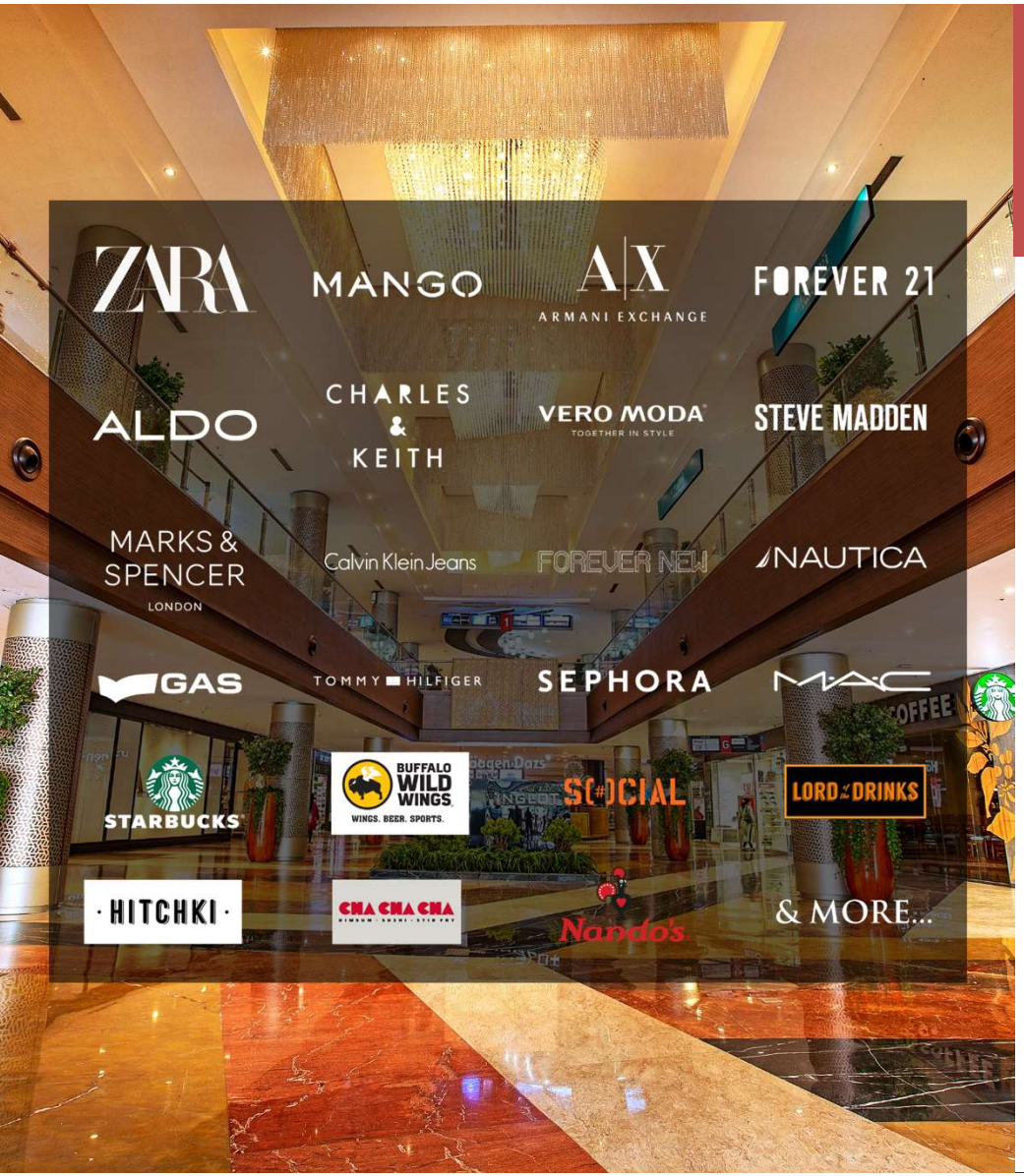
PHOENIX MARKETCITY, BANGALORE

24th National Award for Excellence in Energy Management 2023-24

INTRODUCTION

OUR UNIQUE FEATURES

- Classified as a “Larger Lifestyle Engagement Destination” offering an array of unforgettable experiences.
- Situated at the prime location of East Bengaluru, surrounded with IT parks, luxury residential complexes.
- Phoenix remains ‘The’ destination for the premium discerning customers of the city as well expats with its international look and tastefully done interiors



INTRODUCTION

PHOENIX MARKETCITY BANGALORE

OUR UNIQUE FEATURES

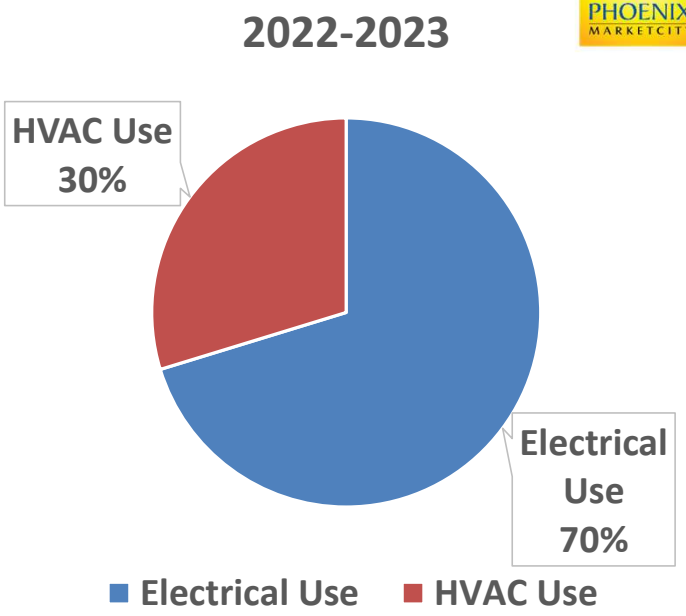
- Over 300 stores, representing an exhaustive mix of International, National and Regional premium brands.
- Phoenix stands out for its enormity with empty spaces, the beautiful courtyard and lung space providing an experience to its patrons.
- The courtyard of 40K Sq ft surrounded by alfresco dining is the epicenter of premium events and concerts.
- This award-winning centre of 1M retail space with the right mix of luxury, premium international and national brands makes it a favoured hang-out and shopping destination.

