Cognizant

22nd National Award for Excellence in Energy Management 2021

Siruseri SEZ - Chennai

August 2021

Agenda

1. Brief of the Organization
2. Facility Overview
3. Energy Consumption Overview for the Year 2018-2020
4. Specific Energy Consumption in Last 3 years (2018-2020)
5. Information on Internal, External, National & Global Benchmark
6. Energy Saving Projects Implemented Details (2018-2020)
7. List of Major Energy Conservation Project Planned in 2021
8. Innovative Technologies Implemented
9. Utilization of Renewable Energy Sources
10. Waste Utilization & Management
11. GHG Inventorisation
12. Standardization of Best Practices
13. Teamwork, Employee involvement & monitoring
14. Awards & Certification

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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 291,700 employees globally, of which, 100,000 are women employees.

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

- Operations from 2011, Owned Facility at SIPCOT
- Campus Area – 40 acres.
- Total Built-up Area- 200,986.67 Sq.mtr
- Five Blocks (SDB1,SDB 2,SDB 3, MLCP & Cafeteria)
- Seating Capacity: 12554
- BAU Head Count: 8558 Associates & 1550 CWR
- TNEB Sanctioned Demand – 5500 KVA
- TNEB Supply Voltage Level – 33 KV
- Transformers Aggregate Capacity – 14000 KVA
- Diesel Generator Aggregate Capacity – 12000 KVA
- Chiller Aggregate Capacity – 4886 TR
- UPS Aggregate Capacity – 1905 KVA
- Exclusive Medical Center with Ambulance Service
- Gold Rated LEED Certified Building
- Certified for OHSAS 45001 and ISO 14001

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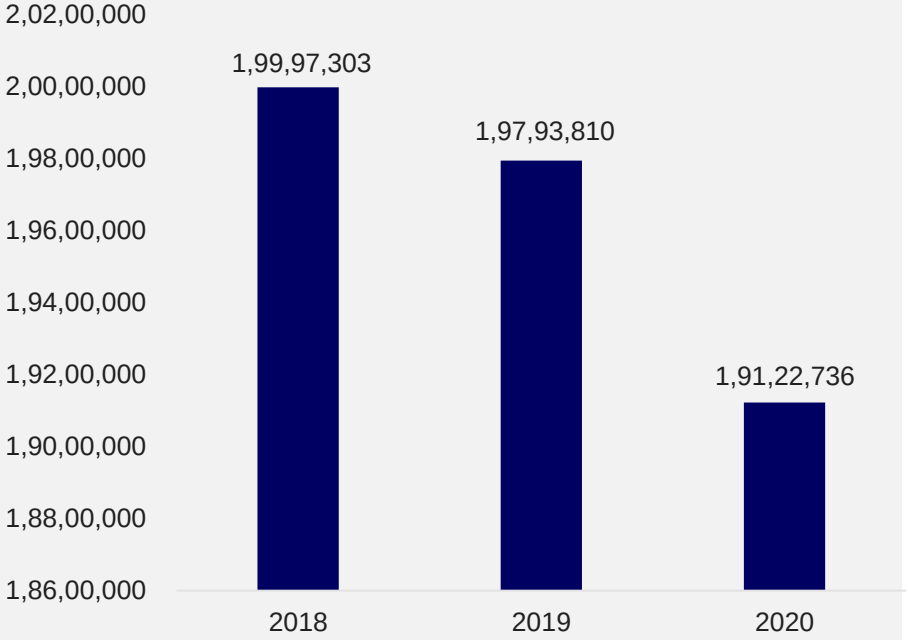
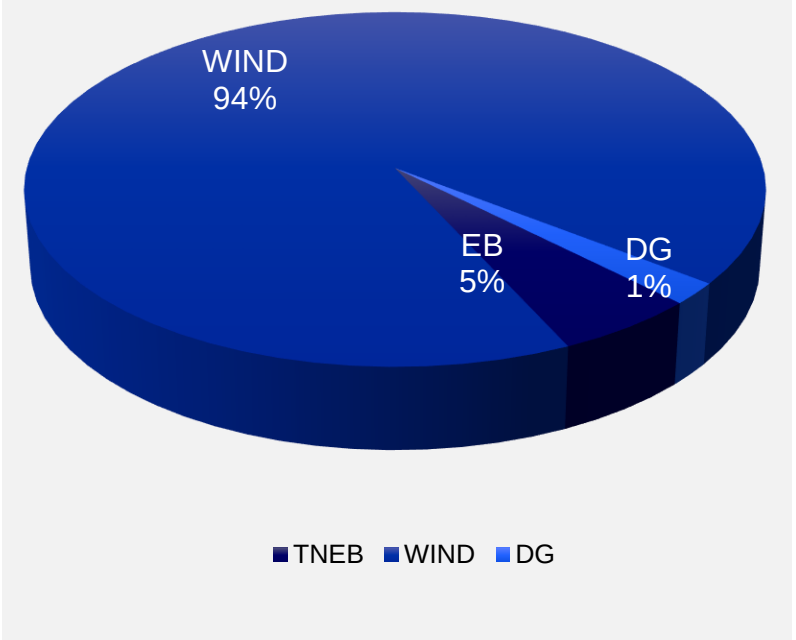
Energy Consumption Overview for year 2018 - 2020





