GMR AERO

Your caring gateway to a connected world

HYD RAJIV GANDHI INTERNATIONAL AIRPORT

GMR AERO ENTERPRISE

25th National Award for Excellence in Energy Management

GMR Hyderabad International Airport Ltd.

Presenting By:

Mr. Vijay Rathod – Chief Project & Engineering Officer (Energy Auditor)
Mr. Bixam Bhukya – Specialist Electrical
Mr. Mohammed Barkath Ali Khan - Manager Planning
Mr. Sravan Kumar – Energy Manager

Date: Sept-2024

Company Profile

"GMR Group will be an institution in perpetuity that will build entrepreneurial organizations making a difference to society through creation of value"

Model:

Based on the PPP model & structured on –BOOT; Project Completed in Record time of 31 Months

Operations Commenced:

March 23, 2008

Initial Design Capacity:

Terminal: 12 Million Passenger Per Annum

Cargo: 1.5 Lakh MT /Annum

Present Operation:

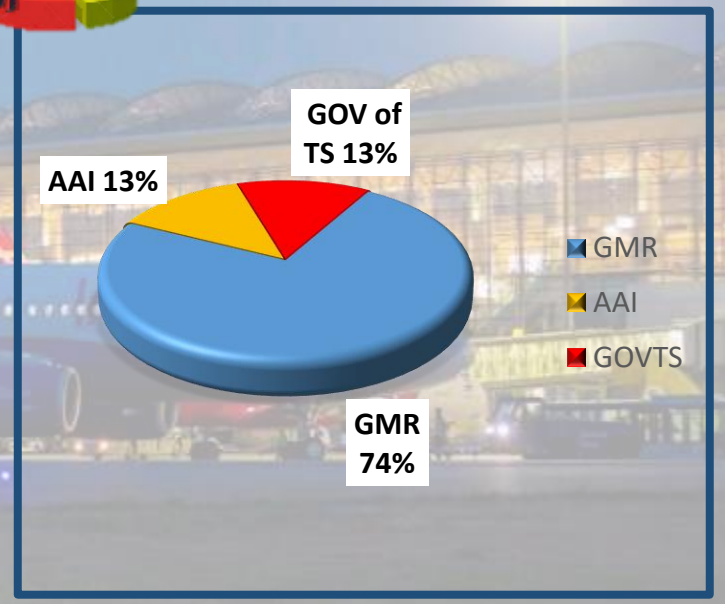
Terminal:25+ Million Passenger Per Annum

Cargo:1.59 Lakh MT /Annum

Present capacity:

34 MPPA & Cargo: 2.5 Lakh MT/Annum

Company Share Distribution



Building Specifications Envelop

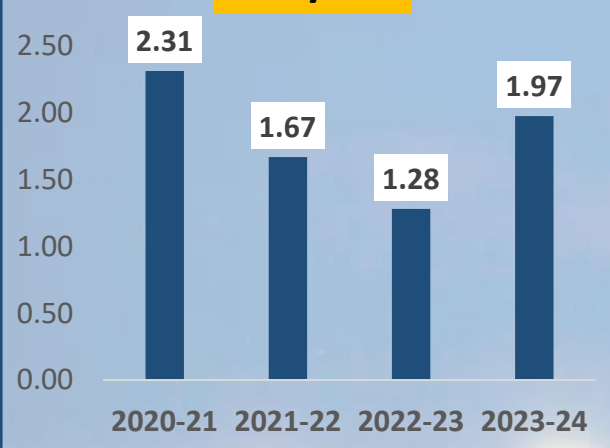
Building Orientation N-S	Building Climate Composite	VLT of Glass 0.39	Soft Green Area Sq.m 29,13,696	#SC of Glass Existing - 0.47 Expansion – 0.28	Day Light Area Sq.m 1,12,621

Humility | Entrepreneurship | Teamwork & Respect for Individual | Deliver the Promise | Learning & Inner Excellence | Social Responsibility | Financial Prudence - Frugality

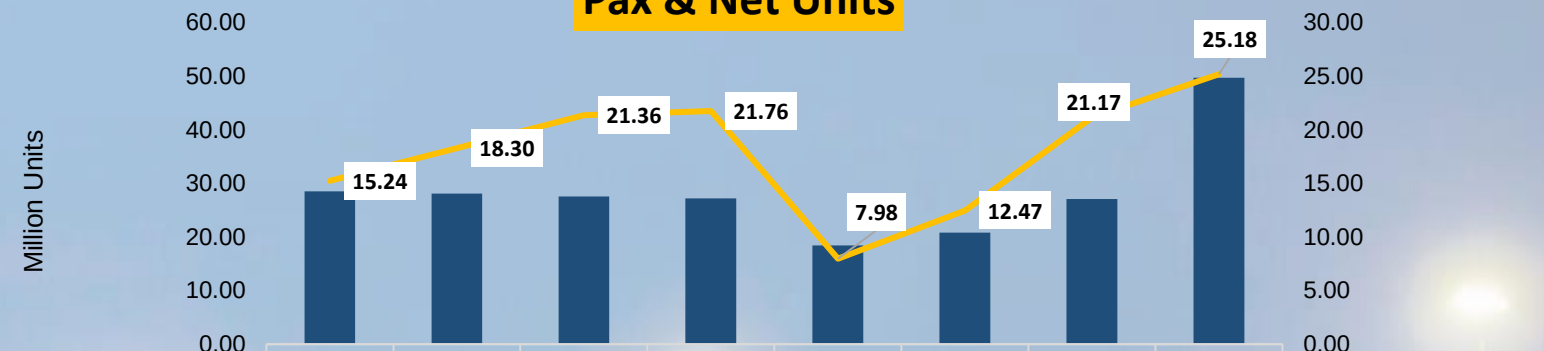
#SC values segregated for Existing & Expansion Terminal Glass. *(erroneously entered value has been corrected)*

Specific Energy Consumption, Passenger Growth & Energy Usage Trend

Kwh/Pax

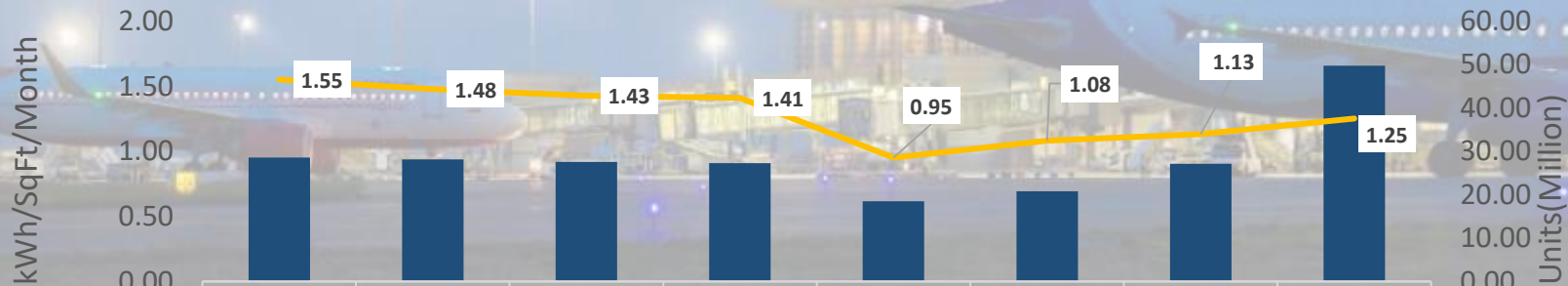


Pax & Net Units



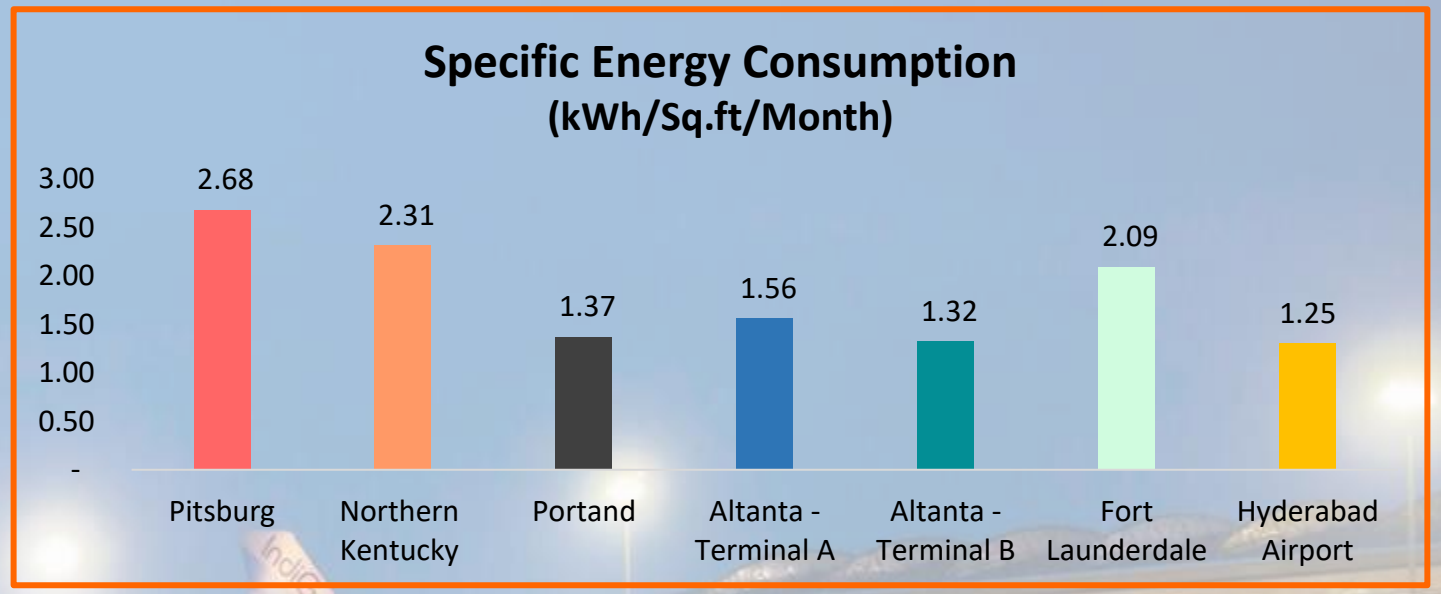
	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Million Units(kWh)	28.51	28.11	27.55	27.23	18.44	20.79	27.07	49.70
PAX(Million)	15.24	18.30	21.36	21.76	7.98	12.47	21.17	25.18

