



Celebrating 20 Years

# Larsen & Toubro Infotech Ltd.

## Whitefield Campus, Bengaluru

**CII National Award for Excellence in Energy Management 2021 ( Building Sector)**

Team  
Nandan Jha ( Presenter) , Ashwin Ashok & Kishore Kumar



A Larsen & Toubro  
Group Company

# Meet LTI

( Building Sector)

We are a global technology consulting and digital solutions Company helping more than 435 clients succeed in a converging world. With operations in 31 countries, we go the extra mile for our clients and accelerate their digital transformation with LTI's Mosaic platform enabling their mobile, social, analytics, IoT and cloud journeys. Founded in 1997 as a subsidiary of Larsen & Toubro Limited, our unique heritage gives us unrivalled real-world expertise to solve the most complex challenges of enterprises across all industries. Each day, our team of more than 36,000 LTites enable our clients to improve the effectiveness of their business and technology operations and deliver value to their customers, employees and shareholders

**35** **\$1.75 Bn**

Global  
Delivery  
Centers

LTM Revenue

**36,000+**

LTites

**71**

Fortune 500  
Clients

Industry Focus

**24.1%**

Energy &  
Manufacturing

**29.3%**

Consumer,  
Media &  
Technology

**14.5%**

Insurance

**32.1%**

Banking

# Whitefield Campus

## LTI Campus in Bengaluru [STPI]

- Site Operational Year : 2005
- Total Built-up Area : 300170 Sq. Ft.
- Total No of Blocks : 5
- Total No of Floors : 15

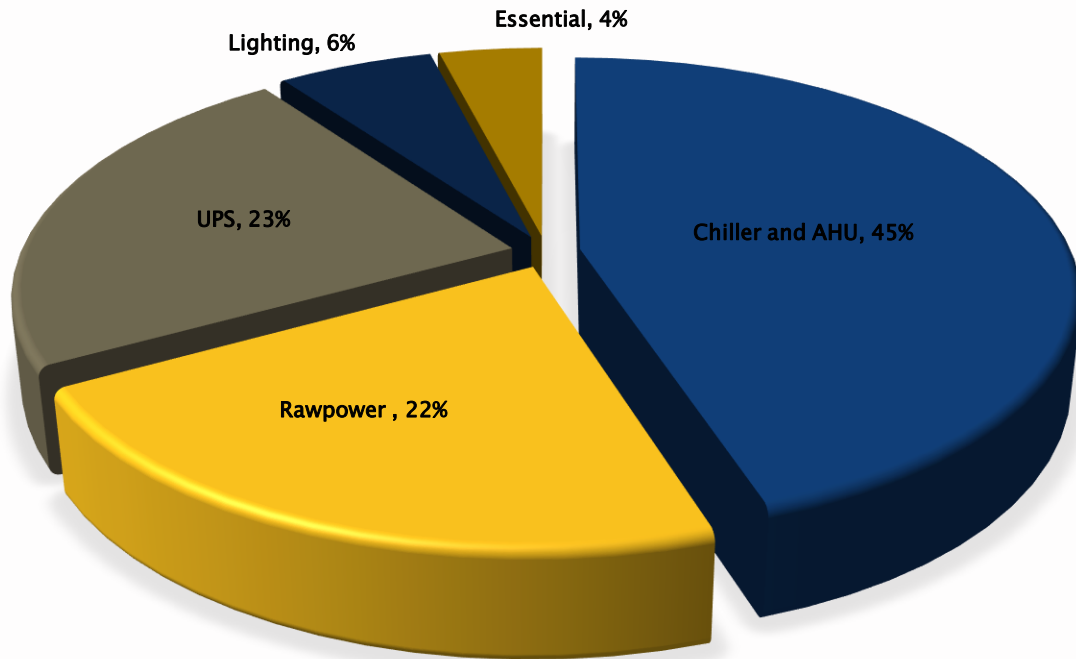
### UTILITIES

- Sanctioned Load in KVA : 1600 KVA
- Maximum Recorded KVA : 1200 KVA
- No of Transformers : 1250 X 2 No's
- No of Diesel Generators : 1010 KVA X 3 No's
- Workstation UPS Support : 75 KVA X 4
- Server Room UPS Support : 30 KVA X 2

