

Business
Excellence

Creating an
Excellent
Tomorrow,
Today

Optimization of Power Consumption at GHIAL

'Recurring Savings' Category

Presented by: Engineering & Technical Services, GHIAL

Date: 12th March 2021



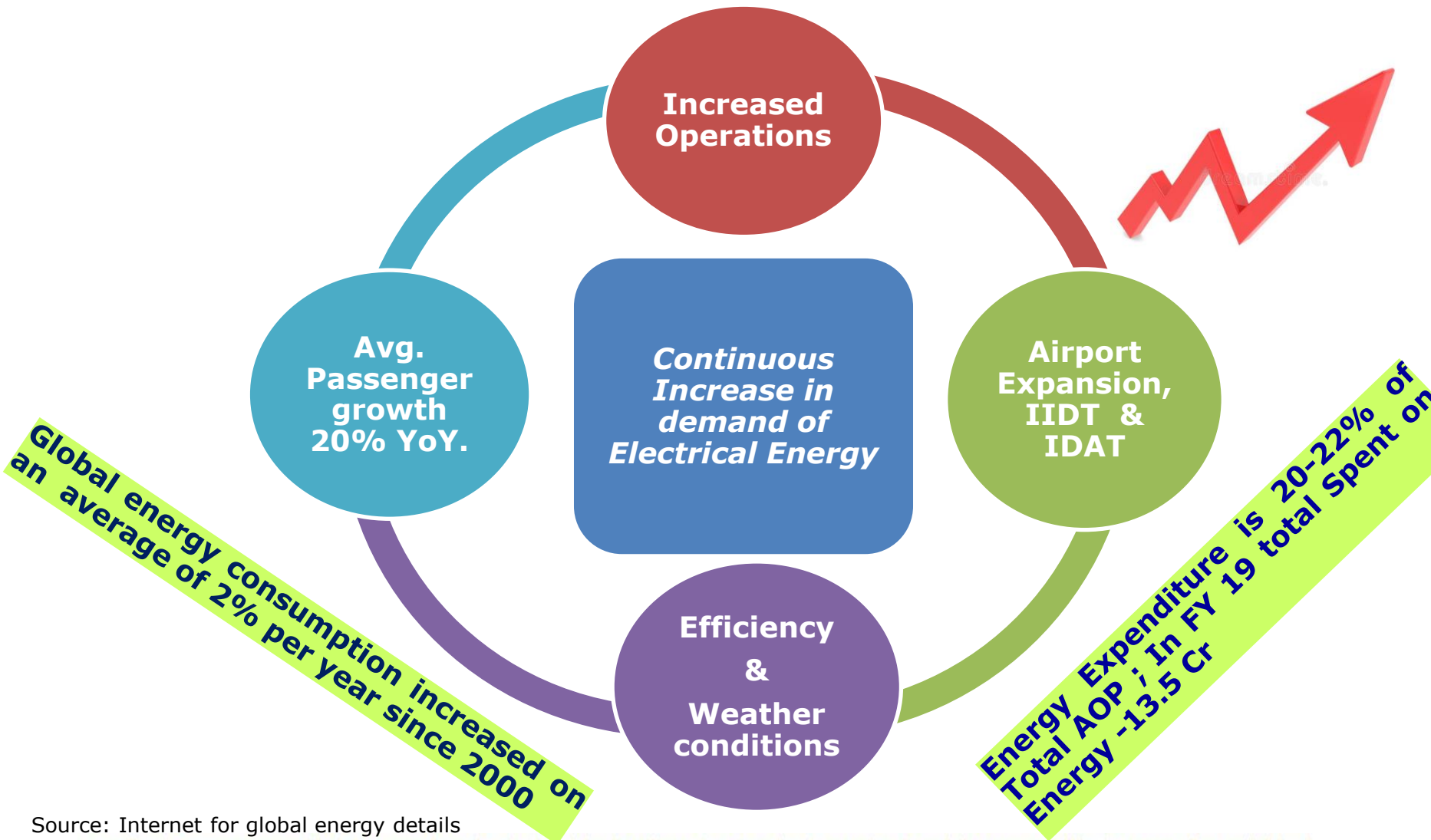
Problem Statement

Project Definition

Diagnostic Journey

Remedial Journey

Holding The Gains



Source: Internet for global energy details

Mission Statement

Project Definition

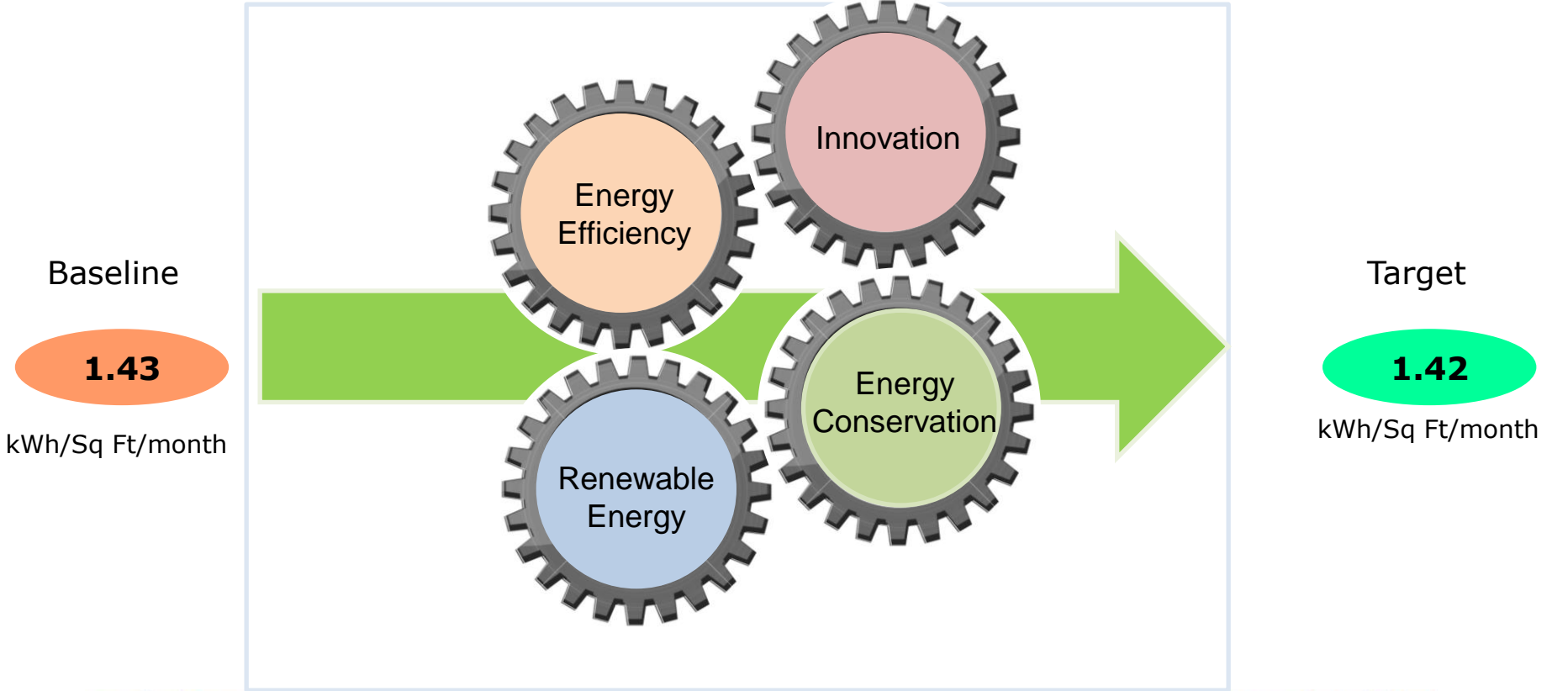
Diagnostic Journey

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Project Scope: Optimizing GHIAL Net Energy Consumption (exclusion of concessionaires)

Project Objective: To reduce GHIAL-SEC (Specific Energy Consumption) from 1.43 to 1.42 kWh/Sq Ft./Month



Additional Load due to added Facilities



New Arrival and Departure Ramp



New East Apron



New West Apron



Interim International Departure Terminal

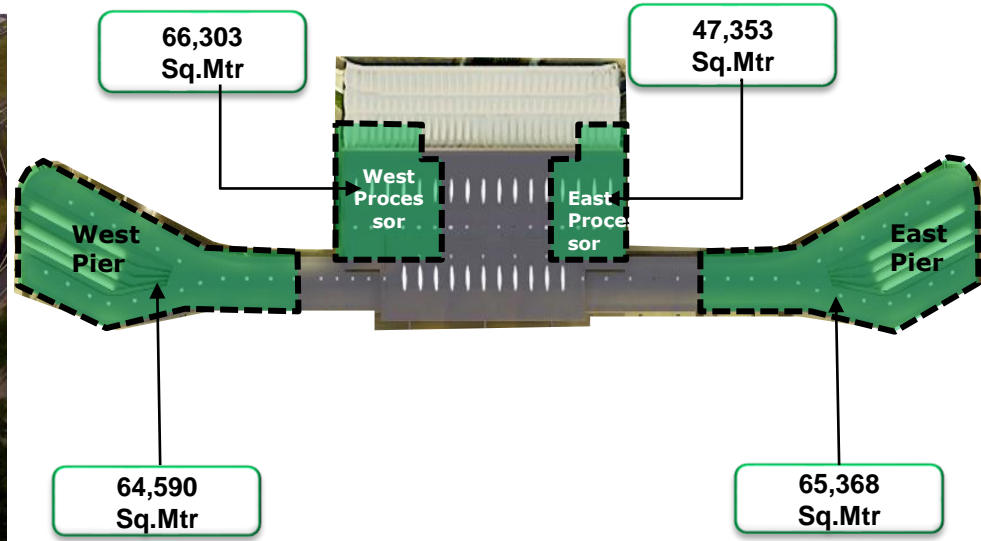


Interim Domestic Arrival Terminal



New West Express Security Lane

Enhancing Airport Capacity



Passenger Terminal Building (Area in Sq. Mts.)

