



23rd National Award for Excellence in Energy Management 2022

ISC-1 Hyderabad

August 2022

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Cognizant Overview

Cognizant (Nasdaq-100: CTSH) is one of the world’s leading professional services companies that engineers modern businesses. We help our clients modernize technology, reimagine processes and transform experiences so they can stay ahead in our fast-changing world. Together, we’re improving everyday life.



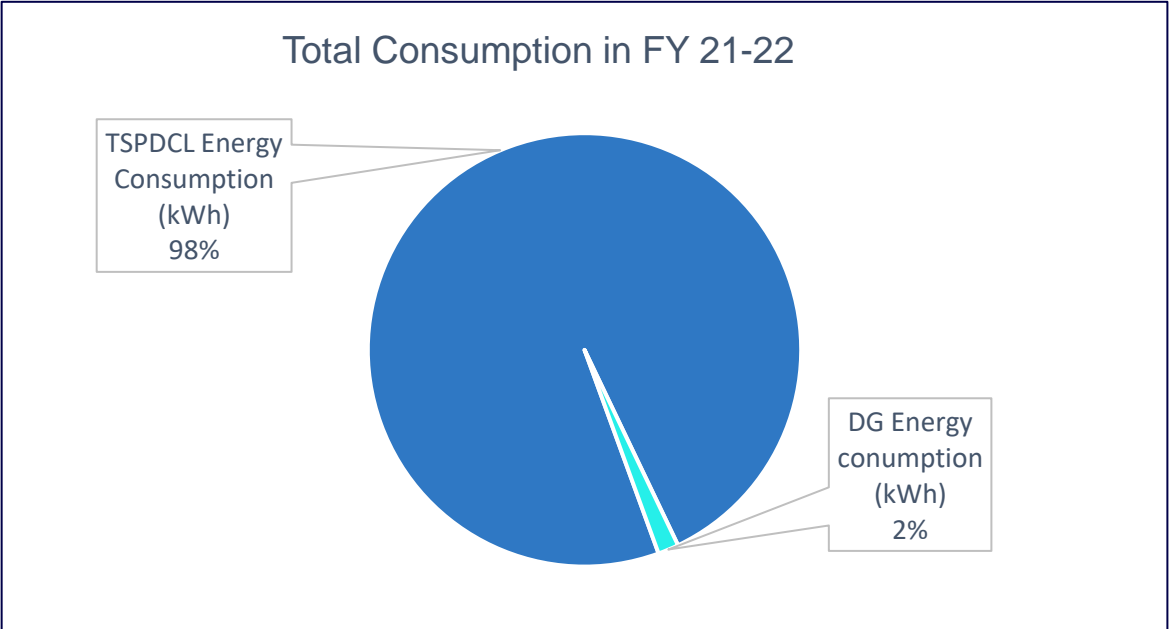
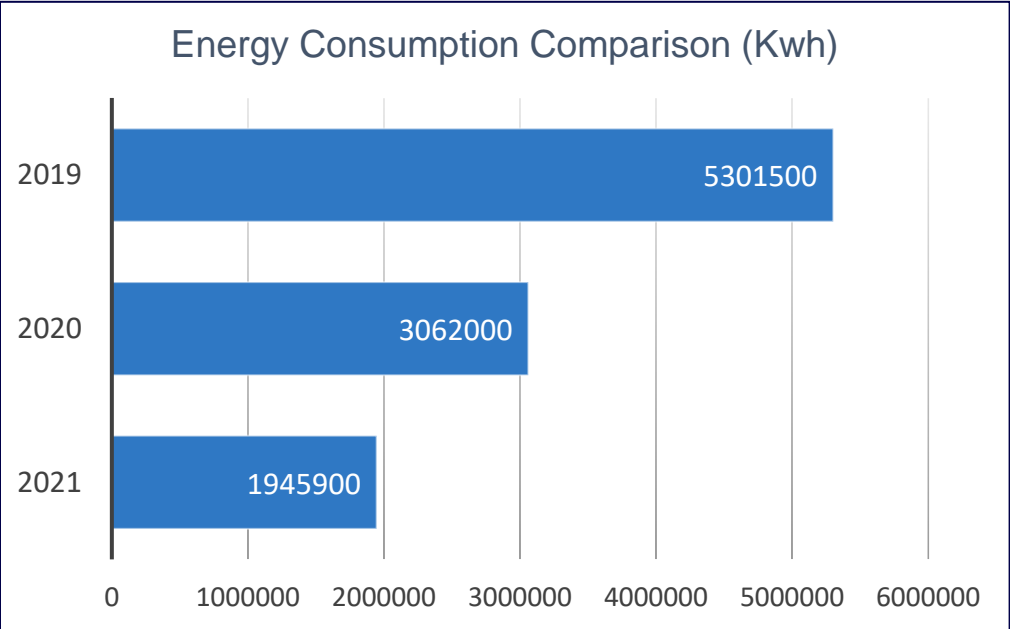
Facility Overview

