

CII National Award for Excellence in Energy Management 2022



Confederation of Indian Industry



Mindtree

A Larsen & Toubro Group Company

Welcome to possible

Dhananjaya Papanna (DJ) | General Manager
Anbarasu S | Sr. Manager

Agenda

COMPANY PROFILE

MINDTREE CAMPUS DETAILS

ENERGY EFFICIENCY SUMMARY

NATIONAL & GLOBAL BENCHMARK

BEST PRACTICES & KEY INITIATIVES

ENERGY MANAGEMENT STRATEGIC PATH

AWARDS & RECOGNITION

FUTURE PLANS

Mindtree overview

275+

Active clients

Offices in

24+

Countries

48+

Offices

\$1.4B+

Annual Revenue

35,000+

Employees

Mindtree is a technology and consulting services firm.

Mindtree is fully conscious of the rising environmental risks and has taken them into cognizance while formulating its ecological strategy by adopting precautionary principles.

As part of our Triple Bottom Line (TBL), People-Planet-Profit approach, we adopt green initiatives and our relentless focus on climate protection has yielded long-term value creation to our organization and stakeholders.



Global Village Tech Park,
Bengaluru



4.2L Units consumption/month
@Present



81569 Sqm Built-up area
(P1 -LG+GF+4F, P2- GF+5F, P3- LGF+GF+5F)



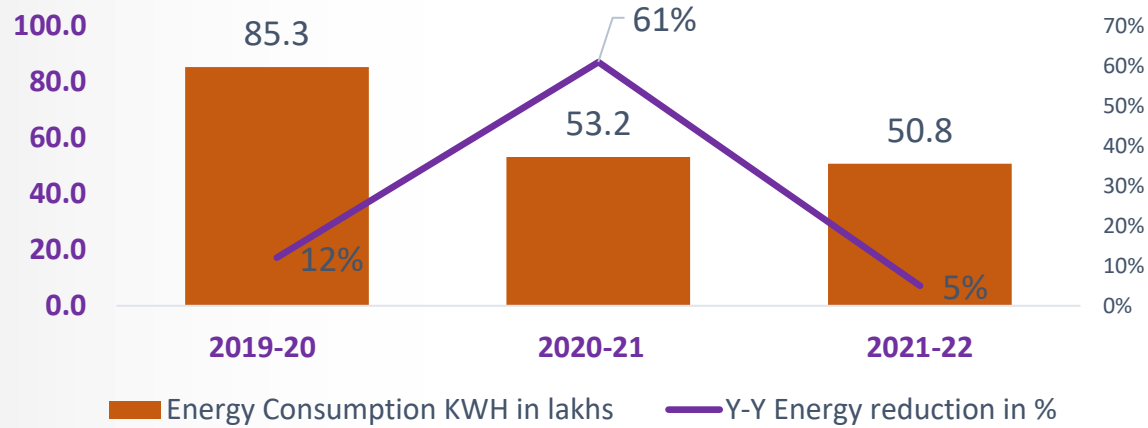
6700 average employee



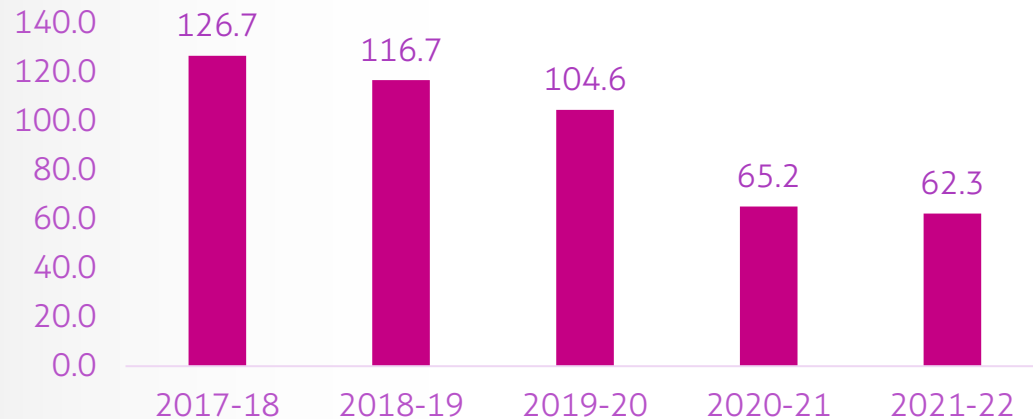
ISO : 14K, 45K, 9K & 27K certified

SEC & Energy consumption trend – 2019-20 to 2021-22

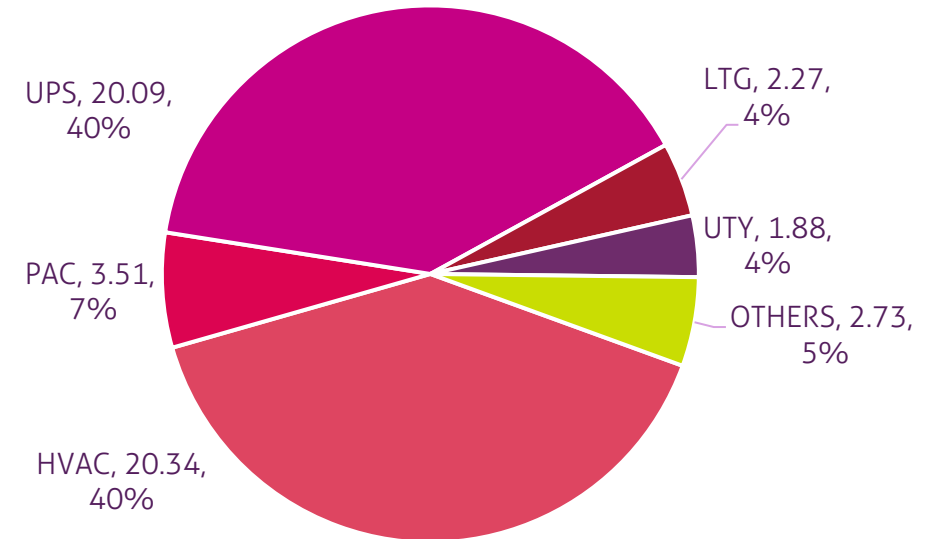
Energy Consumption KWH in lakhs



Specific Electrical Energy Consumption KWh/m²/Year



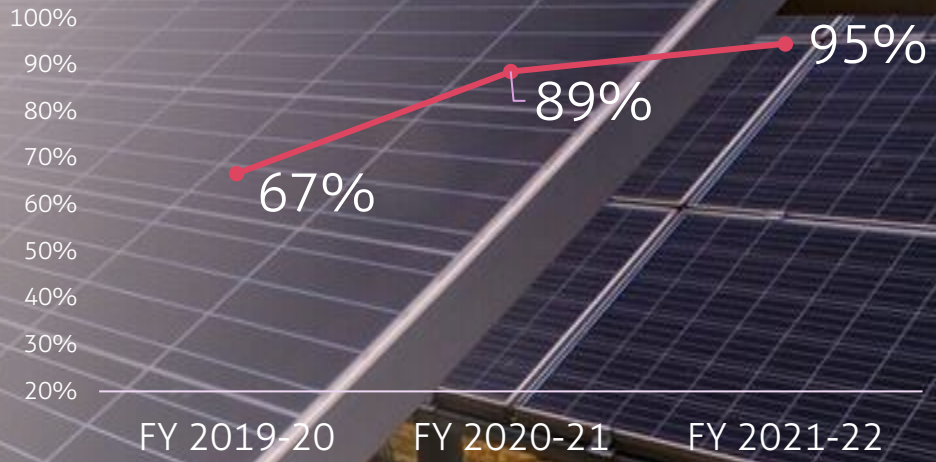
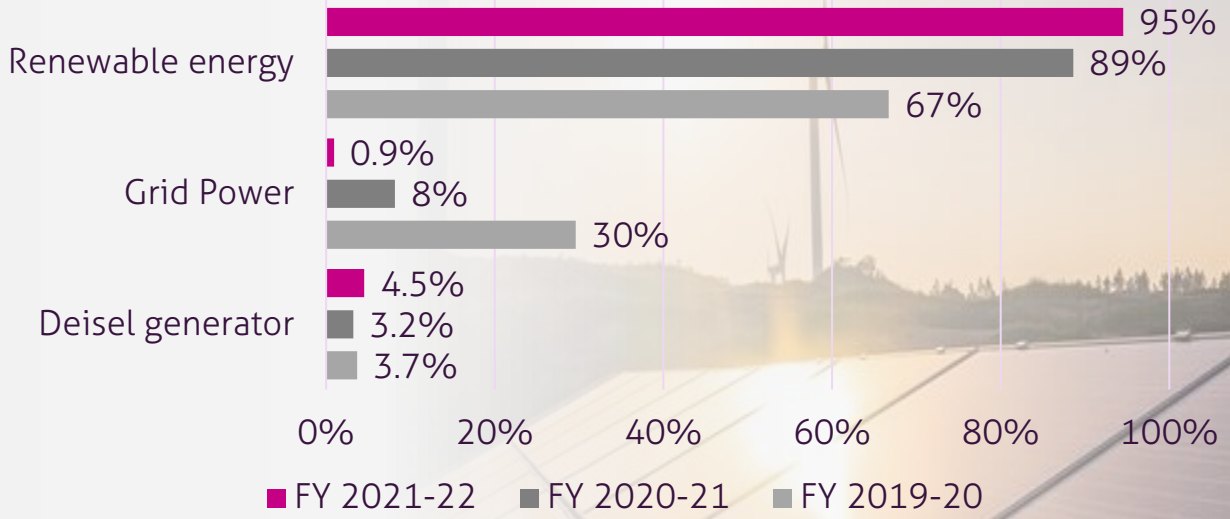
Electrical energy distribution FY 2021-22



Total energy conserved in last 3 years **44.4 Lakhs** units through continual improvement and various energy conversion program.

Utilization of Renewable Energy Sources-2019-20 to 2021-22

RE trend from FY'20 to FY'22



We believe in mitigating our carbon footprint while maintaining the ecological balance by monitoring, measuring, and controlling environmental impact at our workplaces through technologically sound and sustainable practices. Our commitment towards the environment and society at large has been integrated into our everyday operations.