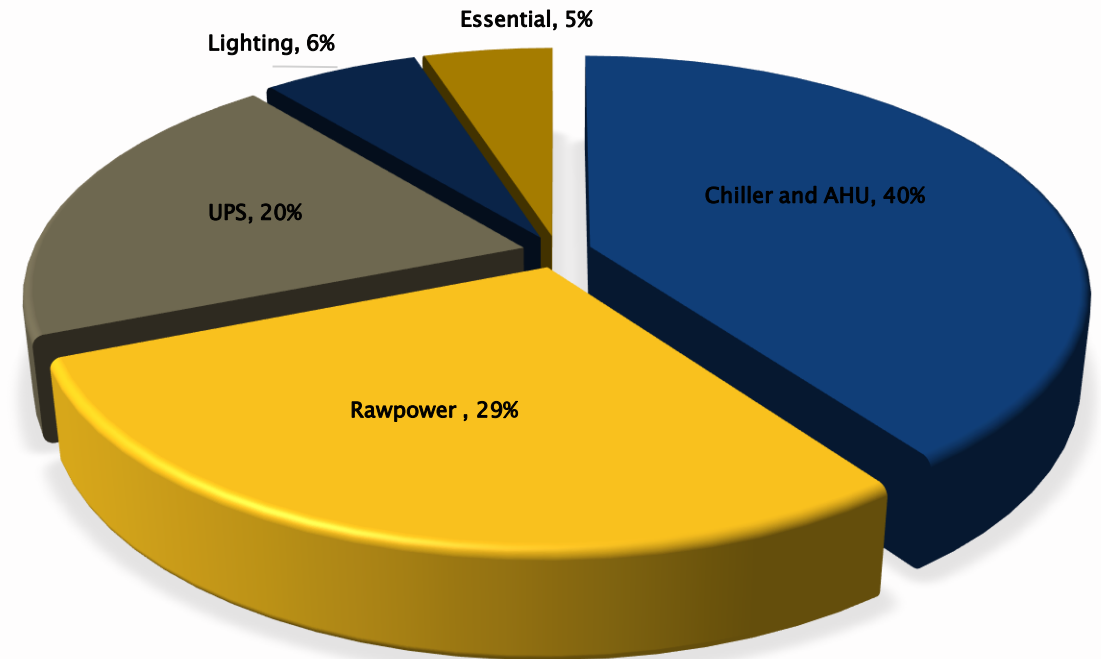


# Energy Consumption Overview

2019-2020 CONNECTED LOAD %



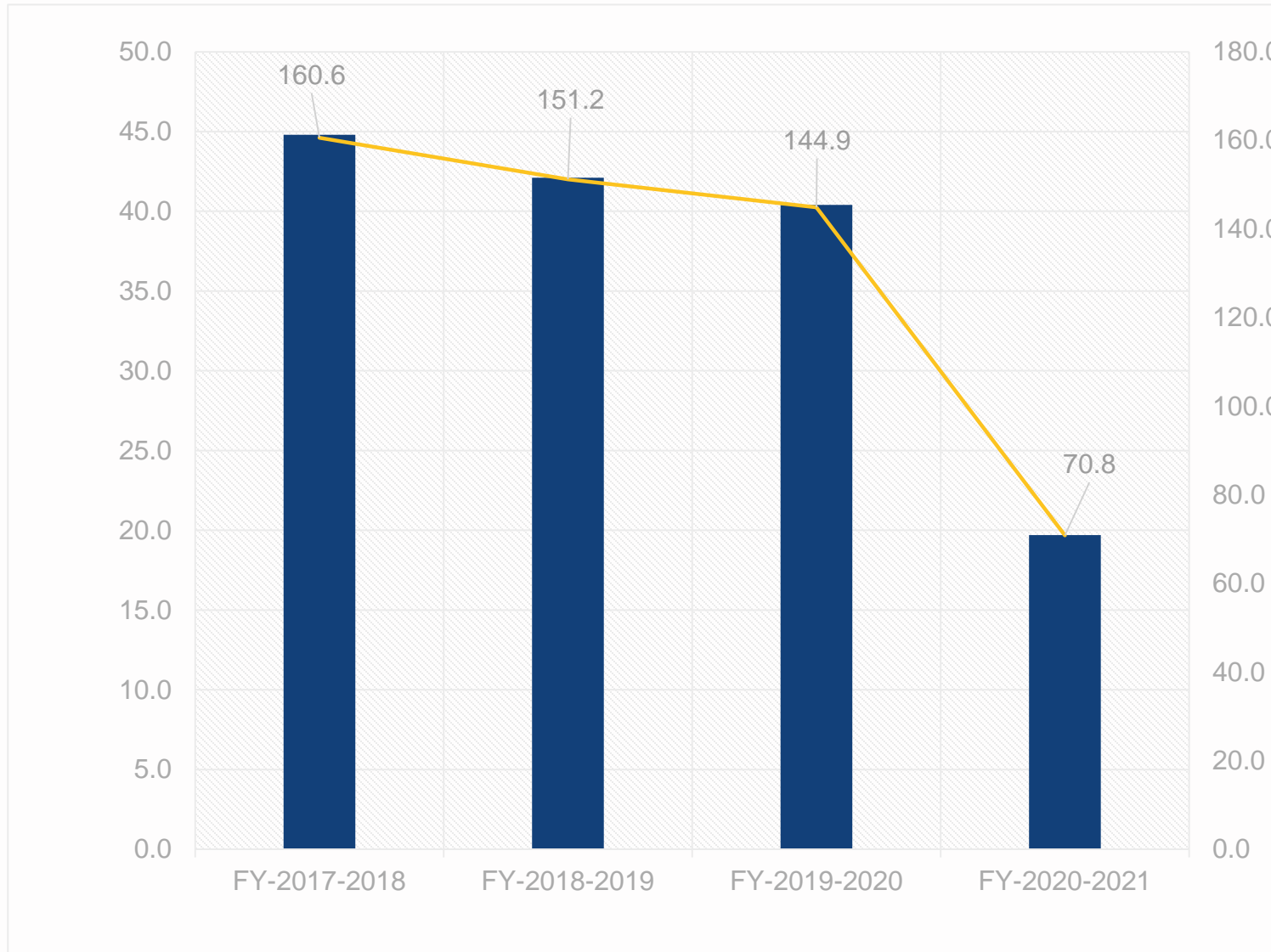
2020-2021 CONNECTED LOAD %



## CONNECTED LOAD DETAILS

Particular	Connected Load Details