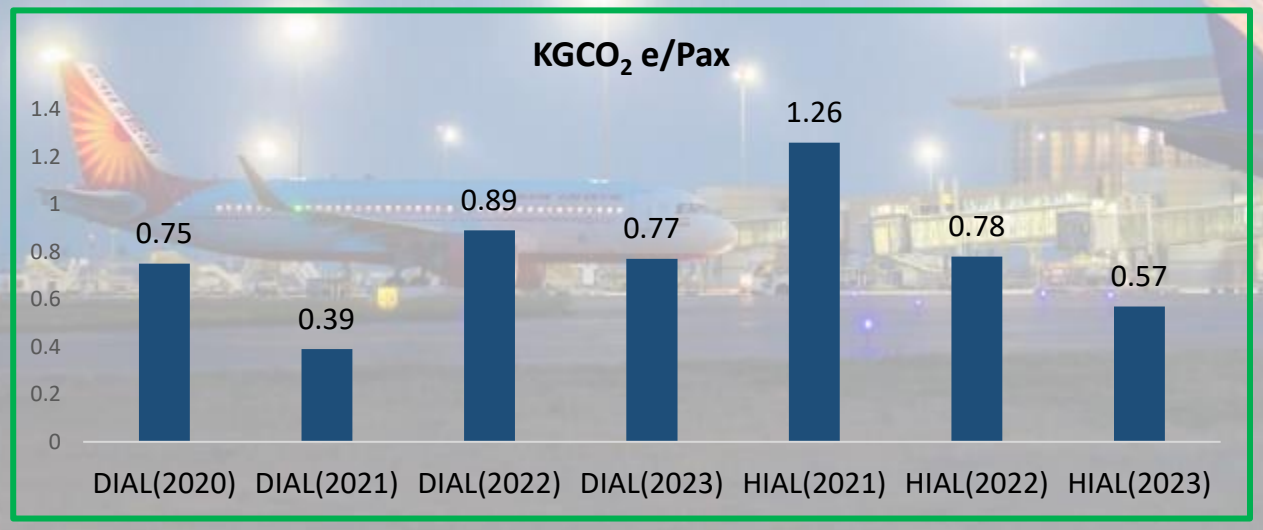
Net Units & kWh/SqFt/Month



	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Million Units(kWh)	28.51	28.11	27.55	27.23	18.44	20.79	27.07	49.70
kWh/SqFt/month	1.55	1.48	1.43	1.41	0.95	1.08	1.13	1.25

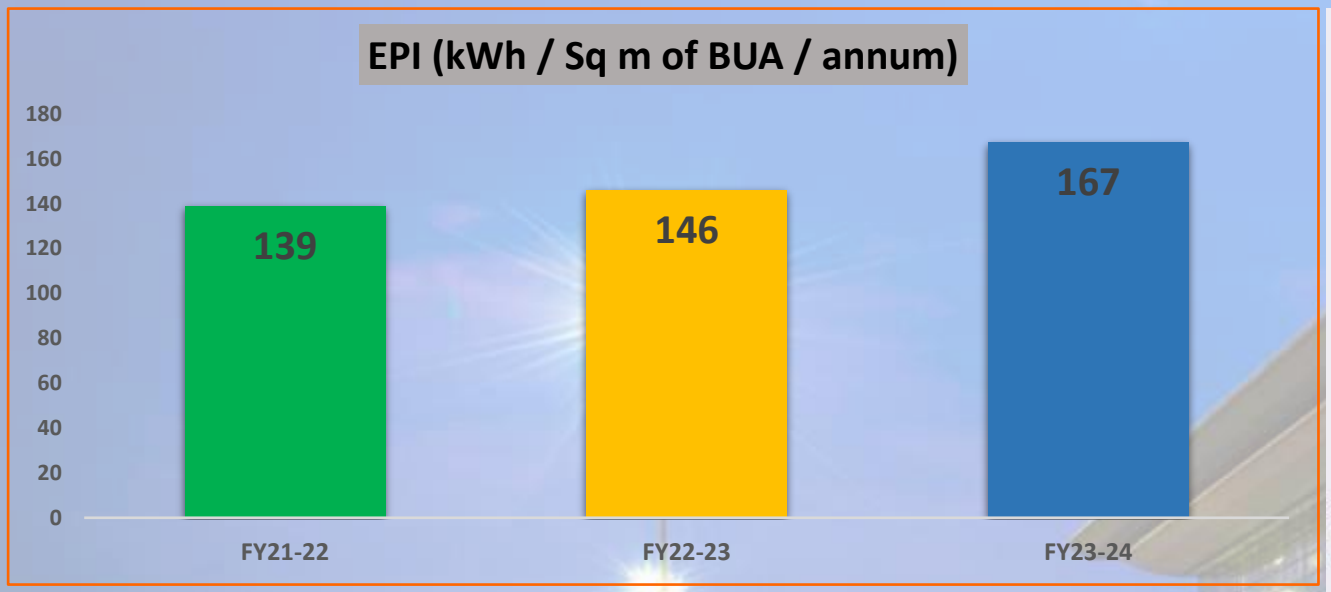
Benchmark – Power & Emissions



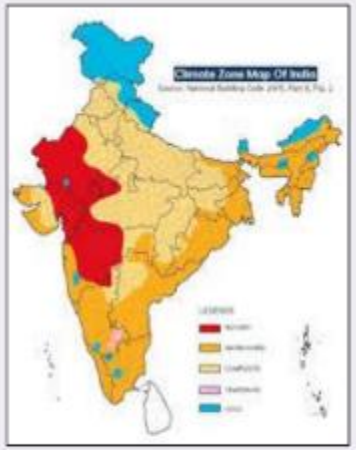


Note : Previous year Specific Energy Consumption Benchmark values taken

ECBC Norms



EPI of GHIAL is less than standard Benchmark EPI of Hotels, Shopping malls



Based on the data collected from different categories of commercial buildings, the following tables show the indicative EPI benchmarks.

EPI benchmarks for Office Buildings

Climate Zone	Less than 50% AC	More than 50% AC
	EPI (kWh/m²/yr)	
Warm & Humid	101	182
Composite	86	179
Hot & Dry	90	173
Moderate	94	179

EPI benchmarks for Shopping Malls

Climate Zone	EPI (kWh/m²/yr)
Warm & Humid	428
Composite	327
Hot & Dry	273
Moderate	257

EPI benchmarks for Hospitals

Climate Zone	EPI (kWh/m²/yr)
Warm & Humid	275
Composite	264
Hot & Dry	261
Moderate	247

EPI benchmarks for Hotels

Climate Zone	Upto 3 star	Above 3 star
	EPI (kWh/m²/yr)	
Warm & Humid	215	333
Composite	201	290
Hot & Dry	167	250
Moderate	107	313

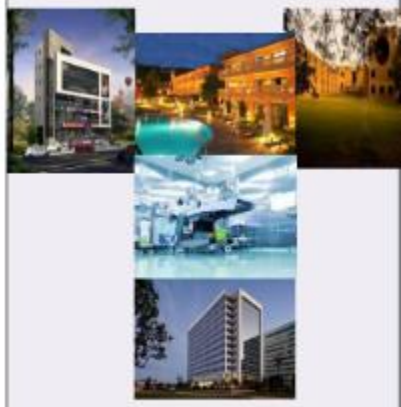
EPI benchmarks for Institutes

Climate Zone	EPI (kWh/m²/yr)
Warm & Humid	150
Composite	117
Hot & Dry	106
Moderate	129

EPI benchmarks for BPOs

Climate Zone	EPI (kWh/m²/yr)
Warm & Humid	452
Composite	437
Hot & Dry	-
Moderate	433

Disclaimer : The EPI benchmarks should be considered as an indicative figure as it largely depends upon the operating hours, energy efficiency measures, sample size, climatic zone and lack of detailed information by building owners.



