ASHOK LEYLAND
Koi Manzil Door Nahin

# Sustainability Towards a Better Future

## Category: Energy Efficient Organization

## Ashok Leyland Pantnagar

**Date : 13th Sep'23**



Team Members

- Amit Goel (AGM) Head EHS: amit.goel@ashokleyland.com
- Narendra L. Saini (AGM) Operation Strategy and Business Excellence: Narendra.saini@ashokleyland.com
- Niraj Singh Jarmal (Sr. Manager) Utility: Niraj.Jarmal@ahokleyland.com

# Company Profile


- Ashok Leyland is flagship company of Hinduja group
- Most integrated plant of Ashok Leyland (AL)
- Pantnagar Plant situated in the foothills of Himalaya in Uttarakhand
- Spread across 190 Acres catering to more than 6000 employees
- Delivers production of ~45% total AL M&HCV Trucks

300+ variants with GVW 19T~55T

# Ashok Leyland Ltd- Pantnagar

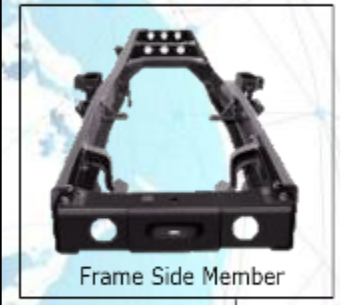
**Inauguration- Mar' 10**

**Young workforce**
**Avg. Age ~28 years**

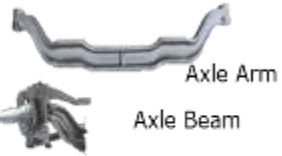
Zero effluent discharge Plant. **In-house ETP and STP plants**

| Area Type | Area (Acre) |
|---|---|
| **Total Area** | **190** |
| Built Up Area | 50.3 |
| Hard top | 14.8 |
| Garden | 43.7 |
| Vehicle Parking Yard | 13.7 |
| RWH Pond | 1 |

## Key Parts & Aggregates Manufactured for the final Product
























**In house Plantation facility of 67,000+** Trees

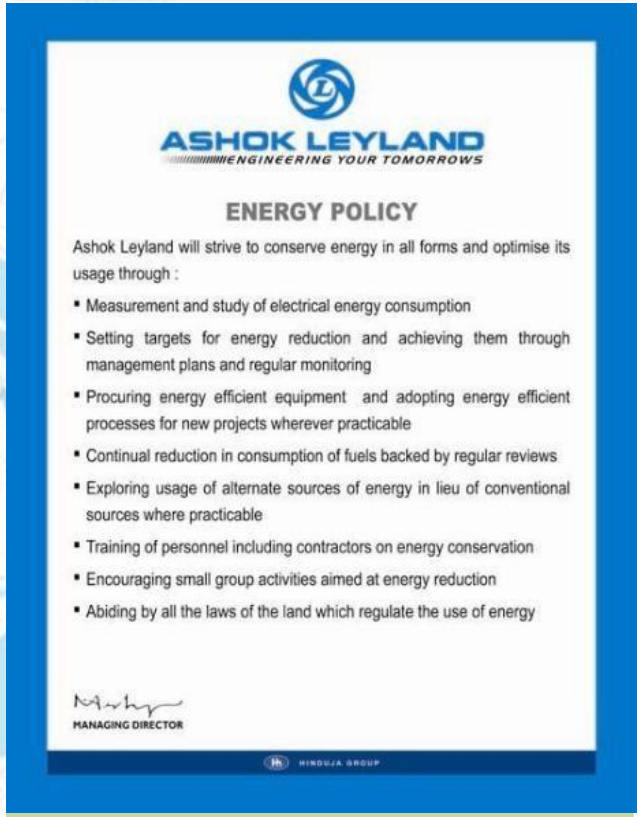
**Rain water harvesting**
Pond (capacity : 8000 KL)

## Certifications

- **Deming Prize (2016)**
- **IATF 16949**
- **ISO 45001**
- **ISO 14001**

# Energy Policy

## Energy Policy



ASHOK LEYLAND
ENGINEERING YOUR TOMORROWS

ENERGY POLICY

Ashok Leyland will strive to conserve energy in all forms and optimise its usage through :

- Measurement and study of electrical energy consumption
- Setting targets for energy reduction and achieving them through management plans and regular monitoring
- Procuring energy efficient equipment and adopting energy efficient processes for new projects wherever practicable
- Continual reduction in consumption of fuels backed by regular reviews
- Exploring usage of alternate sources of energy in lieu of conventional sources where practicable
- Training of personnel including contractors on energy conservation
- Encouraging small group activities aimed at energy reduction
- Abiding by all the laws of the land which regulate the use of energy

MANAGING DIRECTOR

HINDUJA GROUP

**Strive to conserve energy**

## Energy Management Structure

**Head-PNR (Plant Champion - Budget Allocation)**

**Head – Utility & Central Purchase (BEE Certified Energy Auditor)**

**Energy Manager**
**Role:** Energy Budget , EC project feasibility checking , support in implementation, Awareness

- CFT Engine Shop
- CFT FSM Shop
- CFT Utility
- CFT CWP Shop
- CFT Weld Shop
- CFT Chassis Shop
- CFT Axle Shop
- CFT Paint Shop

***CFT: Cross Functional Team***

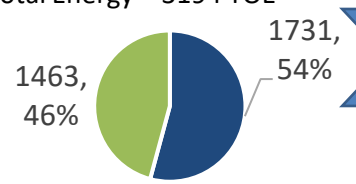
## Energy Sources

- EB Power-8000 KVA (Contract demand) 33 KV HT → Transformers (33KV HT to 11 KV)
- **DG -6X1500 KVA** → MRS (11 KV)
- **Solar Power-3000KWP** → Substation (11 KV to 415 V)
- **Thermal Energy**
  1. Propane
  2. RLNG
  3. Diesel
  → Machines

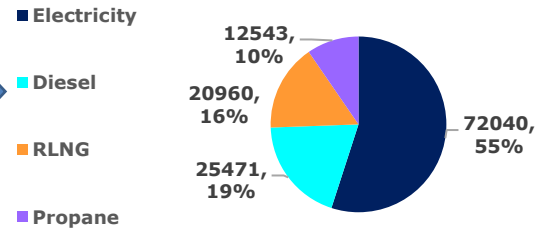
## Distribution of Energy FY 23

**MTOE**

Total Energy = 3194 TOE



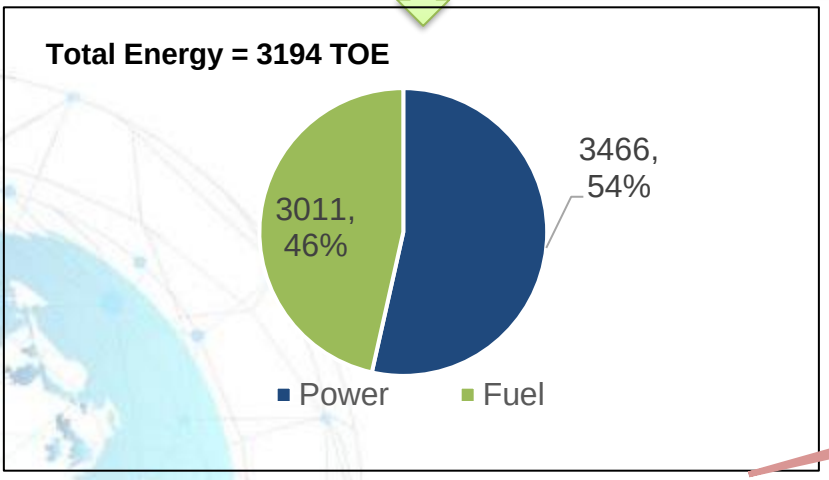

**Energy consumption in GJ :-Category Wise**

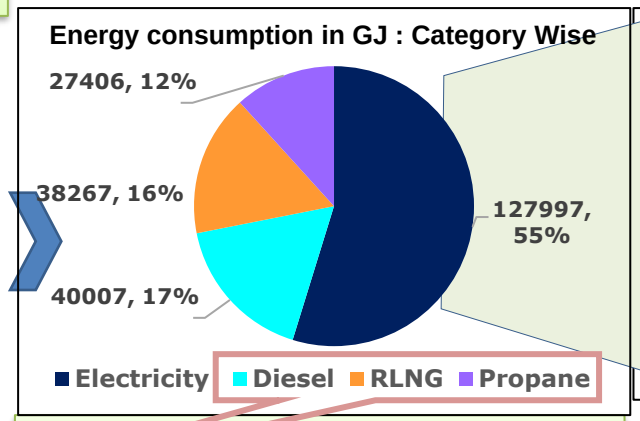



- *GJ: Giga Joules
- RLNG: Regasified Liquefied Natural Gas
- TOE; Ton of Oil Equivalent

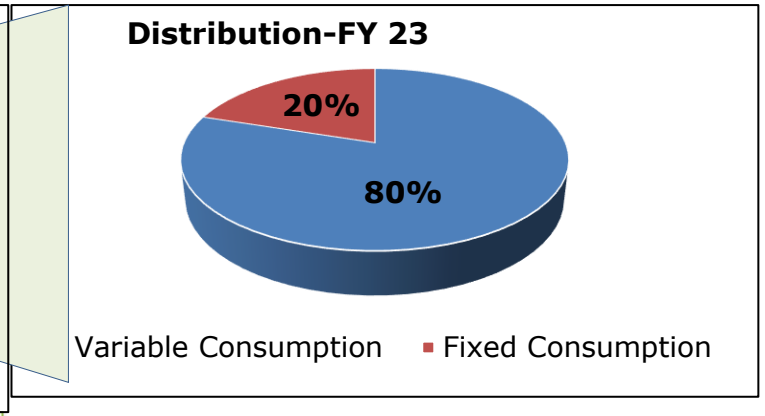
# 2. Energy Consumption Overview

## Distribution of Energy FY 23



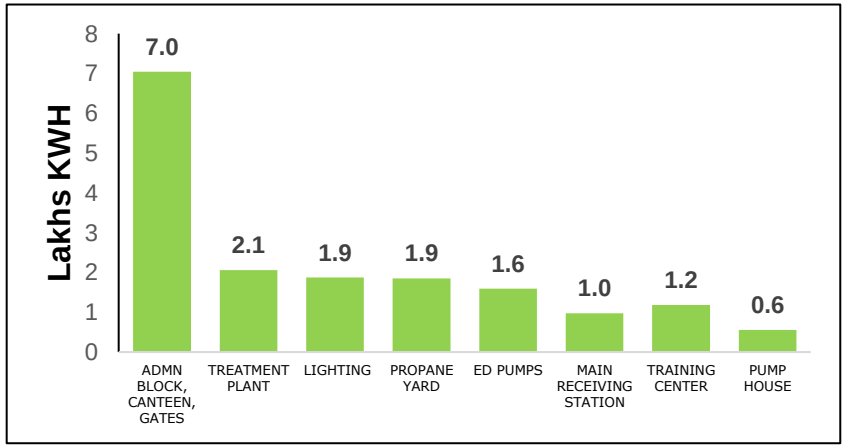

54% consumption is electricity



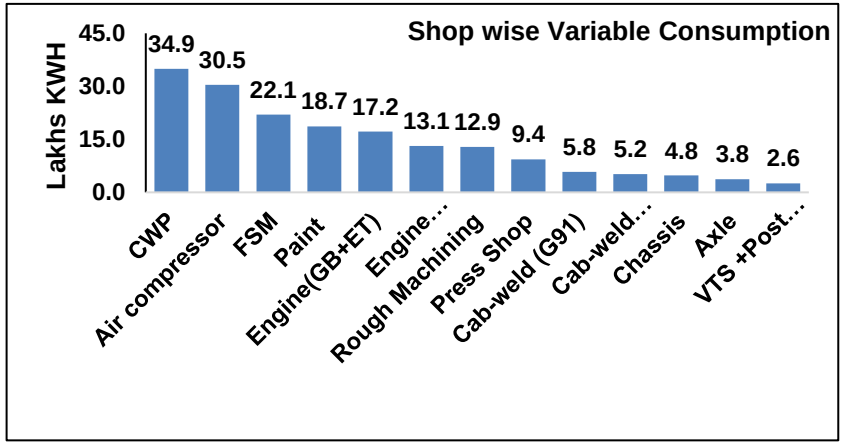

Variable Power Contributes 80% of Total power consumption

| # | Fuel | Used in |
|---|---|---|
| 1 | Propane | Paint Shop |
| 2 | RLNG | FSM Shop |
| 3 | Diesel | Engine Testing, Vehicle Testing, MHE |

