NATIONAL ENERGY CONSERVATION AWARD FOR EXCELLENCE IN ENERGY MANAGEMENT 2023

AUROBINDO PHARMA LIMITED

UNIT V ,

HYDERABAD

Sr. No	Name	Designation	Mobile Number	Email address
01	Mr. Naga Seshaiah Kaliki	Vice President, Operations	8897355777	NagaSeshaiah.Kaliki@Aurobindo.com
02	Mr. Anil kumar PV	General Manager (E&U)	8008558148	Anilkumar.pv@aurobindo.com
03	Mr. Ram Mohan Reddy Nimma	Energy Manager	9581568966	RamMohanReddy.Nimma@Aurobindo.com

Brief Introduction on Company/Unit

$2.9 B
Global Revenue

Employees 33k+

Market presence 150+

Mfg. Facilities 25

1 — Inception
Founded in 1986 by Mr. P. V. Ramprasad Reddy, Mr. K. Nityananda Reddy

2 — IPO
Aurobindo Pharma became a public company in 1992

3 — USFDA
All facilities are USFDA & other regulatory approved

4 — 41+ Billion
Dosage Forms across the world

01 **#1**
Largest generics company in the US (by Rx dispensed)

02 **#2**
2nd Largest pharma by revenue (India)

03 **17%**
Reduction in carbon emissions from baseline year FY20 (Achieved more than 100% of 2025 target)

₹ 76.3 Cr In CSR Spends

7. 38 Lakh Beneficiaries

R&D Capabilities
5 in India and 4 in the US
1,500+ Scientists and analysts globally

Facility & Major Equipment of Unit-V

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Unit-V

Facility

Total Factory area	87134 m² (21.5 Acrs.)	
Build up Area (m²)	37885	44%
Roads (m²)	12507	14%
Green Belt area (m²)	26330	30%
Open area (m²)	10412	12%

Process Equipment

- Reactors: 110 No's
- Centrifuges : 20No's
- ANFD : 7 No's
- Lyophilizer : 7 No's

Utility Equipment

- FBC boiler : 24 & 12 TPH
- Air Compressors : 2015 CFM
- Chillers(+5°C) : 2544 TR
- Chillers (-20°C) : 250 TR
- Chillers (-35°C) : 320 TR
- Cooling towers : 10150 TR

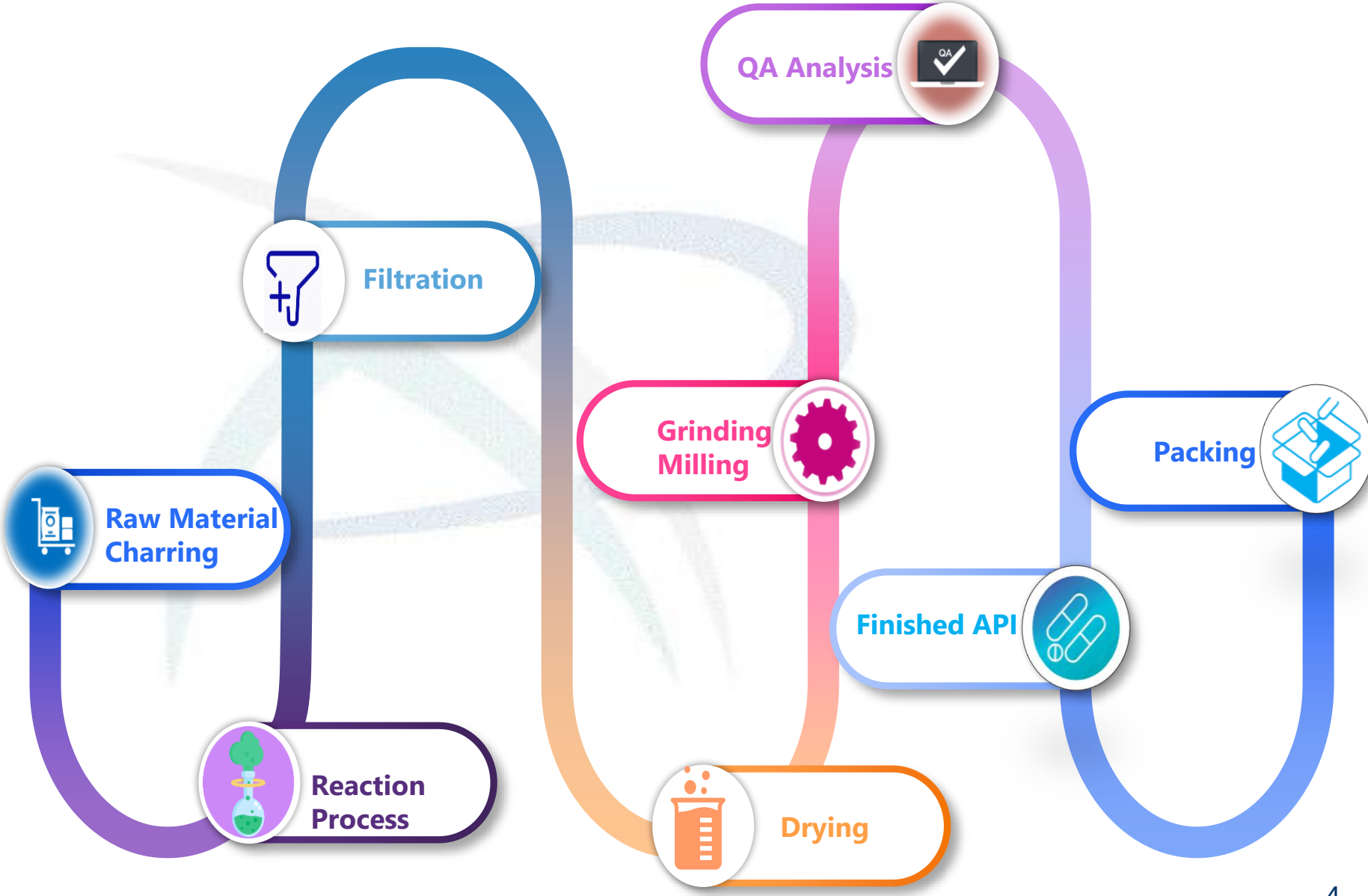
Electrical

- CMD : 7000 KVA
- LT Connected : 21657.53 HP + 1580.4 KW
- Transformers : 8 No's (13.45 MVA)
- DG system : 13 No's (11010KVA)

Details of the Products / Processes

- Amoxicillin Trihydrate
- Piperacillin and Tazobactam
- Ampicillin Trihydrate
- Ampicillin Sodium Sterile

Major products :



Energy Consumption Overview – Last 4 Years

PRODUCTION

YEAR	VALUE (MT)
FY 2019-20	2000
FY 2020-21	1708
FY 2021-22	1300
FY 2022-23	1836.8

SPECIFIC ENERGY

YEAR	VALUE (m kcal/MT)
FY 2019-20	66.90
FY 2020-21	78.06
FY 2021-22	80.95
FY 2022-23	59.34

Production

29%

YEAR	VALUE (m kcal)
FY 2019-20	93,723
FY 2020-21	94,211
FY 2021-22	72,560
FY 2022-23	74,066

THERMAL ENERGY

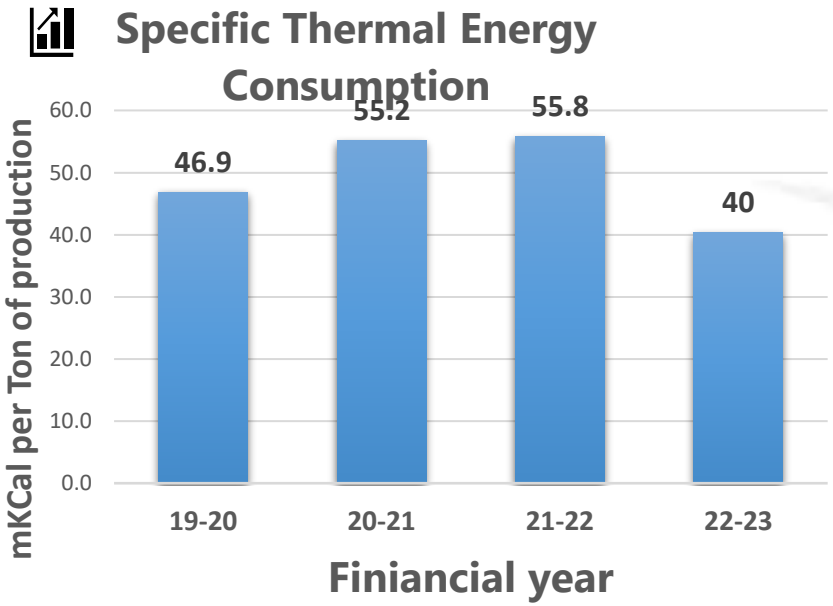
YEAR	VALUE (m kWh)
FY 2019-20	46.6
FY 2020-21	45.5
FY 2021-22	38.0
FY 2022-23	41.0