National & Global benchmark

Benchmarking Details	Reference	SEC KWh/m2/Year	Mindtree- GV Tech Park
IT/ITES Peers companies	CII Energy Award Program Bangalore (2019-20)	90	104.59 (FY-2019-20) 65.17 (FY-2020-21) 62.31 (FY-2021-22)
National Level	BEE (Bureau of Energy Efficiency)	179	
International Level	Lawrence Berkeley National Laboratory	65 to 90	



Internal benchmark and conservation philosophy- DEC 010

	Downtime of the equipment = Zero	No overloading of equipment No compromise on maintenance of equipment
	Efficiency target = One (kWh/Sqft of built-up area)	Peak efficiency of equipment's Pro-active maintenance
	Complaints relating to minds comfort = Zero	No compromise on associate comfort as defined by Admin workspace policy Focus on energy wastage – Just in time comfort

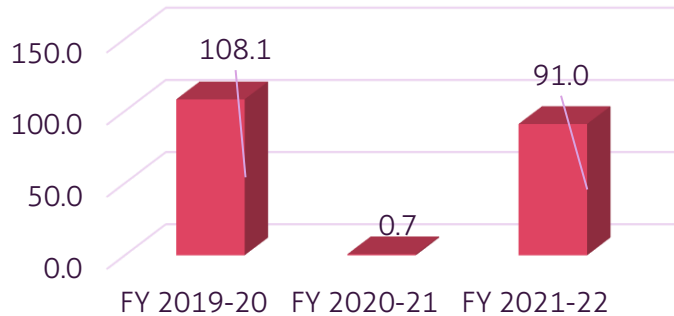
Aiming to achieve SEC **90-95** during the full operation through various conservation program.

