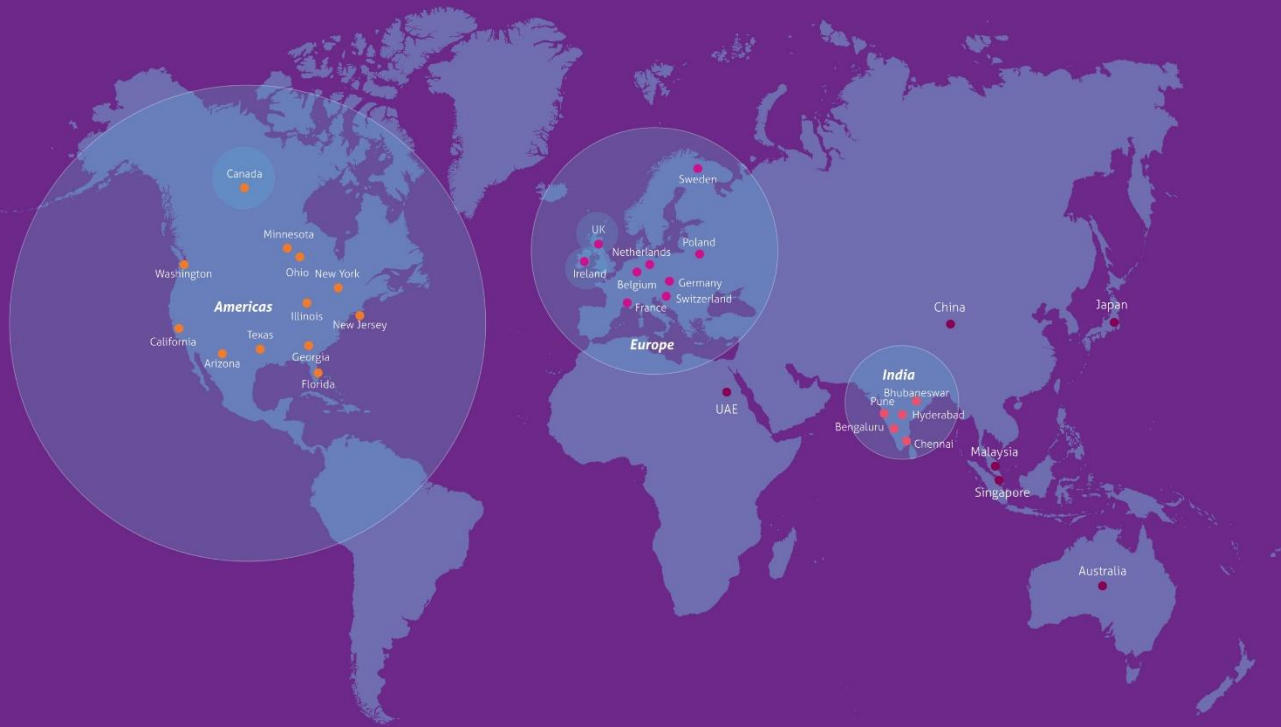# Mindtree
A Larsen & Toubro Group Company

CII National Award for Excellence in Energy Management 2021

Welcome to possible

Agenda

- Company Profile
- Mindtree Campus details
- Mindtree Energy policy
- Energy Management Strategic Path
- Effective Monitoring Methodology
- Energy Efficiency Summary
- Best practices & Key Initiatives.
- Future Plans.

Mindtree adopts the noble precautionary principles both for its ethical merits and its strategic potential.

We know the intrinsic connection between planet care and business benefits and adopt green practices as smart business practices.

Mindtree is ever conscious of the rising environmental risks emerging on the horizon and takes them into cognizance while formulating its ecological strategy.

Our relentless focus on several aspects of climate protection has borne dual benefits—to us as an organization, and to the planet, as a key stakeholder.