Chiller and AHU	4 No's Chiller and 34 No's AHU
Raw power	All Raw Power
UPS	6 No's UPS
Lighting	All Lighting
Essential	STP, Pump Room and WTP

# Specific Energy Consumption



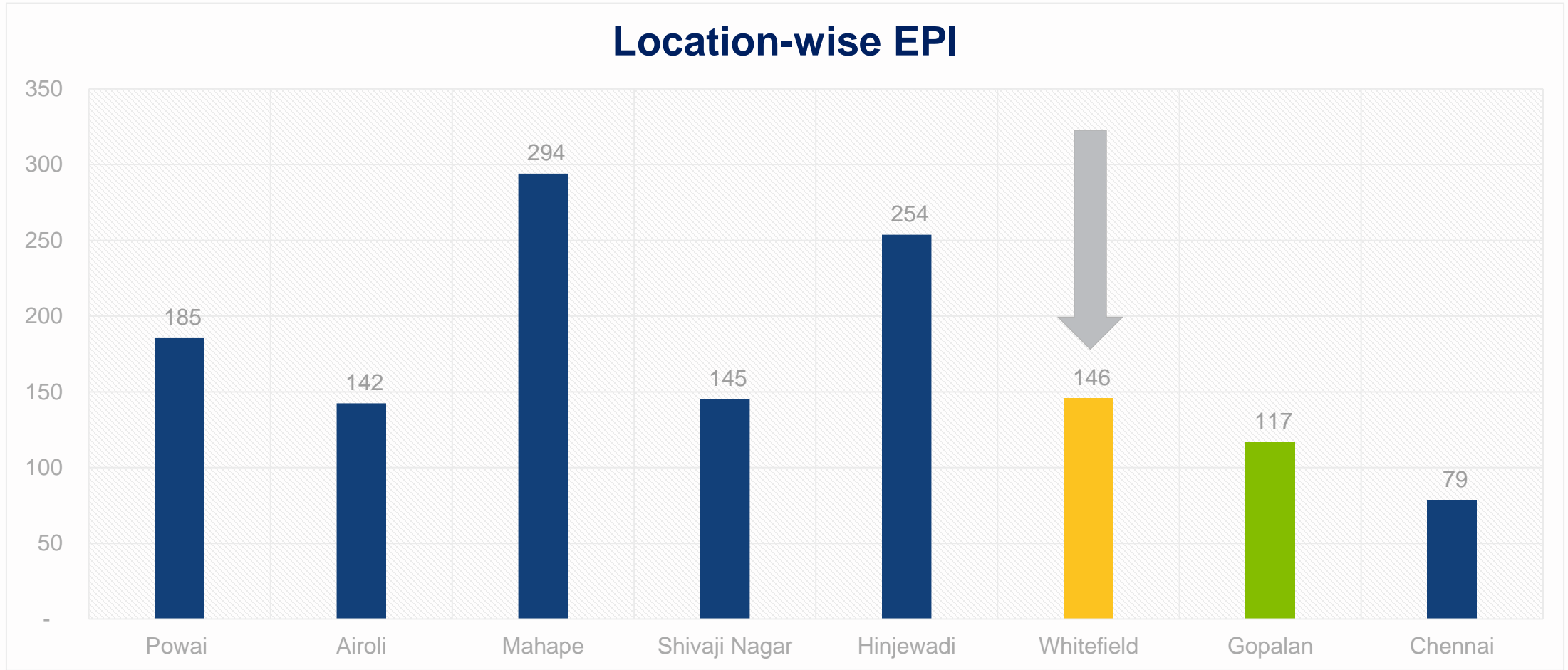
**Energy Savings in last 3 year's  
25.Lac KWH**