- Optimization of system
- IOT (Technology)
- Upgradation of equipment's
- Team Motivation

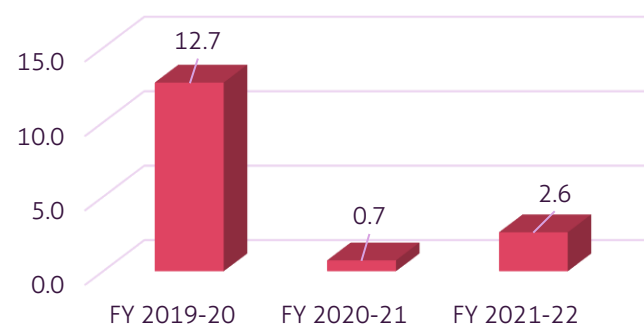
Energy Saving Project Details

Year	No of Energy saving projects	Investments (INR Lakhs)	Electrical savings (Lakhs KWH)	Saving (INR Lakhs)	Impact on SEC Electrical,
FY 2019-20	4	108.1	12.7	101.4	15%
FY 2020-21	1	0.7	0.7	5.9	1%
FY 2021-22	4	91.0	2.6	21.0	5%
Total	9	200	16	128	

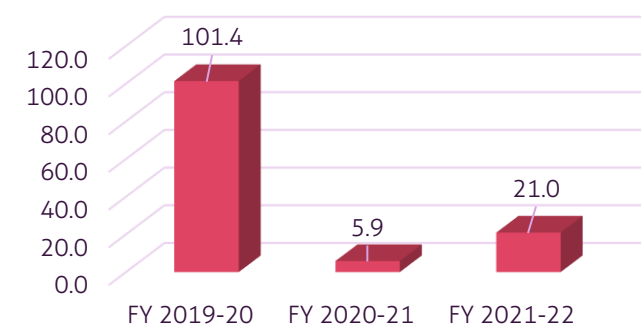
Investments (INR Lakhs)



Electrical savings (Lakhs) KWH)



Saving (INR Lakhs))



Installation of turbocore compressor chiller



The newly installed 180 TR turbocore chiller provides good efficiency

Efficiency of earlier chillers was low, resulting in high power consumption, maintenance cost, turnaround time (TAT), and lead time of spare parts without delivering the desired chiller capacity.

Benefits

18,000 - 48,000 RPM

Operating speed

IPLV 0.4 kW/TR

Unmatched efficiency

4.1 Lakhs KHW Units saving per annum

Internet of Things



A typical example of our 'Digital Inside' mantra, Gladius is a full-fledged building IoT solution, which integrates all aspects of building management systems with the IT systems developed by Mindtree.

The system monitors energy consumption on the building across floors and prevents avoidable energy losses. It controls energy-intensive equipment such as chillers by modifying the set point or cooling based on ambient conditions.

Gladius has been saving 0.70 lakh units per annum. Occupant comfort being highly important for productivity, the system optimizes heating and cooling requirements as per comfort.

Inverter technology VRF units' installation to replace High energy consumption Cassette DX units



Energy efficiency, less human intervention, reduction in space, Reduction in noise at Cafeteria (<20dB) and Eco-friendly Refrigerant utilization. The old cassette ACs was consuming almost 1.8 to 2.0 kwh/TR this has been reduced to 0.4 to 0.8 kwh/TR with replacement of VRF system, through this initiative had saved 2.19 Lakhs units per annum

Optimization of PAC unit

Phase-2 building Data center 66TR
PAC replaced with 36 TR energy
efficient unit.