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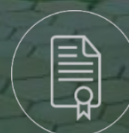Global Village Tech Park, Bengaluru

4.4L 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

Mindtree Overall GHG Performance

Scope (tons CO2e/employee/annum)	2017-18	2018-19	2019-20	2020-21 Emissions (Tons CO2e)	2017-18 To 2019-20 (Changes)
Scope1 Intensity	0.10	0.07	0.09	1282.9	-15%
Scope2 Intensity	0.70	0.55	0.63	3562.6	-10%
Scope3 Intensity	1.37	1.43	1.33	5611.9	-3%
GHG Intensity	**2.17**	**2.04**	**2.05**	**10457**	**-6%**

Energy efficiency | Water management | GHG emissions | Waste management
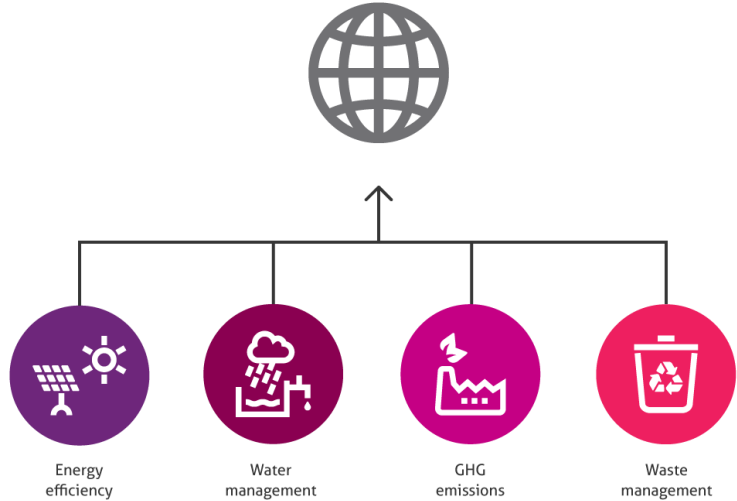
- Scope 1 | Direct Emissions | Reduction due to better efficiency of our Diesel Generators

- Scope 2 | Purchased Electricity | Reduction due to utilizing of Wheeling power and efficiency improvement from the Energy Program .

- Mindtree adopts a range of efforts in reducing emissions that occur across different areas of the organization to achieve carbon neutral facility by 2030.

- Beyond the preference for clean energy and energy efficiency measures, transport has been a key area for our attempt at reducing emissions.

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Mindtree Energy policy – 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

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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.

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Effective monitoring and control methodology towards our objective and targets