Energy benchmarks for Commercial Buildings

Bureau of Energy Efficiency
4th Floor, Sewa Bhawan, R.K. Puram,
New Delhi – 110066
Website : www.beenet.in

ECBC Requirements

BMS

- ✈Total area of building covered under BMS
- ✈List of Equipments Covered under BMS:
  - ✈Lighting
  - ✈HVAC
  - ✈Pumping,
  - ✈Facade Ventilation
  - ✈Smoke Ventilation

AUTOMATIC CONTROLS

- ✈24*7 BMS run in Auto mode
- ✈List of the equipments covered under Automatic Control System:
  - ✈Lighting
  - ✈HVAC
  - ✈Pumping
  - ✈Facade Ventilation,
  - ✈Smoke Ventilation

DETAILED ENERGY AUDIT

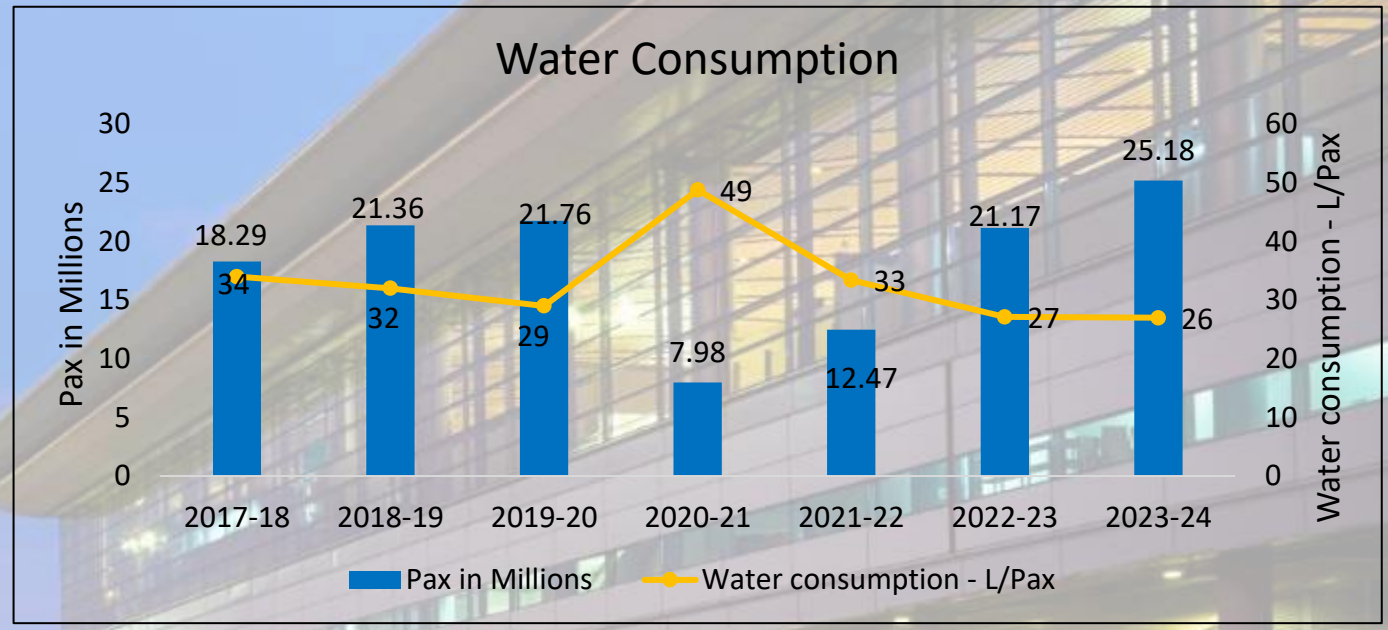
- ✈External Energy Audit done by TERI
- ✈Annually external audit done by Bureau Veritas
- ✈Learnings from the implementation of ISO 50001:2018
  - ✈Improved Risk management
  - ✈Integration with other ISO management systems & Enhanced knowledge
- ✈Gemba walk with system in charges and O&M staff

Roadmap for being Global Leader in Energy Efficiency

Water - Net Consumption

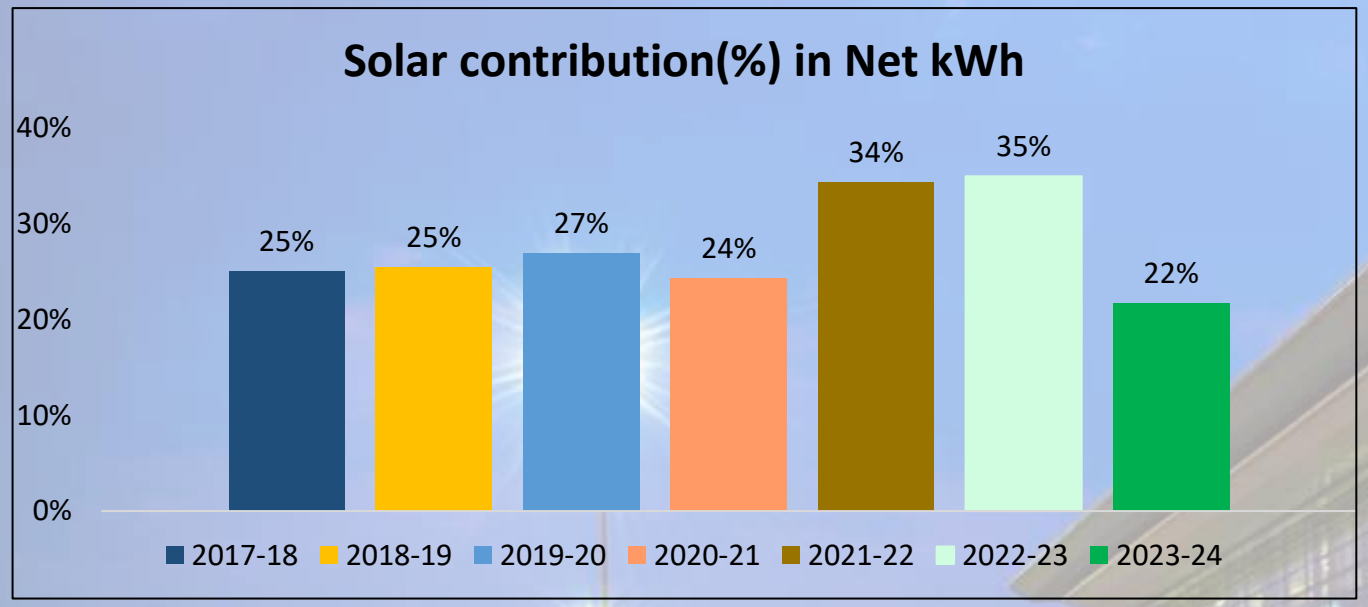
Key water Conservation initiatives

- Water Balancing Analysis & Pressure Control
- Recharge of Open Wells & Bore wells
- Topographical Study of Airport Land to create reservoirs for rainwater usage
- Cloud based Automatic Irrigation System
- Natural Coagulant – Enhanced STP throughput by 30%
- Water efficient appliances & equipment
- Creating awareness among the Airport Community
- Wastewater reuse & recycling (STP 2*925KLD+2*1325KLD)
- Rainwater runoff use
- Push-type taps with aerators installed
- Less water consuming plantation in Landscape Area



Based on entire campus hydrological study, GHIAL has developed 4 storm water reservoirs at strategic locations capable to store 10 Lakh KL water, spread over 127 acres, for domestic use & ground water table recharge.

Utilization of Renewable Energy Sources



Onsite					
Year	Source (Solar,Wind,etc)	Installed Capacity	Capacity Addition (MW) After FY 2021	Total Generation (million kWh)	Share % w.r.t to overall energy consumption
2020-21	SOLAR	5MW		6.02	24.30%
2021-22		10MW	5MW	10.37	34.30%
2022-23		10 MW		12.97	34.90%
2023-24		10 MW		13.25	21.69%

Note : Remaining power requirement for Airport operation sourced from RE ,i.e TGSPDCL Green Power

GMR Town Ship Rooftop Solar Project-360 KW

Building	No Of Panels Installed (No's)	Capacity (KW)
Lotus + Orchid	218	117.72
Irish +Lily	151	81.54
Club House	114	62.11
Jasmine	104	56.16
Tulip	80	42.66
Total capacity	667	360.18

Description	UOM	Variables
Roof Top Solar at GMR Township Capacity	Kwh	360
Total Investment Cost	Million INR	14.93
Total annual Generation	Lakh Kwh	4.78
Cost Savings	Million INR	3.9
Pay Back	Years	3.83
CO_2 Reduction	MT	392

Energy Audit

GHIAL invited TERI to carry out a comprehensive energy audit, in the month of August 2023. The energy audit was focused to evaluate the existing energy consumption levels and to identify the potential to reduce this consumption. The audit team involved four TERI professionals to evaluate the scope for energy conservation

S.No	Type of Recommendation	No.of Recommendations	Expected Energy Savings, Lakh Kwh	Expected Cost Savings, Rs.Lakhs	Cost of Implementation Rs.Lakhs	Pay Back Period, Years
1	Small Investment (Pay back <1 year)	10	31.02	233.52	47	0.2
2	Medium Investment (Pay back 1 to 3 Year)	3	3.46	25.67	39.99	1.56
3	High Investment (Pay back >3 Years)	3	2.86	21.32	126.8	5.95