- Operations from 1st Apr 2006, Owned Facility
- Total Built Area : 2,25,108 SFT
- Phase 1- 3 Floors, Phase 2 – 8 Floors
- Seating Capacity: 2009
- Head Count: **1875 Associates & 200 Vendor Staff** (in BAU Situation)
- Contract Demand is 1600 KVA and Incoming is 33 KV
- Transformer is 1600 KVA – 2nos
- DG is 750 KVA – 6nos
- Chiller – 250TR – 3nos and 375TR – 1no
- UPS – 300KVA – 1no, 270KVA – 1no and 120KVA – 2nos
- STP – 120KL Capacity

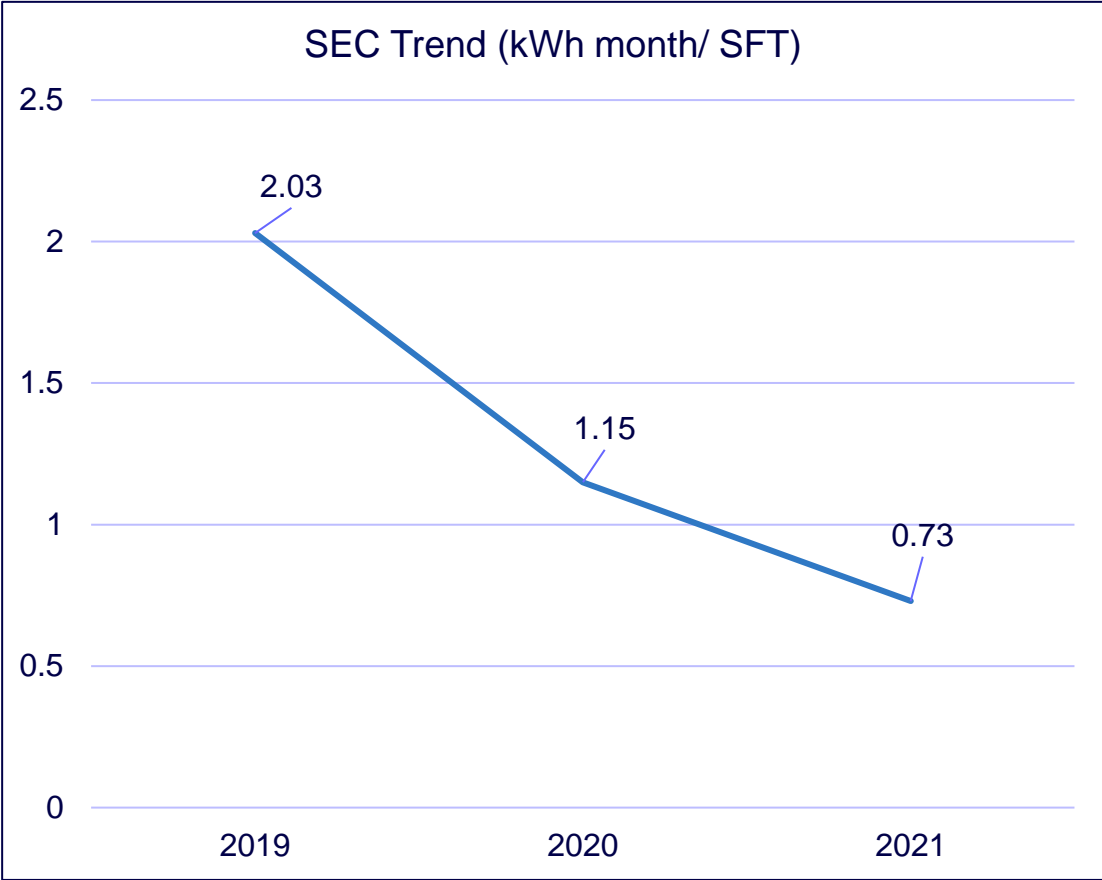
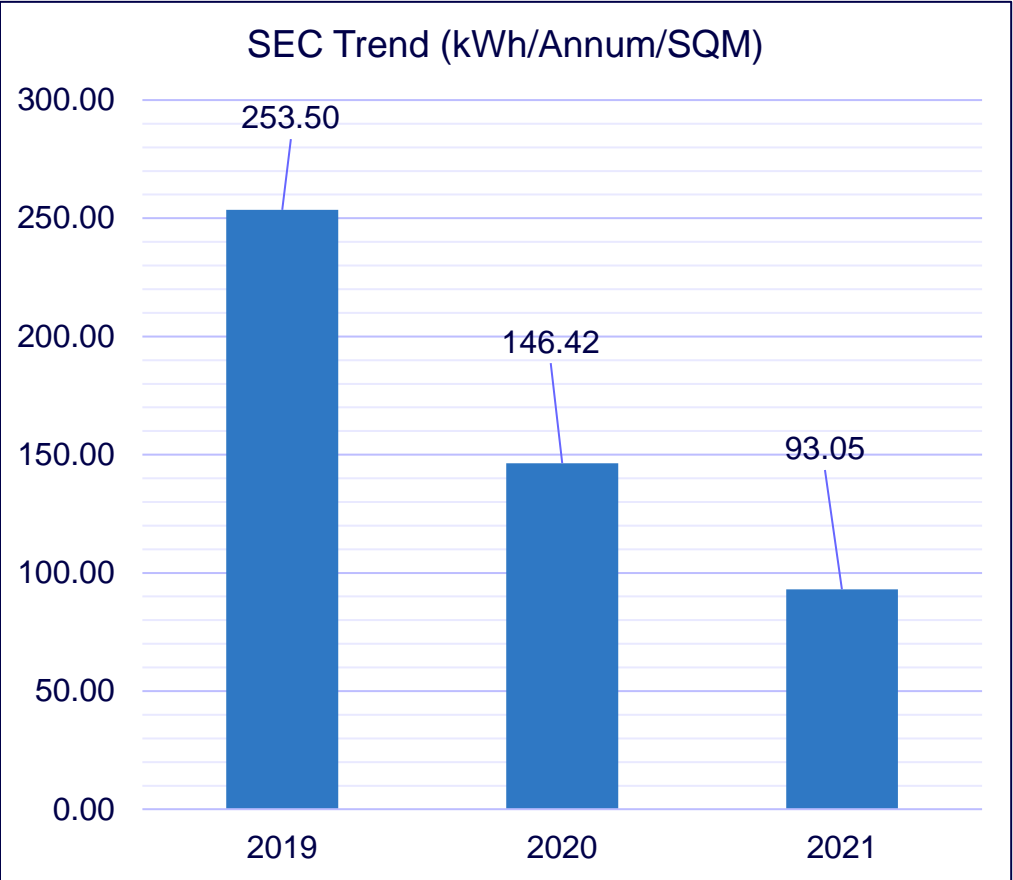