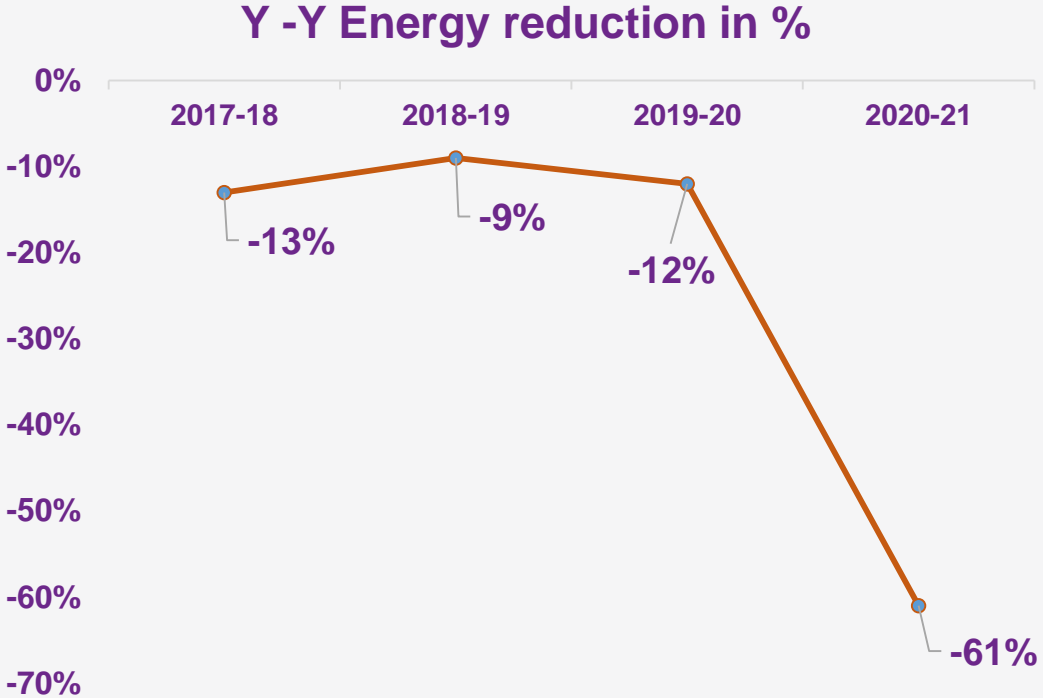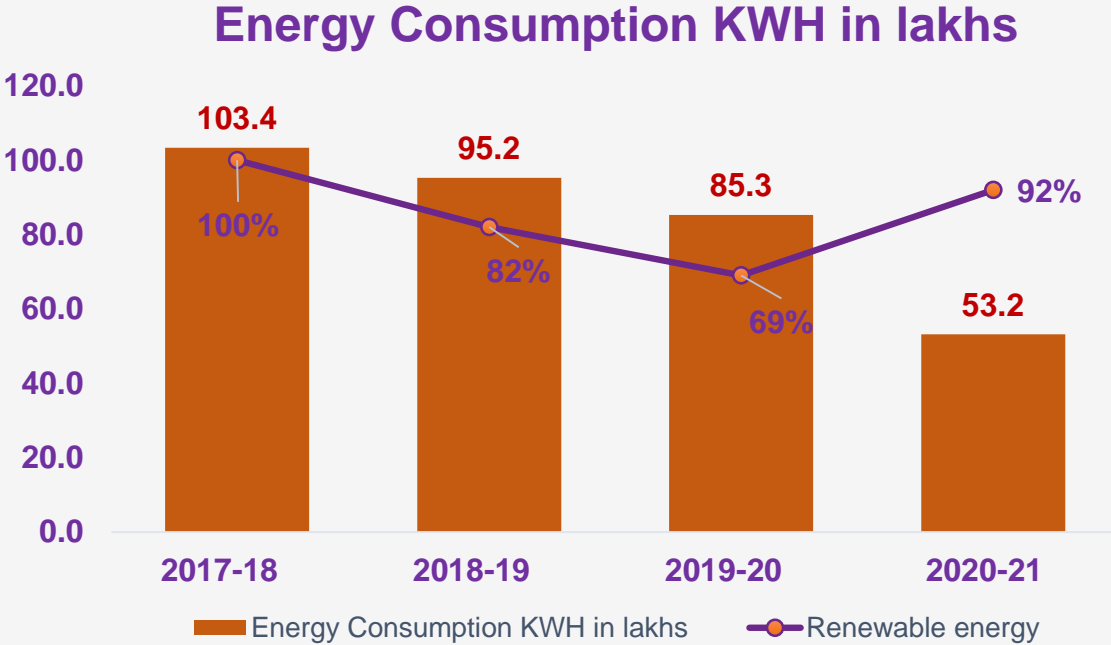| Activity	Frequency	Responsible	Accountable	Consulted	Informed
Daily energy Dashboard	Daily	Facilities Team	Admin Location Manager	Admin MEP POC	Admin Ops lead
MEP review	Monthly	Facilities Team	MEP Location POC	Admin MEP city lead	Admin Location Manager
City review	Quarterly	Admin MEP City lead	Admin 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

