Cognizant

22nd National Award for Excellence in Energy Management 2021

Siruseri STPI - Chennai

August 2021

Agenda

1. Company Profile
2. Energy Consumption Overview
3. Specific Energy Consumption In Last 3 Years (2018-2020)
4. Information on Internal & National Benchmark
5. List of Major Energy Conservation Project Planned in 2021
6. Energy Saving Projects Implemented in Last 3 Years
7. Innovative Project Implemented Details
8. Utilization of renewable Energy sources
9. Waste Utilization & Management
10. GHG Inventorisation
11. Teamwork, Employee Involvement & Monitoring
12. Awards & Certifications

Cognizant Overview

Cognizant is a multinational corporation that provides IT services, including digital, technology, consulting, and operations services. It is headquartered in Teaneck, New Jersey, United States.

#185

On 2021 **Fortune 500**

Fortune

#533

On **Forbes Global 2000** for 2020

Forbes

#483

On **Forbes The Best Employers for Diversity** 2019

Forbes

12 Years

One of **Fortune's Most Admired Companies**

Fortune

#63

On Forbes Top 100 Digital Companies for 2019

Forbes

#19

On **Forbes America's Best Employers** 2020

Forbes

Cognizant is included in the NASDAQ-100 and the S&P 500 indices. Cognizant had a period of fast growth during the 2000s

159+ delivery and operations centers globally and spread across 39 countries

The company has more than 291700 employees globally, of which, 100000 are women

Total global footprint of 24 million+ built up area, in which 13.6 million SFT is of own Facility

Majority of these operations are in hot and humid climate and operates on 24X7 basis

More than 80% of the space is air-conditioned

Facility Overview

Description	Specification	
Facility information	• Year of Start: 2004 • Owned facility	• Total area of Facility : 9 Acres • Total Built-up area : 312,000 Sq.ft • SDB (G+3) , Academy (G+3), Cafeteria (G+1)
Seating information	• BAU Headcount: 2800	• Non R2O headcount – 100 (Apr'20 to Dec'20)
Substation	• EB Sanctioned Demand 2350 kVA	• Transformers Capacity: 11kV / 433 V, 5000 kVA
Diesel Generators	• Total Capacity: 4500 kVA	• Capacity Break up: 3 No's x 1500 kVA
UPS	• Total UPS Capacity – 640 KVA	• Modular UPS 2 x 180 KVA , 2 x 120 KVA • Conventional – 1 x 40 KVA
Chillers	• Total Capacity: 1610 TR	• Air Cooled Chiller SDB – 3 x 350 TR, Academy -2 x 280 TR
Sewage Treatment Plant	• Capacity : 200 KLD	
High Speed Diesel (HSD)	• Capacity : 30 KL	
Raw Water	• Capacity : 650 KL	
Fire Sump	• Capacity : 240 KL	

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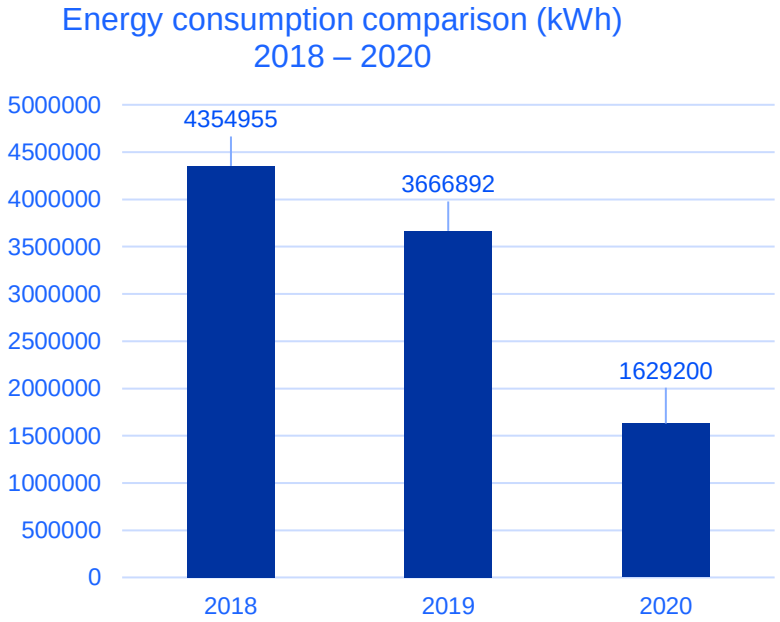
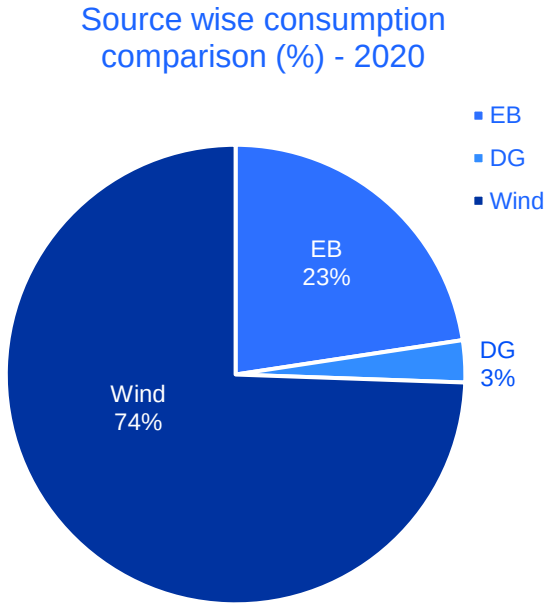
Energy Consumption Overview - 2018 to 2020