Level	Existing Floor Area 12 MPPA	New Floor Area 34 MPPA	Total Floor Area 34 MPPA
Total	1,21,281	2,48,809	3,70,090

Air Side & Land Side Operational Area (Area in Sq. Mts.)

Level	Existing Area 12 MPPA	New Area 34 MPPA	Total Area 34 MPPA
Apron	1,64,676	2,37,565	4,02,241
Taxiways	1,87,286	4,64,626	6,51,912
Total	3,51,962	7,02,191	10,54,153

GHIAL Mission:

To establish Hyderabad Airport as South & Central India’s Gateway of Choice, Preferred Logistics Hub, India’s largest Aerotropolis and Attain Sustainable Growth by

- Delivering Customer Delight
- Effective Stakeholder Engagement
- Inculcating innovation & Infusing technology
- Being a Preferred Organization to Work

- ➔ Sustainable Business
- ➔ ***Environmental Sustainability***
- ➔ ***Optimization of natural resources for future generations***
- ➔ Promotion of Green initiatives to motivate Society
- ➔ Giving back to – Society (CSR Initiatives)

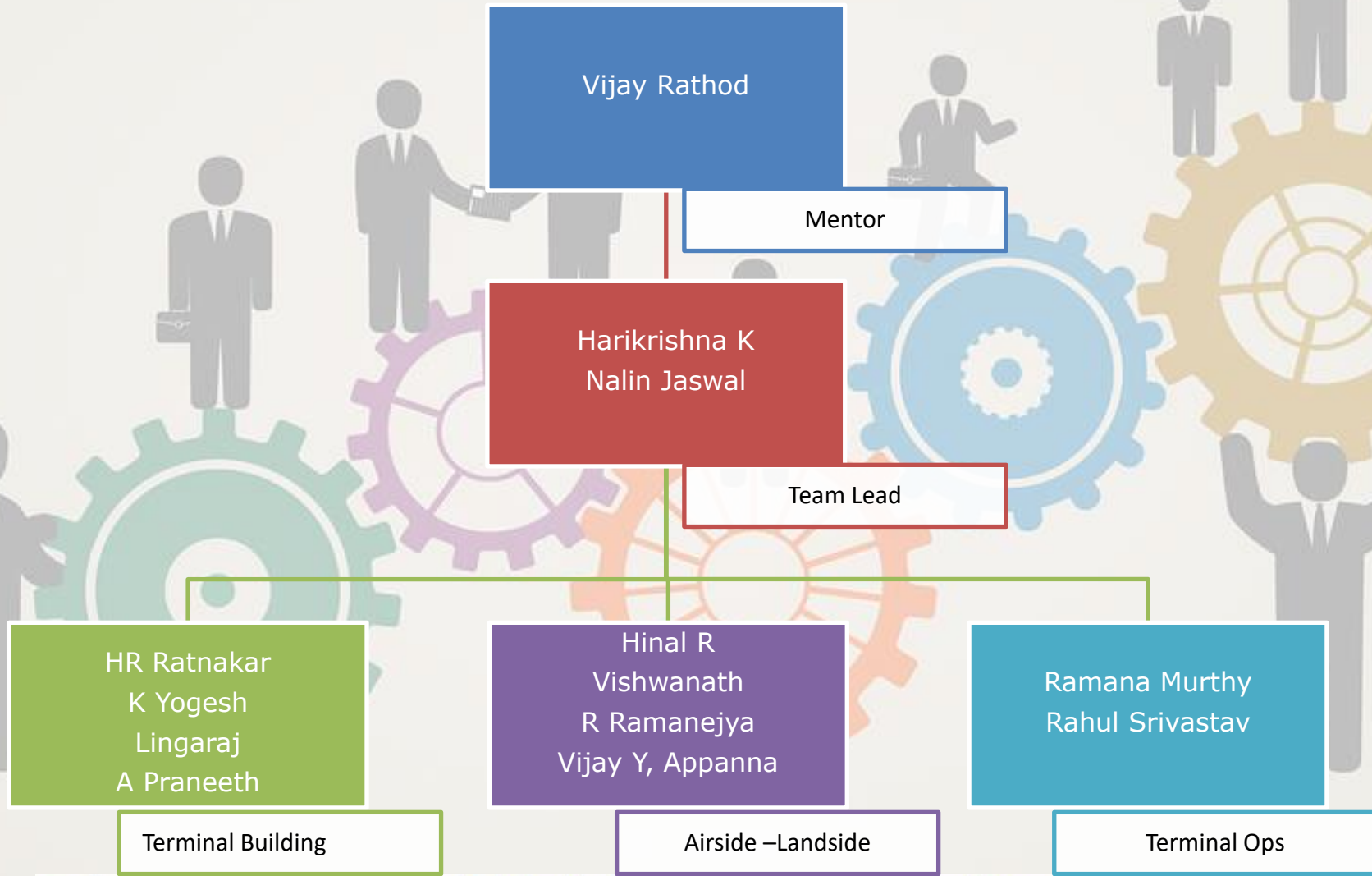
Team Constitution

Project Definition

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Initial Plan

Project Definition

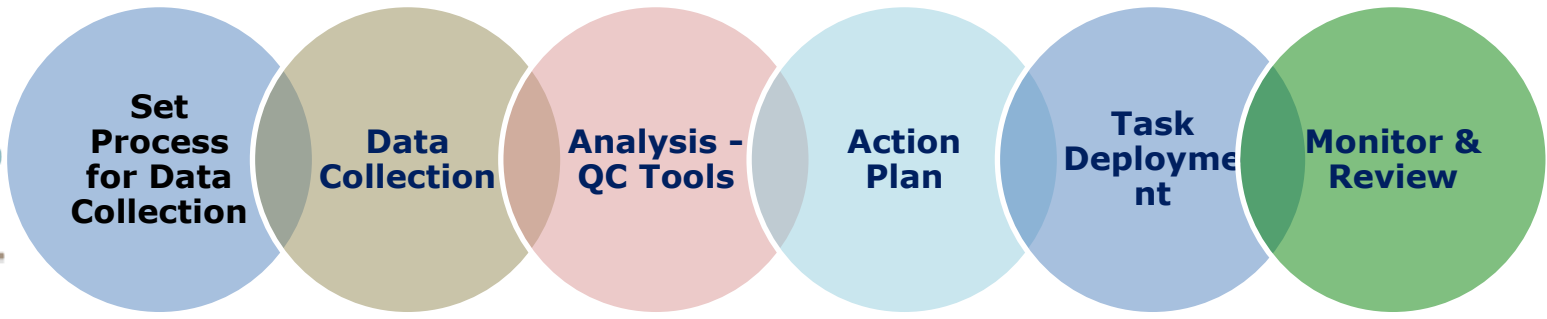
Diagnostic Journey



Remedial Journey

Holding The Gains

INITIAL STARTUP PLAN....



#	Activities		Apr-19		May-19		Jun-19		Jul-19		Aug-19		Sep-19		Oct-19		Nov-19		Dec-19		Jan-20		Feb-20		Mar-20		
			A1	A2	M1	M2	J1	J2	J1	J2	A1	A2	S1	S2	O1	O2	N1	N2	D1	D2	J1	J2	F1	F2	M1	M2	
1	Data Collection & Analysis	PLAN	█	█																							
		ACTUAL																									
2	Brainstorming & Action Plan	PLAN		█	█																						
		ACTUAL																									
3	Implementation	PLAN	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█						
		ACTUAL																									
4	Review Meetings	PLAN					█						█						█							█	
		ACTUAL																									

Methodology & Process

Project Definition

Diagnostic Journey

Remedial Journey

Holding The Gains



- ✓ Business case
- ✓ Approvals
- ✓ Project s Implementation



- Monitoring
- Review & Analysis
- MIS Reports



- ❖ Standardization
- ❖ Plan for Improvements
- ❖ Tweaking Systems

- ✦ Project Bijile
- ✦ Idea Factory
- ✦ 3rd Party Audits -TERI
- ✦ CII Forums
- ✦ KM Portal
- ✦ Technology



- Analysis
- Set Base Lines KPIs & Targets
- Action Plan

Set goals and plan

Glimpse of Previous Encon. Journey



- CT Blade angle
- CW Balancing
- AHU return fan Optimization
- Winter Operation
- VFD Installation
- Softener for CT
- Best Practices
- Solar Plant -1

3.8 Million kWh

- Chiller Plant Manager
- EC Fans
- AGL LED
- Micro Turbine
- Inverter AC - II
- Chiller Descaling
- Best Practices
- Solar Plant - 2

