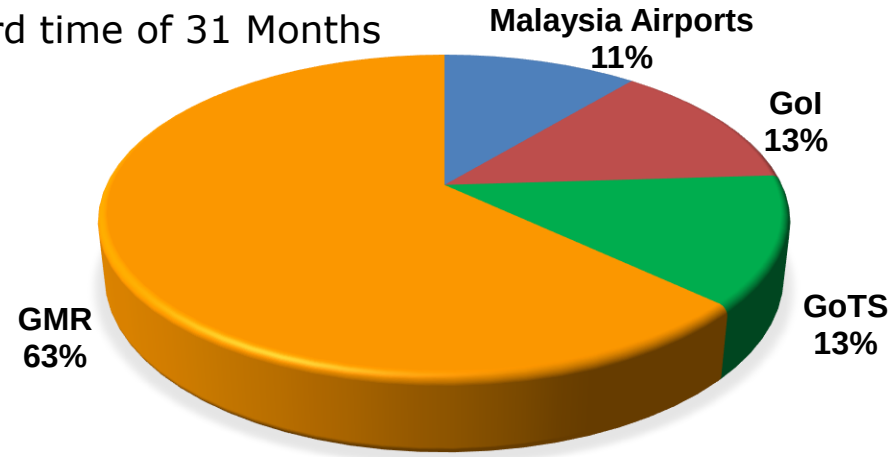
23rd National Award for Excellence in Energy Management GMR Hyderabad International Airport Ltd.

Mr. Vijay Rathod – Chief Project & Engineering Officer (Energy Auditor)
Mr. Bixam Bhukya – Specialist - Electrical

Company Profile

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

- Based on the PPP model & structured on –BOOT; Project Completed in Record time of 31 Months
- Commenced Operations -March 23, 2008
- Design Capacity :-
  Terminal -12 Million Passenger Per Annum
  Cargo -1.5 Lakh MT /Annum respectively
- Present Operation :-
  Terminal -21+ Million Passenger Per Annum (Pre-COVID)
  Cargo -1.5 Lakh MT /Annum respectively
- Currently under Expansion :- 40 MPPA & 2.5 Lakh MT/Annum



Building Specifications

Natural lighting during day through Façade and Temple leaf structure in the roof.

Curved & Corrugated, structure around the Passenger Terminal provides resistance from sunlight.

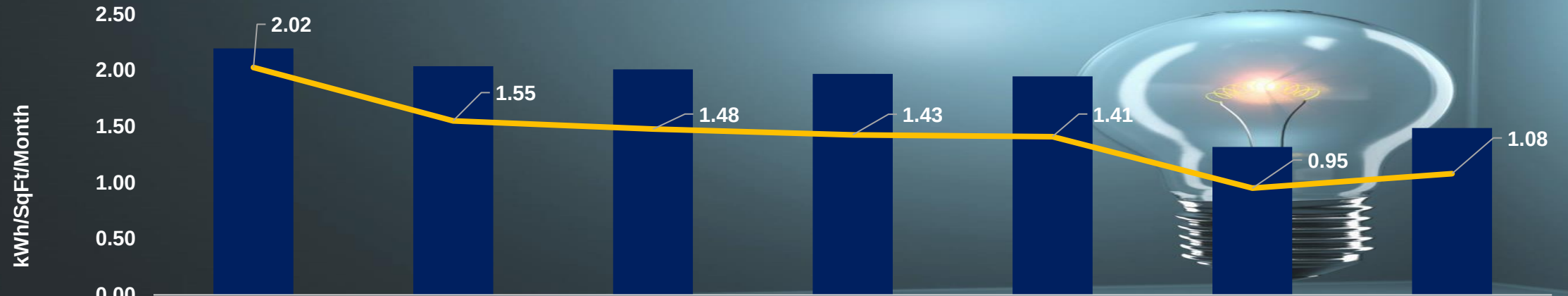
Good thermal insulation properties @ Terminal glass Façade: U-value = 1.4 W/m^{2}K, SC =0.67

Passenger Growth, Energy Usage & Specific Energy Consumption

Pax & Net Units

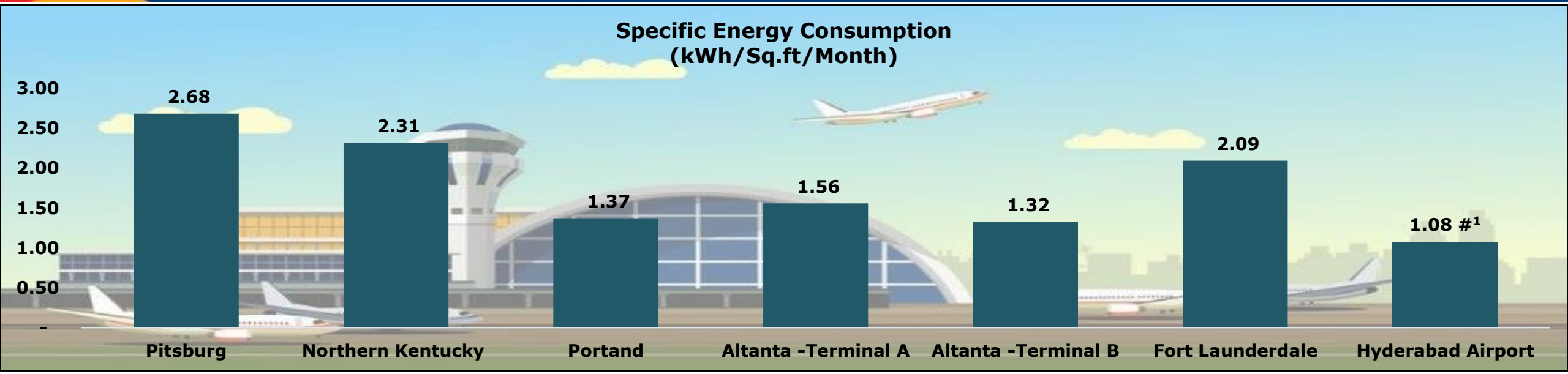
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Million Units(kWh)	30.72	28.51	28.11	27.55	27.23	18.44	20.79
PAX(Million)	12.49	15.24	18.30	21.36	21.76	7.98	12.47

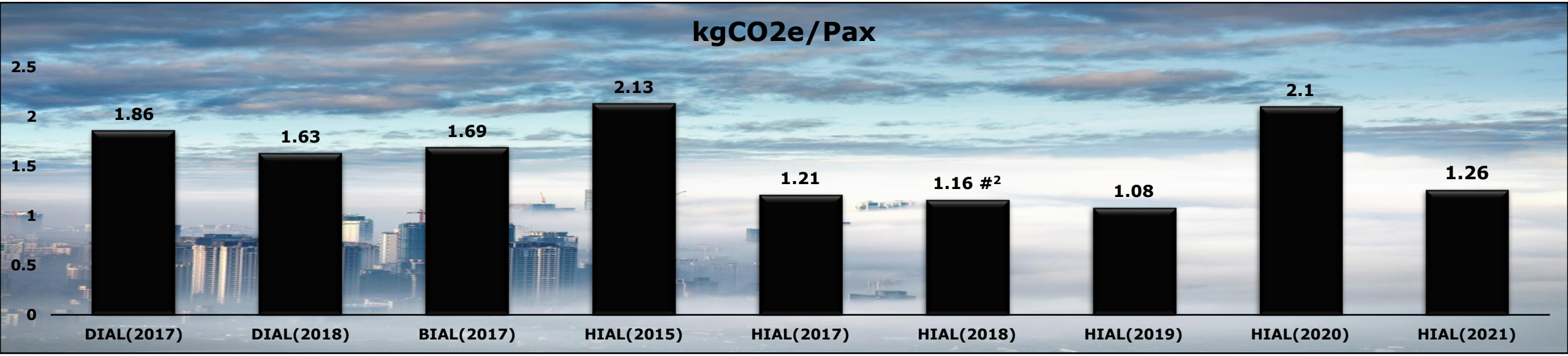
Net Units and kWh/SqFt/Month



	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Million Units(kWh)	30.72	28.51	28.11	27.55	27.23	18.44	20.79
kWh/Sqt/month	2.02	1.55	1.48	1.43	1.41	0.95	1.08

Benchmark – Power & Emissions



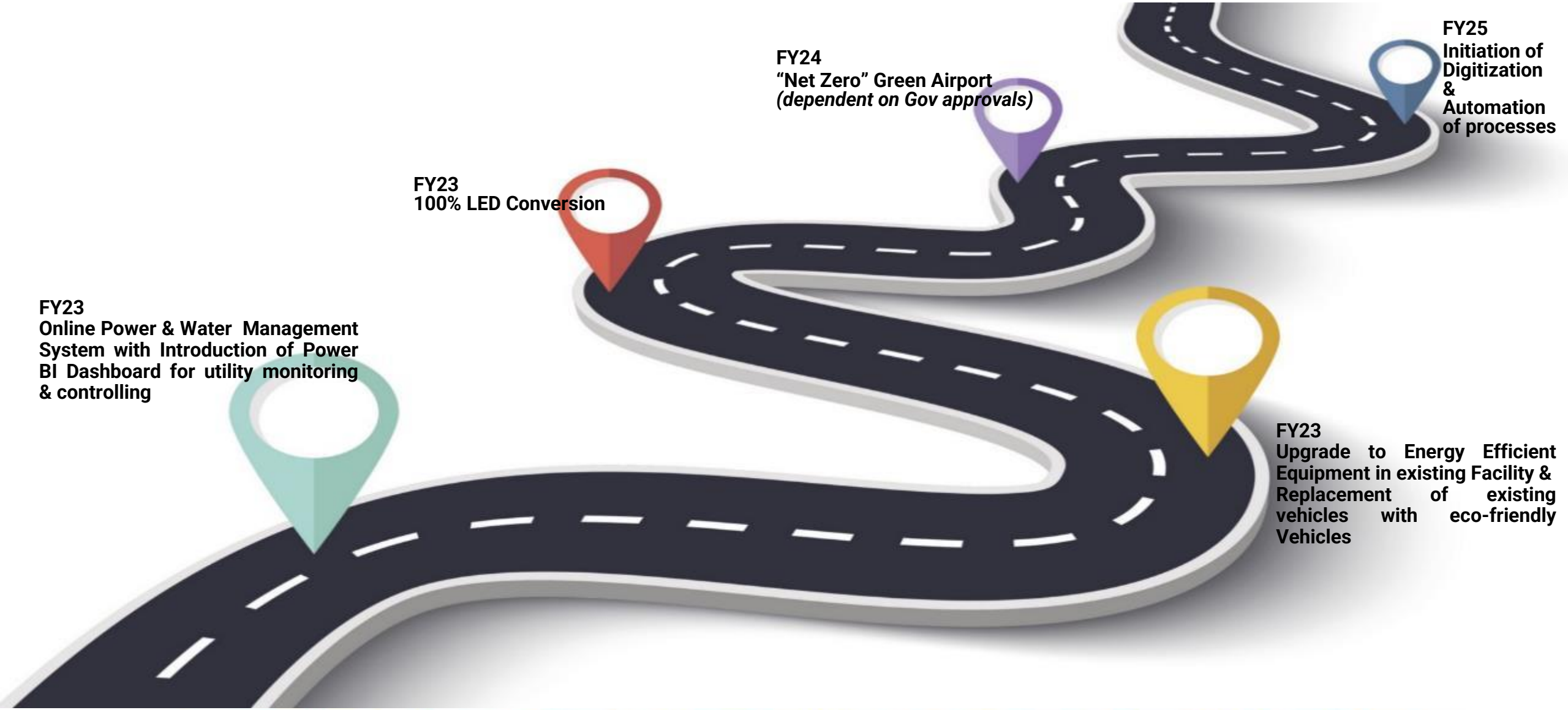


**Source –Internet & Internal Source*

#1 SEC value is inclusive of solar power generation

#2 typo error corrected

Roadmap for being Global Leader in Energy Efficiency



FY23
Online Power & Water Management System with Introduction of Power BI Dashboard for utility monitoring & controlling