Architectural Design of the building and Energy efficient features architecturally

- 6Nos Atriums are provided for better Day light.
- Polycarbonate Reflector louver sheet installed in all atrium's roof top for better sun light and heat reflection.
- Entire Roof rainwater treated and utilized in the facility.
- Zero water discharge facility – Complete STP treated water utilized for Cooling tower, Flush and Gardening purpose.
- Automated sliding door installed at all entries and exits to avoid conditioned air loss.
- Electric vehicle charging stations installed to promote clean environment and contributing in Net zero Emission.
- Entire facility façade glass is with Teflon layer for heat reflection.

2. Energy Consumption Overview

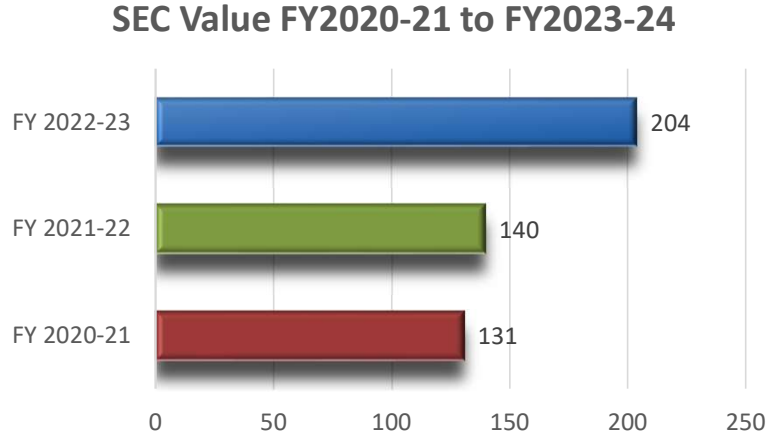
Overall Energy Consumption data (Climate Zone – Moderate)			
Year	KWh	Trading Area sqm	SEC (KWh/Annum/sqm)
2020-2021	1,28,59,335	98,473	131
2021-2022	1,38,21,058	98,473	140
2022-2023	2,00,97,764	98,473	204

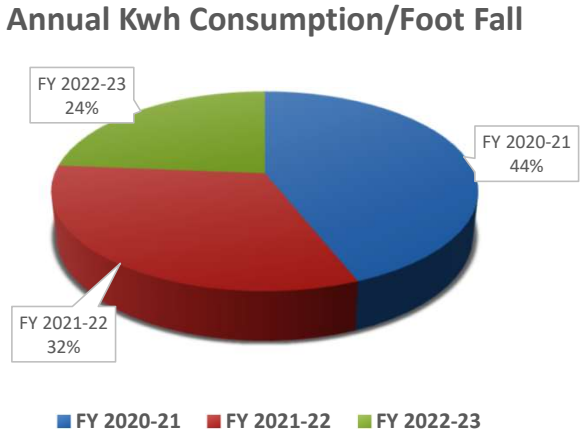


Electrical and HVAC usage FY 2022-23		
Year	Electrical Use	HVAC Use
2022-2023	1,41,25,275	59,72,489

3 Sp. Energy Consumption in last 3 years (FY 20-21 to FY 22-23)

TOTAL ENERGY CONSUMPTION FY 20-21 TO 22-23				
SI NO	MONTH	FY 2020-21	FY 2021-22	FY 2022-23
1	APR	222864	1067818	1639299
2	MAY	924828	236148	1721416
3	JUN	841979	270487	1677337
4	JUL	779696	1128131	1659422
5	AUG	1155864	1297172	1705372
6	SEP	1126786	1298562	1653216
7	OCT	1222090	1485741	1757483
8	NOV	1255753	1461226	1645182
9	DEC	1311873	1532988	1765571
10	JAN	1351295	1221298	1662334
11	FEB	1216570	1297798	1496082
12	MAR	1449737	1523690	1715050
Total Kwh Consumption		**1,28,59,335**	**1,38,21,058**	**2,00,97,764**
Built up area in Sqm		**98,473**	**98,473**	**98,473**
Annual Kwh Consumption/m2		**131**	**140**	**204**
Annual total Foot Fall		**39,17,647**	**57,32,470**	**1,13,63,737**
Non Operating days		**80 days**	**140 days**	**0**
Annual Kwh Consumption/Foot Fall		**3.28**	**2.41**	**1.77**

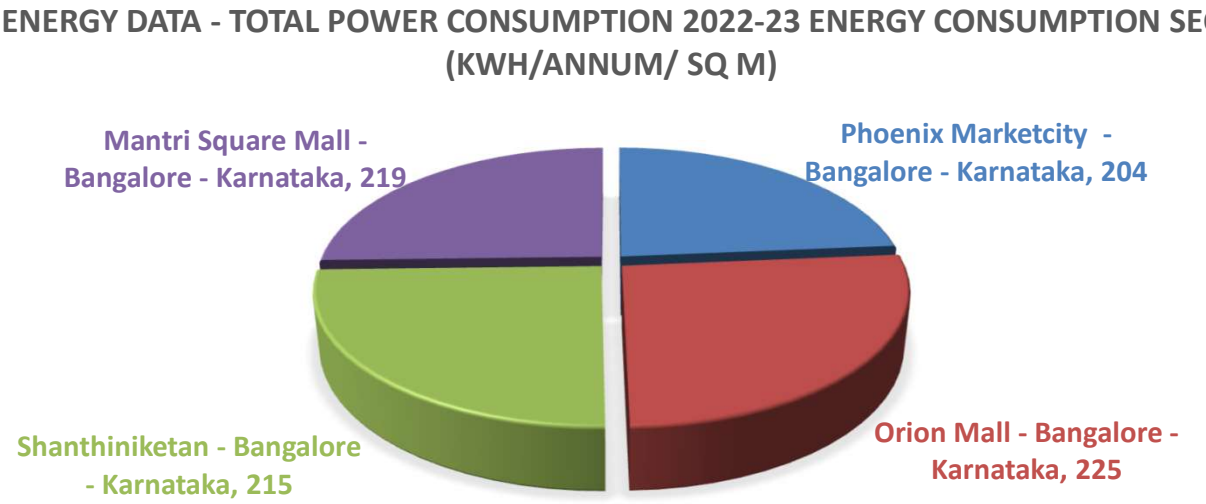




4. Information on Competitors, National & Global benchmark

Mall Name	KWH	Area Sqm	Energy Consumption SEC (kWh/Annum/ Sqm)
Phoenix Marketcity - Bangalore - Karnataka	2,00,97,764	98,473	**204**
As per BEE EPI Benchmark for shopping mall			**257**
Orion Mall - Bangalore - Karnataka	1,71,66,600	76,180	**225**
Shanthiniketan - Bangalore - Karnataka	1,18,77,108	55,310	**215**
Mantri Square Mall - Bangalore - Karnataka	1,47,44,200	67,224	**219**