1.6 Million kWh



9.9 Million kWh

- Inverter AC - I
- Super Fan
- Building LED
- High Mast LED
- AGL LED
- Street Lighting LED
- Nature Switch
- IE3 Motors

2.2 Million kWh

- LED Conversion
- Chiller Descaling
- Selection of latest Energy efficient equipment
- UPS optimization
- Winter operations

Energy Portfolio

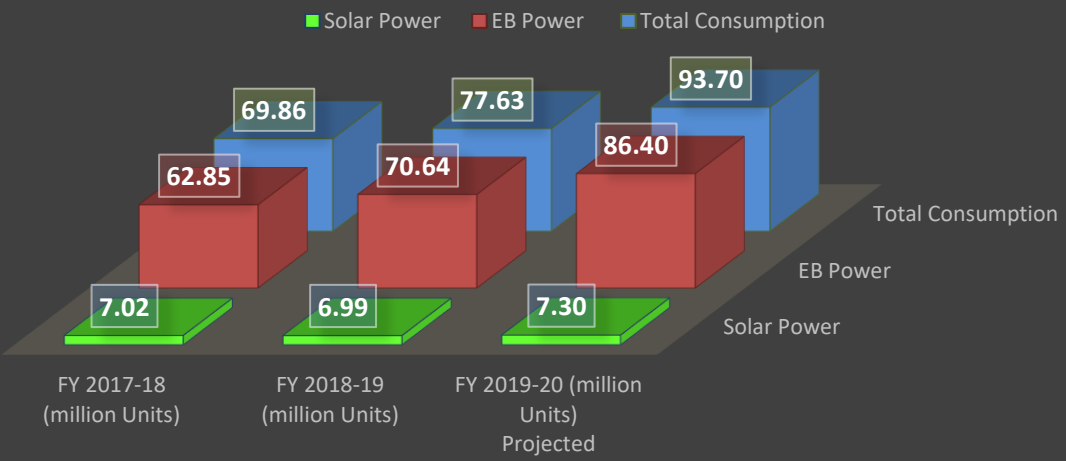
Project Definition

Diagnostic Journey

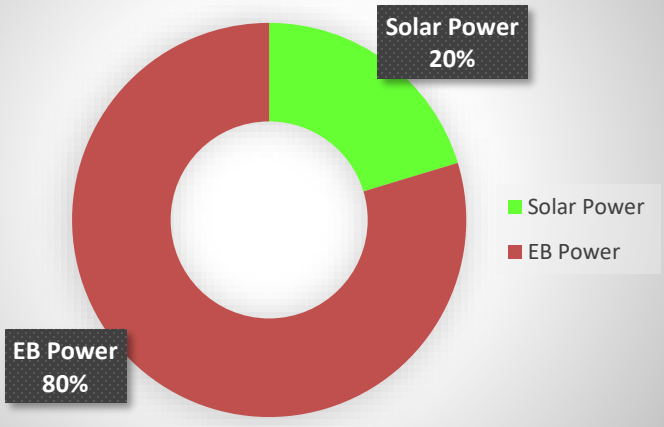
Remedial Journey

Holding The Gains

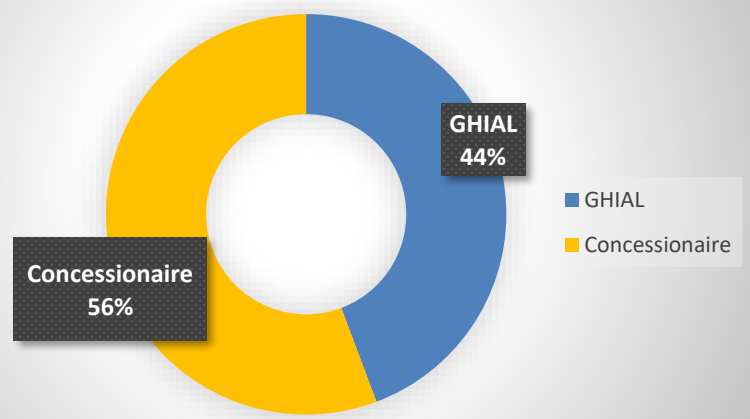
GROSS ENERGY CONSUMPTION



FY 2018-19



FY 2018 -19



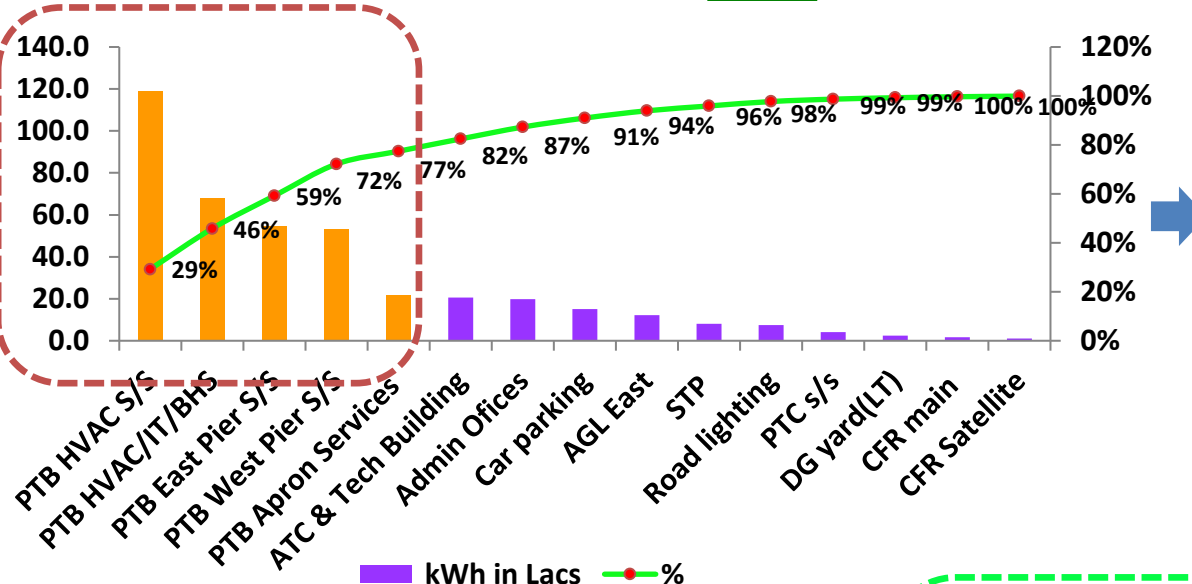
Pareto Analysis

Project Definition

Diagnostic Journey

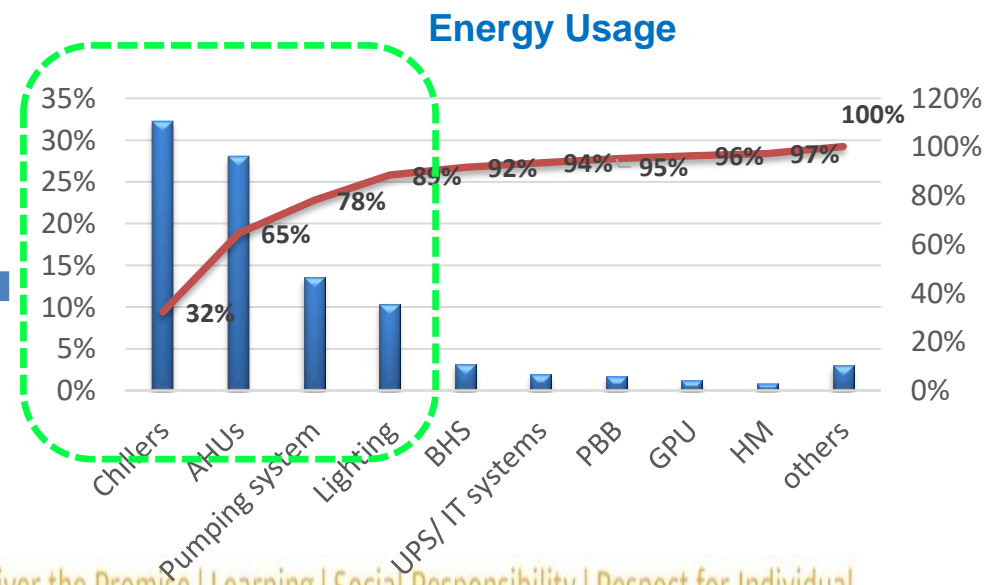
Remedial Journey

Holding The Gains

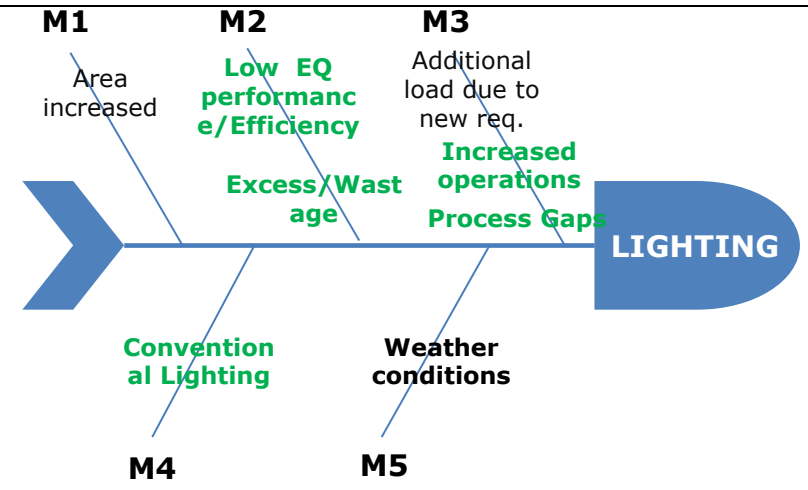
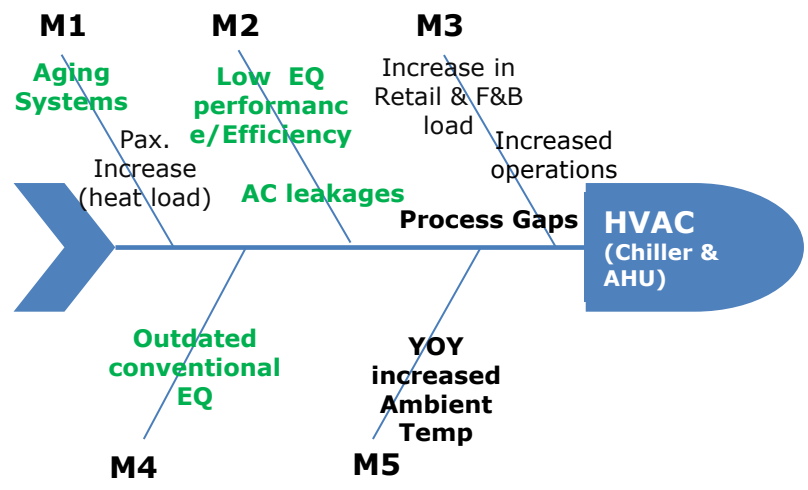


Passenger Terminal is major contributor with more than 70% of GHIAL's net consumption.

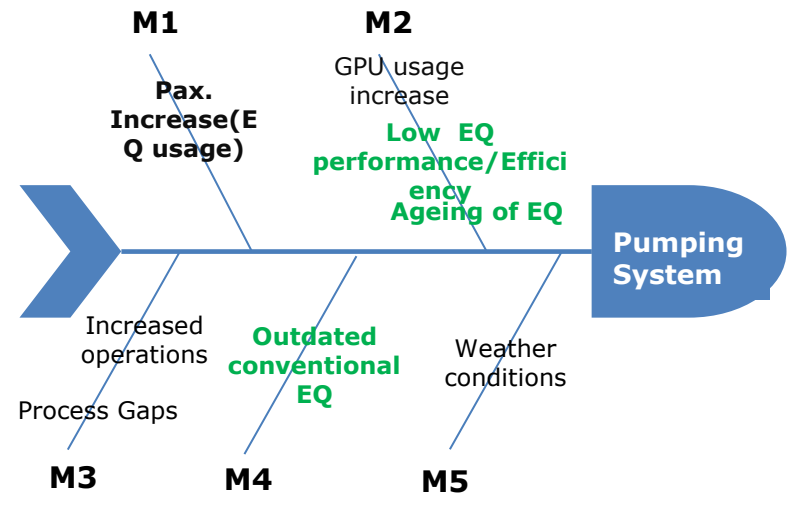
Top 4 systems (~89% of the Energy Consumed) have been analyzed further for the purpose of the Project.



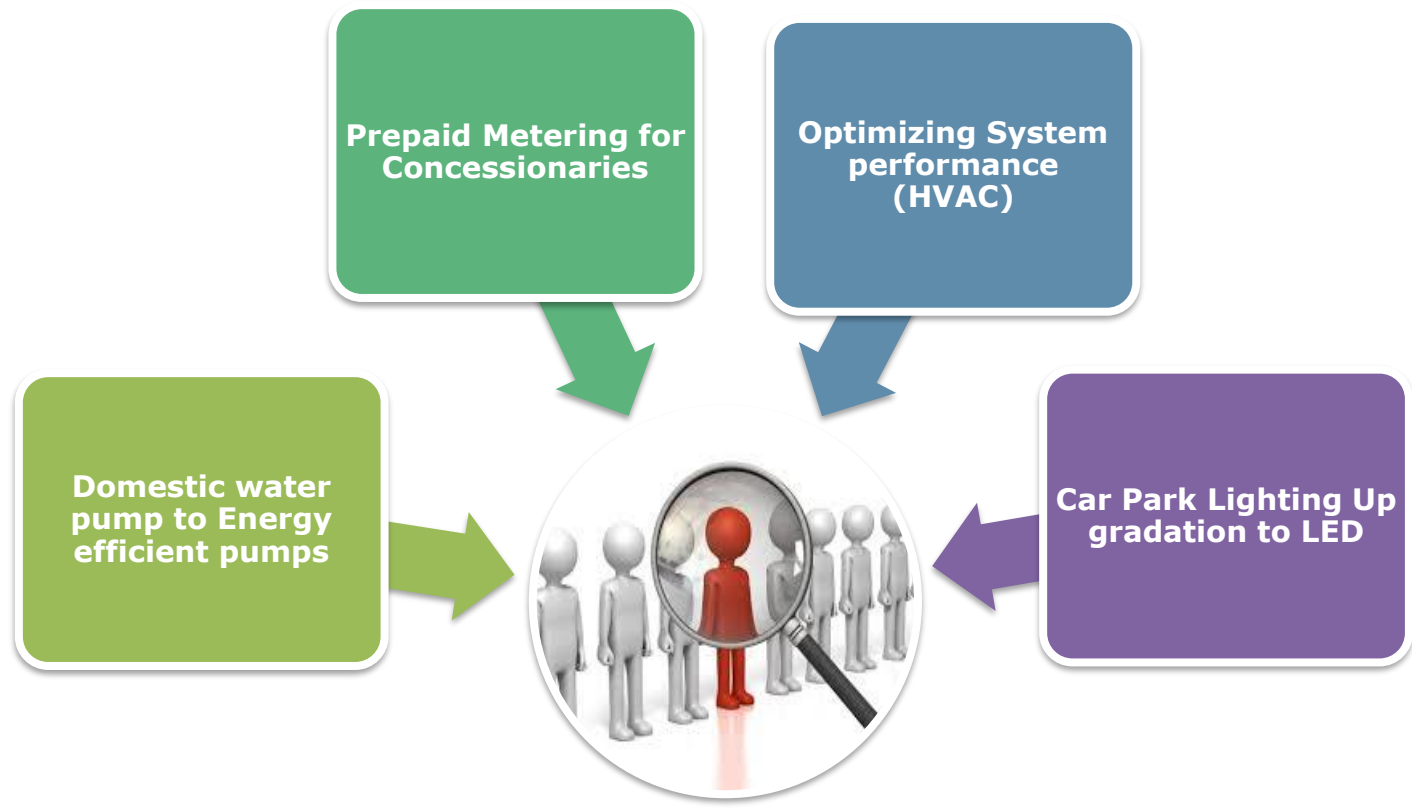
Cause & Effect Analysis



Legend:
M1 – Man
M2 – Machine
M3 – Method
M4 – Technology
M5 – Environment



The Team brainstormed on the identified factors & below mentioned initiatives were identified for implementation. Selection was based on Feasibility, Technology, Results, Payback, Life Cycle Cost and Eco-friendly



Project

Definition