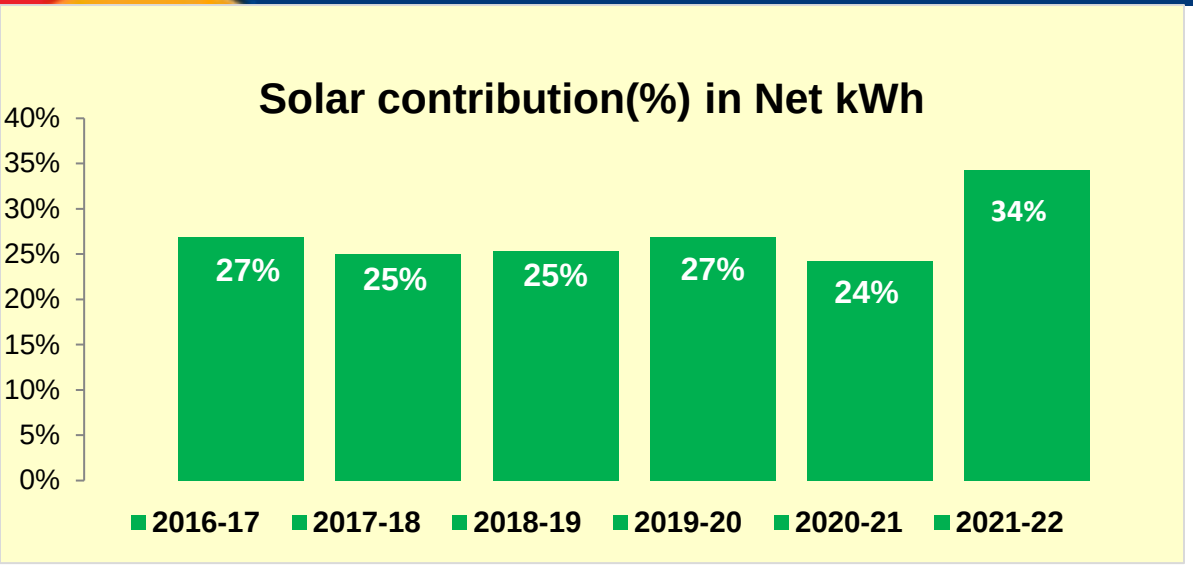
FY23
100% LED Conversion

FY24
"Net Zero" Green Airport
(dependent on Gov approvals)

FY25
Initiation of Digitization & Automation of processes

FY23
Upgrade to Energy Efficient Equipment in existing Facility & Replacement of existing vehicles with eco-friendly Vehicles

Utilization of Renewable Energy Sources



Technology	Type of Energy	Location	FY	Installed Capacity (MW)	Generation (million kWh)	% of overall electrical energy
Solar PV	Electrical	Onsite	2016-17	5 MW	7.67	27%
			2017-18	5 MW + 5 MW	7.02	25%
			2018-19	5 MW + 5 MW	6.99	25.3%
			2019-20	5 MW + 5 MW	7.31	27%
			2020-21	5 MW + 5 MW	6.02	24.3%
			2021-22	**10MW***	10.37	34.3%

* Commissioned in July 2021 after approval from relevant authorities

Key EnCon Projects in Past 3 Years

#	Few Energy Saving Projects Implemented	FY	Investment Million INR	Saving MU	Savings Million INR
1	Upgrading to energy Efficient PAC – 3 Numbers of Unit	2019-20	3.6	0.34	2.53
2	Upgrading the Domestic Water pump to Energy efficient pumps –ALS	2019-20	2.6	0.12	0.89
3	Prepaid Energy meters - PTB	2019-20	9.2	0.0	0.0
4	Automatic Tube Cleaning System (Phase 2)	2019-20	6.5	0.23	1.64
5	Power optimization by Scheduled Operation of AHU & Lights	2020-21	0.0	2.82	20.59
6	Operation of New Energy Efficient Sewage Treatment Plant	2020-21	17.5	0.11	0.78
7	Secondary Runway AGL Upgradation & LED Conversion	2020-21	50.0	0.09	0.69
8	Cooling Tower Efficiency enhanced by Upgradation (Phase-I)	2020-21	2.45	0.05	0.35
9	Main Runway CAT-I to CAT-II upgradation with LED Upgradation	2021-22	50.00	0.19	1.36
10	Cooling Tower Efficiency enhanced by Upgradation (Phase-II)	2021-22	7.59	0.78	5.71
11	Upgradation of Pumping System	2021-22	3.43	0.23	1.68
12	HVAC low side improvement works(Refurbishment of AHUs)	2021-22	1.43	0.22	1.59
13	Power Optimization by Scheduled Operation of AHU & Lights	2021-22	-	0.32	2.36

Financial Year	Investment Million INR	Saving Million Unit	Savings Million INR	Payback (Months)
2019-20	23.8	0.78	5.72	49
2020-21	73.2	3.14	22.95	38
2021-22	**62.91**	**1.79**	**13.25**	**57**

EnCon Projects Implemented in FY2021-22

Energy Conservation Initiatives Implemented in FY23

- **Main Runway CAT-I to CAT-II upgradation with LED Upgradation**
  Savings of 1.86 Lakh kWh
- **Cooling Tower Efficiency enhanced by Upgradation**
  - **Savings of 7.82 Lakh kWh**
- **Upgradation of Pumping System**
  - **Savings of 2.30 Lakh kWh**
- **Introduction of Smart, Auto-Control Lighting System in PBB**
  Savings of 0.47 Lakh kWh
- **Stand Identification Signage Board Lighting System**
  Savings of 0.04 Lakh kWh
- **HVAC Low Side improvement works (Refurbishment of AHUs)**
  Savings of 2.17 Lakh kWh
- **Power Optimization by Scheduled Operation of AHU & Lights**
  Savings of 3.23 Lakh kWh

Main Runway CAT-I to CAT-II with LED Upgradation

Earlier Main Runway had navigational aids that could be operated only when visibility was at least 550 meters.

Post upgradation to CAT-II, Runway is being operated at lower visibility of 325 meters.

Further, in line with the strategic objective to convert the airport in to 100% LED Airport, the Main Runway Aeronautical Ground Lighting Systems (AGL) was upgraded with LED, ensuring standards prescribed by The International Civil Aviation Organization (ICAO) & Directorate General of Civil Aviation (DGCA). This enables aircraft to

- operate under low visibility conditions – preventing traffic build-up in the sky,
- prevents enforced diversions to nearby airports due to low visibility,
- enhances safety of aircraft operations.

Replication Potential: Yes

Savings Achieved: 1.86 Lakh Units

Cooling Tower Efficiency enhanced by Upgradation

Due to continuous operations since inception and ageing of the equipment the performance of the CTs observed to be degraded. Therefore, replaced same with efficient cooling towers in terms of motors and thermal efficiency. Total 5 Nos of the Cooling Towers replaced.

Replication Potential: Yes

Savings Achieved: 7.82 Lakh Units

Upgradation of Pumping System

The existing Water Treatment Plant (capacity 1000 KL) caters to the water demand for the entire Airport community.

The Domestic pumping system installed at Water Treatment Plant, has been in continuous operation since inception, has now been upgraded with energy efficient, hydro-pneumatic pumping system resulting in lower power consumption.

Replication Potential: Yes

Savings Achieved: 2.30 Lakh Units

Introduction of Smart, Auto-Control Lighting System in PBB

Each Passenger Boarding Bridge (PBB) tunnel is fitted with 44 No's of 36 W CFL lamps. These lamps are lit for approximately 12hrs a day. These lights are manually operated by cleaning staff during their routine activities. **All CFL lamps were recently replaced with 18 W LED tubelights**. After analyzing the utilization trend for lighting, we observed there was further scope to conserve energy in each PBB.

We implemented a **photocell-based sensor** to switch on & off the PBB tunnel lights automatically depending on the lux level in the apron area.

Further, on brainstorming, we also installed **dimmer with motion sensor for alternate circuits** based on the utilization trend analysis.

This has been implemented across all PBBs.

Replication Potential: Yes

Savings Achieved: 0.47 Lakh Units

Stand Identification Signage Board LED Lighting

Each contact stand on the apron is fitted with 03 No's of illuminated Stand Identification Signage Boards containing conventional lights. Currently, there are 02 MARS stands & 07 single contact stands in operation.

In line with the strategic objective to convert the airport in to 100% LED Airport, all Stand Identification Signage Board Lighting System of contact stands have been retrofitted with LED lighting system.

Further, we are implementing this retro-fitment at all non-contact (remote) stands also.

Replication Potential: Yes

Savings Achieved: 0.04 Lakh Units

HVAC low side improvement works (Refurbishment of AHUs)

HVAC is one of the largest & important systems at the airport terminal. It is also the biggest consumer of the power in the airport. To further optimize the HVAC system, we have carried out various refurbishment & ugradation works in the "low side" of HVAC system (e.g., AHUs).

Team has analyzed performance of various equipment & improved the overall performance by refurbishing the AHUs, condition-based monitoring & control of all the relevant parameters related to Low Side.



