PHOENIX MARKETCITY

Phoenix Marketcity – Mumbai

Offbeat Developers Pvt Ltd.

Presenter : Mr. Gajanan Tekade - General Manager Services.

Mr. Navneet Kamble - Senior Manager Services.

1. INTRODUCTION

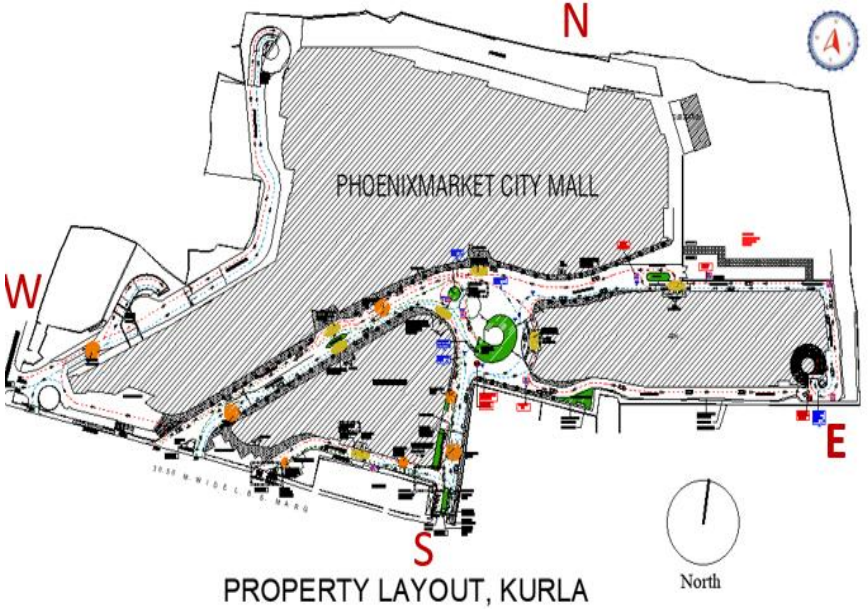
OUR UNIQUE FEATURES

Currently, there are twelve malls functioning in India: Mumbai, Bangalore, Lucknow, Chennai, Pune, Bareilly, Ahmedabad, Indor and Pune.

- **Classified as a “Larger Lifestyle Engagement Destination” offering an array of unforgettable experiences.**
- **Situated at the prime location Centre of Mumbai , Surrounded with IT Parks, Luxury residential complex's.**
- **Phoenix remains “The destination for the premium discerning customers of the city as well expats with its international look and tastefully done interiors.**
- **Ultimate destination for shopping, dining, & entertainment.**