## Fixed Consumption




## Variable Consumption



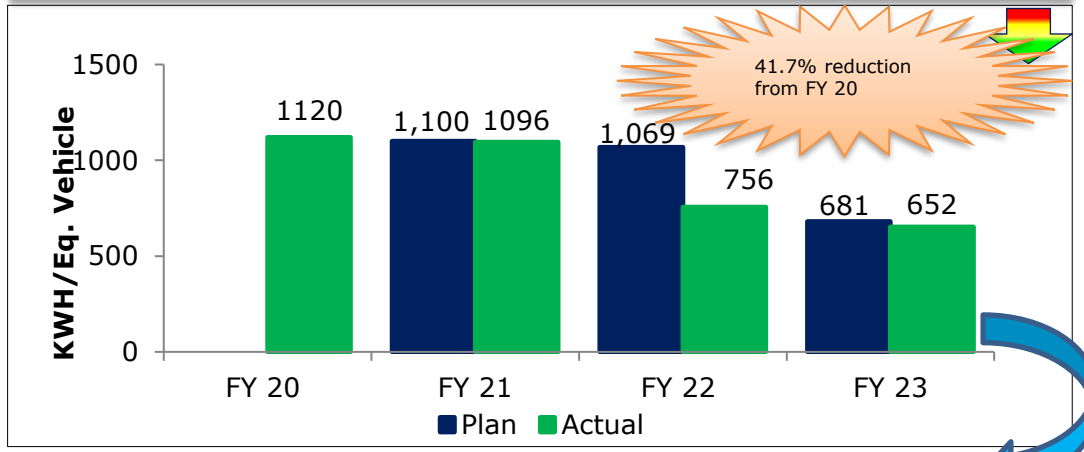

- *GJ: Giga Joules
- RLNG: Regassified Liquefied Natural Gas
- TOE; Ton of Oil Equivalent

# 2.1 Specific Energy Consumption in Last 3 Years

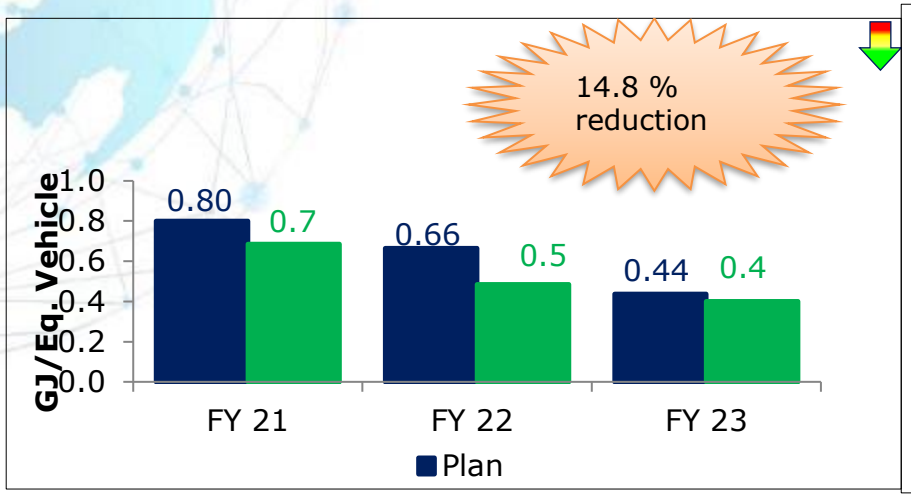
Strategy


- Energy campaigns
- Audit
- Horizontal Deployment
- Benchmarking

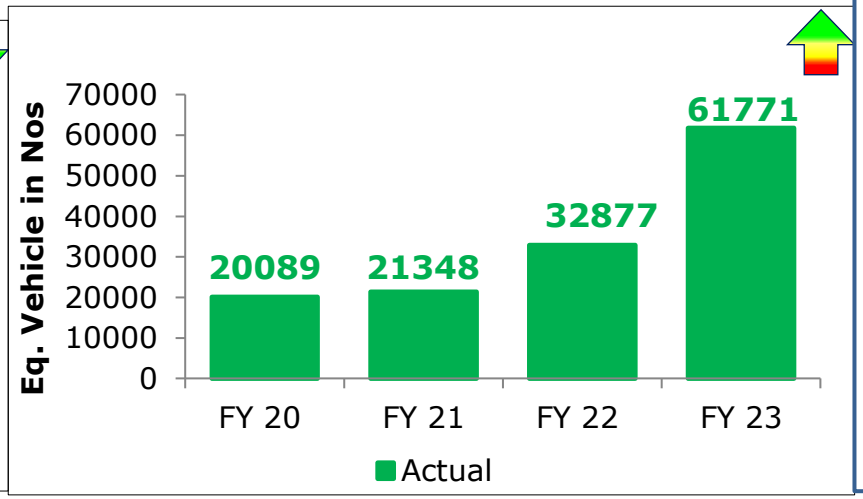
## Specific Energy Consumption-Electrical



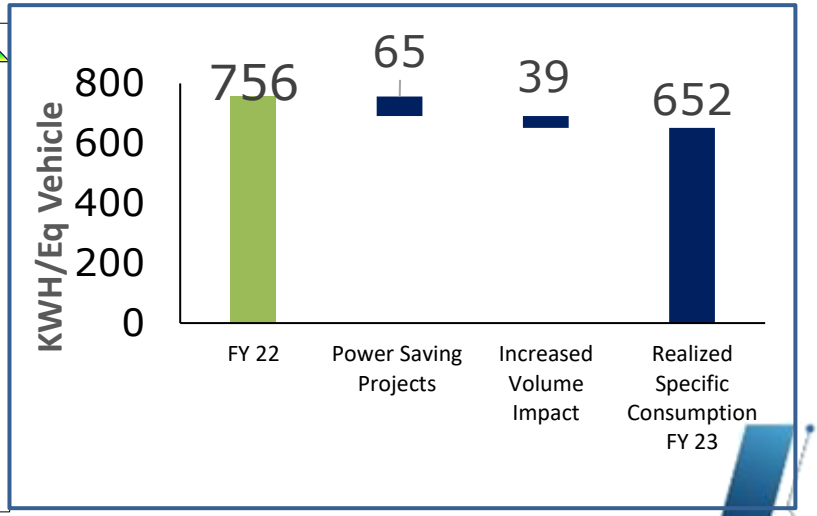

## Specific Energy Consumption-Thermal




## Production data




## Volume Impact



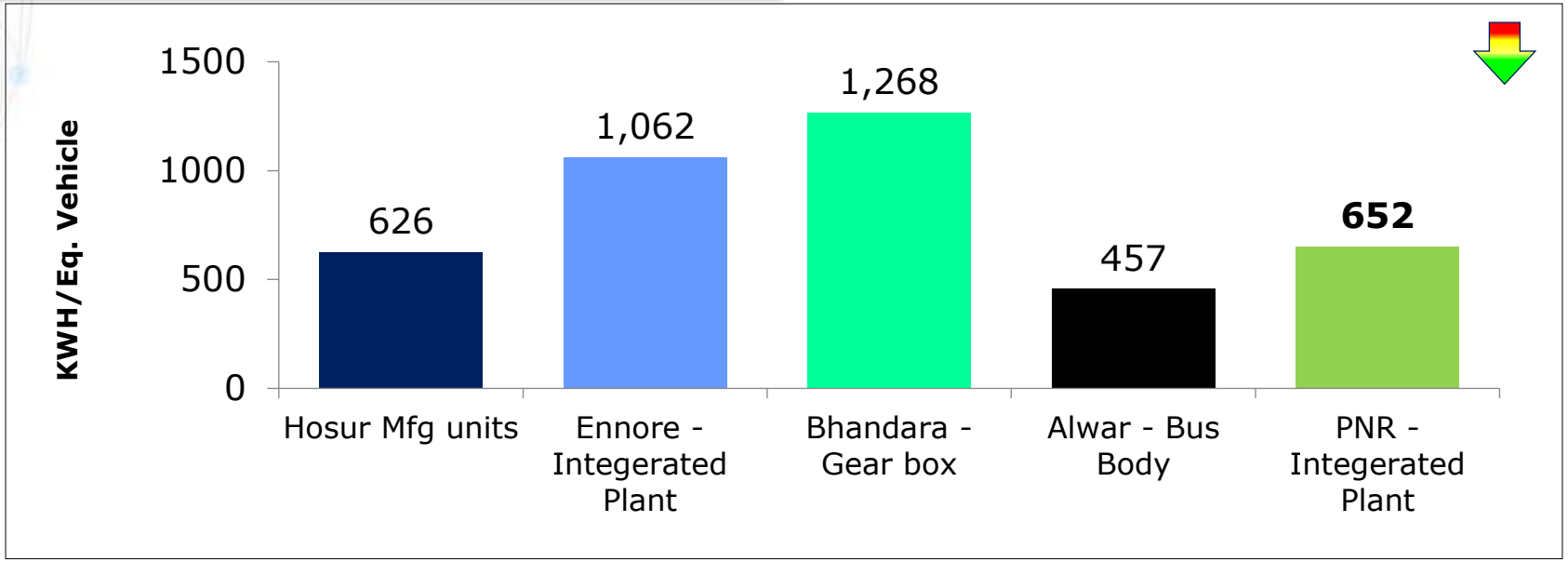
# 3.1 Information on Competitors, National & Global Benchmark

**Strategy**

## Benchmarking the Best Practices

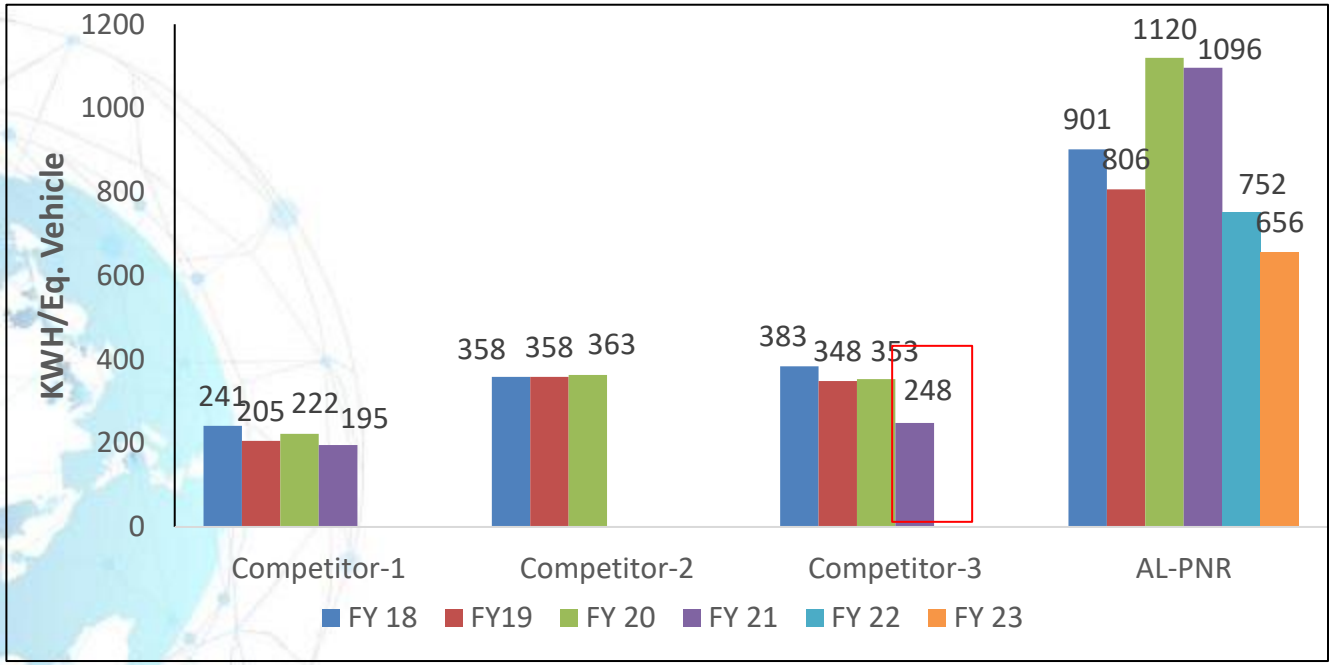
| Internal | | | | External | |
|---|---|---|---|---|---|
| SWOT analysis | Best Practice | Functional benchmarking | Past Best Performance | National and Global | Process benchmarking |