Energy Data - Total Power Consumption 2022-23 Energy Consumption SEC (kWh/Annum/ Sq M)



5.1. Energy Saving Project implemented in last three FY.

FY2019-20

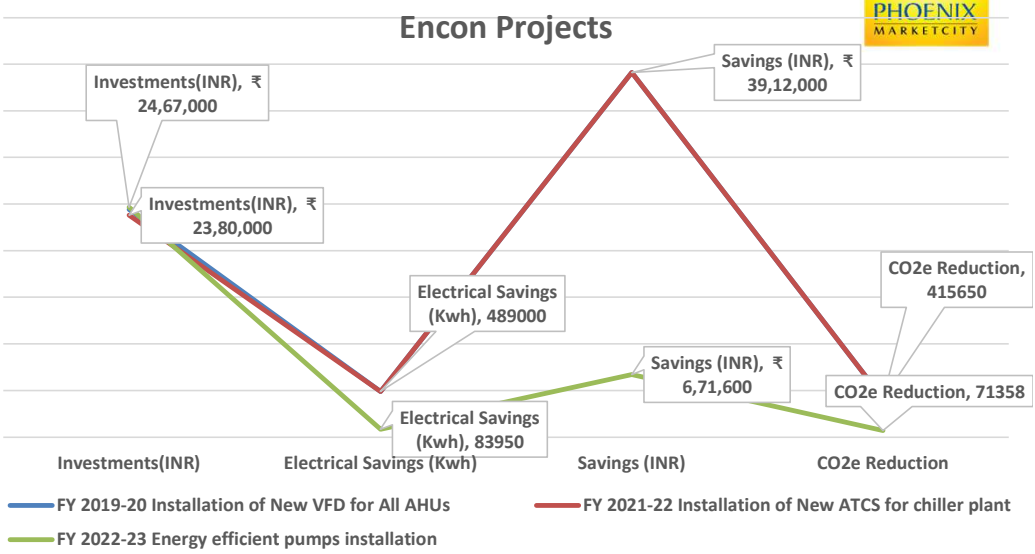
- VFD Installation for 25nos. AHU
- STP Treated water pump & motor replacement.
- PVR Jockey pump and motor replacement.
- Energy efficient pump installed for WTP transfer pump

FY2021-22

- Installation of Automatic condenser tube cleaning system for Chiller's.

FY2022-23

- Energy efficient pumps installation



Year	Description	No of Energy saving projects	Investments(INR)	Electrical Savings (Kwh)	Savings (INR)	CO2e Reduction
FY 2019-20	Installation of New VFD for All AHUs	4	₹ 24,40,000	488768	₹ 39,10,144	415453
FY 2021-22	Installation of New ATCS for chiller plant	1	₹ 23,80,000	489000	₹ 39,12,000	415650
FY 2022-23	Energy efficient pumps installation	3	₹ 24,67,000	83950	₹ 6,71,600	71358