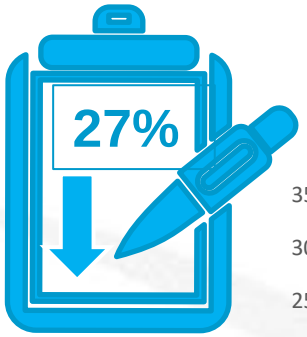
ELECTRICAL ENERGY

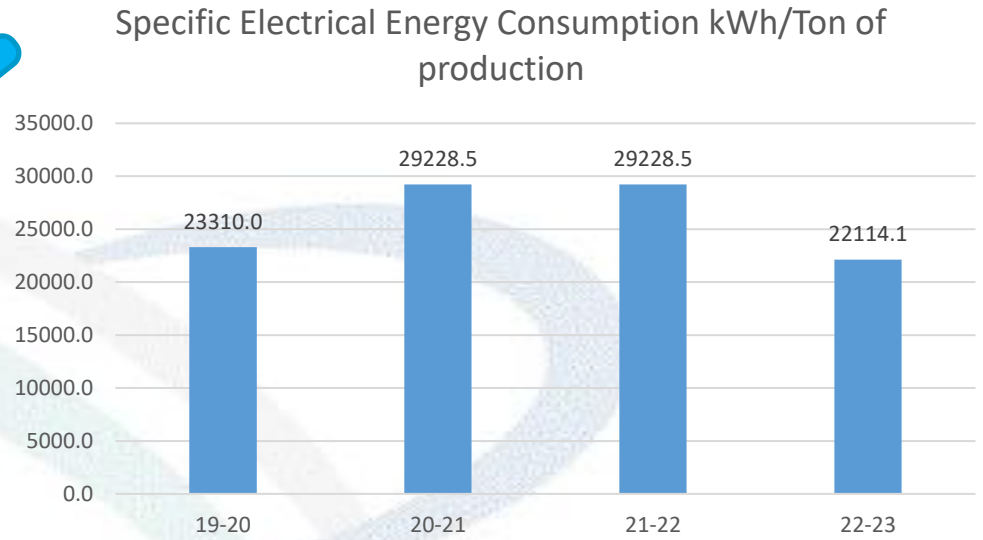
Specific Energy

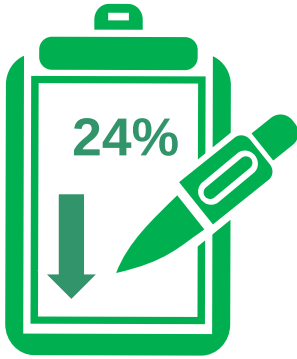
26.6%

Specific Energy Consumption Overview – Last 4 Years





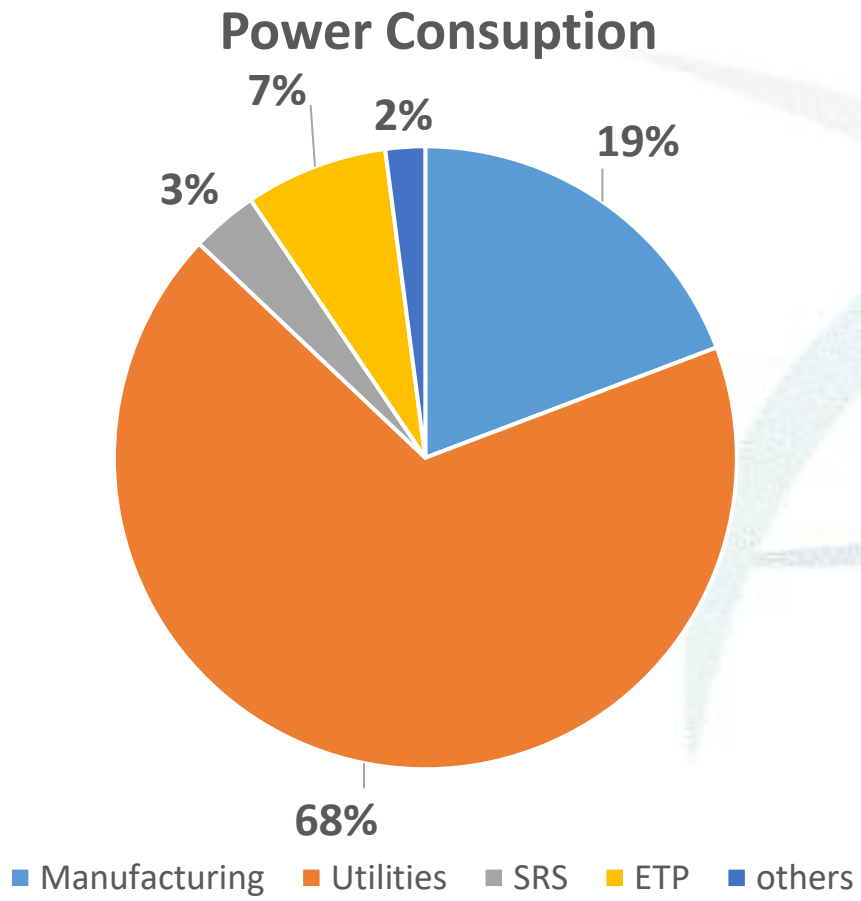


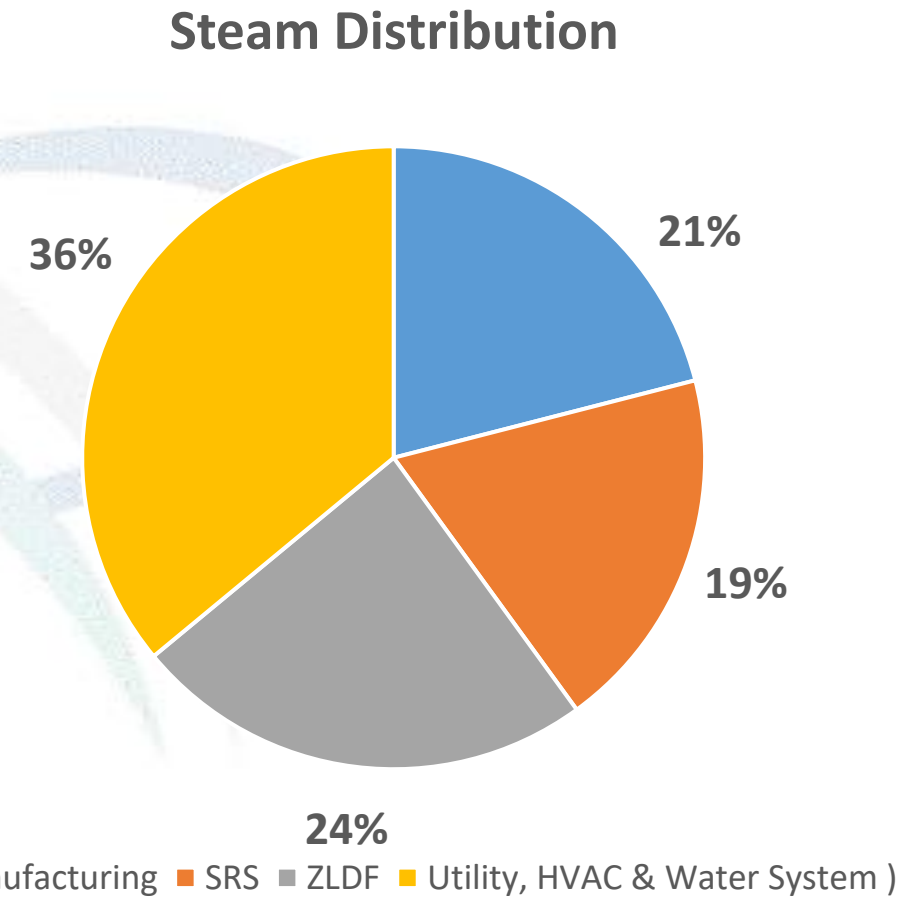


SEC is improved in FY 2022-23 shows positive approach towards Energy conservation.

