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Pocharam Campus, Hyderabad

CII-25th National Award for Excellence in Energy Management

10th, 11th & 12th September-2024

Shrinath Sirmokadam -Sr. Regional Manager
Manjunath Vallepa - Manager
Vamsi Vasireddy - Associate Manager

COMPANY OVERVIEW

1867 +	40+ years	3+ lakh	56 +	US$ 18.6 bn	7
CUSTOMERS	EXPERIENCE	EMPLOYEES	BRANCHES	REVENUE	PRODUCTS

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Hyderabad Pocharam Campus Overview

- Pocharam campus established in 2010
- Software development blocks- 07
- Campus Area- 447 Acres
- Built up Area- 4.45+ Million Sq.ft
- Climate Zone- Hot and Dry
- Seating capacity- 26000+
- Multi level parking lot- 1034-4 Wheelers, 5083- 2 wheelers.
- Employee care center- 474 Rooms

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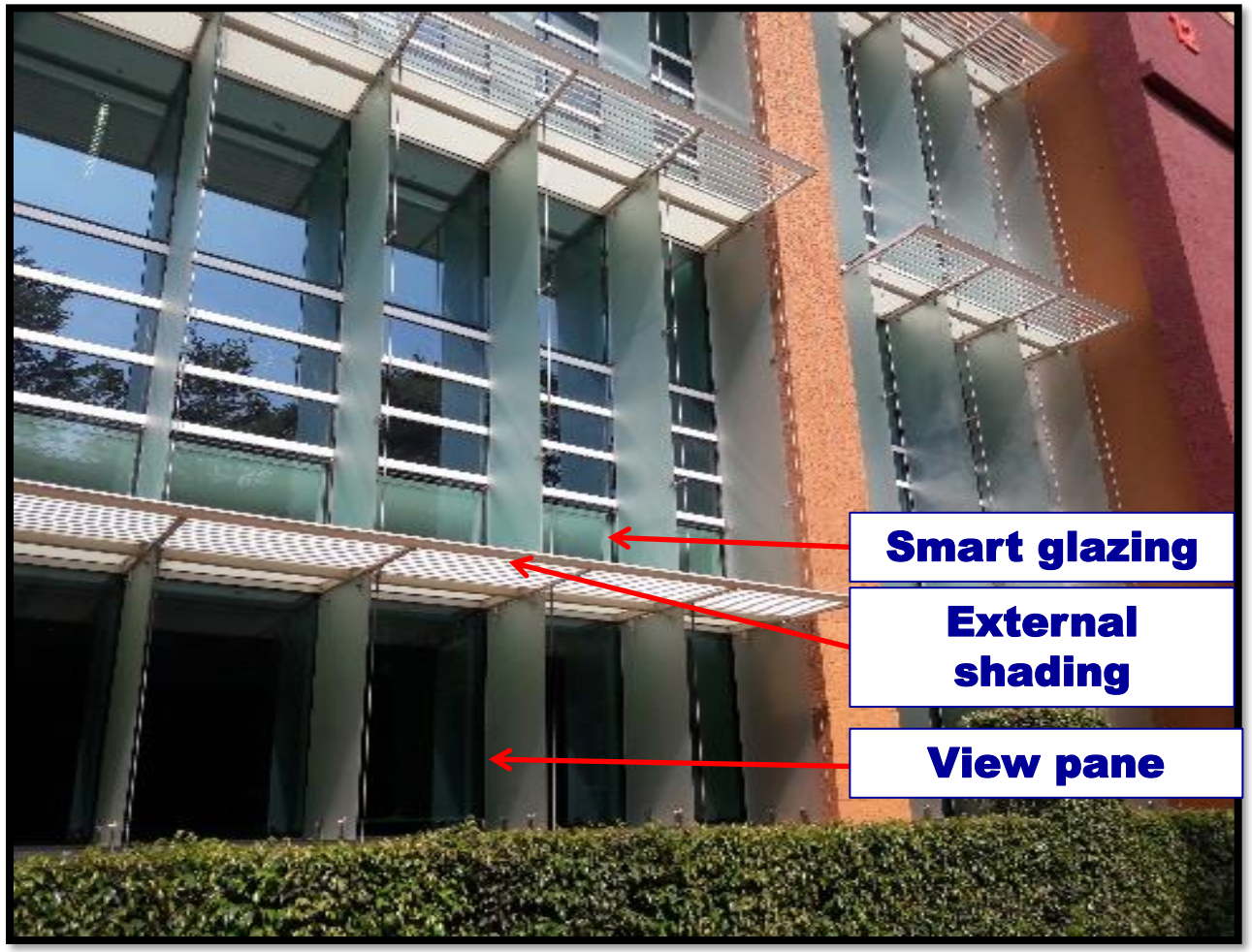
Utilities Overview

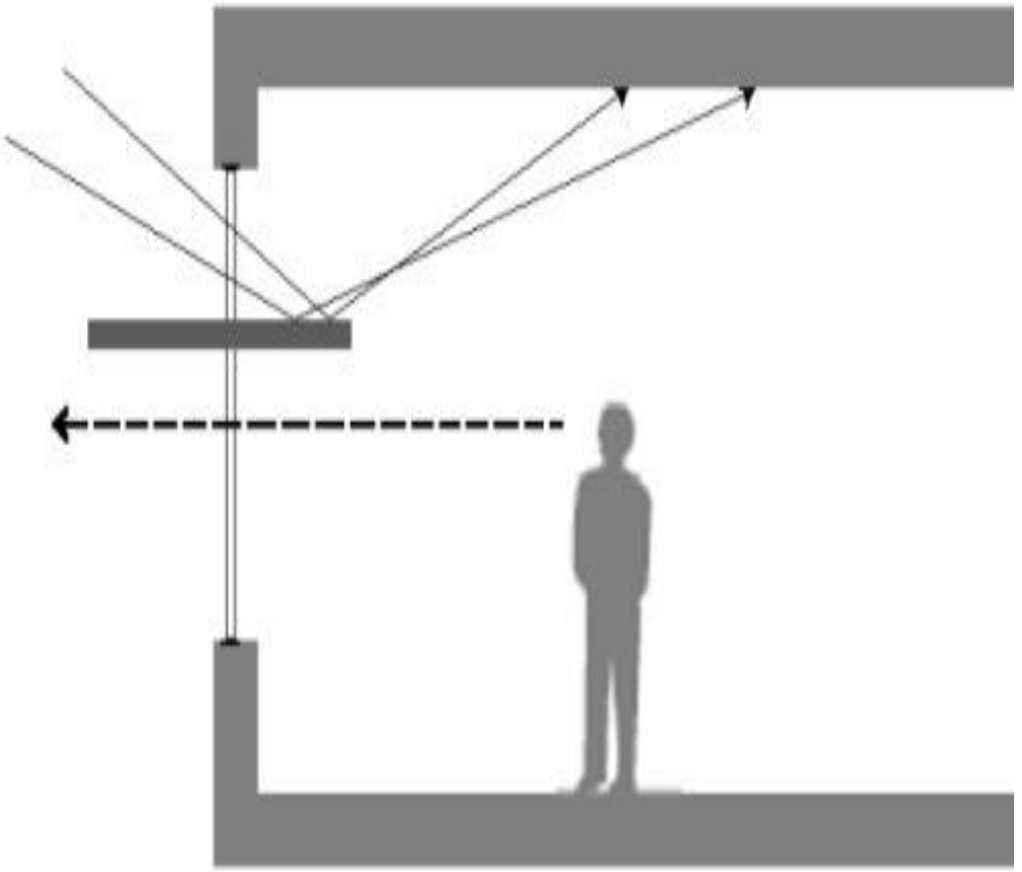
Description	Specification
Substation	➢ EB Demand : 10001 kVA CMD, 220 kV GIS Substation ➢ Transformers Capacity : 63,850 kVA (Oil Cooled T/F - 12 No's & Dry type T/F- 07 No's)
Diesel Generators	➢ Total Capacity : 16000 kVA (2 X 3000 kVA & 5 X 2000 kVA)
Roof Top Solar	➢ Total Capacity : 1140 kWp
Ground mount Solar	➢ Total Capacity : 6630 kWp
UPS	➢ Total Capacity : 2760 kVA
Chillers	➢ Total Capacity : 6083 TR
High Speed Diesel (HSD) Storage	➢ Total Capacity : 180 kL
Lakes and Injection wells	➢ Total : 9 Lakes (10.5 Crore Ltrs capacity) and 9 Injection wells
UGR(Under ground reservoir)	➢ Total Capacity : 5250 kL (1150 kL Raw & Treated 600 kL Fire water tank)
STP (Sewage treatment Plant)	➢ Total Capacity : 1680 kLD (MBR- 1100 kLD , SBR-180 kLD,ASP-400 kLD)

