HCL Technologies Ltd,

Jigani Campus, Bangalore

Presented by :

Halaswamy MC (Deputy General Manager - GWS)

Lakshmanamoorthy J (Group Manager - GWS)

Arumugam S (Senior Manager -GWS)

“22nd National Award for Excellence in Energy Management 2021”

Company Profile

HCL Technologies is a next-generation global technology company that helps enterprises reimagine their businesses for the digital age. Our technology products and services are built on four decades of innovation, with a world-renowned management philosophy, a strong culture of invention and risk-taking, and a relentless focus on customer relationships**. HCL** also takes pride in its many diversity, social responsibility, sustainability, and education initiatives. Through its worldwide network of R&D facilities and co-innovation labs, global delivery capabilities, and over **176,000+ 'Ideapreneurs**' across **50 countries**, **HCL** delivers holistic services across industry verticals to leading enterprises, including **250** of **the Fortune 500 and 650 of the Global 2000.**

Enterprises across industries stand at an inflection point today. In order to thrive in the digital age, technologies such as analytics, cloud, IoT, and automation occupy center stage. In order to offer enterprises, the maximum benefit of these technologies to further their business objectives, **HCL** offers an integrated portfolio of products and services through three business units. These are **IT and Business Services (ITBS), Engineering and R&D Services (ERS), and Products and Platforms (P&P).**

US$ 10.54 BN
REVENUE

OVER 157
NATIONALITIES

OPERATING IN 50
COUNTRIES

176,000+
IDEAPRENEURS

Awards and Recognitions:

HCL

Proudly Certified™ as a Great Place to Work®

Thank you for making us a Great Place to Work®, USA, 2021

Great Place To Work. Certified JUL 2021-JUL 2022 USA

Great Place To Work. India's Best Employers Among Nation-Builders 2021

NASSCOM

HCL won the NASSCOM Corporate Award for Excellence in Gender Inclusion 2019

HCL Tops the **Edelweiss ESG** Scorecard & Ratings

Brandon Hall GROUP HCM EXCELLENCE AWARDS GOLD EXCELLENCE IN CORPORATE INITIATIVES 2020

HCL won the Gold award for the 'Best Inclusion and Diversity Strategy' in Brandon Hall Group: HCM Excellence Awards 2020

Forbes | 2020 WORLD'S BEST EMPLOYERS POWERED BY STATISTA

Secured top honors at the 'DivHERsity Awards' presented by jobsforher.com 2020 for Top5 Most Innovative Practices - DivHERsity Programs

HCL

Organization Structure:

Nalin Mittal
Global Lead -GWS

Ragupathy Vaidyanathan
India Lead -GWS

Halaswamy MC
Regional Lead -GWS

Arumugam Subramani
Lead COE-GWS

Lakshmanamoorthy J
Engineering Lead-Karnataka

Kumar G
Site Eng. Lead

Saravanan. M
Certified Energy Manager
(EA32340)

Facility Overview

Building ISO Certifications
ISO 9001:2015
ISO 14001:2015
ISO 45001:2018
ISO 50001:2018
ISO 27001:2013
ISO 22301:2012
PROTEK – POSI

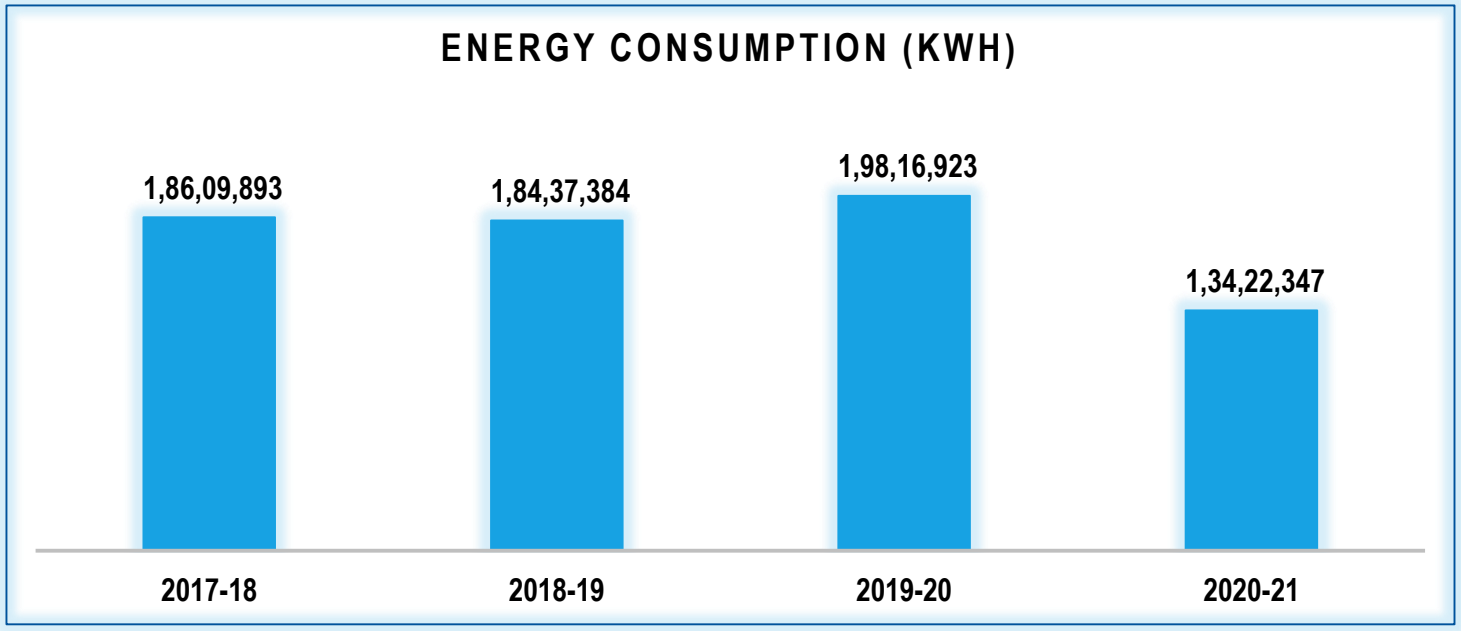
❑ Nature of Property	: SEZ, Owned
❑ Built up Area	: 27 Acres
❑ Landscape Area	: 9 Acres
❑ Seating Capacity	: 10,497
❑ Avg. Head count	: 8220
❑ Blocks	: Tower 1 to 4, Cafe
❑ Tower 1,2,3	: GF to 5 Floors
❑ Tower 4	: GF, LG, 12 Floors
❑ Incoming Power Supply	: 11 KV
❑ Sanctioned Demand	: 5 MVA
❑ Transformer Capacity	: 7 * 1.2 MVA
❑ Diesel Generator Capacity	: 9 * 1.5 MVA
❑ UPS Capacity	: 4300 KVA
❑ Chiller Capacity	: 1800 TR + 1560 TR
❑ PAC Capacity	: 190 TR
❑ Elevators	: 38 Nos.
❑ Building Certified	: BEE - 5*, IGBC-Platinum*

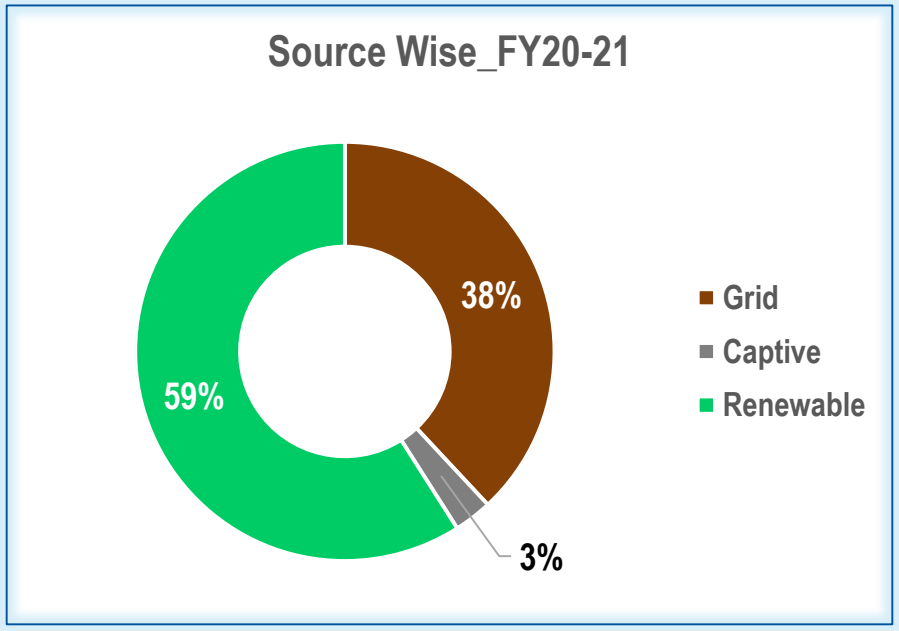
Address: HCL Technologies Limited,

No. 129, Jigani Bommasandra, Link Road, Jigani Industrial Area, Bangalore, Karnataka Pin Code : 562106