Implementation of various energy conservation activities contributed reduction of 15.3 % in overall SEC of the Plant

Energy Distribution between different streams





Information on Internal benchmark - Utility

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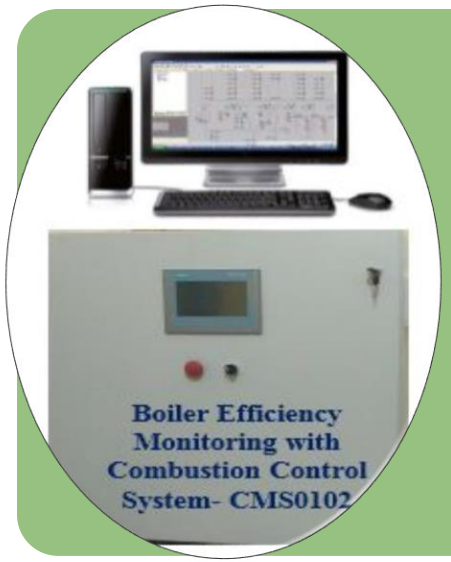
Refrigeration Plants :

Description	Design Temp (oC)	Design SEC (kW/TR)	Operating SEC (kW/TR)	Target SEC (kW/TR)
Reciprocating Chillers (Water Cooled)	+5	0.86	0.91-0.98	0.87
	-20	1.59	1.65-1.68	1.60
	-30	1.83	2.1-2.2	1.9
	-35	1.95	2.42-2.51	2.2
Screw Chillers (Water Cooled)	+5	0.63	0.65	0.64
Screw Chillers (Air Cooled)	+5	1.10	1.18 – 1.22	1.15

Description	Design SEC (kW/CFM)	Operating SEC (kW/CFM)	Target SEC (kW/CFM)
Air Compressors	0.16	0.19-0.20	0.18

Description	Design SFR (KG/KG)	Operating SFR (KG/KG)	Target SFR (KG/KG)
Boiler	5	4.88	4.9

Major Encon Projects Planned in FY 2023-24

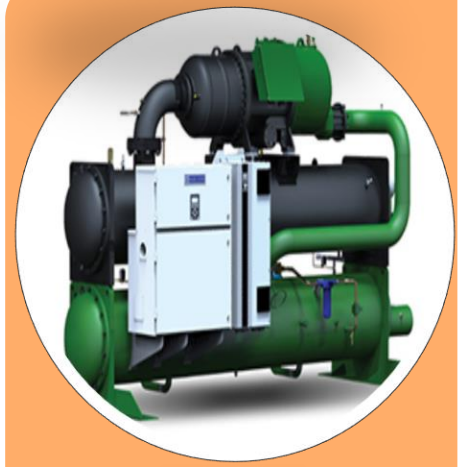


COMBUSTION CONTROL SYSTEM FOR 24TPH BOILER

Investment : ₹ 5.2 million
Savings : ₹ 21 million
Payback : 03 Months

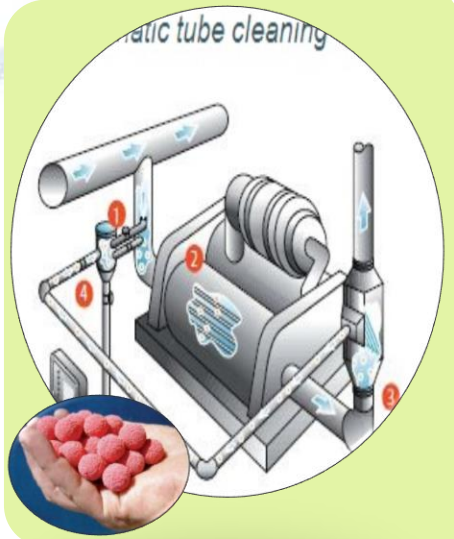
E Glass Epoxy FRP Blades for Cooling Towers

Investment : ₹ 3.7 million
Savings : ₹ 2.7 million
Payback : 17 Months



405TR WC Screw Chiller by Replacing Reciprocating Chiller

Investment : ₹ 8.25 million
Savings : ₹ 8.74 million
Payback : 11 Months



In line Automatic Tube Cleaning System

Investment : ₹ 1.3 million
Savings : ₹ 1.1 million
Payback : 15 Months

ENCON Projects Planned in FY 2023-2024

S No	Project Details	Proposed Investment (₹ Million)	Expected Monetary Savings/ Annum (₹ Million)	Payback (Months)
1	Use the renewable resource of rice husks as fuel for boilers to reduce the need for fossil fuels and decrease CO2 emissions while increasing income to small farmers and transporters.	**0.1**	5	0
2	Steam operated Pump trap setup for SRS re-boilers to replacing conventional ball float steam traps.	**0.4**	1	7
3	Non performing & high energy consuming Air compressor is replaced with new energy efficient reciprocating canopy model air compressor along with IE3 motor.	**1.2**	1	15
4	COMBUSTION CONTROL SYSTEM for 24TPH Boiler to eliminate the losses & eliminating steam Venting losses due to variable load patterns. Below are saving potential in boilers 1. Optimizing in Bed Temperatures 2. Optimizing in Air-Fuel Ratio (by avoiding of excess air / low air condition) 3. Optimizing in Steam Pressure and Air Pressures 4. Creating 3'T condition in combustion 5. Up to 7% savings on fuel	5.2	21	3
5	Flash Steam Jet Pump With FRP Insulation along with Steam Motive Accessories for ATFD Flash Steam Recovery	1.36	1	15
6	Adiabatic Cooling System for air cooled chillers X 04 No's (177TR X 02 No's, 400 TR X 01 No's & 100TR X 01 No's)	3.14	1	28
7	Pumps which are having flexible loads (Connected to multiple equipment's) to be installed with VFD with PID (Pressure vs. RPM) Controller.	1.71	4	5
8	By Installing 405TR water cooled chiller witch SEC is 0.65 Kw/TR & planning to stop H-Block 400TR air cooled chiller witch SEC is 1.20 Kw/TR.	8.25	9	11
9	Replace the A&B Block -30°C aged/non performing secondary pumps with energy efficient pumps along with aged lines.	1.8	1	19
10	Cooling tower CT fan blade replaced with E Glass Epoxy FRP blades, in place of aluminum blades, Qty : 09 No's	3.7	3	17
11	Installation of Automatic Pump Trap (APT) - 40NB for condensate Stall Prevention on Stripper	0.2	1	3
12	In line Automatic Tube Cleaning System for 02 No's of 400 TR Water cooled chillers to supply the uninterrupted chilled (+5) water supply to C-Block, A&B block HVAC & process requirements	1.30	1	15
		31.02	**49**	**6**

Energy Saving projects implemented in last 3 Years

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2020-21

15 No's

Investments(₹ Million)	: 6.0
Electrical (Million kWh)	: 3.54
Thermal (Million kcal)	: 2782
Monetary Savings (₹ Million)	: 27.7
Impact on SEC (%)	: 4.4%

2021-22

32 No's

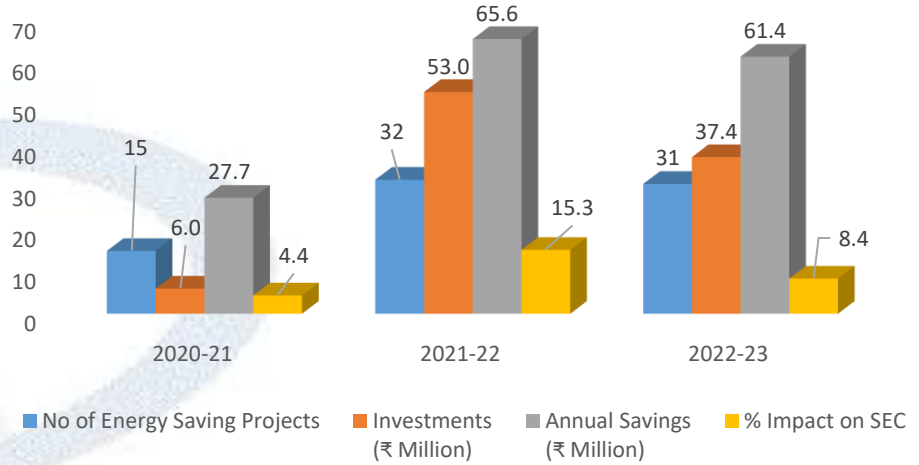
Investments(₹ Million)	: 53
Electrical (Million kWh)	: 6.44
Thermal (Million kcal)	: 10516
Monetary Savings (₹ Million)	: 65.6
Impact on SEC (%)	: 15.3%

2022-23

31 No's

Investments(₹ Million)	: 37.4
Electrical (Million kWh)	: 7.03
Thermal (Million kcal)	: 3096
Monetary Savings (₹ Million)	: 61.4
Impact on SEC (%)	: 8.4%

Energy Conservation Projects - Last 3 years



FY 2022-23

Tons of CO_2

8115

CO_2 EMISSION REDUCTIONS

Major Encon Projects Implemented – High Investment - FY 22-23

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405 TR Screw Chiller

- Replaced existing reciprocating chiller & aged VAM system
- Compared cost per TR generation
- Ranking of technologies
- Energy Savings : 16.09 Lakh Units,
  Investment : ₹ 8.5 million
  Payback : 8.4 months