Pocharam campus Design Features

Day lighting and Glare control – Glass and shading



Light shelves for deeper penetration of day light



Infosys In-house Radiflux panels

- Developed by Infosys infrastructure in-house team
- Tested and certified for its performance as per international standards in Germany and received European patent .
- Produces twice the capacity and costs 1/3rd, compared to current solutions in the market
- Produces 150 W/m2 at 8 K delta T as per EN14240 standards
- Radiant cooling is 30% more efficient than conventional system
- Only part of the ceiling needs with Radiflux panels and very easy to install and leak-proof fittings
- 1/3rd the cost compared to Radiant Panels available in the market

Benchmarking Infosys Software Development Block (SDB-7) with Highest Standards (RMI)

Design target	Units	Industry Existing	Good Industry	Amory Lovins	Infosys SDB-7
Building energy consumption	kWh/m2-y	200	125-60	<95	<80
Lighting Power Density: Design	W/sqft	1.5	0.8	0.4-0.6	0.45-0.55
Lighting Power Density: Operational	W/sqft	1.5	0.6	0.1-0.3	<0.15
Installed computers/appliances..	W/sqft	4-6	1-2	<0.5	<0.7
Window glass R-value	m2 K/W	0.18 – 0.35	1-1.7	≥3.5	>5
Window glass (Light to Heat ratio)	VLT/SHGC	1	1.2	>2.0	>2.0
Installed mechanical cooling	sqft/ton	250-350	500-600	1200-1400+	750 – 1000
Cooling system efficiency	kW/ton	1.9	1.2-1.5	<0.6	<0.59

Amory Lovins, Chief scientist - RMI
*RMI :Rocky Mountain Institute standards

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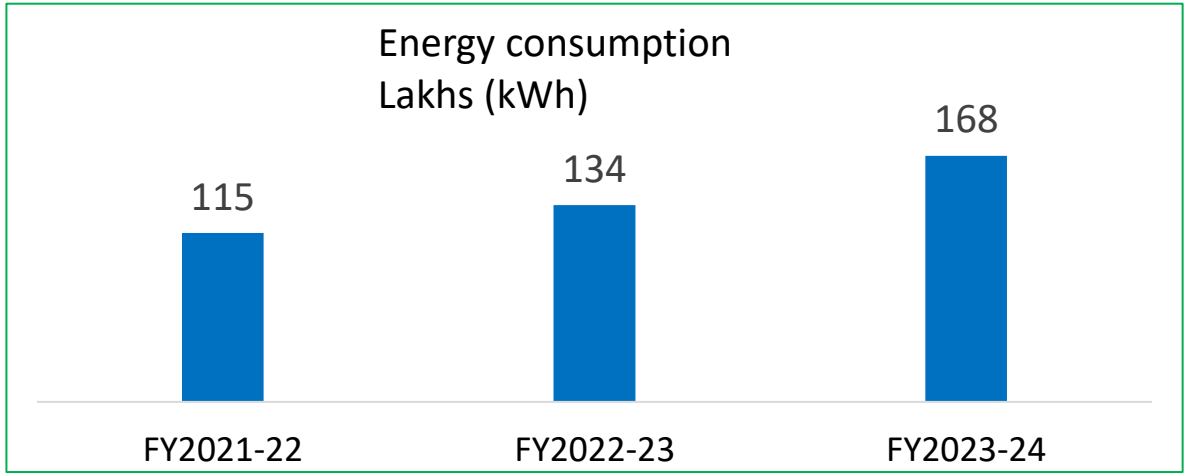
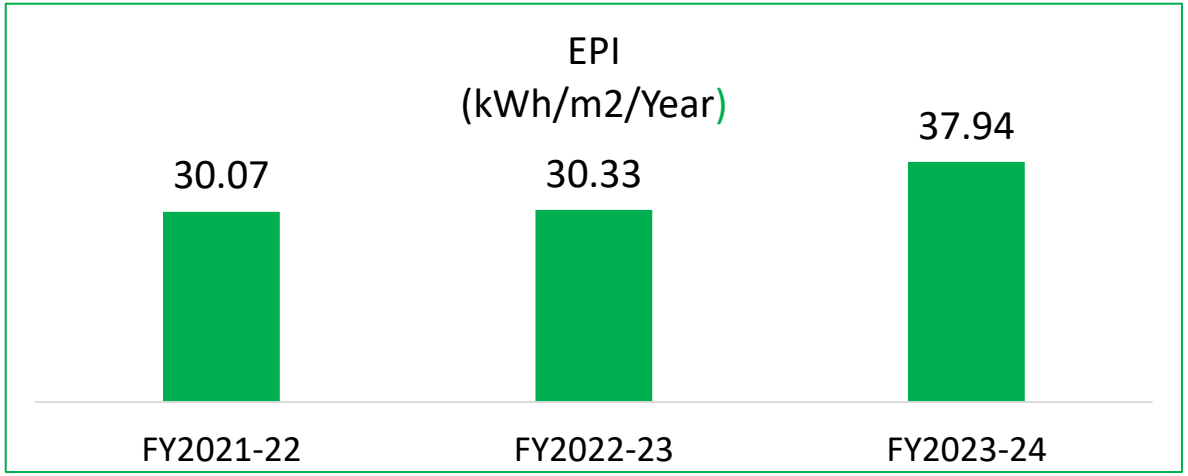
Energy Consumption Overview





