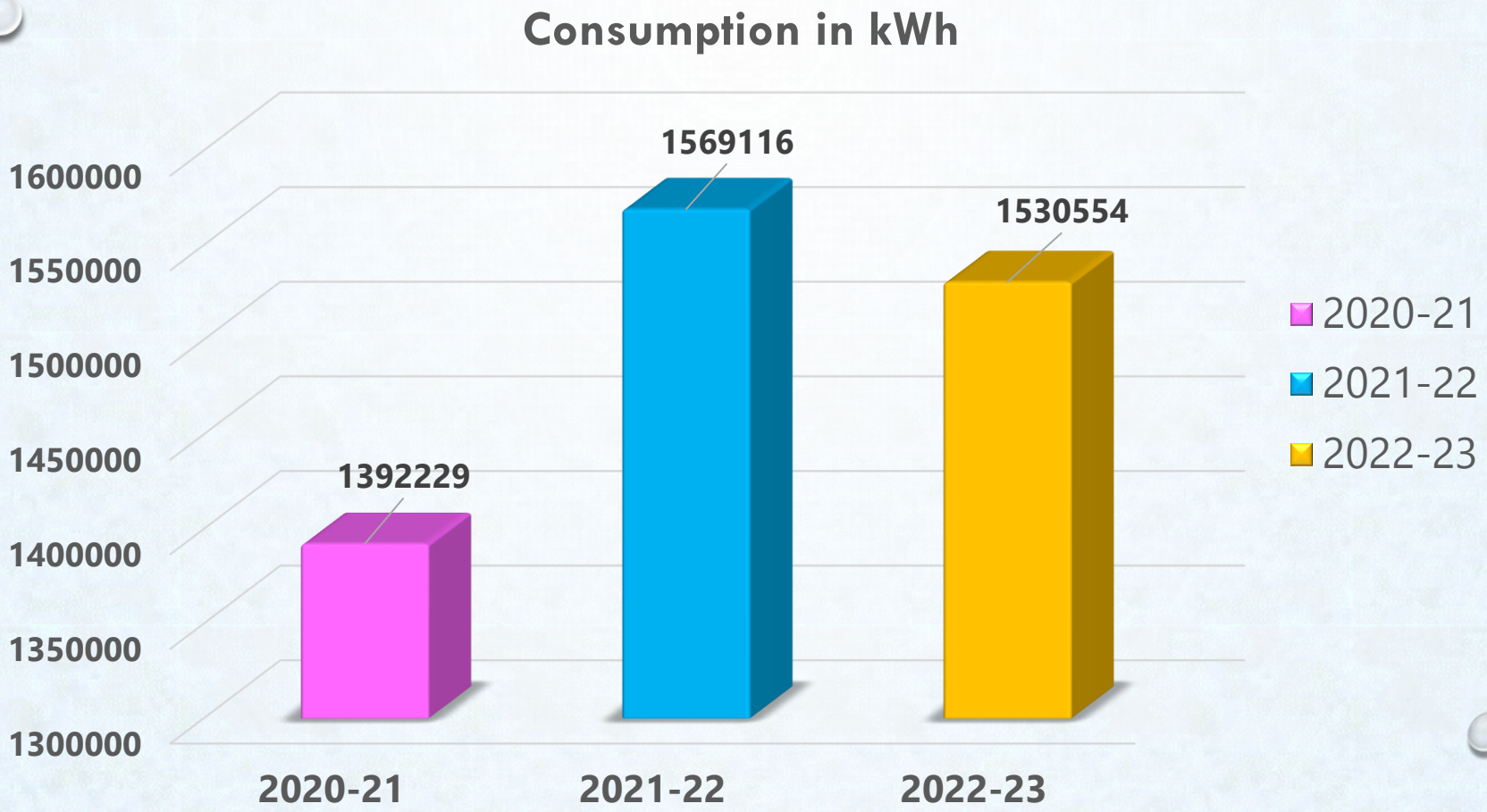


GREEN ARCHTECTURE OF BUILDING

Energy Consumption

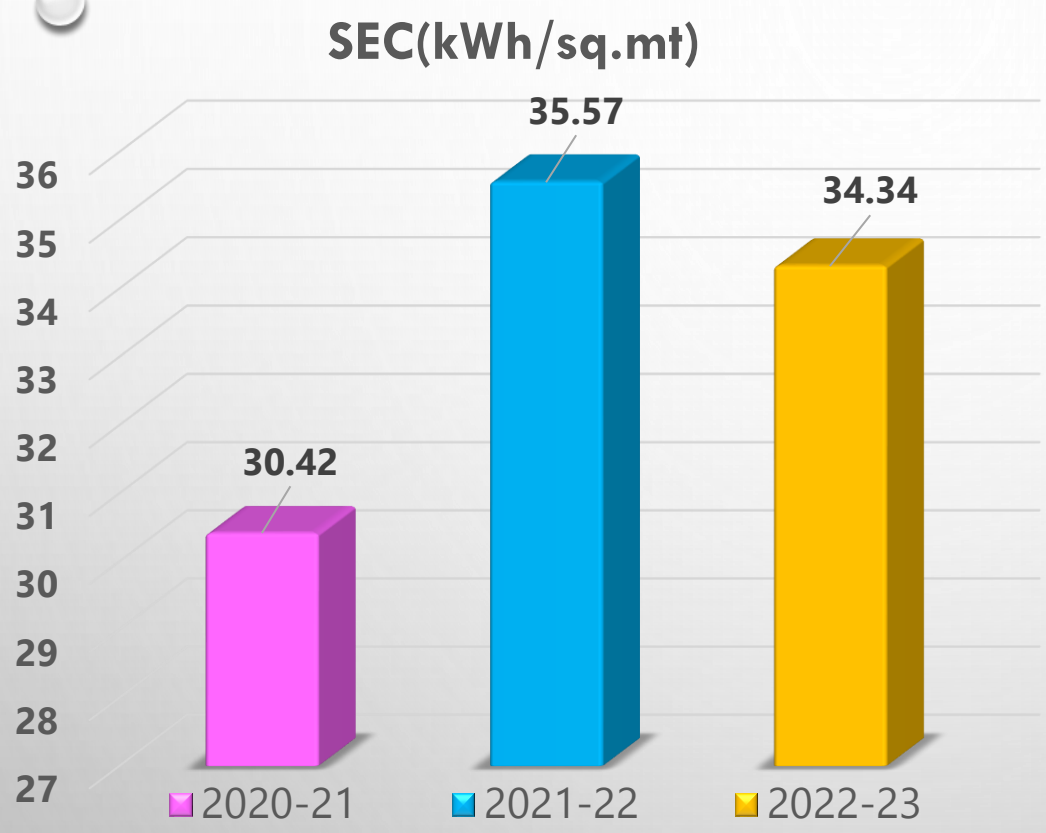
Description	2020-21	2021-22	2022-23
Purchased from Grid (kWh)	1216779	1423463	1374205
Consumption through DG set (kWh)	174840	145440	156195
Consumption through Solar (kWh)	610	213	154
Total Consumption (kWh)	1392229	1569116	1530554
Total Built-up Area (Sq.mt)	40023	40023	40023
Specific Energy Consumption (kWh/Sq.mtr.)	34.78	39.20	38.24