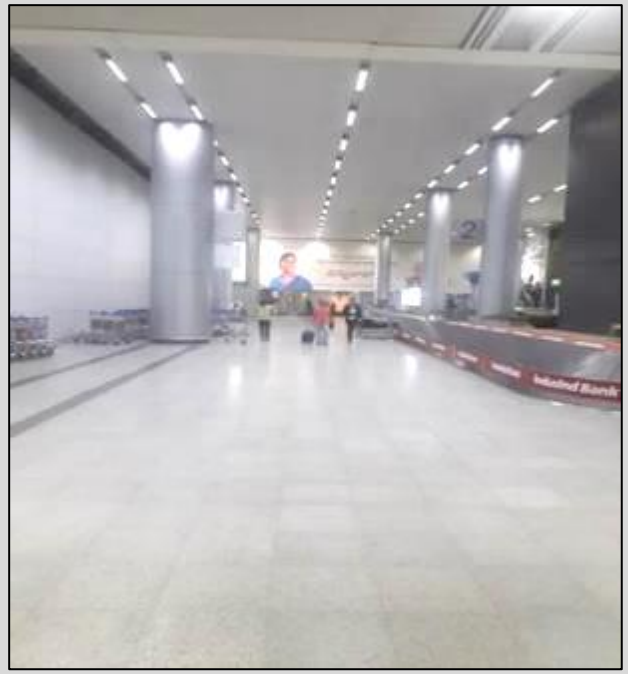


Replication Potential: Yes

Savings Achieved: 2.17 Lakh Units

Power Optimization by Scheduled Operation of AHU & Lights

There was considerable reduction in traffic movement. To cope up with this new challenge, we operated our HVAC, other systems & Lighting based on Passengers movement without impacting operations & Passenger's overall experience.



Replication Potential: Yes

Savings Achieved: 3.23 Lakh Units

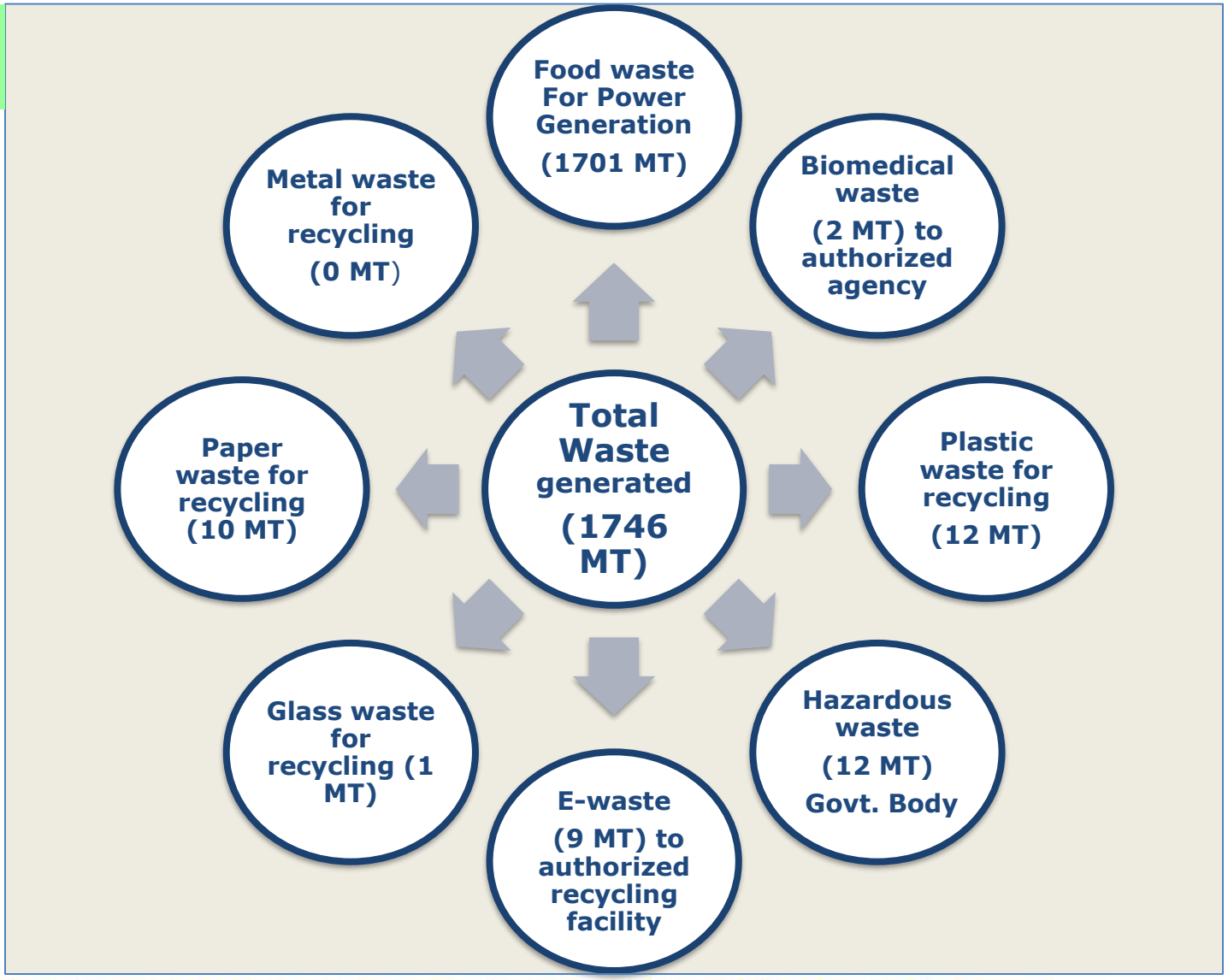
Waste Management

MSTC Certified Vendors
Indian Tar Coal Company & NAS Oil

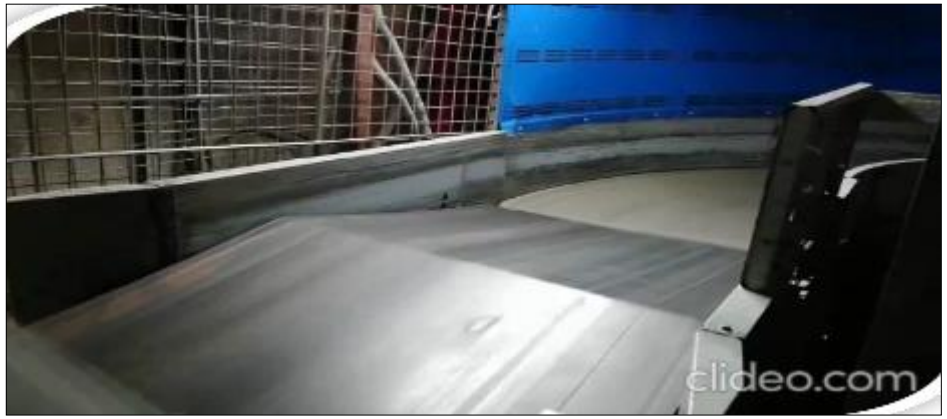
airport carbon accredited NEUTRALITY

एम एस टी सी लिमिटेड (भारत सरकार का उपक्रम) MSTC LIMITED (A Govt. of India Enterprise)

NAS OIL & FUEL



KAIZEN - Innovative Projects



Minimize Baggage Complaints by installing a Re-Alignment Device

Baggage Handling System (BHS) is one of the most critical aspects of Airport Operation, one of the key performance indices of Airport Operations. Currently, the BHS Departure system can service ~4800 bags/hours.

During transit, Bag jams, damages & bags falling out of the conveyor was experienced. On analysis, the team concluded that this was due to incorrect loading of bags onto conveyors.

Trained the staff & identified an indigenous, innovative, in-house solution to re-position incorrectly loaded bags automatically without manual intervention – implemented & successful in reducing bag jams, damages & increasing the efficiency & availability of BHS system.

Upgraded UPS System with Energy Efficient UPS System

We have upgraded 4 No's of 200 kVA UPS systems with modular, high efficiency UPS systems to improve the efficiency of the system by approximately +5%.

KAIZEN - Innovative Projects

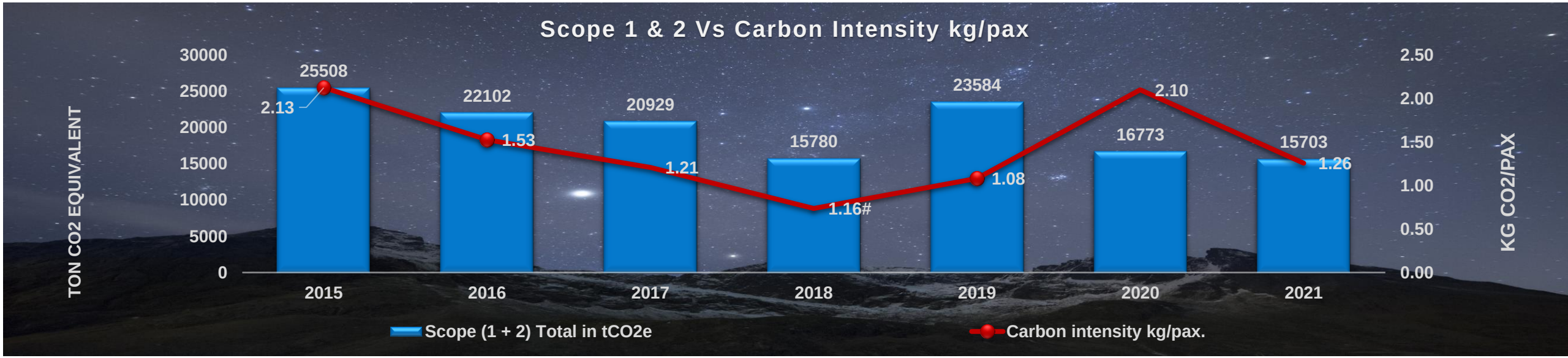
Indigenous Spare Optimization

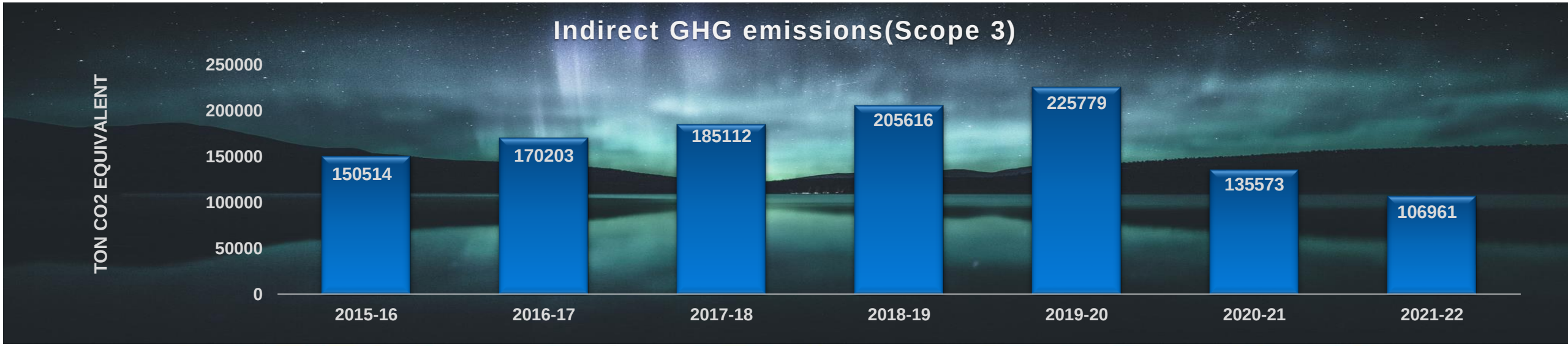
During regular operation it was observed that Aerial Platform 23M Dino machine's jockey tyres are gradually deteriorating & wearing out. Since the spares for this equipment are imported, we would incur huge lead time. To reduce TAT of the equipment maintenance & to promote local vendors (Make in India), we explored local market for similar & technologically apt spares.