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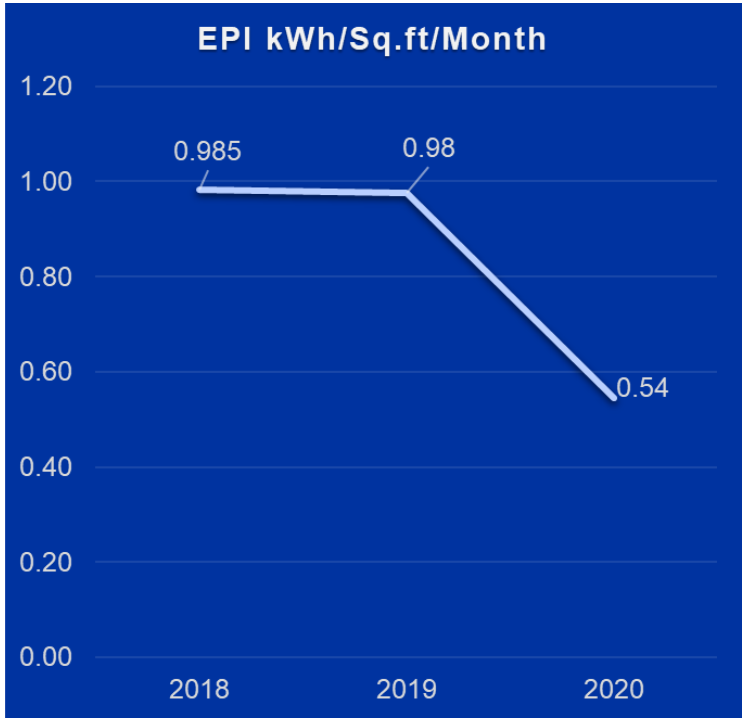
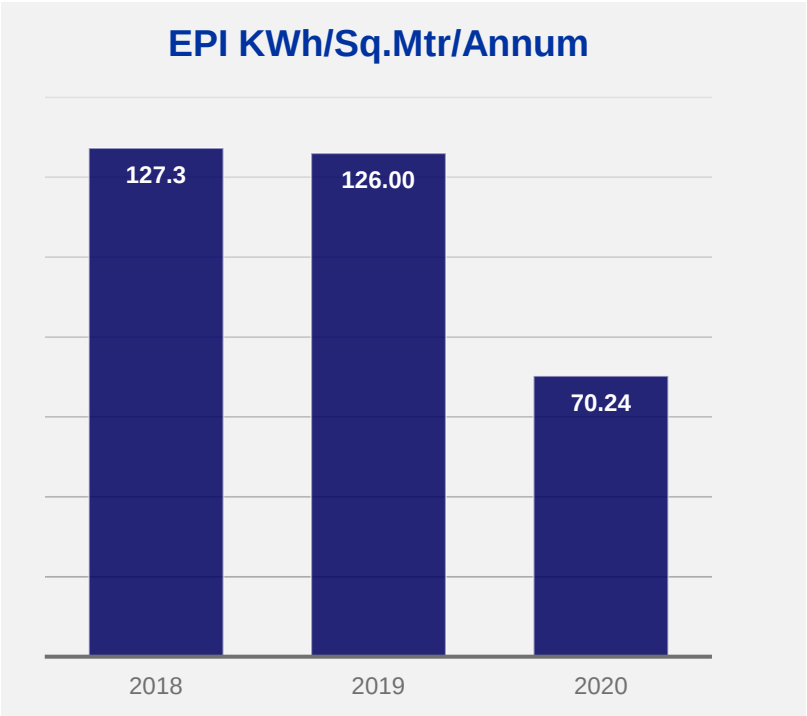
Specific Energy Consumption Trend-2018 to 2020





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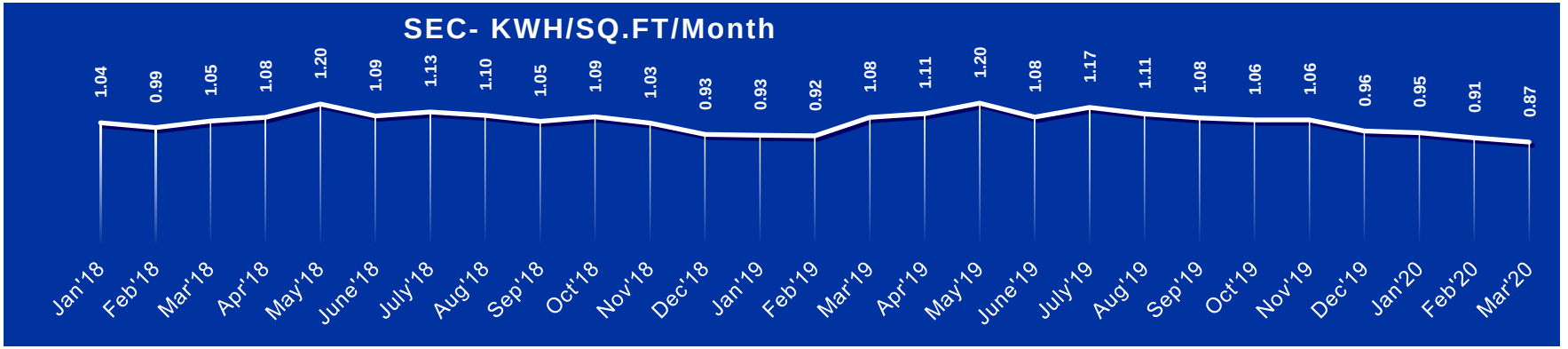
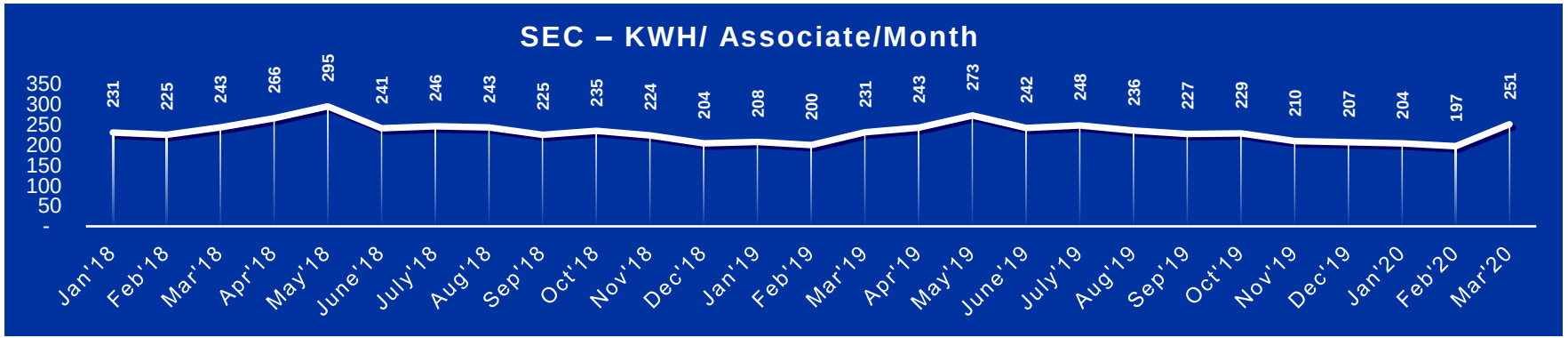
Specific Energy Consumption Overview - 2018 to 2020