## Internal benchmarking with other AL Units

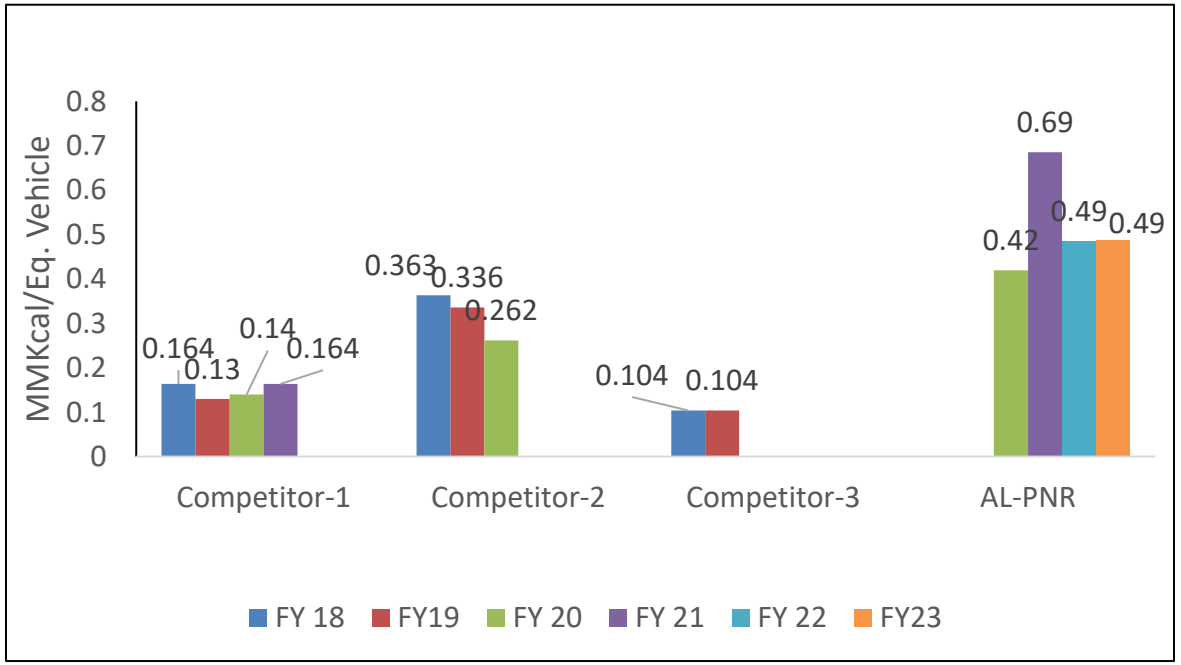


# 4 National Level Benchmarking

## National Level Benchmarking: Power SEC




## National Level Benchmarking: Fuel

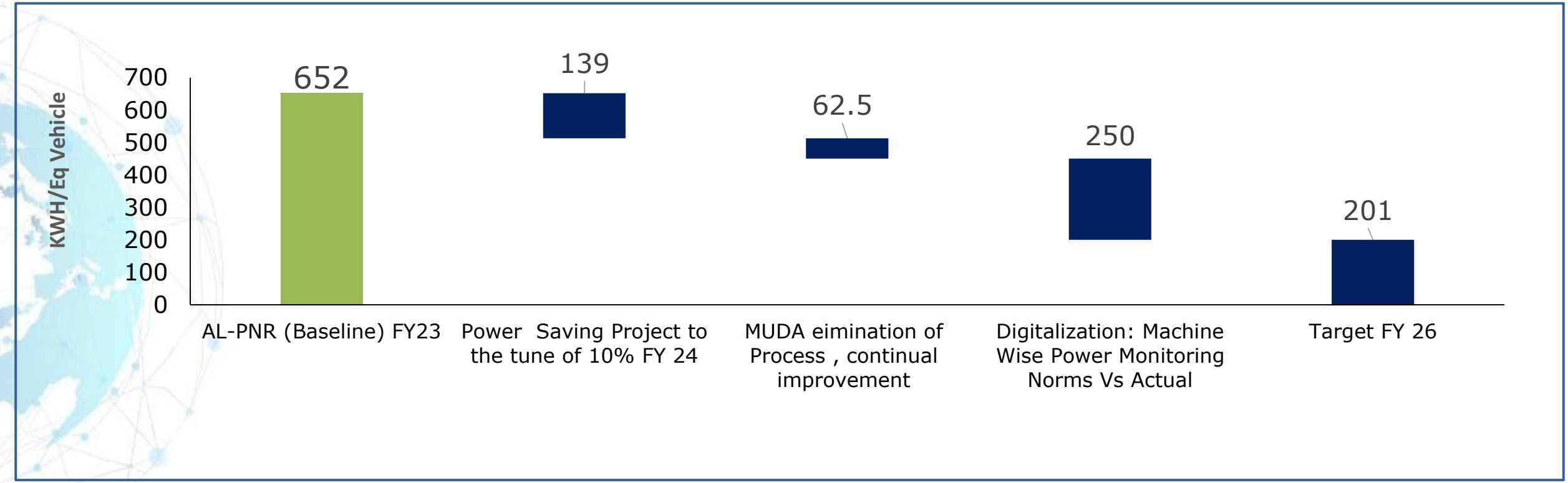



AL Pantnagar benchmark itself with Competitor no. 3 because of similar product
However accurate benchmarking can not be done due to Production Volume, different Product and aggregates and different processes,

Al Pantnagar has highest year on year reduction in thermal energy in FY 22

# 4.1 Roadmap to Achieve National Level Benchmarking

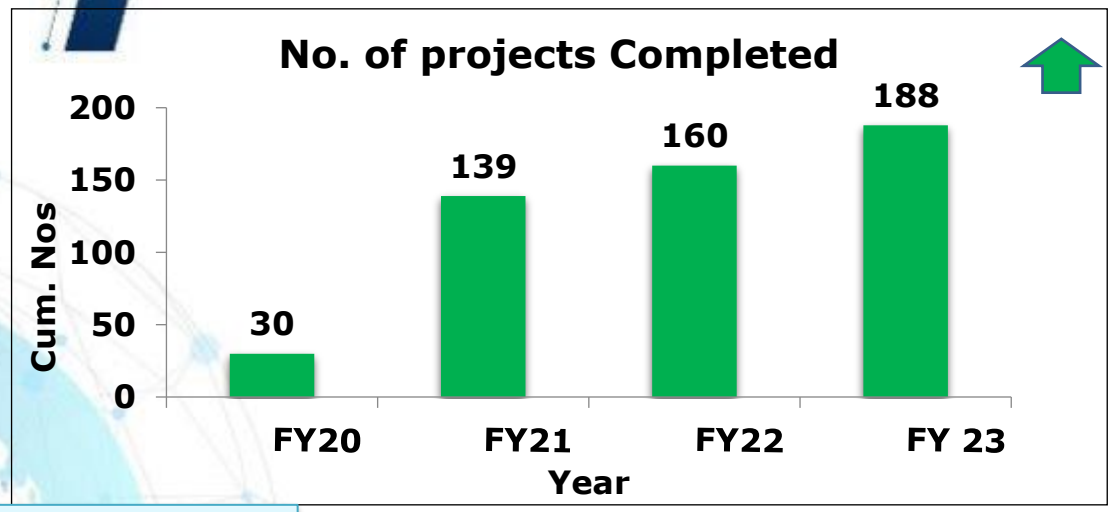
## Road map to achieve Benchmarking-Competitor-3

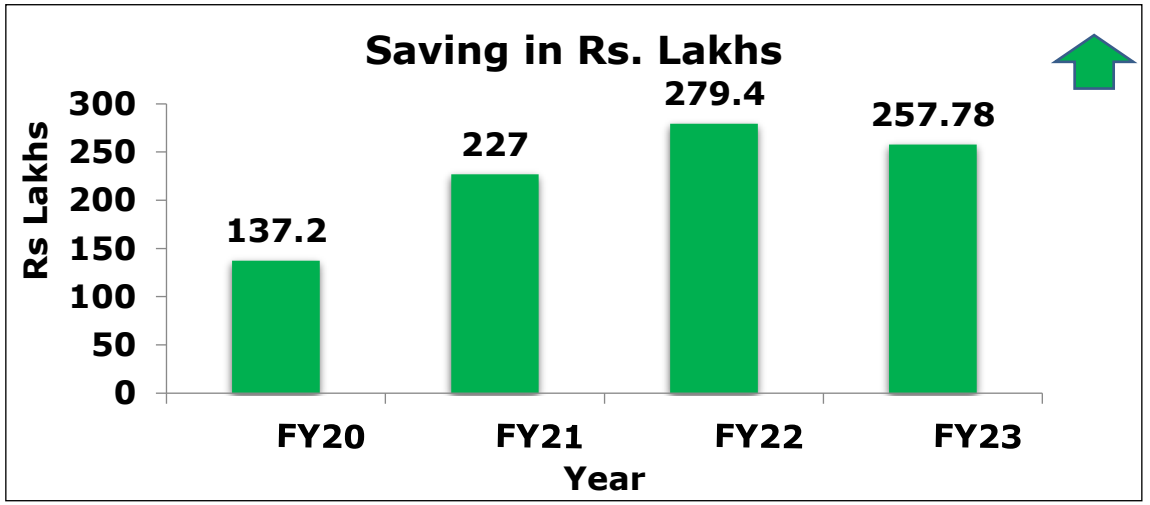



AL Pantnagar benchmarked its competitors and taken target of 69% reduction till FY 26

*competitor data is FY 22

# 5. Energy Saving Projects Implemented In Last Three Years




## Summary

| Year | No of Energy saving projects | Investments (INR Lakhs) | Electrical savings ( Lakhs kWh ) | Thermal savings (Million Kcal) | Savings (INR Lakhs) | Impact on SEC (Electrical, thermal) |
|---|---|---|---|---|---|---|
| **FY 2019-20** | 30 | 3 | 23.62 | - | 137.2 | Electrical |
| **FY 2020-21** | 109 | 10 | 28.8 | 221 | 227 | Electrical & Thermal |
| **FY 2021-22** | 21 | 78.7 | 53 | 646 | 279.4 | Electrical |
| **FY 2022-23** | 28 | 46.57 | 39 | | 257.8 | Electrical |

# 5.1 Major Encon Projects Done in FY 22

| # | Project Tittle | Saving in Lakhs KWH | Saving in Rs. Lakhs | Investment in Rs. Lakhs | ROI in Years |
|---|---|---|---|---|---|
| 1 | Power cost Saving from Front Facia Painting along with Cabin | 19.6 | 102.8 | 70 | 7 month |
| 2 | To reduce compressor specific power consumption | 8.0 | 42.0 | 0.70 | 1 month |
| 3 | Cost saving through optimization of CWP HT furnaces | 6.1 | 31.8 | 0 | 0 |
| 4 | Power saving by batch size optimization at weld lines in Cab weld shop | 5.2 | 27.2 | 0 | 0 |
| 5 | Power saving by avoiding idle running of machine | 4.1 | 21.7 | 0 | 0 |
| 6 | Power saving in top coat air circulation system | 3.3 | 17.4 | 0 | 0 |
| 7 | Power Cost saving thru administrative control during NPDs | 3.0 | 16.0 | 0 | 0 |
| 8 | To reduce power consumption in utility (Fixed Consumption reduction: LED implemntation,Motion sensor, | 1.6 | 8.4 | 8 | 9 months |
| 9 | CPK improvement of center bearing cap side milling of Cylinder Block | 1.4 | 7.5 | 0 | 0 |
| 10 | Fixed power cost reduction in Non production days | 1.2 | 6.1 | 0 | 0 |