Result: Benefits

- Energy savings will be 2.21 Lak KWH per annum.
- Cost saving of INR 19.92 Lak per annum.
- Saved AMC cost of INR 7.78 Lak for three years.
- Improved DCIE to 66% from 55% and PUE to 1.5 from 2.



Optimization of Data Center UPS



As part of the optimization of the UPS program objective, 2.7 MVA UPS capacity has been reduced in the last seven years.

Phase-2 building data center both source 4X160 KVA UPS replaced with 4X120 KVA energy efficient UPS

Result: Benefits

- Energy conservation will be **2.52** lakhs KWH per annum.
- Energy Cost saving of INR **22.73** lakhs per annum.
- AMC cost saving for three years on an approximate of INR **14.39** Lakhs
- Cost Avoidance on UPS AC Capacitor replacement INR **6.32** Lakhs
- Reduced heavy Noise was generating by old UPS.

VFD installed for UPS room AHU



Installation of VFDs for Air Handling Unit (AHU), allows the HVAC motors to operate below their maximum speed as per the load requirement thus yielding significant energy savings. It keeps indoor temperatures within the set range as per the demand. For this current fiscal year, we have saved **19710** units of electricity through this initiative.

Replaced Fixed speed exhaust blowers with EC-Fan exhaust blowers



Where we conclude to replace those units with EC-type exhaust blower which consume less power as it have inbuilt VFD, delivers high suction pressure, produce less noise and breakdown chances are very less , **Annual saving in KWH units 1,61,235 and Cost Saving INR 12.89 Lakhs.**

Chilled water line damaged insulation replacement

At Phase-3 building



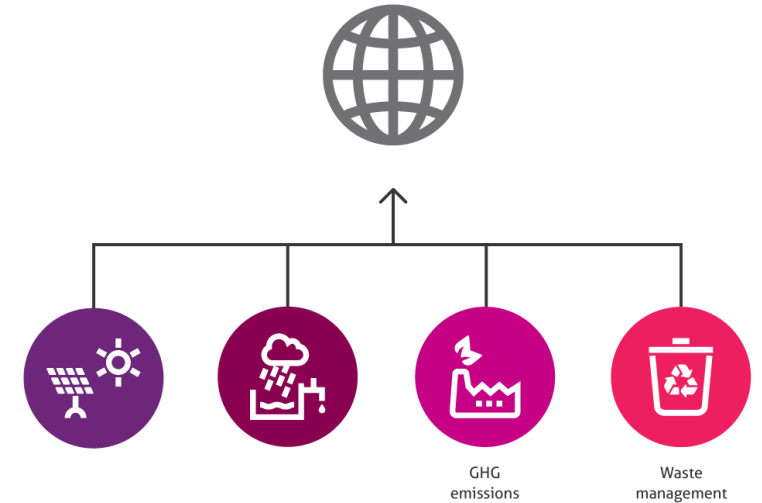
Action Taken

- Replaced Damaged insulation with new insulation of 1660 Running meter.
- Replaced Air vents (20 no's), Temperature (64 no's) & Pressure (64 No's) gauges wherever got damaged/rusted.

This will help in avoiding energy wastage in HAVC system, and provide comfort cooling

Mindtree – GV Tech Park | GHG Performance

Category	Emissions (Tons CO2e)	Emissions (Tons CO2e)	Emissions (Tons CO2e)
Year	2019-20	2020-21	2021-22
Scope1	166.01	74.54	25.89
Scope2	2614.27	557.85	279.12
Scope3	40143.17	2575.41	2277.49
TOTAL	42923.45	3207.8	2582.5



Our Roadmap

E

Climate Change
2030
Achieve carbon neutrality

30%
Reduction in Scope 1 & 2 emissions by 2025¹

20%
Reduction in Scope 3 emissions by 2025¹

100%
Renewable energy for internal operations by 2030

Green Tech & Innovation
\$10 Mn
Cumulative investment to promote green tech by 2025