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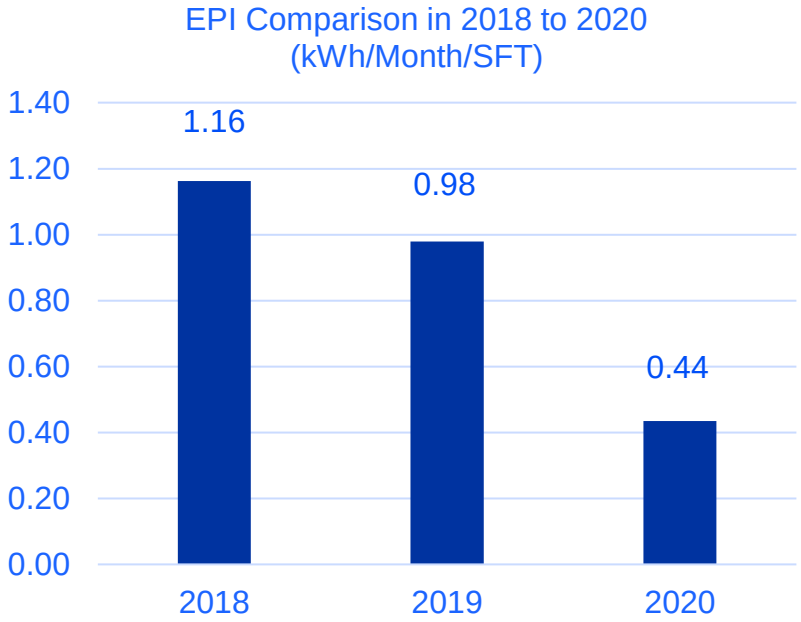
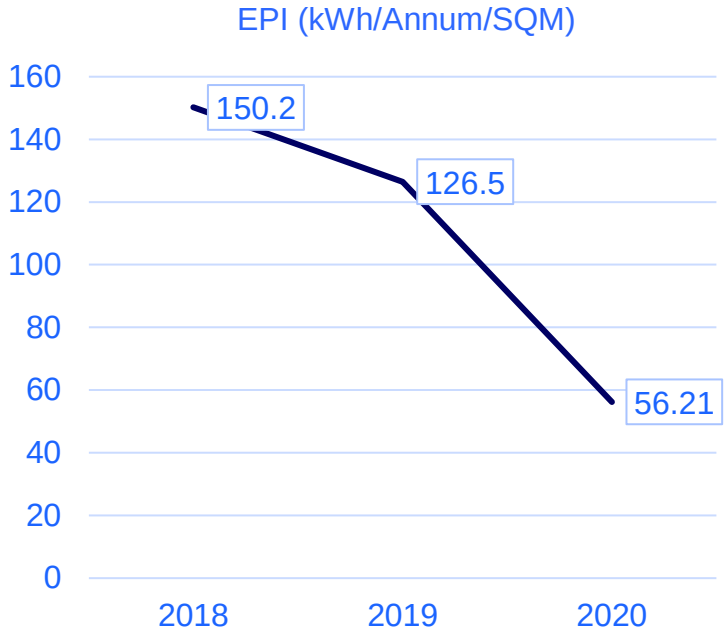
Specific Energy Consumption Overview - 2018 to 2020





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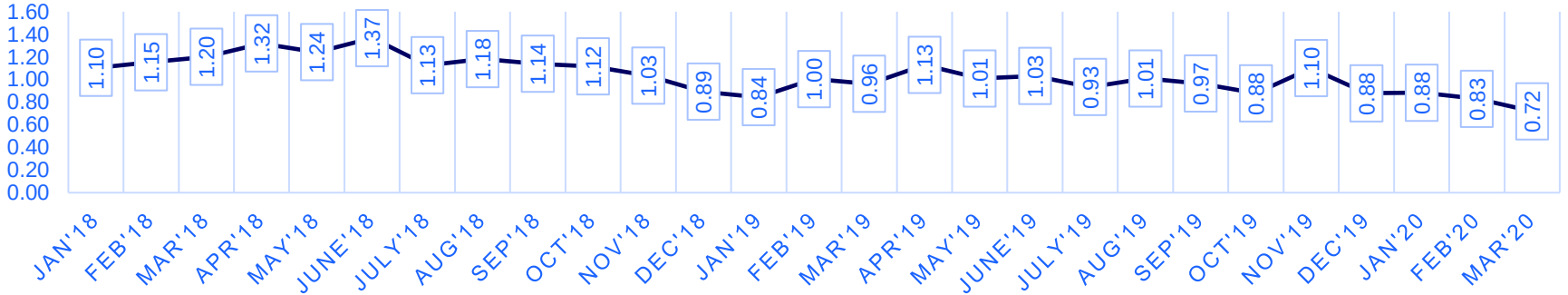
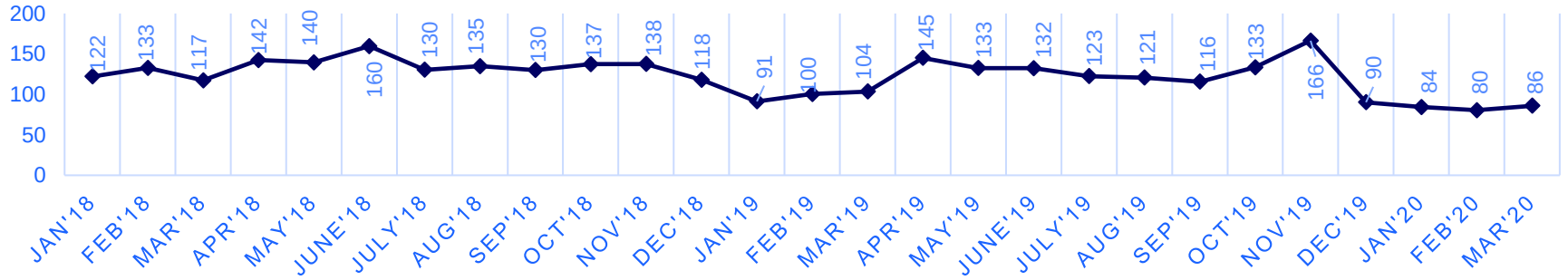
Specific Energy Consumption Overview - 2018 to 2020

SEC – kWh / Month / Sqft.