Eliminating unsafe hazard for Staff working on Glass roof canopy:

Workmen access the roof of glass canopy for cleaning & other maintenance activities. There is no means to safeguard the workmen in case glass breaks. To mitigate the perennial hazard of unsafe work site, we indigenously designed & erected MS anchor posts in between existing glass joints, for workmen to hook their safety belts. This was done keeping in mind to not affect the aesthetics of the areas, to permanently resolve the issue & improve morale.

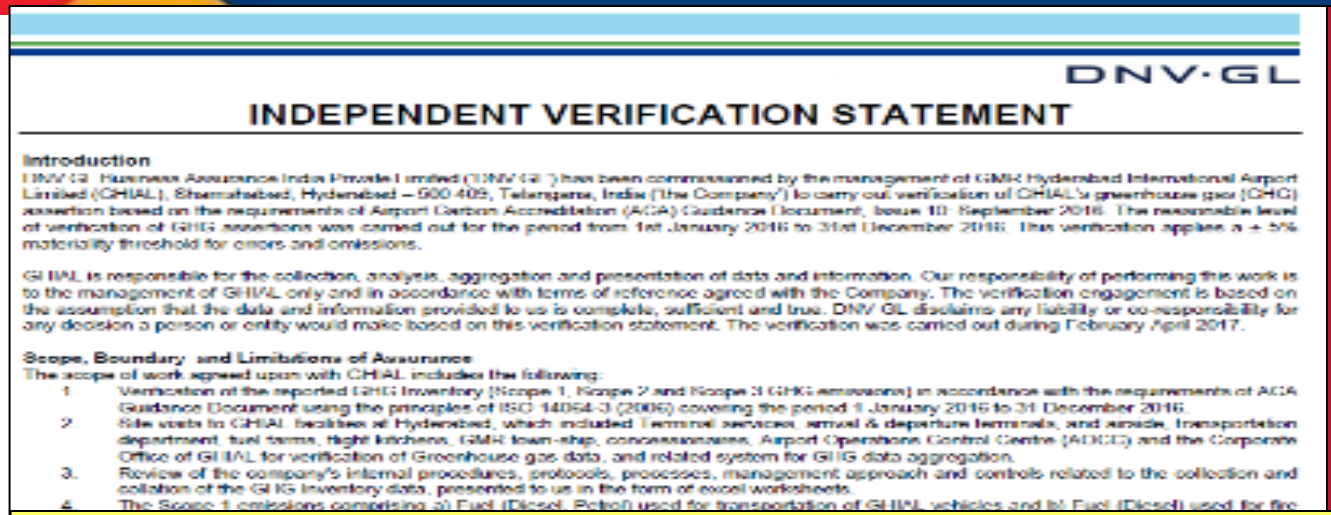
GHG Emissions





 # typo error Corrected

GHG Inventorisation & Energy Policy



DNV·GL

INDEPENDENT VERIFICATION STATEMENT

Introduction

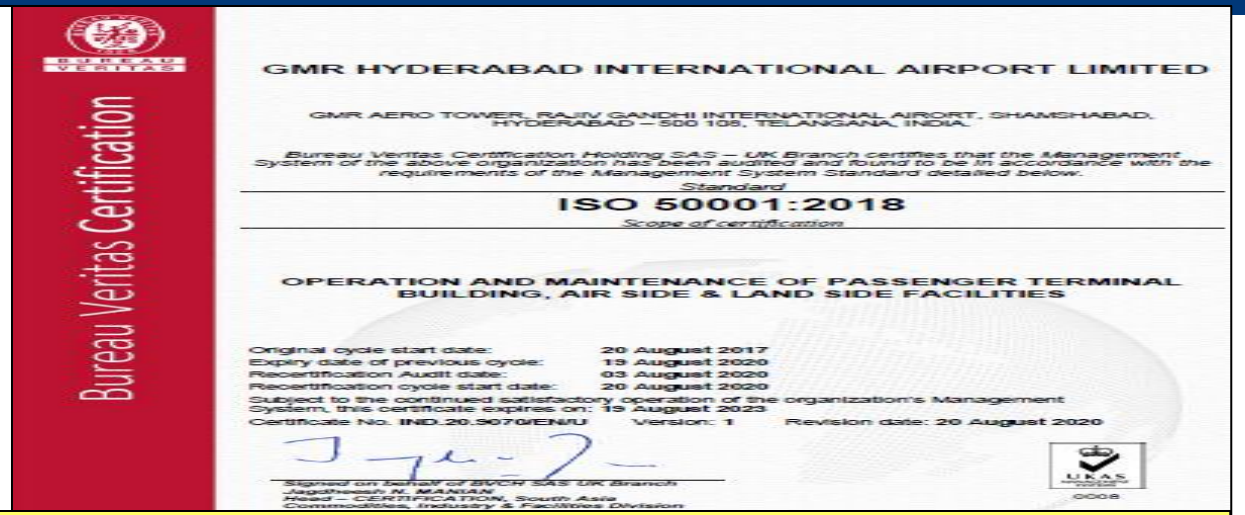
DNV GL Business Assurance India Private Limited (DNV GL) has been commissioned by the management of GMR Hyderabad International Airport Limited (GHIAL), Shamshabad, Hyderabad – 500 409, Telangana, India (the Company) to carry out verification of GHIAL's greenhouse gas (GHG) assertion based on the requirements of Airport Carbon Accreditation (ACA) Guidance Document, Issue 10 September 2016. The reasonable level of verification of GHG assertions was carried out for the period from 1st January 2016 to 31st December 2016. The verification applies a ± 5% materiality threshold for errors and omissions.

GHAL is responsible for the collection, analysis, aggregation and presentation of data and information. Our responsibility of performing this work is to the management of GHIAL only and in accordance with terms of reference agreed with the Company. The verification engagement is based on the assumption that the data and information provided to us is complete, sufficient and true. DNV GL disclaims any liability or co-responsibility for any decision a person or entity would make based on this verification statement. The verification was carried out during February /April 2017.

Scope, Boundary and Limitations of Assurance

The scope of work agreed upon with GHIAL includes the following:

1. Verification of the reported GHG Inventory (Scope 1, Scope 2 and Scope 3 GHG emissions) in accordance with the requirements of ACA Guidance Document using the principles of ISO 14064-3 (2006) covering the period 1 January 2016 to 31 December 2016.
2. Site visits to GHIAL facilities at Hyderabad, which included Terminal services, arrival & departure terminals, and airside, transportation department, fuel farms, flight kitchens, GMR town-ship, concessionaires, Airport Operations Control Centre (AOCC) and the Corporate Office of GHIAL for verification of Greenhouse gas data, and related system for GHG data aggregation.
3. Review of the company's internal procedures, protocols, processes, management approach and controls related to the collection and collation of the GHG inventory data, presented to us in the form of excel worksheets.
4. The Scope 1 emissions comprising a) Fuel (Diesel, Petrol) used for transportation of GHIAL vehicles and b) Fuel (Diesel) used for fire



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 organization 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
Expiry date of previous cycle:	19 August 2020
Recertification Audit date:	03 August 2020
Recertification cycle start date:	20 August 2020

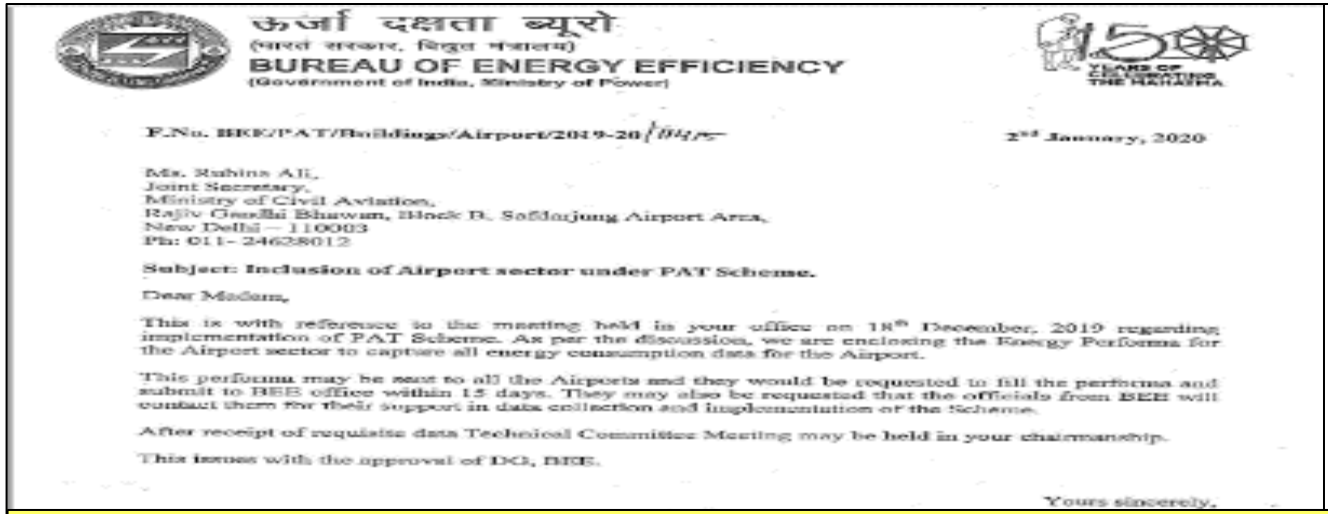
Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: 19 August 2023

Certificate No. IND.20.5070/ENRU Version: 1 Revision date: 20 August 2020

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

UKAS MANAGEMENT 0008

Public Disclosure on GHG Emission & Energy Policy ISO 50001-2018 Standards



ऊर्जा दक्षता ब्यूरो
(भारत सरकार, विद्युत मंत्रालय)
BUREAU OF ENERGY EFFICIENCY
(Government of India, Ministry of Power)

15 YEARS OF LEADING THE WORLD TO A BRIGHTER TOMORROW

F.No. BEE/PAT/Buildings/Airport/2019-20/

2nd January, 2020

Ms. Rubina Ali,
Joint Secretary,
Ministry of Civil Aviation,
Rajiv Gandhi Bhawan, Block B, Safdarjung Airport Area,
New Delhi – 110003
Ph: 011- 24628012

Subject: Inclusion of Airport sector under PAT Scheme.