Year	DISCOM (kWh)	DG (kWh)	Solar-Roof Top (kWh)	Solar-On site (kWh)	Total (kWh)	Area (m2)	EPI (kWh/m2 /Year)	Design Occupancy Density (m2/Employee)	Actual Occupancy Density/Month (m2/Employee)	Reasons for variations in EPI
FY2021-22	3,817,031	184,488	1,558,021	5,947,029	11,506,569	382,630	30.07	17.39	6989	Employee RTO is Increased
FY2022-23	6,029,059	352,826	1,548,332	5,467,132	13,397,349	441,758	30.33	16.99	501	
FY2023-24	8,980,202	112,616	1,576,741	6,089,487	16,759,046	441,758	37.94	16.99	73.49	

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Benchmark

Benchmark data - BEE for buildings where air-conditioned area is 50% more than carpet area bandwidth at buildings for 3 climate zones

EPI in kWh / m2/ 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

Pocharam campus EPI			
Performance Indicator	FY 2021-22	FY 2022-23	FY 2023-24
EPI: kWh/m2/year	30.07	30.33	37.94

5 Star

EPI 37.94

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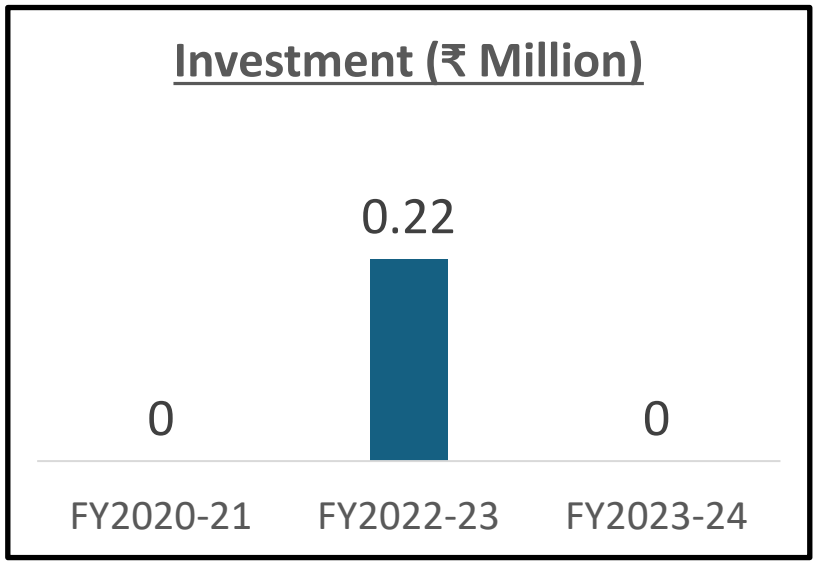
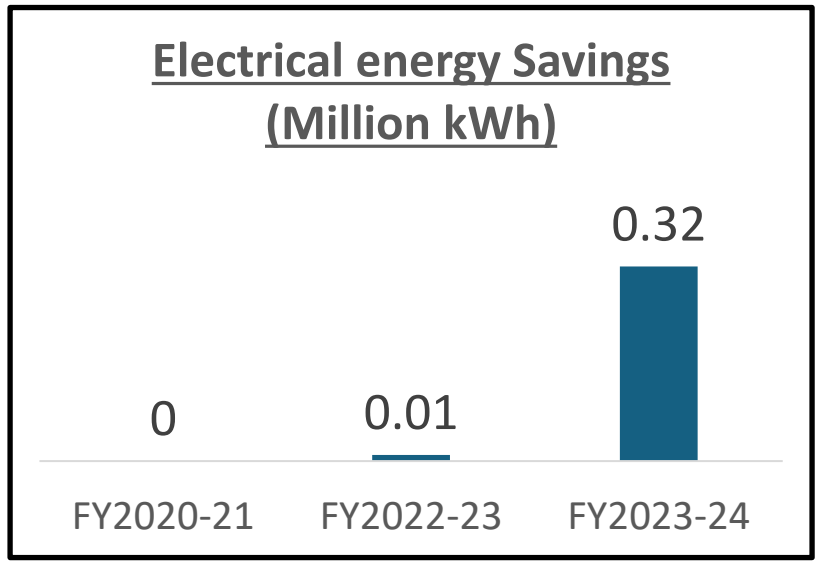
List of Major Encon project planned in FY 2024-2025

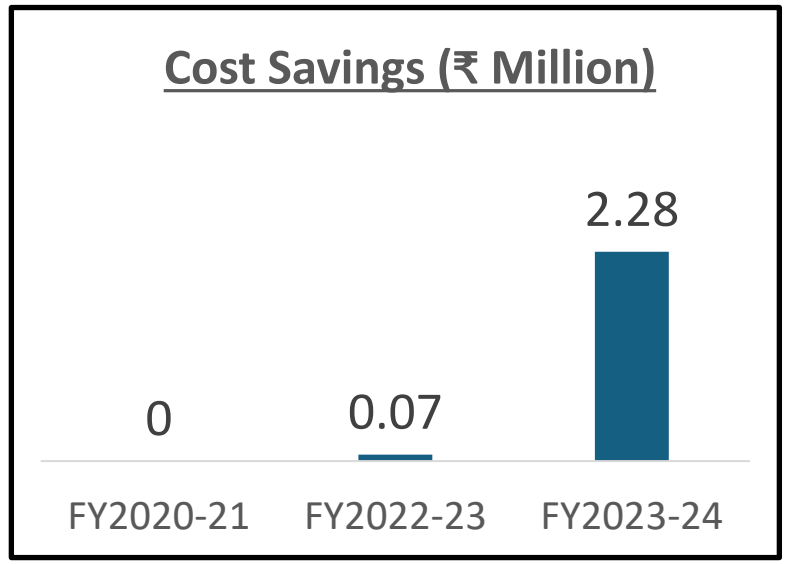
- MT (Medium Temperature) chilled water line provision to Building-3 from Main chiller plant as redundancy such that respective B-3 MT chiller will be switched off during day operational hours.
  - ❖Investment- 7 Million
  - ❖Energy saving in kWh- 163,000/Annum
  - ❖ROI- 6 Years.
- Conversion of DX units to Chilled water units in UPS and battery rooms.
  - ❖Investment- 1.25 Million
  - ❖Energy saving in kWh- 86,505/Annum
  - ❖ROI- 2 years 1 Month.