SEC – kWh / Month / Associate



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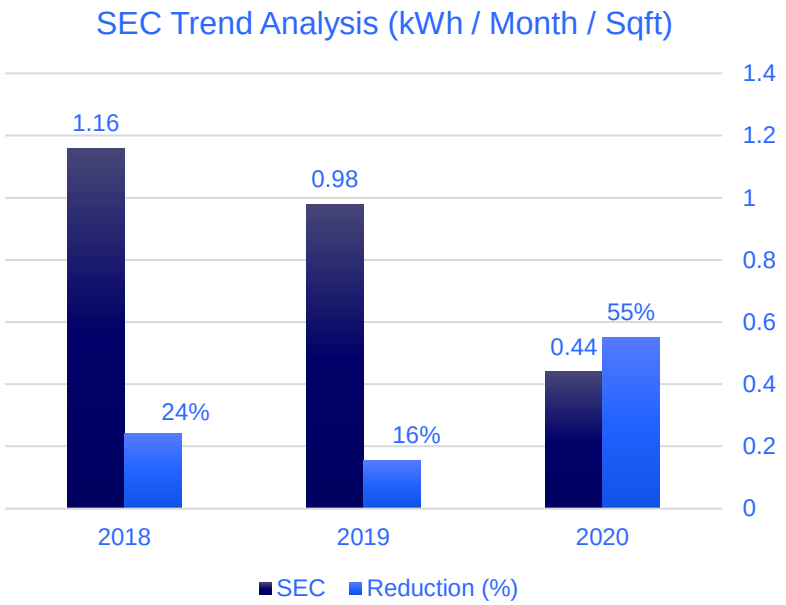
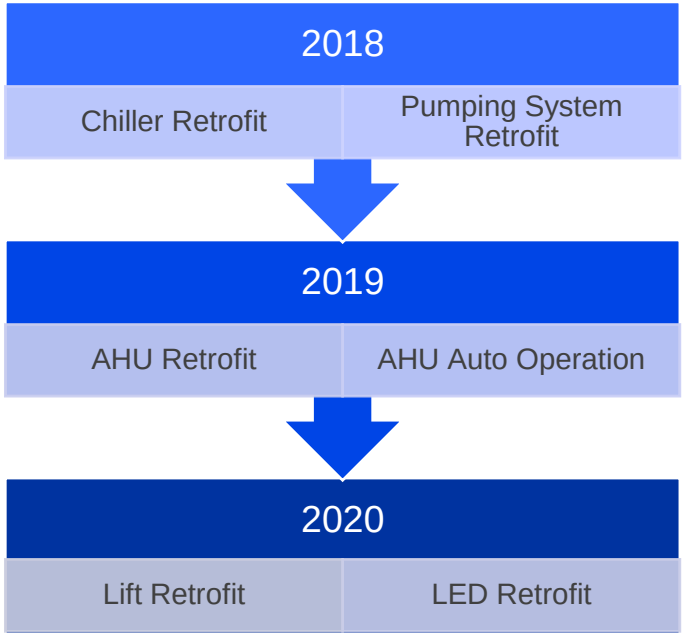
Specific Energy Consumption Trend Analysis - 2018 to 2020





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Comparison of SEC with Internal & National Benchmark

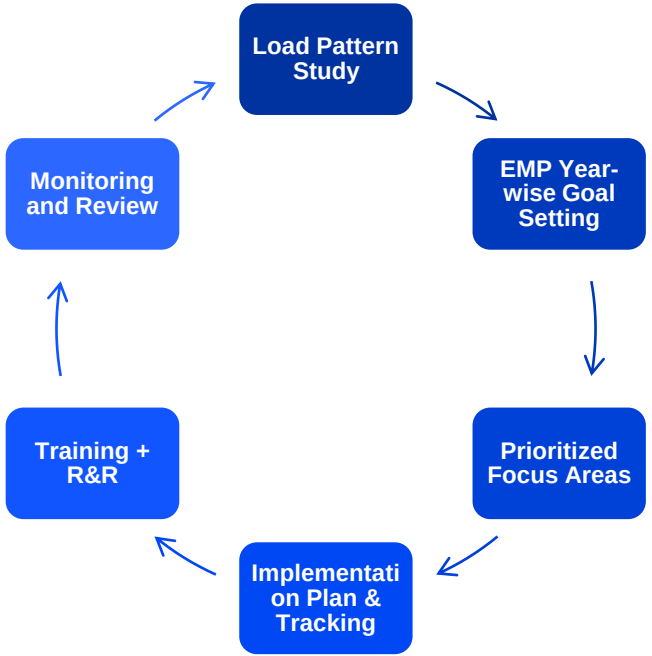
BEE - National Benchmark			
	EPI in kWh/Sq. M. / Year		
Star Rating	Warm and Humid	Composite	Hot and Dry
1 Star	200-175	190-165	180-155
2 Star	175-150	165-140	155-130
3 Star	150-125	140-115	130-105
4 Star	125-100	115-90	105-80
5 Star	Below 100	Below 90	Below 80

Internal Benchmark

Code 001

- Comfort related complaints – Zero
- Equipment downtime – Zero
- Efficiency – One unit per square foot per month

Approach Methodology



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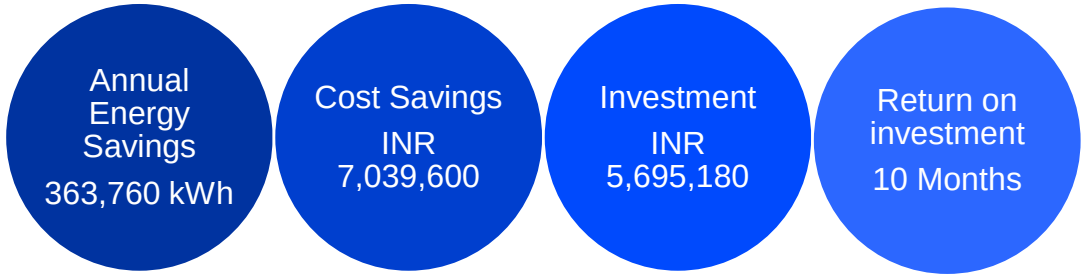
List of Major Encon Projects Planned in FY 2021-22