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Energy Efficiency Summary

Description	2017-18	2018-19	2019-20	2020-21	% Change 2017-18 vs 2019-20
Specific Electrical Energy Consumption (KWH/Sqm)	145	133	119	74	⬇ -17%
Average head count	6421	6662	7644	NA	⬆ 19%
KWH/Person/Month	134.15	119.11	93	NA	⬇ -31%
Energy Consumption KWH in lakhs	103.4	95.2	85.3	53.2	⬇ -17%
Energy Saving KWH in lakhs	13.4	8.1	9.9	32.2	
Energy Saving Cost in Lakhs	115.8	72.3	92.6	312.0	
Units per Cost in INR	8.66	8.88	9.35	9.70	

In last 3 years span, In spite of head count increase by 19 %, Energy Savings achieved is 17%

The Competitor SEC (Specific Energy Consumption) of the building at 190.1 Kwh / Sqm

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Energy consumption trend with RE – 2017-18 to 2020-21

Energy Consumption KWH in lakhs

- 2017-18: 103.4 (100%)
- 2018-19: 95.2 (82%)
- 2019-20: 85.3 (69%)
- 2020-21: 53.2 (92%)

Legend: Energy Consumption KWH in lakhs — Renewable energy

Y -Y Energy reduction in %

- 2017-18: -13%
- 2018-19: -9%
- 2019-20: -12%
- 2020-21: -61%

Since 2017-18 Conserved **63.5 Lakhs** units through continual improvement and various energy conversion program and at present minimal operation due to COVID-19

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Operational level Best practices

HVAC

- Created hot aisle and cold aisle chamber for data center server racks.
- Workplace Temperature policy standardized : 24ºC to 25ºC 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 street light.

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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

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Internet of Things

Gladius IoT

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.

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


Old Units | **New VRF 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

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Installation of Inverted technology Package units to replace fixed load outdated over capacity running units.

Old Units | New Units

Based on the practical analysis we have arrived on the less capacity package and spilt unit installation for the present load with a minimal modification in the ducting system and Updating to ecofriendly gas refrigerant.. annual saving of 3,13,520 Units and Cost Saving of INR 27.27 Lakhs.

Installation of Condenser pumps with inbuilt VFD to drop down the 50% power consumption.

Old Pump | New Pump
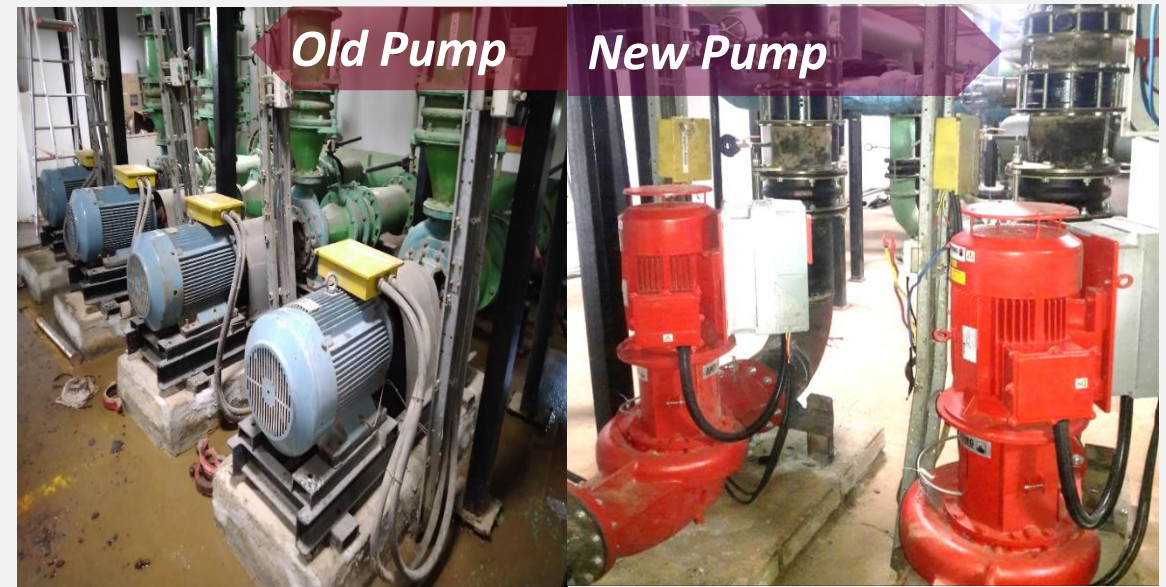
We carried out replacement of old condenser pumps with equally efficient low capacity pumps, which yield us a annual saving of 1.07 lakh units, that is annual saving of INR 8.56 lakh.