Consumption Pattern



Consumption has been reduced by 2.45% during 2022-23 compared 2021-22

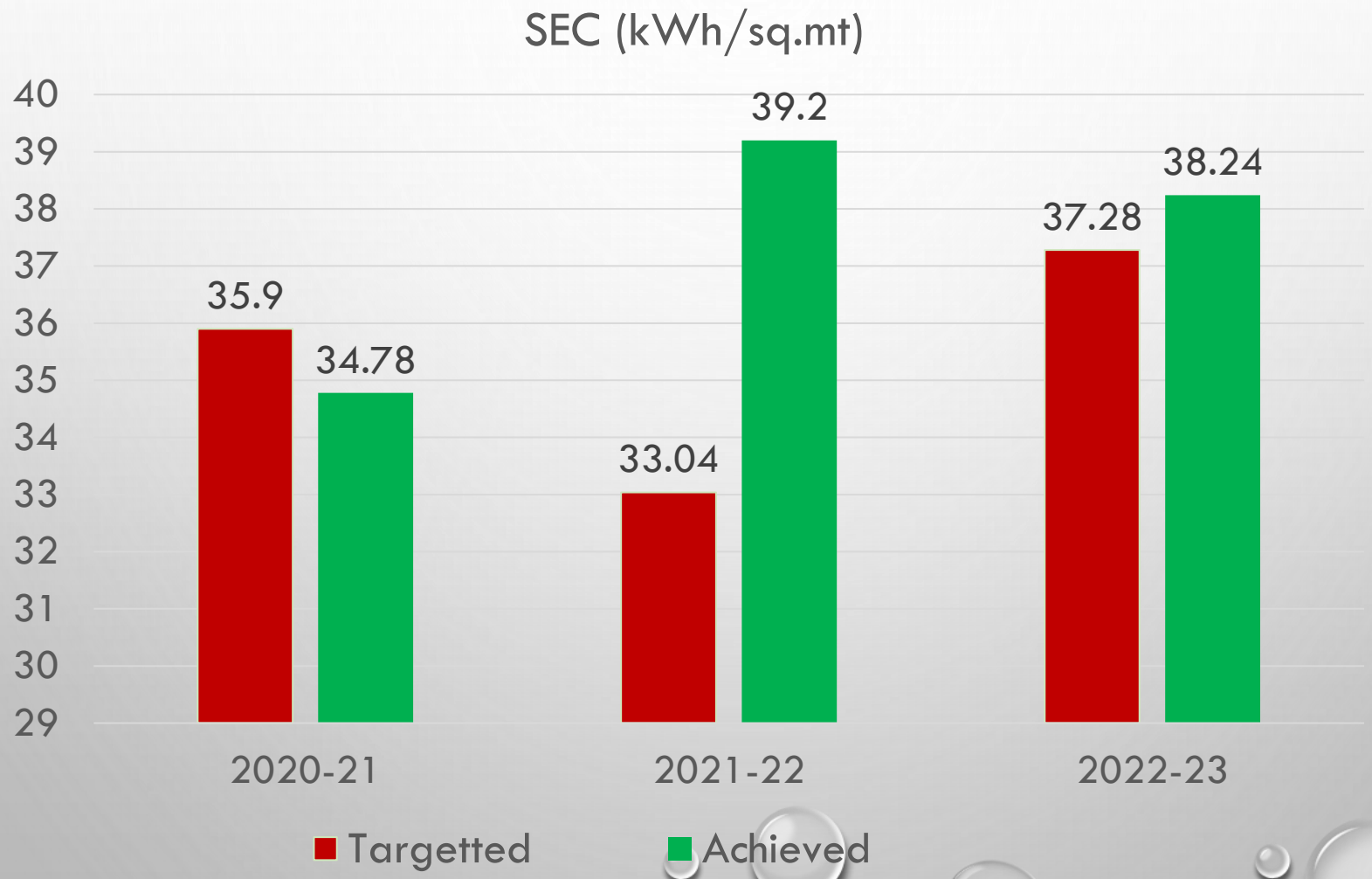
SEC (kWh/sq.mt)