**Inference: Rs.279 Lakhs Saving Project implemented.**

# 5.2 Major Encon Projects Done in FY 23

| # | Project Tittle | Saving in Lakhs KWH | Saving in Rs. Lakhs | Investment in Rs. Lakhs |
|---|---|---|---|---|
| 1 | Electrical Energy Savings by optimizing the pump speed using VFD as per process and quality requirements (Paint Shop) | **1.4** | **8.35** | **10.2** |
| 2 | Optimized the running of 2 nos Air Blower of ETP by interlocking the speed with DO sensor | **0.6** | **3.5** | **2.4** |
| 3 | Replacement for existing Old screw compressors (0.19 KW/CFM) with energy Efficient new Compressors (0.16 KW/CFM) | **4.5** | **27** | **90** |
| 4 | Capacity improvement in Paint shop by increasing numbers of hangers in PTCED line | **18** | **108 – Power 194 - fuel** | **163** |
| 5 | Modification in existing facility 40 /10 EOT Crane. | **4.5** | **0.5** | **3** |
| 6 | Power saving by batch size optimization in weld shop | **7** | **1.16** | **0** |
| 7 | 132 KW motor (IE1 efficient) installed in 800T press application. Overhauling required of existing motor, so selection of IE3 efficient motor for replacement. | **0.63** | **3.8** | **0** |
| 8 | Restoration of anode cell efficiency at ED bath | **0.8** | **4.75** | **0** |

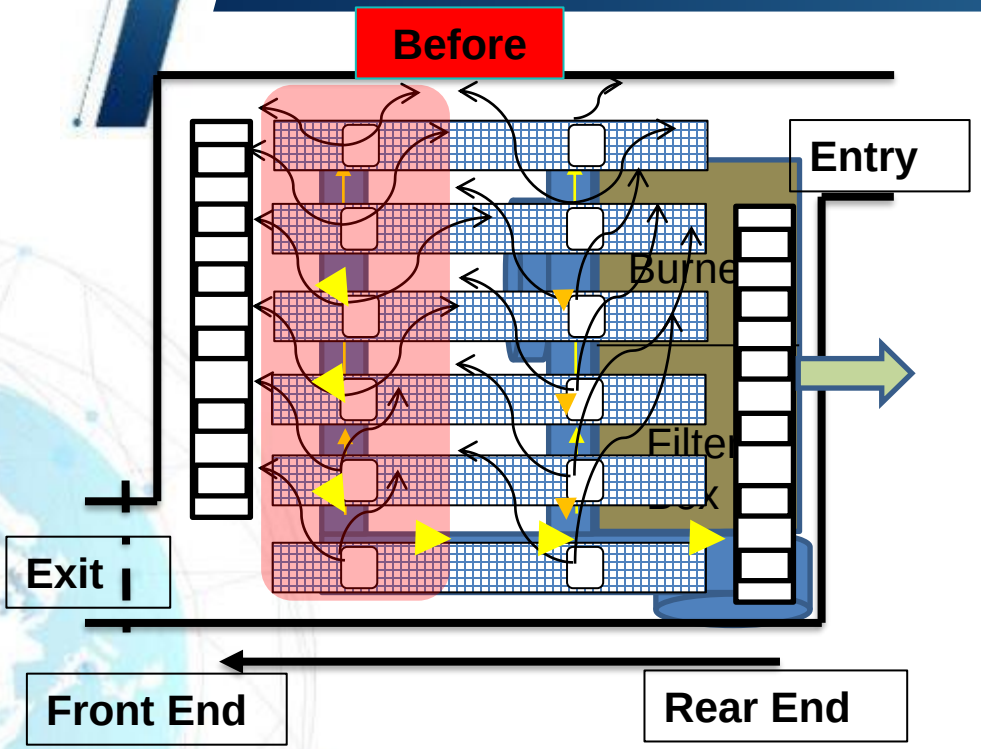
**Inference: Rs.260 Lakhs Saving done, reduction in Tco2E by 4300**

# 5.3 Major Encon Projects Planned in FY 24

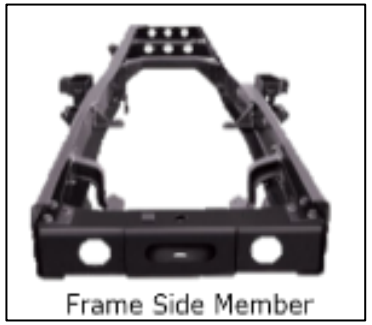
| Project | Project Leader | Saving in Rs. Lakhs | Saving in Lakhs KWH |
|---|---|---|---|
| Power Factor Improvement in Weld Shop | Niraj Jarmal | 15 | 2.1 |
| Compressor air leakage elimination | Deepak Dhilod | 22.5 | 3.2 |
| Energy Efficient Compressor | Tamoghno Mukherjee | 17 | 2.4 |
| Engine Utility Chiller running optimization | Neeraj Bhatt | 23 | 3.2 |
| Productivity improvement in CWP Hard machining for 90s model | Kamal Kumar | 5 | 0.7 |
| Energy consumption optimization in CWP cooling tower | Deepak Gond | 12.5 | 1.8 |
| CH 110 Washing media to be change to convert machine from hot washing to cold washing. | Harish bisht | 2 | 0.3 |
| Optimization of agitation system in chemical tank at Water recirculation pit of Top coat | Kavinder Mer | 5.5 | 0.8 |
| Installation of energy efficient chiller | Neeraj Bhatt | 14 | 2.0 |
| Introduction of EMS hanger to increase the paint shop capacity | Namit Raj | 30 | 4.2 |
| 1200 T press to be used for draw of 3 stage and 4 stage panels. | Kundan Samant | 30 | 4.2 |
| Chiller installation in Press shop to avoid line stoppage for heavy panels like bumper, Fascia, etc | Manish Kumar Ghildiyal | 10 | 1.4 |
| Energy reduction by VFD installation in FSM Shop | Navneet Nandal Singh | 8 | 1.1 |
| Power cost optimisation through modification in 10 ton hoist hook | Naveen Razak | 4 | 0.5 |
| 60S productivity enhancement at CWP Hard line | Bhagwant Singh | 20 | 2.9 |
| | | **264** | **31** |

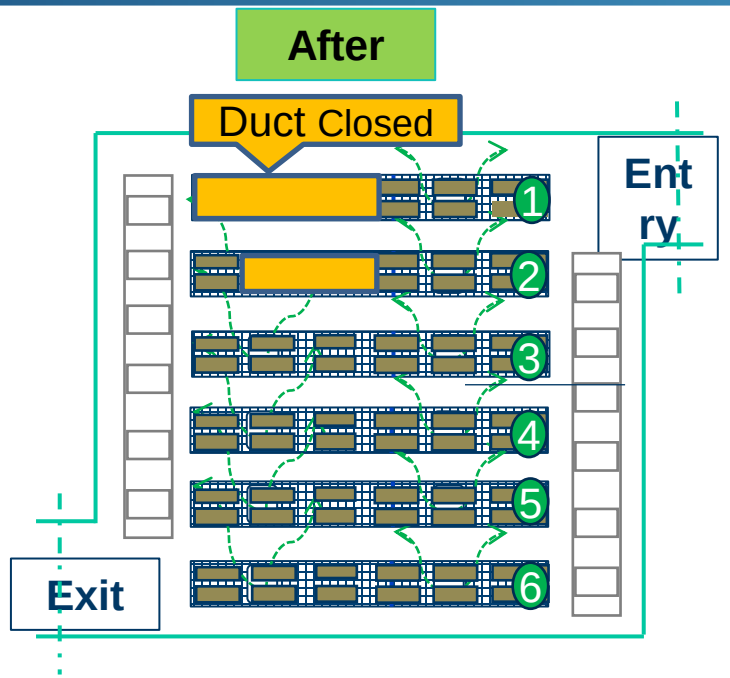
**Inference: Rs. 264 Lakhs Potential Saving Project identified, saving potential in Tco2E is 4300**

# 6.1 Innovative Projects Implemented Oven Temp Optimization




**Before** : High EMT (Effective Metal Temp) requirement for Frames
EMT range: 180 Deg Cel for 15 min




**After: 1)** Low bake powder introduction
2) Hot air circulation to attain EMT between both ends
EMT range: 160 Deg Cel for 15 min

**Result:-**

- Set temperature reduced up - to 20°C .
- PC oven tack time reduced by - 2 minutes.
- EMT achieved at both ends