Note: *2020-21 No capex executed due to covid Impact.*

5.2. Energy Saving Project implemented in last three FY.

Year	Description	No of Energy saving projects	Investments(INR)	Electrical Savings (Kwh)	Savings (INR)	CO2e Reduction
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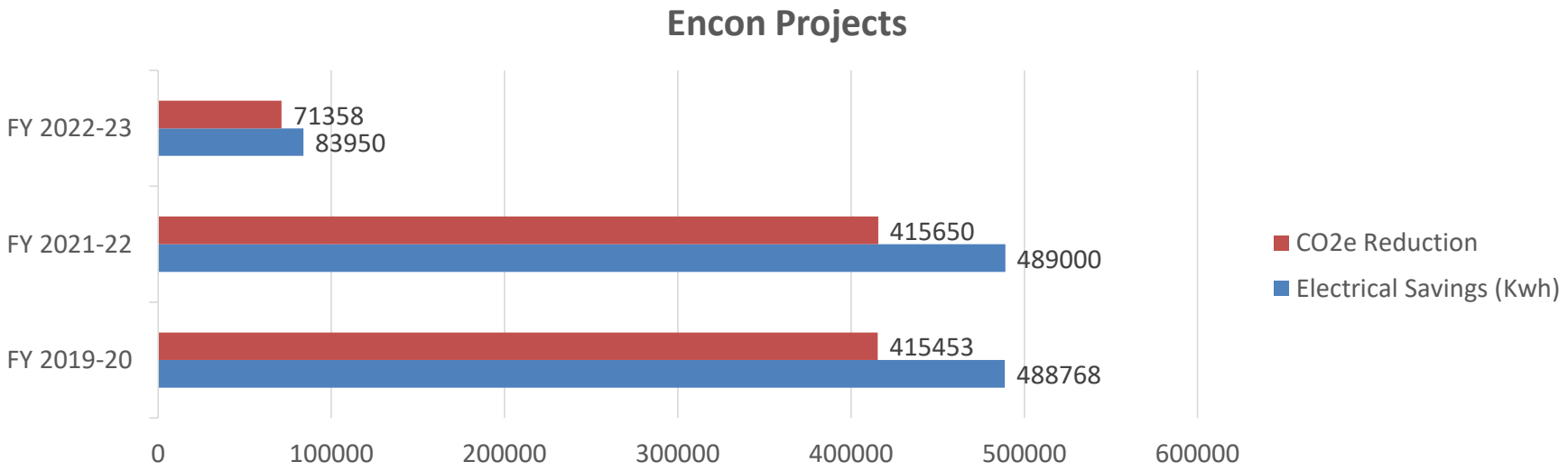
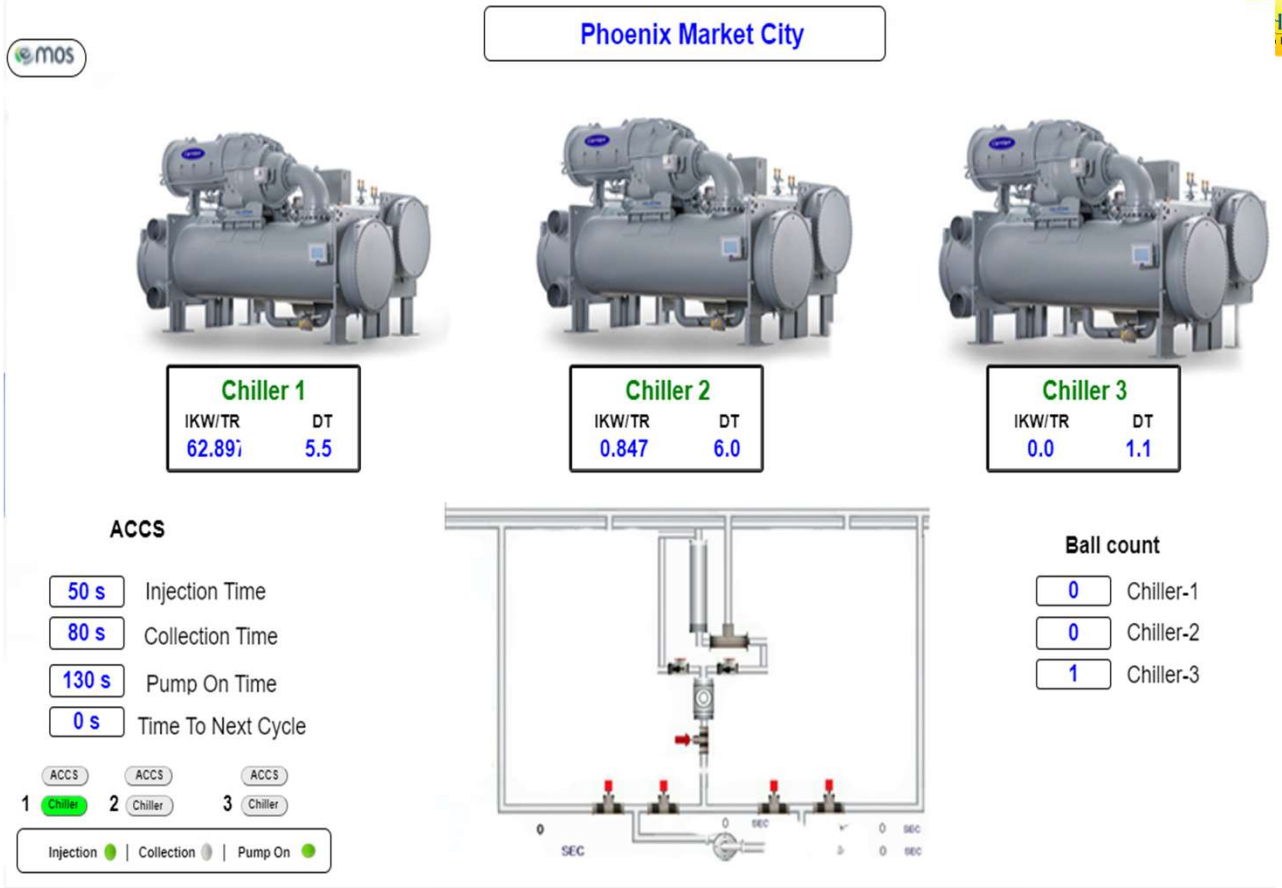


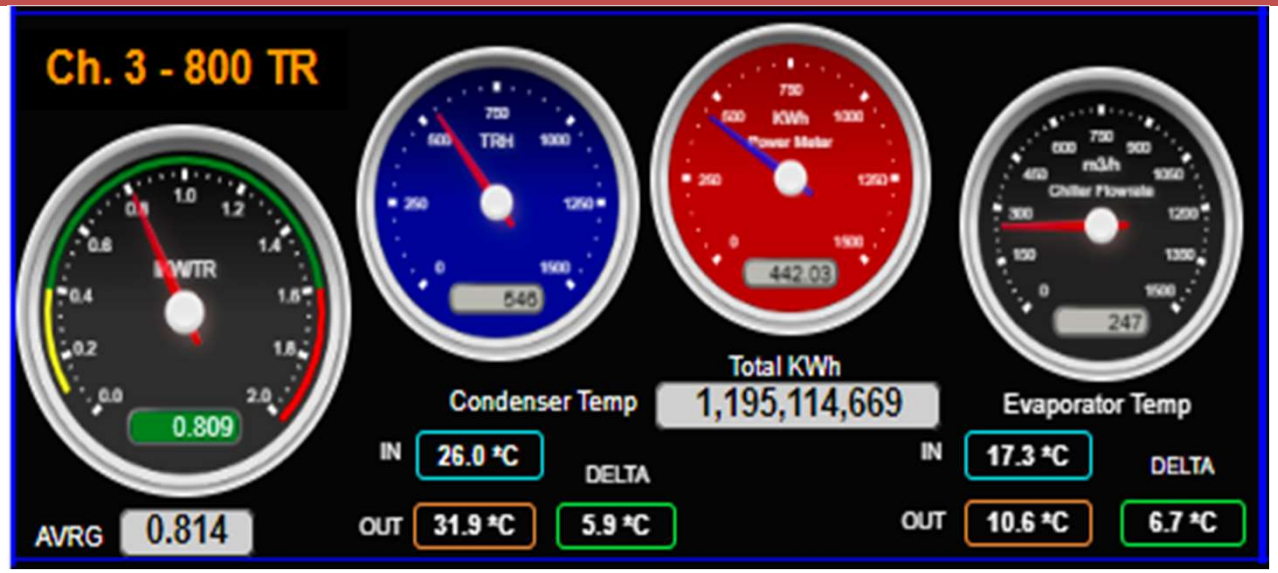
6.1.Innovative projects implemented ATCS FY21-22

❖ Highlights

- ❖ It is Installed for all the 800TR X 3nos. Chiller.
- ❖ 4,89,000kWh energy saving per year.
- ❖ Descaling of condenser tubes avoided to increase the chiller life cycle.
- ❖ Reduced Energy use by Optimizing Chiller Performance .
- ❖ Reduced labour associated with HVAC Maintenance.
- ❖ Reduced HVAC Operations and Maintenance Costs.