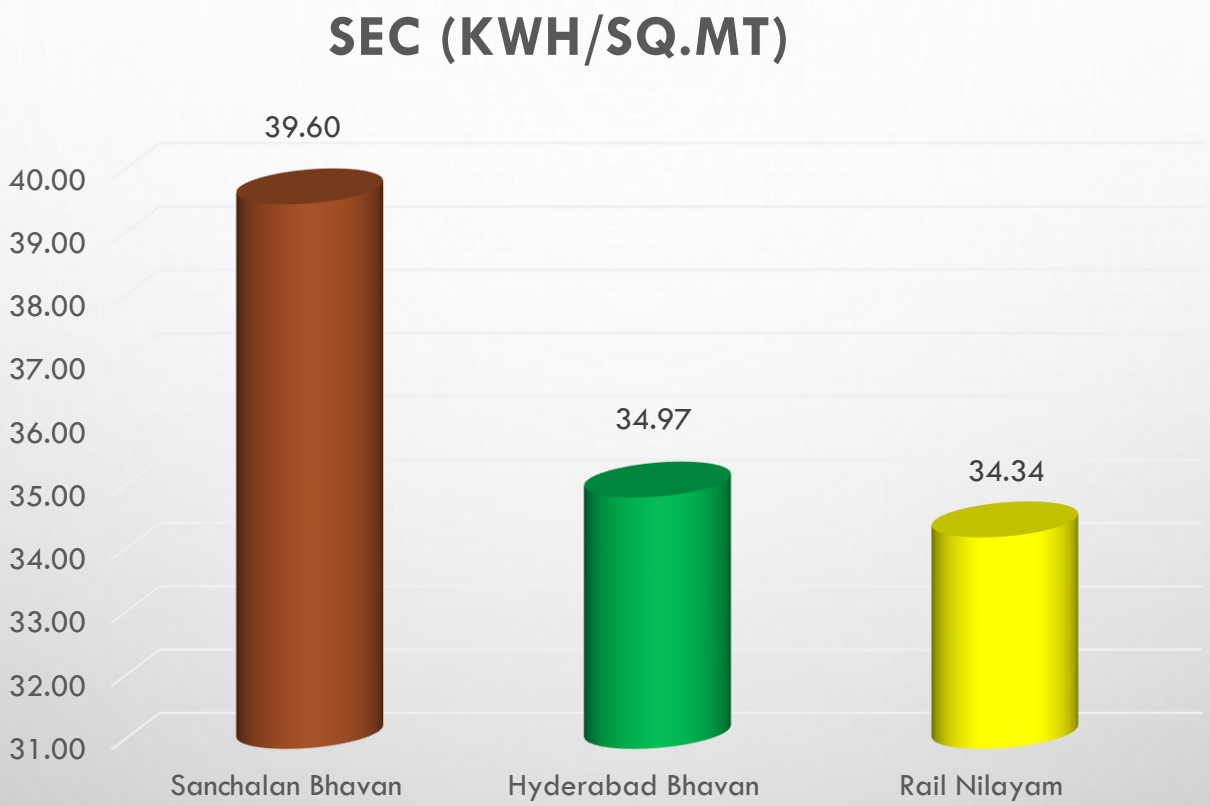
3.45 % Reduction in SEC from 2022-23 to 2021-22

Internal Bench Marking

Target: 5% reduction in preceding year's SEC as assigned by Railway Board.



National Bench Marking



EnCON Projects Implemented from 2020-21 to 2022-23

Energy Saving Projects 2020-21

Sl. No.	Name of the Item	Savings in Lakh Units	Savings in Lakh Rs.	Investment in Lakh Rs.
1	Natural Day light pipes	0.53	5.25	2.4
2	Occupancy sensors for lights	0.66	6.57	2.2
3	Replacement of 1.5 TR Conventional split AC unit to 1.5TR Inverter type	0.36	3.55	10.7
4	Replacement of Conventional ceiling fans with BLDC Ceiling fans	0.41	4.08	10.9