2.1 PASSIVE DESIGN FEAUTURE

BUILDING ADVANTAGES

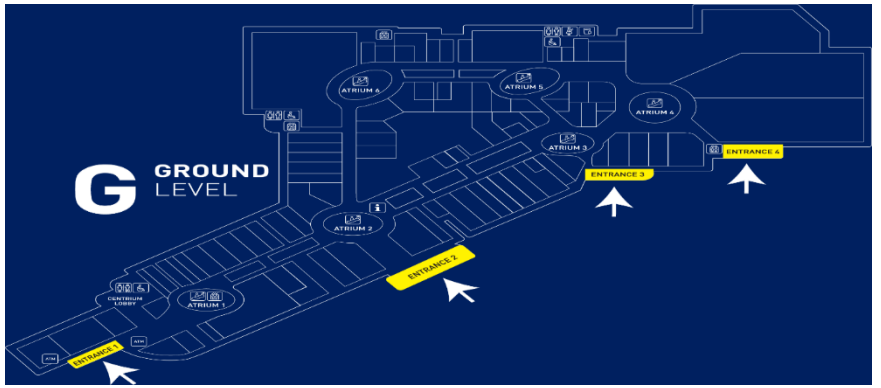


PROPERTY LAYOUT, KURLA

- **Climate Zone**

City	Climate Zone	Average Temp (°C/°F)
Mumbai - Kurla West	Aw	29.72 / 85.5

- **Façade Glass SHGC -0.22 U Value -1.8 W/Sq.m K**

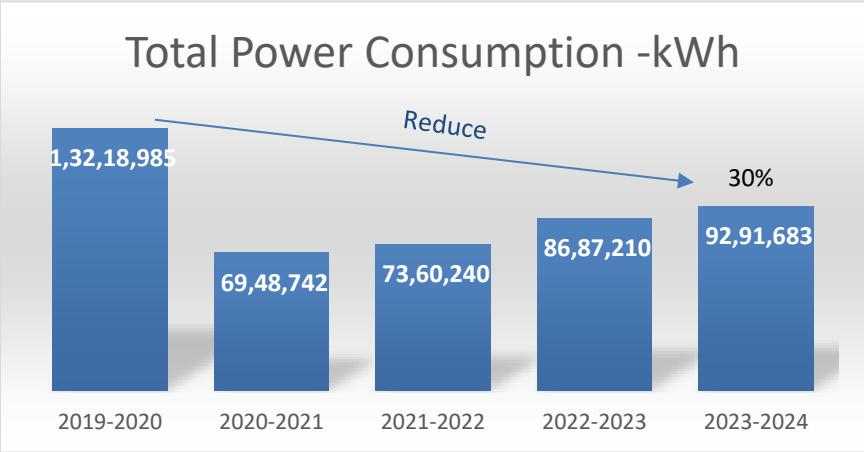


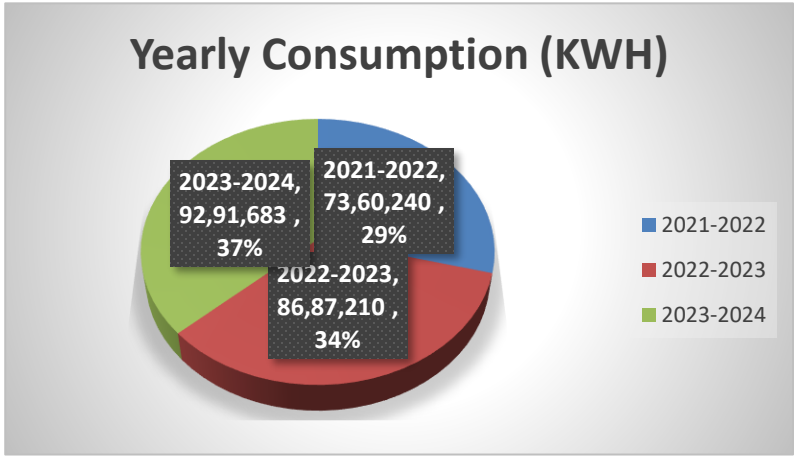
2.2 ENERGY CONSUMPTION OVERVIEW

Electrical Uses

TANGIBLE BENIFITS : Consumption reduced by 39 L kWh (30 %) with 4 Cr cost benefits compare with FY 20219-20

Energy Data - Annual Consumption - Electricity purchased from Grid						
Years	**Yearly Consumption (KWH)**	**Area Sq .M**	**Yearly SEC (Specific Energy Consumption) (kWh/Area Sq M)**	**Monthly SEC (Specific Energy Consumption) (kWh/Area Sq M)**	**Yearly KWH Diff increase in %**	**Saving Diff in % (Compare with FY2019-20)**
2019-2020	1,32,18,985	91288	**145**	12.07		0%
2020-2021	69,48,742	66958	**104**	8.65	-53%	-47%
2021-2022	73,60,240	77998	**94**	7.86	6%	-44%
2022-2023	86,87,210	90793	**96**	7.97	18%	-34%
2023-2024	92,91,683	93401	**99**	8.29	7%	-30%





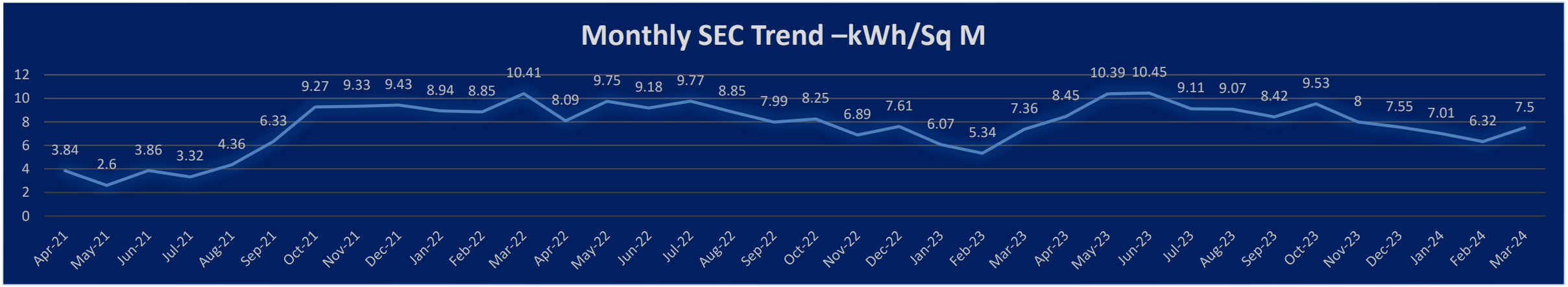
Note : Due to Covid restriction less consumption data in month duration April to August in respective years 2021-22

3.1 Sp. ENERGY CONSUMPTION OVERVIEW

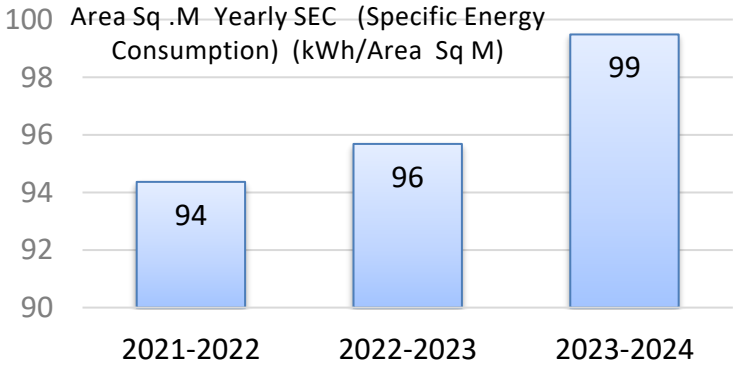
SEC Monthly Consumption TREND

TANGIBLE BENIFITS : SEC increase by 3 kWh/Area sq M (3%) with loss of compare with FY 2022-23

Note : - SEC value increase due to new asset added lift 2 no's , Escalator – 4 no's , Food court area Dx VRV unit 66Tr – 1 no



Years	Area Sq .M	Yearly SEC (Specific Energy Consumption) (kWh/Area Sq M)	SEC (Specific Energy Consumption) diff in %	Monthly SEC (Specific Energy Consumption) (kWh/Area Sq M)
2020-2021	66958	**104**		8.65
2021-2022	77998	**94**	-9%	7.86
2022-2023	90793	**96**	2%	7.97
2023-2024	93401	**99**	3%	8.29



Note : Due to Covid restriction less consumption data in month duration April to August in respective year 2021-22

3.2 Sp. ENERGY CONSUMPTION OVERVIEW

Actions Taken to Reduce the Energy consumption.