Energy Consumption Overview - 2019 to 2021

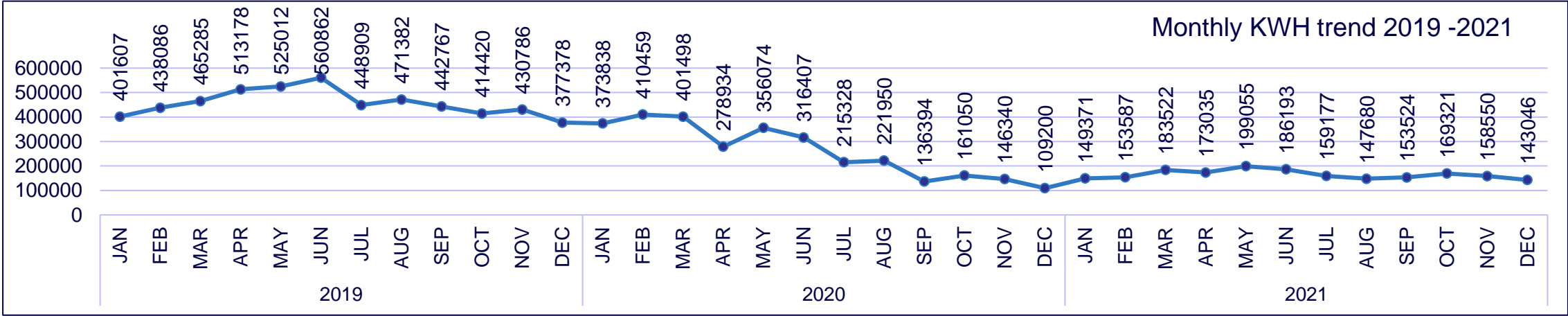
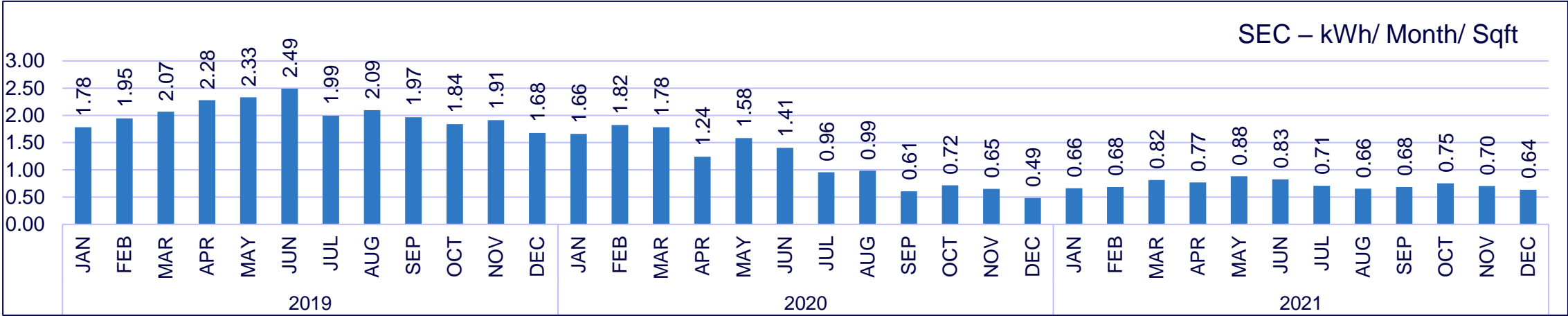
Year	TSPDCL Energy Consumption (kWh)	DG Energy Consumption (kWh)	Total Consumption (kWh)
2019	5113328	188172	5301500
2020	2996528	65472	3062000
2021	1915739	30161	1945900