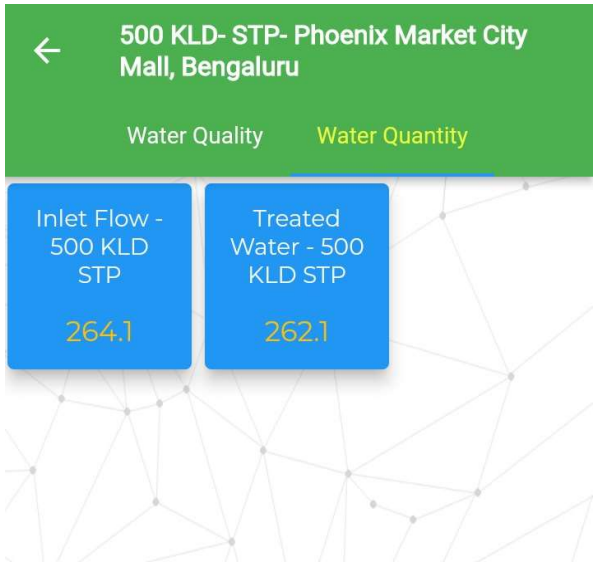
6.2. Innovative projects implemented EMOS FY21-22

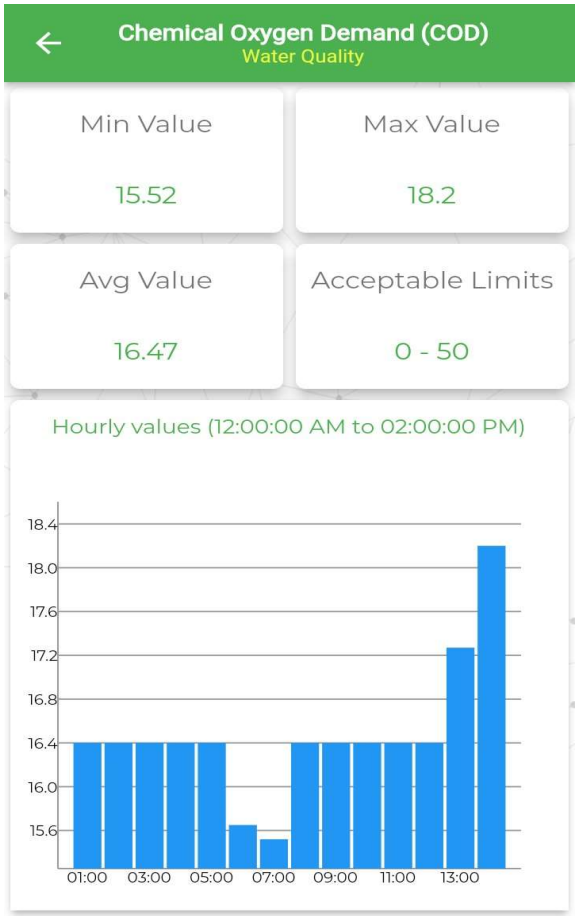


Highlights:

- Online Monitoring of IKW/TR.
- Online monitoring of power consumption of chiller.
- Online monitoring of chiller evaporator inlet & Outlet temperature.
- Online monitoring of chiller condenser inlet & Outlet temperature.
- Online monitoring of Condenser approach.

6.3. Innovative projects implemented STP-RTM FY21-22

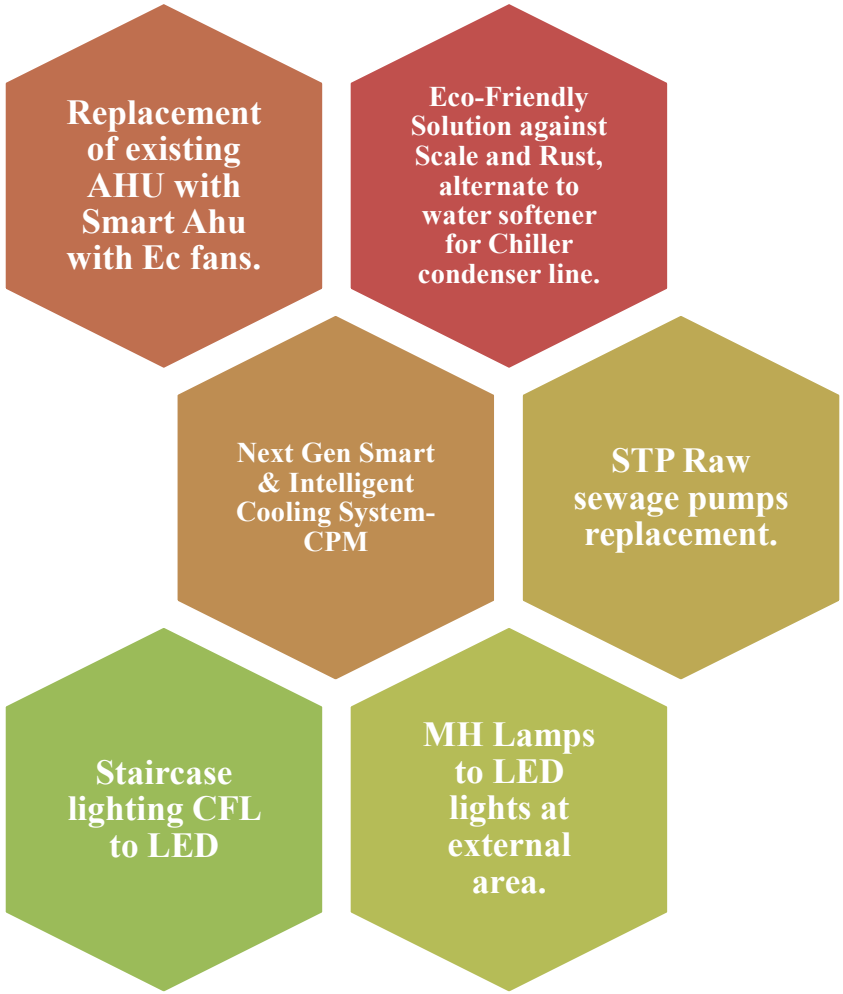




❖ Highlights

- ❖ Online Monitoring of STP inlet & outlet water flow.
- ❖ Online monitoring of COD & BOD.
- ❖ Online monitoring of TSS & TDS.
- ❖ Online monitoring of pH & Turbidity.