Dear Madam,

This is with reference to the meeting held in your office on 18th December, 2019 regarding implementation of PAT Scheme. As per the discussion, we are enclosing the Energy Performa for the Airport sector to capture all energy consumption data for the Airport.

This performa may be sent to all the Airports and they would be requested to fill the performa and submit to BEE office within 15 days. They may also be requested that the officials from BEE will conduct them for their support in data collection and implementation of the Scheme.

After receipt of requisite data Technical Committee Meeting may be held in your chairmanship.

This issues with the approval of DG, BEE.

Yours sincerely,

CERTIFICATE
of ACCREDITATION

airport carbon accredited NEUTRALITY

6 December 2019 - 5 December 2023

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.

HYDERABAD | GMR

have earned the accreditation level of NEUTRALITY, in recognition of the airport's exceptional work in managing, reducing and compensating all of the CO_2 emissions under its control, as part of the Global airport industry's response to the challenge of Climate Change.

airport carbon

BEE PAT Scheme & Carbon Neutral 3+

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.

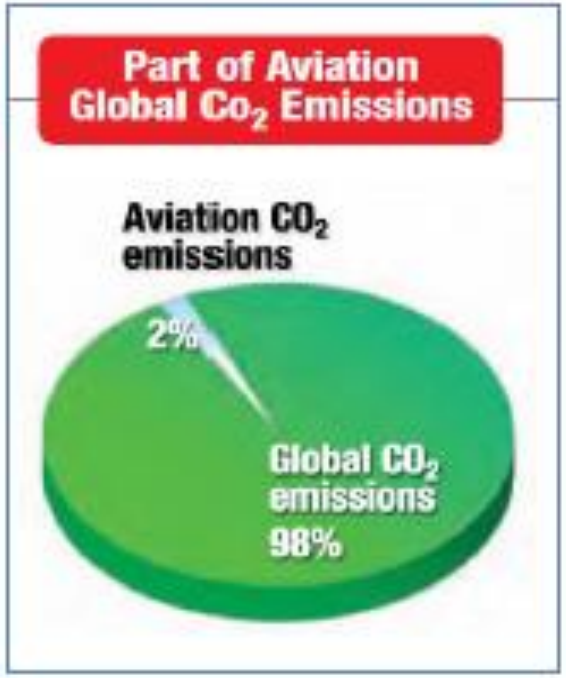
Date: 1st January, 2021 — **Chief Operating Officer** — **Chief Executive Officer**

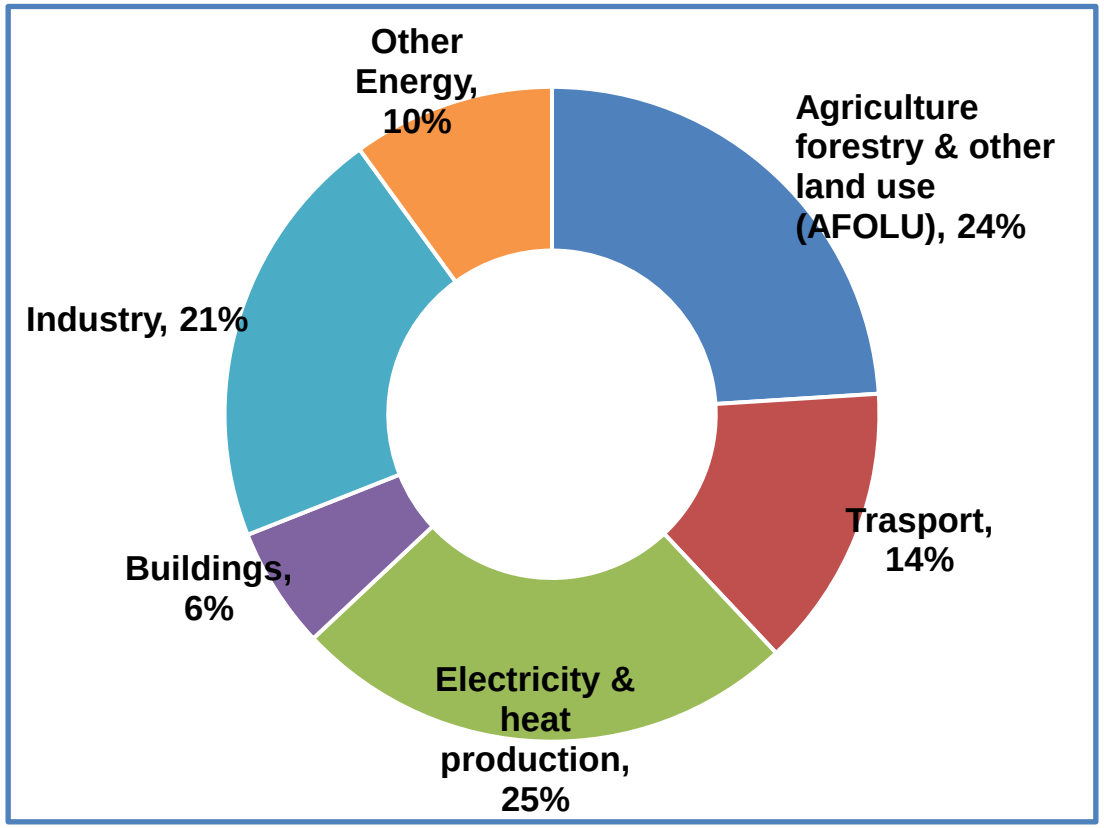
Version - 4

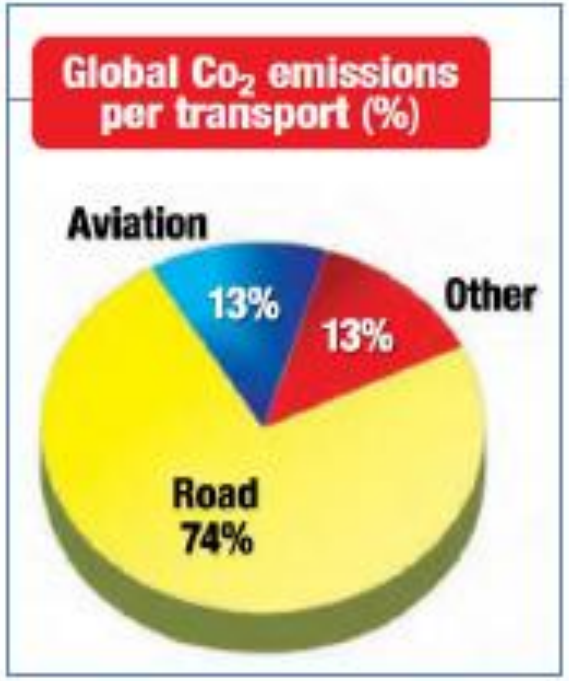
GHIAL aspires to achieve

Net Zero carbon emission through sustainable airport operations by opting for renewal energy & alternative fuels by partnering with stakeholders.

Aviation Contribution to GHG Emission

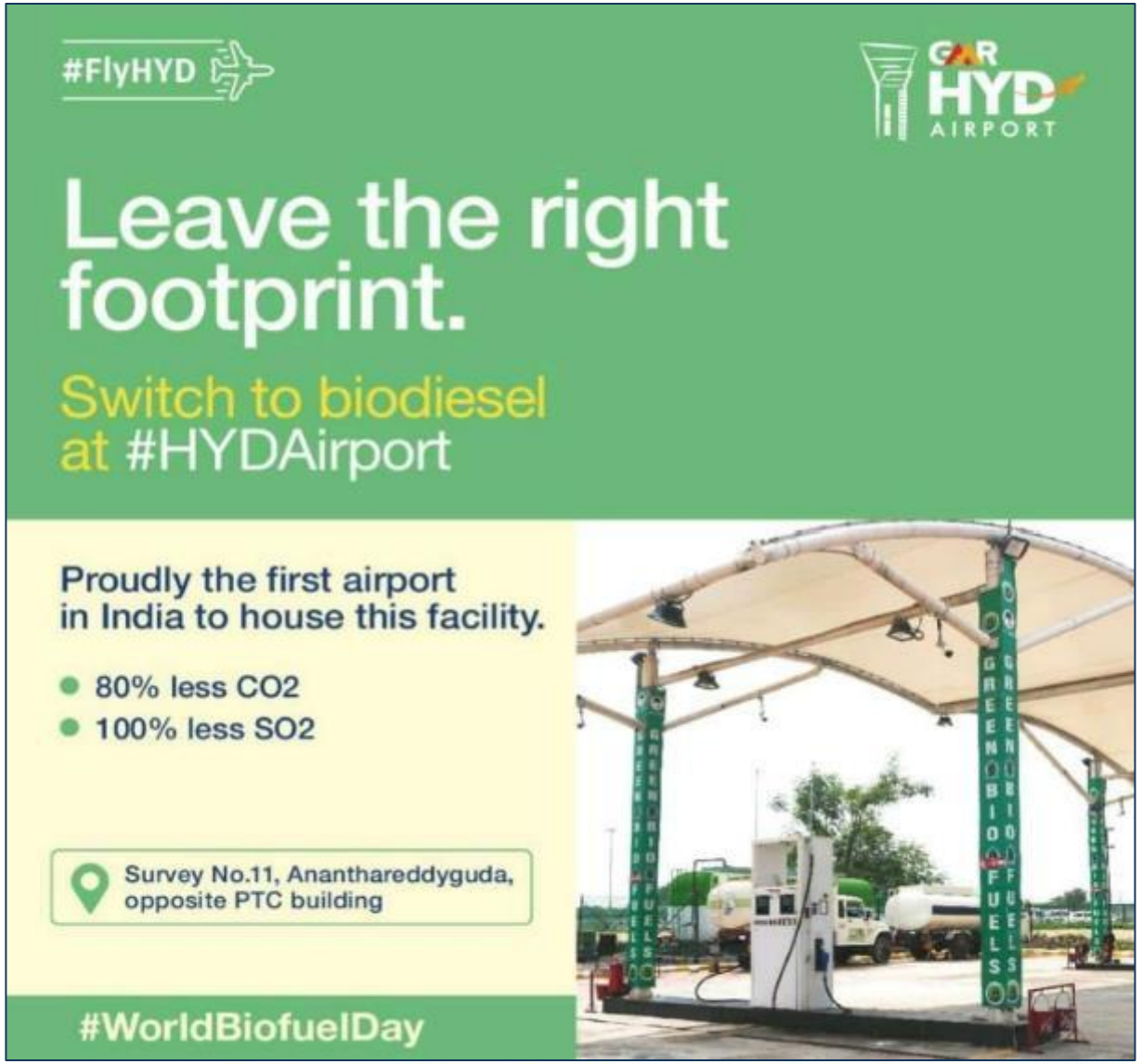






The Aviation industry contributes to approximately 2.5% of overall CO_2 emissions globally.