Structural Packing's for PB4 (SRS)

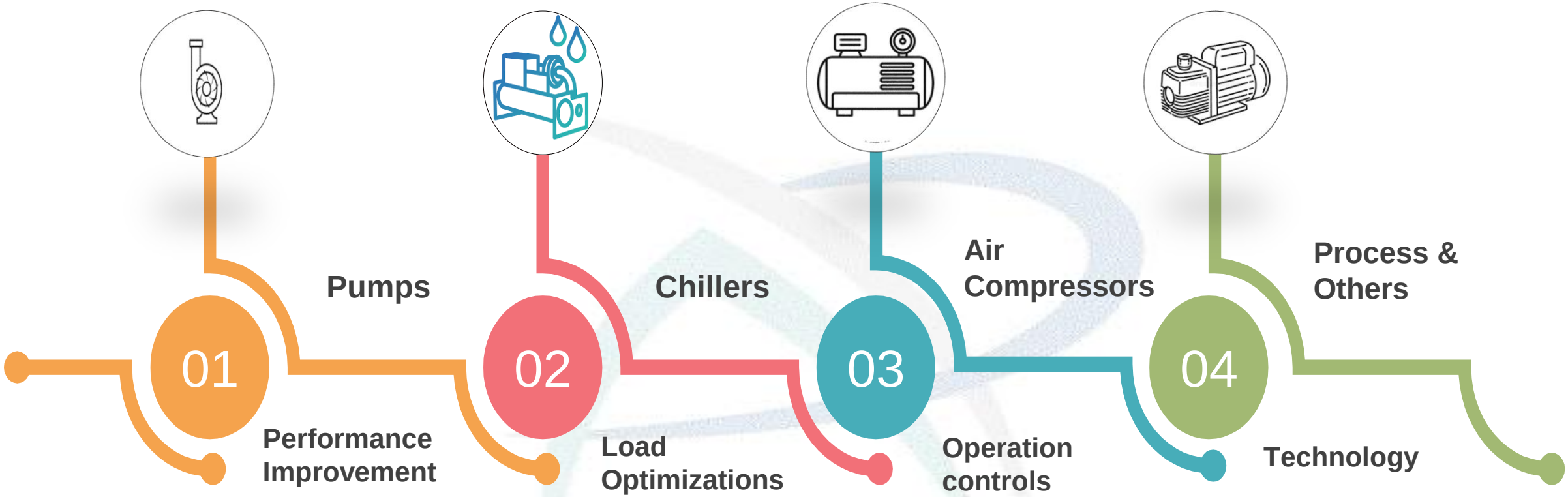
- Performance evaluation done and identified the opportunity
- Energy Savings : 433 Million Kcals,
  Investment : ₹ 3.36 million
  Payback : 32 months
- improved the solvent recovery
- Challenges : Frequent clogging / descaling/ maintenance
- Remaining solvent recovery column's performance assessment U/P.

TRIPLEX PLUNGER PUMP

- ETP RO aged/ non performing HP (High Pressure i.e. 700 PSI) pumps replaced with new and improved flow rate from 11.8 to 15 M^3/Hr.
- Energy Savings : 3.11 Lakh Units,
  Investment : ₹ 2.36 million
  Payback : 12 months
- In addition to savings in RO, got performance in terms of flow improvement lead to less running hours.

Savings Backup

Major Encon Projects – Medium / Low Investment - FY 22-23



- Impeller Trimming
- VFD with PID
- Auto Level Cutoff
- Swapping of pumps

- Shifting of load from low efficient chillers to highly efficient Chillers.
- Regular assessments and monitoring & replacements

- No Air Loss Drain Valves
- Reducing the Pressure Settings
- Arresting Air Leakages

- Dry Screw Vacuum Pumps
- EE High Pressure Pumps

ENCON PROJECT'S IMPLEMENTED FY 2022-23

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S.NO	Title of Project	Total Annual Savings (Rs million)	Investment Made (Rs million)	Payback (Months)
1	Energy intensive & Aged ammonia refrigeration plant is replaced with most efficient 405 TR Water cooled chiller Ms. Trane make for ROW area HVAC systems.	12.20	8.50	8.36
2	Structural Packing's for PB4 (SRS) to improve the solvent recovery & Energy conservation by improving heat transfer time & area.	1.24	3.36	32.59
3	For PB- IV (SRS) 30000 & 20000 LTR Storage Tanks with jacket in place of aged/ damaged tanks to improve effective cooling & minimizing the loss of solvents	1.40	3.00	25.67
4	ETP RO aged/ non performing HP (High Pressure i.e. 700 PSI) pumps 03 No's replaced with new & energy efficient pumps with IE3 motors.	2.36	2.36	12.00
5	Distillation column DIE005 at E-Block to improve the solvent recovery & Energy conservation by improving heat transfer time & area.	1.08	2.26	25.12
6	J-Block 250 TR Air cooled chiller condenser pre cooling unit & Air cooled condenser coils with anti corrosive coating (Blue fin) to improve the energy consumption & mitigating the corrosiveness.	1.87	2.14	13.72
7	DRY SCREW VACUUM PUMP to replace the convention water ring VACUUM PUMP to improve the energy conservation & mitigating effluent generation.	0.67	1.50	26.98
8	Improved the Operating Efficiencies of Chilling plants and associated systems by regular energy assessments and corrective measures taken like descaling, refrigerant charging, flow corrections and CT water maintaining.	12.90	1.45	1.35
9	Dry Screw vacuum pump for C-Block to replace the convention water ring VACUUM PUMP to improve the energy conservation & mitigating effluent generation	0.64	1.42	26.62
10	New wooden type Cooling Tower (700 TR) in place of old/ damaged cooling tower is installed for ROW area utility +5°C Refrigeration plant purpose	1.15	1.35	14.06
11	D&F Block aged, Non performing & high energy consuming Air compressor is replaced with new energy efficient reciprocating canopy model air compressor along with IE3 motor.	1.09	1.12	12.31
12	Aged/ poor performing float type aerator is replaced with new TURBO OXY JET AERATOR MIXER along with IE3 motor.	0.45	1.10	29.02
13	BY Implementing in-house ENCON/ Kaizen projects initiated in the year of 22-23. 1. PB-III +5 secondary pumps 2 No's are running continuously, Identified the same. Changed to operate one pump by improving pump performance by replacing impeller, casing & shaft. Previously 20 HP X 02 Pumps are taking load of 12 KW each (i.e. 24 KW). After performance improve single pump is taking 14 KWH 2. H-Block Chiller one circuit stopped & regular water washing of air cooled condenser fins lead to power savings 3. For Air Dryers 02 No's NO Air Loss auto drain valves installed for 02 No's air dryers (AIEU11, AIEU07) 1 KW per Hr. per Trap savings. 4. I-Block Utility & NR PB-IV Cooling Tower blow down from High TDS to Low TDS treatment streams High-TDS effluent treatment Cost: 1350/ KL Low-TDS effluent treatment Cost: 520/ KL 5. -30°C Refrigeration Compressor RPM optimization by replacing the Motor Pulley.	11.58	0.95	0.98
14	G-Block PTS convention water ring VACUUM PUMPs are replaced with Oil ring vaccum Pumps to improve the energy conservation & mitigating effluent generation	0.73	0.94	15.45
15	J Block Air Cooled chiller performance impacting on atmospheric temperature change, So installed Adiabatic Cooling System for 200TR air cooled chiller.	3.54	0.78	2.64