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Optimization of UPS and Batteries

Old UPS

New UPS

UPS Optimization Program: As part of this program objective over 1134 KVA capacity of UPS, systems along with batteries have been retired.

This has yielded annualized savings in power consumption by 5.88 lakhs units, & reduction by 541 tons of carbon emissions. Also resulted in reducing battery purchase/generation of hazardous waste (battery waste) of 100 numbers and its carbon emission reduction.

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Enhancement of Lighting system with LED

CFL to LED transformation has given us 50% reduction in costs, 0.70 lakh units of energy and INR 69,930 saved per annum.

This is the environmental equivalent of planting 8600 trees per year

# 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.

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Innovative Approach- In-house team

Optimization workstation LED fixture based on the Lux level
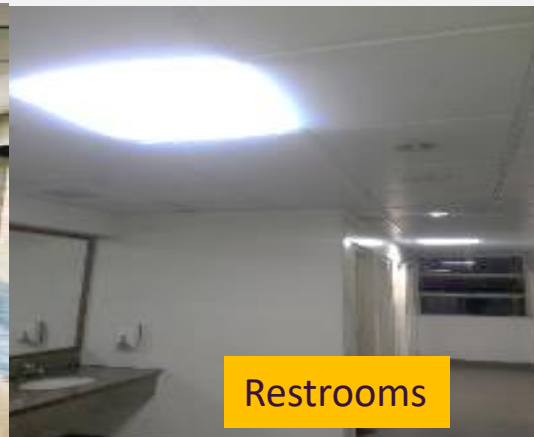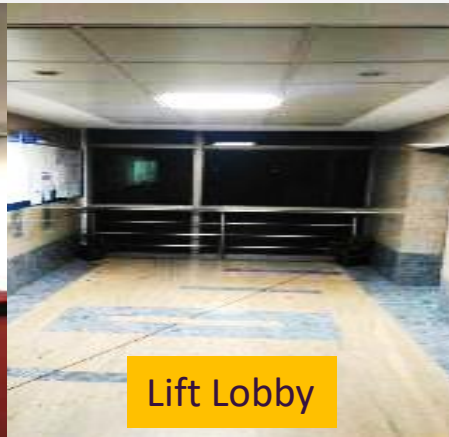