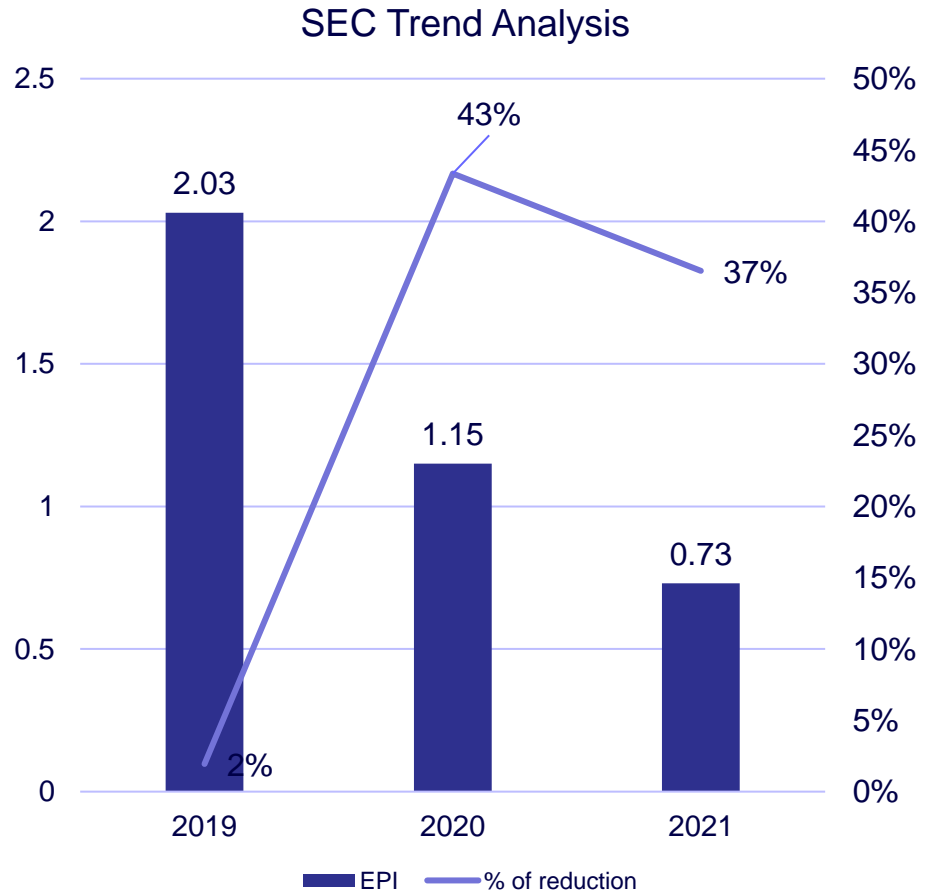
Specific Energy Consumption Overview- 2019 to 2021



Specific Energy Consumption Overview- 2019 to 2021



Specific Energy Consumption Overview- 2019 to 2021



Chiller Retrofit (IUT) – 375TR



LED Retrofit (Total Fixture Qty – 1730 no's)