S.NO	Title of Project	Total Annual Savings (Rs million)	Investment Made (Rs million)	Payback (Months)
16	ETP Agitator Clarifier gearbox MIXING AGITATOR FOR CLARIFER RPM: 100 SS304 SHAFT WITH BLADES 1.5 MTS & GEAR BOX ARRANGEMENT FOR CLARIFER MECHANISM	0.27	0.60	27.14
17	Energy Efficient Vertical Inline Split Coupled pump with IE3 motor for D&F Block +5°C Utility	0.67	0.46	8.15
18	For Block - G conventional HOT WATER GENERATOR is replaced with Energy efficient Hot Water generator with CIRCULATION UNIT CAP: 2 M3/HR.	0.38	0.46	14.36
19	Energy efficient DEHUMIDIFIER MODEL: FFB 1000 (ES) MAKE: BRYAIR is installed for PQC Emerging area along with heat recovery option	0.79	0.44	6.75
20	For Block - A conventional HOT WATER GENERATOR is replaced with Energy efficient Hot Water generator with CIRCULATION UNIT CAP: 2 M3/HR.	0.38	0.44	13.77
21	Replaced Existing Biological effluent plant pumps 02 No's with EE efficient & optimized flow / head to reduce power Consumption & to improve Efficiency. (11 KW Operating power Reduced)	0.35	0.42	14.39
22	Conventional oil ring vacuum pump is retrofitted with BOOSTER VACUUM PUMP with TWIN LOBE along with IE3 Motor to save energy & reducing drying time by increase vacuum.	0.29	0.41	16.91
23	-15°C A&B Block Secondary Pumps 02 No's witch are having flexible loads are connected with VFD interlocked with PID (Pressure vs. RPM) Controller.	1.15	0.33	3.38
24	Installed Compact Module Thermodynamic Steam trap for avoiding the steam losses in Boiler Main distribution line & connected back to condensate recovery system.	1.19	0.32	3.22
25	Sterile H-Block AHUs Semi Automation-Three way valves along with temperature controllers installed for total 9 AHU's & savings till date	0.42	0.30	8.67
26	Utility +5 primary pumps flow & head optimized by impeller trimming & balancing.	0.85	0.25	3.53
27	In Utility & ETP Area multiple rewinded motors (IE1 & IE2) of primary circulation & Effluent transfer pump motors are replaced with IE3 motors. Achieved savings per hour is 7.8 KW	0.47	0.21	5.25
28	Old & energy intensive Split AC's are connected with +5°C chilled water line by eliminating outdoor units/ compressors	0.30	0.14	5.54
29	Energy efficient E-Glass Epoxy fans for Cooling towers 01 No's (Cap.:250TR) Replacement of Existing Cooling tower ID fan blades with Energy Efficient E-Glass Epoxy blades instead of Aluminium blades for one cooling tower. Reduction of cooling tower ID fan operating cost by 22%.	0.29	0.15	6.18
30	No Air Loss Auto Drain Valves 09 No's installed in year 22-23 for air receivers & Air dryers in place of conventional air traps which are loosing compressed air	0.55	0.10	2.20
31	Old & energy intensive B-Block Process pump is replaced with HORIZONTAL CENTRIFUGAL PUMP along with IE3 Motor.	0.13	0.18	16.01
	Aggregate Savings	61.4	37.4	13.0

Innovative Projects - I

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Boiler Efficiency Monitoring with Combustion Control System

Boiler Load variation
Boiler fuel: Coal/ Husk
Boiler operational Controls

Boiler Efficiency is improved by 5.60%
Coal Consumption is decreased by 15.52%
Estimated Payback : < 3 Months

Feasibility

Freezing

Trial

Results

Survey on available technologies to automise the boiler combustion & improve the Efficiency.

Installed Boiler Efficiency Monitoring with Combustion Control System on 30days trail basis

Boiler
mation Savings Ba

Potential : Highly replicable
Flexible loaded manual operated boilers

Innovative Projects - II

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Energy conservation through implementing alternative process for improving MDC recovery in SRP

Previous Process:

- MDC is recovered in SRS followed by treatment in Molecular Sieve Drier to meet water content less than 0.1%. MSD reactivation is done by using heating (i.e. steam). During Reactivation of Molecular Sieves, Cooling of MDC Vapour is done with Chilled Water. Cooling of Sieves by cooling water in jacket after re-activation.

Improved Process:

- Implemented chemical processing by treating the distilled MDC with calcium chloride to meet water content less than 0.1% by eliminating the MSD

1. Eliminating/ Minimizing the steam cost that is used for re-activation of MSD
2. Minimizing power cost by reducing power usage for chilled water & its pumps.
3. Solvent recovery improved by ~10%

Energy saving
MDC recovery pro

High replication in MDC recovery process.

Payback less than 6 Months

Improves Chilled water effective utilisation.

Steam utilization optimized

Substantial energy saving up to ~40%

Potential : Highly replicable to other MDC extraction process.

Innovative Projects -III

Yield Improvement in Piperacillin Hydrate product

Utilisation of Renewable Energy sources

Installed Capacity

30 MW Solar Power Plant Under
Mode : Group Captive Mode
Project Timeline: 2022-25
Project mode : Off Site Generation

Location & Developer

Ramannapet, Yadadri Bhuvanagiri District, Telangana
M/s NVNR Ramannapet- I & II Power Plant P. Limited
Investment : ₹ 5.382 Cr.

Type of Agreement

Open Access & 25 Years
Starting : July 022
Total 7 Nos units of Aurobindo considered

Expected Generation

Total expected generation : 3.2 Cr Units /Year
Approved Capacity : 3750 kW EB Load

% Share to Unit-V

CMD allotted from Solar : 1500 kW (21.4%) out of 7000 kVA
Allotted Generation: 1.28 Cr Units / Year
% Share in Energy Consumption : 18%
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Waste utilization and management

Waste Management

- Waste having heat value (FY 22-23, 1453MT)
  - 610 MT → Cooling Tower Fills, Mixed spent carbon
  - 843 MT → Lq. Organic waste, Used filter pads, Thermacoal
- Recycling (FY 22-23, 8.12 MT)
  - 4.28 MT → Used oil, LED bulbs, Batteries
  - 3.84 MT → Power cables, Wires, Contactors, Relays
- Land filling/ Incineration (FY 22-23, 1173 MT)
  - 1173 MT → Evaporation Salt, ETP Sludge
  - 0.45 MT → Bio-medical waste

Cooling Tower Fills, Mixed spent carbon, Lq. Organic waste, Used filter pads, Thermacoal → **CONTINUE** → **Co-fuel for cement units**

Used oil, LED bulbs, Batteries, Power cables, Wires, Contactors, Relays → **CONTINUE** → **Through authorized scrap agencies**

Evaporation Salt, ETP Sludge → **CONTINUE** → **Through authorized agency**

Bio-medical waste → **END (Incineration)**

Sustainability / GHG Inventorization

01 Sustainability Report

2020-21

Published maiden sustainability report for FY 2020-21

02 Goals & Targets -2025

2025

- 20% Renewable Energy Share (Power to Power)
- 12.5 % Reduction in Emissions
- 35% water conservation / restoration
- 60% coprocessing of hazardous waste
- 100% reuse & recycling nonhazardous waste
- 25% hours of learning per employee

03 GHG Emissions

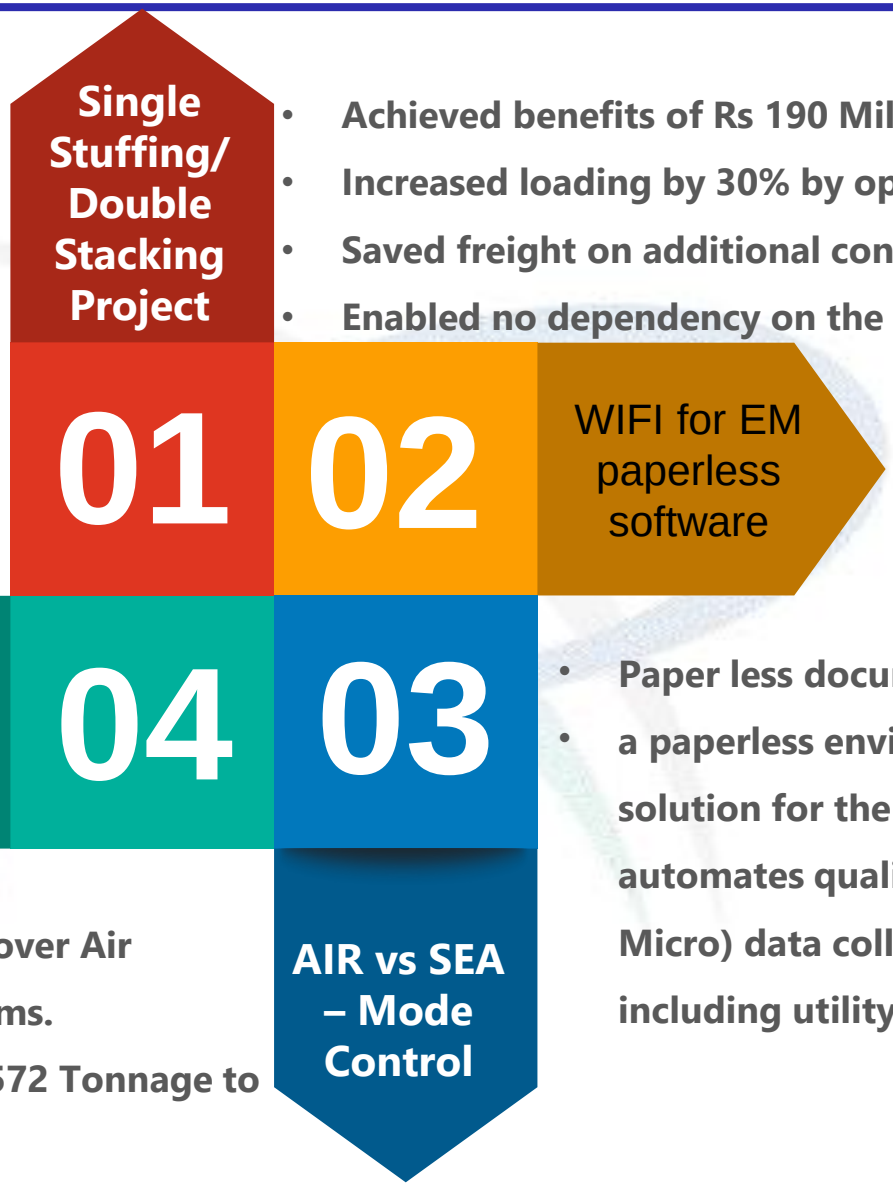
FY 2020- 23

FY	Scope 1 Emissions (tCO2e)	Scope 2 Emissions (tCO2e)	Total GHG Emissions (tCO2e)
2020-21	24172.2	22324.5	46496.7
2021-22	18358.9	24259.7	42618.6
2022-23	13036.6	18353.1	31389.7