Diagnostic

Journey

Remedial

Journey

Holding

The Gains

Project Title :- Car Park Lighting Up gradation to LED

In view of lower illumination in car park & to improve passenger experience and safety of passengers, we replaced conventional lamps with LED post top lamps at the median of lanes at all the Car Park zones to improve the lighting.

- 90+ Nos. of 10 Mtr. double arm pole with 90 W LED fixture & 200 W LED fixtures
- 180+ Nos. of 3 Mtr. pole with 45 W dome type LED fixtures

Advantages of INNOVATIVE Solution:-

- LED Lighting & Aesthetics Enhancement
- Safety of all the passengers experience will be improved
- Visibility of cameras recording improved.
- Illumination levels improved at all Zones & Service road
- Energy Conservation



Replication Potential :-Yes

Annualized Recurring Savings (kWh) : 0.5 Lakh

Annualized Recurring Savings (INR) : 3.6 Lakh INR

Upgrading Water Pumps

Business
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Creating an
Excellent
Tomorrow,
Today



Project

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Domestic water pump to Energy efficient pumps

GMR Hyderabad Intl Airport is maintaining Water Treatment Plant to cater Airport community water requirement

The existing Domestic pumping systems at water treatment plant of entire Airport has been upgraded with **energy efficient pumping(Hydro-Pneumatic)** systems resulting in low power consumption & it's optimal control.