UPS Retrofit (IUT) – 2X120KVA

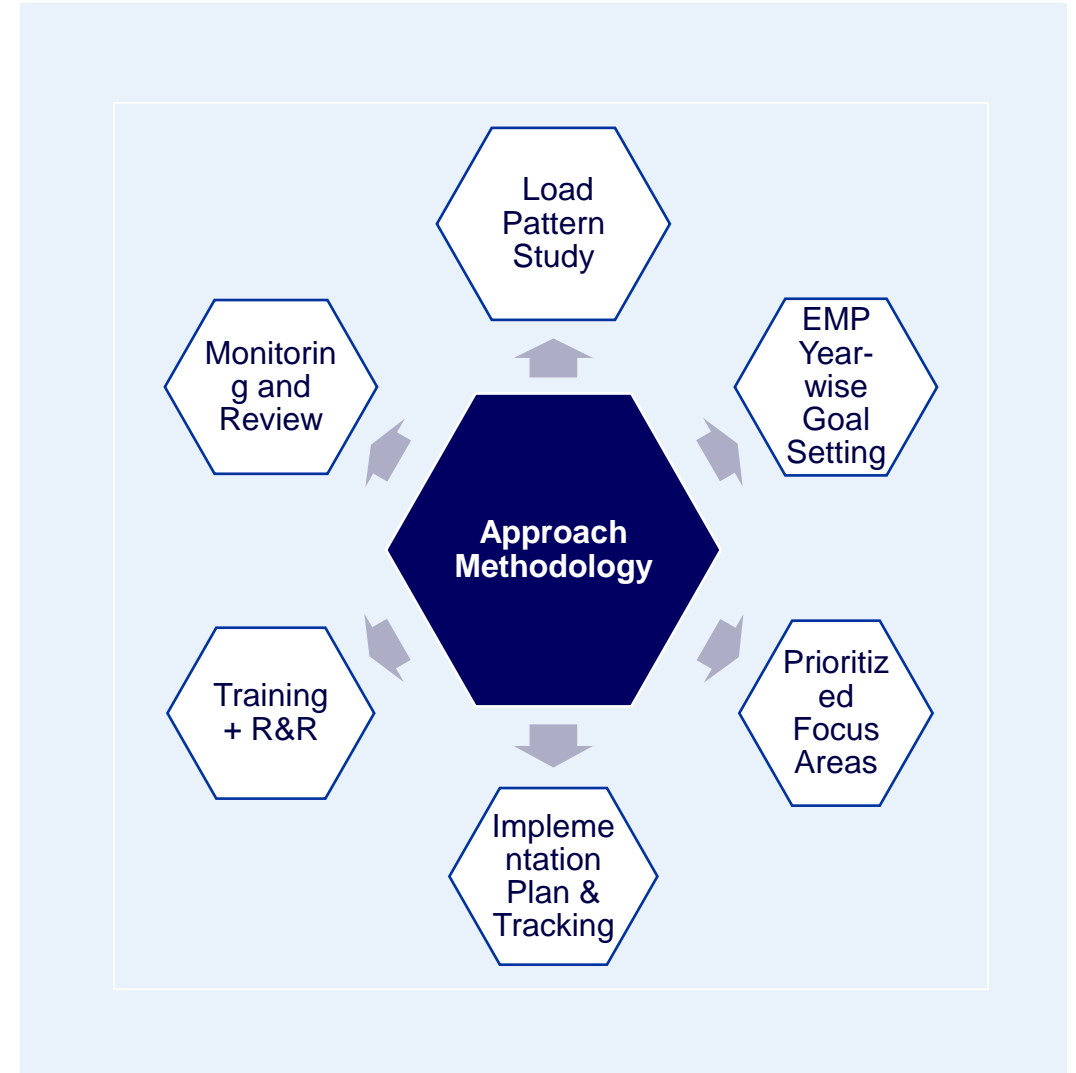


EC Fan Installation – 19 no's

Comparison of SEC With Internal & National Benchmarks

BEE - National Benchmark EPI in kWh/Sq. M/Year			
Star Rating	Warm and Humid	Composite	Hot and Dry
1 Star	200-175	190-165	180-155
2 Star	175-150	165-140	155-130
3 Star	150-125	140-115	130-105
4 Star	125-100	115-90	105-80
5 Star	Below 100	Below 90	Below 80

Internal Benchmark	
Owned Campus	EPI/sqm/annum
CHN - Siruseri	32.3
CHN - Siruseri - SEZ	42.3
CHN - CKC	42.9



Encon Project Planned in FY 2022-23

No	Year	Title of Project	Annual Electrical Saving (Million kWh)	Savings (INR Million)	Investment (Rs in Million)	Payback (Months)
1	2022-2023	Variable primary pump (SKID pumps) for air cooled chillers	0.77	7.94	4.952	7
2	2022-2023	Chiller replacement with 125TR chiller	0.12	1.24	0.4932	5
3	2022-2023	Retrofit of VRF with existing 22HP VRF	0.508	5.24	0.723	2

Energy Saving Projects Implemented - 2019 -2021

Year 2019

- No of initiatives - 1
- Energy Saving - **2.25 L kWh**
- Cost Savings - **INR 23.1 Lakhs**

- Investments – **INR 27 Lakhs**
- ROI – **10 Months**

Year 2020

- No of initiatives - 2
- Energy Saving - **7.31 L kWh**
- Cost Savings - **INR 75.3 Lakhs**

- Investments – **INR 68.8 Lakhs**
- ROI – **13 Months**

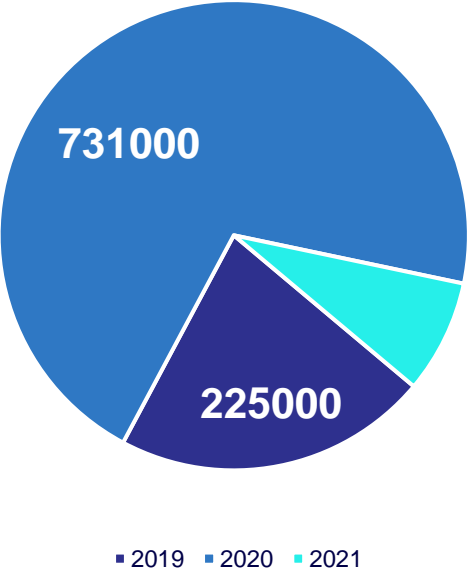
Year 2021

- No of initiatives - 3
- Energy Saving - **0.81 L kWh**
- Cost Savings – **INR 8.35 Lakhs**