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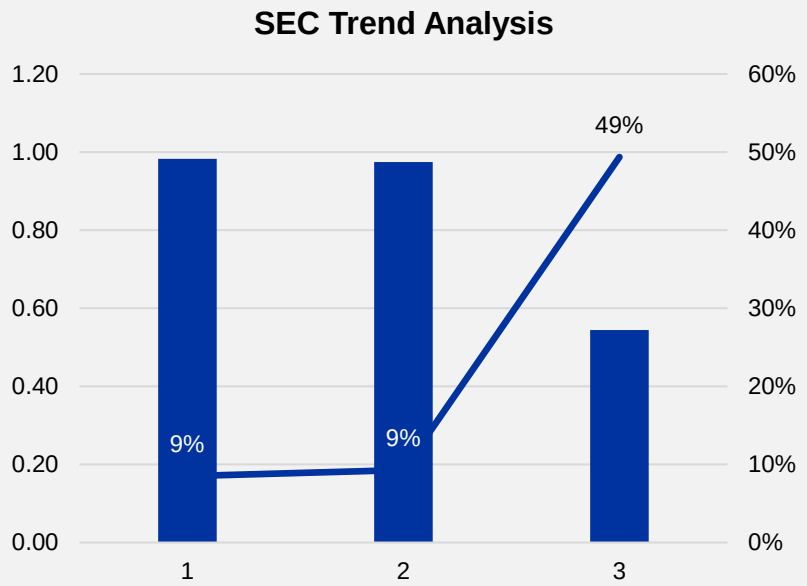
Specific Energy Consumption Trend Analysis - 2018 to 2020



2018

- Building chiller integration with centralized plant.
- Conventional UPS replacement with modular UPS.
- Enabled ACC set temperature modification CPM.

2019

- Effective lighting operation control via BMS.
- Effective utilization of low ambient temp for heat load optimization.
- Electrolytic scale remover for cooling tower system.

2020

- LED retrofit in SDB 1 building
- UPS retrofit in SDB 3

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Comparison of SEC with Internal & National Benchmark

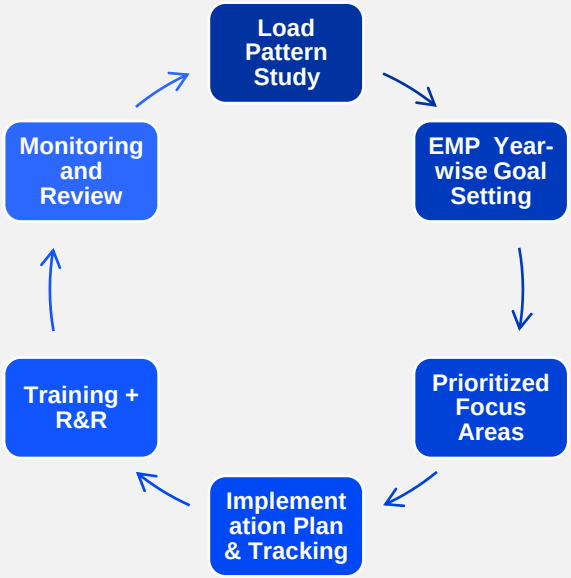
BEE - National Benchmark			
	EPI in kWh/Sq. M. / Year		
Star Rating	Warm and Humid	Composite	Hot and Dry
1 Star	200-175	190-165	180-155
2 Star	175-150	165-140	155-130
3 Star	150-125	140-115	130-105
4 Star	125-100	115-90	105-80
5 Star	**Below 100**	**Below 90**	**Below 80**

Internal Benchmark

Code 001

- **Complaints relating to comfort – Zero**
- **Downtime of equipment – Zero**
- **Efficiency – One unit per square foot per month**

Approach Methodology



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List of Energy Savings Projects Planned – 2021

Year	Initiative Category	Intiative Discription	Investment for Initiative (INR)	Energy Savings (kWh)	Energy Cost (INR)	Pay Back Period (Months)
2021	Lighting	Replacement of 2 x 18 Watts CFL fittings with 1 x 12 Watts LED fittings in SDB2 & 3 buildings	71,77,874	605,288	48,42,304	18 Months
2021	Lighting	Replacement of 4 x 14 Watts FTL fittings with 1 x 24 Watts LED fittings in SDB2 & 3 buildings	88,71,450	1,067,308	85,38,464	12 Months
2021	AHU	Workstations AHUs retrofit across campus 82nos	1,08,90,000	648,300	51,86,400	24 Months
2021	Chiller	Modification of main header pipelines interconnection at chiller plant room	4,63,991	80,186	6,41,488	9 Months