Net Zero Commitment

Pillar	Goals-2025	Progress made so far	Status
Responsible manufacturing 	**20%** Renewable energy share (Power-to-Power)	Achieved 12% renewable energy share (Power-to-Power)	In progress
	12.5% Reduction in carbon footprint (as per SBTi – WB2C	Achieved >100% -17% reduction in carbon footprint from baseline year FY20	Achieved
	Towards water neutrality **35%** Water conservation / restoration	Achieved >100% -38% water conservation/ restoration	Achieved
	60% Co-processing of hazardous waste	Achieved > 100% - 62% Co-Processing of hazardous waste	Achieved
	100% Reuse / recycle of non-hazardous waste	Achieved 100%	Achieved

Green Supply Chain Management



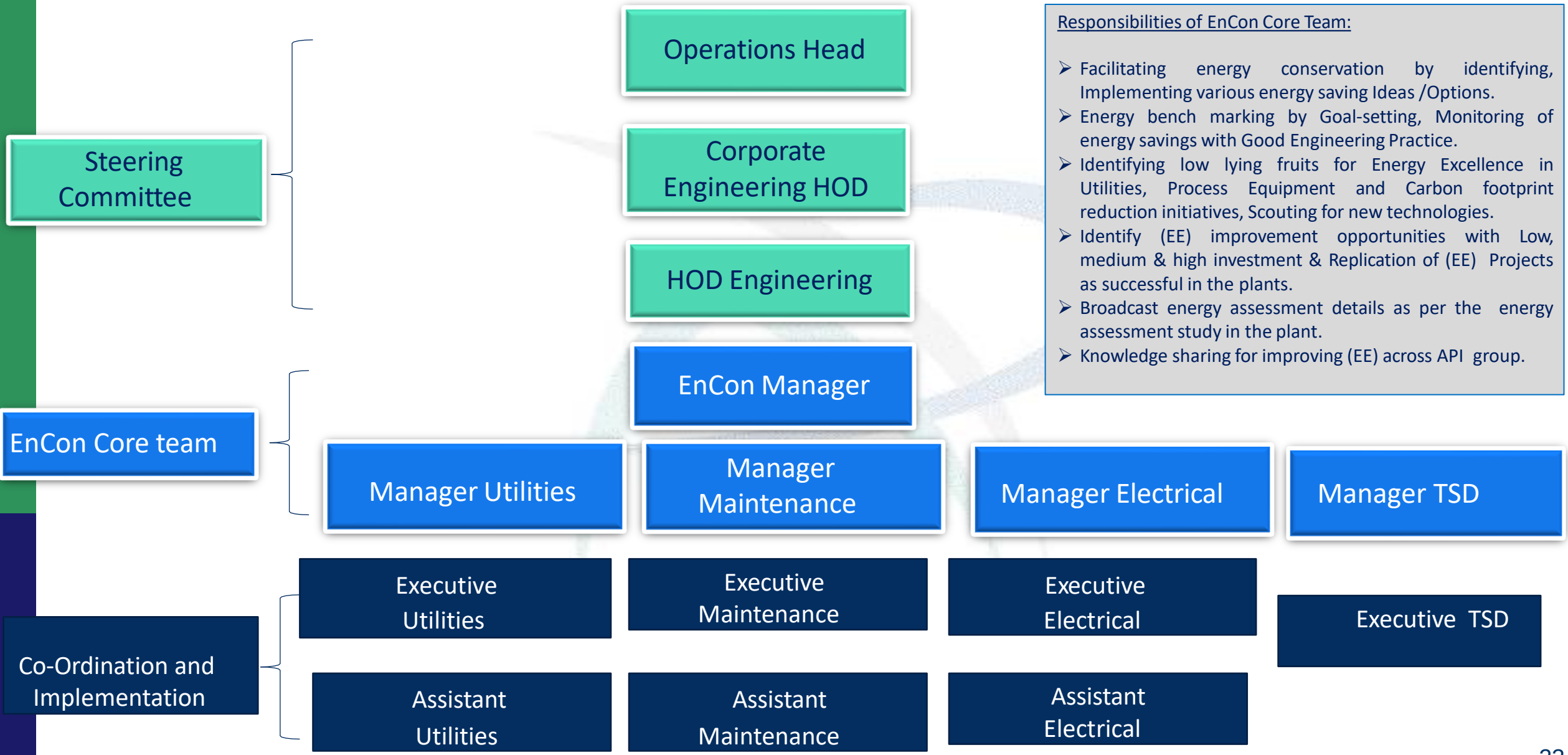
- Decreased Paper consumption and paper less / Digital transactions
- Paper less documentation & tracking of material.
- Barcoding & Document Tracking Software with Android Mobile App & Overhead Document Scanner

- Achieved benefits of Rs 190 Million
- Increased loading by 30% by optimizing with shipper stuffing,
- Saved freight on additional container with 50% extra space
- Enabled no dependency on the wooden pallets.

- Paper less documentation & tracking work
- a paperless environmental monitoring (EM) solution for the Life Sciences industry that automates quality control microbiology (QC Micro) data collection and management, including utility and product testing.

- Increased Sea transportation over Air transportation by pallet systems.
- Decreased air Tonnage from 572 Tonnage to 456 Tonnage