Key Project Benefits

1

90000 SCM/annum

2

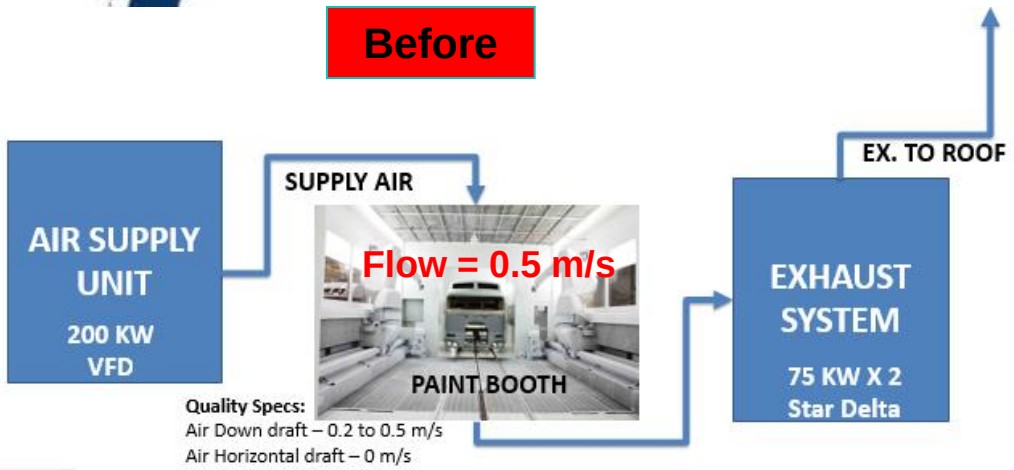

**131 tCo2e/annum**

3

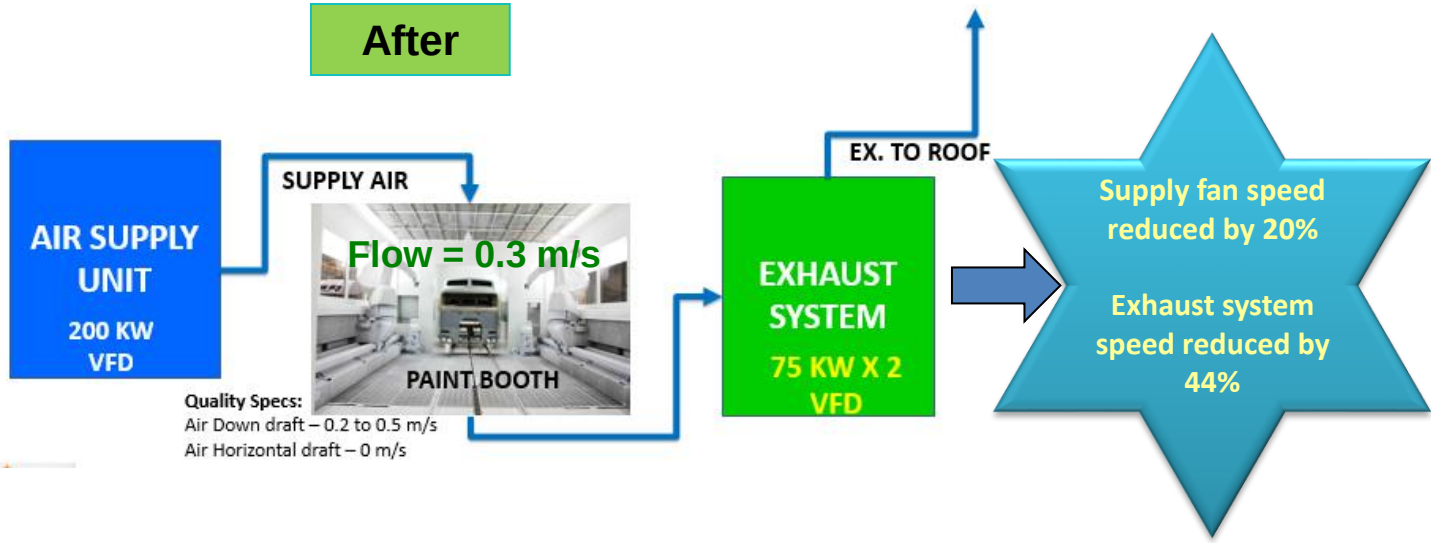
Saving of Rs 43 lakhs/annum

# 6.2 Innovative Projects Implemented

**Before**




**After**




**Optimize the air flow in paint booth by reducing fan speed to reduce energy consumption during painting process**

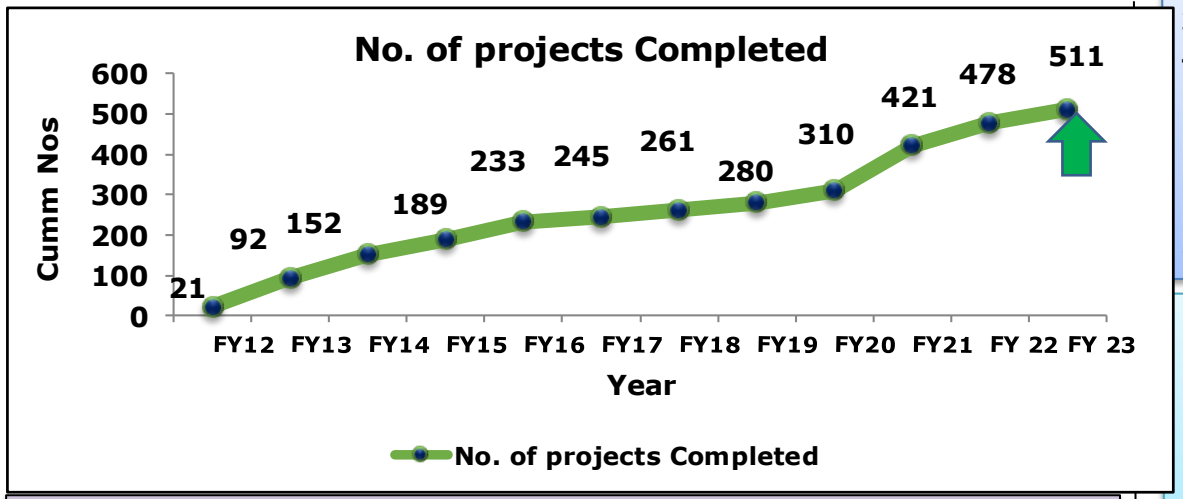
**Key Project Benefits**

**233679 KWH/annum**


**222 tCo2e/annum**

**INR 15.2 Lakh /annum**

# Major Energy Conservation Projects




**1. Heat Pump Installation in Washing Machines to reduce electrical consumption**

**Benefits :**

1. Saving of 68 Tco2e/annum
2. Saving of 83K units/annum
3. Savings of Rs. 5 lakhs/annum

**2. Fixed consumption reduction of washroom lights and exhaust fans**

**Benefits** :

1. Saving of 14 Tco2e/annum
2. Saving of Rs 14K units/annum
3. Savings of Rs. 1 lakhs/annum

**3. Conversion from Metal halide lamp to LED lights ( 2100 Fixtures .3730 tube lights changed)**

**Benefits** :

1. Savings of 205 Tco2e/annum
2. Savings of 2.5 lakhs Units/annum
3. Savings of Rs.15 lakhs/annum

**4. Utilization of waste heat of compressor and utilizing it in washing machine**

**Benefits** :

1. Savings of 164 Tco2e/annum
2. Savings of 2 lakhs Units/annum
3. Savings of Rs. 12 lakhs/annum

**5. Switched of standby transformer at no load thus eliminating no load loss of transformer**

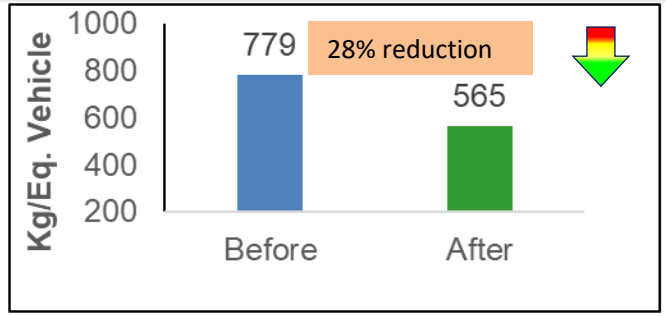
**Benefits** :

1. Savings of 41 Tco2e/annum
2. Savings of 0.5 lakhs Units/annum
3. Savings of Rs. 3 lakhs/annum

Benefits

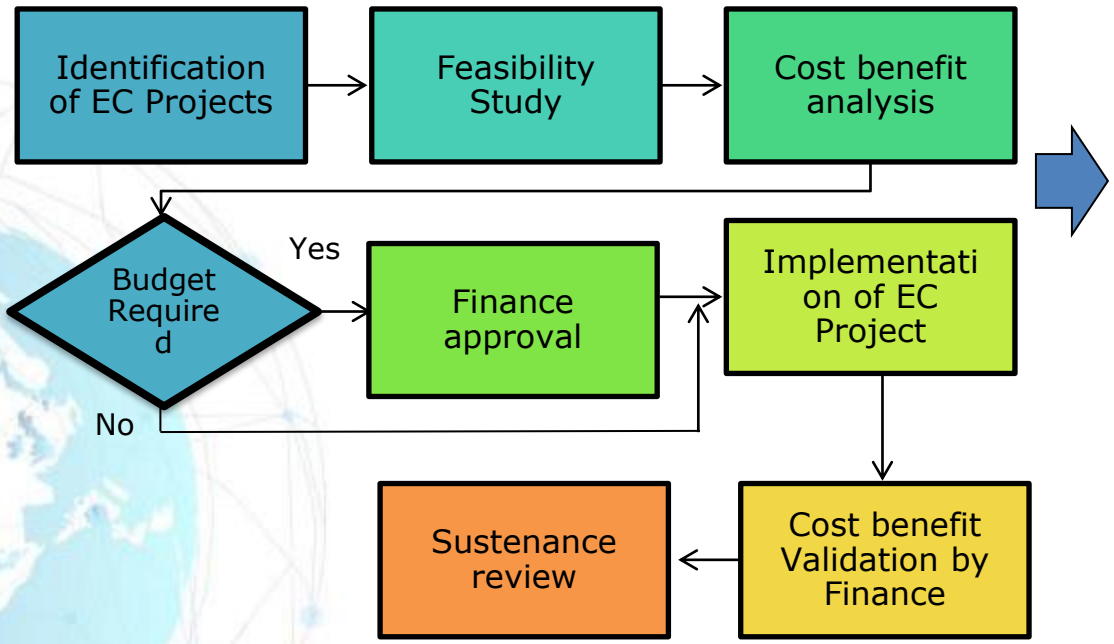
**1. Reduction of 13,702 TCo2e in Fy23**

**2. Recurring Saving of Rs. 2.14 crore /annum**



# Budgetary Process in Energy Conservation

## Encon Project Implementation Methodology




| | ASHOK LEYLAND LTD | |
|---|---|---|
| 0 | PRODUCTION - PTS VEHICLES | |
| 0 | PRODUCTION - PTS ENGINES | |
| 1 | EQ PRODUCTION | 21659 |
| 2 | FIXED UNITS REQD PER DAY | 26000 |
| 3 | FIXED UNITS REQD PER ANNUM (2*365) | 9490000 |
| 4 | VARIABLE UNITS REQD PER ECU | 926 |
| 5 | VARIABLE UNITS REQD FOR THE YEAR | 20056234 |
| 6 | TOTAL UNITS REQUIRED (3+5) | 29546234 |
| 7 | POWER CUT ASSUMED % | 14 |
| 8 | UPCL POWER UNITS (6 * 86%) | 25409761 |
| 9 | GEN SET UNITS (6 * 14%) | 4136473 |
| 8A | WIND MILL UNITS | 0 |
| 8B | UPCL UNITS | 25409761 |
| A | UPCL COST | |
| 10 | MAXIMUM DEMAND KVA (MD) | 8000 |
| 11 | MD RS. PER KVA + ET 5% | 240 |
| 12 | UPCL RATE RS./UNIT + ET 5% (3.50+5%) | 3.68 |
| 12A | PEAKHOUR CONSUMPTION 4 LAKH UNITS PER MTH | 0 |
| 12B | UPCL RATE FOR THE ABOVE (.7+5%) | 0.74 |
| 13 | MAXIMUM DEMAND IN RS. LAKHS (10*11) | 230.40 |
| 14 | CONSUMPTION COST RS. LAKHS (8*12) | 933.81 |
| 14A | PEAKHOUR COST RS LAKHS (12A*12B) | 0 |
| 14B | WIND MILL COST CREDIT (8A*.37) | 0 |
| 14C | Electricity duty (8B*.25) | 63.52 |
| 15 | TOTAL UPCL COST RS LAKHS (13+14+14A+14B) | 1227.73 |
| B | SELF GEN COST | |
| 16 | UNITS GENERATED PER LTR OF DIESEL | 3.50 |
| 17 | DIESEL LTRS REQUIRED (9/16) | 1181849 |
| 18 | DIESEL COST PER LITRE RS. | 36.43 |
| 19 | DIESEL COST RS. LAKHS (17*18) | 430.55 |
| 20 | LUB OIL RS 0.25 LAKHS PER MONTH | 3.00 |
| 20A | SELF GENERATION TAX (9*.1) | 4.14 |
| 21 | TOTAL DIESEL COST (19+20+20A) | 437.69 |
| 22 | TOTAL POWER COST RS. LAKHS (15+21) | 1665.42 |
| 23 | POWER COST PER ECU (22/8) | 7689 |
| 24 | POWER COST PER ECU YTD | |
| 25 | UNITS PER ECU (6/1) | 1364 |

**ENCON Budget is allocated in two heads:**
1.CAPEX
**2.** REVEX

**0.3% of turnover of total, Encon budget is allocated in FY 23**

Beginning of every year, based on projected production volume, expected expenditure on power (considering variable + Fixed element of power cost & tariff impact) is sent to corporate.

On receipt of sanctions, plant level targets are set and this overall target is further broken down to Gemba level/Shop Level.