Annual Energy Savings
2,401,082 KWh

Cost Savings
INR.19,208,656

Investment ost INR.
27,403,315

Payback Months 18
Months

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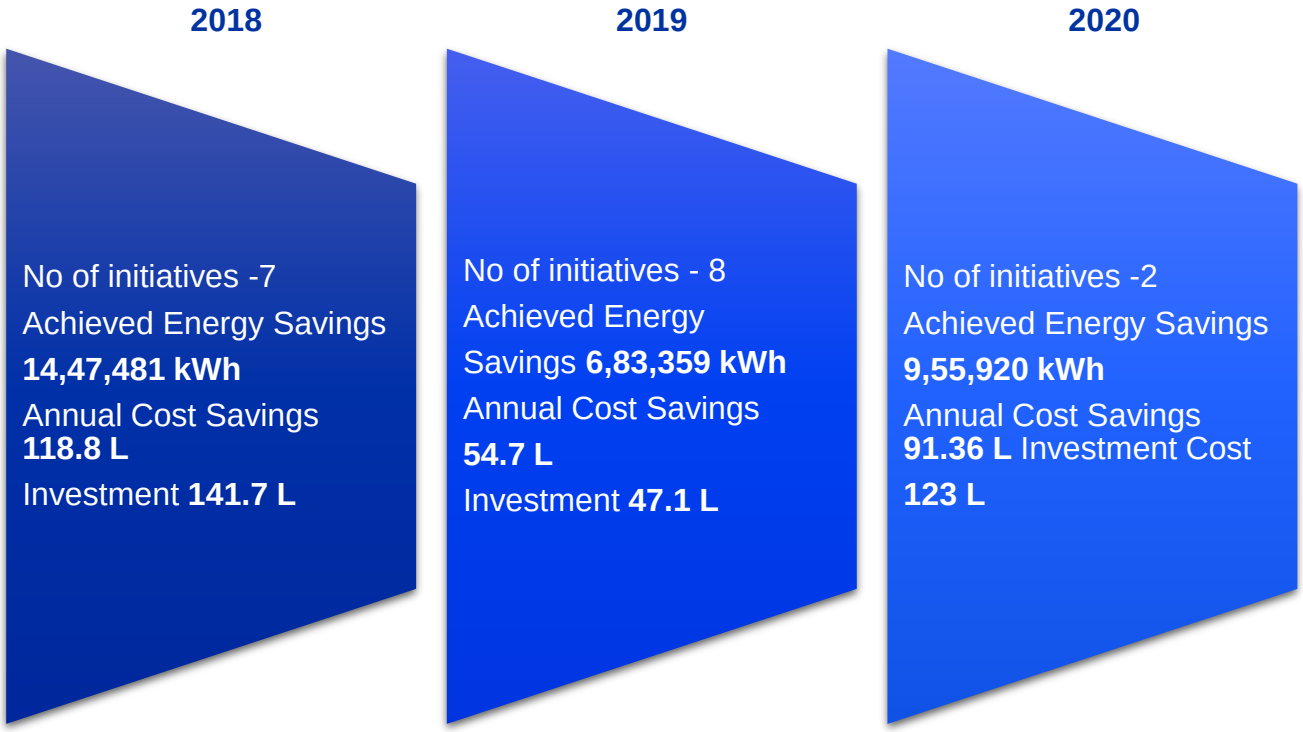
Energy Saving Projects Implemented Summary in 2018 to 2020



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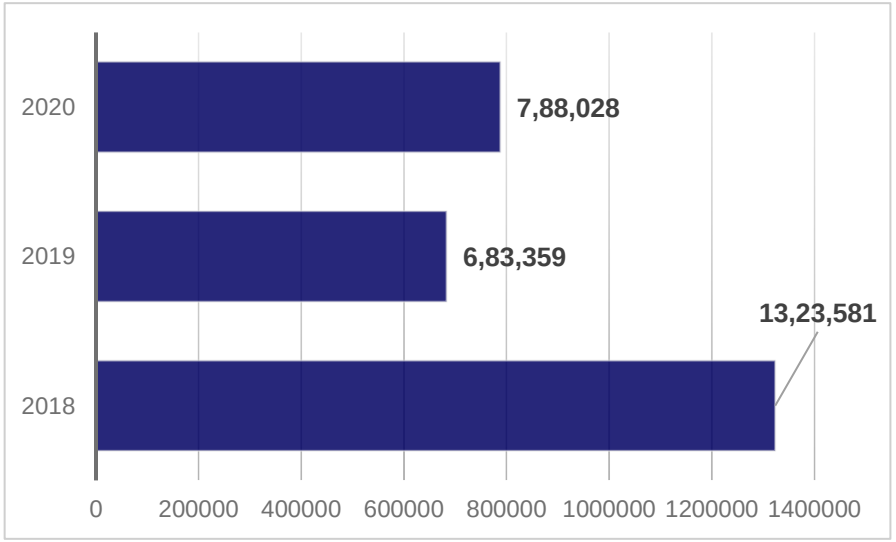
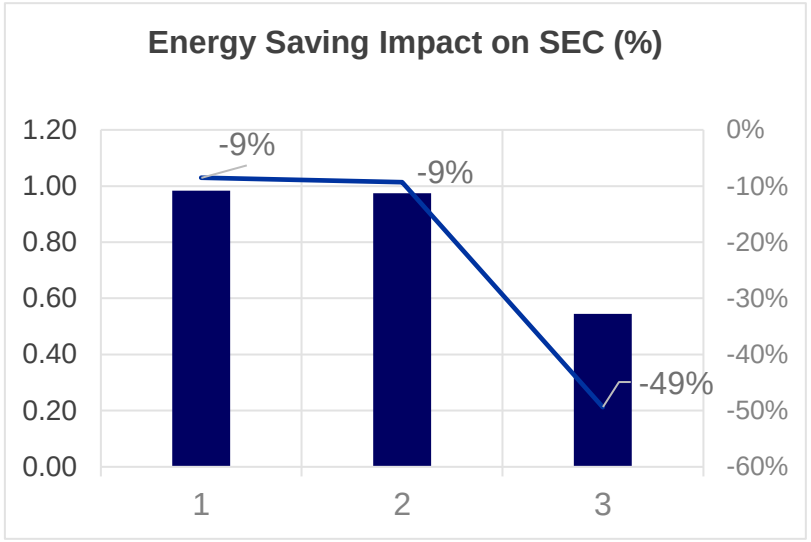
Energy Savings Projects Implemented List – 2018 To 2020