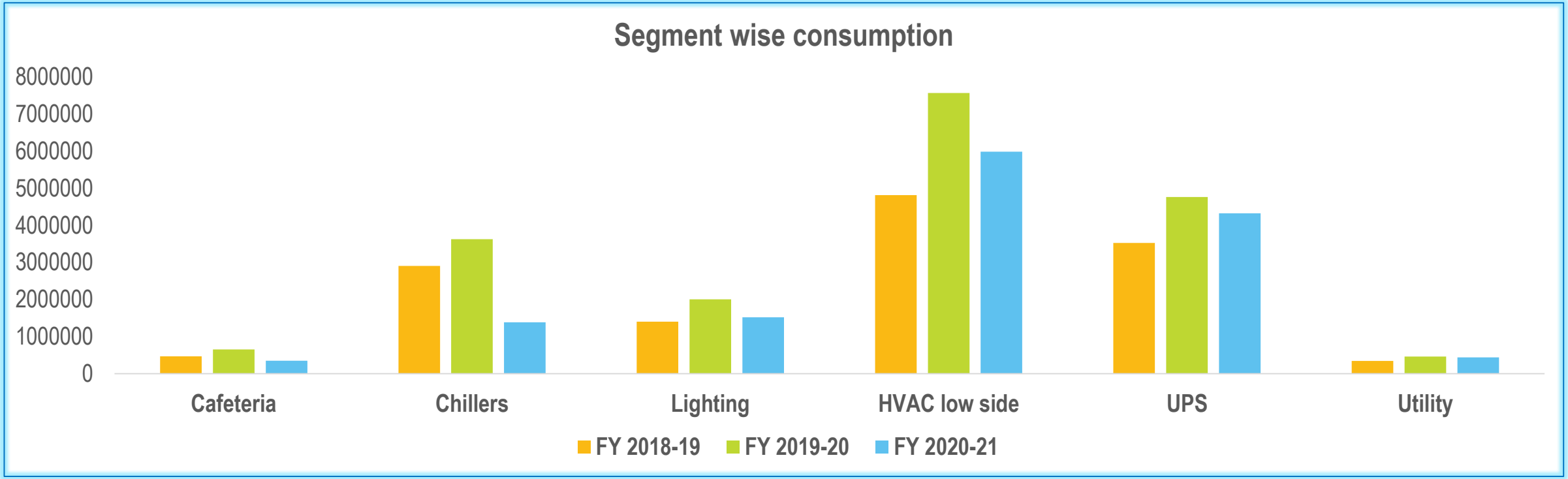
Energy Consumption Overview

Source of Energy	2017-18	2018-19	2019-20	2020-21
Grid Consumption (KWh)	5,175,750	5,490,962	6,033,500	5,107,500
Captive Consumption (KWh)	2,254,143	661,384	413,423	394,847
Renewable Power Consumption (KWh)	11,180,000	12,285,038	13,370,000	7,920,000
Total Energy Consumption (KWh)	**18,609,893**	**18,437,384**	**19,816,923**	**13,422,347**





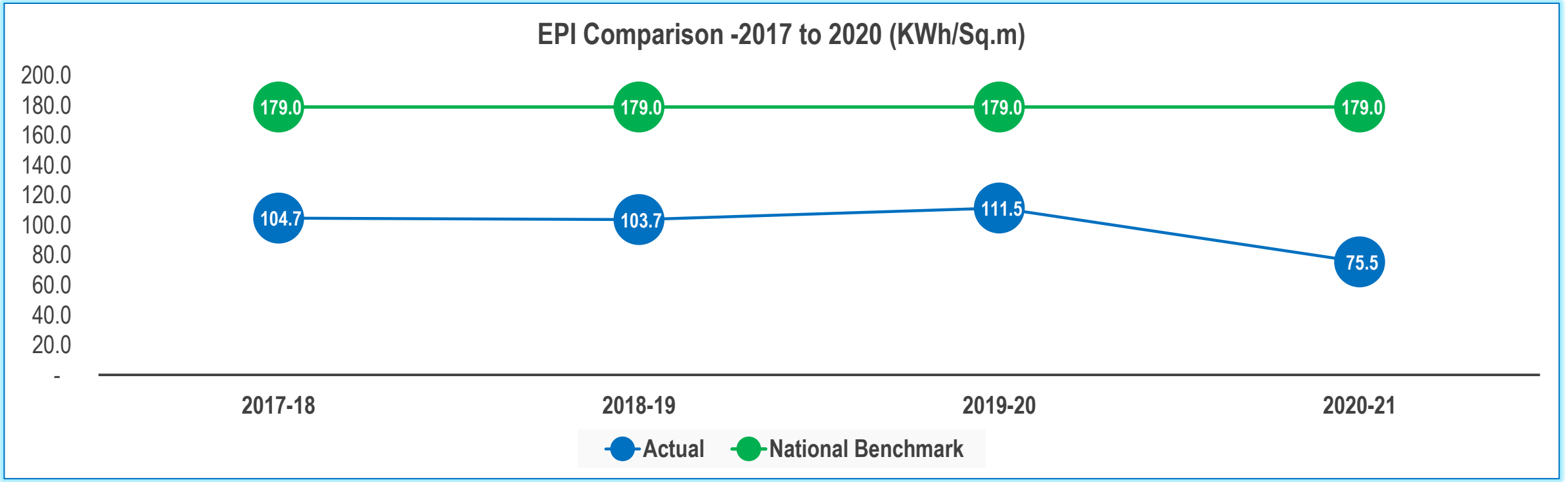
Energy Consumption –Segment wise Overview



Segment (Kwh)	Cafeteria	Chillers	Lighting	HVAC low side	UPS	Utility
FY 2018-19	464700	2905500	1399700	4810800	3524700	344000
FY 2019-20	648900	3624100	2004600	7568200	4765600	460200
FY 2020-21	345900	1381200	1519800	5985400	4324800	438700

Specific Energy Consumption in last 3 years (FY 2018-21)

Particular	Unit	2017-18	2018-19	2019-20	2020-21
Total Energy Consumption	KWh	18,609,893	18,437,384	19,816,923	13,422,347
Build Up Area	Sq. M	177,801	177,801	177,801	177,801
Specific Energy Consumption (KWh/Sq. m)	**KWh/ Sq. M**	**104.7**	**103.7**	**111.5**	**75.5**
Improvement	**%**	Baseline	**0.9%**	**-7.5%**	**32.3%**



Comparison SEC with Internal & National Benchmarking

Bureau of Energy Efficiency (BEE) - National Benchmarking for Office Buildings:

Climate Zone	Less than 50% AC	More than 50% AC
EPI (KWh/m2/year)		
Warm & Humid	101	182
Composites	86	179
Hot & Dry	90	173
Moderate	94	**179**

Our Internal Competitors	Climate Zone	SEC (KWh/ Sq.m)
HCL Technologies, Chennai Campus	Warm & Humid	170.0
HCL Technologies, Bangalore Campus	Temperate	103.7
HCL Technologies, Noida Campus	Composites	201.0