## Project Suggestion given by Associates

| Sl. No | Project Type | Gemba Unit | Idea Description | Category | Leader | Stage | Actual Saving with Finance Vetting |
|---|---|---|---|---|---|---|---|
| 107 | K54 | P112 | Productivity & Process Improvement in Press Line by conversion of 3 stage operation into 4 stage operation (T &GSE) | Power | HariPratap | IL5 | |
| 471 | SGA | P104 | Production optimization at Soenen M/c | Power | Prashant | IL5 | 3.08 |
| 483 | SGA | P104 | Power cost reduction thru temp optimization at washing m/c | Power | Chetan Negi | IL5 | 0.898 |
| 479 | SGA | P104 | Introduction of low bake powder | Power | Pradeep | IL5 | |
| 117 | | Utility | Solar plant 0.39 MW in Press Shop | Power | Rameshwar Dayal | IL5 | |
| 558 | K54 | P108 | Cam Lobe Finish improved from Rz 1.5 to Rz 0.4 at cam lobe lapping machine. | Power | DevRaj | IL5 | |
| 339 | SGA | P111 | Cooling tower Commonization for bumper Assy. | Power | Bipin Singh | IL5 | |
| 476 | SGA | P104 | To optimize the running of blowers motor in STP | Power | Harpal | IL5 | 3.7 |
| 549 | Utility | Utility | Fixed consumption reduction in Sewage Treatment Plant | Power | Pankaj | IL5 | |
| 25 | SGA | P102 | Power cost saving at shower testing | Power | Sunil Suyal | IL5 | |
| 274 | | R & M | Specific energy consumption reduction at Captain bumper line | Power | Sandesh Mhatre | IL5 | |
| 323 | | P103 | Lead time Reduction at G-91 Cabin line from weld laydown to trim PTS | Power | Narendra Bohra | IL5 | |

100% involvement : Best Suggestion is awarded with RISE-I award

# 7. Utilisation of Renewable Energy Sources

## Renewable Energy

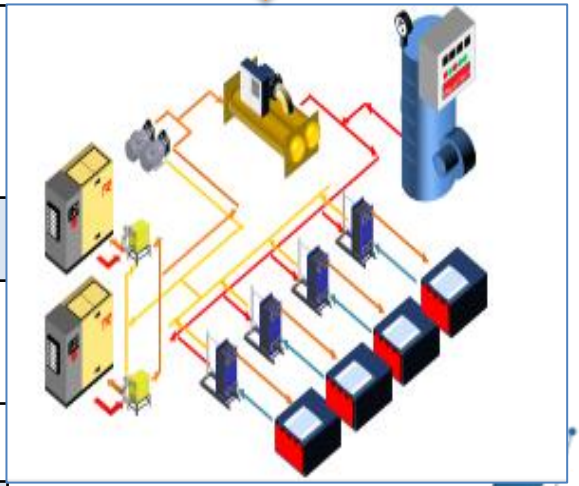
| Yea | Technology (Electrical) | Type of Energy | Onsite/Offsite | Installed Capacity (MW) | Generation (million kWh) | % of overall electrical energy |
|---|---|---|---|---|---|---|
| FY 2019-20 | **Solar PV** | **Electrical** | **Onsite** | 3 | 3.3 | 13% |
| FY 2020-21 | **Solar PV** | **Electrical** | **Onsite** | 3 | 3.1 | 13.4% |
| FY 2021-22 | **Solar PV** | **Electrical** | **Onsite** | 3 | 3.2 | 14% |
| FY2022-23 | **Solar PV** | **Electrical** | **Onsite** | 3 | 3.7 | 10% |

Roof Top Solar Power Plant

## Renewable Energy

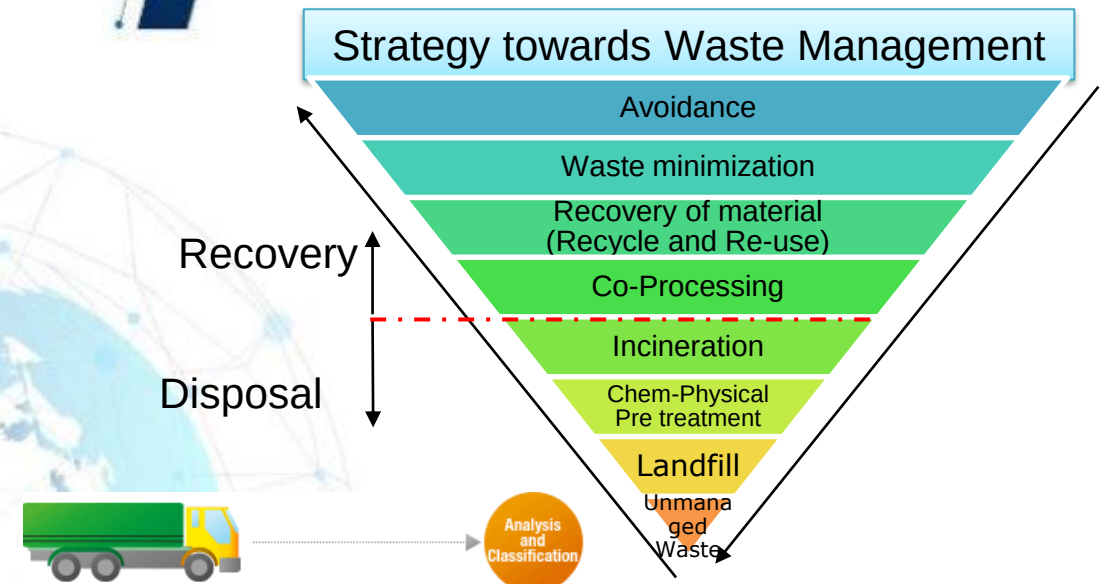
| Year | Technology (thermal) | Type of Energy | Installed Capacity (million kCal) | Usage (million kCal) | % of overall thermal energy |
|---|---|---|---|---|---|
| FY 2019-20 | Compressor exhaust heat recovery and utilization in washing machine | Thermal | 300 | 76 | 0.5% |
| FY 2020-21 | | | | 238 | 1.4% |
| FY 2021-22 | | | | 255 | 1.5% |
| FY 2022-23 | | | | 377 | 1.1% |

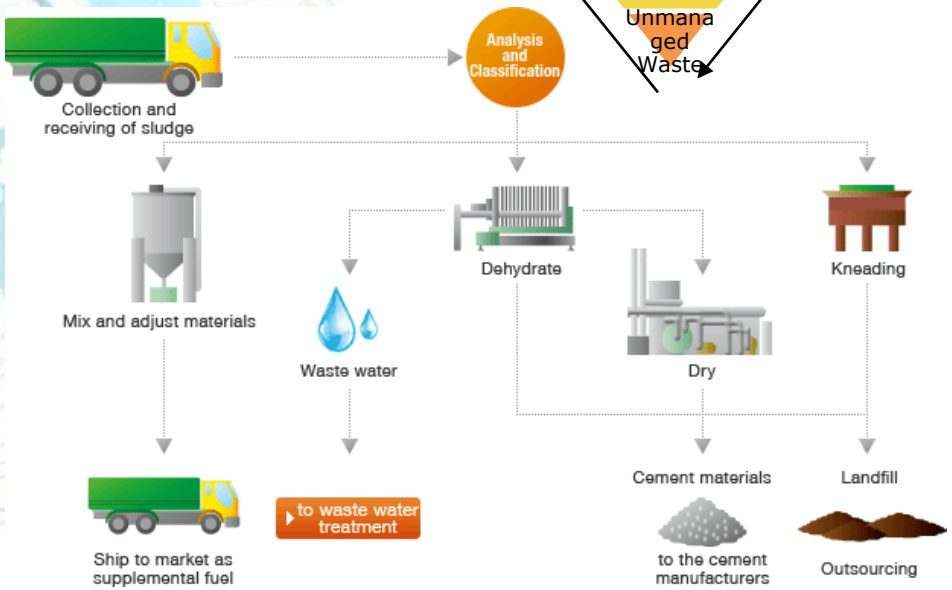
Exhaust heat utilization ckt



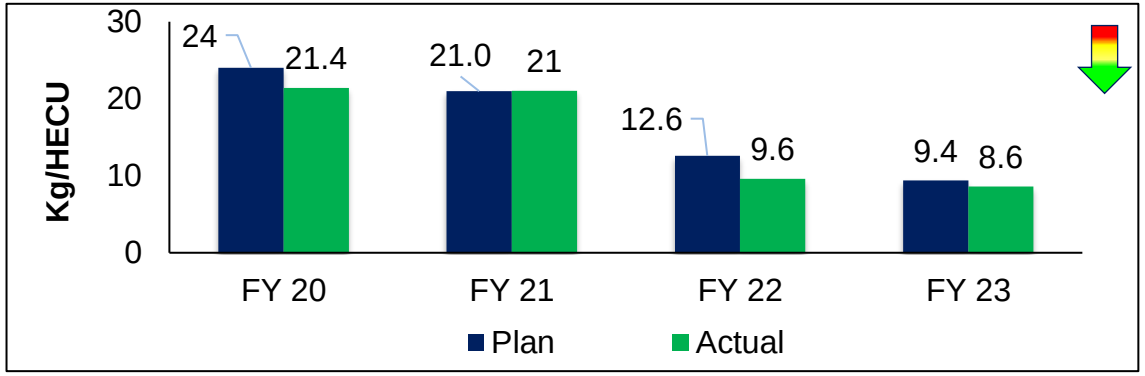
# 8. Waste Utilization and Management

## Zero Waste to Land Fill




## Hazardous Waste Generation



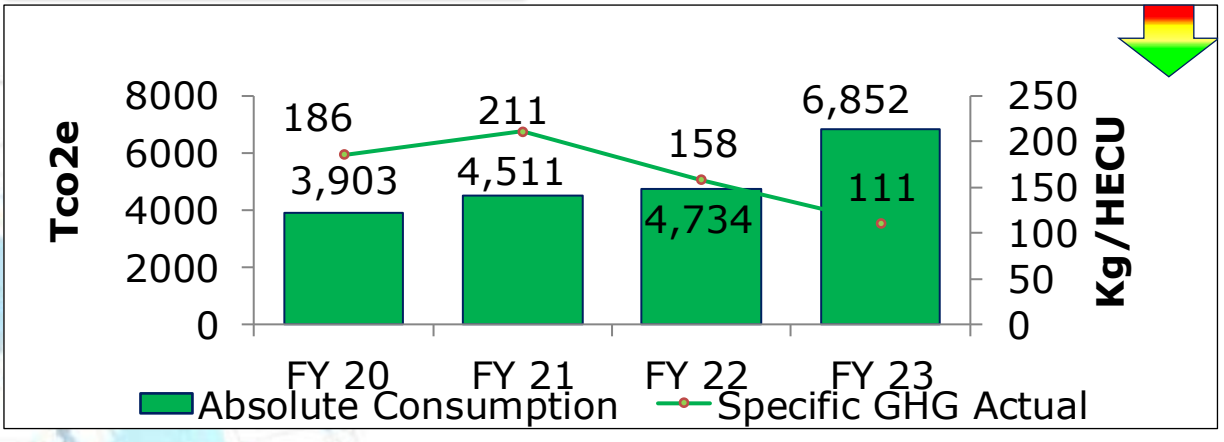

Hazardous waste generation reduction thru "Bulk Storage" tankers

**Benefit :**

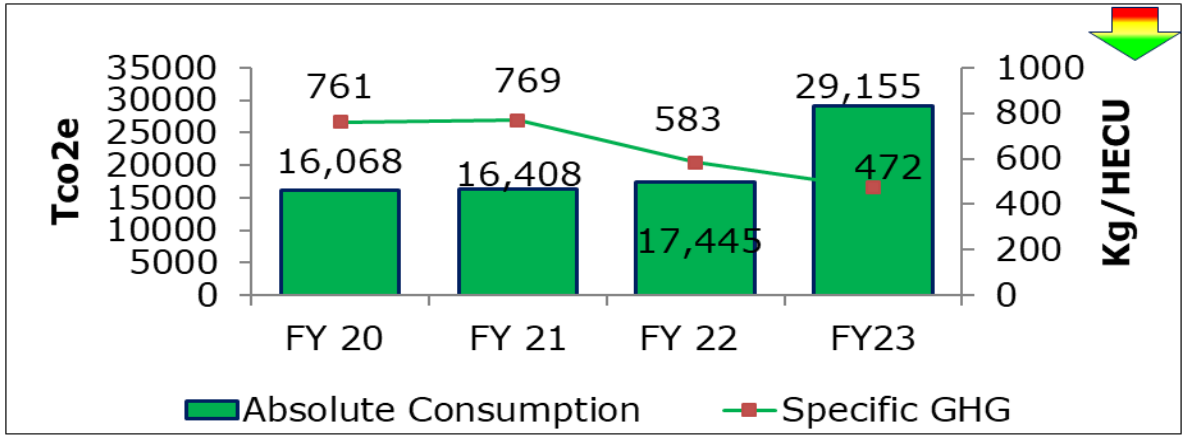
- 49 MT/annum of Hazardous waste reduced
- Disposal cost savings Rs 100 lacs till FY23