Green Tech Offerings
Enable and support our clients with green-tech offerings to help them achieve their ESG targets

Water Management
2030
Achieve water neutrality

25%
Per-capita water consumption reduction by 2025¹

100%
Water recycled in dedicated campuses by 2025

Energy Management Strategic Path



Energy Management Plan(EMP)

- Site-specific tailor-made Energy Management Plan(EMP) initiated



Energy Team

- As per EMP – Energy Team is formed under Admin Head which includes different departments members
- ISO : 14K, 45K & 27K certified EHS lead & 5'S certified



Account Management

- Yearly Energy Conservation Plan
- Identify opportunity
- Process improvements
- Implementation
- Periodic Review

Quarterly Training

- IFM Certified Energy Manager to strengthen in house team instead of depending on OEM / AMC vendors in PPM and evaluation side. Periodic review and training for in house technical team to sustain further energy saving

Analysis

- Purchased specialized instruments /equipment's and training given to site engineers and Technicians to measure, analyze / service the equipment's (IR thermal imager, Manifold gauge, Pressure washer, Power analyzer)

Evaluate efficiency

- User Friendly Templates prepared and trained to site engineers and Technicians to measure the Parameters (Suction & discharge pressure , CFM. Temperature Energy reading etc.) to enter the measured in values in the template automatically evaluate of efficiency.

Effective monitoring and control methodology towards our objective and targets

Activity	Frequency	Responsible	Accountable	Consulted	Informed
Daily energy Dashboard	Daily	Facilities Team	Admin Location Manager	Admin MEP POC	Admin Ops lead
MEP review	Monthly	Facilities Team	MEP Location POC	Admin MEP city lead	Admin Location Manager
City review	Quarterly	Admin MEP City lead	Admin India Energy manager	MEP E&M India lead	Sustainability Team
Update to Admin Operation Lead	Quarterly	Admin Location Head	MEP India lead	Admin Ops lead	Sr. Management Team

Operational level Best practices

HVAC

- Created hot aisle and cold aisle chamber for data center server racks.
- Workplace Temperature policy standardized : 24°C to 25°C as per Energy Policy.
- Adjusting the equipment operating hours in line with the occupancy –Just in Time cooling.
- Data center/UPS room set temperature increased with the OEM's concurrence.
- Duct cleaning ,Duct joint / collar leakage arrested.
- Converted package units into chill water-based AHU's.
- Focus on quality of preventive maintenance
- On time service and overhaul of HVAC components like actuators, bearings etc.
- All practices adopted keeping employee's comfort level

UPS

- OEM team energy audits for equipment analysis.
- Proposing new technology or modifications in the existing system for energy conservation
- Implementation of UPS battery monitoring system to extended battery life.
- Optimization of UPS batteries AH capacity As per site load calculation.
- Tech refresh of IT equipment's which yield in energy conservation and space saving
- Implementation of hibernate mode for all PC and laptops.
- Servicing of the UPS power conditioner which led to improving of the power factor.
- Tracking energy data for analyzing

Lighting

- Replacement of CFL to LED
- Dedicated lighting switches are provided workstation area.
- Mentioned power circuit number in each switch plates.
- Dedicated lighting switches are provided in closed rooms like AHU rooms and electrical rooms.
- Lighting circuit modified to provide modularity as per project timings
- Zoning of area and maintaining the right lux levels .
- Optimizing over light in passage area & maintaining lux level as per standards.
- LED flood lights implemented at parking and streetlight.

Periodical Maintenance Shutdown Activity



To ensure that our infrastructure equipment is working at peak conditions & to ensure high availability in facility planned annual maintenance shutdown is conducted.