Energy Saving projects implemented in last three years

Year	No of energy saving projects	Investment (₹ Million)	Electrical energy Savings (Million kWh)	Thermal Savings (Million kcal/hr)	Cost Savings (₹ Million)	Impact on SEC (Electrical, Thermal)
FY2020-21	0	0	0	Nil	0	Nil
FY2022-23	1	0.22	0.01	Nil	0.07	0.02 ↓
FY2023-24	4	0	0.32	Nil	2.28	0.72 ↓







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List of ENCON Projects

S.no	Title of project	Year	Total annual energy saving (million kWh)	Total annual savings (₹ INR million)	Investment (₹ INR million)
1	Chiller Performance Improvement	2023-24	0.06	0.429	0
2	PUE Optimization in Data Center	2023-24	0.05	0.357	0
3	UPS Optimization	2023-24	0.17	1.215	0
4	Plate Heat Exchanger (PHE)	2023-24	0.04	0.286	0
5	CFL lights replacement with LED lights	2022-23	0.01	0.071	0.22

1.Chiller Performance Improvement (FY 2023-24)

Objective

Carrier Upstream and downstream chiller performance enhancement

Process

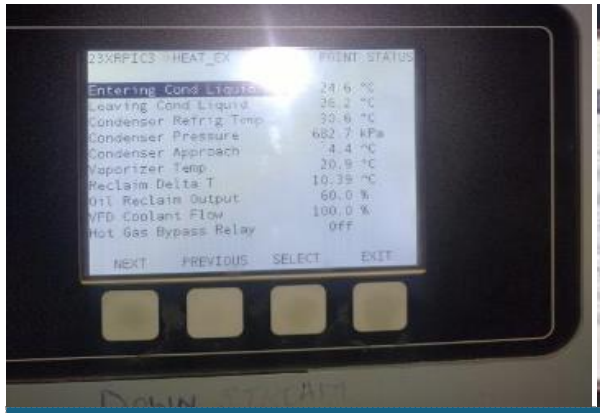
Replaced defective strainers and expansion valve and condenser brushing done

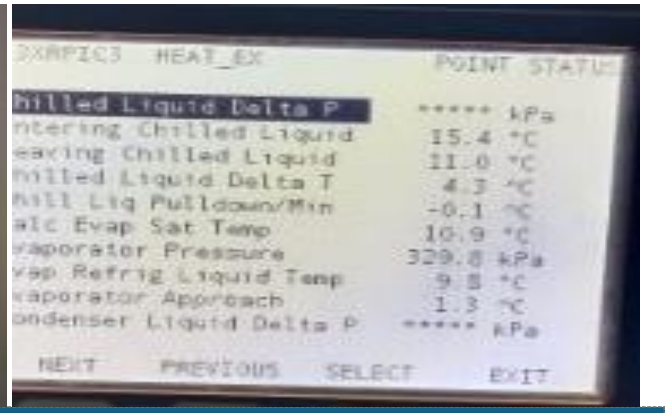
Target

Reduction in chiller energy consumption

Growth

- Energy savings: **60,000 kWh**
- Cost savings: **INR 4,29,000/-**





Energy savings calculation			
Sl. no	**Description**	**UOM**	**Qty**
1	Condenser and evaporator approach before	Deg F	8.0 & 4.5
2	After rectification, Condenser and evaporator approach	Deg F	3.9 & 1.3
3	After rectification, Energy savings per day	kWh/Day	250
4	Energy savings per Year	kWh	60,000
6	Cost savings per Year (Rs.7.15)	INR	4,29,000
7	Investment	INR	150,000
8	Payback	Months	3.5

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2.PUE Optimization in Data center (FY 2023-24)

Objective

Reduction in PUE of data center

Process

Increased CHW units running hours. Temp Set points optimized. Arrested air leaks in cold aisle containment

Target

Reduction in Data center energy consumption

Growth

- Energy savings: **54,020 kWh**
- Cost savings: **INR 3,86,243/-**

Energy savings calculation			
Sl. no	Description	UOM	Qty
1	Previous PUE	PUE	2.1
2	Reduced PUE	PUE	1.6
3	Data center Energy Consumption- Before	kWh/Day	623
4	Data center Energy Consumption- After	kWh	475
6	Total consumption saved	kWh/Day	148
7	Cost savings per Year (Rs.7.15)	INR	3,86,243
8	Investment	INR	0
9	Payback	Months	NA

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3.UPS Optimization (FY 2023-24)

Objective

UPS Optimization

Process

UPS Loading Analysis and Reduction of modules from modular UPS

Target

Reduction in UPS Energy consumption & Improvement in UPS Efficiency

Growth

- Energy savings: 1,78781 kWh
- Cost savings: INR 1,278,286

Energy savings calculation			
Sl. No	Description	UOM	Qty
1	Total UPS Capacity installed	kVA	4628
2	Total UPS Capacity after Deration	kVA	2760
3	Total UPS Capacity Saved	kVA	1868
4	Saving in Watt/kVA (Module losses)	Watt/kVA	10.92
6	Total Saving in kWh /Day	kWh	489.81
7	Total Saving in kWh /Annum	kWh	178,781
8	Total Cost Savings/Annum	INR	1,278,286
9	Investment	INR	0

4.CFL lights replacement with LED lights at food court (FY 2022-23)

Objective

CFL lights replacement with LED lights

Process

Analysis of lux levels requirement and procurement of lights

Target

Reduction in energy consumption

Growth

- Energy savings: 10,074 kWh
- Cost savings: INR 72,029/-

Energy savings calculation			
Sl. No	Description	UOM	Qty
1	No of CFL lights – 28 W	No	460
2	Replacement of CFL lights with LED lights- 22 W	No	460
3	After replacement, Energy savings per day	kWh/ Day	27.6
4	Energy savings per Year (10 Hrs operation/Day)	kWh	10,074
6	Cost savings per Year (@ Rs 7.15/Unit)	INR	72,029
7	Investment	INR	222,000
8	Payback	Months	37

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Innovative Project

PHE (Plate Heat Exchanger)

- ✓ If chilled water return temperature setpoint (Approx 22 deg C) is achieved, MT chiller will be switched off accordingly and subsequently PHE will be switched ON and it will takeover the buildings HVAC load.
- ✓ Energy optimization technique
- ✓ Operation by Inhouse plant team.
- ✓ Savings of 40,000 kWh/Annum

Utilization of Renewable Energy sources

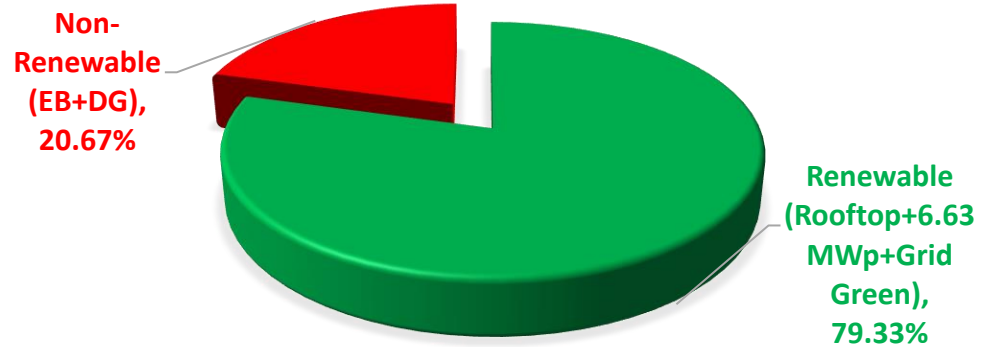
Onsite					
Year	**Source**	**Installed Capacity (in MW)**	**Capacity addition (MW) after FY 2021**	**Total Generation (million kWh)**	**Share % w.r.t to overall energy consumption**
FY 2021-22	Rooftop Solar	1.14 MWp	Nil	7.49	65.15%
	Ground Mount Solar	6.63 MWp			
FY 2022-23	Rooftop Solar	1.14 MWp	Nil	7.65	58.05%
	Ground Mount Solar	6.63 MWp			
FY 2023-24	Rooftop Solar	1.14 MWp	Nil	7.45	44.11%
	Ground Mount Solar	6.63 MWp			