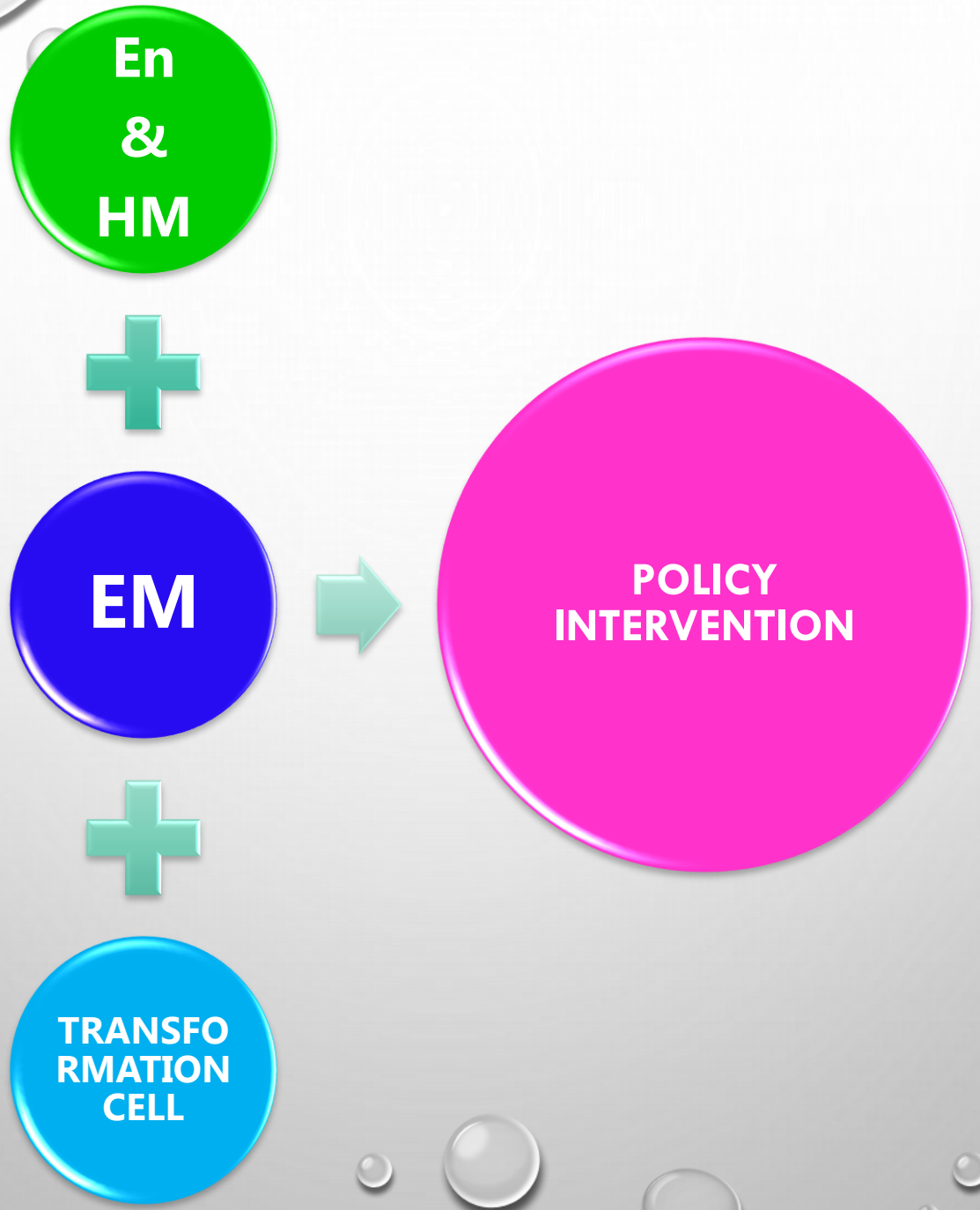
Energy Saving Projects 2021-22

Sl. No.	Name of the Item	Savings in Lakh Units	Savings in Lakh Rs.	Investment in Lakh Rs.
1	Occupancy sensors for ACs	6.72	67.23	6.75
2	Implementation of preventive maintenance schedules	0.29	2.90	-
3	Temperature setting of 18 deg. C to 22 deg. C in Water coolers	0.10	1.08	-
4	Energy Efficient Pumps	0.34	3.40	1.75
5	Energy Efficient Inverter AC units	3.00	30	108

Energy Saving Projects 2022-23

Sl. No.	Name of the Item	Savings in Lakh Units	Savings in Lakh Rs.	Investment in Lakh Rs.
1	Automation of Pumps	0.08	0.89	0.18
2	Modernisation Lifts	0.39	3.92	20.7
3	Temperature setting of 22 deg. C to 26 deg. C in AC	4.03	40.32	--
4	Occupancy sensors for ACs	1.24	12.45	1.25
5	BLDC Fans	0.44	4.41	10.58