**Total CO2 Emissions Avoidance  
in Tons : 2050**

# Internal Benchmarking EPI as of 2021

Chennai Location Power Consumption does not include HVAC component Hence it seems the best



# Energy Saving Projects in 2018–2019

## Replacement of CFL to LED Lights

Replacement of 12Watt CFL into 5 Watt LED.- 1000 Nos

Saved 30660 KWH Units per Year

Investment 5 Lac

Pay Back =2.2 year



## Automatic condenser tube cleaning.

200 TrX1 Nos. chiller condenser automatic descaling

Saved 31000 KWH unit per year

Investment 6.9 Lac

Pay Back =3 year



## Replacement of UPS

Replacement of 3\*300 KVA and 6\*200KVA with 4\*75 KVA Modular UPS

Saved 2.4 Lac KWH unit per year

Investment 65 Lac

Pay Back =3.7 year



# Energy Saving Projects in 2019–2020

## Installation of SMART dampers and sensors in Air Handling Unit.

Installation of EC Driver for Energy Saving.–Total No of AHU–18 Nos.

Saved 95000 KWH Unit per Year

Investment 50 Lac

Pay Back =7 year



## Replacement of CFL to LED.

Replacement of 72 Watt CFL into 36 Watt LED.– 1000 Nos

Saved 1.15 Lac KWH Unit per Year

Investment 17 Lac

Pay Back =2 year



## Replacement of Split AC

Split AC 12 no 's are 12 years old, Changing to inverter type.

Saved 25000 KWH Unit per year

Investment 4.45Lac

Pay Back =2.4 year





# Energy Saving Projects in 2020–2021

## Replacement of Chiller

Replacement of old chiller units operating at less than 65% efficiency –03 No's

Saved 4.8 Lac KWH unit per Year

Investment 156 Lac

Pay Back =4.2 year



## Replacement of CFL to LED.

Replacement of 72 Watt CFL into 36 Watt LED.– 500 Nos

Saved 55000 KWH Unit per Year

Investment 8.5 Lac

Pay Back =2 year



## Motion Sensors for Lights

220 No's Motion Sensors for Lights

Saved 24000 KWH Unit per Year

Investment 5.9Lac

Pay Back =3.2 year



## Summary last 3 Year of En-Con projects

Sr. No.	Description	Saved KWH in Lac Per Year	Investment in Lac INR	Year
1	Replacement of CFL to LED.	0.30	5.00	FY 2018-2019
2	Automatic condenser tube cleaning.	0.31	6.90	FY 2018-2019
3	UPS optimization	2.40	65.00	FY 2018-2019
4	Installation of SMART dampers and sensors in Air Handling Unit.	0.95	50.00	FY 2019-2020
5	Replacement CFL to LED	1.15	17.00	FY 2019-2020
6	Replacement of Split AC	0.25	4.45	FY 2019-2020
7	Replacement of Chiller	4.80	156.00	FY 2020-2021
8	Replacement of CFL to LED	0.55	8.50	FY 2020-2021
9	Motion Sensors for Lights	0.24	5.90	FY 2020-2021