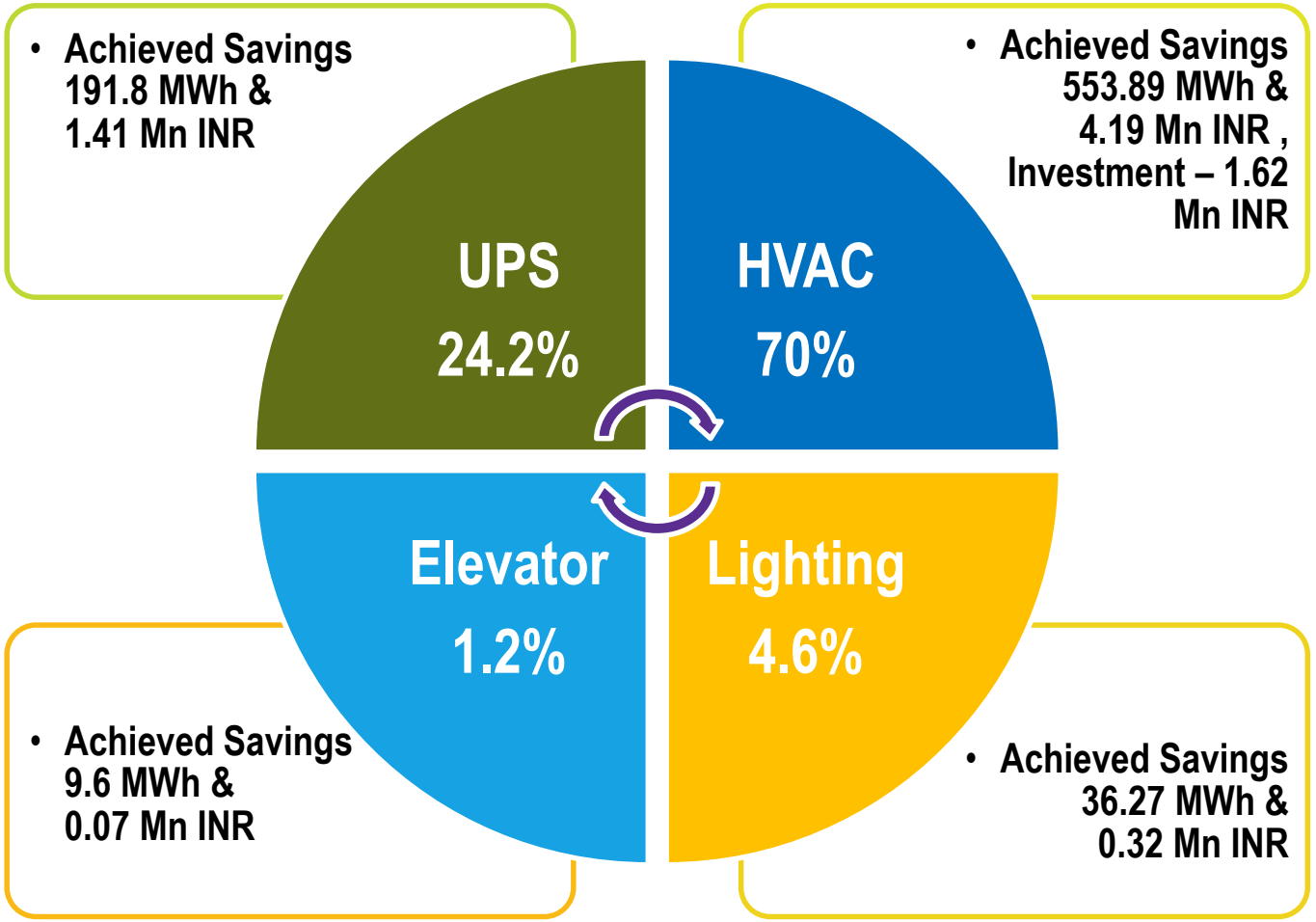
Synopsis:-

HCL Jigani campus Energy Performance is well within the ratings set by BEE for its climatic zone,

Being an ISO50001 certified campus we have implemented energy management system to ensure optimal efficiency through operation controls and Products we chosen from market

Energy Saving projects implemented in last 3 Years

Year	FY18-19	FY19-20	FY20-21
No of Encon Projects	3	1	4
Investments (INR Million)	0.20	0.20	1.22
Electrical Energy savings (Million kWh)	5.77	0.61	1.53
Cost Savings (INR Million)	4.21	0.47	1.31
Impact On SEC	**3.0%**	**0.3%**	**1.1%**



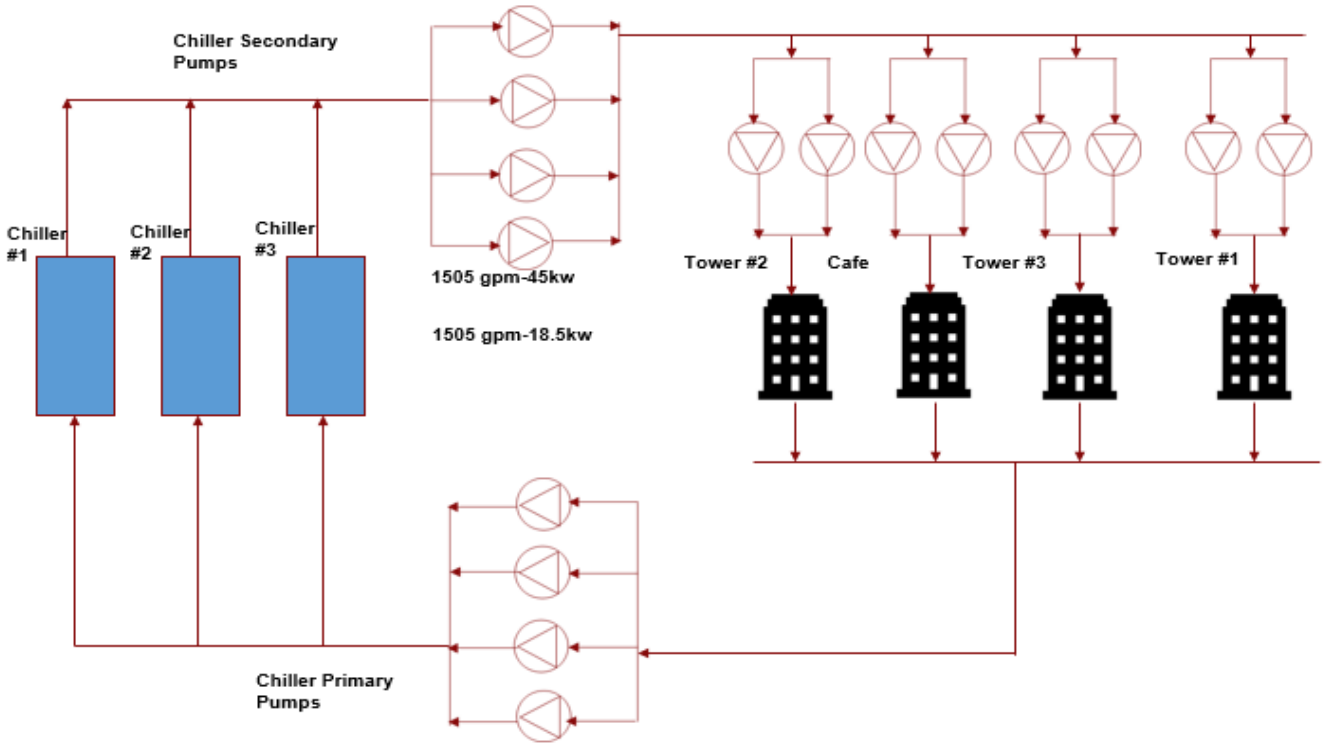
Synopsis:-

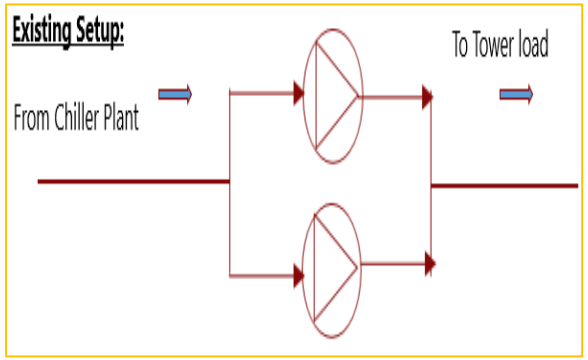
HCL leadership is committed towards carbon emission reduction goals , subsequent to that Opex & capex investment Planned & implemented on energy front

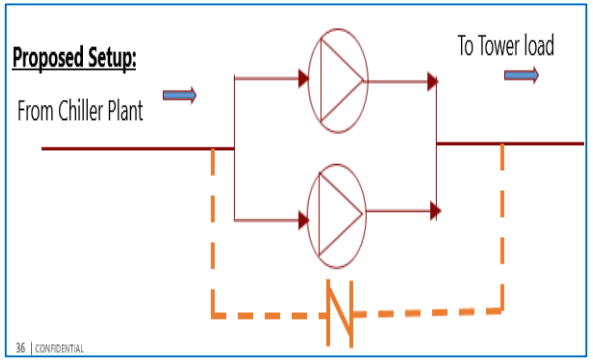
Energy Saving projects Planned – FY21-22

Title of Project	Annual Electrical Saving (Million kWh)	Annual Cost Saving (Million INR)	Investment (Million INR)	Remarks
Heat load reduction in High Rise floor by SRI paint coating	0.002	0.020	0.996	Completed (Jul'21)
LED Retrofit for Basement lighting	0.135	1.355	1.496	WIP
Grouping control for Elevator (Low raise / High Raise)	0.027	0.273	0.371	Completed (Apr'21)
AHU retrofit (conventional AHU to SMART AHU)	0.053	0.533	1.592	WIP
IoT Based Critical Room temperature monitoring	0.047	0.470	2.950	Completed (Aug'21)

Innovative Project 1: Elimination of Zone Pump Operation







Zone Pumps	Capacity (GPM)	Operating Window	Capacity Control (GPM)
Tower 1- 37kw	1518	30 to 50Hz	1518 to 910 gpm
Tower 2- 30Kw	1232	30 to 50Hz	1232 to 739 gpm
Tower 3- 18.5kw	1020	30 to 50Hz	1020 to 612 gpm
Total	**3770**		

Assessment Outcomes :-

- Excess water circulation can be eliminated
- The cooling demand will be diversified in a better manner
- These zone pumps are causing the excess pressure drop in the main header that could be avoided