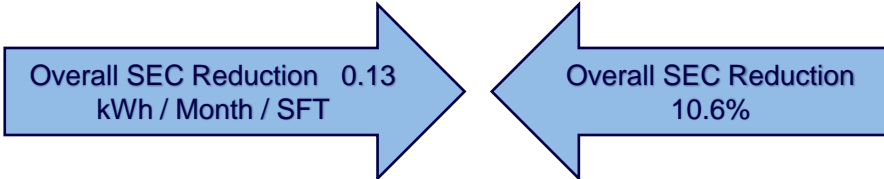
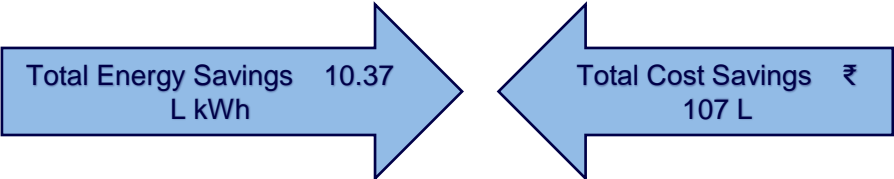
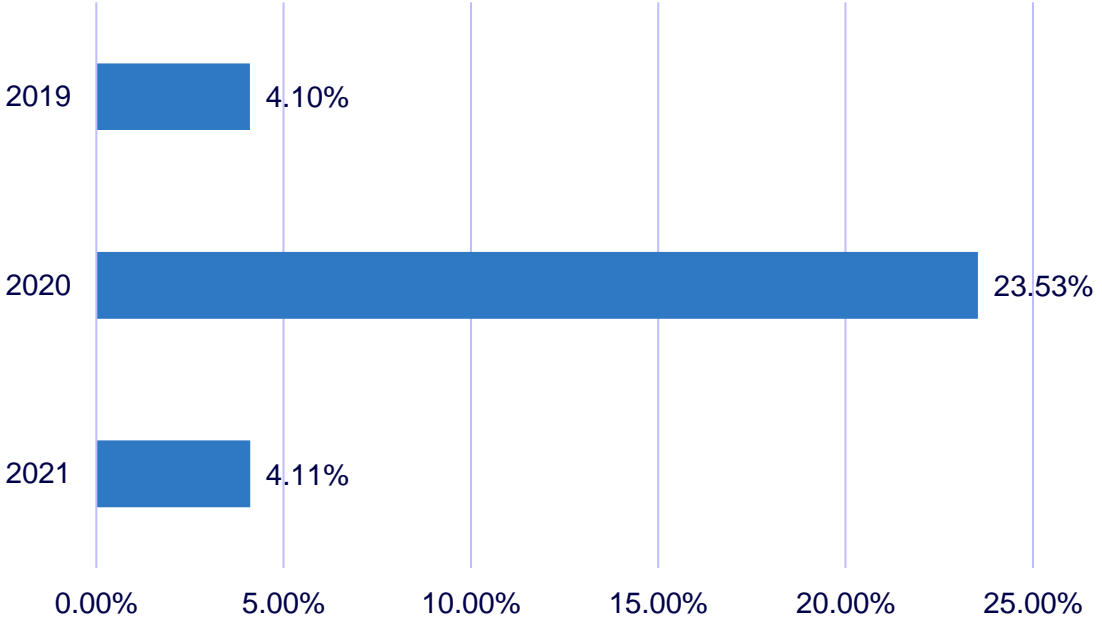
- Investments – **INR 10.85 Lakhs**
- ROI – **9 Months**

Energy Saving Projects Implemented - 2019 -2021

Energy Saving (kWh)



Energy Saving Impact On SEC Reduction (%)



Innovative Project : Chiller Retrofit

1/3

1. Conventional Air-cooled chillers at our facility are 14+ years old, facing frequent breakdown & cooling issues
2. These chillers are beyond economical repairs
3. Due to the technological obsolescence of these chillers, utility costs have also high
4. By considering all these challenges we have installed energy efficient 1X375TR Air-Cooled chiller (IUT)

Chiller Positioning at ISC1



- Summary of savings - Energy Savings – **2.25 L kWh**
- Cost Savings – **INR 20 Lakhs**
- Investments - **INR 2.7 Lakhs**
- ROI – **16 Months**

Conventional Chiller

Specific Power Consumption 1.59 kW/TR

New Chiller

Specific Power Consumption 1.34 kW/TR

Specific Power

Specific Power Optimization 0.25 kW/TR (18 %)

Innovative Project : Blower Type AHU Motor Replaced with EC Fan

2/3

Existing AHU replaced with EC Fan based AHU

1. Conventional AHU in our facility are 14+ years old
2. Conventional AHU capacity - 352 kW (19 Nos x 18.5 kW)
3. EC fan installed capacity - 287 kW (82 Nos x 3.5 kW)
4. Total capacity optimization – 65 kW(18 %)
5. EC fan standalone operation to reduce the energy based on return air temperature



- Summary of savings - Energy Savings – **1.65 L kWh**
- Cost Savings - **INR 16.5 Lakhs**
- Investments - **INR 25 Lakhs**
- ROI - **8 Years**

Conventional AHU

Specific Power Consumption 1.03
Watts/CFM

EC Fan

Specific Power Consumption 0.62
Watts/CFM

Specific Power

Specific Power Optimization 40 %

Innovative Project : VRF Retrofit

3/3

Existing HVAC units replaced with VRF

1. All HVAC units in our facility are 14+ years old
2. Existing HVAC units' capacity – 77.24 kW (8 Nos x 8.6 kW)
3. VRF installed capacity – 49.55 kW (10 Nos x 4.955 kW)
4. Total capacity optimization – 27.69 kW(35 %)



- Summary of Savings - Energy Savings – **0.711 L kWh**
- Cost Savings - **INR 10 Lakhs**
- Investments - **INR 10.38 Lakhs**
- ROI - **1 Year**