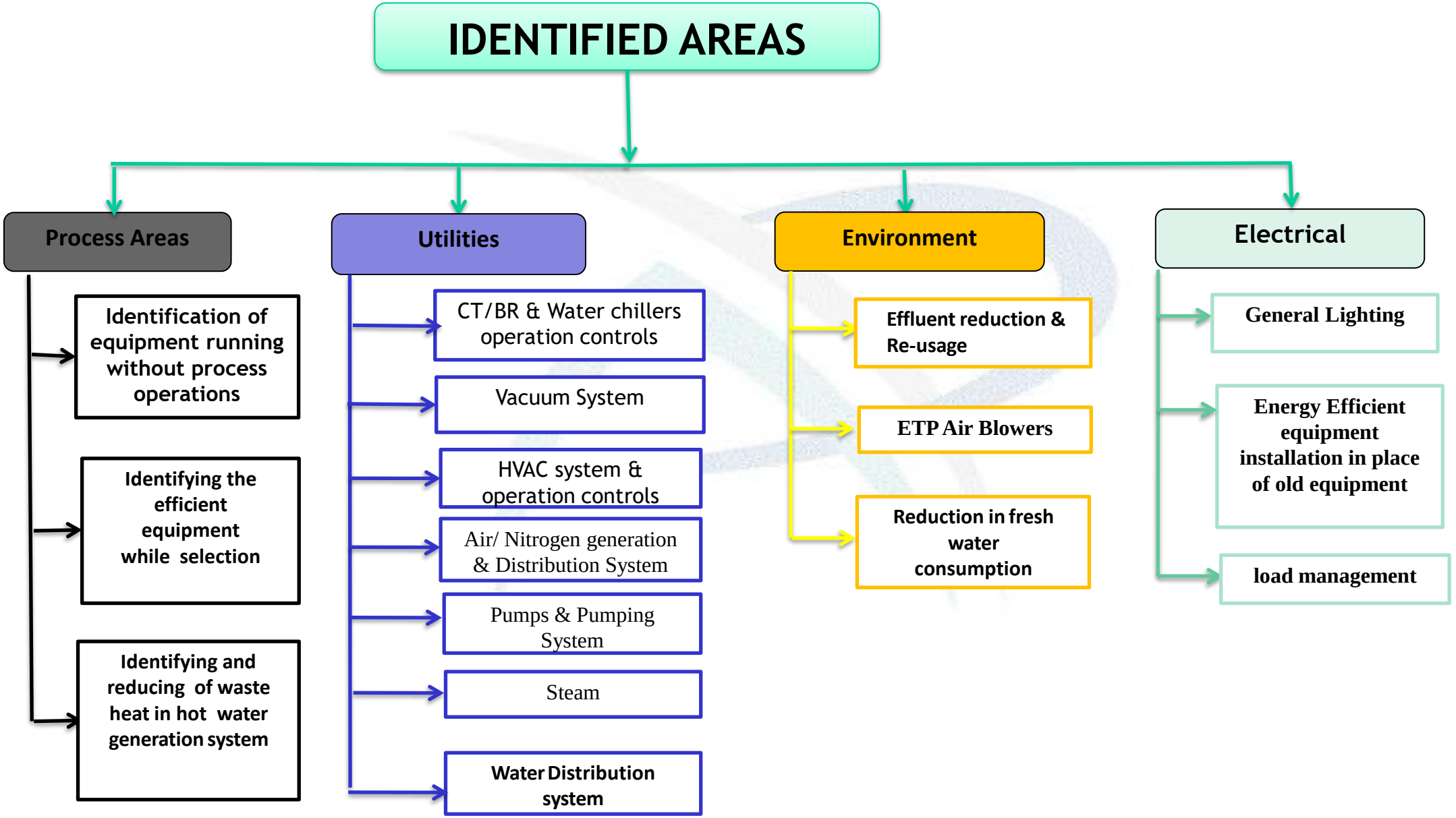
Energy Management Team



Responsibilities of EnCon Core Team:

- Facilitating energy conservation by identifying, Implementing various energy saving Ideas /Options.
- Energy bench marking by Goal-setting, Monitoring of energy savings with Good Engineering Practice.
- Identifying low lying fruits for Energy Excellence in Utilities, Process Equipment and Carbon footprint reduction initiatives, Scouting for new technologies.
- Identify (EE) improvement opportunities with Low, medium & high investment & Replication of (EE) Projects as successful in the plants.
- Broadcast energy assessment details as per the energy assessment study in the plant.
- Knowledge sharing for improving (EE) across API group.

Energy Management Key Focused Areas



Projects Implemented Through Kaizen

1. Air compressor air pressure optimization based on requirement.
2. Diverting the CT water blow down to LTDS treatment stream which are previously connected to HTDS treatment stream.
3. Interlocking of process equipment with connected utility pumps & vacuum pumps with time delay option to eliminate the empty utilities running.
4. Avoided the part load operations of Chilling Plants in D&F Blocks by integrating the Chilling plants and avoided the operation of one 180 TR Chilling plant.
5. Improved the performance of pump by replacing impeller, casing & shaft and avoided the operation of 2nd pump in the system.
6. For Air Dryers conventional moisture traps are replaced with No Air Loss auto drain valves.
7. Installed Auto level cut-off systems for Condensate pumps are operating continuously & manual stoppage is eliminated.

Recognition & appreciation of Best ENCON & Kaizen measures

Teamwork, Employee Involvement & Monitoring

Teamwork

- Implemented Kaizen & 5S programmes by forming teams
- Awards & appreciations for best programmes

Employee Involvement

- Organized Energy Conservation Week Celebrations and involved all employees
- Energy review and monitoring
- Energy week 2022 celebrations 80% manpower participated

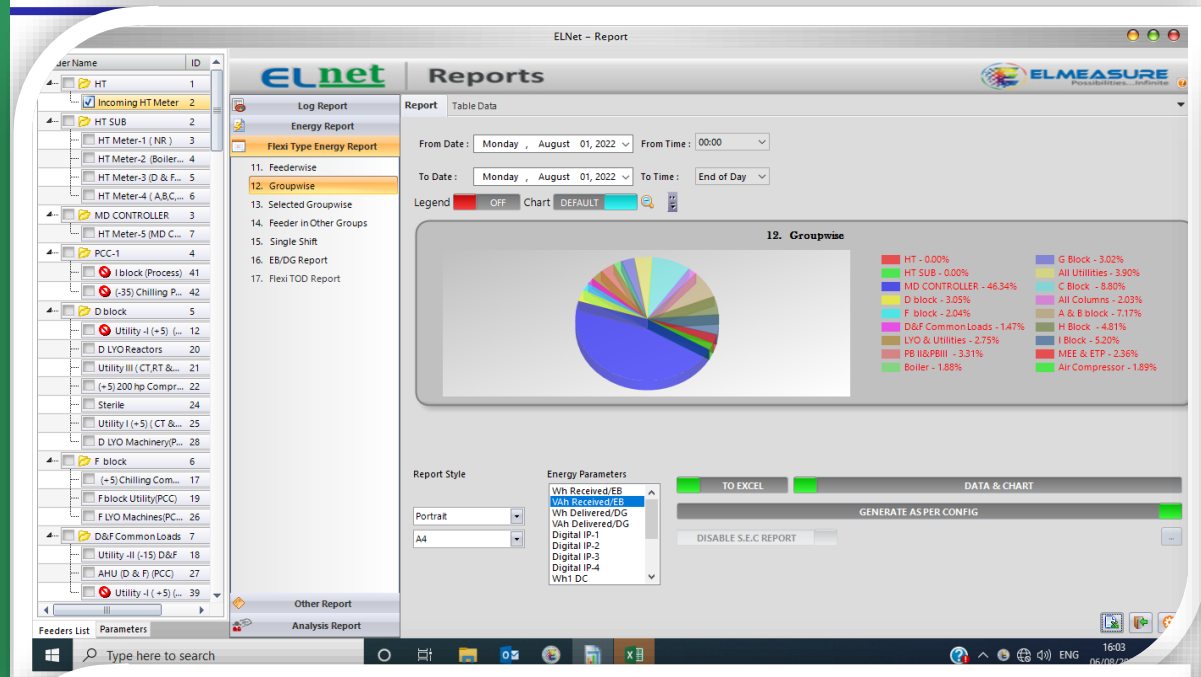
Training Programmes

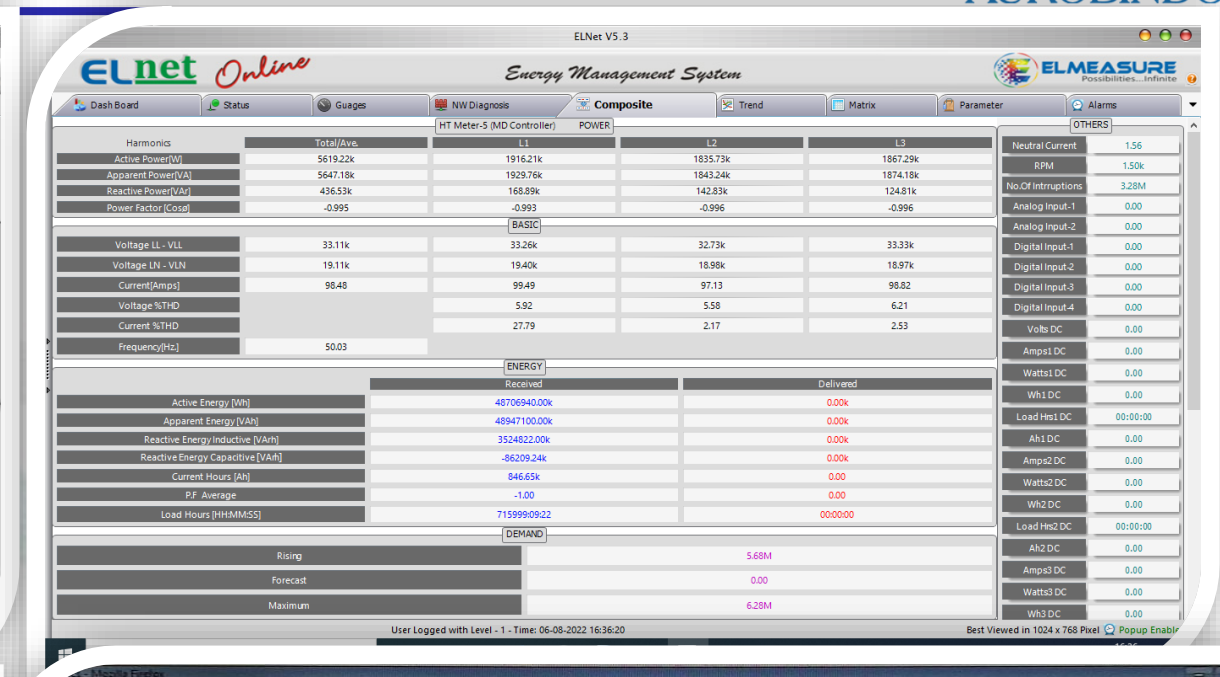
- Given training programmes on Root cause analysis (RCA), and Reliability Maintenance (RM)
- Training on steam / utility systems
- Training on Energy conservation to related Employees in every month by Energy Manager