Resultant Energy Savings:-

Energy consumption of zone pumps	- (22+18+11)-51Kw
Running Hrs./day	-12 Hrs.
Savings/hr.	- 51 kWh
Savings/Annum	**-53,838kWh**

Innovative Project 2: Cooling tower Water - Organic Treatment Solution

FLUIDTREAT 401

- Approach temperature is consistently Maintained at 4°C from March 2020 onwards
- Evidenced-no scale formation in cooling tower fills
- Water savings achieved by controlling blow down once in 2 to 3 weeks (instead of daily basis)
- Energy savings achieved @ 6.14% of chiller consumption

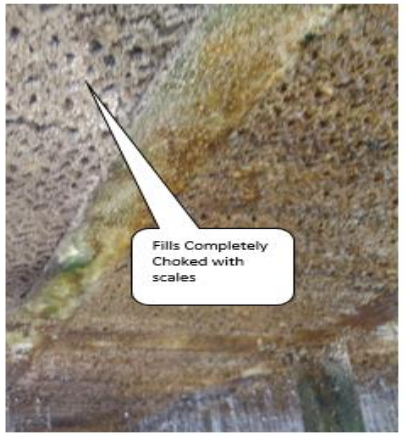
Corrosion Test Rack

MS Corrosion Coupon

Copper Corrosion Coupon

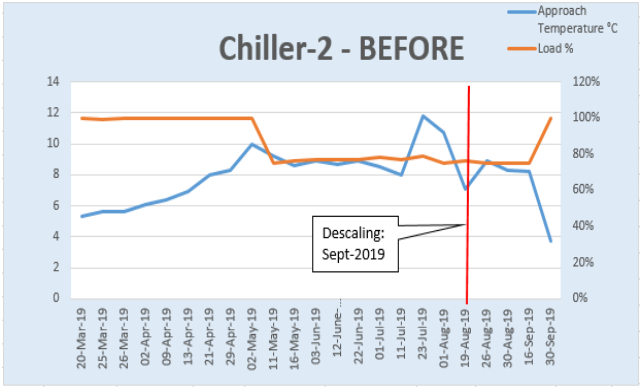
- Corrosion rack and coupons were installed.
- Corrosion coupon evidenced -no corrosion happening in the system

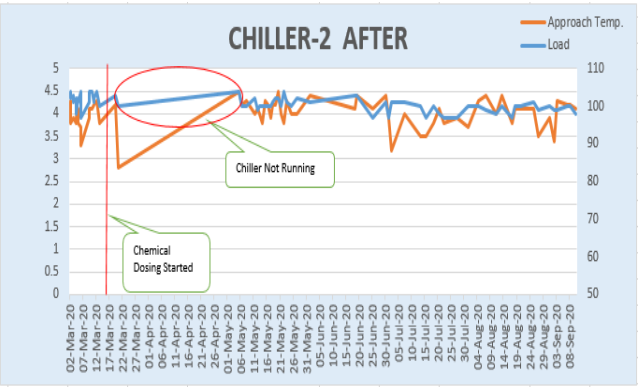
Achieved Savings :- Energy @ 17,452 KWh, Water @ 720 KL, Cost @ INR 5.72 L



It can be seen that there is small amount of scales getting removed from the fills which is also indicated by turbidity in the cooling tower.

Condenser Approach Trend

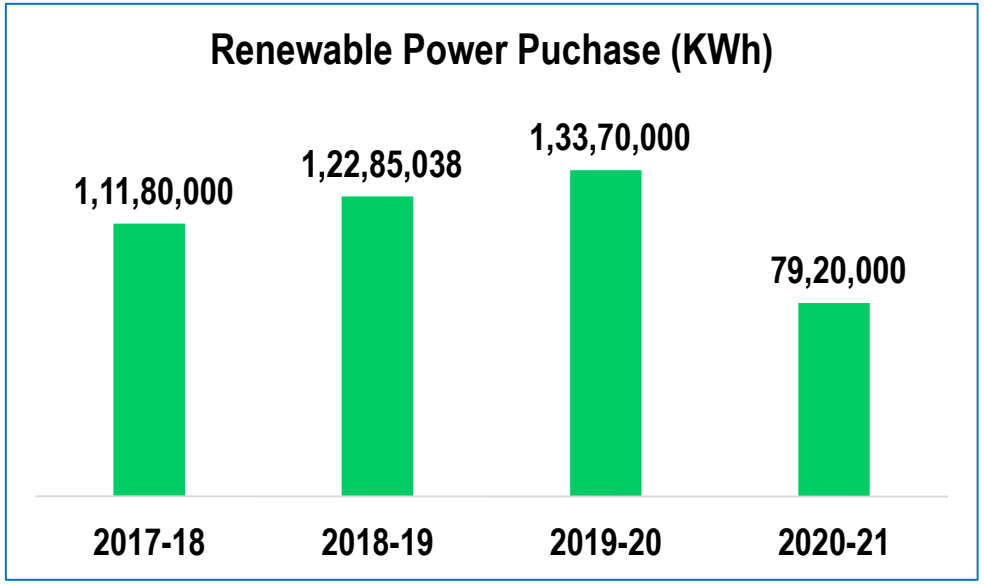


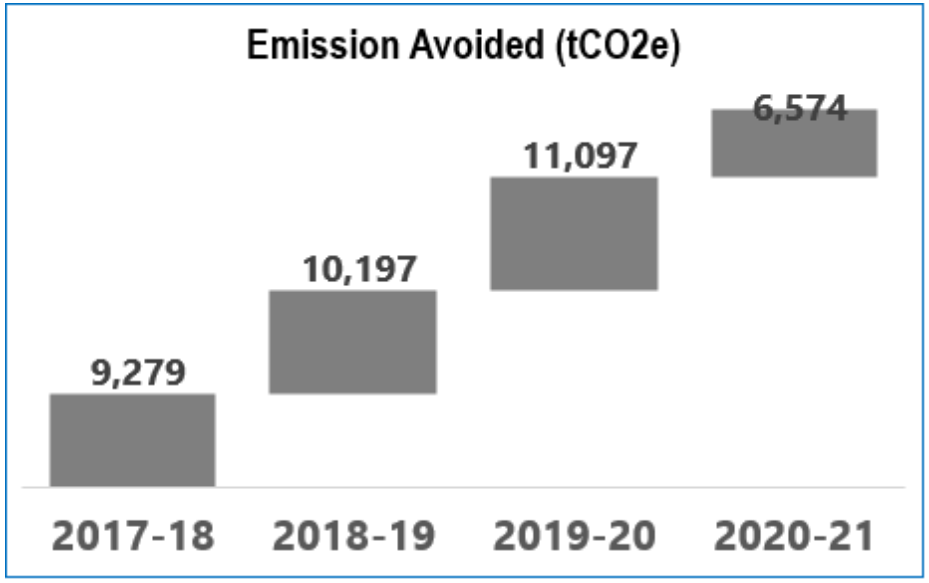


Utilization of Renewable Energy sources -FY17-2020

Offsite power purchase through Third party open access System – "STOA – PPA"

Year	Source of Renewable Energy	Installed Capacity (MW)	Annual Total Energy consumption (KWh)	Renewable Energy Consumption (KWh)	% Share	Emission Avoided (tCo2e)
FY17-18	Hydro Power	24.75	18,609,893	11,180,000	60.1%	9,279
FY18-19	Hydro Power	24.75	18,437,384	12,285,038	66.6%	10,197
FY19-20	Hydro Power	24.75	19,816,923	13,370,000	67.5%	11,097
FY20-21	Hydro Power	24.75	13,422,347	7,920,000	59.0%	6,574
Total			**70,286,547**	**44,755,038**	**63.7%**	**37,147**





Waste management FY20-21:

1.Hazardous waste:

Sl.No	Type of waste generated	Qty	Unit	Disposal method
1	Used Oil	1254	Ltrs	Recover & Reused through KSPCB authorized vendor
2	Air and fuel filter	83	Kg	Recover & Reused through KSPCB authorized vendor
3	Oil-soaked cotton	20.5	Kg	Incineration through KSPCB authorized vendor
4	CFL & E Waste	39.8	Kg	Recover & Reused through KSPCB authorized vendor

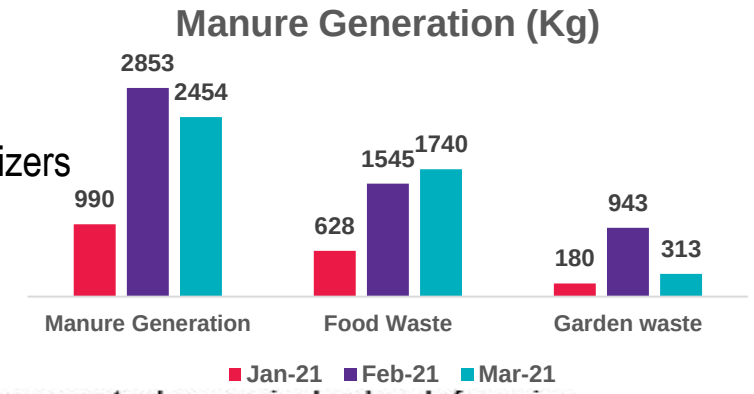
2.Non-Hazardous waste:

Sl.No	Type of waste generated	Qty	Unit	Disposal method
1	Paper Waste	1185	Ltrs	Recycled through KSPCB authorized vendor
2	Food Waste	8640	Kg	Converted as manure and utilized for the garden
3	Plastic Waste	1027	Kg	Recycled through KSPCB authorized vendor
4	Metal Waste	4788	Kg	Recycled through KSPCB authorized vendor

Waste management

Food & Garden Waste Management (OWC):

1. OWC- Produced Manure is used for the gardening as a alternate to the inorganic fertilizers
2. Manure distributed to the employees to use their home garden



Segregate Organic Waste

Shredding of garden waste

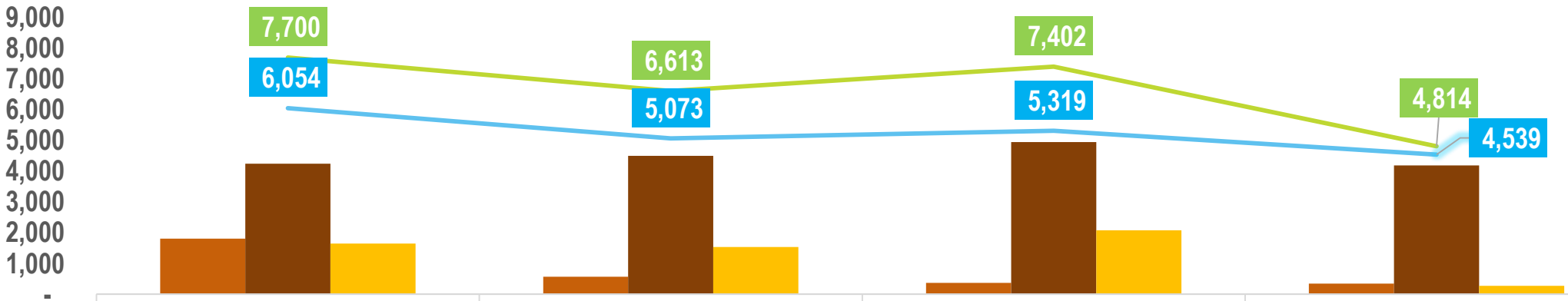
Mixture is fed to OWC and Bioculum and absorbent added

Converts the waste into raw compost, a homogenized and ready for curing

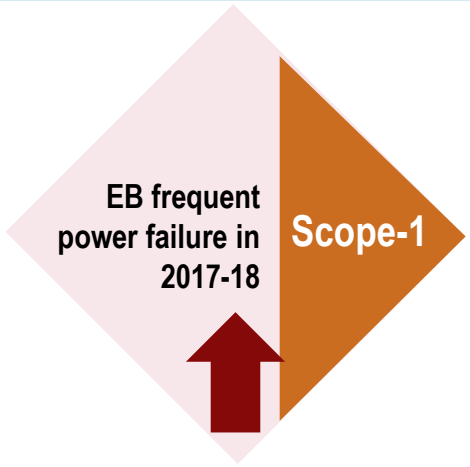
Place the raw compost in the curing racks for further curing

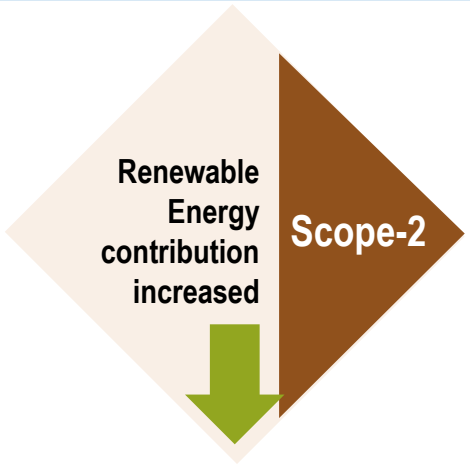
15 days Compost can be used for garden areas

GHG Emission Trend



(tCo2e)	2017-18	2018-19	2019-20	2020-21
Scope -1	1,810	570	372	351
Scope -2	4,244	4,503	4,947	4,188
Scope -3	1,646	1,540	2,083	276
Scope 1 & 2	6,054	5,073	5,319	4,539
Total	7,700	6,613	7,402	4,814





Indoor Air Quality Monitoring

Parameter	Units	Tower -1	Tower -2	Tower-3	Tower -4,	ASHRAE standards
		Results	Results	Results	Results	
Room Temperature	^{0}C	24.20	24.5	24.10	24.60	20^{0}C to 27^{0}C
Relative Humidity	%rH	55.00	57.7	54.01	55.03	30%rH to 60%rH
Oxygen as O_2	%	21.60	20.8	20.86	20.90	Minimum 19.5
Hydrogen sulfide as H_2S	PPM	0.00	0	0.01	0.03	10 PPM
TVOC	PPM	0.19	0.12	0.13	0.21	50 PPM
CO_2	PPM	333.00	367	344.00	493.00	1000 PPM
Ammonia as NH_3	PPM	0.00	0	0.00	0.00	Max 50.0
Particulate matter- $PM_{2.5}$	PPM	4.58	4.92	1.71	2.01	Max 5.0
Particulate matter- PM_{10}	PPM	6.63	6.32	2.16	4.01	Max 15.0
Ozone as O_3	PPM	0.00	0	0.00	0.00	0.1 PPM
Carbon Monoxide as CO	PPM	0.00	0.3	0.00	0.00	9 PPM
Nitrogen Dioxide as NO_2	PPM	0.00	0.00	0.00	0.00	1 PPM
Sulfur di-oxide as SO_2	PPM	0.02	0.06	0.10	0.13	2 PPM

Ambient Weather & Air Quality level monitoring

Status	CO2 (ppm)
Excellent	0-775
Good	776-865
Satisfactory	866- 955
Moderate	956-1100
Poor	1101-1500
Very Poor	1500-3000

Synopsis:-

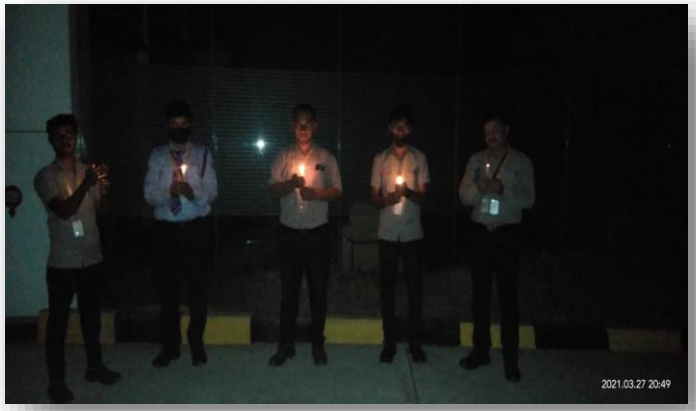
Quarterly once indoor air quality measured through third party vendors

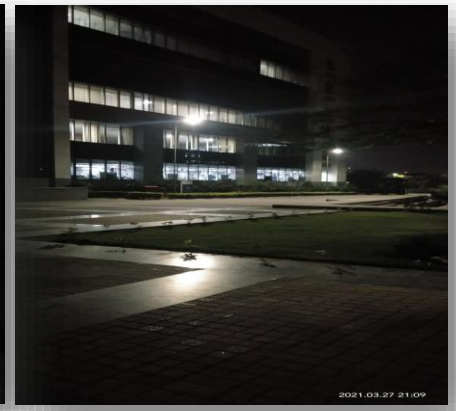
Ambient air quality monitoring station installation was completed on July'21

Teamwork, Employees Involvement

Effective utilization of Daylight harvesting

Earth hour Contribution



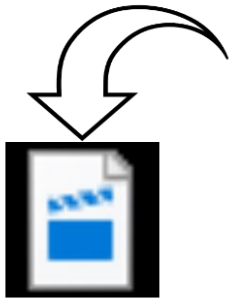


Giving back to the Nature-"Rainwater harvesting and recharging"

Greeneries @ campus- Continuous tree plantation (800Nos)

Best Practices and Governance:

Team Training and awareness



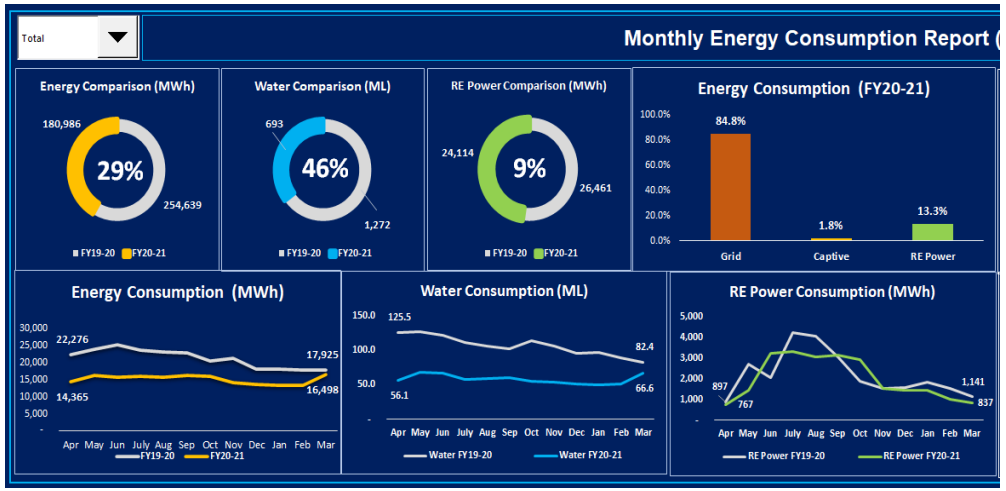
ASDM Clips.mp4

Team ENMS

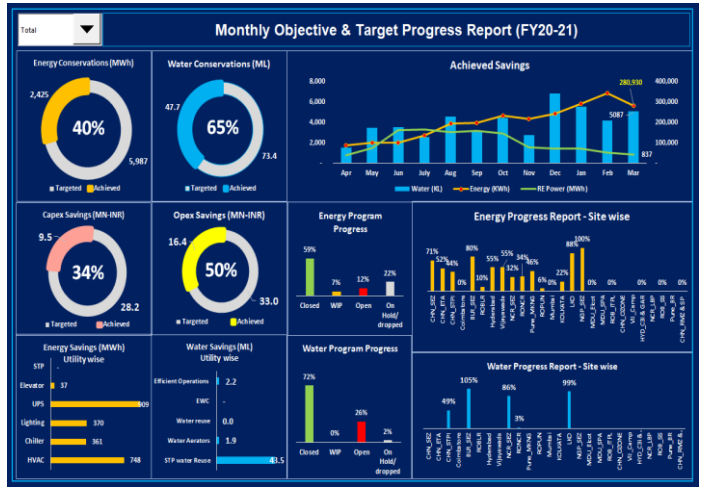
Best Practices and Governance:

Online PPM dashboard

Energy dashboard



Objective and target dashboard



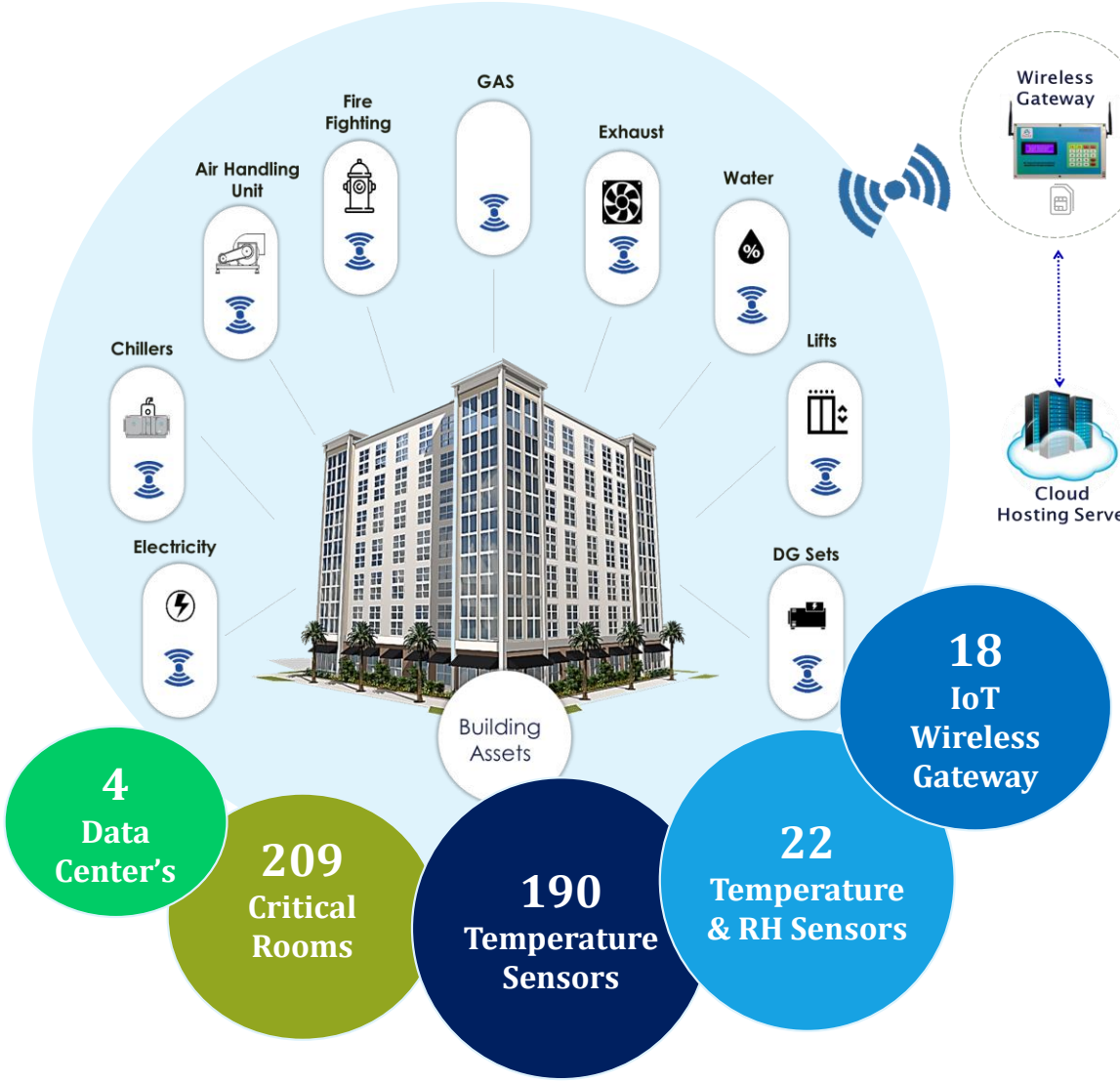
Online tool-based PPM Progress monitoring help the team to ensure services/Maintenance rendered by OEM/Vendor partner timely manner towards equipment uptime and optimized use of energy.

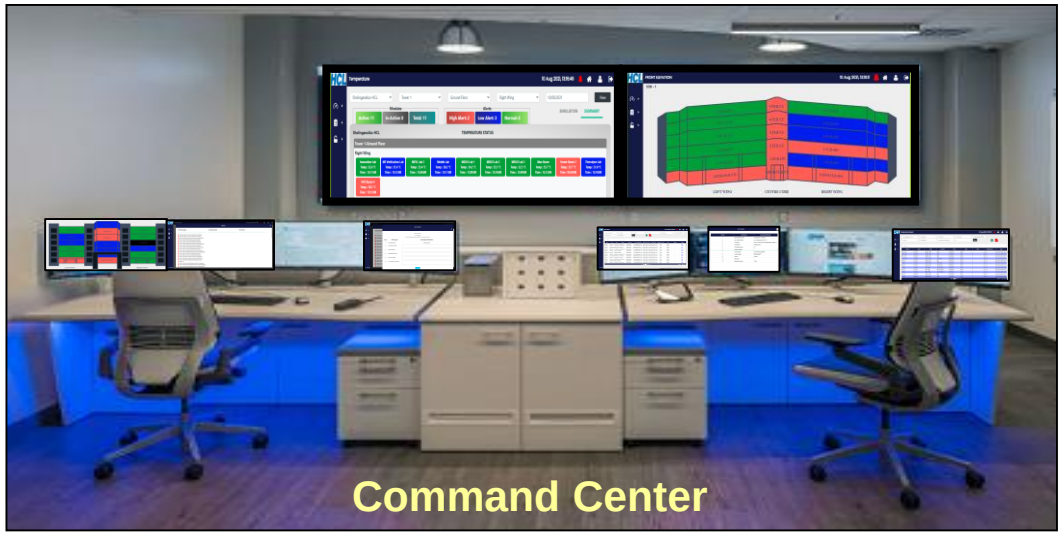
Energy dashboard published on frequent basis gives an elaborate outlook of the energy performance on various segment thereby initiating required actions timely.

Regular reviews of set Objectives and targets by the leadership to ensure the set goals are achieved.