Existing HVAC Units

Specific Power Consumption 8.6 kWh

VRF Unit

Specific Power Consumption 4.95 kWh

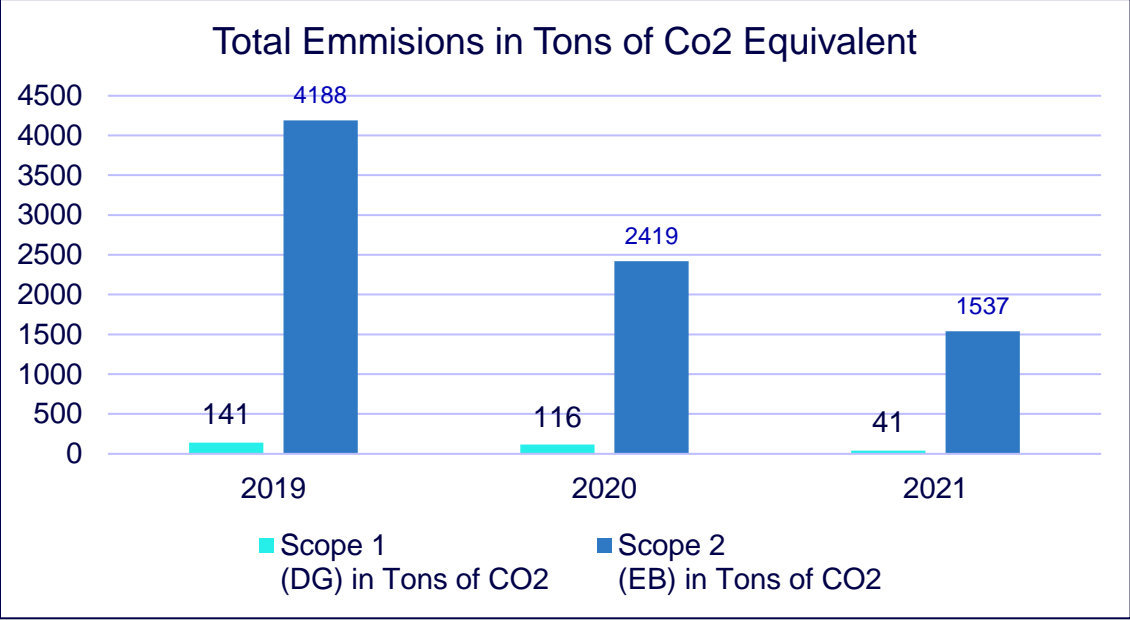
Specific Power

Specific Power Optimization 35%

Waste Management

Sl. No	Type of Waste Generated	Disposal Method	Action Taken for Reduction of Waste
1	Hazardous Waste	Used and waste oil disposed to TSPCB authorized recycler	Battery waste – Extension of battery warranty (3 to 3.5 years)
2	Non-Hazardous Waste	Carton & paper waste disposed to authorized recycler Ms. ITC ltd & got 10 reams saved	Paper waste – 1) Limitation of printer access 2) E-fit tool implemented and manual Check list optimized 3) Paper cups usages eliminated 100%
3	E Waste	Disposed to TSPCB authorized recycler	E –Waste – CFL to LED (Lifetime enhancement)

GHG Emission and Indoor Air Quality



GHG Reduction Target & Action Plan

1. Energy Efficiency projects implementation
2. Cognizant will source 100% renewable energy by 2026
3. Absolute emissions reduction by 50% in 2030
4. Absolute emissions reduction by 90% in 2040

Indoor Air Quality (BAU)

Test parameters	Units	Result	Permissible limit	Remarks
Carbon Dioxide (Co2)	ppm	400	< 1000	1. Testing through NABL Laboratory 2. Frequency of sampling is quarterly for workstations
Total Fungal Count	Cfu/m3	0	500	
Total Bacterial Count	Cfu/m3	115	500	