**EPI reduced from 161 to 71**

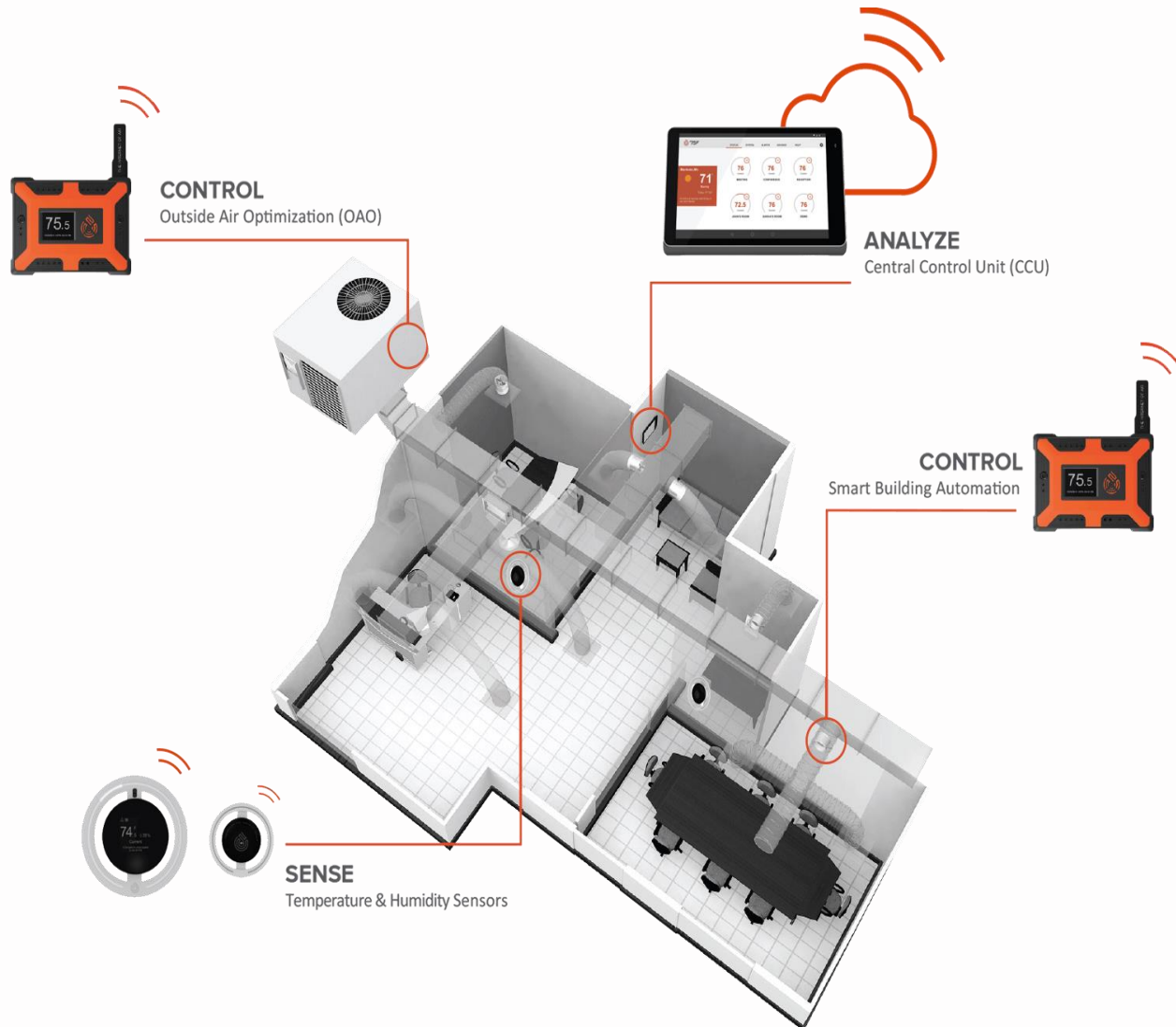
## Status of Planned En-Con Projects in FY 2021-2022

Sl.No	Description
1	Replacement of CFL to LED.
2	Replacing Cassette AC with inverter AC
3	Motion Sensors for Lights

## Target for CO2 Emission Reduction (short term/ long term)

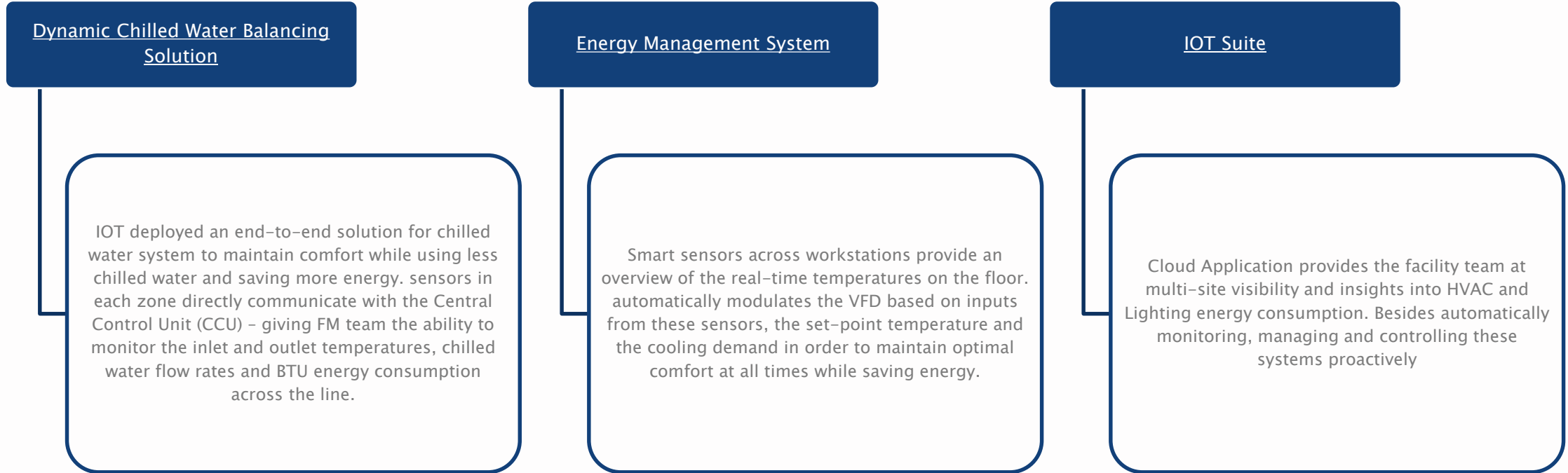
Sl.No	Description
1	Installation of solar plant of capacity 300KW
2	EC fans for the AHU motors
3	BMS control for the HVAC system
4	Replacing with non-inverter AC to inverter AC
5	VFD for the cooling tower motors