Total Energy Savings
27.94 L kWh

Total Cost Savings
INR 250 Lakhs

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

Overall SEC Reduction 49%

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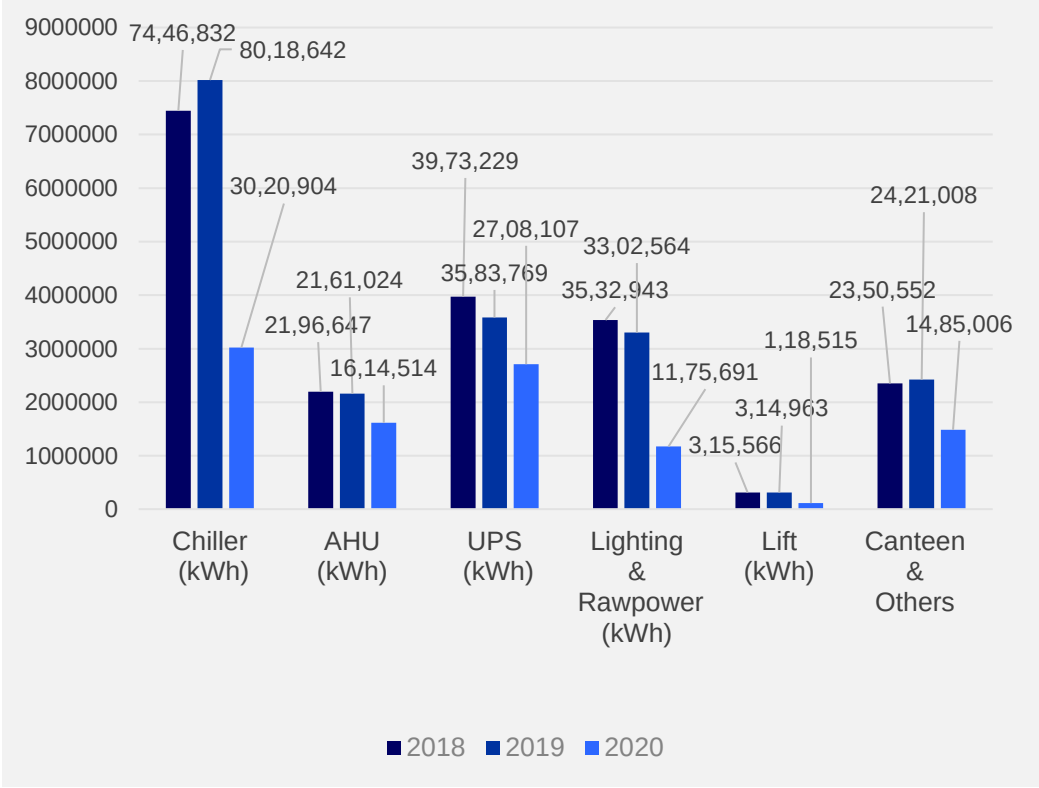
Energy Saving Projects Implemented in 2018 to 2020



Chiller
- 44,25,928 kWh
- 59%

AHU
- 5,82,133 kWh
- 27%

UPS
- 12,65,122 kWh
- 32%

Lift
- 1,97,051 kWh
- 62%

Lighting & Power
- 23,57,252 kWh
- 67%

Canteen & Others
- 8,65,546 kWh
- 37%

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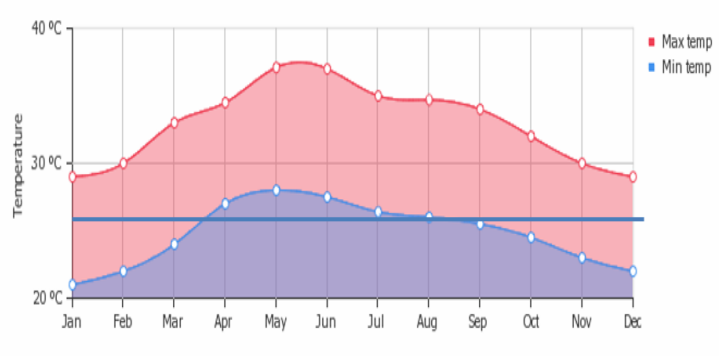
IP: Effective Utilization of Low Ambient Temperature for Heat Load Reduction

Opportunities for Improvement

- It was very obvious that the ambient temperature is reaching lower level at times of winter
- During night hours the temperature in the atmosphere was observed reaching till ≤ 20˚C
- Decided to use this low temperature air for the air-conditioning usages
- The idea is to use the ambient air to achieve better air quality as well as the energy savings
- The RH and temperature are the critical parameters to consider apart from pollution
- The thermodynamics to be related for proper control
- The risk of loosing or screwing up the entire operation was carefully evaluated and scrutinised



- It was observed that Oct, Nov, Dec and Jan are having good OA conditions in early morning
- Air Temperature difference is considered as acceptable condition for Air-intake
- The lower the outdoor temperature is higher the energy savings potential

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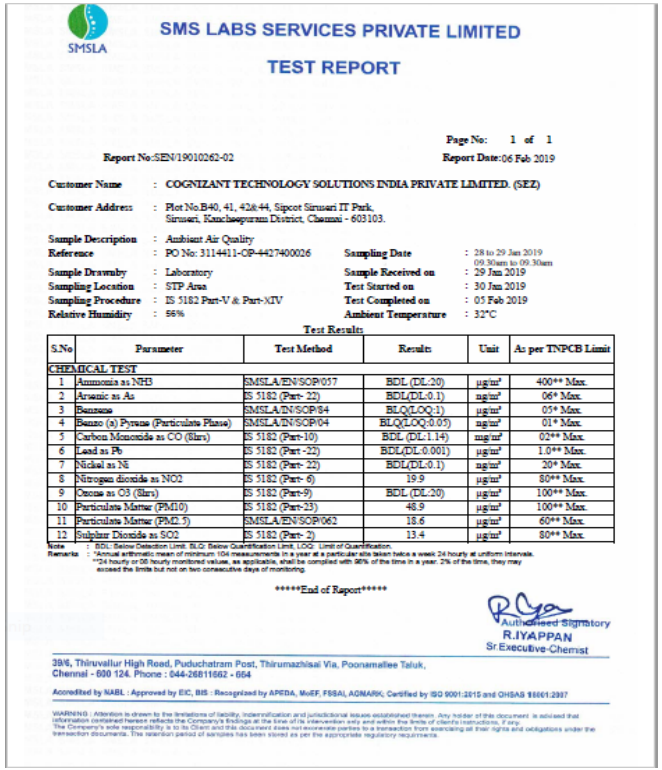
IP: Effective Utilization of Low Ambient Temperature for Heat load reduction



SMSLA

SMS LABS SERVICES PRIVATE LIMITED

TEST REPORT

Page No: 1 of 1

Report No:SEN/19010262-02 Report Date:06 Feb 2019

Customer Name : COGNIZANT TECHNOLOGY SOLUTIONS INDIA PRIVATE LIMITED. (SEZ)

Customer Address : Plot No.B40, 41, 42&44, Sipcot Siruseri IT Park, Siruseri, Kancheepuram District, Chennai - 603103.