Key Encon Projects in Past 3 Years (1/2)

S.no	Energy Saving Projects Implemented	FY	Investment Million INR	Saving MU (KWh)	Savings Million INR
1	Cooling Tower Efficiency enhanced by Upgradation (Phase-II)	2021-22	7.59	0.48	3.51
2	Power Optimization by Scheduled Operation of AHU & Lights	2021-22	0	0.32	2.36
3	Upgradation of Pumping System	2021-22	3.43	0.23	1.68
4	Main Runway CAT-I to CAT-II upgradation with LED Upgradation	2021-22	50	0.19	1.36
5	Upgradation of Chillers with Energy Efficient unit for Expansion	2022-23	60	0.54	4.83
6	Upgradation of Pumping system with Energy efficient Motors for Expansion Area	2022-23	1.75	0.42	3.74
7	Low side HVAC Improvement works with the help of in-house team	2022-23	0	0.23	2.08
8	Upgradation with LEDs at Expansion Area	2022-23	20	0.13	1.17
9	WTP Pump House -Raw to Domestic water filtration pumps upgradation	2022-23	0	0.05	0.48
10	Water Balancing works for 1000TR Chiller	2023-24	0	1.12	10.18
11	Replacement of 200KVA UPS 2 Nos	2023-24	5.02	0.18	1.59

Key Encon Projects in Past 3 Years (2/2)

S.No	Energy Saving Projects Implemented	FY	Investment Million INR	Saving MU (KWh)	Savings Million INR
12	Descaling & cleaning activity of existing Cooling towers	2023-24	0.50	0.11	1.04
13	Cluster lamps at F Level East Processor interface area(MH Lamps to LED)	2023-24	0.12	0.08	0.70
14	LED conversion at AHU Plant duct area	2023-24	0.13	0.07	0.64
15	Replacement of discharge line at WTP &SPS -3	2023-24	0.42	0.07	0.56
16	At AGL East & West false ceiling need to fix for maintaining AC temperature in CCR hall.	2023-24	0.80	0.05	0.43
17	Replacement of Blower motor with IE3 motors at STP-1 & STP-2	2023-24	0.47	0.05	0.41
18	Single Primary pump operations at Office buildings	2023-24	0	0.04	0.40
19	Control of indoor lighting by using nature switch at various electrical substations	2023-24	0	0.03	0.27
20	Upgradation of pumps in existing filter feed pumps STP 1&2	2023-24	0.40	0.02	0.16

Financial Year	No. Of Projects	Investment Million INR	Saving MU (KWh)	Savings Million INR	Payback (Months)	CO_2 Reduction (Ton)
2021-22	8	62.91	1.49	11.04	68	1221.8
2022-23	10	86.69	1.52	13.51	77	1246.4
2023-24	11	7.86	1.82	16.38	6	1492.4

Encon Projects Implemented in FY2023-24

S.No	Energy Saving Projects Implemented	Energy Savings (Million kWh)	% Contribution in Overall Savings
1	Water Balancing works for 1000TR Chiller	1.12	61.54%
2	Replacement of 200KVA UPS 2 Nos	0.18	9.89%
3	Descaling & cleaning activity of existing Cooling towers	0.11	6.04%
4	Cluster lamps at F Level East Processor interface area(MH Lamps to LED)	0.08	4.40%
5	LED conversion at AHU Plant duct area	0.07	3.85%
6	Replacement of discharge line at WTP &SPS -3	0.07	3.85%
7	At AGL East & West false ceiling need to fix for maintaining AC temperature in CCR hall.	0.05	2.75%
8	Replacement of Blower motor with IE3 motors at STP-1 & STP-2	0.05	2.75%
9	Single Primary pump operations at Office buildings	0.04	2.20%
10	Control of indoor lighting by using nature switch at various electrical substations	0.03	1.65%
11	Upgradation of pumps in existing filter feed pumps STP 1&2	0.02	1.10%
	TOTAL	1.82	100%

Project-1: Water Balancing works for 1000TR Chiller

Background

- TERI audit conducted at our facility, one of the significant potential energy-saving opportunities identified was water balancing at the chiller. This recommendation highlights the importance of optimizing the water flow within the chiller system to enhance its efficiency, reduce energy consumption, and achieve overall operational sustainability

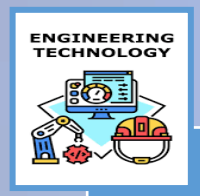
Execution

- Higher SEC observed, up on investigation found condenser valves were throttled.
- By observing all the other parameters throttled valves normalized
- ATCS also installed for all the 1000TR chillers

Savings

- Energy Savings: 1.12MU/Annum
- Investment: ZERO Millions
- Savings INR: 10.18Millions/Annum
- CO_2 Reduction :918 Tons

Project-2: Replacement of 200KVA UPS 2 Nos



Upgradation of UPS:

- Upgraded 200KVA UPS (2 No's from conventional type (90% efficiency) to Modular type (95% efficiency).
- In FY22, 4 No's were upgraded.

Savings:

- Energy: 0.18MU/Annum
- Investment: 5.02Millions
- Savings INR: 1.59Millions/Annum
- CO_2 Reduction :147.6Tons
- **Replication Potential: Yes**

Project-3: Descaling & cleaning activity of existing Condensers & Cooling towers

Background

- One of our good practices were daily monitoring of operational parameters so we observed deficiency in operational parameters of Condenser and CT after brainstorming we found a solution called Descaling

Execution

- Calculated the condenser approach and CT effectiveness and implemented descaling &cleaning activity which was lesser found remarkable savings in this projects so further execution done

Savings

- Energy Savings: 0.11 MU/Annum
- Investment: 0.50
- Savings INR: 1.04 Millions/Annum,
- CO_2 Reduction :90.2 Tons

Project-4: Cluster lamps at F Level East Processor interface area MH Lamps to LED Conversion

Background:

While doing building audit we observed F level East processor covered with MH lights so decoded to replace with energy efficient LED lights

Execution:

- Estimated total energy savings with respect to no of lights and prepared detail report for execution

Savings:

- Energy Savings: #0.08 MU/Annum
- Investment: 0.12Millions
- Savings INR: 0.4Millions /Annum
- CO_2 Reduction: 32.8 Tons

Before

After

Note: #Erroneously entered value has been corrected

Project-5: LED conversion at AHU plant duct area

Background

- While doing building audit we observed AHU plant duct area covered with old conventional lights so decided to replace with energy efficient LED lights

Execution

- Estimated total energy savings with respect to no of lights and prepared detail report for execution

Savings

- Energy Savings: 0.07 MU/Annum
- Investment: 0.13Millions
- Savings INR: 0.64Millions/Annum
- CO_2 Reduction :57.4Tons

Project-6: Replacement of discharge line at WTP & SPS-3

Background

- During TERI Audit one of the observation was discharge line of domestic tank water pump at WTP & SPS-3 was found not optimum to deliver rated pump discharge, which is leading to restriction of flow

Execution

- Estimated total energy savings with respect to replacement of 100NB pipe-line with 150 NB at WTP & 200NB at SPS-3 pipe-lines respectively

Savings

- Energy Savings: 0.07 MU/Annum
- Investment: 0.42Millions
- Savings INR: 0.56Millions/Annum
- CO_2 Reduction :57.4Tons

Project-7: AGL East & West false ceiling fixing work

Background

- While doing building audit we observed AGL East &West portion building roof heat directly exposed to room area, so we come up with a solution called False ceiling

Execution

- Estimated total energy savings and prepared detail report for execution

Savings

- Energy Savings: 0.05 MU/Annum
- Investment: 0.08Millions
- Savings INR: 0.43Millions/Annum
- CO_2 Reduction :41 Tons

Project-8: Replacement of old conventional Blower motors with IE3 motors at STP-1 & STP-2

Background

- Blowers at STP1&2 equipped with old motors and repeated breakdowns leads us to do brain storm then decided to replace with Energy efficient motors

Execution

- Measured all technical aspects and calculated the savings related to upgradation and found remarkable savings in this projects so further execution done

Savings

- Energy Savings: 0.05MU/Annum
- Investment: 0.47Millions
- Savings INR: 0.41Millions/Annum
- CO_2 Reduction :41 Tons

Project-9: Single Primary pump operations at Office Buildings

Background

- CSB installed with two air cooled Chillers of rated capacity 210 TR Each
- We have conducted Energy audit by TERI.
- This is one of the potential saving point observed

Execution

- During study its been observed that chilled water flow was 65.95m3/hr and this flow can be delivered with only one pump
- Only with operational change potential savings were established and executed this high potential saving project on the same day itself

Savings

- Energy Savings: 0.04MU/Annum
- Investment: ZERO Millions
- Savings INR: 0.4Millions/Annum
- CO_2 Reduction :32.8 Tons

Project-10: Control of indoor lighting by using Nature switch at various existing electrical substations

Background

- In all Sub Stations the operator / technician has to switch off the lights manually every day . To reduce human error we decided install nature switch in substations lighting system which automatically operates lights basis on desired lux level

Execution

- We have utilized all redundant nature switches which were earlier installed in terminal building and became redundant post expansion there is no direct cost incurred in this entire project execution