Initiatives towards “Net Zero”



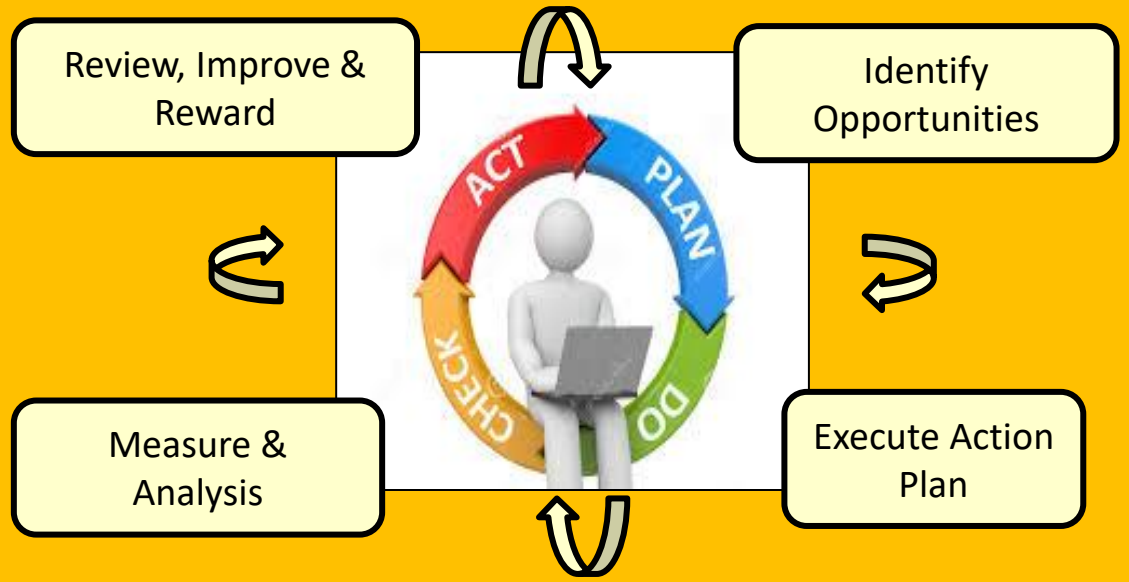
EnCon Team, Monitoring & Budget

Management

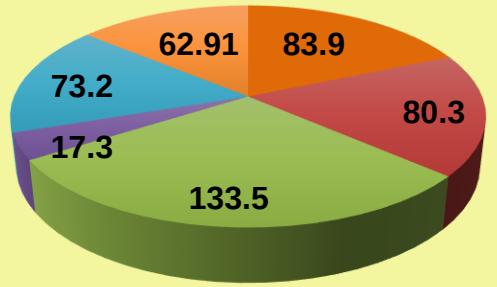
Energy Policy &
ISO 50001-2018 Standard

Energy Coordinators

Risk Analysis



En Con Investment Million INR



2016-17 2017-18 2018-19 2019-20 2020-21 2021-22

Daily Monitoring

Daily Energy Monitoring Report Chaired by EVP

Rajiv Gandhi International Airport, Shamshabad, Hyderabad

Daily O&M Report

Report Date & Time: 0000 to 2359Hrs	Wednesday, 27 July, 2022
Day Shift :-	Rajesh & Vijay
Night Shift :-	Gopi & Sankar

HVAC		Electrical	
Chiller Load (TR)	33284.00	Total Consumption KWh(220KV+Solar Generation)	193050.00
Chilled Water dt (Deg C)	3.22	Total Consumption KWh (220 KV SS)	165450.00
Condenser Water dt (Deg C)	6.75	Solar Generation (MWh)	27.60
Average Ambient temperature (deg C)	25.00	Solar Net Export (MWh)	27.40
Max. Ambient Temp (Deg C)	30.83	Gross Consumption PTB(kWh)	90078.00
Water Consumption (Cooling Tower PTB) KL	138.80	Gross Consumption ALS (kWh)	102972.00
R.Humidity	76.48%	Maximum Demand (MVA)	9.16
Serviceability Chiller (Number)	7/7	Commercial KVAH	52100.00
Serviceability AHU (Number)	103/103	Commercial MD(MVA)	3.144
CPM (Chiller Plant Manager) Status	OK	Industrial KVAH	54920.00
IKW-PTB (Incl Secondary)	0.60	Industrial MD(MVA)	3.660
IIDT Chiller Load (TR)	3765.00	Power Consumed by PTB Chillers kWh	19242.00
IKW -IIDT	0.62	Chillers Auxiliaries Consumption - HVAC kWH	4923.21
NOB Chiller Load (TR)	2418.68	Power Consumed by IIDT Chillers kWh	2342.00
IKW-NOB	0.68	Power consumed by IDAT HVAC VRF Units kWh	839.00
PSOB Chiller Load (TR)	1698.75	Power Consumed by NOB Chillers kWh	1637.09
IKW-PSOB	0.69	Power Consumed by PSOB Chillers kWh	1170.20
B/D of equipment (hrs.)	0	DG Yard - Status (Ok/Not Ok)	OK
		Serviceability of BMS (Ok/Not Ok)	OK
Chiller Running Hrs	57.30	Pax Area Lighting Number -Fittings (W /NW)	W

Daily MIS Report for AMR Water Meters

HYDERABAD GMR — GMR

Date :	0-Jan-00
Time :	00:00Hrs to 23:59Hrs

Sewage Inflow

STP		Initial Reading	Final Reading	Consumption (KL)
STP-1 Input	M1	0	0	0
STP-2 Input	M2	0	0	0
Total STP Inflow	M1+M2			0

Treated Water Output

STP		Initial Reading	Final Reading	Consumption (KL)
STP-1 Output	M3	0	0	0
STP-2 Output	M4	0	0	0
Total STP Output	M3+M4			0

STP Efficiency

Details		Efficiency (%)
STP-1 In-Out Difference	M1-M3	0
STP-2 In-Out Difference	M2-M4	0
Difference of Inlet-Outlet	(M1+M2)-(M3+M4)	0

Flushing Water

Details		Consumption (KL)
Total Treated Water Generation	M3+M4	0
Gross Flushing Water Consumption	M8+M9	0
Difference of Generation-Consumption	(M3+M4)-(M8+M9)	0

Flushing Water Line-1

Details			Consumption (KL)
Flushing Line 1 Consumption		INLET	0
Total Sub-Consumption to Flushing Line	Cluster 6	OUTLET	0
Difference of Line 1 to Sub-Consumption		INLET-OUTLET	0

Flushing Water Line-2

Details			Consumption (KL)
Flushing Line 2 Consumption		INLET	0
Total Sub-Consumption to Flushing Line	Cluster 7	OUTLET	0
Difference of Line 2 to Sub-Consumption		INLET-OUTLET	0

Domestic Water

Details			Consumption (KL)
HMWS Intake		INLET	0
Total Domestic Water Consumption	Cluster 2	OUTLET	0
Difference of Received-Consumption		INLET-OUTLET	0

Domestic Water Line-1

Details			Consumption (KL)
Domestic Line 1 Consumption		INLET	0
Total Sub-Consumption to Domestic Line 1	Cluster 4	OUTLET	0
Difference of Line 1 to Sub-Consumption		INLET-OUTLET	0

Domestic Water Line-2

Details			Consumption (KL)
Domestic Line 2 Consumption		INLET	0
Total Sub-Consumption to Domestic Line 2	Cluster 5	OUTLET	0
Difference of Line 2 to Sub-Consumption		INLET-OUTLET	0

CFR Main Fire Water

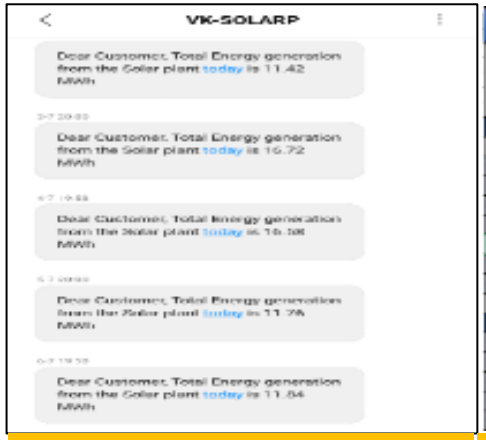
Details			Consumption (KL)
CFR Main Fire Inlet		INLET	0
CFR Main Fire Outlet	Cluster 8	OUTLET	0
Difference of Inlet-Outlet		INLET-OUTLET	0

CFR Satellite Fire Water

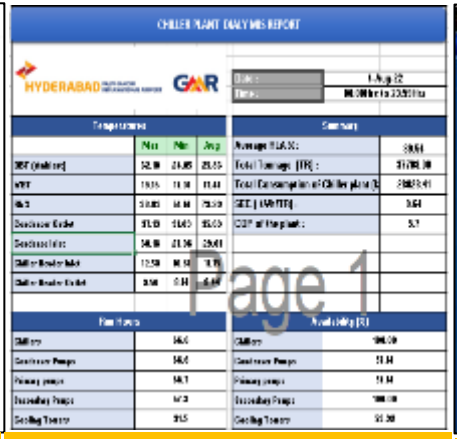
Details			Consumption (KL)
CFR Satellite Fire Inlet		INLET	0
CFR Satellite Fire Outlet	Cluster 9	OUTLET	0
Difference of Inlet-Outlet		INLET-OUTLET	0

PSOB Domestic Water

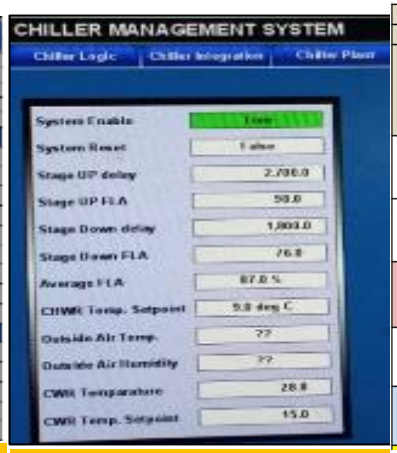
Details			Consumption (KL)
PSOB Domestic Water Consumption		INLET	0
Total Sub-Consumption to PSOB Domestic Line	Cluster 10	OUTLET	0
Difference of PSOB Domestic Line to Sub-		INLET-OUTLET	0