Offsite					
Year	**Source**	**Installed capacity (in MW)**	**Capacity addition (MW) after FY 2021**	**Total Generation (million kWh)**	**Share % w.r.t to overall energy consumption**
FY 2021-22	Nil	NA	NA	--	--
FY 2022-23	Green Power	TGSPDCL	Nil	2.80	21.28%
FY 2023-24	Green Power	TGSPDCL	Nil	9.33	55.23%

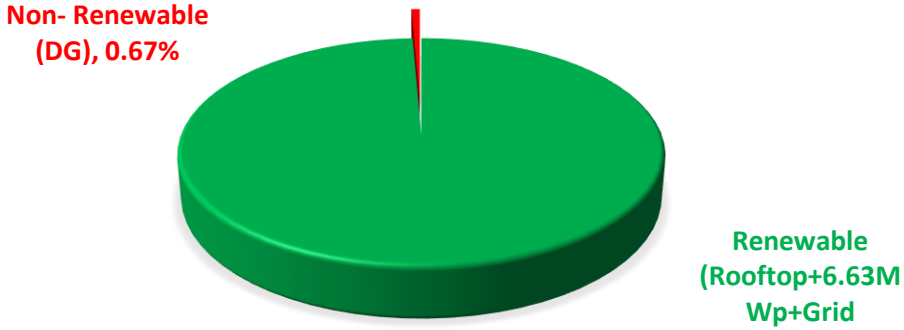
Green Energy Target- Pocharam Campus

FY 2021-22

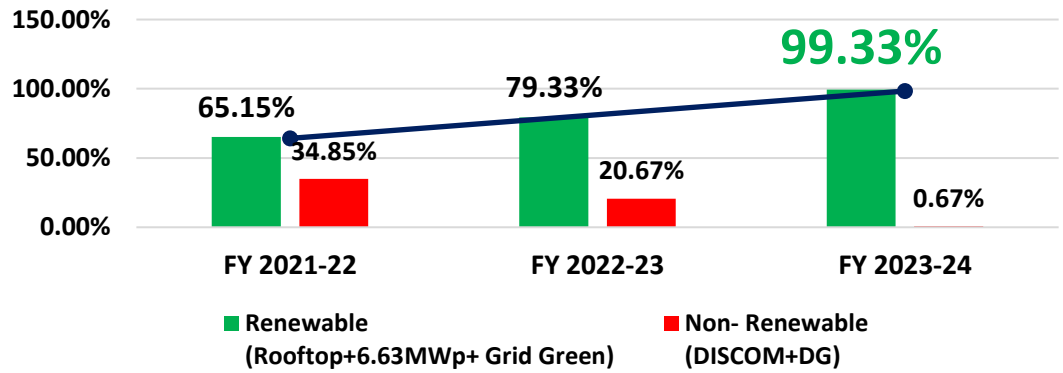
FY 2022-23



FY 2023-24



Green Energy



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ESG Highlights

Reflecting on our journey so far

Carbon neutral 5 years in a row

29.6 mn sq. ft.
of the highest-level green certified space

37.5 mn sq. ft.
of office space monitored through Infosys command center

60.1%
reduction in Scope 1 and 2 GHG emissions over the BAU scenario*

60.2 MW
of total installed solar capacity

67.5%
of electricity for our India operations comes from renewable sources

13.13 tons of CO2e/MUSD revenue
emission intensity for fiscal 2024

CDP climate leadership 8 years in a row

40 lakes
across our campuses, holding 430 million liters of rainwater storage capacity

100%
recycling of wastewater

405 deep injection wells
across our campuses in India, providing a combined recharge capacity of over 20 million liters

2,64,000+
rural families continue to benefit from our carbon offset programs

25+%
proportion of spending on local suppliers (in India) in fiscal 2024

119 mn+ lives
empowered via Tech for Good programs in e-governance, healthcare and education

* BAU scenario refers to regular operations without interventions such as renewable power or energy conservation initiatives.

World's most ethical company
recognized by Ethisphere for the fourth year in a row

92 scientists
honoured with the Infosys Prize since 2008

90% local hires

39.3%
women in the workforce in fiscal 2024

24 mn+ training hours
in fiscal 2024

11.75 mn learners
enabled with digital skilling

ISO 42001:2023
certified for AI management systems

ISO 27001:2022
certified for information security management

ISO 14001:2015
certified for environment management

ISO 45001:2018
certified for occupational health & safety management

ISO 27701:2019
certified for privacy information management

ISO 22301:2019
certified for business continuity management

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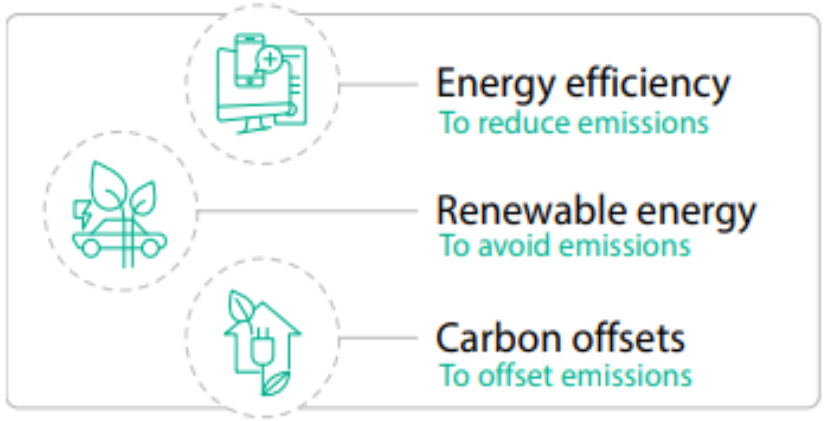
GHG Emissions Action plan & IAQ Strategy

Our approach to reducing emissions is three-fold:



❖**Scope 3 emissions are calculated at corporate level.**

Infosys has both short- and long-term plan to reduce GHG emissions. The following are the climate related targets that are validated by SBTi.

- Reduction of absolute Scope 1, Scope 2 and Scope 3 GHG emissions by 12.5% by 2025 from 2020 as the base year.
- Reduction of absolute Scope 1, Scope 2 and Scope 3 GHG emissions by 37.5% by 2035 from 2020 as the base year.