Savings

- Energy Savings: 0.03 MU/Annum
- Investment: Zero
- Savings INR: 0.27Millions/Annum
- CO_2 Reduction :24.6 Tons

Project-11: Upgradation of pumps in existing filter feed pumps STP 1&2

Background:

STP filter feed pumps were continuous operating equipment's, and these were too old and less efficient. hence decided to replace with energy efficient pumps

Execution:

Measured all technical aspects and calculated the savings related to upgradation and found potential energy savings in this project so further implementation done

Savings:

Energy: 0.02MU/Annum

Investment: 0.4Millions

Savings INR: 0.16Mn/Annum

CO_2 Reduction :16.4Tons

Waste Management

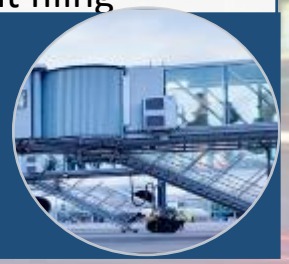
TGPCB Certified Vendors		
S No	**Particulars**	**Disposal location and Agencies**
1	Solid Wet Waste for compost plant Ops. (2 Tons Per day)	Compost plant operate by M/s Sumeet Facilities.
2	Solid wet waste	GHMC Integrated MSW Project Jawahar Nagar
3	Paper/ carton box waste	Meenakshi Paper Mills Pvt Ltd, Survey No 659, Satamrai, Gagan pahad, R R Dist. TS PCB :Consent Order No 26-RR - 1/TGPCB/ZOH/CFO/2018-620
4	Plastic waste	B K Traders, Survey No 766/E, Burgulla (V) Farooq Nagar (M) R R Dist. TS PCB :Consent Order No 883-MBNR/TSPCB/ZOH-IPass/CFO/2022-851
5	Iron/ Metal waste	M/s Patel Traders D No 17-1-196/1D/2/A. Madanna Pet, Saidabad Hyderabad 500059
6	Glass waste	M/s Patel Traders D No 17-1-196/1D/2/A. Madanna Pet, Saidabad Hyderabad 500059

Innovative Patents – Status Update

Patent received for "PBB Negative Angle movement" at National level.

- A PBB is an enclosed telescopic tunnel which connects aircraft & terminal building, providing pax with a safe, comfortable, weatherproof transition between aircraft & terminal building, thus greatly improving the service efficiency of airports.
- PBB is controlled by Operator, extends/retracts & elevates/drops depending on connecting aircraft. During normal operation, PBB moves towards the aircraft door & connects with aircraft door. However, incidents reported at other Int'l Airports that PBB had inadvertently collided with aircraft engine, due to movement of PBB tunnel in undesired direction.
- Team has developed fail-safe mechanism stopping the unintended movement of the PBB completely & installed an audio-visual alarm system that would alert the operator in abnormal movement.
- HYD airport is the first airport to have implemented this in all PBB.
- National level patent publication done , International level patent filing

Control System to prevent Unintended movement of Pax Boarding Bridge (PBB)



NORMAL OPERATION

ABNORMAL OPERATION

Innovative
Patents – Status Update

Patent received for " Water Depth measurement Tool" at National level.

- Water logging is observed at various locations on airfield during rains.
- As per latest DGCA guidelines, water depth on runway shall be measured, recorded & reported in the Global Report Format (GRF).
- With the in-house team, developed a tool indigenously that can be used to measure the water depth on runway surface in any weather conditions & at any time of day, using acrylic sheets, wooden baton & hand-held torch.
- The idea was appreciated by AAI, who have requested to share this technology for implementation at their airports.
- National level patent publication done; International level patent filing completed.

Development of Water depth Measurement Tool

Kaizen

Elimination of Tray Jam in the Tray Re-claimer Unit by fixing Steel Stoppers

PROBLEM STATEMENT

- ✈Due to improper loading of trays by the tray loaders in ATRS system, more than 1 tray is passing from RCU at a time and getting stuck at return conveyor & Divest side.
- ✈As tray struck in return line conveyor leading to ATRS system breakdown. It is creating inconvenience to passengers, during security check.

KAIZEN

- ✈To eliminate such tray jam issue team fixed steel stoppers in the RCU. This will allow only one tray to pass through at a time. This implementation has eliminated tray jam issues and is working normally

Kaizen

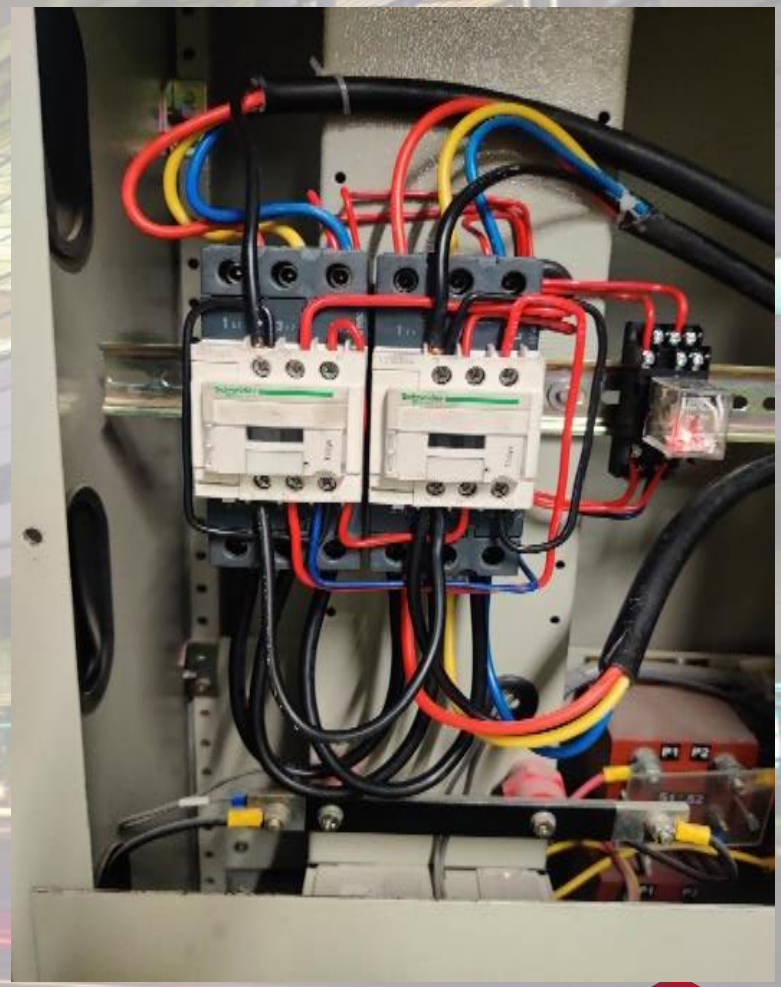
PBB UPS Load Optimization during Power Failure

PROBLEM STATEMENT

- ✈During power failure while PBB is running under UPS power it consumes maximum of 21 Amps
- ✈Brainstorming done to reduce load on UPS
- ✈Noted down all the loads on UPS during power Failure

KAIZEN

- ✈Developed a circuit internally and isolated the non essential load during power failure like AC load, initially it was implemented in one PBB and trails taken successfully.
- ✈After successful trails we have implemented this in all 23 No's of operating PBB units. This new circuit was implemented convincing the OEM vendor post multiple discussions.



Kaizen

Reduction in Rescue time for PH Washroom Entrap Issues

PROBLEM STATEMENT

- ✈There was frequent locking/ passengers entrap and system malfunction issues in PH washrooms due to which passengers were getting panic.
- ✈The existing rescue mechanism was waving hand for 21 seconds
- ✈This was also failed in few cases due unawareness to the House keeping staff, which leads to longer rescue time.

KAIZEN

- ✈To reduce the rescue time, we have installed one emergency switch to disconnect the power supply & enable the manual door operation & rescue the entrapped passengers.

KAIZEN - Innovative Projects

Process Improvement Initiatives- Scanner based SOP's Display

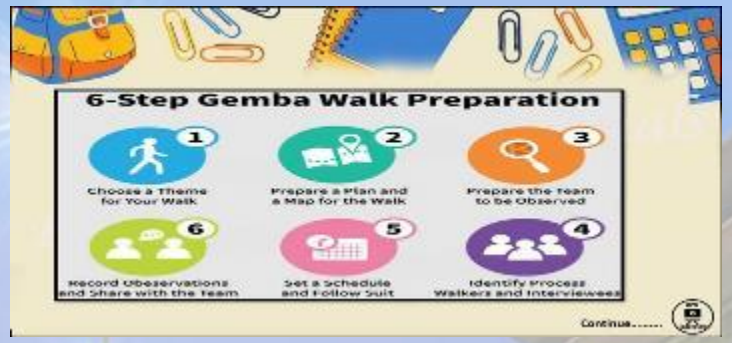
QR Codes placed at strategic locations to access the respective system SOP's / Manuals/ Drawings.