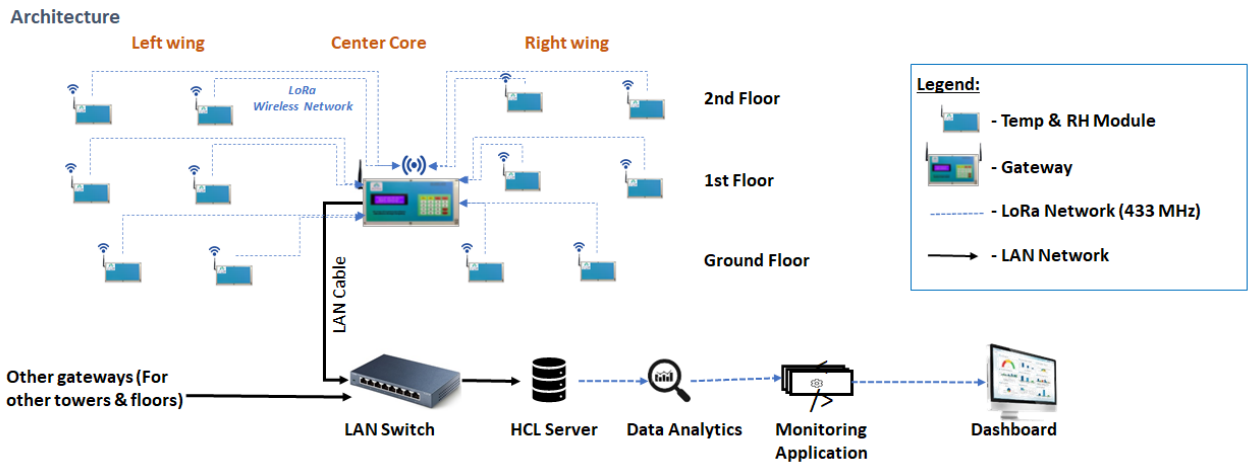
Best Practices and Governance:

Real time Critical Rooms Temperature Monitoring



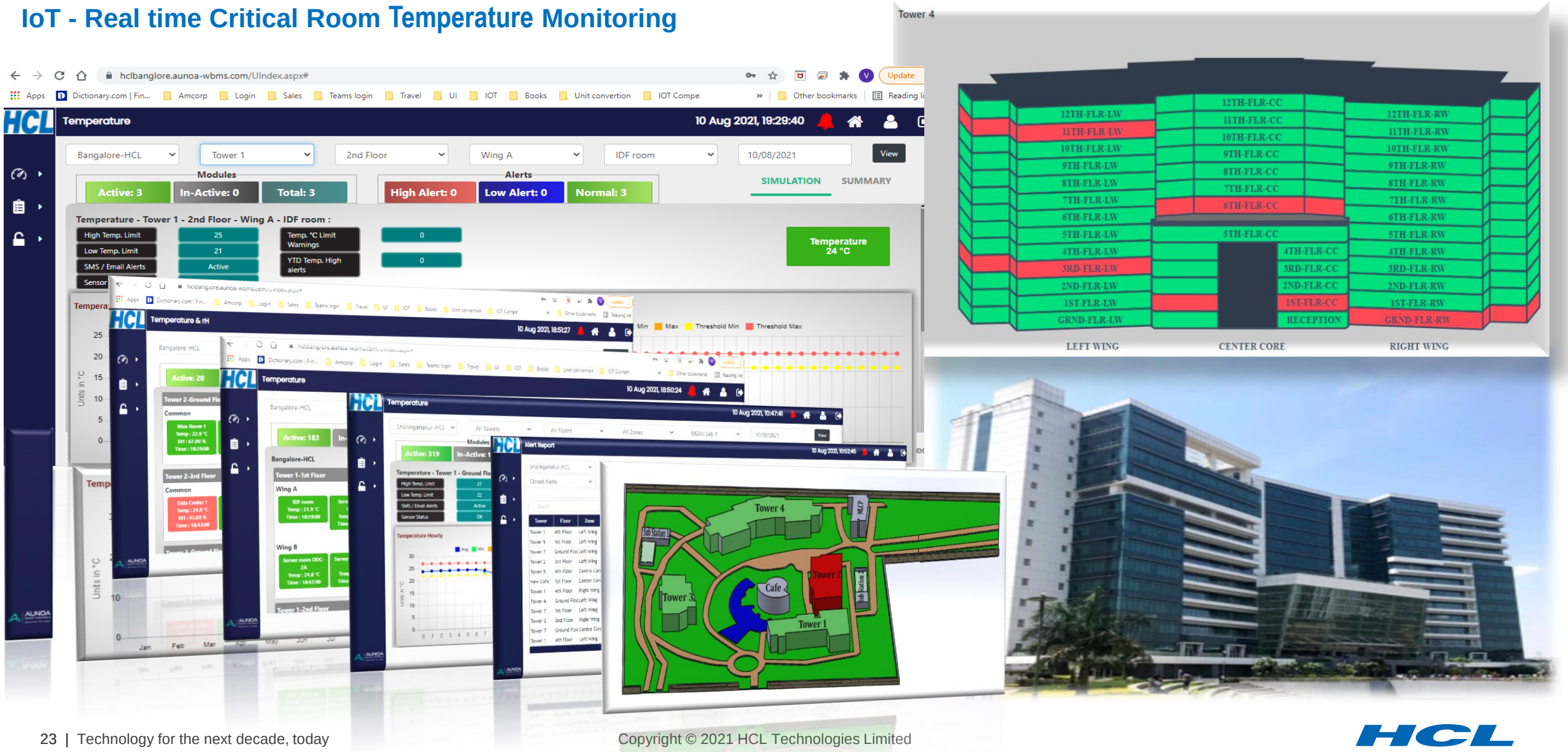


System Architecture for Temperature & RH sensor



Best Practices and Governance:

IoT - Real time Critical Room Temperature Monitoring



Implementation of ISO 50001/IGBC rating

bsi.

Certificate of Registration

ENERGY MANAGEMENT SYSTEM - ISO 50001:2018

This is to certify that:

HCL Technologies Ltd.
Plot No. 3A, SEZ
Sector 126
Noida
Uttar Pradesh
India

Holds Certificate No: **ENMS 661617**

and operates an Energy Management System which complies with the requirements of ISO 50001:2018 for the following scope:

Provision of IT Services including Maintenance & Engineering using Electricity from State Electricity Board, Generation of DG Power, Use of Solar Power for Electricity & Hot water Generation, and Transportation of office staff through outsourced fleet of vehicles.

For and on behalf of BSI:

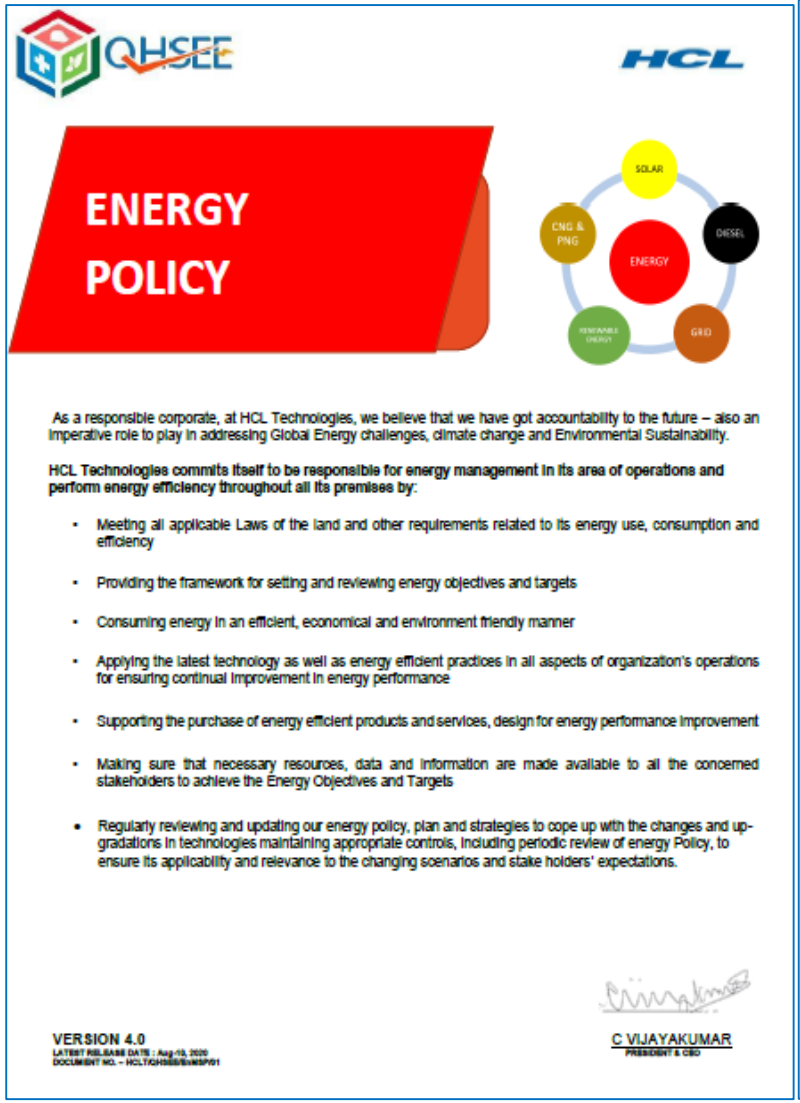
Chris Cheung, Head of Compliance & Risk - Asia Pacific

Original Registration Date: 2017-08-27
Latest Revision Date: 2020-11-18

Effective Date: 2017-08-27
Expiry Date: 2023-08-26

Page: 1 of 2

...making excellence a habit.