Before Lux Level

After Lux Level
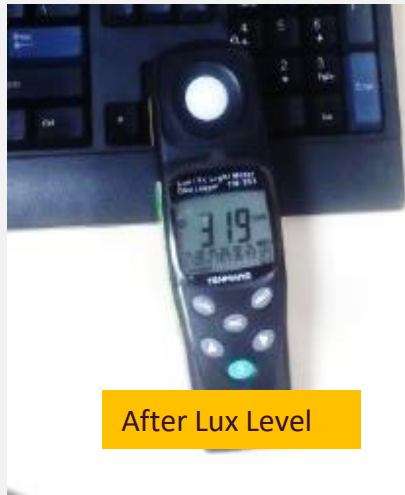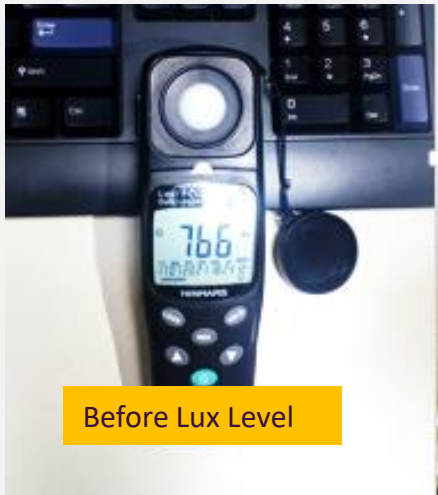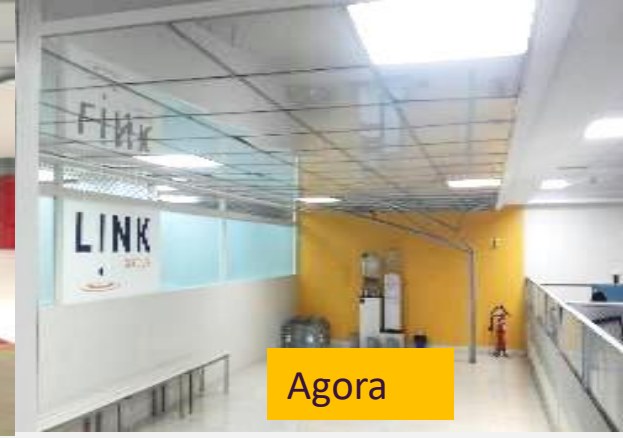
- Optimization of workstation LED fixture, which has resulted in average saving of 72,706 units per annum.
- Maintaining the workstation lux level as per standards .

## Installed the P-1 & 3 Jockey pumps operation counter (Kaizen)

- Easy to track the line pressure drop in line.
- Daily tracking of Jockey pumps operation through meter.
- Aware of emergency situation and act quickly
- Avoidance of energy wastage

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18

Utilization of disconnected LED fittings in utility & common areas (Kaizen)

MR & CR

Passage

Passage

Agora
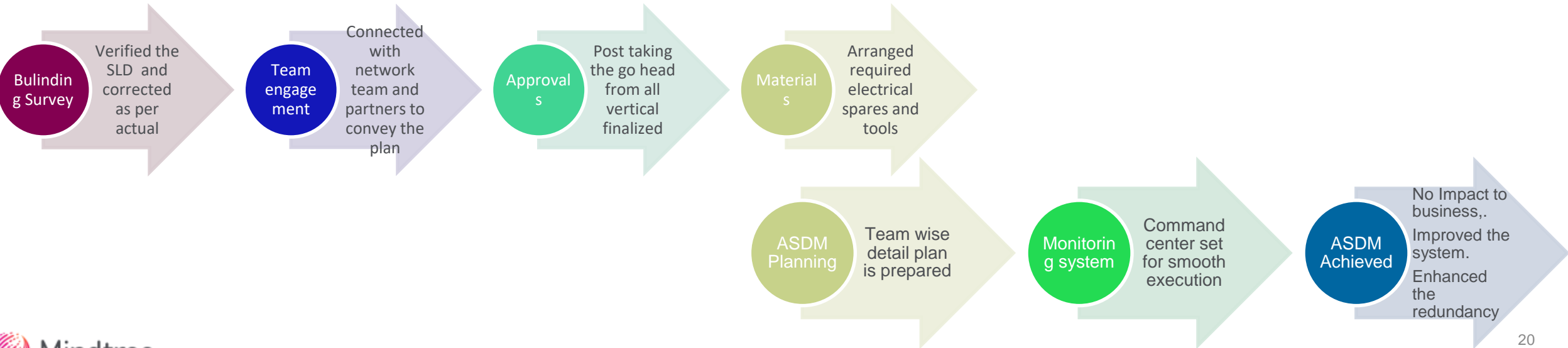
RYB House

Lift Lobby

Restrooms

LT , UPS & Chiller room

- Reusing of workstation LED fixture by replacing FTL/CFL, which has resulted in average saving of 34,333. units per annum
- Improve the utility & common area lux level