# 9 GHG Accounting & Inventorization

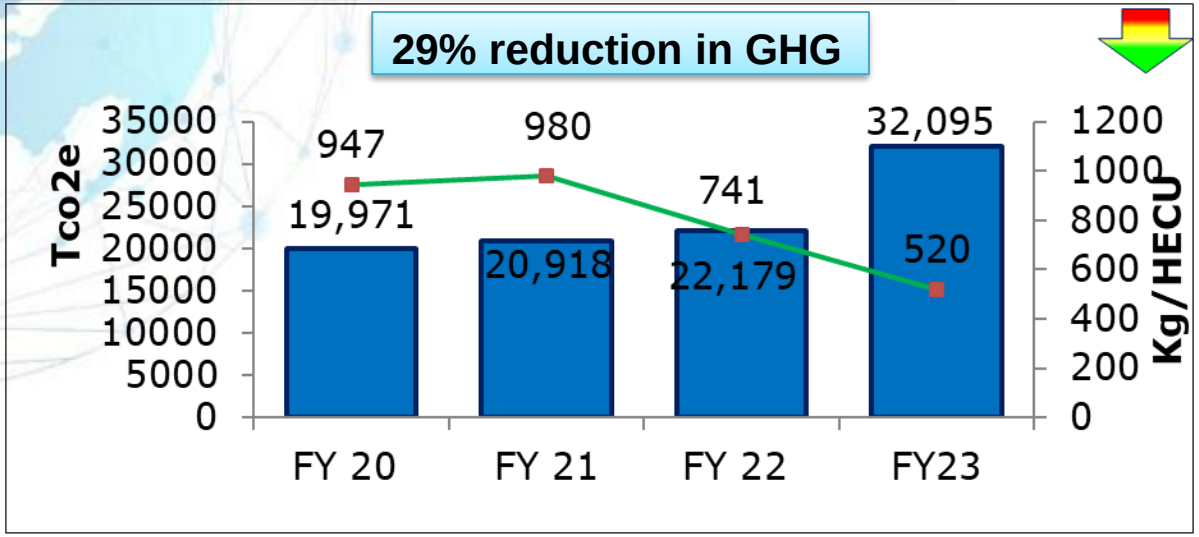
## Emission Scope-1




## Emission Scope-2




## Total Emission (Scope-1 + Scope-2)

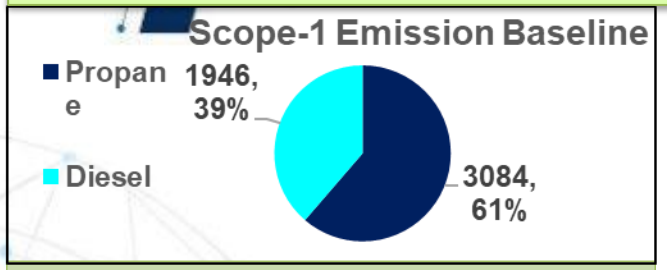



**Benchmarked** With Competitor data of FY 22 which is 0.49Tco2e/vehicle compared to ours 0.52Tco2E/Vehicle

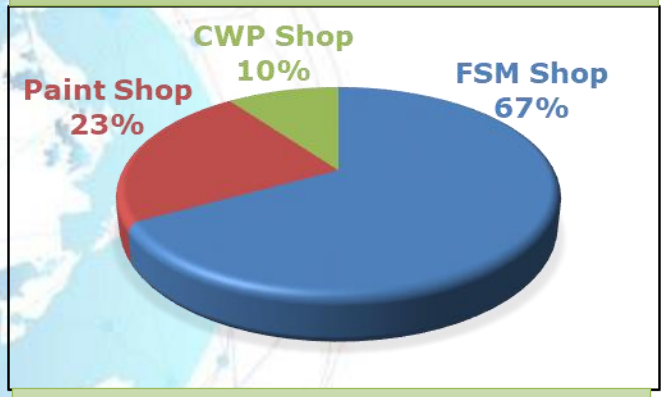
**Public disclosure on GHG is done through Annual Sustainability report**

# 8.3 Efforts to Reduction in GHG : Transition Towards Clean Fuel

## Action-1: Migration towards clean fuel ( Propane to RLNG)



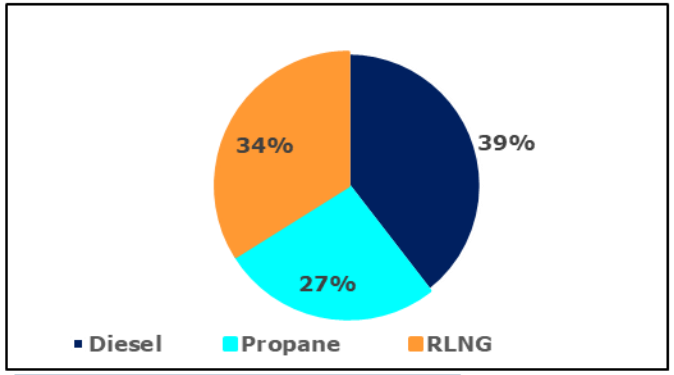

Propane is a major contributor in emission




FSM Shop is a major contributor of propane

Conversion from Propane gas to Natural Gas in FSM Shop

### Existing Share of Fuel




### Key Project Benefits


$CO_2$ reduction

Positive Impact of **Rs 75 lakhs/annum**

**252 Tco2e reduction**

## Action-2 : Adopting clean Fuel commute

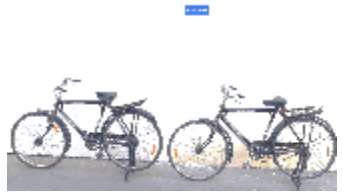
Battery Operated Forklift-4 nos

Golf cart for internal commute-2 nos

Battery Operated Tow Truck-21 nos

Battery Operated Stacker 14 nos

Battery Operated Pallet truck 13 nos



Cycle for internal movement – 10 nos

### Project Benefits

$CO_2$ reduction

**72 Tco2e reduction**

# 10. Green Supply Chain Management

**Capability building** on Environment Aspect and Impact:
1. Service Provider
2.Contractors
3. Suppliers

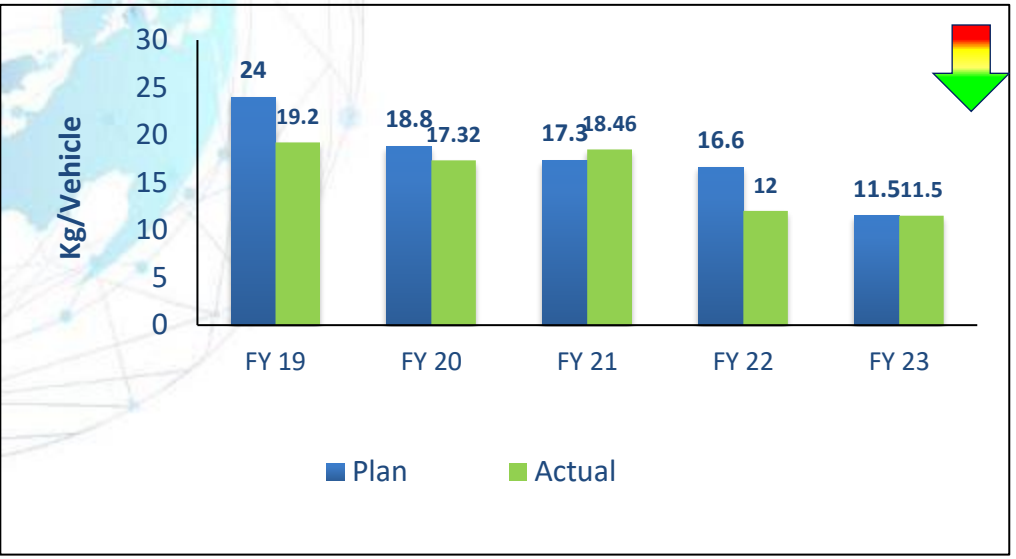
Emphasizing on Carbon foot Print reduction in Value chain

Awareness and Knowledge sharing through Cross learning during Vendor Meet

## Awareness session to suppliers

| EHS Awareness Program (AL Supplier partners) | | |
|---|---|---|
| **Sr No** | **Name** | **Supplier** |
| 1 | Vikram Singh | NMPL |
| 2 | Amil Sharma | MCL |
| 3 | Harinada | Dana India |
| 4 | Arjun Singh | Prabha |
| 5 | Jagdish Kumar | JAI |
| 6 | Rahul Singh | RSB |
| 7 | Krishnamoorthy | Alkraft |
| 8 | Vinay Gariya | Yazaki |
| 9 | Manoj Kumar | IPH |
| 10 | Vivek Saxena | Roop Polymer |
| 11 | Saurav Bhandari | Lucas TVS |
| 12 | Angad Chauhan | Umashakti |
| 13 | JG Gautam | SETL |
| 14 | Ramvijay Yadav | KIE |

## Efforts towards Wood free Packaging




## Parts Supplied by Suppliers

| S.N. | Vendor Name | Part Name |
|---|---|---|
| 1 | BHARAT FORGE LIMITED (10%) | Axle Beam, Axle Arm |
| 2 | EXIDE INDUSTRIES (6%) | EXIDE |
| 3 | JAYA HIND (9%) | Gear Housing |
| 4 | ZF INDIA PVT LTD (6%) | V link rod |
| 5 | AMAR UDYOG (8%) | Intake Manifold |

## Implementation

| S.N. | Supplier Name | Part description | Improved packing (Sample) |
|---|---|---|---|
| 1 | Bharat Forge | Axle Arm |  |
| 2 | New Allenberry | Gears |  |
| 3 | Exide Industries | Battery |  |

**Plan to achieve zero wood usage by FY25**

# 10.1 Energy Efficiency Awareness and Training program

## ENCON Pledge on National Energy Conservation Day

## Poster Competition among associates

External Training

| # | Name | Training Program Conducted | No. of Days | Agency |
|---|---|---|---|---|
| 1 | Niraj Jarmal | Advance Energy Efficiency Program | 2 | CII |
| 2 | Mahesh Chandra Pandey | Advance Energy Efficiency Program | 2 | CII |
| 3 | Neeraj Bhatt | Advance Energy Efficiency Program | 2 | CII |
| 4 | Deepak Dhilod | Air Compressor | 1 | IR |

**Internal Training were periodically Imparted by Energy managers**

## Process Strengthening Through External Audit

- Energy audit by M/s Siemens
- Energy audit by PCRA
- Preliminary Energy Audi by M/s CII

Out of 78 findings 63 recommendation were implemented

# Country Commitment

**India's five Pledges in Cop-26 are:**

1. **Reach 500GW Non-fossil energy** capacity by 2030.
2. 50% energy requirements from **renewable sources.**
3. **Reduction of total projected carbon emissions** by one billion tonnes from now to 2030.
4. **Reduction of the carbon intensity** of the economy by 45 per cent by 2030, over 2005 levels.
5. Achieving target of **net zero emissions by 2070**.