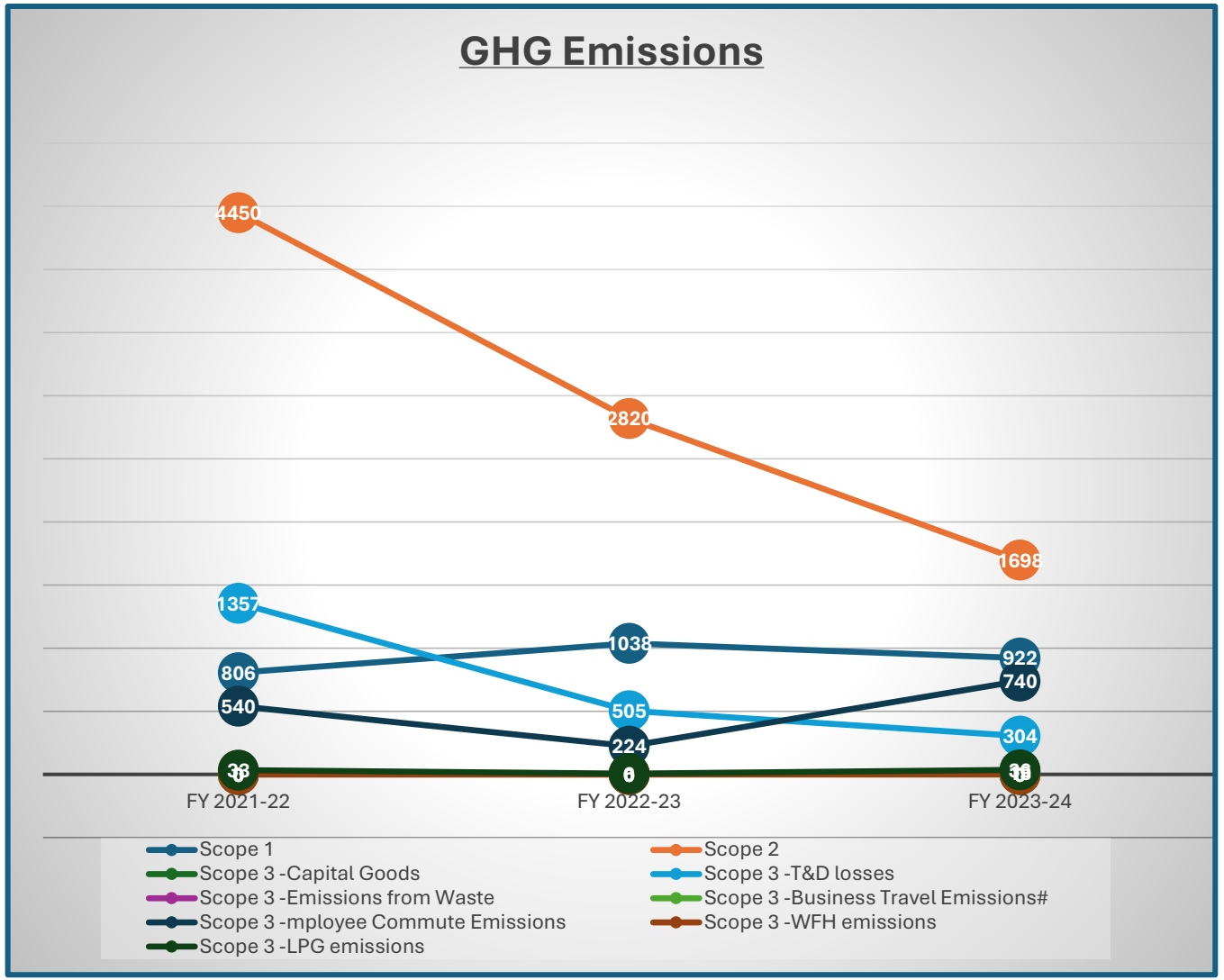
Indoor Air Quality:

At Infosys, we pride ourselves on going above and beyond Health and Safety Standards and Industry guidelines in maintaining Indoor Air Quality (IAQ). We have undertaken comprehensive evaluations of our HVAC infrastructure and have implemented modifications accordingly, all aimed at providing our employees with the best level of air quality possible. We are committed to providing our employees with the best IAQ, and we are confident that our efforts will ensure a safe, healthy, and comfortable working environment for everyone. Indoor air quality is monitored at all working locations to ensure clean and hygienic air is supplied, which improves cognition and productivity, reduces the spread of other airborne diseases, protects against outdoor air pollutants. Monitoring is done in two ways:

1. Real-time monitoring – Key parameters such as carbon dioxide (CO2), PM2.5, PM10 are continuously monitored and connected to the building management system (BMS) in most buildings.
2. Third-party monitoring – Around 12 parameters are monitored at defined frequencies annually as per ASHRAE / OSHA requirements

GHG Inventory/ Absolute Emissions

Emission type	FY 2021-22	FY 2022-23	FY 2023-24
Scope 1	806	1038	922
Scope 2	4450	2820	1698
Scope 3 -Capital Goods	0	0	0
Scope 3 -T&D losses	1357	505	304
Scope 3 -Emissions from Waste	0	0	13
Scope 3 -Business Travel Emissions#	0	0	0
Scope 3 -Employee Commute Emissions	540	224	740
Scope 3 -WFH emissions	0	0	0
Scope 3 -LPG emissions	33	6	36
Scope 3 - Total	1930	735	1094
Total emissions	7187	4593	3714



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Building Management System (BMS)

1. **Use automated energy saving strategies/logics**

   - Electrical motors are operated using an energy saving strategy & application.

2. **Manage energy by detail – for lighting, computing and plug loads**

   - floor-wise and wing-wise energy monitoring for lighting, computing and plug loads for granular energy control, identification of wastage

3. **Continuous M&V, continuous commissioning**

   - measures energy as well as efficiency for all HVAC and PS for continuous verification and improvement.

4. **Deliver highest standards of Indoor air quality (IAQ)**

   - Demand controlled ventilation to maintain IAQ with minimal energy consumption.

5. **Provides data to optimize future building designs**

   - records peak value of W/sqft on HVAC, lighting, computing and main incomer to migrate from thumb rule engineering to performance data driven engineering.

6. **Allow equipment and system level diagnostics and corrections**

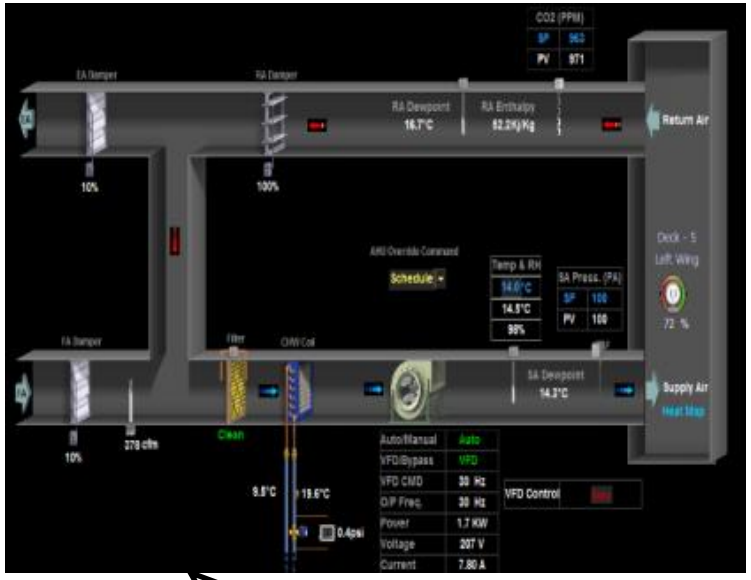
   -e.g extensive measurement on AHUs allow identification of low flows, malfunctioning valves, fans, coils, filters, etc.