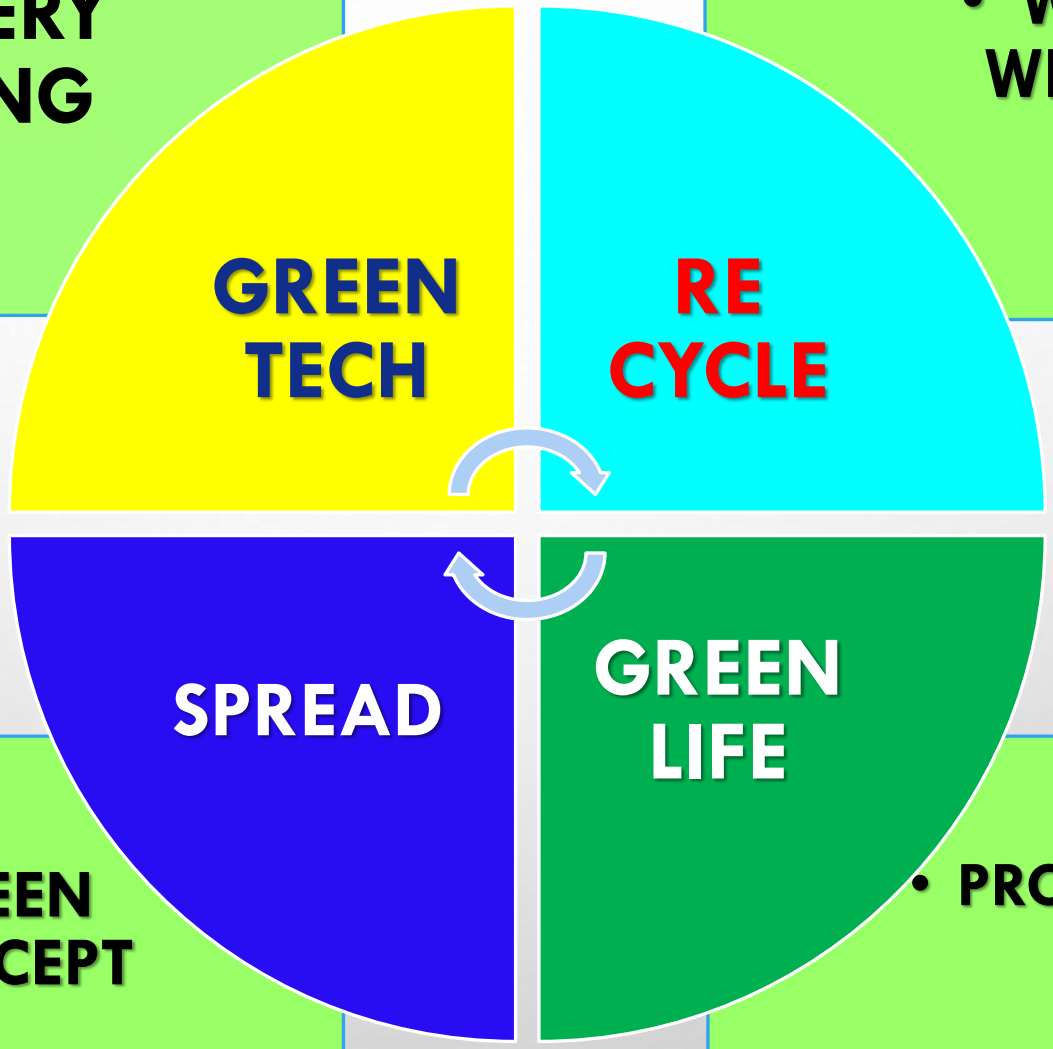
GREEN POLICY



GREEN MISSION

- EVERY THING

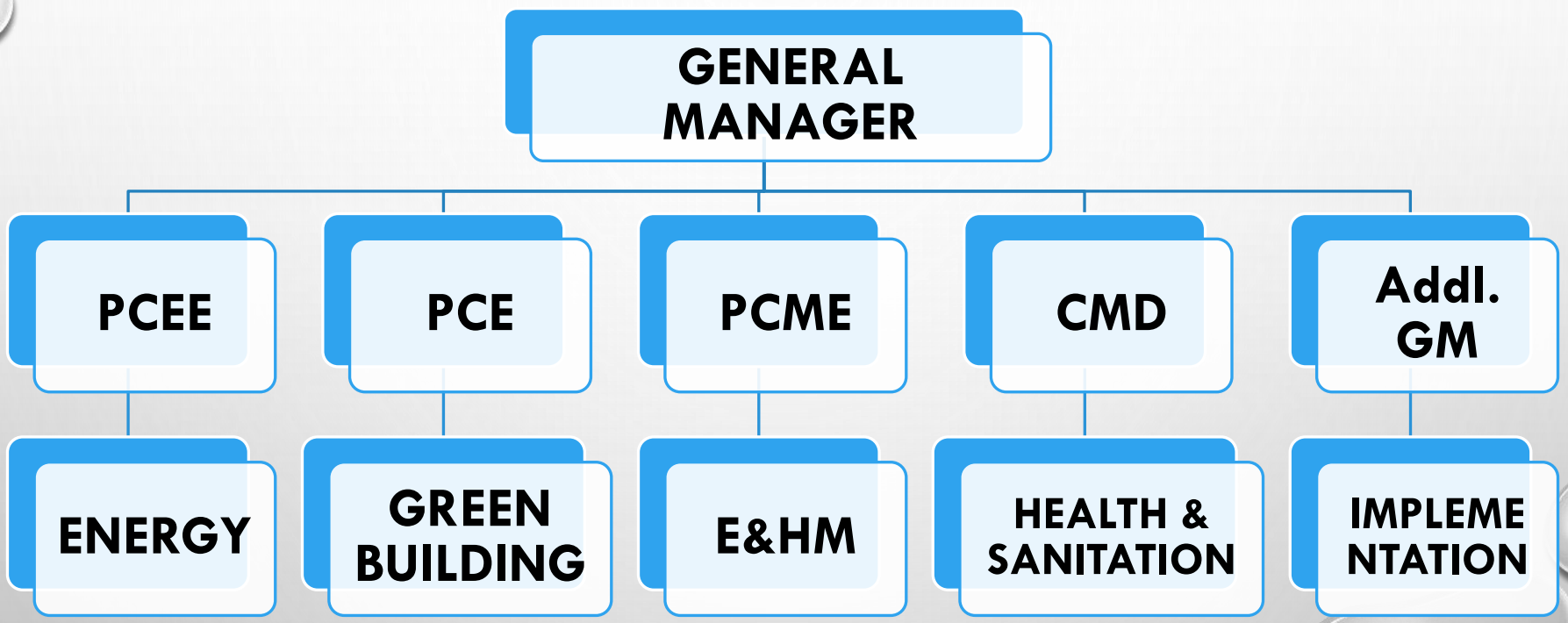
- WHAT WE CAN



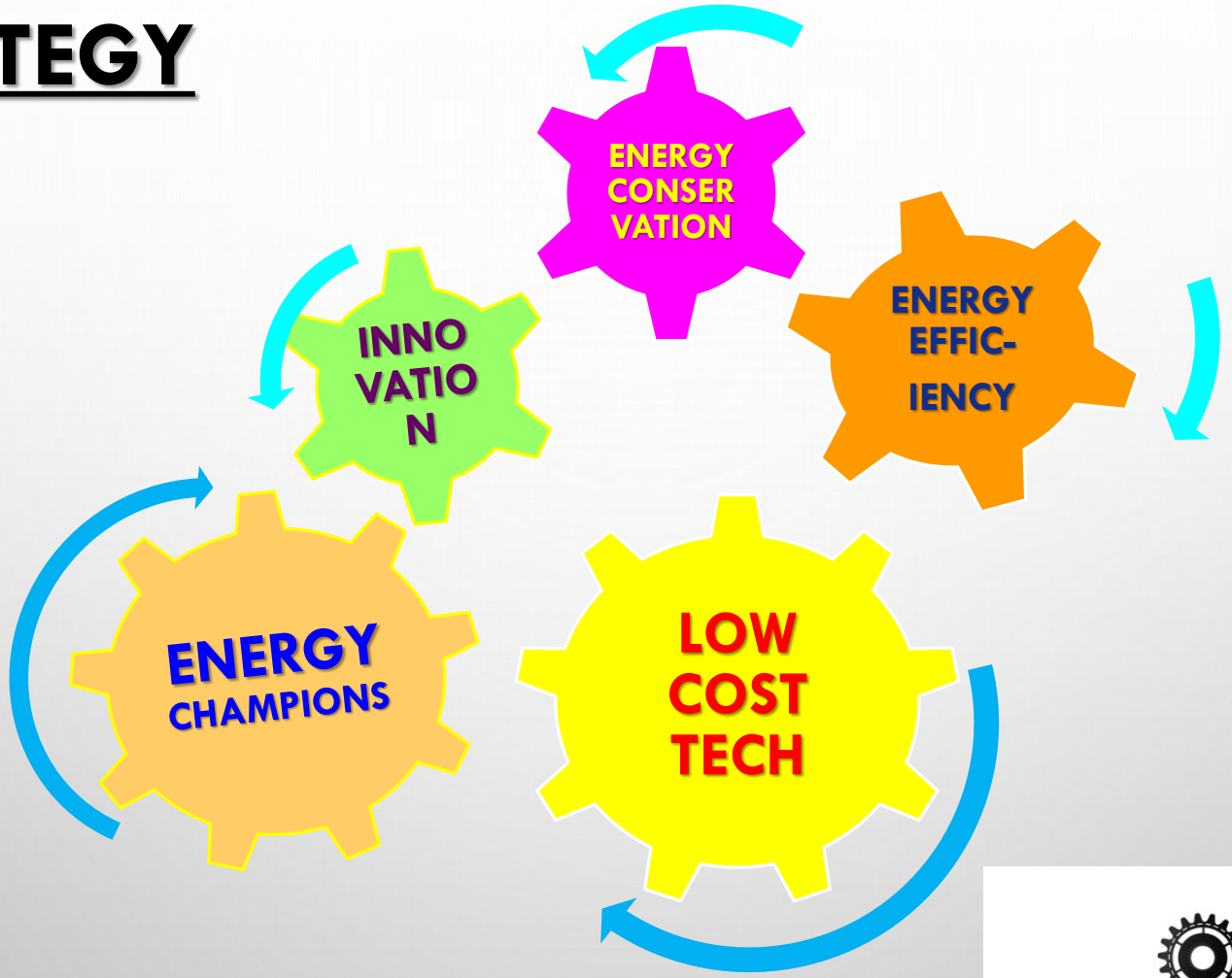
- GREEN CONCEPT

- PROMOTE

GREEN MISSION STRATEGIC TEAM



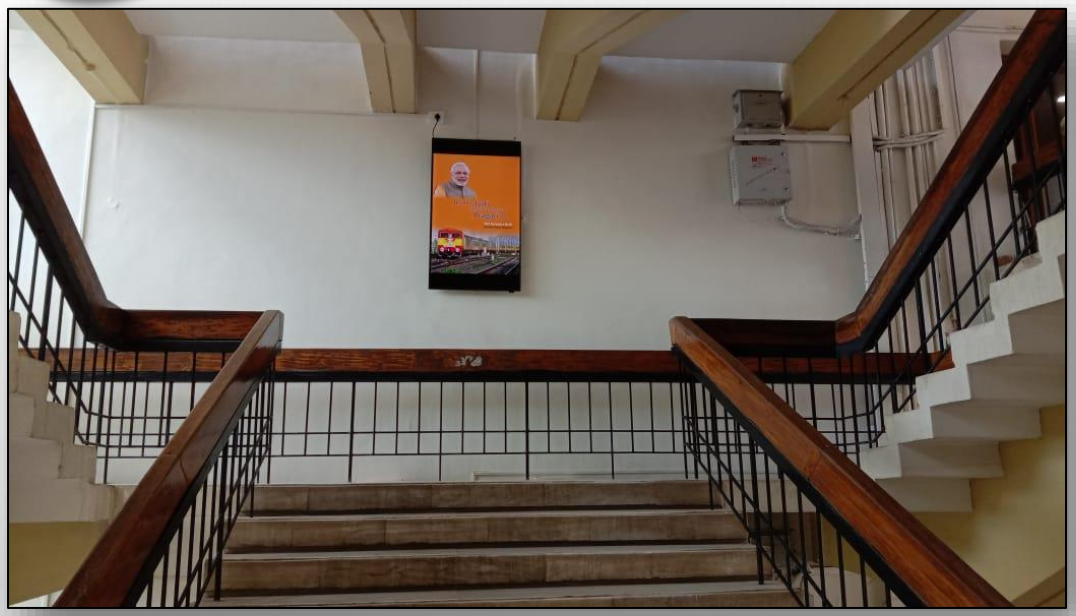
ENERGY STRATEGY

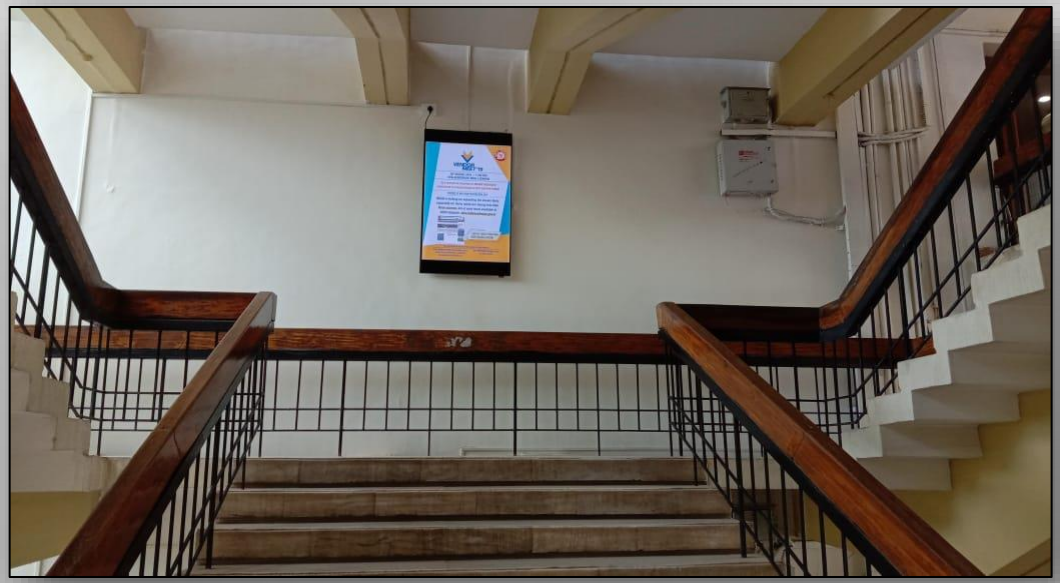


GREEN INITIATIVES AND FEATURES

- GREEN TREE FAÇADE BY ASHOKA (Saraca - asoca) TREE
- ROOFTOP SOLAR POWER PLANT
- NATURAL ILLUMINATION PROMOTIONS
- RECYCLING OF WATER & STP
- DAY LIGHT PIPE SYSTEM
- SUN CONTROL FILM ON WINDOW PANS
- MASSIVE TREE PLANTATIONS
- e-WORKING AND e-FILE SYSTEMS
- e-DISPLAYS OF INFORMATIONS
- SMART REST ROOMS AND GREEN URINAL
- LED SIGNAGES AND NAME BOARDS
- SOLAR WATER HEATING SYSTEM
- ROOF GARDEN AND LAWN
- SEGREGATION OF WASTE AND WASTE MANAGEMENT
- HEAT REFLECTIVE PAINTS AND LOW EMISSION PAINTS

e-Display of Information





GREEN INITIATIVES AND FEATURES

Rooftop Solar Plant

Natural Day Light

Segregation of Dry & Wet Waste

PAN IR Video Conference Hall

GREEN INITIATIVES AND FEATURES

Recycling of Water & STP

Roof Garden

LED Signage Boards

Sensor based Taps

GHG Emission Reduction

GHG Emissions Reductions:

- 220 kWp Solar Energy 
- Dedicated 11kV/440V Line, so that Generation from DG is reduced 
- Use of 5 star rated Inverter HVAC 
- Energy Audits 