6.4. Major Encon Projects planned :2023-24



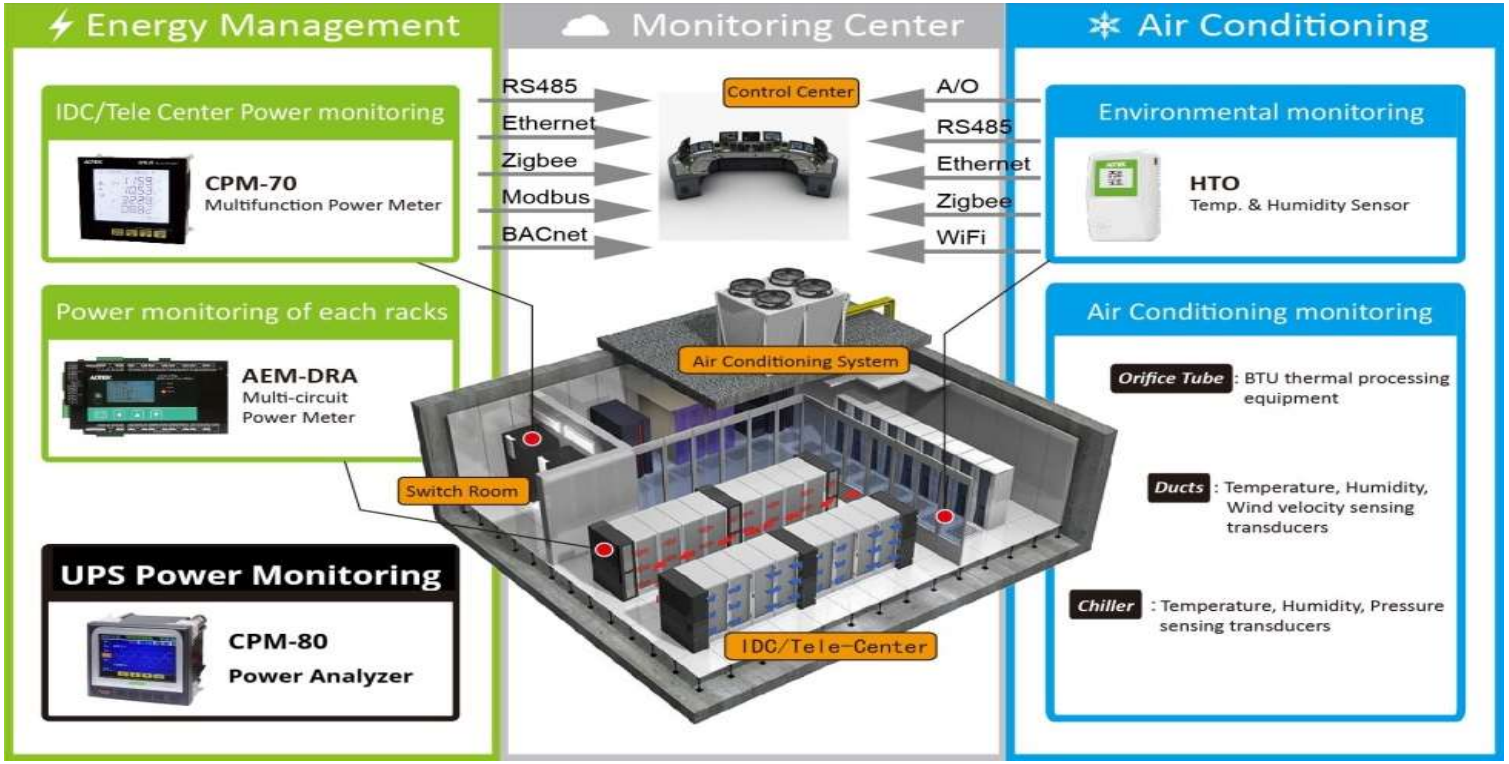
6.5. Major encon Projects planned :2023-24

❖ Proposed : Next Gen Smart & Intelligent Cooling System- CPM.

- ❖ Trigger for Implementation: Chiller are switched manually, and it is not loaded based on the requirements.
- ❖ Innovative description: Currently our chiller plant is monitored through BMS but not controlled in BMS. Low side like AHU and lighting systems are monitored and controlled through BMS.

Benefits

- ✓ Energy saving by 10 to 20%
- ✓ Maintenance & Operation cost reduced by 5 to 8%
- ✓ Efficient Manpower Utilization



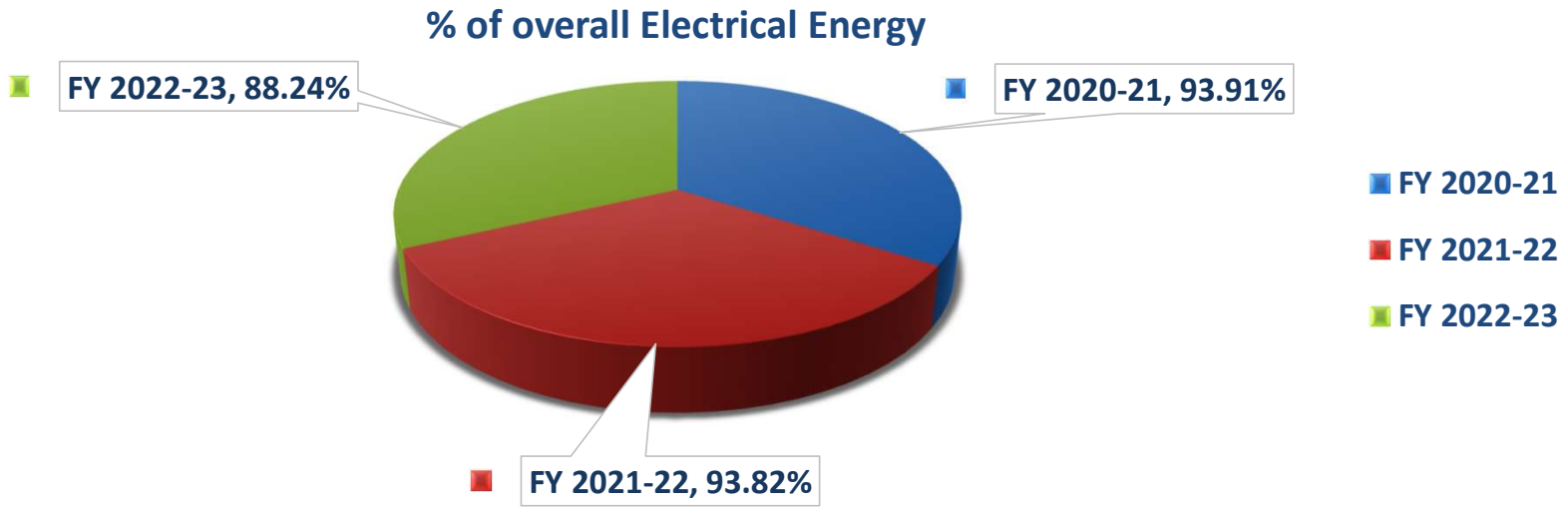
6.6. Major encon Projects planned :2023-24