# Energy Management – Dynamic Chilled Water Balancing



- ❖ Smart solution which uses the Internet of Things and cloud computing to predict, analyse, monitor and control our building's hot and cold spots before they occur.
- ❖ By continually monitoring a room's needs, analysing incoming data, and controlling what goes in and out, our system effectively manages your building's energy loads. This prevents thermal discomfort by eliminating temperature imbalances, regardless of which heating or cooling system you have. The process saves money and energy – in fact, up to 50% on your HVAC and Lighting energy bills!

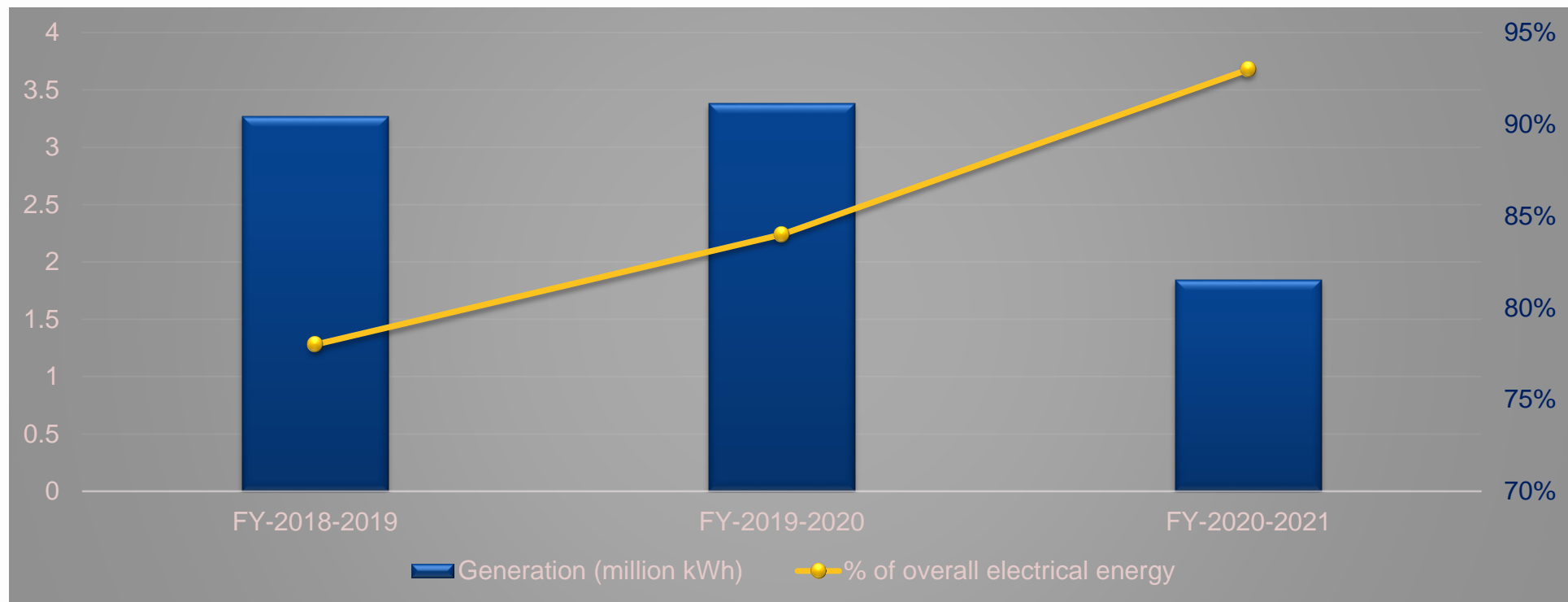
# Energy Management – Dynamic Chilled Water Balancing