List of Locations
DG Yard
HT ELECTRICAL
LT ELECTRICAL
PTB ELECTRICAL
PTB HVAC
HIGHMAST
AGL
AERIALPLATFORMS
ATRS
BHS
SPECIAL VEHICLES
WTPSTP
VDGS
VHT

Continuous Improvement Projects/Initiatives

GEMBA WALK

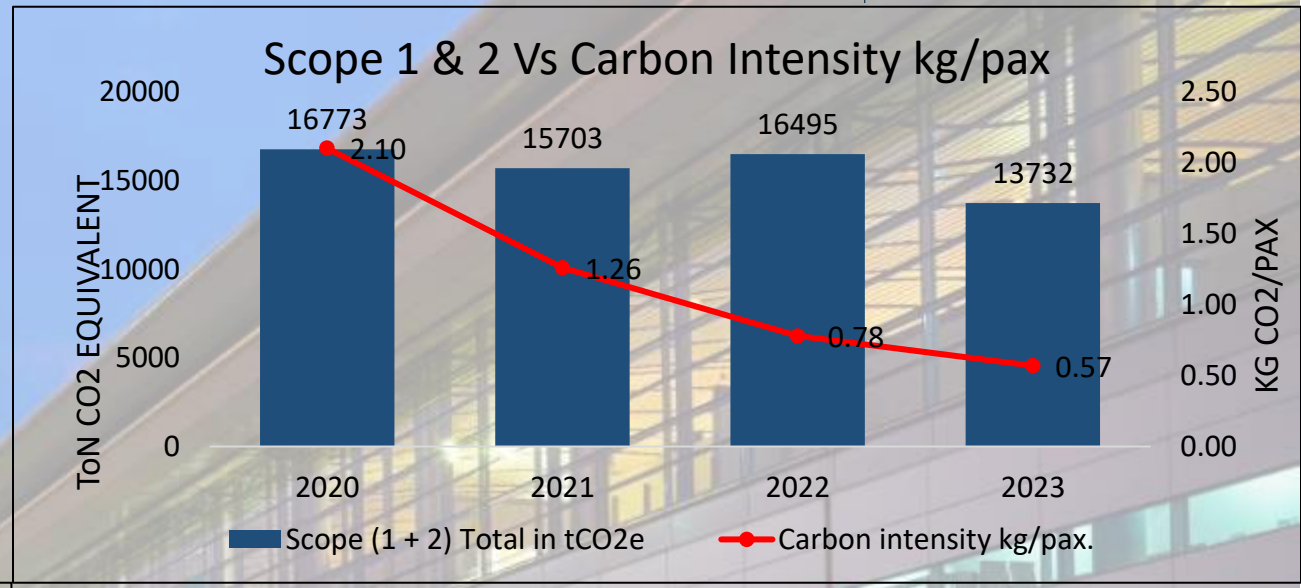
GEMBA walk (The Real Work Place) was conducted with Faber Sindoori Team and TS Team members at Level B, With a theme of "Energy Conservation walk"

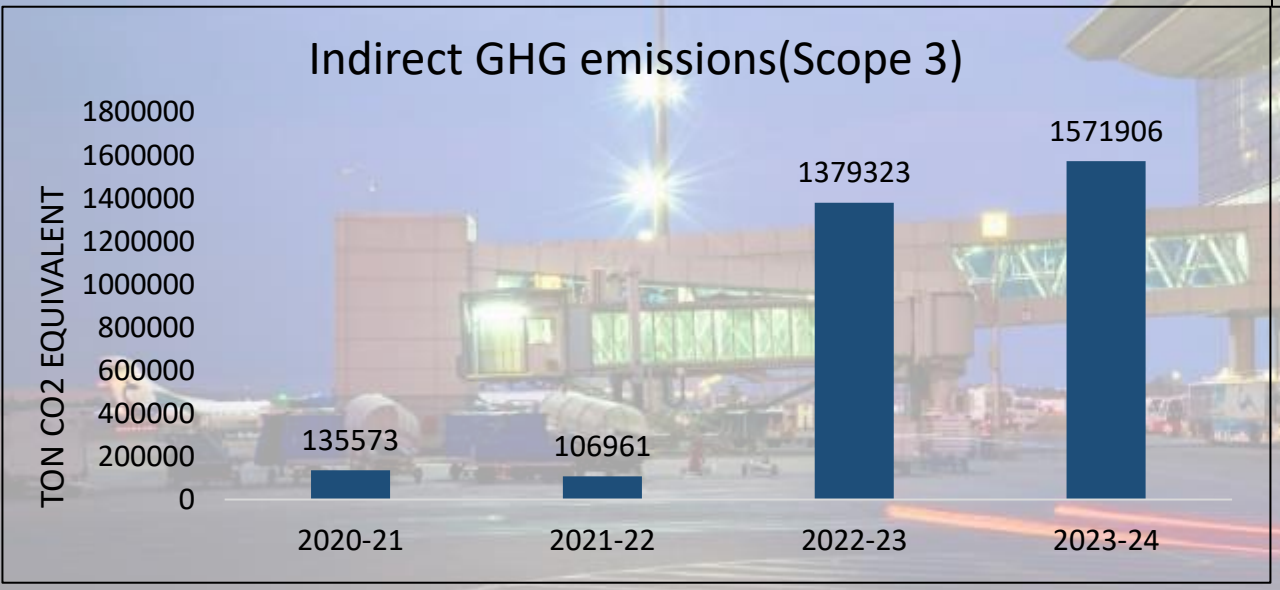


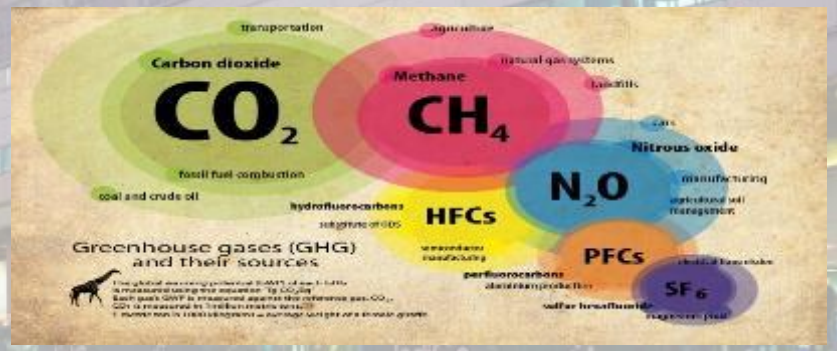
Fireproof coating for HT cables to Enhance System Safety

Fireproof cable coating being applied on 11kv and 33kv cables in DG yard for enhancing system safety

GHG Emissions







Note: GHG Emission inventory for 2022 was prepared as per the ACA Level 4+ requirements. As RGIA is applied for Level 4+ in 2022 year, one of the criteria is to consider the emissions from Cruise Climb and descend (CCD) which was not considered in previous years. So the Scope 3 emissions for 2022 &2023 is higher than the previous years

GHG Inventorisation & Energy Policy

Bureau Veritas Certification

GMR HYDERABAD INTERNATIONAL AIRPORT LIMITED

GMR Aero Tower, Rajiv Gandhi International Airport, Shamshabad, Hyderabad 500 108, Telangana, India.

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the Management System Standard detailed below.

Standard

ISO 50001:2018

Scope of certification

Operation and Maintenance of Passenger Terminal Building, Air Side & Land Side Facilities

Original cycle start date: **20 August 2017**
Recertification cycle start date: **11 August 2023**
Subject to the continued satisfactory operation of the organisation's Management System, this certificate is valid until: **19 August 2026**
Certificate No. **IND.23.7595/EN/U** Version: **1** Issue date: **11 August 2023**

Signed on behalf of BVCH SAS UK Branch
Jagdheesh N. MANIAN
Director – CERTIFICATION, South Asia
Commodities, Industry & Facilities Division

For certificate authenticity, click here

ISO 50001 IN5441519

UKAS

Energy management System

ISO 50001:2018

CERTIFICATE
of ACCREDITATION

7 September 2023 - 5 December 2026

This is to certify that *Airport Carbon Accreditation*, under the administration of WSP, confirms that the carbon management processes at

RAJIV GANDHI INTERNATIONAL AIRPORT

implemented by GMR Hyderabad International Airport Ltd.

have earned the accreditation level of **TRANSITION**, in recognition of the airport's exceptional work in aligning its carbon management with global climate goals to reach absolute emissions reductions, establishing related partnerships with its business partners and compensating responsibly the residual CO_2 emissions under its control, as part of the Global airport industry's response to the challenge of Climate Change.

airport carbon accreditation

www.airportCO2.org

airport carbon accredited TRANSITION

Stefano Baronci
Director General
ACI Asia-Pacific

Giulio Corte
Programme Director
WSP

Certificate of Accreditation

GHG

GHIAL ENERGY POLICY

In pursuance of Group's Vision and Mission, we at GMR Hyderabad International Airport Limited (GHIAL) commit ourselves to continual improvement in our energy performance by optimizing all our processes, facilities, and natural resources to protect environment.