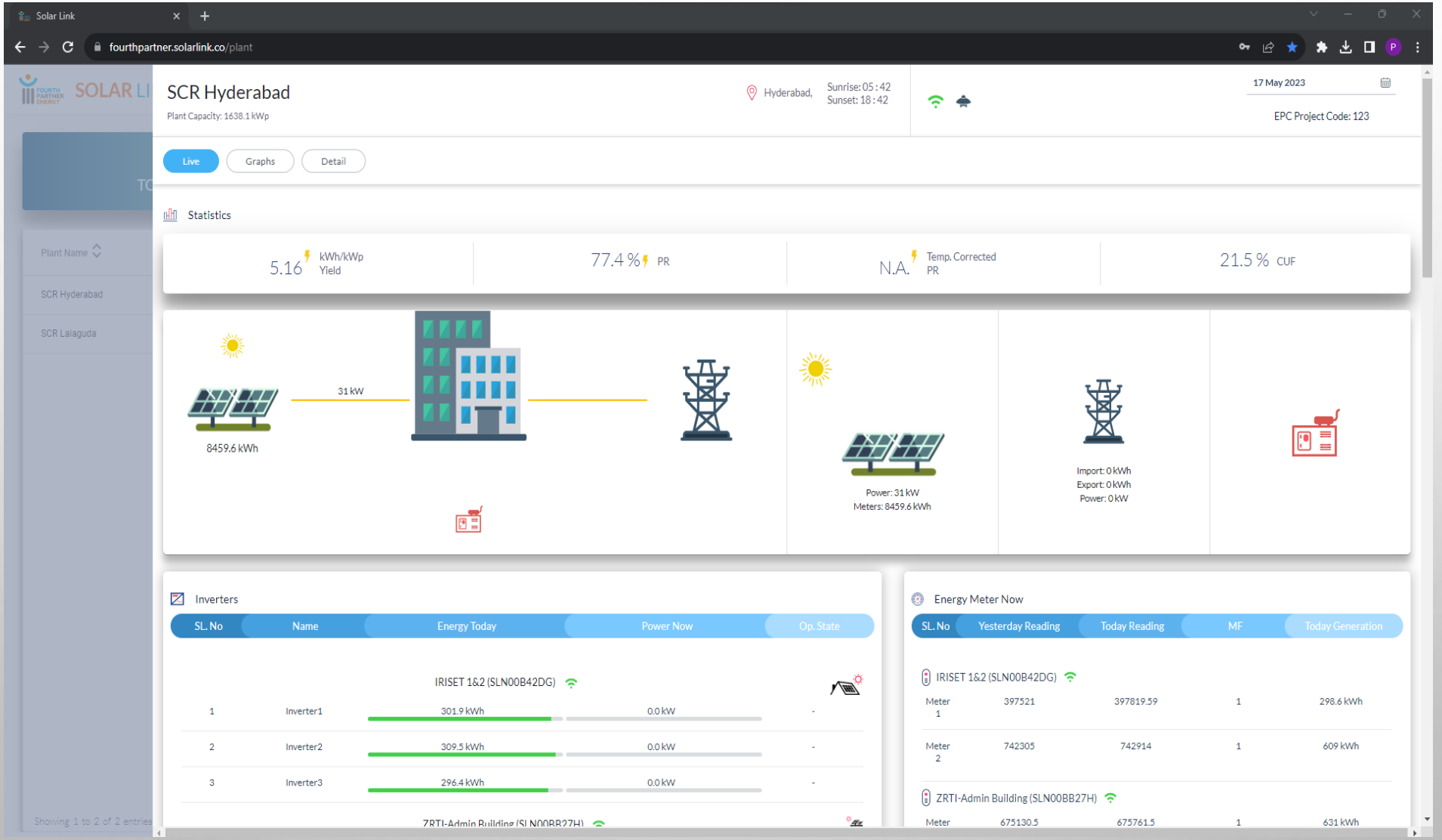
- 100% LED Lightings 
- Energy Efficient VVF Drives in Lifts 

Energy Conservation Awareness Programme

Energy Conservation Awareness Programme

Energy Conservation awareness programme had been organised during the energy conservation week. As part of this Energy Conservation Tips scrolling board, Door to Door Campaign, etc. are provided

ON LINE ENERGY MONITORING



Energy Conservation and GHG Policy

Energy Conservation Policy of Hyderabad Division

1. Daily monitoring the Energy consumption through specially designed software.
2. Creating awareness among the users through various activities such as brochures / seminars.
3. To minimize the specific energy consumption w.r.t previous years.
4. Conducting of regular inter departmental energy audits aimed to minimize the energy losses.
5. Implemented the action plan of energy conservation items to reduce the Energy Consumption at least by 10% every year w.r.t. previous years targets.
6. Promote use of the renewable sources of energy.
7. Use of latest BEE 5 star rated Electrical Fittings and Equipments.

K. Kiran Kumar
Senior Divisional Electrical Engineer,
Hyderabad Division, South Central Railway.

GHG Policy of Hyderabad Division

1. We committed to use products which reduce the GHG emission.
2. Using of eco-friendly refrigerants in HVACs, Refrigerators, Water Coolers etc.
3. Converting Existing Office Buildings into Green Buildings.
4. Use of Solar and Wind Energy.
5. Ensuring availability of resources for continual reduction of GHG emissions intensity.

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Senior Divisional Electrical Engineer,
Hyderabad Division, South Central Railway.

INNOVATIVE PROJECTS

Innovation Projects Implemented

Innovative Ideas	Project Description	Benefits Achieved
Temperature setting of 18 deg C to 22 deg C in Water coolers	Temperature setting of 18 deg C to 22 deg C in Water coolers	0.10 Lakh units per annum Rs. 1.08 Lakhs per annum
Implementation of preventive maintenance schedules	Implementation of preventive maintenance schedules	0.29 Lakh units per annum Rs. 2.9 Lakh per annum
Temperature setting of 22 deg C to 26 deg C in AC	Temperature setting of 22 deg C to 26 deg C in AC	4.03 Lakh units per annum Rs. 40.32 Lakh per annum
Use of Bus-coupler	Bus-coupler has been provided for switching of loads between 1500kVA and 500kVA transformers	Rs. 8.15 Lakh per annum
Provision of energy efficient VVVF drive and motor equipped elevators (Lifts)	3 Lifts at rail Nilayam are modernized and savings achieved is 0.19 Lakh units/annum, by providing VVVF drives, energy efficient motors (15KW motor reduced to 11KW motor) etc. These Lifts are provided with regenerative breaking system which generates energy during breaking/load balancing and the generated power is used in lift circuit.	Rs. 1.59 Lakh per annum

Innovation Projects Implemented

- Bus coupler panel was energized for shifting loads between 1500kVA and 500kVA transformers during light load days i.e., weekends/holidays.
- No load losses of the transformer will be reduced and also increases the efficiency of the 1500kVA transformer.
- Approximate Energy Savings per annum – 1.20 Lakh Units per annum.
- Approximate Monitory Saving of Rs. 9.60 Lakhs per annum.