❖ Proposed : Replacement of existing AHU with Smart Ahu with Ec fans

- ❖ Existing AHUs are 2011 Vintage it require Upgradation
- ❖ Trigger for Implementation: Drastic drop on performance & Maintenance cost being high, affecting high side HVAC system performance.
- ❖ Energy efficiency: Smart AHUs are designed to optimize energy consumption by automatically adjusting the operation of the unit based on real-time conditions. This can result in significant energy savings and reduced operating costs.
- ❖ Improved indoor air quality: Smart AHUs can monitor and control various parameters such as temperature, humidity, and air flow, ensuring that the indoor air quality remains at optimal levels. This can help create a healthier and more comfortable environment for occupants.

7. Utilization of Renewable Energy Sources

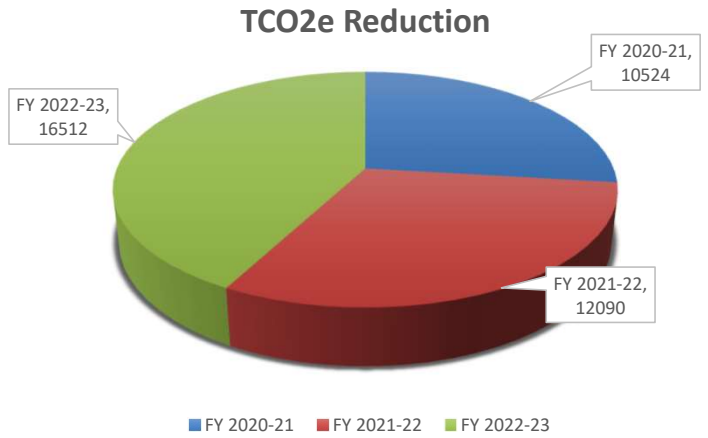
Year	Technology (Solar/Wind/Biomas etc)	Installed Capacity (MW)	Consumption (Million KWh)	% of overall Electrical Energy	TCO2e Reduction
FY 2020-21	Solar PV	50	11.46	93.91%	10524
FY 2021-22	Solar PV	50	12.99	93.82%	12090
FY 2022-23	Solar PV	50	17.74	88.24%	16512



8. GHG emission and indoor air quality

- 88% of Overall power consumption of mall in warded from solar energy for sustainable future.
- Merv -13 Prefilter installed on all the Common area AHU's
- Mall established EV Charging station at free of cost for the customer, to promote EV.
- Automated CO Sensors installed at parking area for monitoring & Maintain of CO level.
- PNG Is used for all the F&B cooking purpose.

Reduction of tCO2e* by Adapting Solar Energy	
FY	**Reduction of tCO2e***
FY 2020-21	**10,524**
FY 2021-22	**12,090**
FY 2022-23	**16,512**



23rd National Award for Excellence in Energy management 2022

CII
Confederation of Indian Industry

23rd National Award for Excellence in Energy Management 2022

This is to certify that

Phoenix Market City, Bengaluru

has been recognized as

"Excellent Energy Efficient Unit"

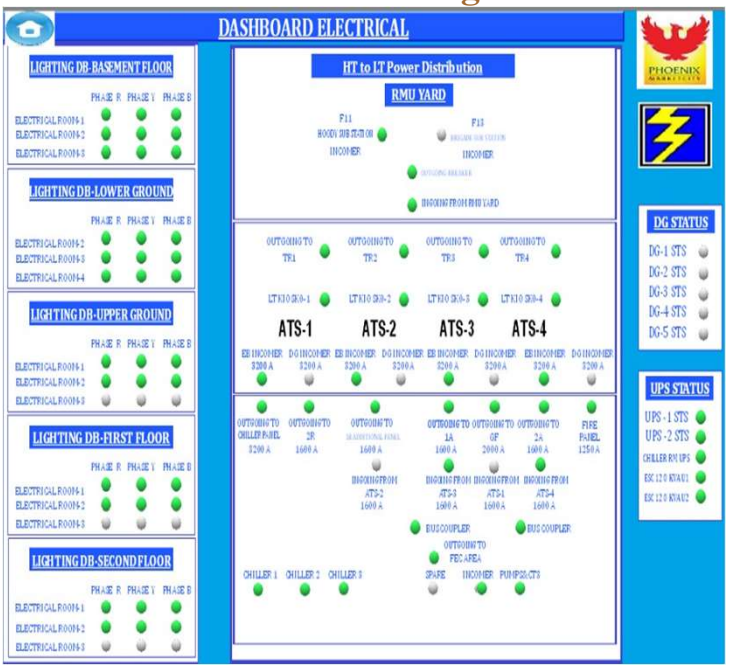
This acknowledgement is based on the evaluation by the panel of judges at the "National Award for Excellence in Energy Management" held during 23 - 25 August 2022

K S Venkatagiri
Executive Director
CII - Godrej GBC

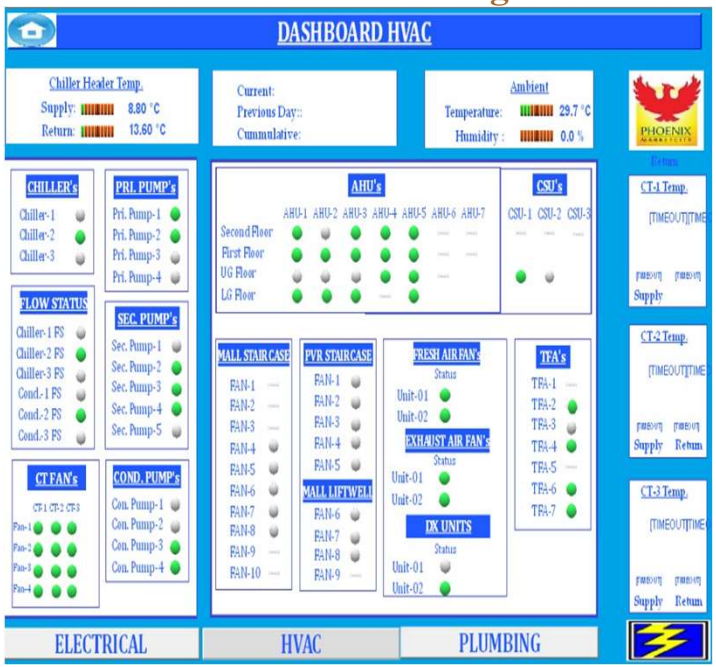
Ravichandran Purushothaman
Chairman, Energy Efficiency Council
CII - Godrej GBC