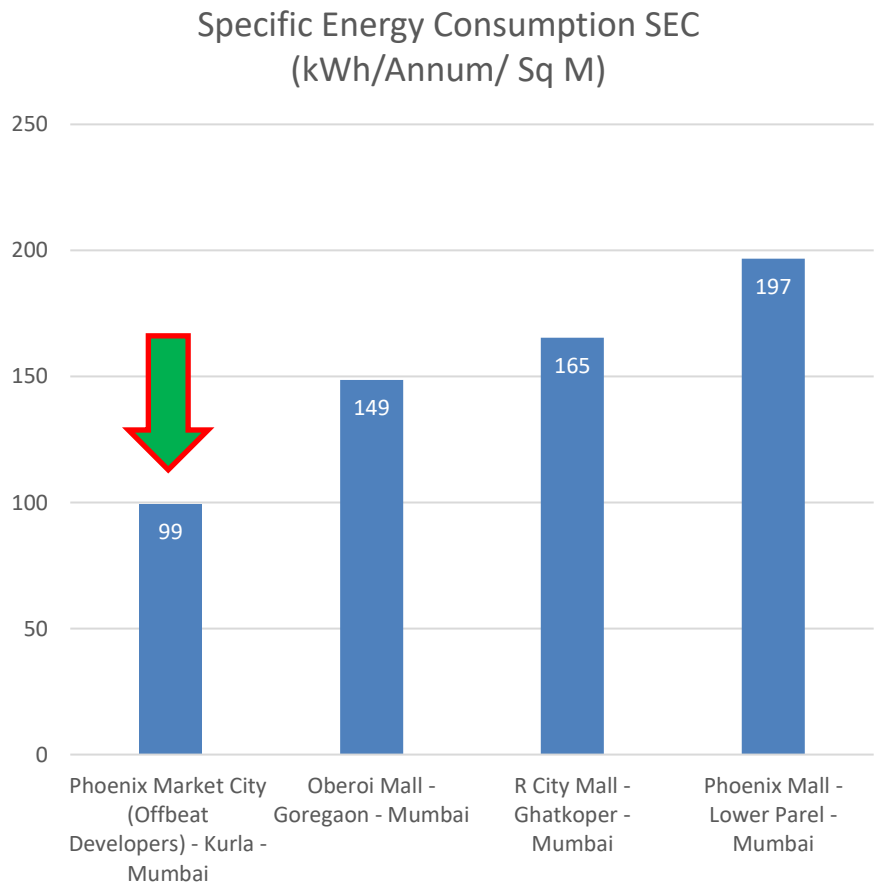
- 2021-22 - Optimized Facility operations during pandemic.
- 2022-23 – RE Solar, Chiller Operational Controls, Optimized operation of AHU’s, LED lights.
- 2023-24 - RE Solar , Dimmable LED lights, PVR ACCS and Cooling tower Retrofit.

Note : - SEC value increase due to Asset added lift 2 no's , Escalator – 4 no's , Food court area Dx VRV unit 66Tr – 1 no

Note : Due to Covid restriction less consumption data in month duration April to August in respective years 2021-22

4. Information on Competitors, National & Global benchmark.

TANGIBLE BENIFITS : SEC Consumption 99 kWh/annum /Sq M, with 33.05% less then Oberoi Mall



Energy Data - Total Power Consumption 2023-24

Mall Name	KWH	Area Sq .m	Specific Energy Consumption SEC (kWh/Annum/ Sq M)	kWh/Month/ Sq M	Benchmark
Phoenix Market City (Offbeat Developers) - Kurla - Mumbai	92,91,683	93401	99	**8.29**	**Optimum**
Oberoi Mall - Goregaon - Mumbai	58,35,152	39272	149	12.38	33.05%
R City Mall - Ghatkoper - Mumbai	1,24,29,342	75152	165	13.78	39.85%
Phoenix Mall - Lower Parel - Mumbai	1,28,13,241	65130	197	16.39	49.43%

4. Sustainability Roadmap 2030

- Our commitment to achieving carbon neutrality in our India operations has been operationalized through a host of initiatives, including enhancing resource efficiency as well as moving to renewable alternatives. 1.8 MW existing plants will extend capacity of 3.6 MW
- We are also helping our communities become more carbon resilient through afforestation efforts. Planning common area EV charging station 50 no's for 4W and 4 no's for 2W for customers.
- We have made our employees a part of this journey by including them in volunteering activities and reducing their travel footprint. Training and campaigns organized.

The build up towards the nomination process has helped us to recognise and identify projects which has helped our company's excellence in the reduction of energy consumption and innovation. Our mission towards use of clean energy and reduction of carbon footprints is helping us scout for new avenues and techniques of resource conservation.

We appreciate the organizer for providing this platform to share our experience, implementations and concepts, we believe that our efforts at mitigating climate change and prioritising a circular economy will ensure our sustained growth in the future.

This exercise has been enriching in more ways than one.

4. Sustainability Roadmap 2030

Engineering Innovation and Upgradation

Engineering Innovation and Upgradation to Improve Customer Experience, Safety, and Innovation plan. We plan to upgrade all equipment in phases 1 and 2.

In phase 1,the focus will be on improving the lift lobby, Reliance customer passage pathway, replacing mall floor tiles, and upgrading customer and driver washrooms to enhance customer experience.

Regarding customer safety and as per FLS and MEP Audit recommendation , we aim to enhance the safety of the mall's back area by rectifying MS fencing, installing harmonic filters to control the harmonic spikes in system and improve power quality, reduce loss of transformer, integrating mall entrance sliding glass doors with Fire Alarm System (FAS) for easy evacuation during fire incidents, and operating Deluge valves based on smoke detection to create wet riser fire-resistant compartments in auto mode.

In Phase 2 , To encourage **innovation and energy conservation**, we plan to set up a Smart Wireless Building Management System (BMS) with replacement AHU actuators for demand control and real-time monitoring, data analytics, consumption trends with interactive dashboards in BMS, EMS and Water management.