7. **Enables trending and data analytics**

   - e.g. trends to analyze historical operation of VAVs, AHUs, Chiller plants.

8. **Water efficiency**

   - monitors water consumption on hourly, daily and monthly basis for optimization.



Example of demand-controlled ventilation. Building only uses as much fresh air as required based on occupancy / CO2 sensing

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Continuous verification, continuous auditing - Design Vs Actual

Constant monitoring to get design efficiencies

Energy Summary - HVAC

Equipment	Design Kw	Design iKw/Tr	Actual Kw	%	Actual ikw/Tr.	Kwh Today	% Today	Kwh Y Day	Kwh MTD	Mwh YTD	% YTD
HVAC High Side											
LT Chiller - 1	143.0	0.40	0.0	0	0.00	0	0	849	11187	82.85	16
LT Chiller - 2	143.0	0.40	152.0	47	0.47	1266	43	0	12174	134.44	25
LT Chiller - 3	143.0	0.40	0.0	0	0.00	0	0	0	0	7.32	1
MT Chiller - 1	143.0	0.31	0.0	0	0.00	6	0	523	5639	55.23	10
MT Chiller - 2	143.0	0.31	99.4	31	0.32	1024	35	7	7555	68.80	13
MT Chiller - 3	143.0	0.31	0.0	0	0.00	0	0	0	5775	66.44	12
CHW Pumps	120.0	0.06	33.2	10	0.05	291	10	229	5194	49.36	9
CDW Pumps	97.0	0.05	29.9	9	0.04	267	9	301	5377	45.58	9
Cooling Towers	45.0	0.02	8.2	3	0.01	67	2	80	1736	23.73	4
Total			322.8	100		2921	100	1990	54630	532.66	100

- Allows performance-based management for maintenance contracts

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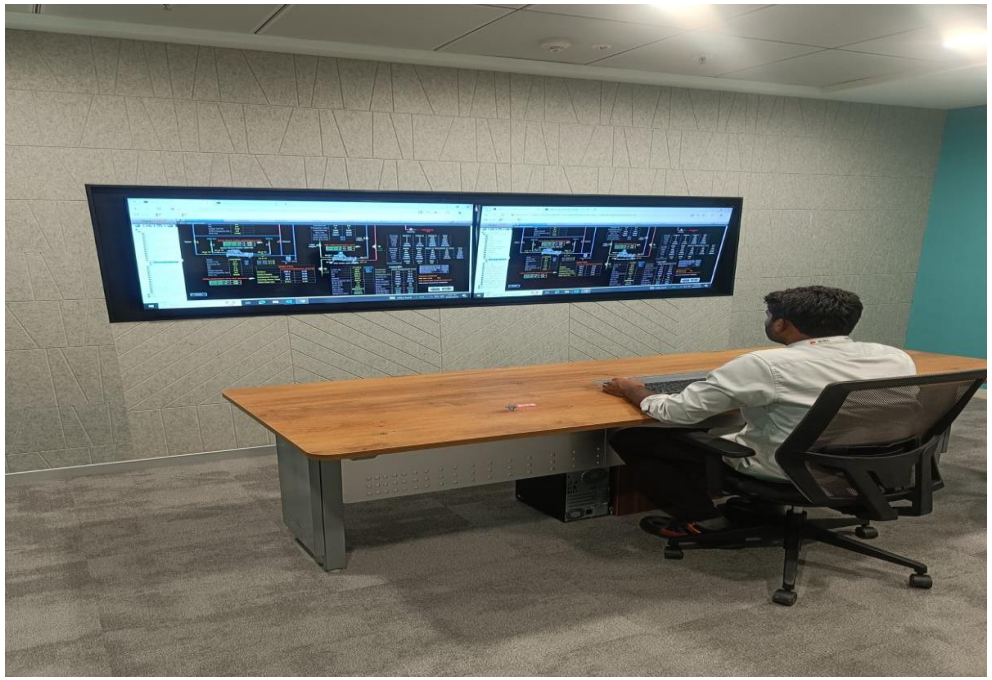
Local & Central Command Center for Monitoring and Optimization

- All buildings have a robust Building Management System that makes the buildings smart and generates continuous granular level data to improve operations on-the-go, and ensure efficient operations and high indoor environmental quality all the time for building occupants by monitoring through Central Command Center



Local Command Center- Pocharam Campus

Central command center- Bangalore

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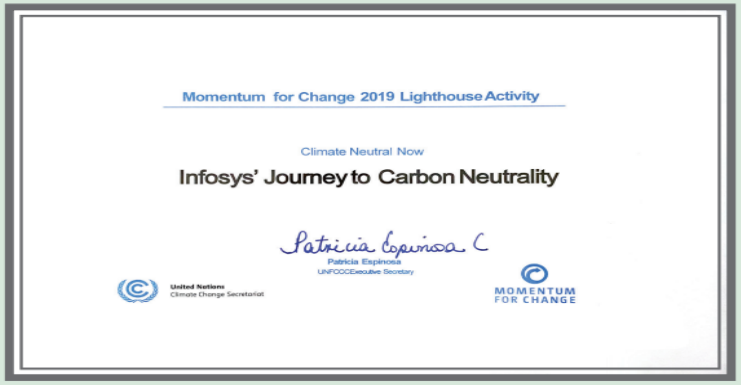
Journey To Carbon Neutrality

2020: Infosys is carbon neutral

Infosys has become carbon neutral for FY 2020, 30 years ahead of the timeline set by the Paris Agreement. In 2019, Infosys received the prestigious United Nations Global Climate Action Award in the 'Climate Neutral Now' category.



UN Global Climate Action Award Certificate

"Infosys' journey to carbon neutrality is truly inspiring. As one of the first companies of its kind to commit to carbon neutrality, they have provided a practical model for climate action, while setting a benchmark for integrating sustainable development and climate action. At this year's UN Climate Conference (COP 25) in Madrid, it is our honour to recognize Infosys as a winner of this year's UN Global Climate Action Awards."

– Niclas Svenningsen
Manager of the UN Climate Change Global Climate Action Programme

CARBON NEUTRALITY – PAS 2060:2014

Infosys becomes the first Company[1] in India to certify its carbon neutrality against PAS 2060:2014, the highest standard for carbon neutral certification worldwide.

[1] Based on publicly available data as on September 11, 2020.

A HOLISTIC APPROACH

We took action internally through energy efficiency initiatives and investments in renewables. Any emissions that remained were then offset, using community-based projects that created a lasting socio-economic impact.