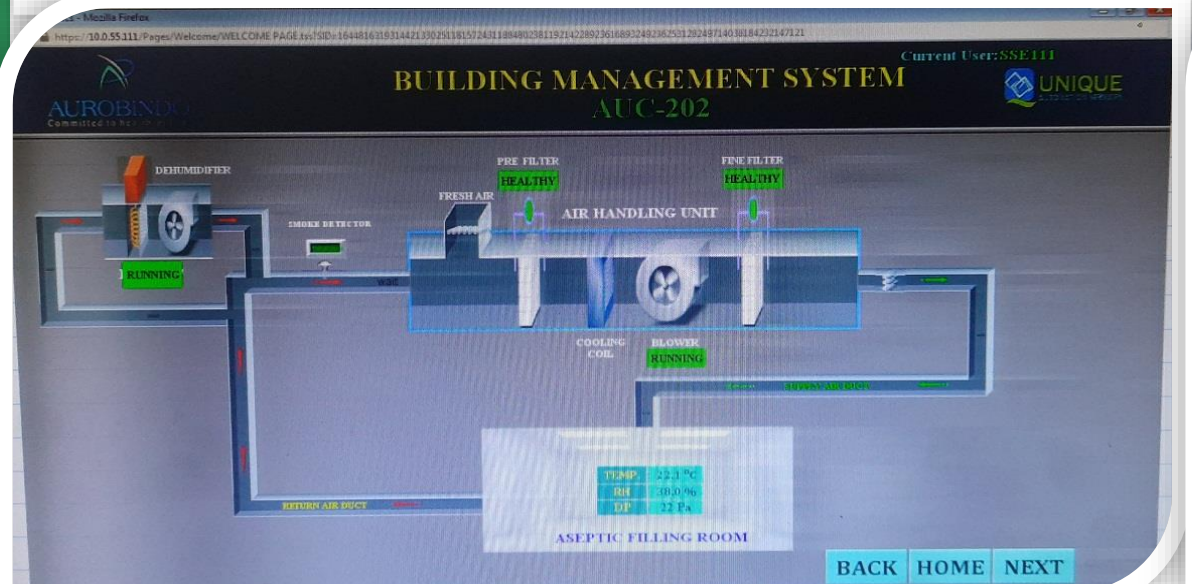
Monitoring

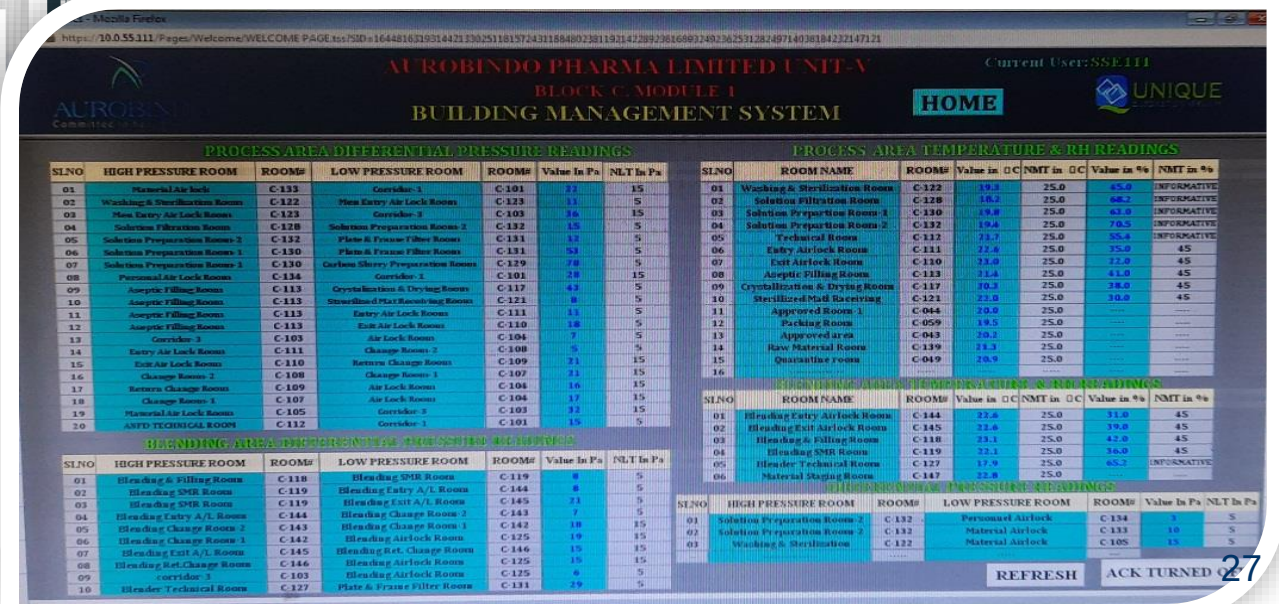
- Daily / weekly monitoring of Energy Consumption areas / major equipment.
- Review of KPIs, Performances in the MRM by the plant heads.

Daily Monitoring & Reporting System









Learnings from CII - last 4 Years

Energy efficient motors
Replaced motors of Boiler blowers, utility motors with energy efficient motors

Air Compressors
Installed No Air Loss Drain (NAD) valves form M/s Godrej

Online Monitoring
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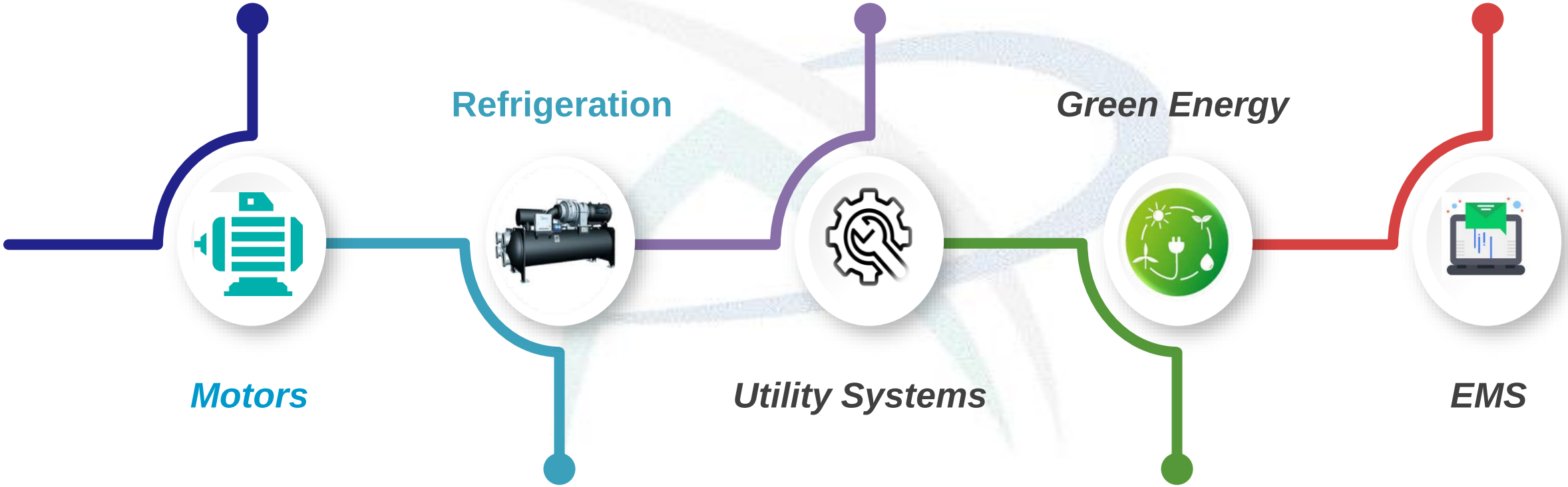
Refrigeration

Green Energy



Motors

Utility Systems

EMS

Chillers
Phased manner replacement of Chillers with Energy Efficient Chillers

Renewable Energy
Installed 30 MW Group Captive Solar Plant near Yadadri, Telangana

Energy Week / Energy Conservation Day Celebrations –

- Essay
- Painting
- Ideas
- Quiz
- Poster

Awareness

100+ Participants participated from all departments like Production, Engineering & EHS, SRS and TSD etc.

Winner

Awarded best opportunity assessment award from Corporate Energy cell and L&D team

Awards & Recognitions

1

Operational Excellence

Global Operational Excellence Company of the Year 2022
Global Healthcare Awards

2

Human Resources

Significant Achievement in HR Excellence, 13th CII National
HR Excellence Award, 2022

3

Best Energy Assessment Award

Winner of the Best Energy Assessment award 2022 in Energy Conservation Week competitions held intra -units of APL.

CSR Activities

- 14 Villages Adopted
- 48 Water Drinking Plants
- 350 + Healthcare Programme
- 21 Educational Institutions

Thank You