Power Generation SMS from Solar Plant



Chiller Plant Daily MIS Report



Chiller Plant Manager

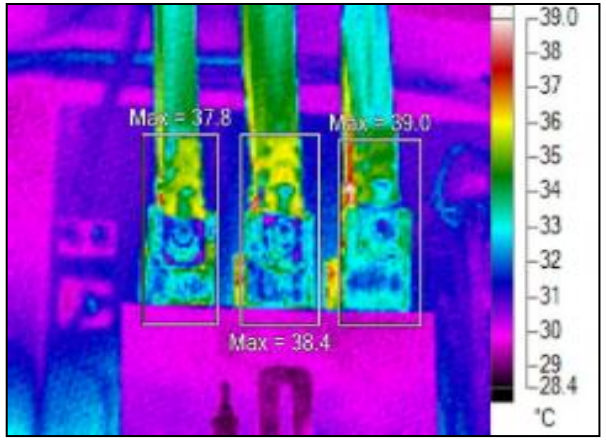
Energy Consumption Report (Including Concessionaries)

19-Jul-2022

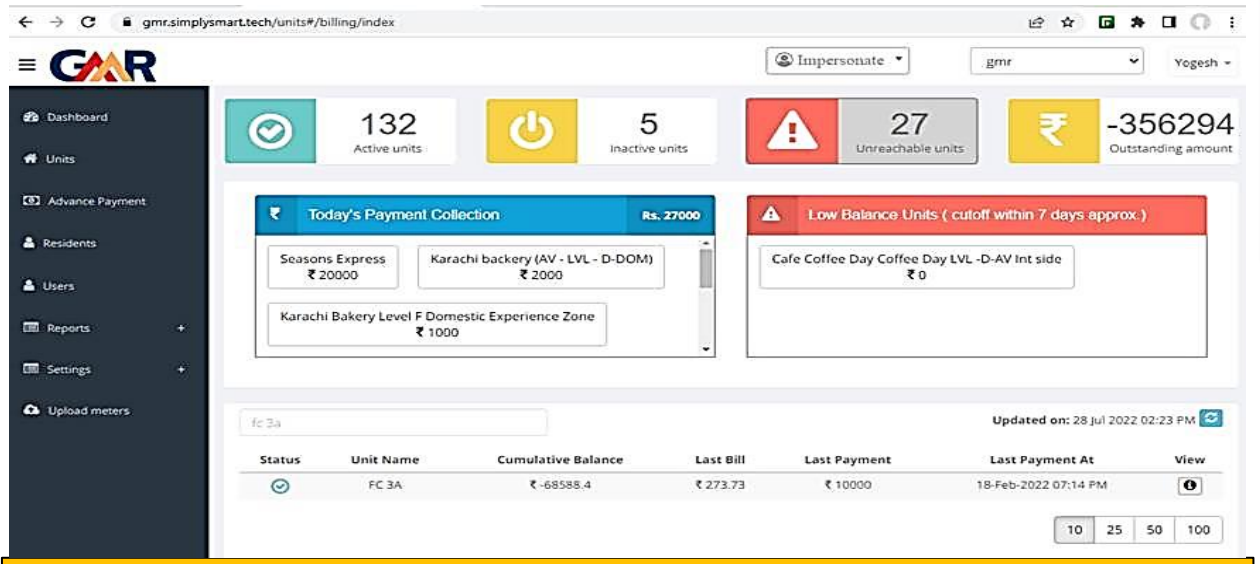
Consumption on date	TXF-1	TXF-2	TXF-3	TXF-4	TXF-5	TXF-6	TXF-7	TXF-8	TXF-9	TXF-10	TXF-11	TXF-12	Total	Chiller& Asso. equipment Consumption	PTB Chiller Running Hours	Max Temp °C	Min Temp °C	IIDT
Consumption on 18-07-2022	9474	5319	14217	11518	7897	10171	4926	6888	8140	120	5946	2387	87003	22632	53:45:00	29	23	7020
Consumption on 19-07-2022	10330	3590	13350	11310	8146	10775	5180	7054	8532	110	5940	2590	86907	20696	44:00:00	31	23	6944
Difference Comparison with previous day			**(1,740)**	**(208)**	**249**	**604**	**254**	**166**	**392**		**(16)**	**203**	**(96)**	**(1,936)**	**09:45:00**	**2**	**0**	**(76)**
Consumption on 19-07-2021	8508	12620	6632	11000	6412	7880	4356	5752	6324	110	2599	4816	77009	19221	48:10:00	34	23	5083
Difference Comparison with 2021 year			**(490)**	**310**	**1,734**	**2,895**	**824**	**1,302**	**2,208**		**3,341**	**(2,226)**	**9,898**	**1,475**	**4:10:00**	**-3**	**0**	**1,861**

Comparing Power Consumption pattern Earlier Day and Same day last year

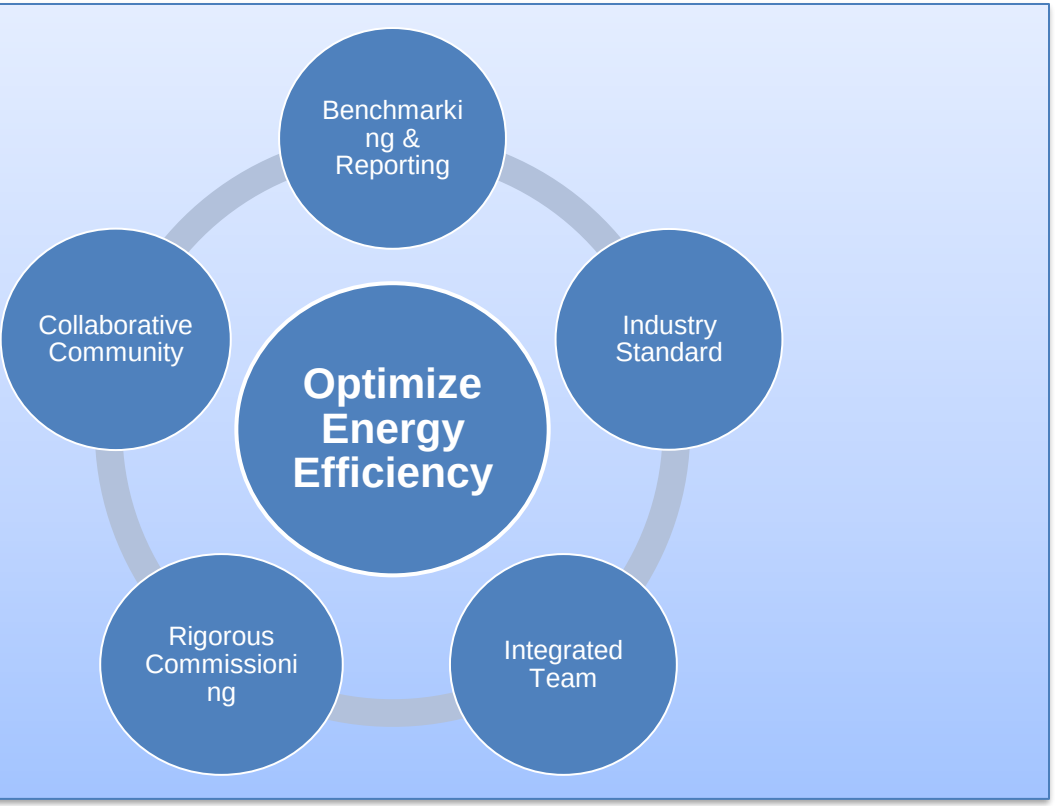
Energy Monitoring –Best Practices



Thermography for Electric Panels (Replicated from AGL maintenance best practices)



Prepaid Energy Meter Dashboard



Development of Water depth Measurement Tool:

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.

Airfield Painting Machine:

The Airfield pavement marking machine is used to repaint faded markings on airfield pavement surface.

This machine suffered malfunction while working. After analysis, it was concluded that machine malfunctioned due to over-heating abnormally. Approached OEM for detailed RCFA, & action plan for CAPA.

This would hamper regular pavement maintenance works, affecting visibility of pavement markings to pilots.

Through an innovative in-house design, the component causing over-heating was replaced with spare sourced from local market with minor modifications, machine was made operational in no time & painting requirement was fulfilled.

Arrival Baggage Unloader Belt Conveyor System

The Arrivals Baggage Conveyor System caters to all arriving flights through 06 infeed conveyor belts. The bags are transferred from airline vehicle onto the Baggage Conveyor System manually. Since various airlines operate with different vehicles, difference in height of vehicle & conveyor belt is observed.

This causes difficulty to staff transferring baggage from vehicle onto conveyor belt, leading to probable occupational hazards & health issues.

After analysis, we indigenously designed, fabricated & installed an Unloader Belt Conveyor System that can be fixed onto existing Arrivals Conveyor System & can be adjusted according to height of staff working & the height of vehicle.

This innovative solution offers faster & easier unloading/transfer of bags, minimizes staff difficulty & mitigates the hazard.

HYD airport is the first airport to develop this technical solution to mitigate the perennial ergonomics issue.

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

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.

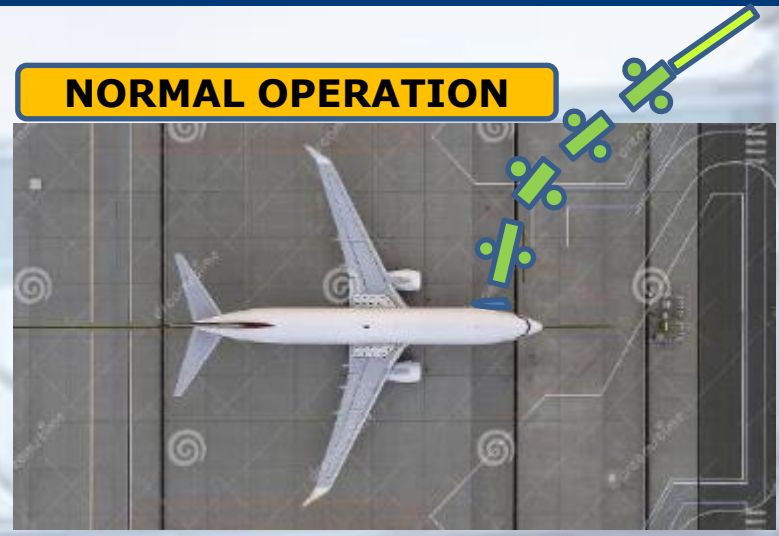
PBB is controlled by Operator, extends/retracts & elevates/drops depending on connecting aircraft. During normal operation, PBB moves towards the aircraft door & connects with aircraft door.

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.