The project helped in achieving higher efficiency

Replication Potential :- Yes

Annualized Recurring Savings (kWh) : 1.4 Lakh

Annualized Recurring Savings (INR) : 10.5 Lakh

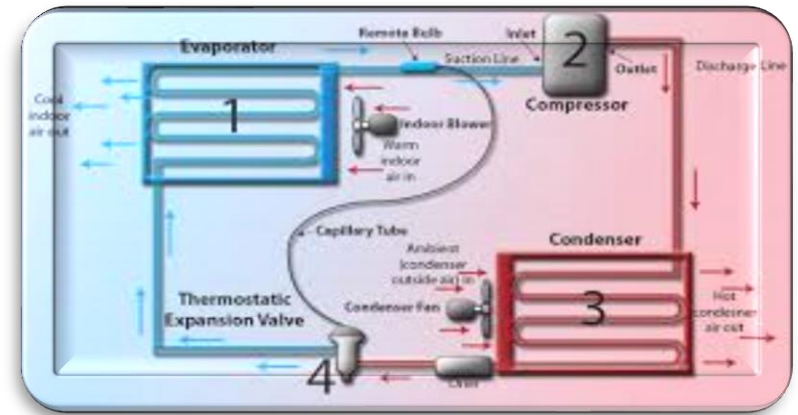


Project Title :-

Enhancing System performance (HVAC)

GMR Hyderabad International Airport is managing a huge facility and HVAC is one of the key system of Terminal and a major energy consumer, as a part of HVAC low side improvement works.

We improved the system performance by condition monitoring & also by close monitoring of all the control parameters related to Low Side



Replication Potential :- Yes

Annualized Recurring Savings (kWh) : 5.1 Lakh

Annualized Recurring Savings (INR) : 37.3 Lakh

Control Measure -Prepaid Energy Meters

Project Definition

Diagnostic Journey

Remedial Journey

Holding The Gains



Project Title :- Prepaid Energy Meters

Conversion of Concessionaire Energy billing system to Automatic billing process by adopting latest technology that provides

- Real Time monitoring-Integrated management system
- Automatic Disconnection/Connection
- Automatic Alerts mechanism
- Eliminate manual interventions

Total of 172 prepaid meters installed in PTB, which helped us to save manpower and helped to implement robust billing process.



Step 1: Click on "YOUR USAGE"



Step 2: Click on "Consumption" to know Consumption



Step 3: Click on "Billing" to know Billing pattern

Replication Potential :- Yes

Savings Achieved: Real Time Monitoring

KAIZEN- EnCon Projects by Service Partners (1/2)

Project Definition

Diagnostic Journey

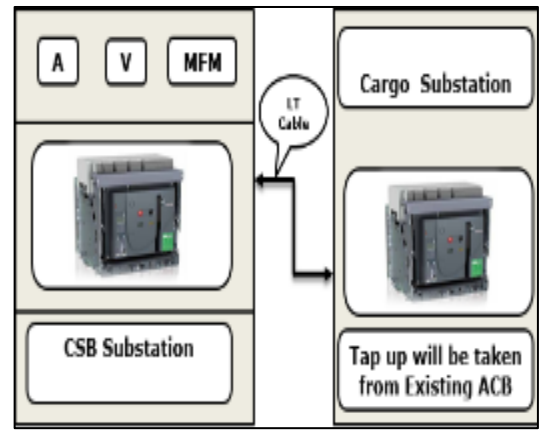
Remedial Journey

Holding The Gains

PTB CRITICAL SYSTEM STATUS

LEGEND: ● TRX, ● OVR, ● WPT, ● NORMAL, ● OVRUSE

TRANSFORMERS - HT (KVMU)			TRANSFORMER LT			BUS COUPLERS		
TRX	ON/OFF STATUS	TRIP NORMAL	TRX	ON/OFF STATUS	TRIP NORMAL	TRX	ON/OFF STATUS	TRIP NORMAL
PTB - TX-01 HT	●	●	PTB - TX-01 LT	●	●	PTB - TX-01 BC	●	●
PTD - TX-02 HT	●	●	PTD - TX-02 LT	●	●	PTB - TX-02 BC	●	●
PTB - TX-02 HT	●	●	PTB - TX-03 LT	●	●	PTB - TX-03 BC	●	●
PTB - TX-03 HT	●	●	PTD - TX-04 LT	●	●	PTB - TX-04 BC	●	●
PTB - TX-04 HT	●	●	PTD - TX-05 LT	●	●	PTB - TX-05 BC	●	●
PTD - TX-05 HT	●	●	PTB - TX-06 LI	●	●	PTB - TX-06 BC	●	●
PTB - TX-06 HT	●	●	PTB - TX-07 LI	●	●	PTD - TX-07 BC	●	●
PTB - TX-07 HT	●	●	PTB - TX-08 LT	●	●	PTB - TX-08 BC	●	●
PTD - TX-08 HT	●	●	PTB - TX-09 LT	●	●	PTD - TX-09 BC	●	●
PTB - TX-09 HT	●	●	PTB - TX-10 LT	●	●	PTB - TX-10 BC	●	●
PTB - TX-10 HT	●	●	PTD - TX-11 LT	●	●	PTB - TX-11 BC	●	●
PTB - TX-11 HT	●	●	PTB - TX-12 LT	●	●	PTB - TX-12 BC	●	●
PTD - TX-12 HT	●	●						



All HT & LT transformers and Bus couplers status integrated with IBMS.

Redundancy Provision to Cargo satellite Building



Redundancy Provision to ATC Panel



KAIZEN- EnCon Projects by Service Partners (2/2)

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Creating an Excellent Tomorrow, Today



Project Definition

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Holding The Gains



Installation of Photocell Sensor in Outdoor Signage Boards



Installed 8 no's of 3-phase new Energy meters so that Energy Consumption can be recorded.



Smoke vent doors real time open & closed status integrated with IBMS.



Energy Policy & EnMS Certificate

Project Definition

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Holding The Gains

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**. GHIAL is dedicated to achieve **excellence in energy management and sustainable growth** through measures designed to;

- Continuously supplying energy on 24x7 basis to meet the needs of Airport operations
- Identify, prevent, control and minimize energy losses in a cost effective manner
- Conserve all forms of energy sources with continual improvement in energy performance by setting and review energy objectives and targets
- Involve all employees of all levels in energy conservation efforts
- Comply with currently applicable legal and other requirements
- Ensure availability of information and necessary resources to achieve set energy management objectives and targets
- Communicate all persons working under the control of GHIAL their individual energy obligations

This shall be accomplished by:

- Adoption of energy management system to identify assess and efficiently manage all forms of energy complying with all applicable requirements
- Executing effective processes to procure energy efficient, eco-friendly technologies, products, services and equipment to promote use of renewable energy wherever applicable
- Provide education, training, motivation and direction to the employees, stakeholders, JV partners, suppliers and customers to develop more energy efficient processes
- Ensuring energy considerations in all designs, developments, modifications and improvements for maximising efficiency

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 PASSENGER TERMINAL BUILDING, AIRSIDE FACILITIES

Issue date:	20 August 2017
Recertification cycle:	19 August 2020
Certification 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.20.9070/ENU Version: 1 Revision date: 20 August 2020

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

0008

Certification body address: 5th Floor, 66 Prescott Street, London, E1 8JG, United Kingdom

Upgraded to ISO 50001-2018 standards

Daily Monitoring

Project Definition

Diagnostic Journey

Remedial Journey

Holding The Gains

Daily O&M Report					
Report Date & Time: 0000 to 2359Hrs		13 February 2020			
Day Shift :-		Hari			
Night Shift :-		Sandeep & Srinivas Ch			
BHS		VHT		Apron Systems	
Bags Per Day - Departure (Number)	13523	Serviceability Escalator(Number)	31/31	Serviceability PBB (Number)	10/10
Miss Track Bags(Number)	189	Serviceability Elevator (Number)	38/38	Serviceability GPU (Number)	16/16
Serviceability Arrival BHS (%)	100%	Serviceability Inclinator (Number)	2/2	Serviceability VDGS (Number)	22/22
Serviceability Departure BHS (%)	100%	Serviceability Aerial Platform (Number)	12/12	Serviceability HM Airside(Number)	33/33
HBS - No. of bags Screened at L4	1726	Status of EMS (Elevator Monitoring Sys.)		Serviceability HM Landside (Number)	23/23
B/D of equipment (hrs.)	0	B/D of equipment (hrs.)		B/D of equipment (hrs.)	0
Screening System		HVAC		Electrical	
Serviceability Baggage screening machines	63/63	Chiller Load (TR)	24801.20	Total Consumption	236000
Serviceability DFMD (Numbers)	74/74	Chilled Water dt (Deg C)	5.6	Gross Consumption PTB (kWh)	95085.2
ATR Serviceability (Number)	10/10	Condenser Water dt (Deg C)	4.4	Gross Consumption ALS (kWh)	140914.8
	0	Average Ambient temperature (deg C)	23.7		
		Max. Ambient Temp (Deg C)	29	DG Yard - Status (Ok/Not Ok)	ok
		R.Humidity	57%	Serviceability of BMS (Ok/Not Ok)	ok
		Serviceability Chiller (Number)	7/7	Power Consumed by PTB Chillers kWh	15671.00
		Serviceability AHU (Number)	103/103	Pax Area Lighting Number -Fittings (w /Nw)	w
		CPM (Chiller Plant Manager) Status	OK	Maximum Demand (MVA)	11.02
		IKW-PTB	0.63	Power Consumed by IIDT Chillers kWh	1467
		IIDT Chiller Load (TR)	3013.39	Power Consumed by NOB Chillers kWh	1030.0
		IKW -IIDT	0.49	Power Consumed by PSOB Chillers kWh	896.2
		NOB Chiller Load (TR)	1578.00	Power consumed by IDAT HVAC VRF Units kWh	705
		IKW-NOB	0.65	Chillers Auxiliaries Consumption - HVAC kWh	3821
		PSOB Chiller Load (TR)	1148.07		
		IKW-PSOB	0.78		
		B/D of equipment (hrs.)	0	B/D of equipment (hrs.)	0