This shall be accomplished by :

- Adoption of energy management system to identify, assess and efficiently manage all forms of energy complying with all applicable legal and regulatory requirements.
- Ensuring availability of information & necessary resources to achieve Energy objectives & targets to employees of all level and interested parties.
- Providing education, awareness training, motivation and direction to the employees, stakeholders, JV partners, suppliers, and customers in airport ecosystem to develop more energy efficient processes.
- Executing effective processes to procure energy efficient, eco-friendly technologies, products, services, and equipment to promote use of renewable energy wherever applicable.
- Ensuring energy considerations in all designs, developments, modifications, and improvements for maximising efficiency to make world class facility in terms of energy consumption.
- Implementing energy efficient technologies and practices across the airport ecosystem operations, including lighting, HVAC systems, and ground transportation.
- Ensuring alignment with local regulations and international standards for energy efficiency and environment sustainability.
- Foster a culture of innovations and continuous improvement by regularly reviewing and updating the energy policy based on emerging technologies, best practices, and changing regulatory requirements.
- Emphasizing the reduction of greenhouse gas emissions and air pollution through structured management plan by converting conventional vehicles to Electrical vehicles across all departments in phased manner which contributes to cleaner air and combat climate change.

Vijay Kumar Rathod
Chief Projects Engineering Officer

Pradeep Panicker
Chief Executive Officer

Revised Energy Policy

Net Zero Carbon Emission Airport

HYDERABAD RAJIV GANDHI INTERNATIONAL AIRPORT GMR

ENVIRONMENTAL & SUSTAINABILITY POLICY

We, at GMR Hyderabad International Airport Limited (GHIAL), consider that environmental protection and sustainability are integral part of our business, and are committed to conducting the operations at Rajiv Gandhi International Airport (RGIA) in an environment-friendly and sustainable manner, in line with our Vision, Mission, Values & Beliefs and Corporate Policies. As part of this commitment we will strive to conserve the environment and achieve sustainability by:

- Managing environmental aspects of the airport through identification, impact evaluation and providing suitable control measures
- Ensuring compliance to applicable environmental statutory requirements
- Preventing pollution and maintain optimum levels of ambient noise and local air quality by adopting eco-friendly technology, infrastructure and practices in collaboration with the stakeholders
- Conserving natural resources by inculcating the culture of reduce, recycle & reuse. Promoting green economy through green supply chain , in particular, use of sustainable resources, and eco-friendly products by partnering with local communities
- Formulating long term absolute greenhouse gas emissions reduction target for achieving net zero carbon emissions through sustainable airport operations - green buildings, energy conservation by efficient devices and practices, and opting for renewable energy & alternative fuels by partnering with the relevant stakeholders
- Maintaining clean and green airport eco-system through greenery, clean fuel, life cycle assessment of materials, efficient waste management practices, and stringent monitoring of environmental quality parameters
- Inculcating sustainable environment stewardship among the airport community and other stakeholders through trainings and awareness programmes
- Setting environmental objectives to achieve continual improvement in the airport's environmental performance and the overall environmental management system
- Reporting on our environmental performance and initiatives taken to achieve sustainable development

We will communicate this Policy to all persons working for and on behalf of the organization. The Policy will be reviewed periodically in line with the emerging requirements and practices.

Date: 1st January, 2021 | **Chief Operating Officer** | **Chief Executive Officer** (Pradeep Panicker)

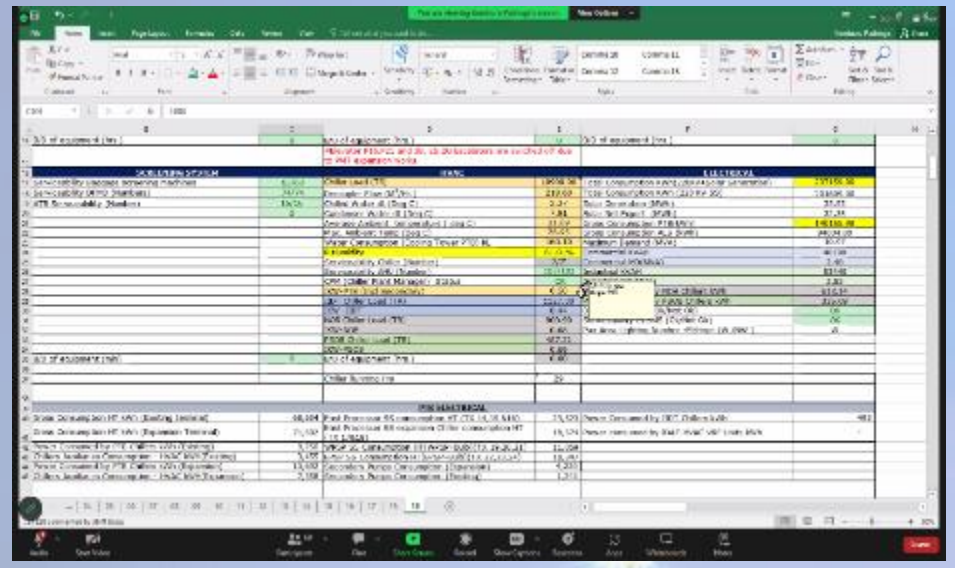
Version - 4

GHIAL Aspires to Achieve Net Zero Carbon:

GMR Hyderabad International Airport has transitioned to 100% sustainable green energy for its energy consumption at the airport and across its ecosystem. Hyderabad Airport, in partnership with Telangana State Southern Power Distribution Company Limited (TSSPDCL), will revolutionalise its operation by harnessing the power of green energy through a combination of its own 10 MWp (megawatt peak) solar power plant and green energy supplied by TSSPDCL. The airport by integrating green energy into its operation and infrastructure will reduce its carbon footprint by approx. 9300 tons of carbon dioxide annually

Daily Monitoring

Daily Energy Monitoring Report Chaired by EVP



Dashboard for AMR Water Meters & IoT based Road Lighting System

Chiller Plant Daily MIS Report

Chiller Plant Manager

Power Consumption Analysis with and Same day last year

Energy Consumption Report (Including Concessionaries)																				
20-Aug-2024																				
Consumption on date	TXF-1	TXF-2	TXF-3	TXF-4	TXF-5	TXF-6	TXF-7	TXF-8	TXF-9	TXF-10	TXF-11	TXF-12	Total	Chiller& Asso. equipment Consumption	PTB Chiller Running Hours	Max Temp °C	Min Temp °C	IIDT	IDAT	PAX	KPI (KWH/ PAX)
Consumption on 19-08-2024	10600	12927	7324	9280	6856	8976	6432	5358	8024	128	2698	103	78706	24851	48:00:00	31	23	888	0	77,272	1.02
Consumption on 20-08-2024	7700	12141	10004	8768	6510	8528	6188	5264	7816	1078	1715	102	75814	24839	58:00:00	33	22	826	0	78,011	0.97
Difference Comparison with previous day			(1,006)	(512)	(346)	(448)	(244)	(94)	(208)		(33)	(1)	(2,892)	(12)	10:00:00	2	-1	(62)	-	739	(0.05)
Consumption on 20-08-2023	14900	6275	13520	11784	7964	10208	6552	6350	9708	3832	0	1033	92126	26881	59:00:00	28	23	2765	0	63892	1.44
Difference Comparison with 2023 year			(4,850)	(3,016)	(1,454)	(1,680)	(364)	(1,086)	(1,892)		(1,039)	(931)	(16,312)	(2,042)	1:00:00	5	-1	(1,939)	-	14,119	(0.47)

National Energy Conservation day 2023

#FlyHYD

FLAGGING OFF WITH A RALLY

#FlyHYD

AN EXCITING FLASH MOB BY SCHOOLCHILDREN

#FlyHYD

INFORMATIVE SESSIONS AND ENGAGING ACTIVITIES

#FlyHYD

LEARNING THROUGH QUIZZES

#FlyHYD

REWARDS AND RECOGNTION CEREMONY

National Energy Conservation day 2023

Green Supply Chain Projects

Project Title

- EV charging stations at Various locations & Bio Diesel

Background

- GHIAL is promoting the use of EV vehicles to all its stakeholders & taking necessary initiatives for transitioning towards EV vehicle operations (like passenger coaches, baggage trolleys, staff movement vehicles etc.),

Execution

- GHIAL installed EV Charging stations at various locations of the airport for its visitors, passengers & staff,
- Public Transport Complex – 4 No's x 30 kW,
  - Airside – 4 No's x 240 kW,
  - Site Office – 8 No's x 7.5 kW,
  - Development of 5 MW EV charging station completed, commissioning in progress

Indoor Air Quality	
CO2	1.91%
PM 2.5	25.2 µg/m3
PM 10	70.3 µg/m3
CO	0.59 mg/m3
O3	-
TVOC	0.5 ppm
NO2	21.4 µg/m3
SO2	16.9 µg/m3
O2	21.52 %

Awards, Accolades & Certifications

GHIAL won the ACREX hall of fame national level awards competition. Competing in the "commercial building category for energy efficiency and sustainability", GHIAL emerged as the winner, surpassing India's top corporate offices & buildings.

At CII National Award Ceremony for 'Excellence in Energy Management", GHIAL has previously won

- **National Energy Leader** for the 5th consecutive time (2019, 2020, 2021, 2022 & 2023)
- **Excellent Energy Efficient Unit** for the 8th time (2014, 2015, 2017 2018, 2019, 2020, 2021, 2022 & 2023)

Certifications

- EnMS – ISO 50001: 2018
- GHG - ISO 14064: 2006
- QMS - ISO 9001: 2015
- EMS - ISO 14001: 2015
- OHSAS – ISO 450001: 2018
- CRM - ISO 10002: 2018
- ISMS - ISO 27001: 2013
- ITSM - ISO 20001: 2018
- **Sustainable Procurement :ISO 20400**
- LEED Certification- "Silver Rating"
- Airport Carbon Accreditation – Level 4+ Transition
- British Safety Council-5 star

Awards and Accolades

At the Telangana State Energy Conservation Awards, GHIAL clinched

The “Gold Award” in 2020,

The “Excellence Award” in 2021

The “Special Award” in 2022.