Bulinding Survey

- Verified the SLD and corrected as per actual

Team engagement

- Connected with network team and partners to convey the plan

Approvals

- Post taking the go head from all vertical finalized

Materials

- Arranged required electrical spares and tools

ASDM Planning

- Team wise detail plan is prepared

Monitoring system

- Command center set for smooth execution

ASDM Achieved

- No Impact to business, Improved the system. Enhanced the redundancy

Innovative Approach

Encourage Green commuters by Providing Privilege Parking :



Dynopad Powering cycle



At the end of the day, it is better to adopt a lifestyle where we can add to the protection of the environment without causing harm to it.

Here's why you should make use of the facility:

- 🌿 Cycling for 30 minutes burns around 346 calories
- 🌿 A low impact sport, cycling won't lead to joint pain. You burn calories, build muscle and strengthen your body in the process.
- 🌿 Be a part of the several Mindtree Minds who have joined hands for a greener tomorrow.
- 🌿 Stay energetic, stay bright!

Waste Management

Our waste management efforts are driven by the objective to reduce the amount of waste to landfill, while increasing the quantity of recycled/reused waste, in an eco-friendly manner. We focus not only on recycling but also on limiting waste generation. The combination of reduction in waste, waste segregation, recycling, on-site composting and incineration has led to reduced burden on the city landfills.



All the waste generated within our office premises are disposed by authorized recyclers as per legislations.

We implemented 'WOW' (Wellbeing Out of Waste) initiative—a program where the recyclable waste is scientifically disposed and sent for recycling.

Events



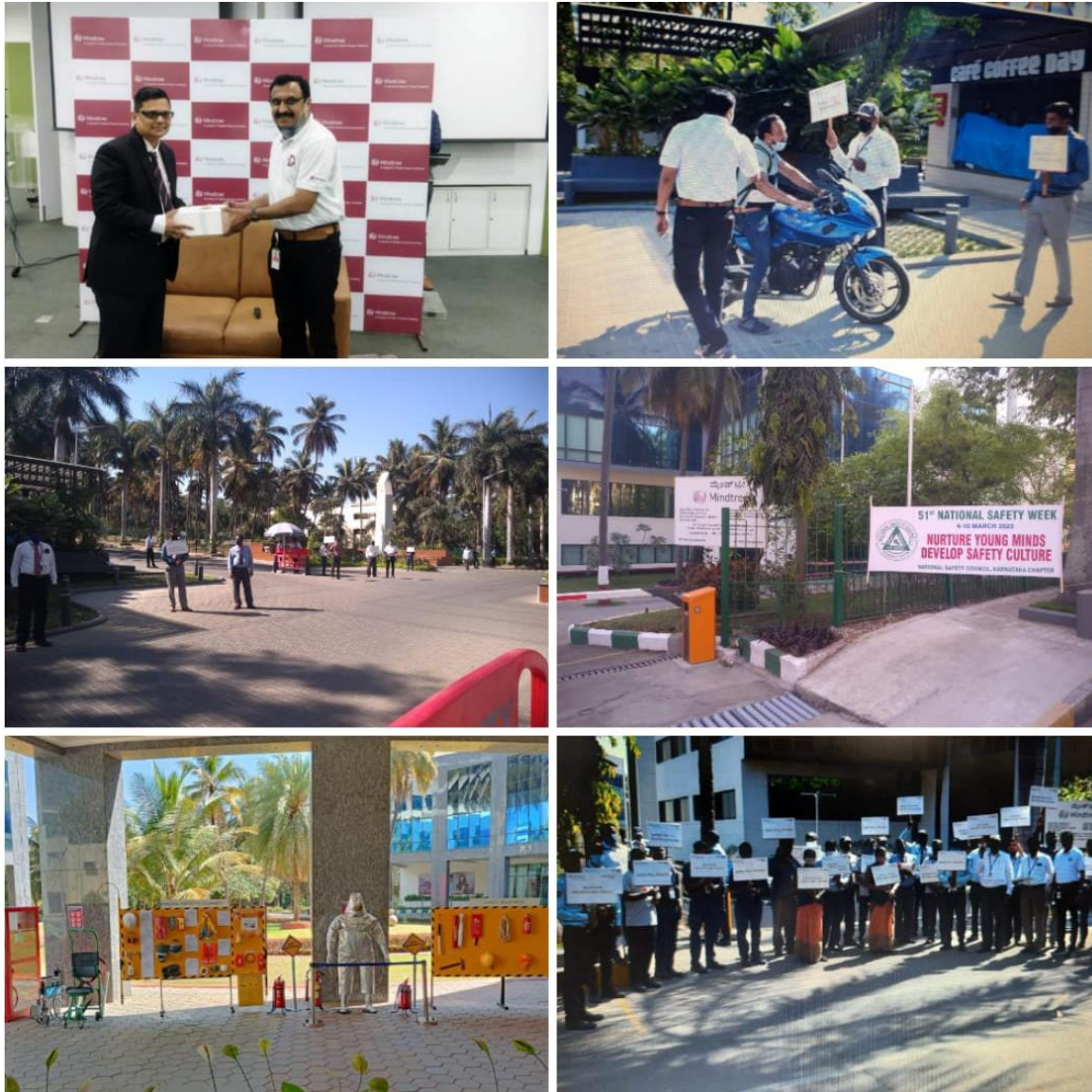
World Environment Day & Earth Day Celebration