Daily Energy Monitoring Report Chaired by EVP

Energy Consumption Report																					
18-Feb-2020																					
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 17.02.2020	7080	13476	5960	14364	9071	10980	6316	7702	9696	4077	0	3848	92570	19785	40:30:00	32.0	23.5	6184	1570	63,569	1.46
Consumption on 18.02.2020	5384	13488	6516	14664	9159	11084	6360	7994	10642	4005	0	4258	93553	18600	36:00:00	32.0	18.0	5939	1465	60,266	1.55
Difference Comparison with previous day	(1,128)		300	88	104	44	292	946	(72)	410	984	(1,185)	4:30:00	0.0	-5.5	(245)	(105)	(3,303)	0.10		
Consumption on 18.02.2019	7708	12784	7416	14392	8505	9896	6274	5351	10694	3886.8	0	3752	90659	22885	37:40:00	32.0	21.0	6310	0	63337	1.43
Difference Comparison with previous year	(2,520)		272	654	1,188	86	2,643	(52)	118	506	2,894	(4,285)	1:40:00	0.00	-3.00	(371)	1,465	(3,071)	0.12		

Comparing Power Consumption pattern - Earlier Day and Same day last year

Daily Monitoring



Project Definition

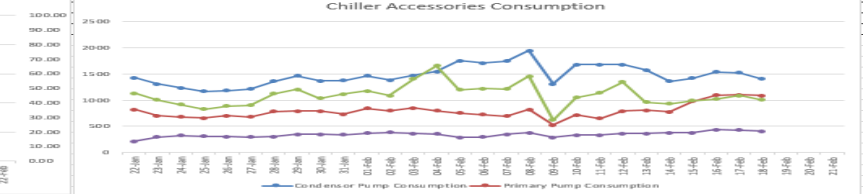
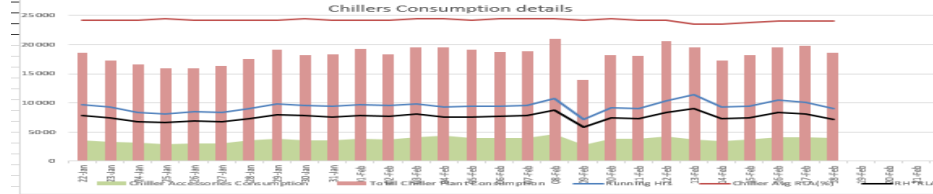
Diagnostic Journey

Remedial Journey



Holding The Gains

DATE	CHILLER RUNNING HOURS	Reading Hrs	Chiller Avg PLAC	RR*PLA	Chiller Plant Coefficient	Chillers Coefficient	Condenser Pump Coefficient	Evaporator Pump Coefficient	Primary Pump Coefficient	Secondary Pump Coefficient	GT Coefficient	Max Temp °C	Min Temp °C	IDT Coefficient	IDAT Coefficient	BHS(PTD) Coefficient	High Mast Coefficient
22-Jan	38:45:00	38.75	37	31.3	18567.0	14972	3595	1429	822	1130	214	31	20	5390	1360	6300	768
23-Jan	37:00:00	37.00	37	29.9	17320.0	14008	3314	1311	704	1003	296	30	19	5578	1348	6645	794
24-Jan	33:25:00	33.42	37	27.0	16605.0	13440	3165	1236	693	918	328	30	19	5620	1362	6373	798
25-Jan	32:30:00	32.50	36	26.5	15901.0	12939	2962	1165	658	830	308	30	20	5443	1328	7213	800
26-Jan	33:50:00	33.83	37	27.3	15977.0	12898	3079	1181	701	891	306	32	20	5626	1368	6335	771
27-Jan	33:40:00	33.67	37	27.2	16329.0	13242	3067	1212	679	903	293	32	20	5597	1401	6909	802
28-Jan	36:20:00	36.33	37	29.4	17478.0	13905	3573	1362	785	1123	303	31	21	5679	1434	6418	836
29-Jan	39:30:00	39.50	37	31.9	19115.0	15312	3803	1466	789	1203	345	31	19	5658	1434	6687	761
30-Jan	36:05:00	36.08	36	31.1	18227.0	14684	3543	1369	795	1032	347	31	19	5766	1361	7162	834
31-Jan	37:30:00	37.50	37	30.3	18393.0	14744	3566	1376	730	1116	340	31	18	5617	1361	6564	793
01-Feb	38:30:00	38.50	37	31.1	19326.0	15474	3852	1464	842	1175	371	33	24	5674	1450	6443	796
02-Feb	38:05:00	38.08	37	30.8	18304.0	14646	3558	1385	798	1088	367	33	24	5631	1337	7251	779
03-Feb	39:25:00	39.42	36	32.2	19596.0	15512	4094	1469	849	1405	361	33	24	5622	1328	6894	817
04-Feb	37:00:00	37.00	36	30.2	19539.0	15190	4349	1548	796	1653	352	30	19	5616	1359	6888	794
05-Feb	37:30:00	37.50	37	30.3	19194.0	15209	3985	1749	754	1196	286	32	21	5937	1340	6319	793
06-Feb	37:30:00	37.50	36	30.6	18726.0	14771	3957	1727	727	1220	299	32	19	5676	1351	6335	785
07-Feb	36:00:00	36.00	36	31.0	18903.0	14893	4004	1742	695	1216	349	33	19	5656	1539	6683	785
08-Feb	42:50:00	42.83	38	35.0	21011.0	16409	4602	1943	823	1457	373	32	21	5773	1437	7051	782
09-Feb	28:35:00	28.58	37	29.1	14003.0	11249	2794	1311	529	622	292	25	27	5367	1344	6666	789
10-Feb	36:40:00	36.67	36	29.3	18177.0	14445	3772	1676	714	1052	330	29	21	5449	1266	6642	778
11-Feb	36:15:00	36.25	37	29.3	18102.0	14300	3802	1677	648	1142	335	31	17	5587	1393	6499	783
12-Feb	41:10:00	41.17	37	33.3	20699.0	16435	4174	1675	790	1344	365	30	23	5601	1428	6442	784
13-Feb	36:40:00	36.67	36	29.3	18177.0	14445	3772	1676	714	1052	330	29	21	5449	1266	6642	778
14-Feb	36:55:00	36.92	34	28.9	17303.0	13856	3447	1560	779	931	377	31	18	5657	1468	6718	731
15-Feb	37:50:00	37.83	35	30.0	18203.0	14446	3757	1416	974	991	376	30	19	5777	1501	6769	675
16-Feb	41:50:00	41.83	36	32.5	19580.0	15936	4095	1536	1017	1337	437	32	19	6027	1472	6722	780
17-Feb	40:30:00	40.50	36	32.4	19785.0	15648	4137	1521	1101	1085	430	32	24	6184	1570	6730	668
18-Feb	36:00:00	36.00	36	28.8	18600.0	14694	3906	1405	1087	1004	410	32	18	5939	1465	6498	671



Daily monitoring of Chiller Plant, other equipment performance



Chiller Plant Manager

CHILLER PLANT DAILY MIS REPORT

DATE	Max	Min	Avg
ENTRANSA	28.9	21.1	25.0
REF	26.9	24.8	24.8
EXIT	24.9	24.2	24.6
CONDENSER PUMP	57.6	31.8	36.8
EVAPORATOR PUMP	52.8	38.8	45.8
DRIVE MOTOR	11.8	11.4	11.4