09. BMS & Certification

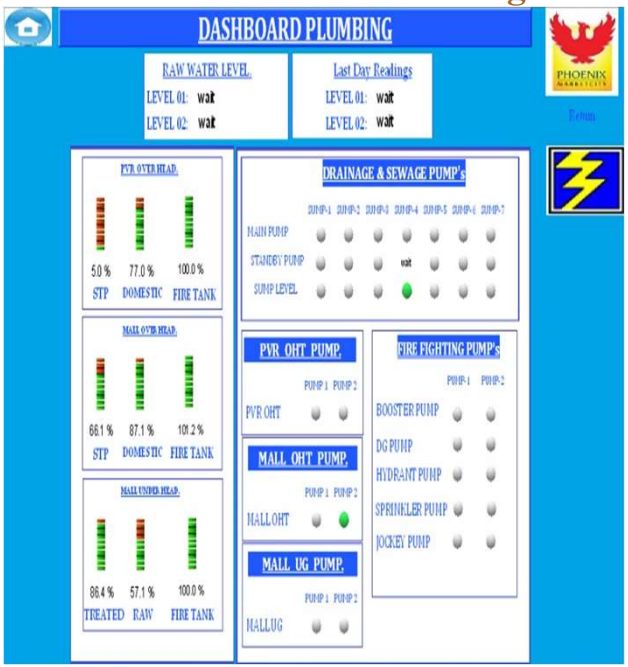
Electrical Asset Monitoring



Mechanical Asset Monitoring

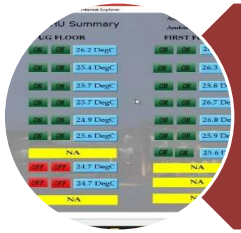


Water Tank Level Monitoring



BMS Monitoring System

09. BMS & Certification

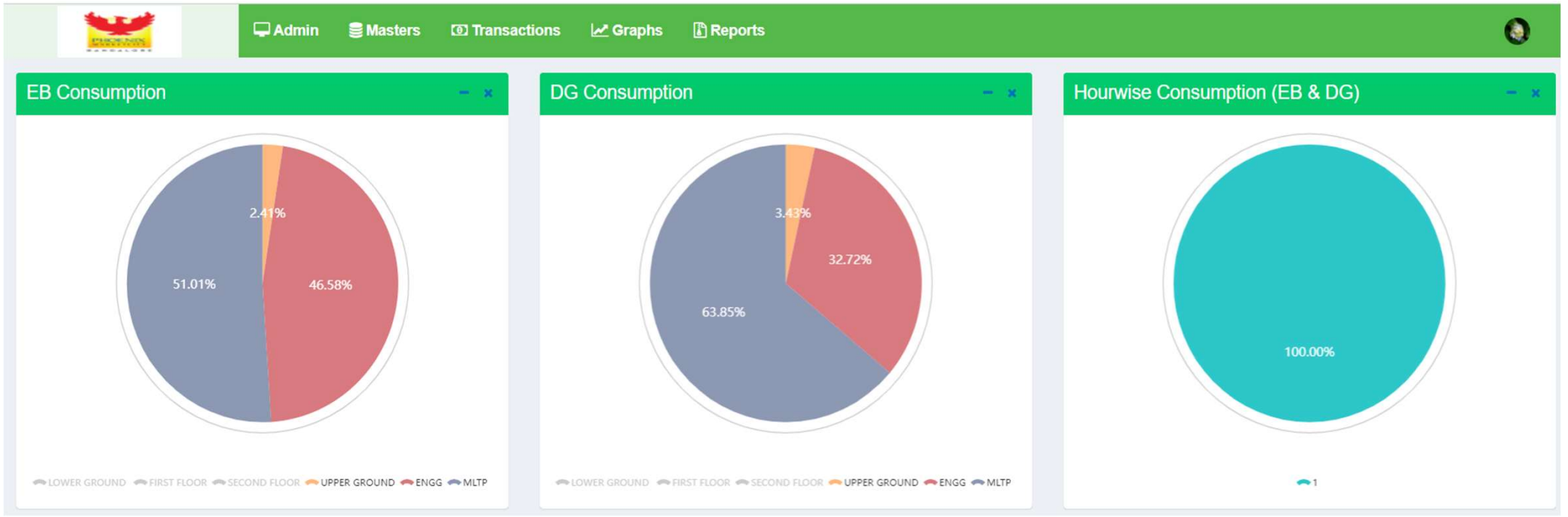


Equipment Operation & Monitoring through BMS, updating on the developments frequently.

Daily, weekly & Monthly report, Equipment status reviewed by HOD.

Capex project planning & execution, Energy efficiency/awareness training to the Team.

09. BMS & Certification



Online Energy Monitoring System

10. NET ZERO commitment

- *The Current EPI for the facility is 204 kWh/m²/annum at present.*
- *We are targeting to reduced 20+ Kwh/m2/annuam in next 12 months.*
- *As of Now, more than 85% (approx. 88%) is by Green Power.*

Road Map for Net Zero Plan;

- *By Implementing the identified PIMs (20% Energy Reduction) & Work on YoY improvements (5-10%)*
- *Tenant Guidelines & Training*
- *Creating an encouraging environment for tenants to contribute in Net zero plan and Rewarding the Tenants FOR BEST PERFROMANCE*

12. Learning from CII Energy Award or any other award program

- 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.

Any Other relevant information

❖ Rainwater Harvesting and Recharge pit

Year of Installation-2011-2012

Benefits :-

- ❖ Total Water conserved thru Rainwater Harvest System in FY 2022-23 is 894 KL , i.e., 1.6% of the Potable water Purchase
- ❖ It decreases the demand for water.
- ❖ It reduces the need for imported water.
- ❖ It promotes both water and energy conservation.
- ❖ improves the quality and quantity of groundwater.
- ❖ Sensor based taps installed to minimize the water usage.
- ❖ Aerator installed in all the tap to reduce the Gravitational pressure.

PHOENIX MARKETCITY
BANGALORE

THANK YOU

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