Location	Square Footage	Installed Units	Previous Conditions	Result
LTI: Whitefield Bangalore	210000 Sq. Ft	18 Nos. AHU with VFD Common Chiller Plant for 4 Building	AHU VFD running at 50 Hz with no modulation Chilled Water Actuator was manually modulated No BMS or VAVs	With IOT solution, we gained energy savings 95000 units / year of over 55% as well as manpower savings

# Utilisation of Renewable Energy Sources

Year	Type of Energy	Onsite/Offsite	Generation (million kWh)	% of overall electrical energy
FY-2018-2019	Solar	Offsite	3.27	78%
FY-2019-2020	Solar	Offsite	3.38	84%
FY-2020-2021	Solar	Offsite	1.84	93%



## Renewable Energy Sources Projects



Solar Power Plant

- Installation of new solar plant of 100KW
- Power Generating capacity 1.4 Lac KWH unit per year
- Investment = 55 Lac
- Pay Back = 4 year

## Renewable Energy Sources Projects



Solar Street Light

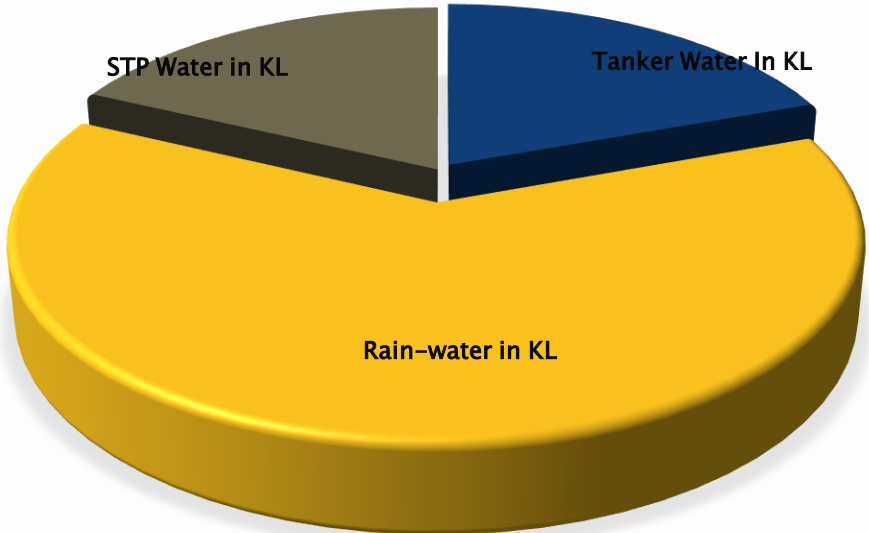
- Replacement of 35 no's 70W MH Street Light to 35 no's 35W Solar Street Light
- Saved = 8950 KWH
- Investment = 7 Lac
- Pay Back = 5 year