QHSEE

HCL

ENERGY POLICY

As a responsible corporate, at HCL Technologies, we believe that we have got accountability to the future – also an imperative role to play in addressing Global Energy challenges, climate change and Environmental Sustainability.

HCL Technologies commits itself to be responsible for energy management in its area of operations and perform energy efficiency throughout all its premises by:

- Meeting all applicable Laws of the land and other requirements related to its energy use, consumption and efficiency
- Providing the framework for setting and reviewing energy objectives and targets
- Consuming energy in an efficient, economical and environment friendly manner
- Applying the latest technology as well as energy efficient practices in all aspects of organization's operations for ensuring continual improvement in energy performance
- Supporting the purchase of energy efficient products and services, design for energy performance improvement
- Making sure that necessary resources, data and information are made available to all the concerned stakeholders to achieve the Energy Objectives and Targets
- Regularly reviewing and updating our energy policy, plan and strategies to cope up with the changes and up-gradations in technologies maintaining appropriate controls, including periodic review of energy Policy, to ensure its applicability and relevance to the changing scenarios and stake holders' expectations.

C VIJAYAKUMAR
PRESIDENT & CEO

VERSION 4.0

ENERGY IS LIFE
C NSERVE IT

ऊर्जा दक्षता ब्यूरो
(भारत सरकार, विद्युत मंत्रालय)

BUREAU OF ENERGY EFFICIENCY
(Government of India, Ministry of Power)

CERTIFICATE FOR STAR RATING

It is certified that HCL T1, T2 & T3 Building, Jigani, SEZ Bangalore located in moderate climatic zone has been awarded a BEE 4★★★★ *Label with the details below:*

Name of the building	:	*HCL T1, T2 & T3 Building, Jigani, SEZ Bangalore*
Contract demand	:	*2000 kVA*
Climatic zone	:	*Moderate*
Building Type	:	*BPO Building*
Percentage Air Conditioning	:	*90 Percent*
Built up area	:	*41650 sq.meter*
Annual Energy Consumption	:	*9940903 kWh*
Average Annual Hourly EPI	:	*27.25 (Wh/hr/sqm)*
BEE Star Label Awarded	:	*4★★★★*

The label would be valid for a period of 5 years.

F.no. 08/01/Star rating/OB/09/BPO-24
Dt. 31st March, 2014

Sanjay Seth
Energy Economist

स्वहित एवं राष्ट्रहित में ऊर्जा बचाएं Save Energy for Benefit of Self and Nation

IGBC Building Platinum _Certification Assessment completed, and Certificate awaited

Green Supply Management

INTEGRATED QHSEE MANUAL – V-12

energy policy and objectives in addition to the consideration of cost and service / product quality. To this end, organizations should establish energy-related criteria to facilitate the assessment of energy performance over the planned or expected operating lifetime during the procurement process. These requirements should be included in RFPs.

Below are three major items that an organization should consider for the procurement of energy using products, equipment and services which are expected to have a significant impact on energy performance:

- How suppliers are informed that procurement is partly evaluated on a basis of energy performance?
- What are the criteria for assessing energy use, consumption and efficiency over the planned or expected operating lifetime?
- How to define energy purchasing specifications for effective energy use?

The elements of energy purchasing specification could include energy quality, availability, cost structure, environmental impact and renewable sources

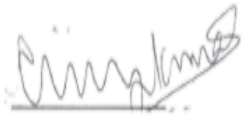
Establish 'Green' purchasing policy

Green' purchasing policy shall be developed that includes a commitment to reducing energy consumption along with other environmental goals. Include **energy performance criteria** in the design and purchasing specifications.

Specify low energy

performance-based specifications shall be used, i.e. specifying the desired result, but not how to achieve it. These are **more flexible** and avoid having to specify detailed technical requirements. This can apply equally to plant, equipment and buildings.

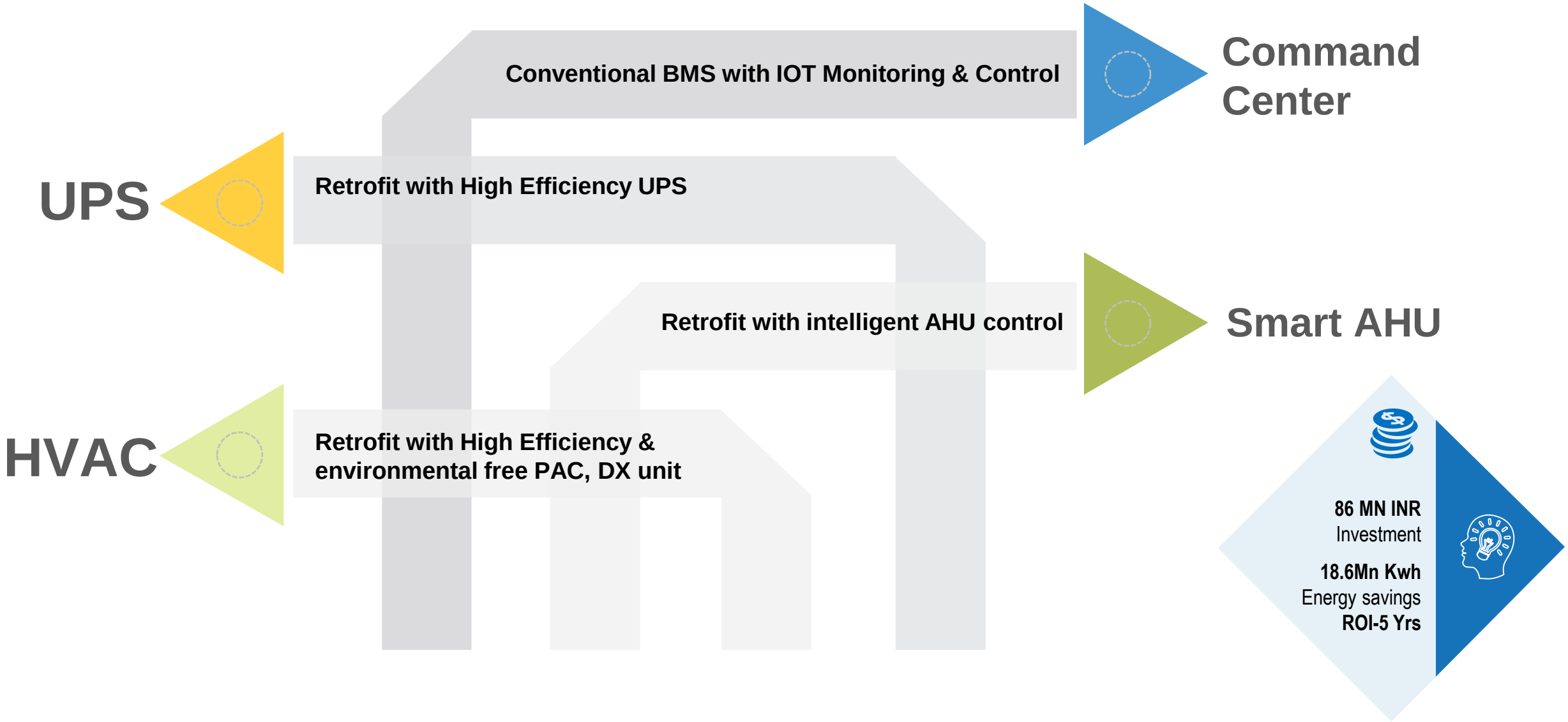
- Applying the latest technology as well as energy efficient practices in all aspects of organization's operations for ensuring continual improvement in energy performance
- Supporting the purchase of energy efficient products and services, design for energy performance improvement
- Making sure that necessary resources, data and information are made available to all the concerned stakeholders to achieve the Energy Objectives and Targets
- Regularly reviewing and updating our energy policy, plan and strategies to cope up with the changes and up-gradations in technologies maintaining appropriate controls, including periodic review of energy Policy, to ensure its applicability and relevance to the changing scenarios and stake holders' expectations.



VERSION 4.0
LATEST RELEASE DATE : Aug-10, 2020
DOCUMENT NO. – HCLT/QHSEE/EnMSP/01

C VIJAYAKUMAR
PRESIDENT & CEO

Way Forward Plan -2025



Thank you

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