Chiller Plant Daily MIS Report



Power Generation SMS from Solar Plant

Energy Monitoring – Best Practices

Project Definition

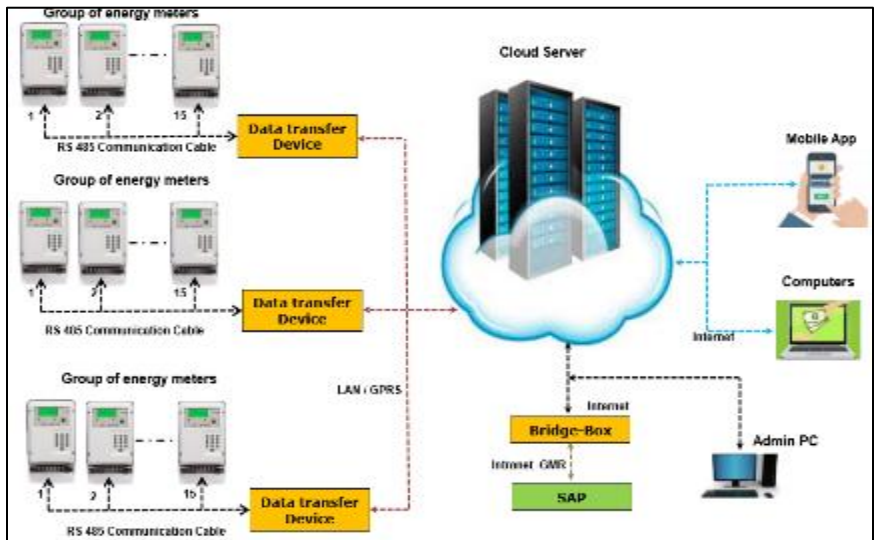
Diagnostic Journey

Remedial Journey

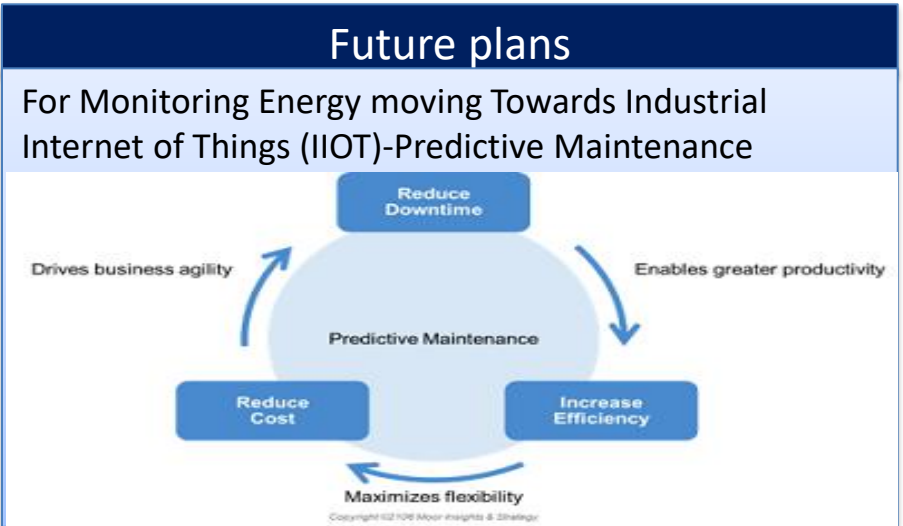
Holding The Gains



Vibration Meter- Condition Based Monitoring of Equipment



Prepaid energy Monitor-concept of Hardware



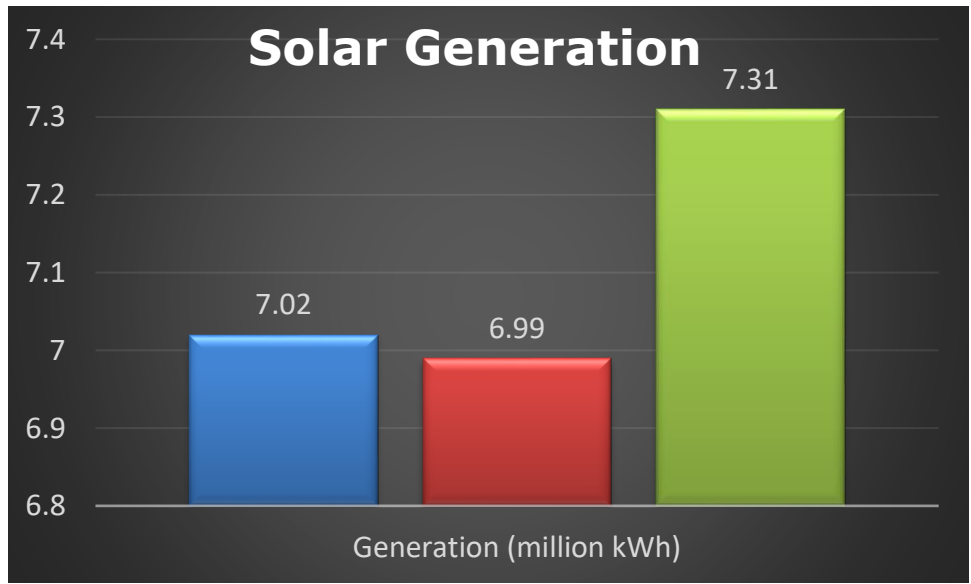
Utilization of Renewable Energy Sources

Project Definition

Diagnostic Journey

Remedial Journey

Holding The Gains



Robotic Machine for Panel Cleaning

Technology	Type of Energy	Location	FY	Installed Capacity (MW)	Generation (Million kWh)
Solar PV	Electrical	Onsite	2017-18	5 MW + 5 MW*	7.02
			2018-19	5 MW + 5 MW#	6.99
			2019-20	5 MW + 5 MW#	7.31

* Under Commissioning ; # Under Approval

Summary of Initiatives & Benefits



Project Definition

Diagnostic Journey

Remedial Journey

Holding The Gains

#	Activities		Apr-19		May-19		Jun-19		Jul-19		Aug-19		Sep-19		Oct-19		Nov-19		Dec-19		Jan-20		Feb-20		Mar-20	
			A1	A2	M1	M2	J1	J2	J1	J2	A1	A2	S1	S2	O1	O2	N1	N2	D1	D2	J1	J2	F1	F2	M1	M2
1	Data Collection & Analysis	PLAN																								
		ACTUAL																								
2	Brainstorming & Action Plan	PLAN																								
		ACTUAL																								
3	Implementation	PLAN																								
		ACTUAL																								
4	Review Meetings	PLAN																								
		ACTUAL																								

S. no	Energy saving Projects	Annualised Recurring Savings in units	Annualised Recurring Savings @ INR 7.30	Savings in units for FY20 as per MAG	Savings @ INR 7.30 for FY 20 as per MAG
1	Car Park Lighting Up gradation to LED	49706	362852	37449	1,97,074
2	Upgrading Water Pumps	143389	1046741	35847	1,73,345
3	Enhancing System performance (HVAC)	510578	3727222	2,12,741	15,53,009
TOTAL		7,03,673	51,36,815	2,86,038	19,23,429

Results

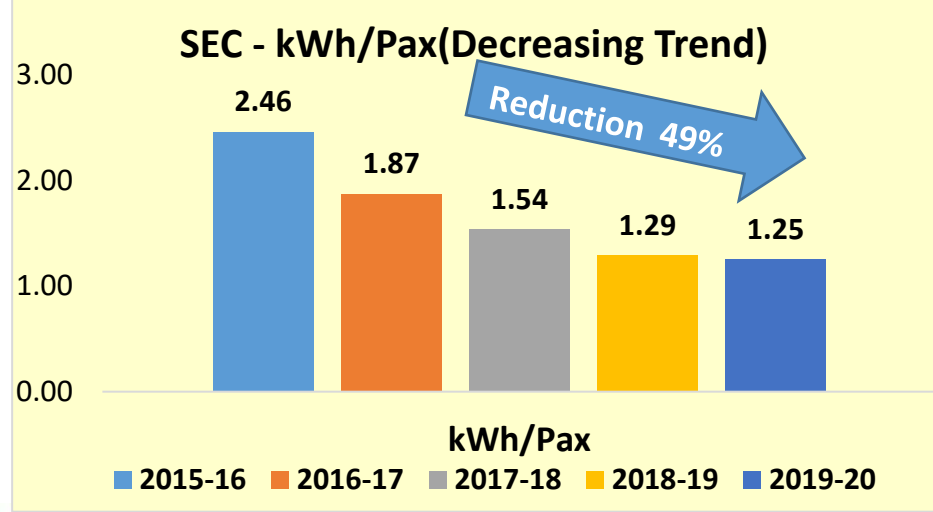
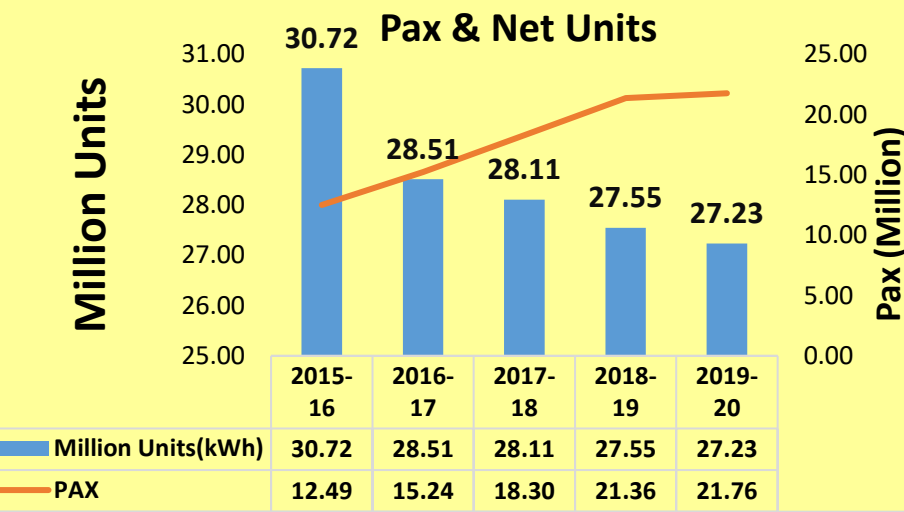
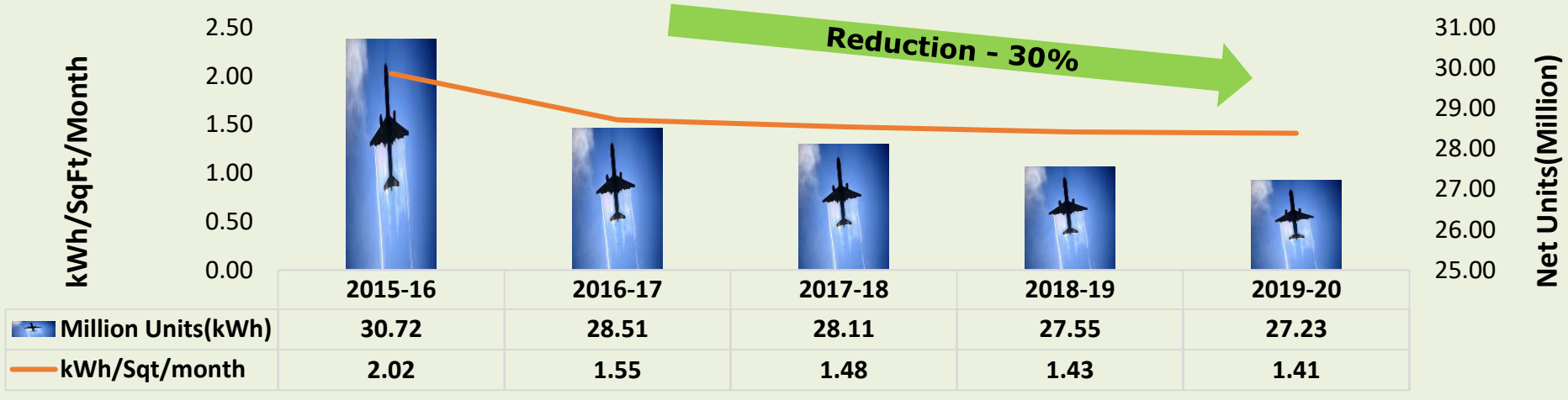
Project Definition