No	Title of Project	Annual Electrical Savings (kWh)	Cost Savings (INR)	Investment (INR)	Payback Period (Months)	Inference
1	Interconnection of chilled water pipelines in SDB & Academy block	330,000	3,300,000	5,000,000	18	Techno commercial evaluation and approval is in progress
2	Surrender of Maximum demand 3250 KVA to 2350 KVA	-	3,402,000	345,180	1	MD reduction sanctioned. Implemented from June' 25, 2021 and achieved cost savings of INR 56000 for June 2021 and INR 283500 for July 2021 EB Bill
3	Deploy data analytics & machine learning tool to improve energy efficiency of chiller plant	33,760	337,600	350,000	12	Pilot activity is going on in one of our campus



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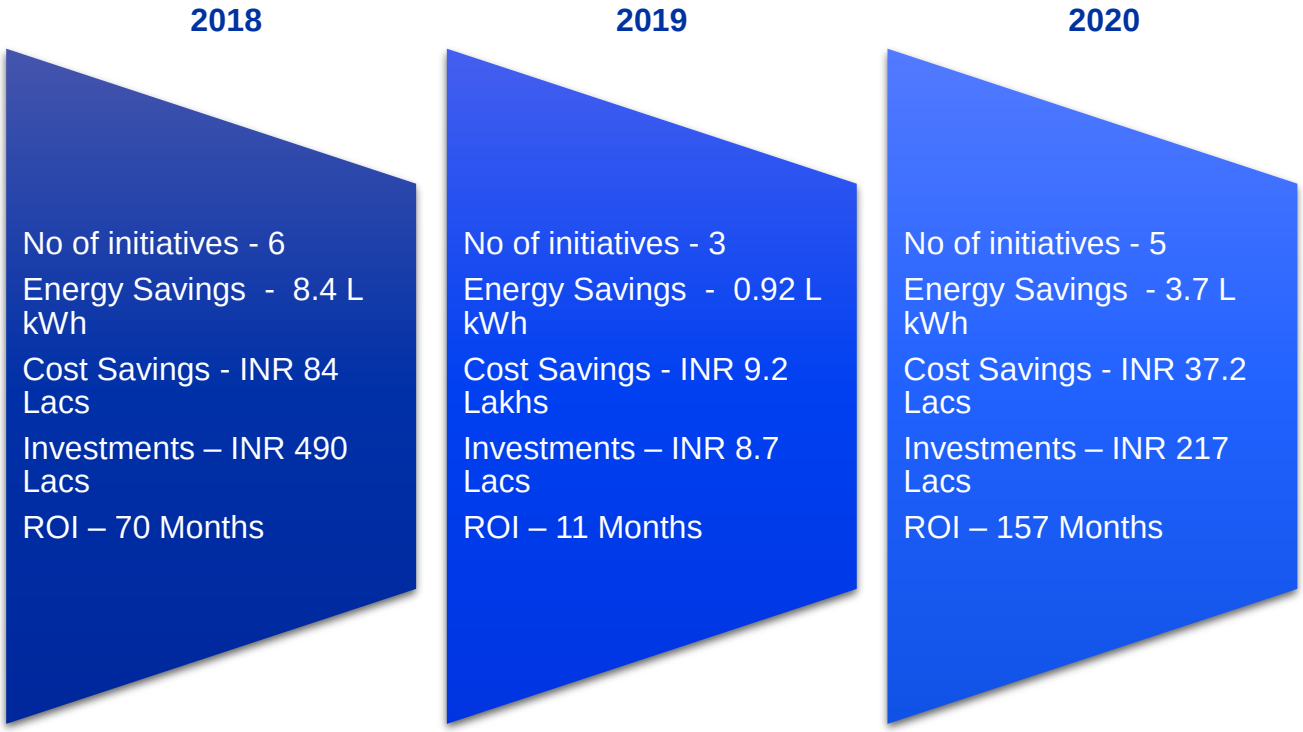
Energy Saving Projects Implemented from 2018 to 2020



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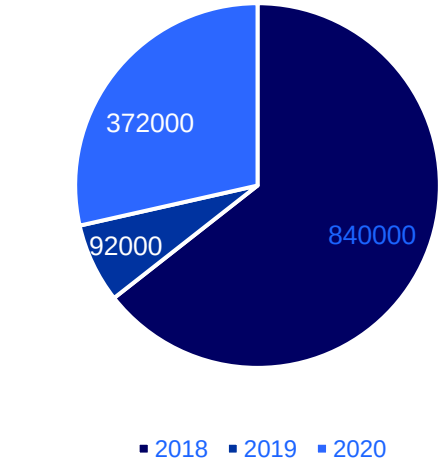
Energy Saving Projects Implemented from 2018 to 2020

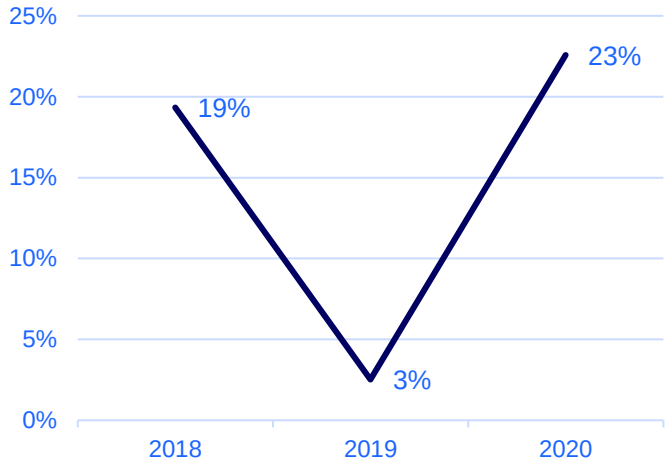
Energy Saving Comparison (kWh)



Total Energy Savings
13.04 L kWh

Total Cost Savings
INR 130 Lacs

Energy Saving Impact on SEC (%)



Overall SEC Reduction
0.35 kWh / Month / Sq.ft.