## Ashok Leyland Commitment

- Net Zero Emission
- Aspire to become net zero for own operations (Covers Scope-1 &2) by 2030
- Aspire to become net zero for upstream operations (Covers Scope-3) by 2040
- Aspire to achieve Net Zero 2048

**Ashok Leyland PNR Commitment**

- Net Zero emission of Scope-1& Scope-2 by 2030
- Aspire to become net zero for upstream operations (Covers Scope-3) by 2040
- Net Zero 2048

**Challenges in Uttarakhand Region**

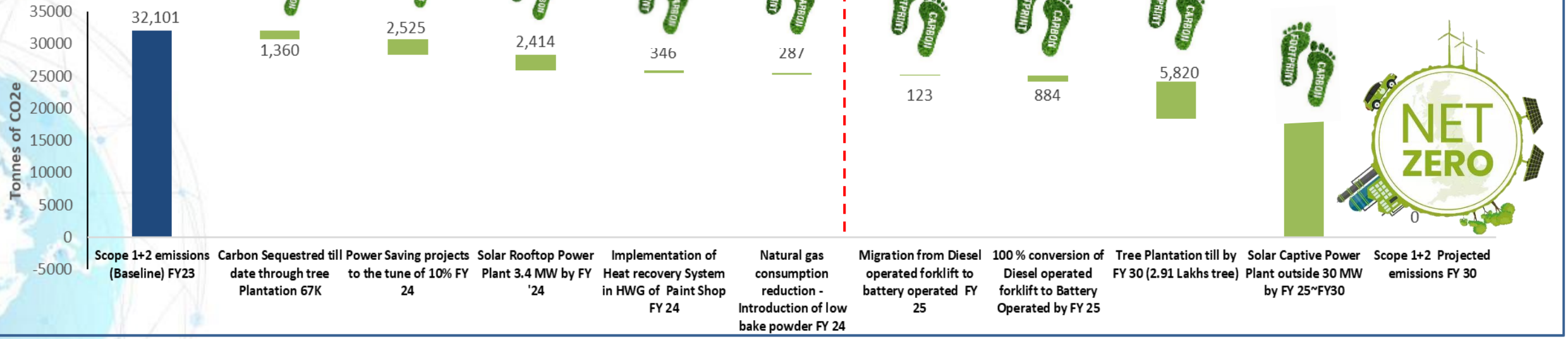
- Limited Resource for renewable energy (only Solar)
- Uncertainty on weather

# 12 Net Zero Emission Target Short Term and Long Term

## Roadmap

### Short Term

### Long Term




### Renewable Energy

- Implementation of Solar Power Plant will reduce **Tc02e by 20767**

### New Technology

- Energy Efficient Equipment
- Specific energy consumption reduction
- Technology upgradation

### Adopting Clean Fuel

- Conversion from Propane to RLNG, will reduce **4553 Tco2e**
- Conversion from Diesel to battery operated forklift
- Utilization of waste heat

### Carbon Sequester

- Development of green coverage by Planting cumulative **3 lakhs tree**

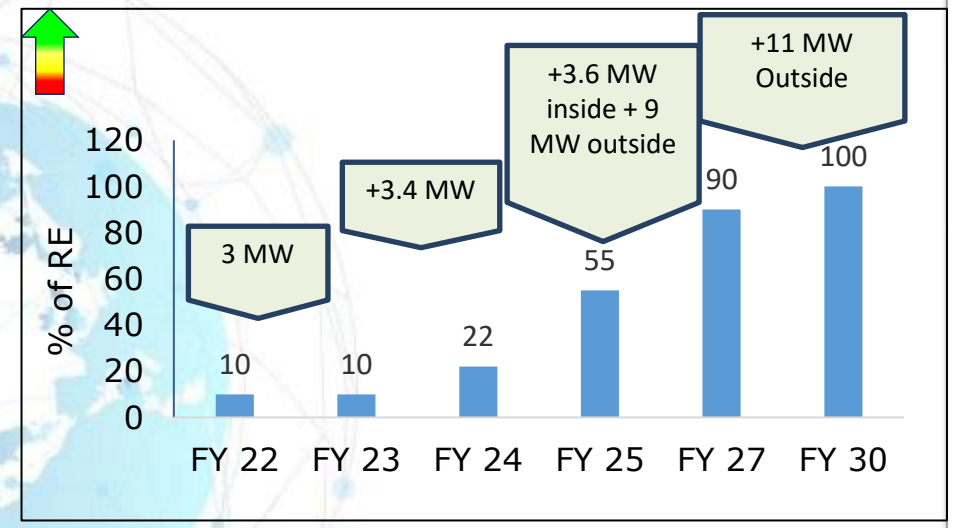
Commitment :

- **Net Zero by 2030** (**Scope-1 & Scope-2**)
- Net zero by 2048 in all form of emissions

# 12.1 RE100

## Glide Path RE100

Scope 2 coverage – Purchased Electricity




### 4 Steps approach towards RE100 in PNR Plant

**I: Rooftop Solar Power Plant inside Plant ( 3MW to 10MW) for contract demand ( 8MW to 10 MW)**

- Installation of Solar Rooftop inside the premises 3.4 MW, TDC: Dec'23
- Progress report discussion with Top management of HREPL
- Application submitted for contract load enhancement from 8MVA to 10 MVA
- Addition 3.6 MW Ground Mounted option to be explored further as Roof sheds space is not available

**II: Green Power Procurement through Open Access:**

- In Discussion of concept with the Suppliers M/s HREPL
- Solar group captive Power can be availed
- Open access can be availed up-to 90% of contract load i.e. can be installed up to 9 MW

**III: Inter State Transmission System:**

- Exploring the Hybrid Model: Solar and Wind installation in other state and importing the green power .
- Option available with above 66 KV supply
- Since load is increasing and beyond 10 MVA , Need to opt for 132 KV supply

**IV: Green Certificate Procurement:**

- International REC Certificate (Rs200/MWH)

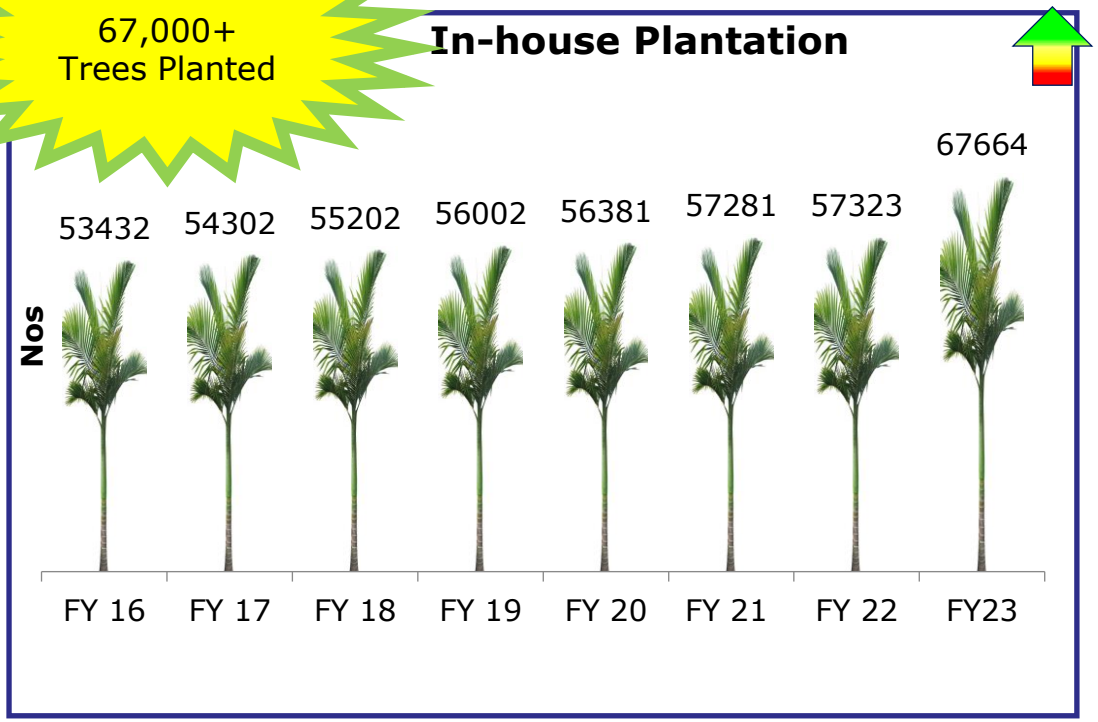
### Carbon Neutrality

# 12.3 Carbon Sequestration

## Tree Plantation- Join hands for spreading "Hariyali"

- Mass Tree Plantation drive
- 3 Miyawaki forest inside plant

67,000+
Trees Planted




- Carbon sequestered thru plantation both inside and outside: **3293 TCO2E**
- **97000+ trees planted "Beyond the Boundaries"**

# Reward & Recognition – AL Pantnagar

**CII EHS Gold award and Automobile Sector topper – Mar'23**

**1st Runner up in Air Quality Award – Mar'23**


**CII 23rd National Energy award- Oct'22**

**Gold award by SEEM for Energy Efficient Organization-Sep'22**


**CII- EHS Excellence award-Mar'22**


**Best Energy Efficient Organization-Jun'21**

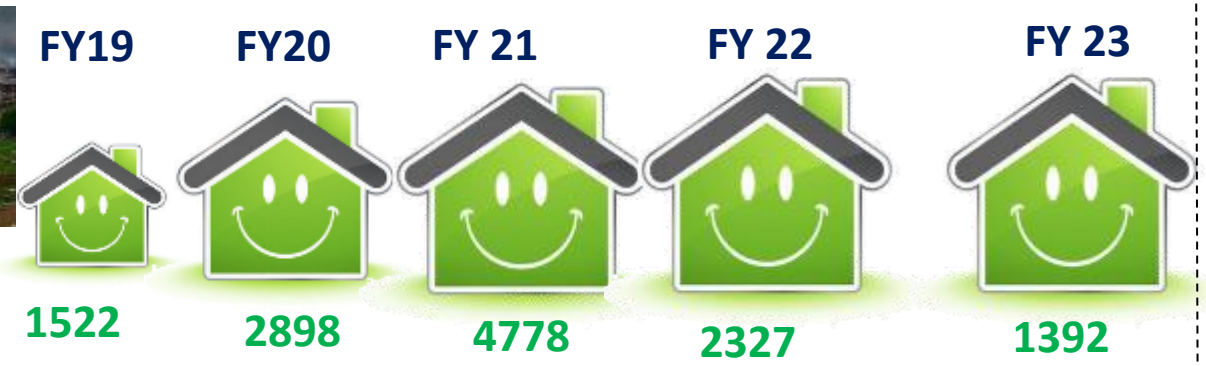
# Major Accolades External


National Energy award by The President of India


SEEM energy Award-2019

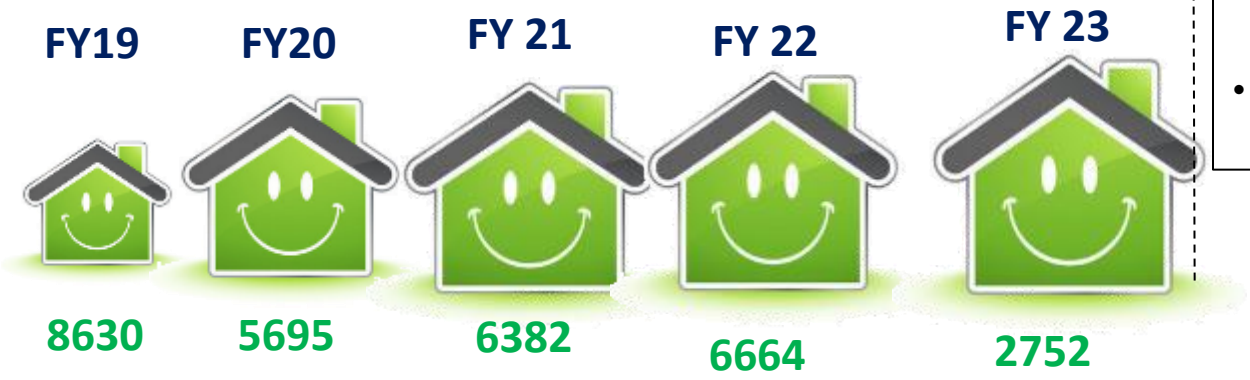
# Future Plan

**By the annual Energy Saved by us, thousands of Uttarakhand houses can be enlightened for an year**




No. of Houses

**By the Water Saving and Spring recharges done by us, Water reached to thousands of Uttarakhand houses**




No. of Houses

**Future Plan**

- ZERO Ground Water Extraction – 50 % by Mar'25, 100 % by Dec'27
- Wood usage elimination-Mar'25
- Afforestation - 2 lacs trees by Mar'26
- EHS System Digitalization – Nov'23
- 100% Renewable Energy - 25 % by Sep'23, 50% by Mar'24, 100% by Mar'27
- Migration from Diesel Forklift to Electric forklift – Sep'23
- Implementation of ISO 50001

# 12. Learning from CII Energy Award or Any Other Award Program

- Innovative Projects implemented
- External Benchmarking data of similar industries
- Best Practices of various industries
- New Product Knowledge through energy suppliers
- Different Problem Solving technique
- Approach of industries towards climate change

## Money Is Yours..... But Resources Belong to The Nature & Society

# Thank you !

**Contact detail:**

amit.goel@ashokleyland.com

Niraj.Jarmal@ashokleyland.com