Independence day & Republic Day Celebration



Celebrated - 51st National safety Day



On the occasion of *National Safety Day*, various activities were conducted across the facilities to enhance awareness among Mindtree minds and partners.

Display of National Safety Banner

Safety pledge

Display of digital safety posters at lobbies

Webinar session - Children's safety & Ergo

Display of safety equipment's

Safety March at campus road

Earth Hour

2022-Energy conserved in earth hour

Location	Unit saved in KW	Co2e reduced in Kgs
MTW Ph1	4.3	3.9
MTW Ph2	4.4	4.0
MTW Ph3	30.0	27.3
Total	46.7	35.2



22nd CII Energy award - 2021



Mindtree' Bengaluru West campus have won us two prestigious accolades at the 22nd edition of the CII National Award for Excellence in Energy Management 2021 - Energy Efficient Unit and Most Useful Presentation.

Awards & Recognition



“Excellence in Sustainability” category at the iNFHRA Workplace Excellence Awards 2021,



“WELL –HEALTH SAFETY RATING” by International WELL Building Institute (IWBI).



“SURAKSHA PURASKAR” at national level from NSCI Safety Awards in Service sector



Amongst global leadership league in CDP Climate Change rankings

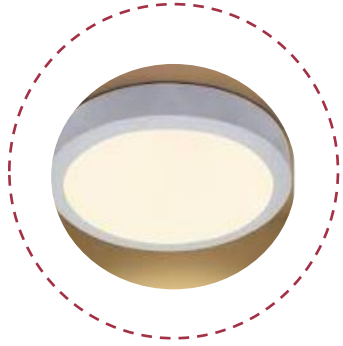


Amongst top 25% of 75,000 companies assessed by EcoVadis

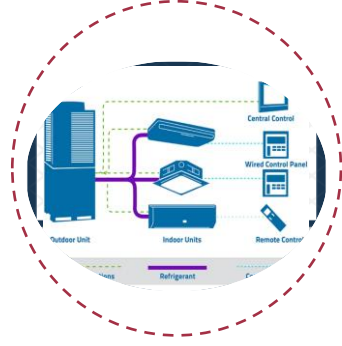


Leadership Award for Board Independence by ESGRisk.ai

Future



LED Lightings



*VRF Units
(Replacement of
R22 refrigerant)*



Roof top solar



*Remote monitoring
system with
Smart Water meter*

Long terms

Continue to improve efficiency of buildings and work towards the sustainability goals and achieve the benchmarks of national level.

Expending latest technology for Energy conservation program like IoT and AI..

Establishment of Command center .

Behavioral changes of the employees to save energy in workplace

Moving towards carbon neutrality campus.

Welcome to Possible