Overall SEC Reduction 23%

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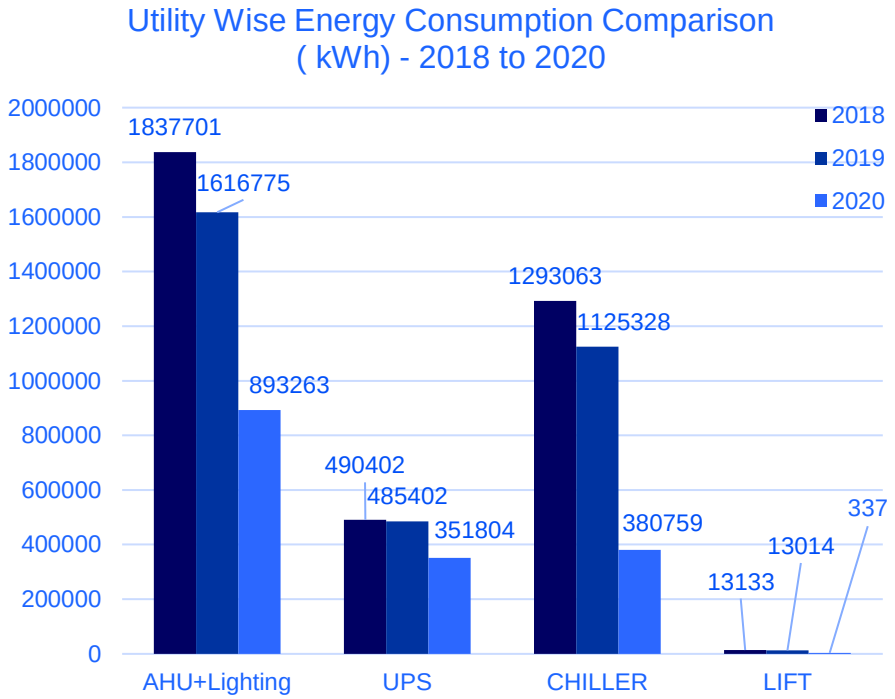
Energy Saving Projects Implemented from 2018 to 2020



Utility Wise Reduction - 2018 to 2019 (BAU)

AHU + Lighting	• 220926 kWh • 12%
UPS	• 5000 kWh • 1%
Chiller	• 167735 kWh • 13%
Lift	• 199 • 1%

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Innovative Project – Effective utilization of Cafe AHU

Café Operation

- Operation of 45 TR AHU for café & event area
- Cafeteria operation Monday to Saturday - 9 hrs
- Specific energy consumption – 0.55 kW / TR

MHC Operation

- Operation of 11 TR duct split unit for MHC
- MHC operation Monday to Saturday - 9 hrs
- Specific energy consumption - 3 kW / TR

Brainstorming

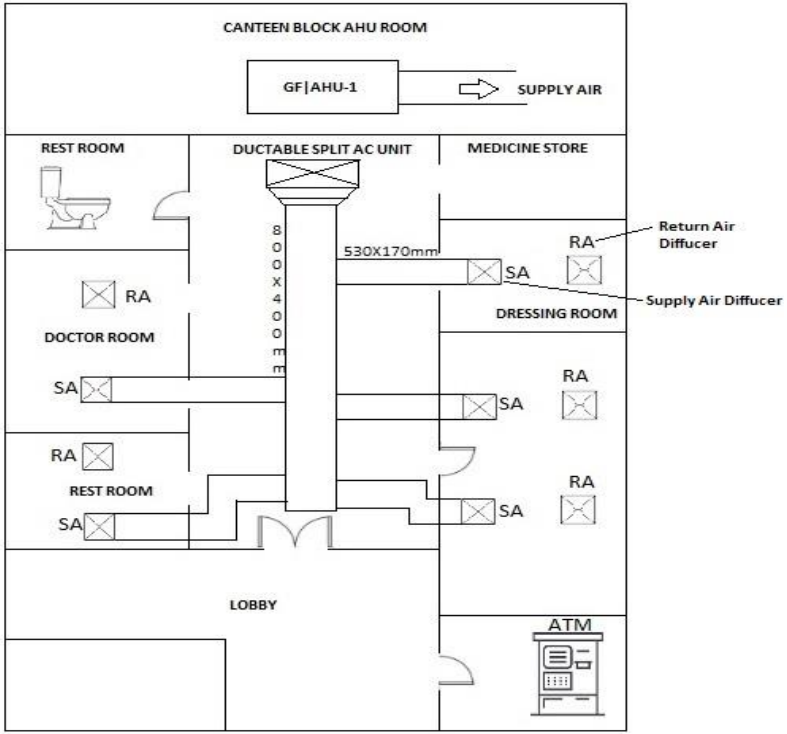
- Café AHU not loaded as per design level
- MHC duct split unit SEC > 2kW / TR
- Café AHU SEC < 1kW / TR
- Heat load study conducted by plant team
- Decided to provide duct extension to MHC room from café AHU
- Provision of modulating actuator damper

Implementation

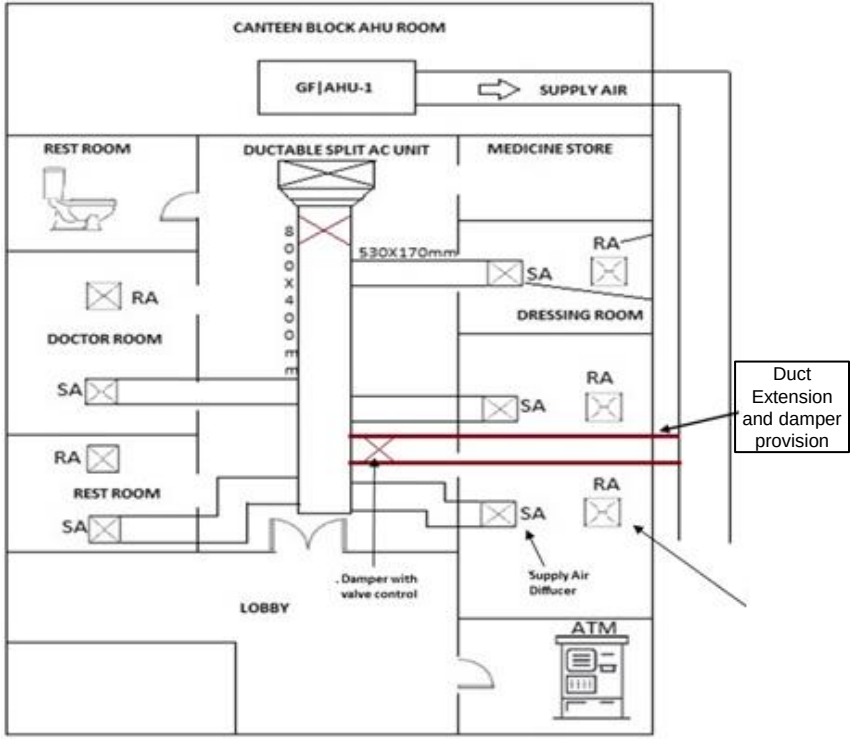
- Provided additional duct to MHC room by vendor support
- Modulating actuator installed in both unit supply air
- Control wiring and fixing of actuator done by plant team
- Control mechanism of damper (Open/Close) is done
- MHC room temperature is measured with support of AHU
- Temperature achieved 25+- in MHC room