Sample Description : Ambient Air Quality

Reference : PO No: 3114411-OP-4427400026

Sampling Date : 28 to 29 Jan 2019 09.30am to 09.30am

Sample Drawnby : Laboratory

Sample Received on : 29 Jan 2019

Sampling Location : STP Area

Test Started on : 30 Jan 2019

Sampling Procedure : IS 5182 Part-V & Part-XIV

Test Completed on : 05 Feb 2019

Relative Humidity : 56%

Ambient Temperature : 32°C

Test Results

S.No	Parameter	Test Method	Results	Unit	As per TNPCB Limit
CHEMICAL TEST					
1	Ammonia as NH3	SMSLA/EN/SOP/057	BDL (DL:20)	µg/m³	400** Max.
2	Arsenic as As	IS 5182 (Part- 22)	BDL(DL:0.1)	ng/m³	06* Max.
3	Benzene	SMSLA/EN/SOP/84	BLQ(LOQ:1)	µg/m³	05* Max.
4	Benzo (a) Pyrene (Particulate Phase)	SMSLA/EN/SOP/04	BLQ(LOQ:0.05)	ng/m³	01* Max.
5	Carbon Monoxide as CO (8hrs)	IS 5182 (Part-10)	BDL (DL:1.14)	mg/m³	02** Max.
6	Lead as Pb	IS 5182 (Part -22)	BDL(DL:0.001)	µg/m³	1.0** Max.
7	Nickel as Ni	IS 5182 (Part- 22)	BDL(DL:0.1)	ng/m³	20* Max.
8	Nitrogen dioxide as NO2	IS 5182 (Part- 6)	19.9	µg/m³	80** Max.
9	Ozone as O3 (8hrs)	IS 5182 (Part-9)	BDL (DL:20)	µg/m³	100** Max.
10	Particulate Matter (PM10)	IS 5182 (Part-23)	48.9	µg/m³	100** Max.
11	Particulate Matter (PM2.5)	SMSLA/EN/SOP/062	18.6	µg/m³	60** Max.
12	Sulphur Dioxide as SO2	IS 5182 (Part- 2)	13.4	µg/m³	80** Max.

Note : BDL: Below Detection Limit. BLQ: Below Quantification Limit. LOQ: Limit of Quantification.

Remarks : *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals. **24 hourly or 08 hourly monitored values, as applicable, shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

*****End of Report*****

Authorised Signatory
R.IYAPPAN
Sr.Executive-Chemist

39/6, Thiruvallur High Road, Puduchatram Post, Thirumazhisai Via, Poonamallee Taluk, Chennai - 600 124. Phone : 044-26811662 - 664

Accredited by NABL : Approved by EIC, BIS : Recognized by APEDA, MoEF, FSSAI, AGMARK; Certified by ISO 9001:2015 and OHSAS 18001:2007

WARNING : Attention is drawn to the limitations of liability, indemnification and jurisdictional issues established therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. The retention period of samples has been stored as per the appropriate regulatory requirements.

- As per the ambient air quality test report there is no harmful pollutants found
- All the parameters were found within pollution control board specified limit
- Decided to intake the ambient fresh air directly in to the system for the initiative
- The ambient air co2 level is lesser than the indoor co2 threshold limits (ambient Co2 level was found 400ppm)

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IP: Effective Utilization of Low Ambient Temperature for Heat Load Reduction

Summary of Savings:

Heat Load Reduction per AHU	-	1.725 TR per AHU
Total Number of AHU	-	84 No's
Total Heat Load Reduction of campus	-	1.725 TR per AHU x 84 No's
	-	**144 TR**
Specific Power Consumption of Chiller System	-	0.85 kW / TR
Equivalent Electrical Energy Consumption	-	144 TR x 0.85 kW/TR
	-	**123 kW**
Expected Average Operating Hours	-	**4 Hours / Day**
Expected Days of minimum Ambient Temperature	-	**90 Days per Annum** (October, November, December & January)
Estimated Energy Energy Savings	-	123 kW x 4 Hours /Day
	-	**492 kWh per Day**
Estimated Annual Energy Savings	-	492 kWh per Day x 90 Days
	-	**44280 kWh per Annum**
Energy Cost	-	INR.10/-kWh
Estimated Annual Cost Savings	-	**INR.4,42,800 /- (Only for SRZ facility)**

Carbon Footprint Optimization 16,384 Kg of CO2

Horizontal Deployment at Cognizant Owned Facilities

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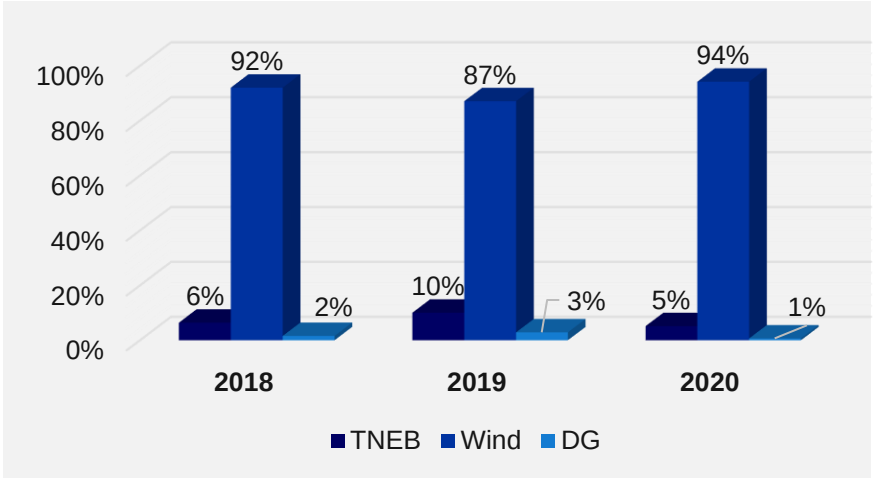
Utilization of Renewable Energy Sources-2018-2020



Technology (Electrical)	Type of Energy	Onsite/Offsite	Installed Capacity (MW)	Wind Energy Utilization (million kWh)	% of overall renewable energy
Electrical	Wind	Offsite	256.85	45.6	90.5%