Additionally, we will replace 3 no's cooling towers, 20 no's AHU with ECM Blower motor out of 63 existing AHU energy-efficient models also we will replace 21 no's energy-efficient HVAC pumps.

The overall Return on Investment (ROI) is estimated to be 4 years. All the aforementioned equipment has been in operation for the past 13 years and therefore requires upgrades and replacements.

4. List of Major Encon project planned in FY 2024-25

Engineering Innovation and Upgradation project list

Year	No of Projects	Name of Project	Investment Made (Rs million)	Electrical Saving (Million KWH)	Annual thermal Saving (million kCal/annum)	Total Annual Savings (Rs million)	Estimated Payback (Months)
FY 2024-25	1	AHU ECM Blower Technology – 20 nos	6	0.1748	1376	2.00	36.0
	2	IOT Technology (BMS, EMS, Water management)	7.8	0.1748	30.9	2.00	46.8
	3	HVAC Pump Replacement	21	1.4	387	16.02	15.7
	4	Cooling Tower Replacement 3nos	10.5	0.3496	395.6	4.00	31.5
		Total	**45.3**	**2.0992**	**2189.5**	**24.01**	

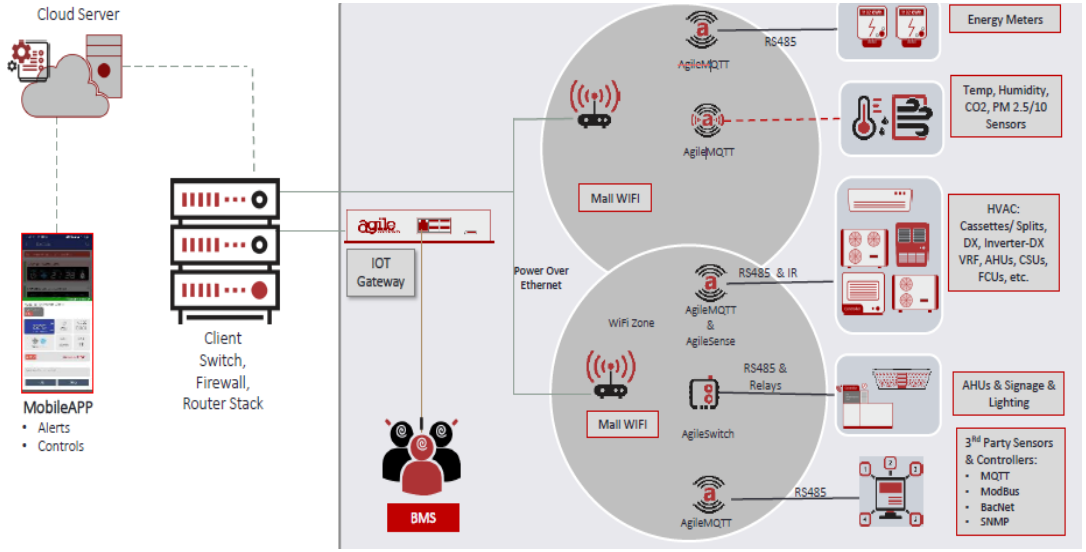
4. Major encon Projects planned :2024-25

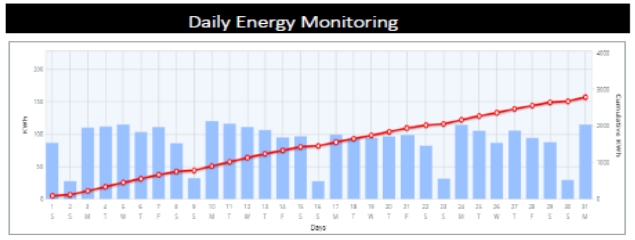
1. Replacement of AHU with ECM motor and accessories

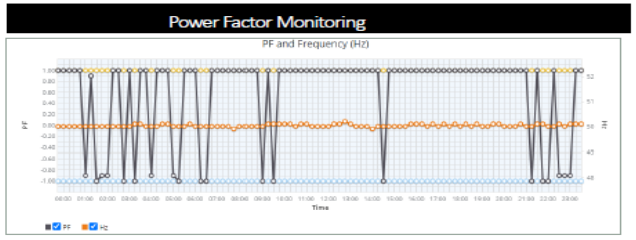
- **Benefits:-**
- **<u>Increased Efficiency</u>:**
- **Variable Speed Control:** ECM motors allow for precise control of fan speed, enabling the AHU to operate only at the necessary level to meet cooling or heating demands. This significantly reduces energy consumption compared to fixed-speed AC motors.
- **High Efficiency at All Speeds:** Unlike AC motors that become less efficient at lower speeds, ECM motors maintain high efficiency across a wide operating range. This translates to consistent energy savings throughout operation.
- **<u>Operational Cost Savings:</u>**
- **Reduced Energy Bills:** Lower energy consumption due to variable speed control and high efficiency translates to significant cost savings on your electricity bill.
- **Saving:-**
- **Existing AHU motor 7.5 Kw , New ECM blower capacity 5 Kw, Saving 2.5 Kw, Total average saving per ECM AHU will be 9523 Kwh/ per year**
- **Total saving per year per ECM AHU will be 1,42,845 Kwh**
- **For 15 no's ECM Blower AHU annual savings will be 20 L**

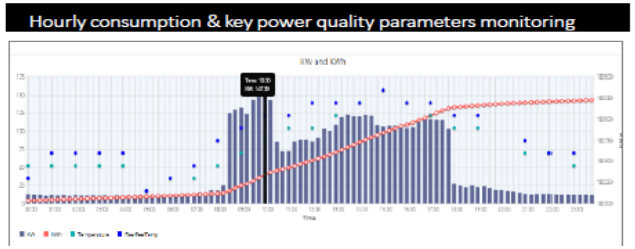
4. Major encon Projects planned :2024-25