Innovative Project – Effective Utilization of Cafe AHU

Before – Duct & Floor Layout



After – Duct & Floor Layout



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Innovative Project – Effective Utilization of Cafe AHU

Damper Control Wiring

Actuator

Benefits

1. Avoiding of energy losses and efficiency improvement
2. Redundancy provided to MHC room
3. Economical savings of INR 1.6 Lacs

Savings calculation

1.Improvement in SEC – 1.5 kW / TR

2.Rated Capacity of MHC Unit – 11 TR

3.Enegy Consumption Saved – 16.5 kW

4.Operartion Hrs/ Day – 9 Hrs

5. Annul Operation Days – 300days

6.Annual Energy Savings – 44550 kWh

7.Annual Cost Savings – INR 445500

8.Invenstment Cost – INR 54500

9.Return on Investment – 1 Month

Energy Saving 44550 kWh

Cost Savings INR 445500

ROI 1 Month

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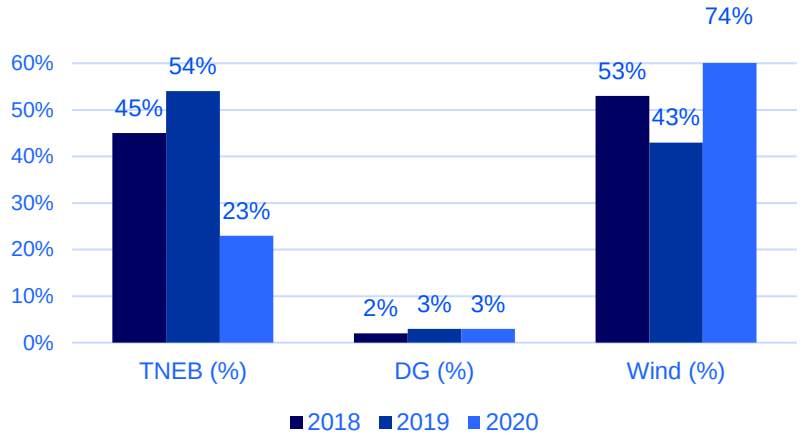
Utilization of Renewable Energy Sources – (2018–2020)



- Total Renewable Energy **51 L kWh (53 %)**
- Total GHG Optimized **4156 MT**

Technology (Electrical)	Type of Energy	Onsite/Offsite	Installed Capacity (MW)	Utilization (million kWh)	% of overall renewable energy
Electrical	Wind	Offsite	256.85	5.1	53%

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Utilization of Renewable Energy Sources - FY (2018–2021)

Year	Installed Capacity (MW)	Total Wind Energy Contracted Quantum (Lacs kWh)	Actual Supplied Wind Energy Quantum (Lacs kWh)	STPI Consumption (Lacs kWh)	Allocation contribution (%)
2018-19	256.85	525	511	18.64	3.64%
2019-20	256.85	525	509	16.09	3.15%
2020-21	256.85	525	379	8.03	2.11%

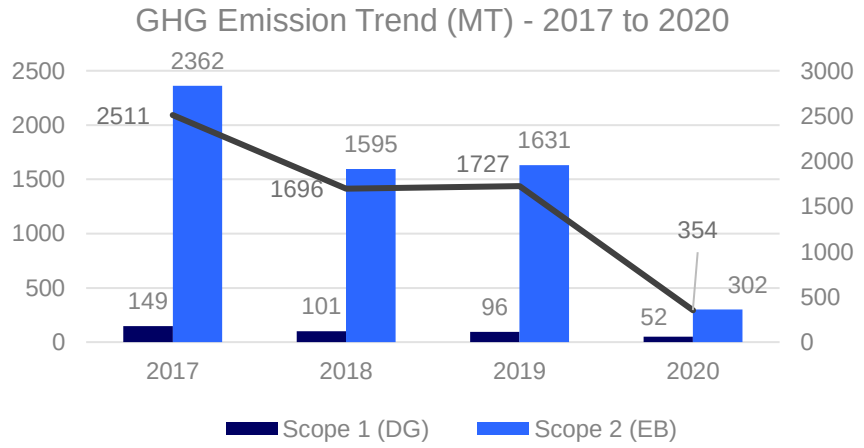
- In FY 2018-19 additional quantum of 200 Lacs kWh purchased with an investment of INR.200 Lacs
- RPO is complied in FY 2017-18 as Solar – 5% and Non-Solar – 9%
  - Solar REC purchased – 101 No’s
  - Non-Solar REC purchased – 182 No’s
- Allocation contribution reduction for FY 2018-21
  - Tariff – Industrial with Tax (INR.6.35/kWh)
  - Less wind generation during peak seasonal months

Waste Utilization and Management

Cognizant choose to refuse the use of following ‘One time use and throw plastics’ irrespective of thickness form 13.07.2018 onwards

Sl No	Type of Waste Generated	Disposal Method	Action Taken for Reduction of Waste
1	Hazardous Waste	Used and waste oil disposed to TNPCB 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	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 TNPCB authorized recycler	E –Waste – CFL to LED (Lifetime enhancement)

GHG Inventorisation & Indoor Air Quality



GHG Reduction Target & Action Plan

GHG Reduction

1. Retrofit Projects implementation
2. RE utilization increased 39% to 74%
3. EB Power interruption reduction

GHG Target

1. SBT-24% in 2024
2. Roof Top solar plant installation
3. IoT Project implementation

Indoor Air Quality (BAU)