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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)	SRZ-Consumption (Lacs kWh)	Allocation Contribution (%)
2018-19	256.85	525	511	176.31	34.5%
2019-20	256.85	525	509	170.10	33.42%
2020-21	256.85	525	379	72.58	19.15%

- 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 – **976 No's**
  - ✓ Non-Solar REC purchased - **1757 No's**
- Allocation contribution reduction for FY 2018-20
  - ✓ Tariff – Commercial without Tax (INR.8/kWh)
  - ✓ Less wind generation during peak seasonal months

Waste Utilization and Management

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)

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

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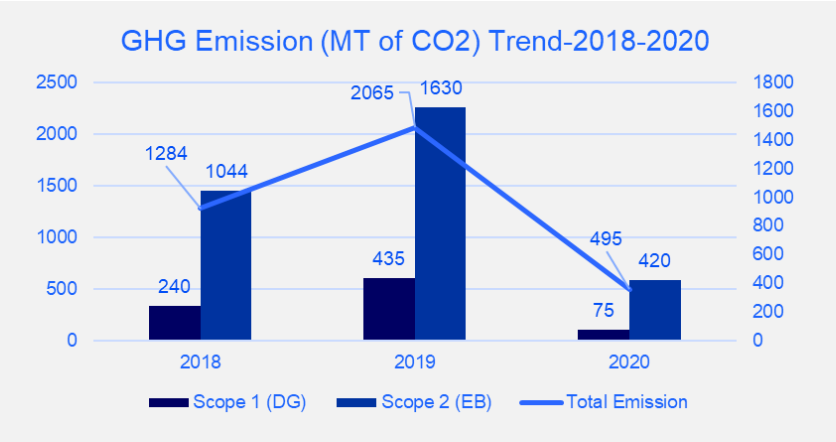
GHG Inventorisation – 2018 To 2020



GHG Reduction Target & Action Plan

GHG Reduction

1.TNEB Power fluctuation in 2019

2.RE utilization decreases (92% to 87%) in 2019

3. NR2O in 2020

1. SBT-24% in 2024
2. IOT Project implementation
3. Energy efficiency project implementation

GHG Target

Indoor Air Quality (BAU)

Test Parameters	Units	Result	Permissible limit	Remarks
Carbon Dioxide (CO2)	Mg/m3	570	1000	1. Testing through NABL Laboratory 2. Random sampling will be done Monthly once for workstations
Total Fungal Count	Cfu/m3	48	500	
Total Bacterial Count	Cfu/m3	103	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

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

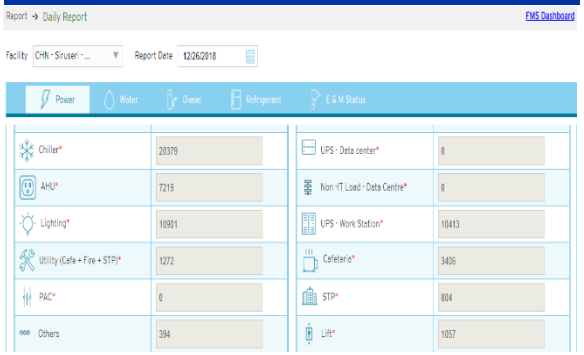
Standard operation temperature for all freezer equipment

Weekly deep cleaning for all type of freezer

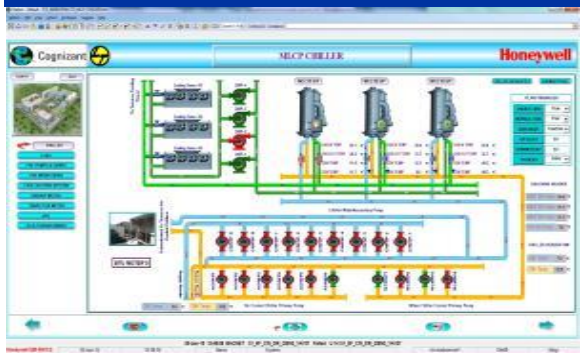
Measuring & Monitoring Device & Tool

Building Segment Wise Consumption

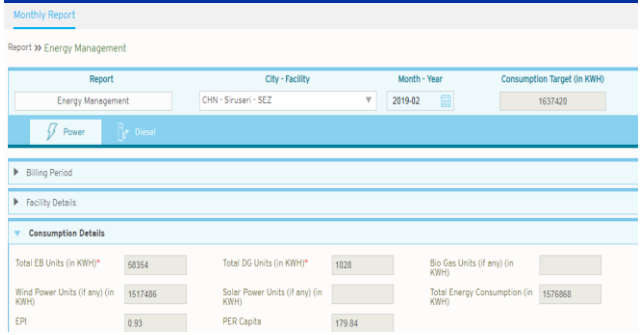
FMS Tool-Daily Consumption Monitoring



Chiller Operating Parameters Monitoring



FMS Tool-Monthly Consumption Monitoring



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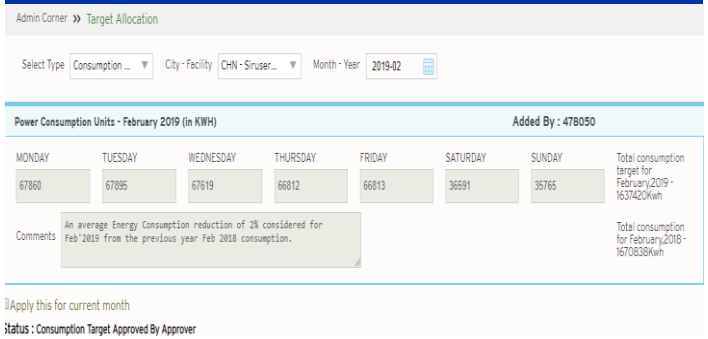