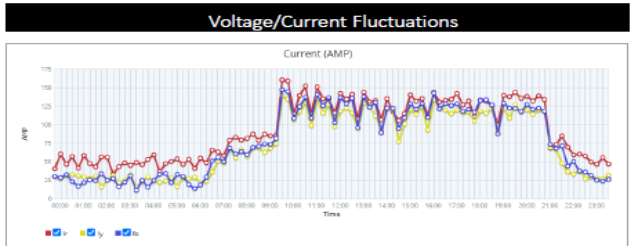
2. IOT - Smart Wireless BMS with AHU Modules











- **Benefits:-**
- **<u>Enhanced Monitoring and Control:</u>**
- **Real-time Data:** The wireless system provides real-time data on various AHU parameters like temperature, humidity, airflow, and filter status. This allows for continuous monitoring and adjustments to optimize performance.
- **Remote Access:** You can access and manage the AHU system remotely through a smartphone, tablet, or computer. This simplifies monitoring and enables adjustments even when you're not physically present at the location.
- **Data Analytics:** The system can collect and analyze historical data to identify trends, predict potential issues, and optimize AHU operation for maximum efficiency.
- **<u>Improved Energy Efficiency:</u>**
- **Demand-Based Control:** The BMS can adjust AHU settings based on real-time occupancy and temperature requirements. This reduces energy waste by avoiding unnecessary heating or cooling.
- **Preventive Maintenance:** Early detection of potential issues with the AHU through sensor data allows for preventive maintenance, reducing the risk of equipment failure and downtime.
- **Scheduling and Automation:** Smart scheduling allows you to program the AHU to operate only when needed, further minimizing energy consumption.
- **Total saving per year AHU will be 1.86 Kwh**
- **For 63 AHU annual savings will be 20 L Rs.**

4. Major encon Projects planned :2024-25

3. Service the Primary ,Secondary Condenser pumps/Replace with new energy efficient

- **As per recommendation by MEP Audit** current operating condition of the HVAC pumps **efficiency 67.89% and proposed new pump of Grunfoss Energy efficient pumps 89%** with approximately savings will be 10% and more.
- New pump is designed based on flow required by the chiller and actual head, supplied with VFD for the energy saving and have inbuilt redundancy , which can deliver higher flow and head with same capacity which will have better duty point.
- We are replacing 6 no's of pump out of 12 no's in phase manner.
- **Saving:-**
- **As per Energy efficient pumps 89% efficiency**
- **For 21 no's New pump annual savings will be Rs. 1.61 cr kwh**
- **Total investment will be 2.10 Cr**
- **ROI will be 1.3 year**

LSV 300-250-305E

New Energy Efficient Vertical Pump - GRUNDFOS

4. Major encon Projects planned :2024-25

4. Cooling Tower Replacement

- **Current Status :-**
- Due to ageing, Existing cooling tower body damaged and efficiency also reduced.
- Presently we are operate 3 Cooling Tower for 3 chillers
- In summer not able to operate all the chillers.
- **Benefits:-**
- **New CTI approved Bell cooling tower will help to increase cooling capacity**
- Enhance heat transfer.
- Energy savings.
- Reduce breakdown

4. Major encon Projects planned :2024-25

Proposed & Mock up : EV Charging station 50 no's 4W & 10 no's 2W

Benefits:- Step onwards lower GHG (Greenhouse gases) Emission

Proposal for setting up & operating EV Charging Infrastructure at Phoenix Market city, Mumbai

Fortum charge & drive
All lights green!

MARKETCITY
KURLA, MUMBAI

Join the change
fortum

5. Energy Saving projects implemented in last Three years

Energy Saving projects implemented in last three years								
Year	No of Projects		Investment Made (Rs million)	Electrical Saving (Million KWH)	Annual thermal Saving Unit of measurement (million kCal/annum)	Total Annual Savings (Rs million)	Estimated Payback (Months)	Impact on SEC (Electrical , Thermal)
FY 2021-22		NIl	0	0	0	0	0	0
FY 2022-23	1	Sky lights sheets installation Reduce 1. C 10% saving	25.00	0.08	66.73	0.89	338.10	10%
FY 2023-24	3	Ebara Sump pump 5 HP replaced with Grandforss cutter pump of 3 Hp ,100 no's Motion lights replacement 2000 nos. 30% Saving PVR Chiller Auto tube cleaning system installed. 2C approach less	8.30	0.30	260.36	3.46	69.40	30%

5.1 Innovative Projects implemented

Sky light sheets

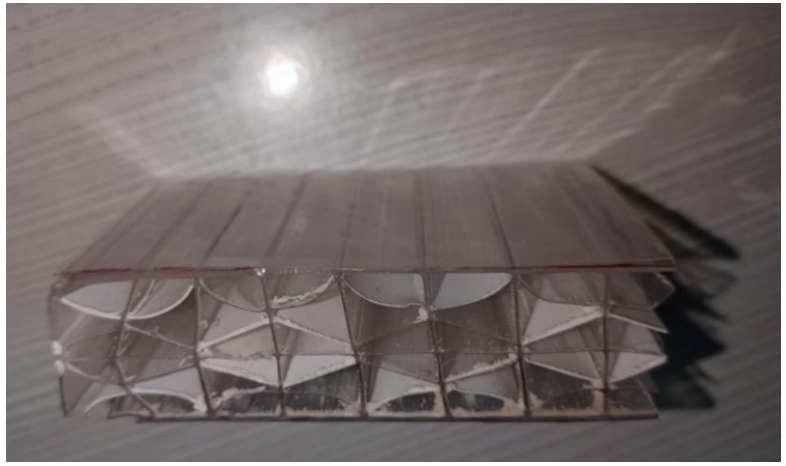
Year of Installation-2021-2022

Benefits :-

- Improved lux level 200% increase,

  helping save on day time lights

- Floor temperature reduce 1. C.