Renewable Energy Utilization (140 kWp)

Year	Technology	Type of Energy	Onsite/ Offsite	Installed capacity	Generation in kWh	% of overall electrical energy
2020-21	Solar PV	Electrical	Onsite	140 kWp	174840	12.55
2021-22	Solar PV	Electrical	Onsite	140 kWp	145440	9.26
2022-23	Solar PV	Electrical	Onsite	140 kWp	156195	10.2

Renewable Energy Utilization (80 kWp)

Year	Technology	Type of Energy	Onsite/ Offsite	Installed capacity	Generation in kWh	% of overall electrical energy
2020-21	Solar PV	Electrical	Off-site	80 kWp	90147	6.89
2021-22	Solar PV	Electrical	Off-site	80 kWp	82013	5.44
2022-23	Solar PV	Electrical	Off-site	80 kWp	96341	6.55

Other Energy Conservation Measures

100% LED Lit Zonal HQ Building - First in Indian Railways

Natural Day Light Pipes

Solar Water Heater

Awards & Achievements

Rail Nilayam-ISO 50001:2018

Certificate of Registration

This is to Certify that
Energy Management System of

RAIL NILAYAM

HYDERABAD DIVISION, SOUTH CENTRAL RAILWAY, SECUNDERABAD – 500071,
TELANGANA STATE, INDIA

has been assessed and found to conform to the requirements of

ISO 50001:2018

for the following scope :

PROVISION OF ELECTRICAL SUPPLY AND MAINTENANCE OF ENERGY RESOURCES FOR RAIL NILAYAM SERVICE BUILDING

Certificate No	: **23EQKR06**		
Initial Registration Date	: 21/03/2023	Issuance Date	: 21/03/2023
Date of Expiry	: 20/03/2026		
1st Surve. Due	: 21/02/2024	2nd Surve. Due	: 21/02/2025

mms EGAC Accredited EnMS Certification CAB # 011805 IAF MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT

Director

Magnitude Management Services Pvt. Ltd
B-55, Lower Ground Floor, Sector 02, Noida-201301, U.P., India
e-mail: info@mmscertification.com, website: www.mmscertification.com

* Subject to Successful Surveillance Audit n case surveillance audit is not allowed to be conducted, this certificate shall be suspended/withdrawal)

Certificate Verification: Please Re-check the validity of certificate at http://www.mmscertification.com/directory.php or www.mmscertification.com at Active Clients.

Certificate is the property of Magnitude Management Services Pvt. Ltd and shall be return[illegible] immediately when demanded

22nd National Award for Excellence in Energy Management - 2021

Rail Nilayam has received Energy Efficient Unit Award.

CII

Confederation of Indian Industry

22nd National Award for Excellence in Energy Management 2021

This is to certify that

Rail Nilayam, Secunderabad

has been recognized as

"Energy Efficient Unit"

This acknowledgement is based on the evaluation by panel of judges at the "National Award for Excellence in Energy Management" held during 24 - 27 August 2021.

K S Venkatagiri
Executive Director
CII - Godrej GBC

Ravichandran Purushothaman
Chairman, Energy Efficiency Council
CII - Godrej GBC

21st National Award for Excellence in Energy Management - 2020

Rail Nilayam has received Energy Efficient Unit Award.

CII

Confederation of Indian Industry

125 Years - Since 1895

21st National Award for Excellence in Energy Management 2020

This is to certify that

Rail Nilayam, Secunderabad

has been recognized as

"Energy Efficient Unit"

This acknowledgement is based on the evaluation by panel of judges at the "National Award for Excellence in Energy Management" held during 25 - 28 August 2020.

K S Venkatagiri
Executive Director
CII - Godrej GBC

Ravichandran Purushothaman
Chairman, Energy Efficiency Council
CII - Godrej GBC

20th National Award for Excellence in Energy Management - 2019

RailNilayam - Excellent Energy Efficient Unit

CII

Confederation of Indian Industry

20th National Award for
Excellence in Energy Management 2019

This is to certify that

Rail Nilayam
Secunderabad

has been recognized as

"Excellent Energy Efficient Unit"

This acknowledgement is based on the evaluation by panel of judges at the "National Award for Excellence in Energy Management" held during 16 - 18 September, 2019 at Hyderabad.

S Raghupathy
Deputy Director General
Confederation of Indian Industry

Meher Pudumjee
Chairperson, Energy Efficiency Council
CII - Godrej GBC

IGBC Green Rating – Gold

- **Received IGBC Green Gold Rating.**

CII
Confederation of Indian Industry

Indian Green Building Council
Greening India since 2001

Indian Green Building Council (IGBC)

hereby certifies that

Rail Nilayam

Secunderabad

(IGBC Registration No: GEB 17 0215)

has successfully achieved the Green Building Standards required for the following level of certification under the IGBC Green Existing Buildings O&M Rating System

IGBC Green Existing Building Gold

December 2017

This certification is valid for the next 3 years

Gurmit Singh Arora	Dr Prem C Jain	K S Venkatagiri
Chairman, IGBC Green EB O&M Rating	Chairman, IGBC	Executive Director, CII-Godrej GBC

Net Zero Action Plan

- Installation Offsite SPV Plants to meet the demand
- Provision of Energy efficient Pumps
- Use of IoT Technology for Electrical Energy Monitoring and Controlling.
- Water conservation by implementing the water saving adaptors.
- Introduction of E-Vehicle and EV charging station for employees at office.

Energy Conservation future Plans and Targets

- IOT based Energy Monitoring System
- Low Carbon Cooling System
- Power Quality Restorers
- 30% Load on SPV Plant Through PPA mode
- Smart Water Management and Pumping System
- 100% Eco friendly refrigerant used Inverter type HVAC units
- Load wise energy monitoring system
- Optimization of Transformer loads during weekends

Learning from Previous Years CII Energy Awards

- Interaction with professional peers of other buildings & implemented new ideas.
- R&D buildings and IT buildings are different with regard to energy usage.
- GHG emission classification under Scope 01, Scope 02 & Scope 03.
- Clarity on EPI/SEC & Contribution to Nation Building.
- BMS system.


THANK
YOU
100 % ECO


Q & A