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Initiative by Plant Team

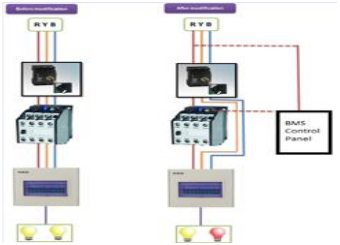
Enabling Energy Saver Mode in Modular

Timer Controller for Peripheral Lighting

Limit Switch for AHU Room & Fire Shaft Door

Desktop Power off Activities Across Campus

Lighting Operation control Via BMS



Motion Sensor for Restroom Lighting Control

Pull Cord Switch Installation for Lighting

UPS Modular Optimization

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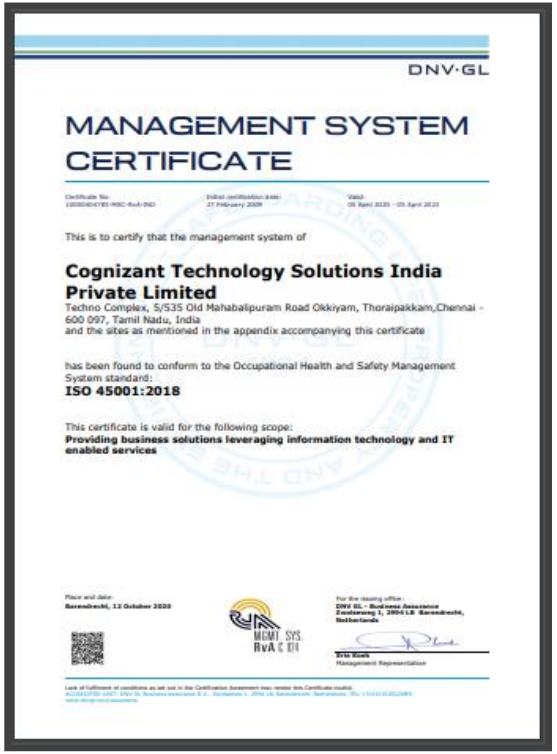
Energy & Innovation Awards

CII Award – Excellent Energy Efficient **Unit 2019**

CII Award – Energy Efficient **Unit 2020**

Innovation Awards **- 3 Years**

Certifications – ISO 45001:2018 & IGBC - Gold



DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

This is to certify that the management system of

Cognizant Technology Solutions India Private Limited

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:
ISO 45001:2018

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

Place and date:
Barendrecht, 12 October 2020

For the issuing office:
DNV GL - Business Assurance
Zwolseweg 1, 2994 LB Barendrecht, Netherlands

Erin Koch
Management Representative

CII
Confederation of Indian Industry

Indian Green Building Council

Indian Green Building Council (IGBC)

hereby certifies that

Cognizant SRI campus – Phase I,

Chennai

has successfully achieved the Green Building Standards required for the following level of certification under the Leadership in Energy and Environment Design (LEED) for India Green Building Rating System

LEED India for New Construction Gold
January 2013

C N Raghavendran
Chairman, LEED India

Dr Prem C Jain
Chairman, IGBC

S Raghupathy
Executive Director, CII-Godrej GBC

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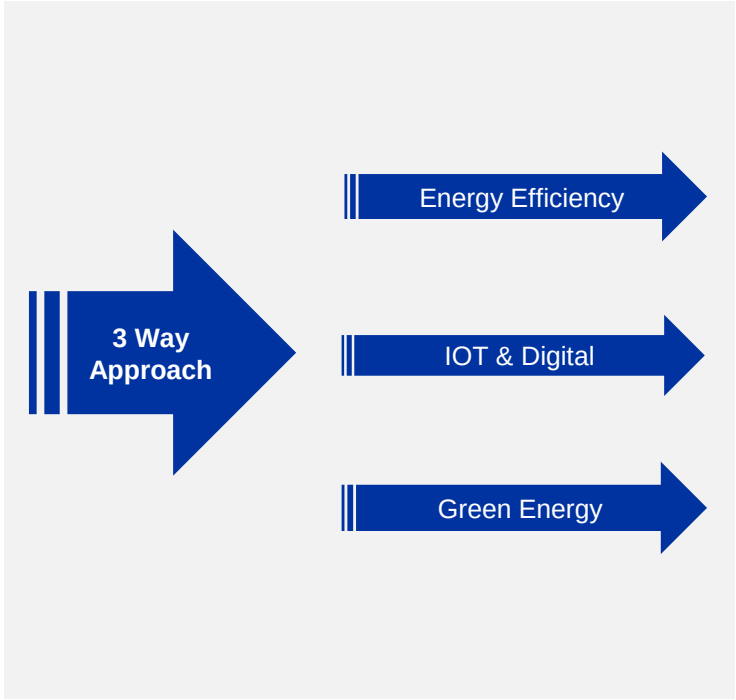
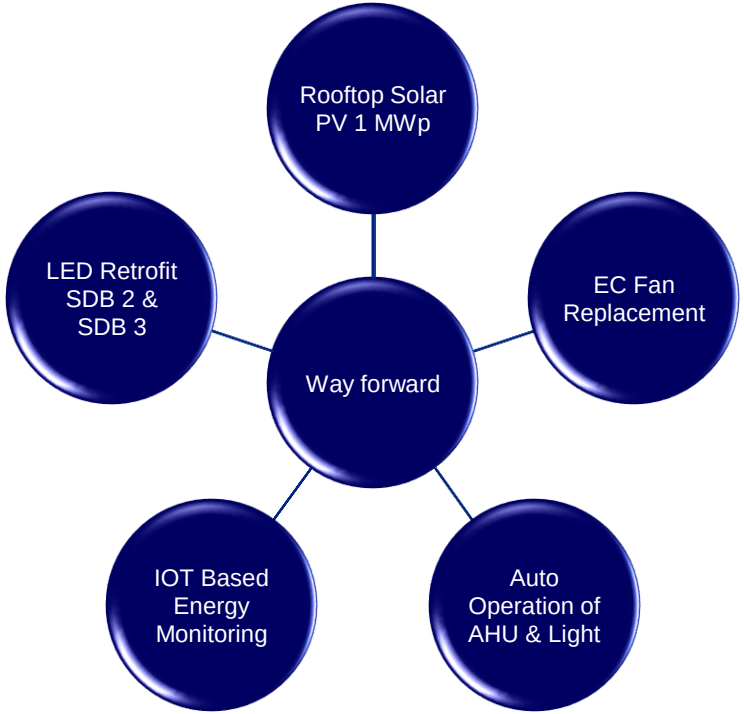
Way Forward for Next 3 Years & Vision on EE





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22nd National Award for Excellence in Energy Management 2021

Siruseri SEZ - Chennai

August 2021