5.2 Innovative Projects implemented

Sigma Filter added in Scale Bio Remover (SBR) System

Year of Installation-2023-2024

Benefits:

In Upgradation and improvement added Sigma filter in SBR in the long run is will offer advantages in;

- Savings on chemicals.
- Decrease in water usage.
- Lower energy costs
- Reduction in labor costs

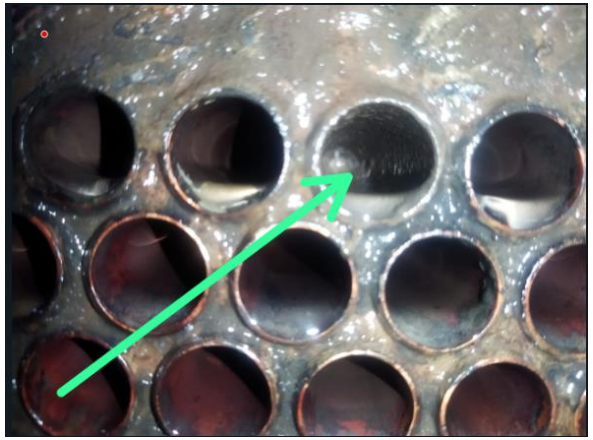
5.3 Innovative Projects implemented

PVR Chiller - Automatic Condenser Tube Cleaning System

Year of Installation-2023-2024

Benefits:

- Reducing energy consumption by improving heat transfer efficiency
- Reducing costs associated with manual cleaning of the heat exchanger
- Reduce downtime and improve availability
- Reduce operations and maintenance costs
- Protect and extend the life of heat exchanger
- Reduce environmental impact.



Tubes With Fouling

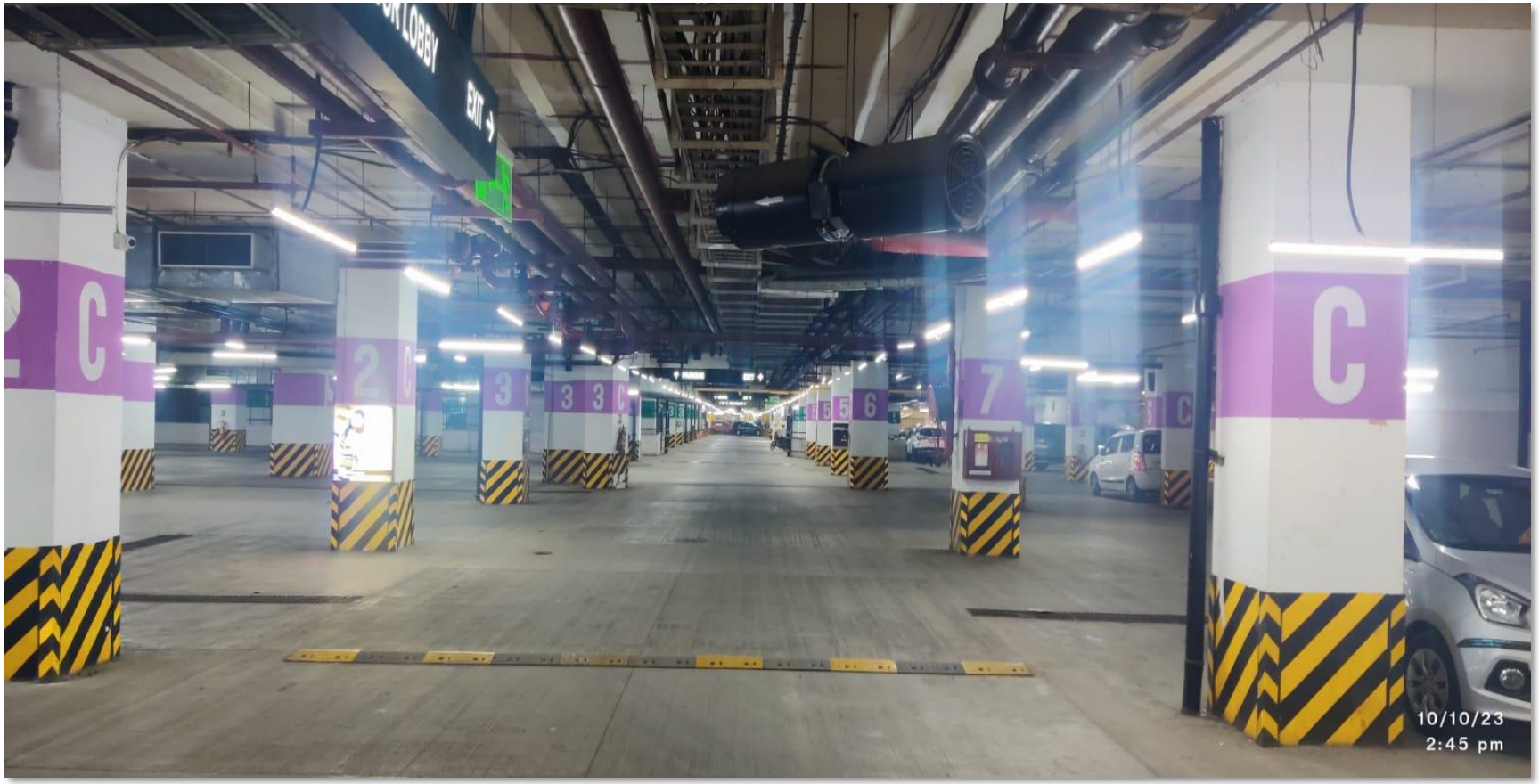
After ACC installation

6. Innovative Projects implemented

Motion Sensor installation in AHU Rooms 63 no’s.