GHIAL Clinched various awards at CII National &Challengers trophy competition

3 Gold& Silver awards in National .

1 super,2 Star &2 Jury awards in Challengers Trophy competition.

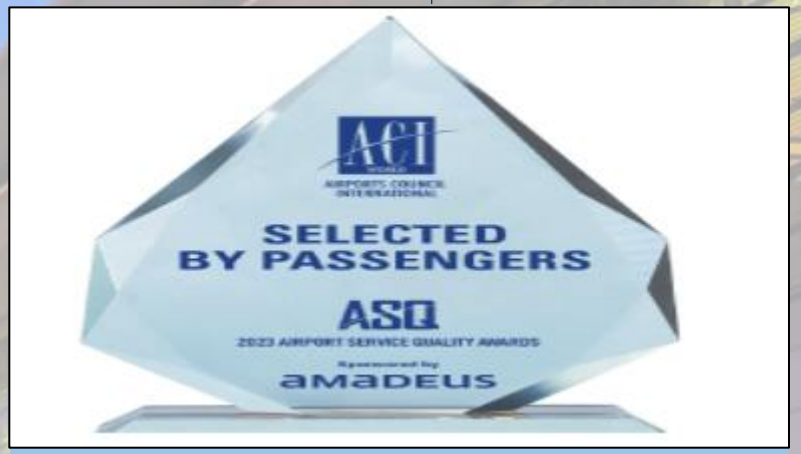
GMR-led Hyderabad International Airport Limited (GHIAL) clinched the prestigious

“Certificate of Merit” at BEE’s National Energy Conservation Awards (NECA) 2021.

Awards & Accolades

GHIAL titled as the "Best Airport staff in India &South Asia " at the 2024 Skytrax World Airport Awards.

GHIAL has won the ACI Green Airports Gold Recognition 2023, in the 15-35 MPPA category in the Asia – Pacific region for its 'Single-Use Plastic Elimination' process. Starting from 2018, this is the 6th consecutive year that GHIAL has won this award.



GHIAL wins the prestigious '**ACI Worlds - ASQ Best Airport Award 2023** for outstanding Pax Experience' in 15-25 Million Pax/Annum (MPPA) category in Asia Pacific region.

International Best Practice Competition, 2023

GHIAL clinched the 6-star rating for "Eliminate unsafe incident during PBB wheel negative angle movement" & 5-Star rating for "Water depth measurement on RWY"

Media Coverage

Hyd airport lauded for green practices

BB Bureau
Hyderabad

GMR Hyderabad International Airport (GHIAL) secured the top position in the ACREX Hall of Fame national level awards competition, held in New Delhi.

Competing in the commercial building category for energy efficiency and sustainability, GHIAL emerged as the winner, outperforming other corporate offices and buildings in India.

The ACREX Hall of Fame Awards, judged by a panel of scientists, architects, and technocrats, acknowledges organisations showcasing exceptional dedication to energy efficiency and sustainability initiatives.

GHIAL, guided by its ethos of 'creating tomorrow today', has established a new standard in the industry through its persistent efforts, GHIAL said in a release.

In Brief

HYDERABAD

Hyd airport bags awards

GMR Hyderabad International Airport (GHIAL) has, once again, clinched the prestigious "National Energy Leader" and "Excellent Energy Efficient Unit" awards at the 24th National Award Ceremony for

జీఎమ్మార్ ఎయిర్‌పోర్టుకు నేషనల్ ఎనర్జీ లీడర్ అవార్డు

సాక్షి,హైదరాబాద్: హైదరాబాద్ అంతర్జాతీయ విమానాశ్రయానికి మరోసారి ప్రతిష్టాత్మక 'నేషనల్ ఎనర్జీ లీడర్'అవార్డు లభించింది. కాన్ఫెడరేషన్ ఆఫ్ ఇండియన్ ఇండస్ట్రీ (సీఐఐ) నిర్వహించిన 'ఎక్సలెన్స్ ఇన్ ఎనర్జీ మేనేజ్‌మెంట్'- 24వ జాతీయ అవార్డుల ప్రదానోత్సవంలో 'నేషనల్ ఎనర్జీ లీడర్', 'ఎక్సలెంట్ ఎనర్జీ ఎఫీషియెన్సీ యూనిట్'అవార్డులను గెలుచుకుంది. హైదరాబాద్ అంతర్జాతీయ విమానాశ్రయానికి 'నేషనల్ ఎనర్జీ లీడర్'అవార్డు లభించడం వరుసగా ఇది ఐదోసారి కాగా 'ఎక్సలెంట్ ఎనర్జీ ఎఫీషియెన్సీ యూనిట్' అవార్డు

శంషాబాద్ విమానాశ్రయానికి రెండు అవార్డులు

ఈనాడు, హైదరాబాద్, శంషాబాద్, న్యూస్‌టుడే: శంషాబాద్ విమానాశ్రయానికి రెండు ప్రతిష్టాత్మక అవార్డులు వరించాయి. భారతీయ పరిశ్రమల సమాఖ్య (సీఐఐ) ఇటీవల నిర్వహించిన 24వ జాతీయ స్థాయి సమర్థ ఇంధన నిర్వహణ పోటీలో శంషాబాద్ విమానాశ్రయం 'నేషనల్ ఎనర్జీ లీడర్', 'ఎక్సెలెంట్ ఎనర్జీ ఎఫిషియెన్సీ యూనిట్' అవార్డులను గెలుచుకుంది. ఇంధన పొదుపు, సమర్థ నిర్వహణపై శంషాబాద్ విమానాశ్రయానికి 7 సంవత్సరాల నుంచి వరుసగా అవార్డులు వస్తున్నాయి. ఇంధన సామర్థ్య పనితీరును స్థిరంగా పెంచుకుంటున్నామని, పర్యావరణాన్ని రక్షిస్తున్నామని శంషాబాద్ విమానాశ్రయ సీఈఓ ప్రదీప్ పణిక్కర్ మంగళవారం తెలిపారు. మరింత మెరుగైన పని తీరుతో ప్రయాణికులకు సౌకర్యాలు కల్పించడానికి ఈ అవార్డులు తమకు ప్రోత్సాహం అందిస్తాయన్నారు. మరోవైపు, శంషాబాద్ విమానాశ్రయంలో విమానాలు, వాహనాల ద్వారా విడుదలయ్యే కర్బన ఉద్గారాలను తగ్గించేందుకు అధికారులు కార్యాచరణ రూపొందించారు.

GMR Hyd airport bags CII national awards

BB Bureau
Hyderabad

GMR Hyderabad International Airport (GHIAL) has once again clinched the prestigious National Energy Leader and Excellent Energy Efficient Unit awards at the 24th National Award Ceremony for 'Excellence in Energy Management' organised by the Confederation of Indian Industry (CII). It has been recognised as National Energy Leader and Excellent Energy Efficient Unit laurels for 5th and 7th year in a row.

GHIAL is known for its sustainable practices and commitment towards energy conservation. Its constant efforts to reduce carbon footprint and optimize energy usage through innovative initiatives have been recognised by industry experts. The National Energy Leader award recognizes GHIAL's leadership in energy management and its contribution towards a sustainable future.

The Excellent Energy Efficient Unit award acknowledges GHIAL as an organization that has consistently improved its energy efficiency performance year after year.

Pradeep Panicker, CEO of GHIAL, said: "Hyderabad airport has been at the forefront in adopting energy efficient and sustainable initiatives. We are very conscious about the need to protect our eco-system and constantly work towards optimizing operational efficiencies to curtail carbon emissions. We are committed to working around every aspect to create a sustainable organisation and ecosystem."

Hyd airport wins National Energy Leader award again

PNS ■ HYDERABAD

GMR Hyderabad International Airport (GHIAL) has got National Energy Leader and Excellent Energy Efficiency Unit awards at the 24th National Award Ceremony for Excellence in Energy Management organised by the Confederation of Indian Industry (CII).

The airport has been recognised with the laurels for 5th and 7th year in a row, respectively. On the occasion of this achievement, Pradeep Panicker , CEO, GMRIAL, said, "Hyderabad airport has been at the forefront in adopting energy-efficient and sustainable initiatives.

As an organisation, we are very conscious about the need to protect our ecosystem and constantly work towards optimising operational efficiencies to curtail carbon emissions.

Hyd Airport bags top honour at Hall of Fame National Awards

PNS ■ HYDERABAD

The Rajiv Gandhi International Airport on Monday won the ACREX Hall of Fame National Level Awards competition held in New Delhi. Competing in the commercial building category for energy efficiency and sustainability; it emerged as the winner, surpassing India's top corporate offices and buildings.

The ACREX Hall of Fame Awards evaluated by a distinguished jury of scientists, architects and technocrats, recognises organisations demonstrating exceptional commitment to energy efficiency and sustainability initiatives.

TEAM
PROJECTS & ENGINEERING