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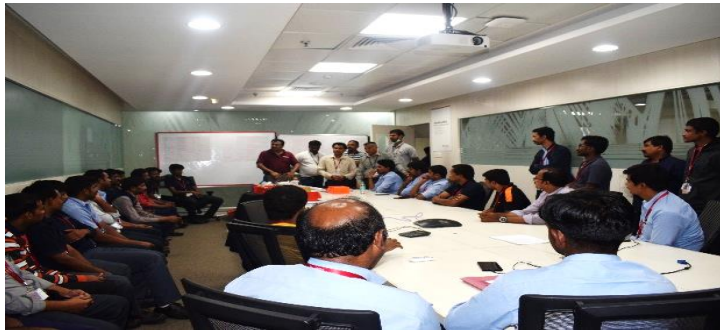
To ensure that our infrastructure equipment is working at peak conditions & to ensure high availability in facility planned annual maintenance shutdown is conducted.

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

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PUF Roof sheet implementation for terrace cafeteria

Roof Sheet Top view

Roof Sheet bottom view

PUF panel is one of the most effective ways to maintain the energy efficiency of the building. So, the PUF panel building keeps the building cool in summer and warm in winter also reduce the external noise level.

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Innovative Approach (Kaizen)

Cycling for two hours, apart from several health benefits, generates 600 Wattage of power and operates for five hours. 55 garden lights (600 Wattage) are powered by this energy.

Innovative Approach

Encourage Green commuters by Providing Privilege Parking :

Privilege Parking For Mindtree Minds travelling by bicycle, electric vehicles, Expectant mother and those of travelling with Children.

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Innovative Approach

Interactive Garden to reduce Mindtree Minds Stress

To reduce Mindtree Minds stress interactive garden is created by **8** Gardner's, **3** of whom are specially abled spent over **4900** man hours to give you over **2000** saplings and over **25** varieties of plants!

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Earth Hour: 27 March-2021-Saturday

SAVE OUR **HOME**.
SAVE THE **PLANET**

Switch OFF for your world

Saturday, 27 March
08:30 – 09:30 PM your local time

#EarthHour2021

2021-Energy conserved in earth hour		
Location	Unit saved in KW	Co2e reduced in Kgs
MTW Ph1	3.4	3.1
MTW Ph2	3.6	3.3
MTW Ph3	18.0	16.4
Total	25.01	22.8

Normal Hours

During Earth Hour

World Environment Day- Celebration

Demo - Rain Water Harvesting

Slogans

- Saplings distribution
- Demo on Rain Water Harvesting
- Awareness programs on water saving, fuel saving and solar energy
- Collected plastic waste items by NGO for recycling

Beat Air Pollution | WORLD ENVIRONMENT DAY | INDIA 2019 | UN environment

Celebrating World Environment Day…

6th June, 2019 – Global Village, Bengaluru

10:30 am – 5:00 pm	Behind Phase3	Donate used plastic bottles, make a craft and get an indoor plant free
	Parking lot, near Drivers room	Vehicle (2W/4W) emission testing for free of cost
	Phase3 Cafeteria	Stalls – Env. demos & products (zero waste juice, roof top garden, wildlife protection, PCRA-fuel conservation etc.)
12.30 pm – 12.45 pm	Phase2 Portico	Skit cum Dance show by fundo club
3.30 pm – 4.30 pm	Kalpavriksha	Sustainability & me – collaborative session by Rakesh Sahay, CEO, eQube

WED
Sustainability product Stall
Emission test
Expert talk on environmental

Mindtree

National Safety Week

- Displayed Safety equipments like PPE & LOTO station & fire fighting equipment's.

- Conducted Skit on Road Safety

- Safety Speech by Traffic Police – Kengeri.

S   A   F   E

As part of Safety day celebration, along with our little critter kids we did parade at work station with safety placards

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Future Plans

- *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..*

- *Behavioral changes of the employees to save energy in workplace*

- *Explore opportunities to reduce water consumption in our campus with Zero discharge facility. .*

- *Establishment of Command center .*

- *Moving towards carbon neutrality campus.*

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Welcome to possible

Thank You

Make Digital Real | Execute Smart