6. Innovative Projects implemented

Basement Driveway Auto dimming lights installation of 2000 no’s

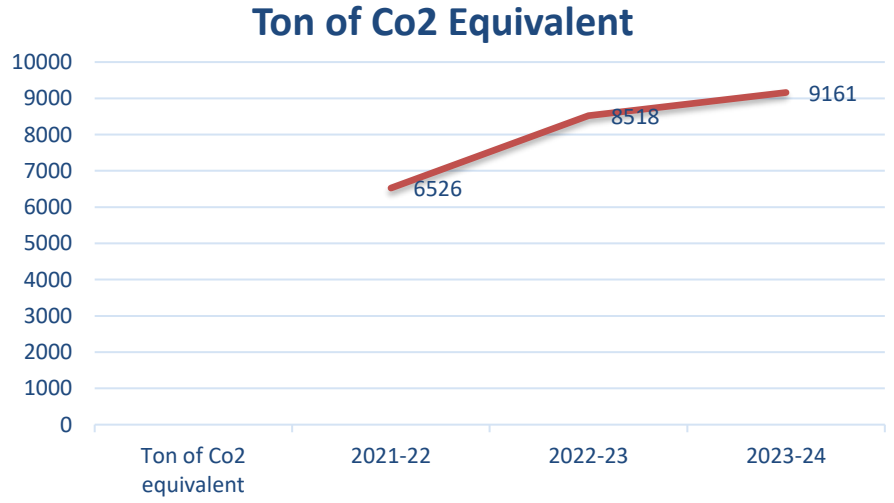


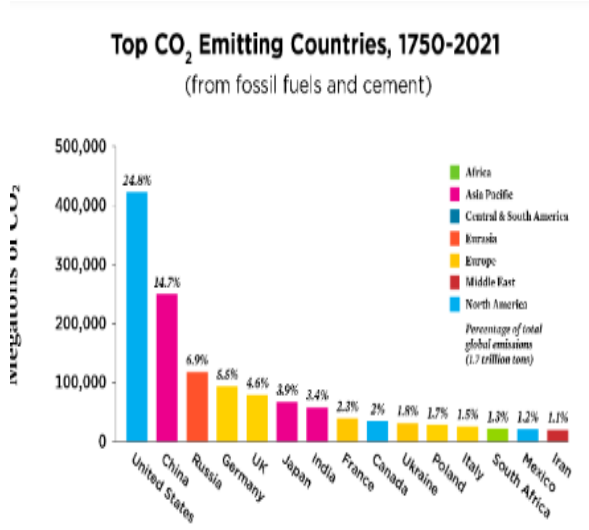
7a.Utilisation of Renewable Energy sources(Off site)

Year	Type of Energy Source (Solar , wind, etc)	Onsite/ Offsite	Installed Capacity (MW)	Capacity addition after 2021	Total Electrical Consumption	Total Generation (Million kWh)	Share % w.r.t to overall electrical energy consumption
FY2021-22	0	0	0	0	0	0	0.00%
FY2022-23	Solar	Offsite	1.80 MW	0	12.5874	3.90019	30.98%
FY2023-24	Solar	Offsite	1.80 MW	0	13.2981	4.006417	30.13%

8. GHG emission and indoor air quality

Year	2021-22	2022-23	2023-24
Scope 1 Emission (Fuel)	244	643	692
Scope 2 Emission (Electricity)	5815	7037	7619
Scope 3 Emission (Staff Transportation)	467	839	850
Ton of Co2 equivalent	6526	8518	9161





Note : - Ton of Co2 Equivalent increase due to consumption (KWH) increase by 7% compare to FY 2022-23

9. BMS & Certification

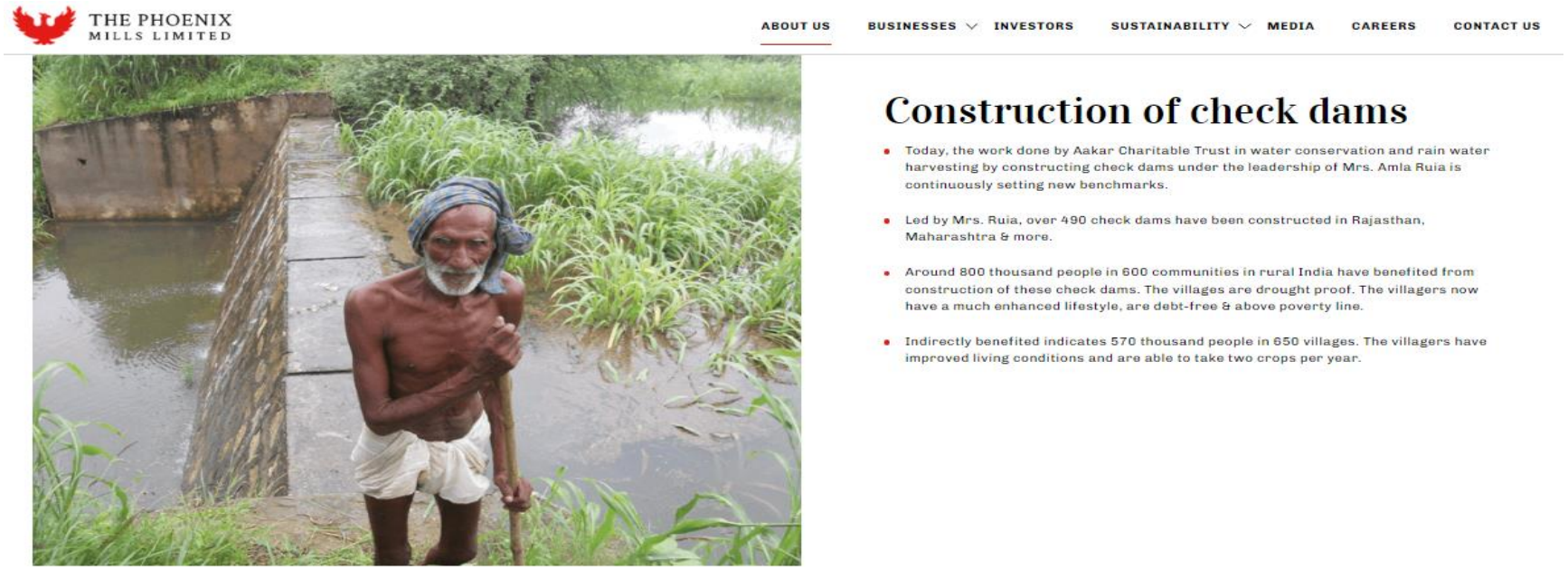
1. BMS – Current BMS system available with only viewing, further in upgradation IOT project Proposed for FY 2024-25
2. Implementation ISO 50001 – NA , Will consider in upcoming years, The company adopted ESG as core strategy,
3. IGBC Certification / LEED – NA. Phoenix Mall Management adopted ESG, RED Book and Green Building Policy.
4. Total Turn over of company FY 23-24 : 250 Cr, proposed budget for energy saving on upcoming projects 5% Investment Rs. 12.5 Cr.