- **Energy efficiency** – To reduce emissions
- **Renewable energy** – To avoid emissions
- **Carbon offsets** – To offset emissions

WHAT OUR EFFORTS HAVE RESULTED IN

25 m sq ft
of highest rated (LEED Platinum/ GRIHA 5-star) green buildings

60 MW
of installed solar PV capacity

30 m sq ft
of smart connected spaces

Super efficient buildings
with superior energy performance

44.3%
of total electricity across India campuses from renewable sources

55%
reduction in per capita electricity consumption compared to 2008 baseline

IMPACT OF CARBON OFFSET PROJECTS

11 of 17 SDGs
favorably impacted through our carbon offset projects

2,400+
Jobs created through our carbon offset projects

1,02,000+
rural families continue to benefit from our carbon offset projects

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Net Zero Action Plan

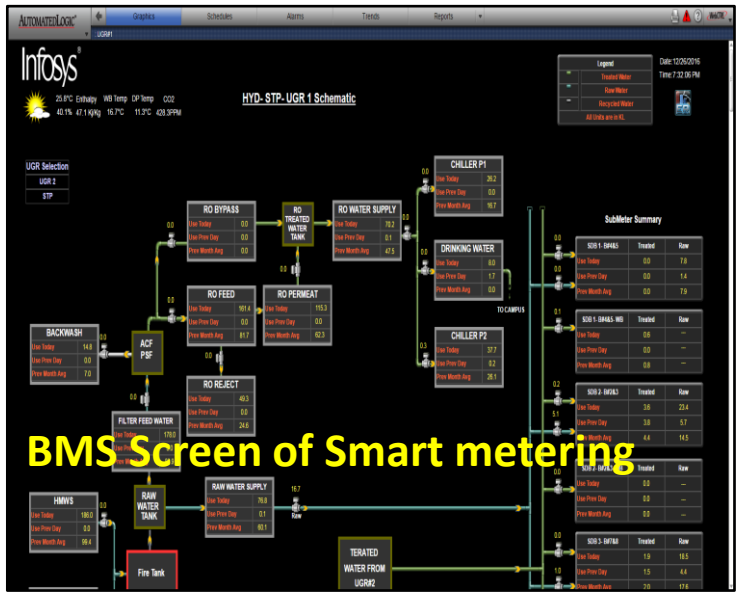
Infosys' climate commitments

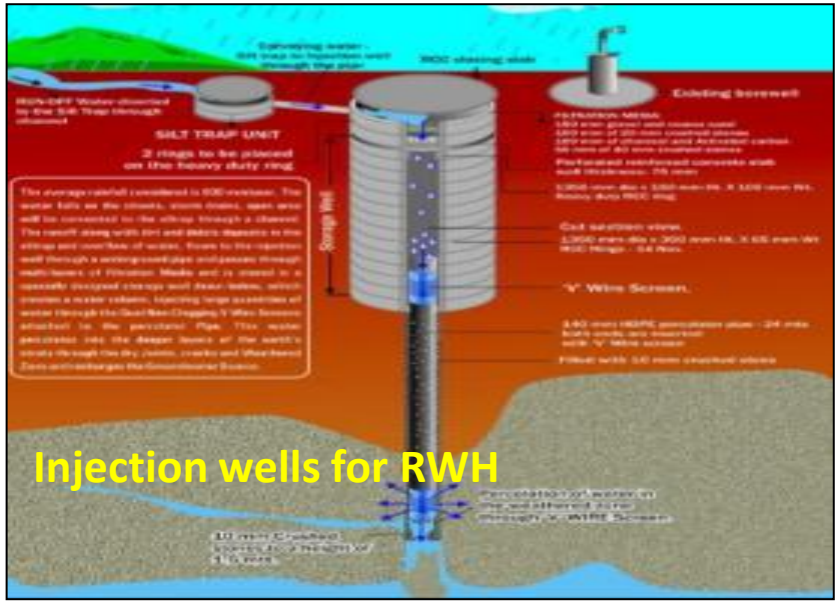
- As a part of our ESG Vision 2030, we have committed to maintaining carbon neutrality across Scope 1, 2 and 3 emissions, each year.
- Our Climate Pledge, (in partnership with Amazon and Global Optimism), is to become net zero by 2040.
- Infosys is the first Indian company to participate in the RE 100 initiative.
- Our emission reduction targets are validated by the Science Based Target initiative (SBTi).

Water Management

Deployment of Green Technologies & Innovative Technologies

- ✓ Smart Water metering
- ✓ Smart Irrigation system
- ✓ Flow restrictors and aerators
- ✓ Low flow fixtures
- ✓ Rainwater harvesting system





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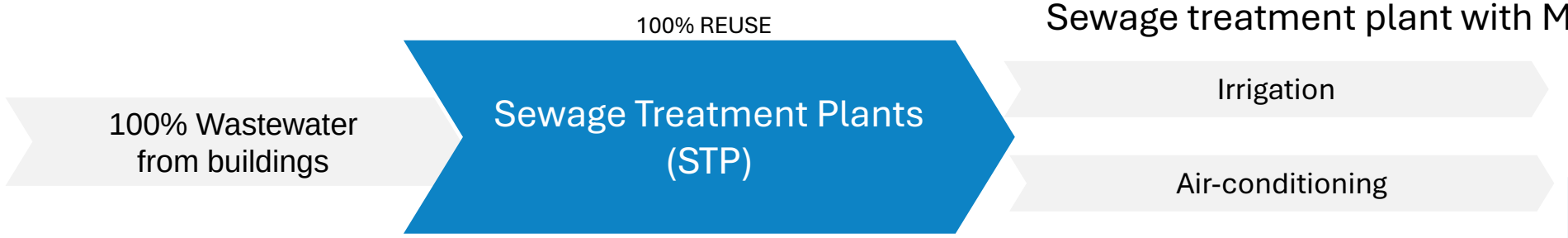
Water Recycling:100% of wastewater is recycled and reused

Pocharam Campus

- 100% of wastewater is recycled
- Efficient treatment technology - Membrane bio-reactor (MBR) technology
- Recycled water is used for irrigation and air-conditioning
- Dual piping system retrofits in existing buildings

Sewage treatment plant with MBR technology



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Waste Management Goal: Zero waste to landfills

Organic waste

- Food & Garden Waste
- Capacity to treat 100% of food waste on site
- Biogas plants in the campus for treatment of food waste (1.7TPD)
- Organic waste converters in campus for treatment of food waste (2 TPD)
- Garden Waste is treated through composting/vermi-composting

In-organic, Non-Hazardous waste

- Paper, Plastic, Glass, Metal, etc.
- Sent to authorized vendors for treatment and recycling
- Segregation key to waste recycling
- Recycled 265 tons of waste per annum

Hazardous waste

- E-Waste, DG oil, Bio Medical.
- Segregated and handed over to pollution control board authorized recyclers for recycling
- Disposed 8.6 Ton E-waste & DG oil 3.6 kL of per annum.
- Bio Medical 5 Ton sent to incinerator.

Awards and Certification

- ✓ LEED platinum rating, in India for office buildings. (Platinum is highest level in LEED green building rating).
- ✓ Awarded Gold Certificate under commercial building category from Telangana State Energy Conservation Awards (TSECA-2018)
- ✓ Solar Energy Global Conference & Awards Saint Gobain Smart Green Awards for SDB 2 & SDB 3
- ✓ National Energy management award 2013 from CII.
- ✓ 99.33% Green energy utilization for campus since Sep-2022
- ✓ 7th Garden Festival & 1st Urban Farming Festival 2023.

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THANK
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