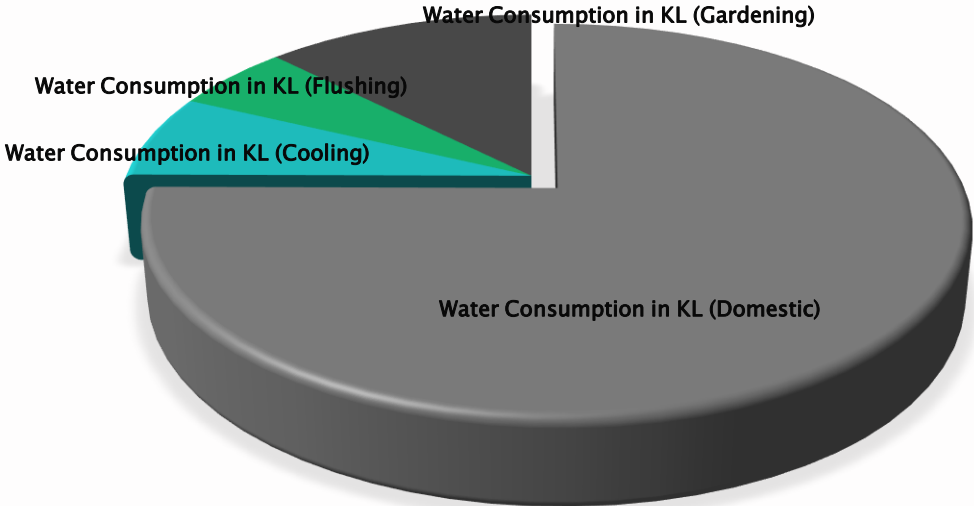
# Utilisation of Water

Year	Tanker Water In KL	Rain-water In KL	STP Water in KL	Total Withdrawal in KL	Water Consumption in KL (Domestic)	Water Consumption in KL (Cooling)	Water Consumption in KL (Flushing)	Water Consumption in KL (Gardening)	Total Consumption in KL
FY-2018-2019	45189	0	39120	84309	44362	827	20979	18141	84309
FY-2019-2020	34900	0	28904	63804	34241	659	15337	13567	63804
FY-2020-2021	3960	12742	3657	20359	15291	1411	1116	2541	20359

2020-2021 Total Withdrawal in KL

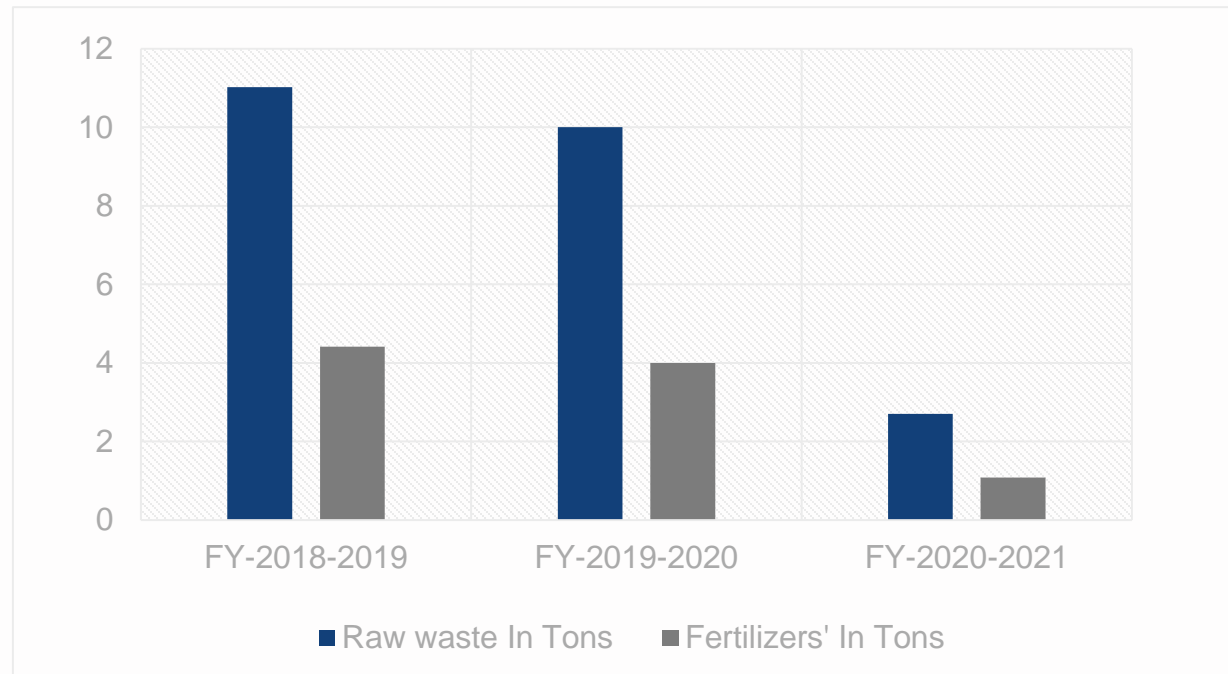


2020-2021 Total Consumption in KL



# Utilisation of OWC Plant

Year	Raw waste In Tons	Fertilizers' In Tons
FY-2018-2019	11.02	4.41
FY-2019-2020	10.00	4.00
FY-2020-2021	2.70	1.08



## GHG Emission & Indoor Air Quality

Year	Scope1 Emission	Scope2 Emission	Scope3 Emission	Ton of Co2 Equivalent
2017-2018	141.44	3568	256	3965.44
2018-2019	123.8	652	837	858.8
2019-2020	82.83	476	738	1296.83
2020-2021	36	115	73	224

- ❖ Consuming maximum units through solar power ( solar power wheeling).
- ❖ Installation own solar power plant .
- ❖ Power saving by the new initiatives.

# Teamwork & Monitoring



IOT and BMS based Monitoring and Control - Chiller, AHU and UPS



Daily consumption & efficiency reporting Monthly Energy review –  
Chaired by Location Head



Planned to Installation the Solar plant of capacity 300KW 2021-2022

## IGBC Rating



## Other Awards

Greenery Award 2019



**THANK YOU**