Test Parameters	Units	Result	Permissible limit	Remarks
Carbon Dioxide (CO2)	Mg/m3	819	1800	1. Testing through NABL Laboratory 2. Frequency of sampling is quarterly once for workstations
Total Fungal Count	Cfu/m3	27	500	
Total Bacterial Count	Cfu/m3	113	500	

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Standardization of Best Practices

Personnel Computer

Sleep mode enabled for all personnel computer

Conventional CPU replacement with compact CPU

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

PC to Laptop
(95% Associates)

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

Kitchen / Pantry

Elimination of electrical hot plate

Mandatory use of BEE star rated equipment's

Scheduled operation of ventilation system

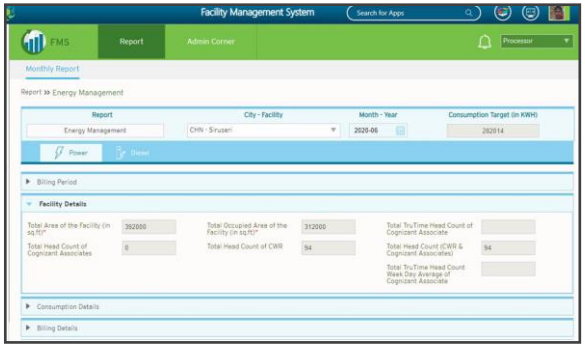
Periodical cleaning of heater in bain-marie

Standard operation temperature for all freezer equipment

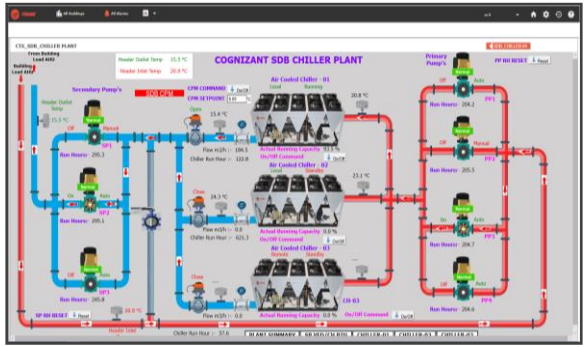
Weekly deep cleaning for all type of freezer

Teamwork, Employee Involvement, Monitoring

FMS – Daily & Monthly Energy Tracking



Chiller Monitoring



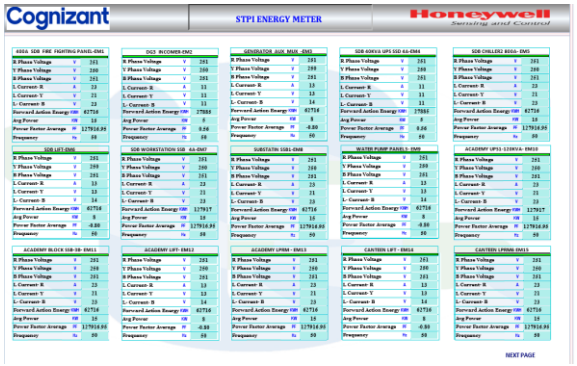
Chiller SEC Measurement

TRANE

Job Name	CTS STPI-Siruseri - Chennai			
Sub Location	Academy			
Chiller Model	RTAF280 HSE			
Serial No	Design	ELA 3510	ELA3509	
Chiller #		4	5	
Date		9-Nov-20	9-Nov-20	
Time		4:00 PM	4:50: PM	
Evaporator Entering Water Temp (°F)	54	67.6	70.5	
Evaporator Leaving Water Temp (°F)	44	56.6	59.9	
Ambient Temp (°F)	104	83.7	84.5	
% Chiller Load (% Amps)	100%	95.1	96.7	
Chilled water Set Point (°F)		46.4	46.4	
Total Chiller Current consumption (compressor + condenser fans) - Chiller HMI - (KW)	326.5	300.00	295.00	
Water Flow (GPM)	635	675	700	
Tonnage = (GPM X Evap. Delta Temp.(°F)) / 24	263	315.0	309.2	
Input KW Per TR - (KW/TR)	1.24	0.95	0.95	

Remarks: Chiller is running within the design limit.

Energy Consumption Monitoring



UPS Monitoring

OEM Training on Operational Control

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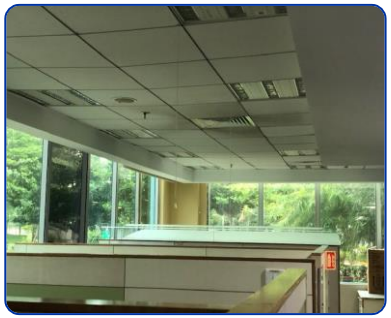
Kaizen by Plant Team

Desktop Unplugging

Switching off Ideal Chiller

UPS Modular Optimization

Pull Cord Switches



Timer Based AHU Operations Control

Motion Control Sensor for Rest Room Lighting

Lighting Circuit Modification

250W MH Street Light to Solar Fixtures

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List of Certifications & Achievements

DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

Certificate No: 47341-2009-HSO-IND-DNV
Initial certification date: 27, February, 2009
Valid: 06, April, 2017 – 05, April, 2020

This is to certify that the management system of

Cognizant Technology Solutions Corporation
Techno Complex, 5/535, Old Mahabalipuram Road, Okkiyam, Thoraipakkam,
Chennai - 600 097, Tamil Nadu, India
and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Occupational Health and Safety Management System standard:
OHSAS 18001:2007

This certificate is valid for the following scope:
Providing business solutions leveraging information technology and IT enabled services