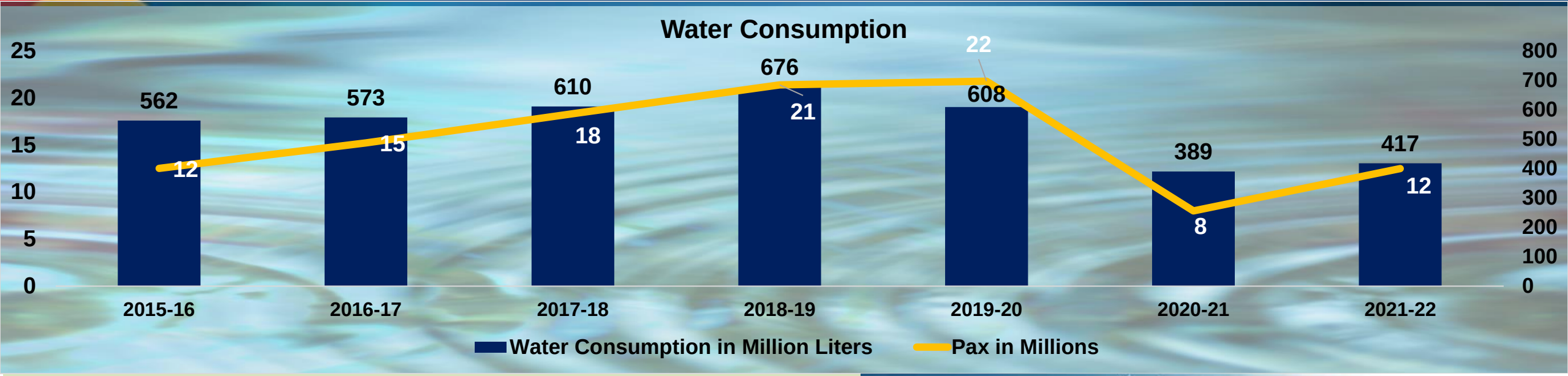
Team has developed fail-safe mechanism stopping the unintended movement of the PBB completely & installed an audio-visual alarm system that would alert the operator in abnormal movement.

HYD airport is the first airport to have implemented this in all PBB.

Team working with GMR INNOVEX team for patent.



Water - Net Consumption



Key Water Conservation Initiatives:

- **Water Balancing study and 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 and equipment
- Creating awareness among the Airport Community
- Wastewater reuse and recycling (STP 2*925KLD+**1*1325KLD**)
- Rainwater runoff use
- Push type taps with aerators installed
- Less water consuming plantation in Landscape Area

Reservoirs @ GHIAL – Achieving Water Neutral Status

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.

Storm Water Treatment Plant

Awards and Accolades

GMR-led Hyderabad International Airport Limited (GHIAL) clinched the prestigious 22nd "**National Energy Leader Award for Excellence in Energy Management**". (***Hat-trick of Achievements – 2019, 2020 & 2021***)

GMR-led Hyderabad International Airport Limited (GHIAL) clinched the prestigious "**Gold Award**" at the **Telangana State Energy Conservation Awards 2020** & **"Excellence Award" in 2021**

Rajiv Gandhi International Airport (RGIA) in Hyderabad have received the ACI World's (Airports Council International) prestigious "**Voice of Customer**" recognition for the 2nd time in a row.

Awards and Accolades

GMR Hyderabad International Airport **has won the "Green Building of the Year" award at the 11th Construction Week India Awards 2021.**

GMR Hyderabad International Airport has bagged the **'Best Airport at Wings India 2022'. Has also received the award Best Agency for providing Aviation skills & Training in the country.**

GMR Hyderabad International Airport has won the '**Platinum award'** in the **11th CII National Poka Yoke Competition 2022** & also won **3 Silver & 3 Gold Awards** in **CII National Technology Competition in 2022**.

Awards and Accolades

RGIA is recognized by CII and is awarded **Performance Excellence Award (2020)** in Ground-mounted Solar Category

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 wins '**ACI - ASQ Best Airport by Size & Region 2020'** in 25 Million Pax/Annum (MPPA) category.

GHIAL receives '**ACI - Asia-Pacific Green Airports Recognition 2021'** in 25 Million Pax/Annum (MPPA) category.

Awards, Accolades and Certifications

Skytrax Best Regional Airport & Best Airport Staff Service 2021

CII National Energy Leader Award in 2019, 2020 & 2021

CIP Group award at Business Excellence event for Promising Innovation

CIP Group awards at Business Excellence Event for "Energy Conservation" & "Dare to Try"

CII Excellent Energy Efficient Unit – 2014, 2015, 2017 2018, 2019, 2020& 2021

Certifications:

- EnMS – ISO 50001: 2018
- GHG - ISO 14064: 2006
- QMS - ISO 9001: 2015
- EMS - ISO 14001: 2015
- OHSAS – ISO 450001: 2018
- CRM - ISO 10002: 2014
- ISMS - ISO 27001: 2005
- ITSM - ISO 20001: 2011
- LEED Certification- "Silver Rating"
- Airport Carbon Accreditation – Level 3+ Neutrality
- British Safety Council

Media Coverage

నమస్తే తెలంగాణ

హైదరాబాద్ ఎయిర్‌పోర్టుకు సీఐఐ అవార్డులు

హైదరాబాద్ శంషాబాద్, సెప్టెంబర్ 6 (నమస్తే తెలంగాణ): హైదరాబాద్ అంతర్జాతీయ విమానాశ్రయం మరోమారు పలు అవార్డులను దక్కించుకున్నది. సీఐఐ, గోద్రేజ్ గ్రీన్ బిజినెస్ సెంటర్ నిర్వహించిన ఎక్సలెన్స్ ఇన్ ఎనర్జీ మేనేజ్‌మెంట్ 22వ జాతీయ అవార్డుల్లో జీఎమ్మార్ ఆధ్వర్యంలోని హైదరాబాద్ అంతర్జాతీయ విమానాశ్రయానికి నేషనల్ ఎనర్జీ లీడర్, ఎక్సలెంట్ ఎనర్జీ ఎఫీషియెంట్ యూనిట్ అవార్డులు లభించాయి. ఈ సందర్భంగా ఎయిర్‌పోర్టు సీఈవో ప్రదీప్ ఫణికర్ మాట్లాడుతూ.. బాధ్యతాయుత మైన కార్పొరేట్ సంస్థగా ఇంధన సామర్థ్యాలను సమర్థంగా వినియోగించుకోవడం, ఇంధన పొదుపు, ప్రయాణీకులకు సంతృప్తికర సేవలు అందించడం వల్లనే ఈ అవార్డులు వరించాయన్నారు.

శంషాబాద్ విమానాశ్రయానికి మరో రెండు పురస్కారాలు

కంటే అధికంగా
త ఎగుమతి
ింది. 'ఆన్
ఆశించిన
పరిస్థితి
ఎప్

హైదరాబాద్ (శంషాబాద్), న్యూస్‌టుడే: శంషాబాద్‌లోని రాజీవ్‌గాంధీ అంతర్జాతీయ విమానాశ్రయానికి రెండు

ీఐఐ), గోద్రెజ్ ఎనర్జీ మేనేజ్
ము విమానాశ్రయాల్లో అవలం
విధి విధానాలపై సమగ్ర సర్వే
షనల్ ఎనర్జీ లీడర్, ఎక్సలెంట్
ం దక్కినట్లు అధికారులు ప్రక

GHIAL bags CII awards

HANS BUSINESS
HYDERABAD

GMR led Hyderabad International Airport (GHIAL) has clinched the prestigious awards of CII 'National Energy Leader' and 'Excellent Energy Efficient Unit' at the 22nd National award ceremony for 'Excellence in Energy Management' organised by theConfederation of Indian Industry (CII), Godrej Green Business Centre (GBC) during the 20thedition of 'Energy Efficiency Summit", virtual conference and exposition on energy efficiency held from 24

RGIA gets award for energy efficiency

SPECIAL CORRESPONDENT
HYDERABAD

Hyderabad International Airport clinched the prestigious awards of CII 'National Energy Leader' and 'Excellent Energy Efficient Unit' at the 22nd National Award Ceremony for 'Excellence in Energy Management' organised by the Confederation of Indian Industry (CII) - Godrej Green Business Centre (GBC) during the 20th edition of 'Energy Efficiency Summit", Virtual Conference & Exposition on Energy Efficiency held recently.

GHIAL has been recog-

Over the last three years, GHIAL operations have led to a substantial energy saving of around 5.53 million units.

Leader' and 'Excellent Energy Efficient Unit' accolades for the 3rd and 5th years in a row, respectively. GHIAL's

Technical Services Prasanna Kumar Potdar and Head PTB Engineering Vijay Rathod, digitally received the

BIZZ BUZZ

Hyd airport bags Energy Conservation Award

HYDERABAD: AS part of the prestigious National Energy Conserva- 2021), GMR onal Airport awarded the the excellent efforts in the areas of energy conservation by Bureau of Energy Efficiency.

The award was recently presented to GHIAL management representatives at a grand event organised at Vigyan Bhavan in New Delhi by Union Minister for Power and New and Renewable Energy RK Singh. Hyderabad airport was the only one in the airport sector that received this recognition.

GHIAL wins NECA 2021 Award for energy conservation

PNS ■ HYDERABAD

The GMR Hyderabad International Airport Ltd (GHIAL) has been awarded a certificate of merit for its excellent efforts in the areas of energy conservation by the Bureau of Energy Efficiency, under the prestigious National Energy Conservation Award 2021 (NECA 2021).

The Union Minister for Power and New & Renewable Energy, RK Singh, presented the award to GHIAL officials at New Delhi recently.

The GMR Hyderabad International Airport is the only airport that has received this recognition.

This year, the National Energy Conservation Awards (NECA) and the National Energy Efficiency Innovation Awards (NEEIA) were organised as part of the 'Azadi ka Amrit Mahotsav'.

Pradeep Panicker, the CEO of GHIAL, said they had rolled out many initiatives to reduce the carbon footprint.

With the growing severity of the climate crisis, the award put the onus on them to move towards greener technology, he said, adding that the airport had recently commissioned its second phase 5 MW solar power plant.

With this, 50 per cent of the energy requirements of the Hyderabad Airport terminal would be met by solar power.

Here will be a reduction in the carbon footprint by about 26 lakh kg carbon dioxide which is equivalent to saving 1.4 lakh fully grown trees, he added.

21/12/2021 BIZZBUZZ Pg 14

Energy efficiency award for GHIAL

CITY BUREAU
Hyderabad

The GMR Hyderabad International Airport Ltd (GHIAL) has been awarded Certificate of Merit for the excellent efforts in the areas of energy conservation by the Bureau of Energy Efficiency under the prestigious 'National Energy Conservation Awards 2021'.

Union Minister for Power and New & Renewable Energy RK Singh presented the award to GHIAL officials at Delhi recently. The GMR Hyderabad International Airport was the only airport in the Airport Sector that received this distinct recognition. This year, the National Energy Conservation Awards (NECA) and the National Energy Efficiency Innovation Awards (NEEIA) were organized as part of the "Azadi ka Amrit Mahotsav". Pradeep Panicker, CEO, GHIAL, said they had rolled out many initiatives to actively reduce the carbon footprint. With the growing severity of the climate crisis, the award put more onus on them to move towards cleaner and greener technology for future generations, he said.

HYDERABAD RAJIV GANDHI INTERNATIONAL AIRPORT

GMR

TEAM GHIAL