Diagnostic Journey

Remedial Journey

Holding The Gains

Net Units and kWh/SqFt/Month



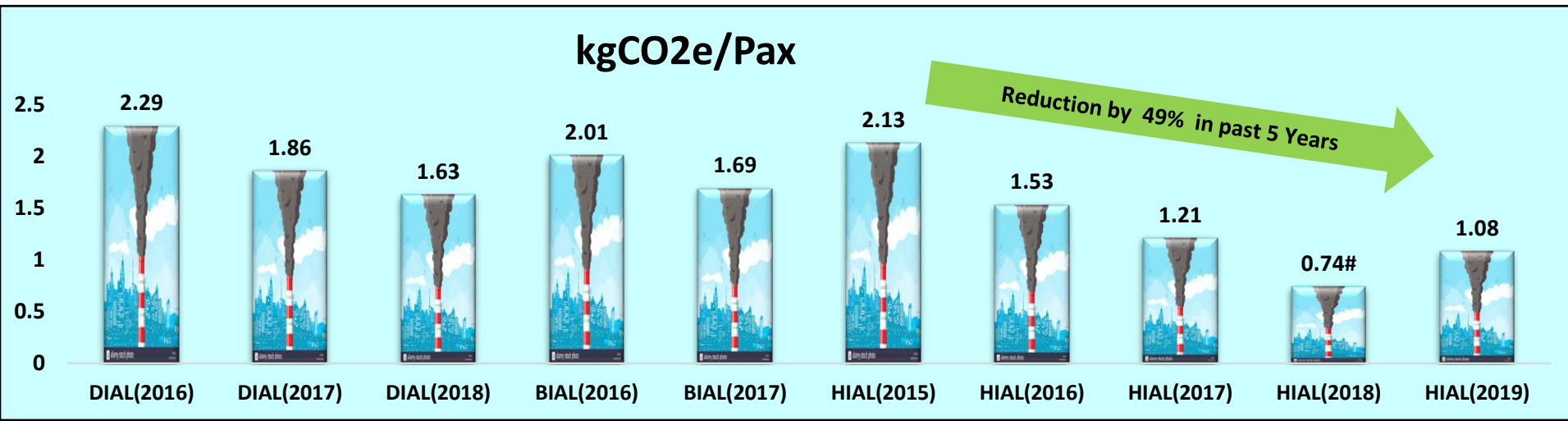
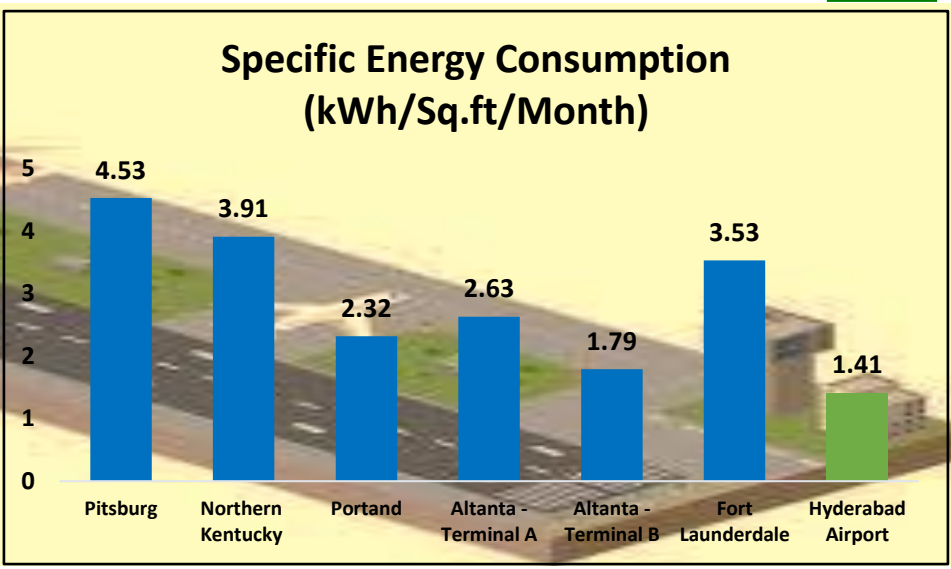
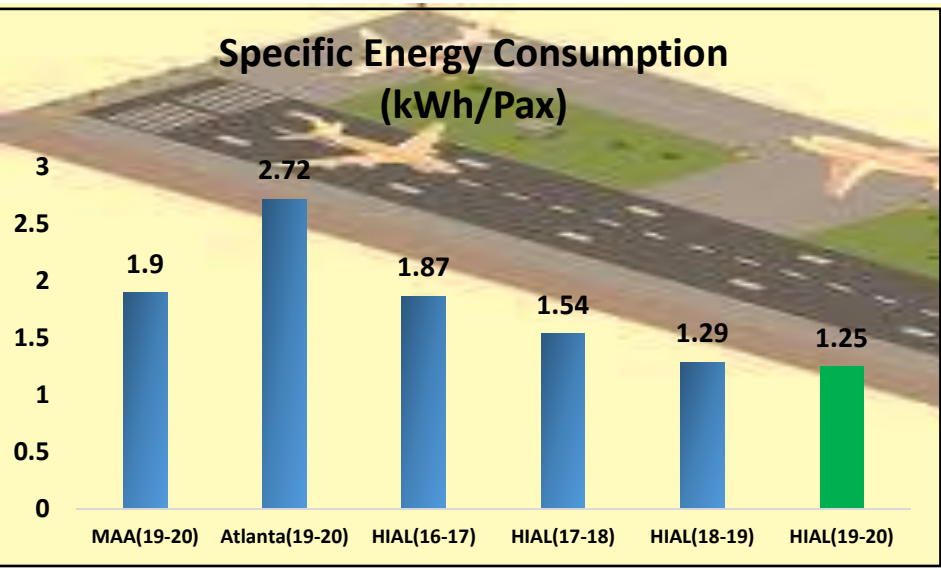
Benchmark Airports – Power & Emissions

Project Definition

Diagnostic Journey

Remedial Journey

Holding The Gains



Source: Internet for global energy details

Learning & Sharing

Project Definition

Diagnostic Journey

Remedial Journey

Holding The Gains

Skill Enhancement & Certification Program

BEE Certified Energy Manager – 2 Members

Senior Members of the team are Panel Members @ CII Hyderabad

10 Members - Internal Auditor (EnMS ISO 50001:2018)

Lean Six Sigma (Green Belt)- 20 Members

Knowledge Sharing Sessions Airports & Conferences

Water Treatment-DIAL

AGL system – MIAL

Maintenance Practice – Kannur Intl Airport

Best Maintenance Practices- Singapore

AGL Maintenance- Singapore

Industrial Visits:

DuPont

Schneider

Dr. Reddy Lab

Divyashree

Organizations visited GHIAL

Delhi Intl Airport Ltd

Cochin Intl Airport Ltd

Airport Authority of India

Training GETS

Knowledge Sharing Session :- 38 No's of Session Provided to GET at Aviation Academy

Awards and Certificates (1/3)



CII National Energy Leader Award in Aug 2020



CII National Energy Efficient Unit



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

**“National Energy Leader”
First Airport in INDIA to received this Award TWICE**

- Certifications:
- ISO 9001: 2015
 - ISO 14001: 2015
 - OHSAS – ISO 45001:2018
 - 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



Won “Telangana State Energy Conservation Awards - 2020 (TSECA)” presented by CMD TRANSCO Mr. D. PRABHAKAR

Awards and Certificates (3/3)



Received CII's Performance Excellence Award in Ground Mounted Solar Category



Submitting Maximum No. of Kaizen's

Roadmap for being Global Leader in Energy Efficiency.....

Business Excellence
Creating an Excellent Tomorrow, Today



Project Definition

Diagnostic Journey

Remedial Journey

Holding The Gains