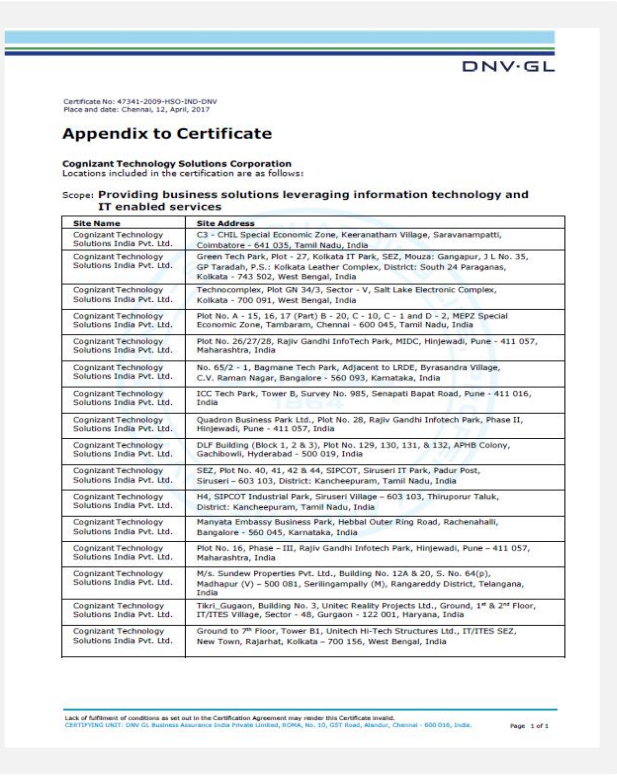
Place and date:
Chennai, 12, April, 2017

For the issuing office:
DNV GL – Business Assurance
ROMA, No. 10, GST Road, Alandur,
Chennai - 600 016, India

Sivadasan Madiyath
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
CERTIFYING UNIT: DNV GL Business Assurance India Private Limited, ROMA, No. 10, GST Road, Alandur, Chennai - 600 016, India.

OHSAS 18001:2007 - 2019



DNV·GL

Certificate No: 47341-2009-HSO-IND-DNV
Place and date: Chennai, 12, April, 2017

Appendix to Certificate

Cognizant Technology Solutions Corporation
Locations included in the certification are as follows:

Scope: **Providing business solutions leveraging information technology and IT enabled services**

Site Name	Site Address
Cognizant Technology Solutions India Pvt. Ltd.	C3 - CHL Special Economic Zone, Keeranatham Village, Saravanampatti, Coimbatore - 641 035, Tamil Nadu, India
Cognizant Technology Solutions India Pvt. Ltd.	Green Tech Park, Plot - 27, Kolkata IT Park, SEZ, Mouza: Gangapur, J L No. 35, GP Taradah, P.S.: Kolkata Leather Complex, District: South 24 Paraganas, Kolkata - 743 502, West Bengal, India
Cognizant Technology Solutions India Pvt. Ltd.	Technocomplex, Plot GN 34/3, Sector - V, Salt Lake Electronic Complex, Kolkata - 700 091, West Bengal, India
Cognizant Technology Solutions India Pvt. Ltd.	Plot No. A - 15, 16, 17 (Part) B - 20, C - 10, C - 1 and D - 2, MEPZ Special Economic Zone, Tambaram, Chennai - 600 045, Tamil Nadu, India
Cognizant Technology Solutions India Pvt. Ltd.	Plot No. 26/27/28, Rajiv Gandhi InfoTech Park, MIDC, Hinjewadi, Pune - 411 057, Maharashtra, India
Cognizant Technology Solutions India Pvt. Ltd.	No. 65/2 - 1, Bagmane Tech Park, Adjacent to LRDE, Byrasandra Village, C.V. Raman Nagar, Bangalore - 560 093, Karnataka, India
Cognizant Technology Solutions India Pvt. Ltd.	ICC Tech Park, Tower B, Survey No. 985, Senapati Bapat Road, Pune - 411 016, India
Cognizant Technology Solutions India Pvt. Ltd.	Quadron Business Park Ltd., Plot No. 28, Rajiv Gandhi Infotech Park, Phase II, Hinjewadi, Pune - 411 057, India
Cognizant Technology Solutions India Pvt. Ltd.	DLF Building (Block 1, 2 & 3), Plot No. 129, 130, 131, & 132, APHB Colony, Gachibowli, Hyderabad - 500 019, India
Cognizant Technology Solutions India Pvt. Ltd.	SEZ, Plot No. 40, 41, 42 & 44, SIPCOT, Siruseri IT Park, Padur Post, Siruseri – 603 103, District: Kancheepuram, Tamil Nadu, India
Cognizant Technology Solutions India Pvt. Ltd.	H4, SIPCOT Industrial Park, Siruseri Village – 603 103, Thiruporur Taluk, District: Kancheepuram, Tamil Nadu, India
Cognizant Technology Solutions India Pvt. Ltd.	Manyata Embassy Business Park, Hebbal Outer Ring Road, Rachenahalli, Bangalore - 560 045, Karnataka, India
Cognizant Technology Solutions India Pvt. Ltd.	Plot No. 16, Phase – III, Rajiv Gandhi Infotech Park, Hinjewadi, Pune – 411 057, Maharashtra, India
Cognizant Technology Solutions India Pvt. Ltd.	M/s. Sundew Properties Pvt. Ltd., Building No. 12A & 20, S. No. 64(p), Madhapur (V) – 500 081, Serilingampally (M), Rangareddy District, Telangana, India
Cognizant Technology Solutions India Pvt. Ltd.	Tikri Gugaon, Building No. 3, Unitec Reality Projects Ltd., Ground, 1st & 2nd Floor, IT/ITES Village, Sector – 48, Gurgaon - 122 001, Haryana, India
Cognizant Technology Solutions India Pvt. Ltd.	Ground to 7th Floor, Tower B1, Unitech Hi-Tech Structures Ltd., IT/ITES SEZ, New Town, Rajarhat, Kolkata – 700 156, West Bengal, India

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
CERTIFYING UNIT: DNV GL Business Assurance India Private Limited, ROMA, No. 10, GST Road, Alandur, Chennai - 600 016, India.
Page 1 of 1

Appendix Certificate

Energy Awards

Excellent Energy efficient unit 2018

Energy efficient unit 2019

Energy efficient unit 2020

Way Forward

Energy Efficiency

1.Reduce power consumption through optimization of capacity utilization and validation operational parameters

2.Technological upgradation with higher efficiency asset replacement through retrofit projects

Green Energy

1.Increase renewable energy portion from the 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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22nd National Award for Excellence in Energy Management 2021

Siruseri STPI - Chennai

August 2021