10. NET ZERO ACTION PLAN

Public disclosure

- Phoenix Mills Limited (PML) (BSE: 503100; NSE: PHOENIXLTD) is India's leading retail mall developer and operator with approximately 0.64 million square meter of retail space spread across 12 malls in 9 gateway cities of India. The Company is the pioneer of retail-led mixed-use developments in India and has developed over 2.11 million square meter spread across retail, hospitality, commercial and residential asset classes. Besides the 9 operational malls, Phoenix Mills has four malls under development with approximately 0.45 million sq. meter of retail space.

.Voluntary initiatives signed up



11. LEARNINGS FROM CII ENERGY AWARDS

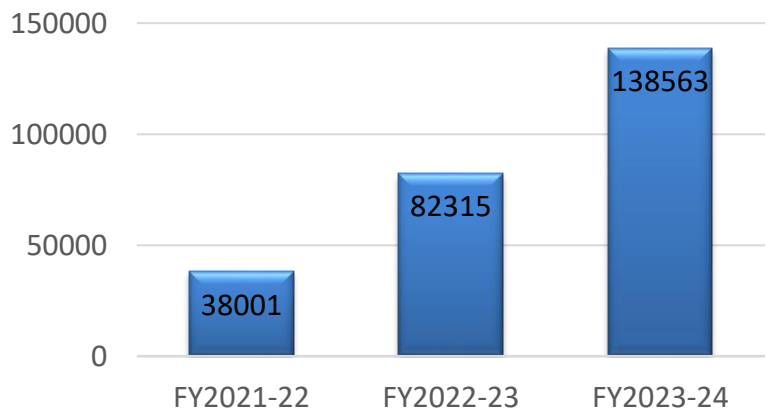
- Process operation and control on GHG emissions.
- Learning on generating savings with existing resources.
- Deployment of cost-effective, energy-efficient technologies.
- The barriers to improving energy efficiency are formidable. Overcoming these barriers will require sustained initiative.

12.Any other relevant information –Way Forward

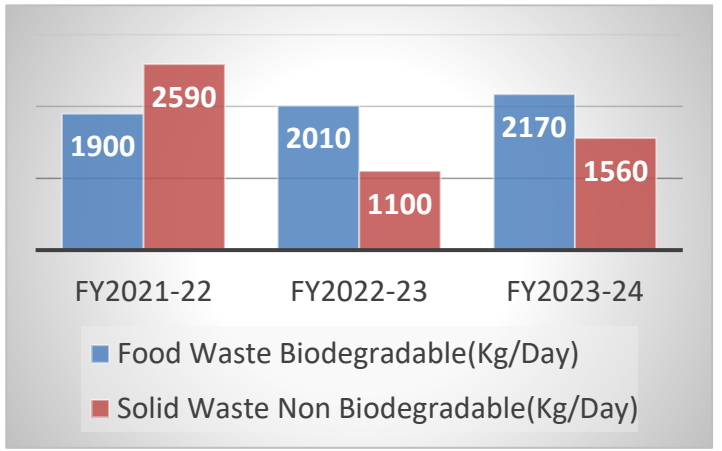
Waste and water Management

Year	STP Treated water - KL	Food Waste Biodegradable(Kg/ Day)	Solid Waste Non Biodegradable(Kg/ Day)	STP Sludge (Kg/Day)
FY2021-22	38001	1900	2590	41
FY2022-23	82315	2010	1100	35
FY2023-24	138563	2170	1560	32

STP Treated water - KL



Waste collection and process – KG/Day



12.Any other relevant information –Way Forward

Sustainability Initiatives undertaken

- LED lights installation.
- LED Dimming motion lights installation.
- VFD for HVAC pumps , cooling tower and Hydro pneumatic system
- Timers for common area and street lights
- Recycle water utilization in washrooms, horticulture etc.
- Sensor based taps for wash basins.
- Rainwater harvesting.
- Usage electric Car and bikes is some of the initiative undertaken to reduce on the carbon footprint through transportation.
- OWC plant.
- Plastic Bottle Crusher
- Renewable energy utilization.

AWARD & ACCOLADES

HSE Excellence Safest Mall of Year 2019.

TATAPOWER Energy Conservation Award 2019

CII Excellence Energy Award 2022

TATAPOWER Energy Conservation Award 2024

Our collective commitment towards a greener future.

Team Member Details :

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Mr.Navneet Kamble – Sr.Manager Services ***navneet.Kamble@phoenixmills.com*** ***9082145079***