Standardization of Best Practices

Air-conditioning

Workplace Temperature policy standardized:
24 °C to 26 °C



Maintaining UPS/Battery room Temperature b/n
25 °C to 26 °C



Hub room temperature-maintained b/n
24 °C to 26 °C

Personnel Computer

1

Sleep mode enabled for all personnel computer

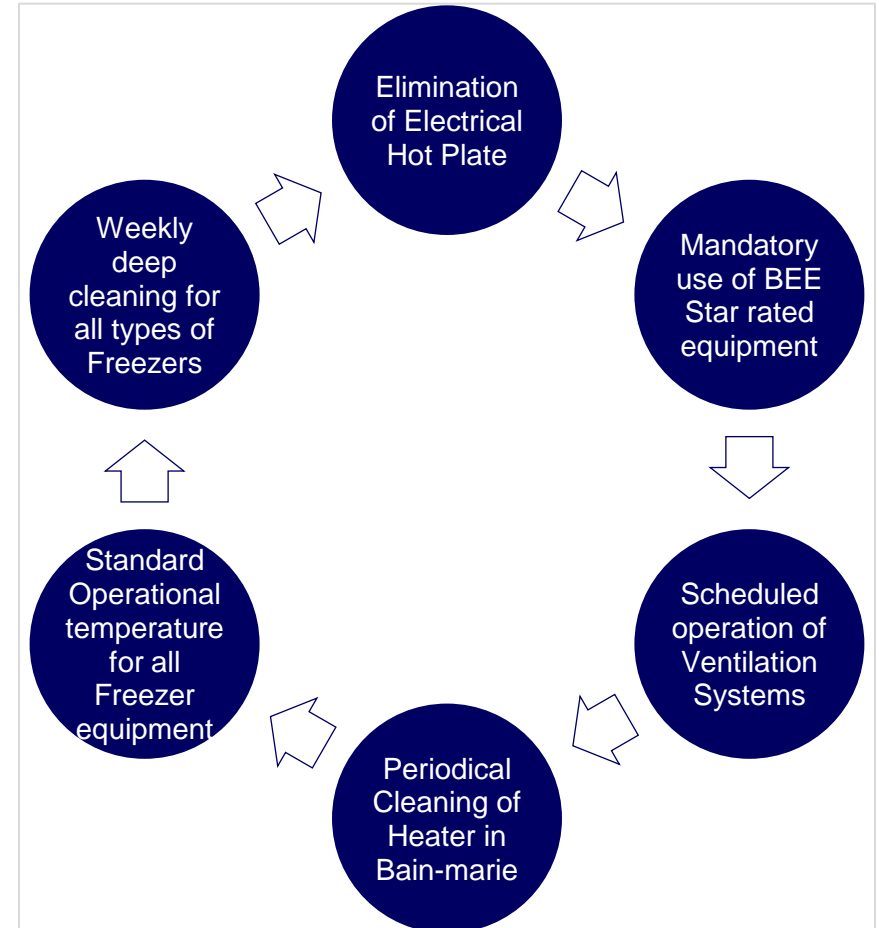
2

Conventional CPU replacement with compact CPU

3

Awareness created to Associates to switch off the monitor while leaving the workplace

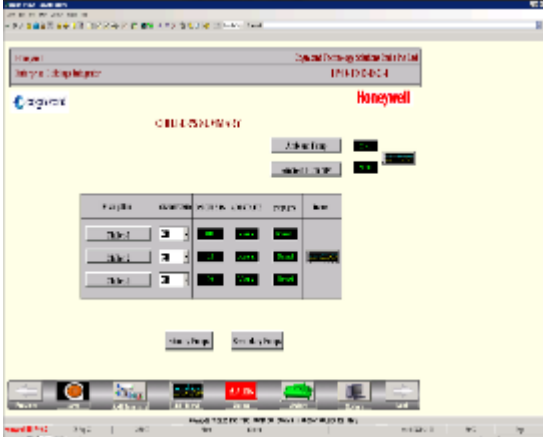
Kitchen/ Pantry



Teamwork, Employee Involvement and Monitoring



FMS - Daily Energy Tracking



Chiller Monitoring



Chiller SEC Measurement



Energy Consumption Monitoring



UPS Monitoring



FMS - Monthly Energy Tracking

Awards & Recognitions



CII 5S Excellence Award -2013



CII National Energy Management Award -2013



INFHRA Workplace Excellence Award - 2019

Awards & Recognitions

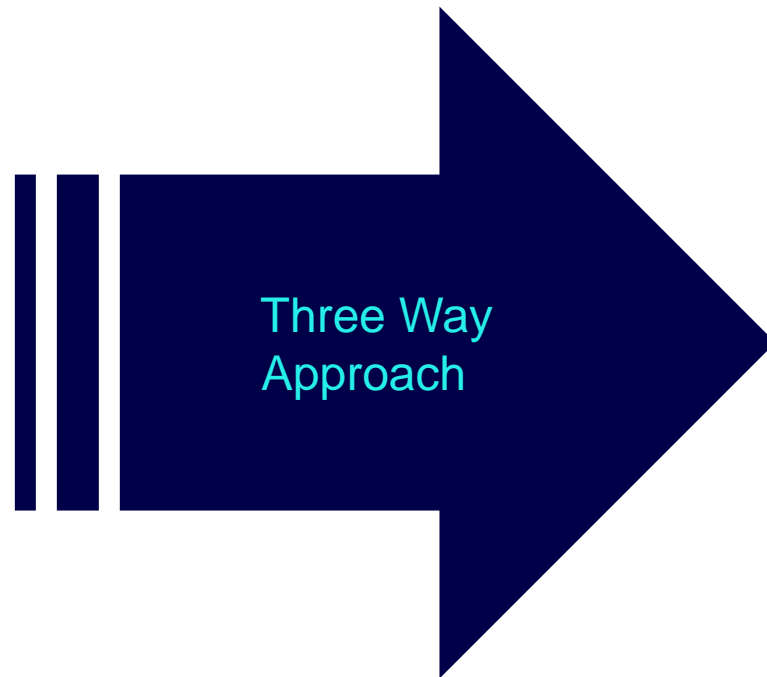


CII 3 Star Excellence Award -2019

CII SR EHS Excellence 3 Star Rating - 2020

CII-SR EHS Excellence Awards 2021_Gold Award

Way Forward



Energy Efficiency

- 1.Reduce power consumption through optimization of capacity utilization and validating operational parameters
- 2.Technological upgradation with higher efficiency asset replacement through retrofit projects

Green Energy

- 1.Increase renewable energy portion from total energy requirement through green power procurement
2. Install rooftop solar panels in owned campuses

IOT & Digital

- 1.Deploy data analytics & machine learning tool to improve energy efficiency of chiller plant
2. Collaborate with IFM service partners in implementing data analytical tools in energy efficiency



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