Reduction In Carbon Footprint

Raymond Limited, Textile Division – Vapi Plant

“Agenda”

- Raymond Ltd- Vapi- Brief Overview
- Energy Review
- Key initiatives implemented
- Future Projects

Raymond Ltd- Vapi- Brief Overview

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- The Khadki Unit, one of the three production divisions of the Suiting Textile Division. The unit is located on N.H.No.8, Khadki – Udwada, Tal. – Pardi , Dist. - Valsad , Gujarat, Vapi and Valsad city which is 15 Kms away from the plant is well connected with all places of India by rail and road.

- The plant is located on a 96 acre plot with a built-up area of 1,40,000 sq meters and a green belt area of 65%. The plant is well equipped with the most modern machinery, ensuring high efficiency and productivity. The work force is adequately skilled, well trained and competent. This unit was commissioned in 2006 (first phase).

Raymond Ltd- Vapi- Brief Overview

WOOL SCOURING

GREY COMBING & CONVERTER

DYEING

RECOMBING

SPINNING & YARN ROOM

WEAVING

FINISHING

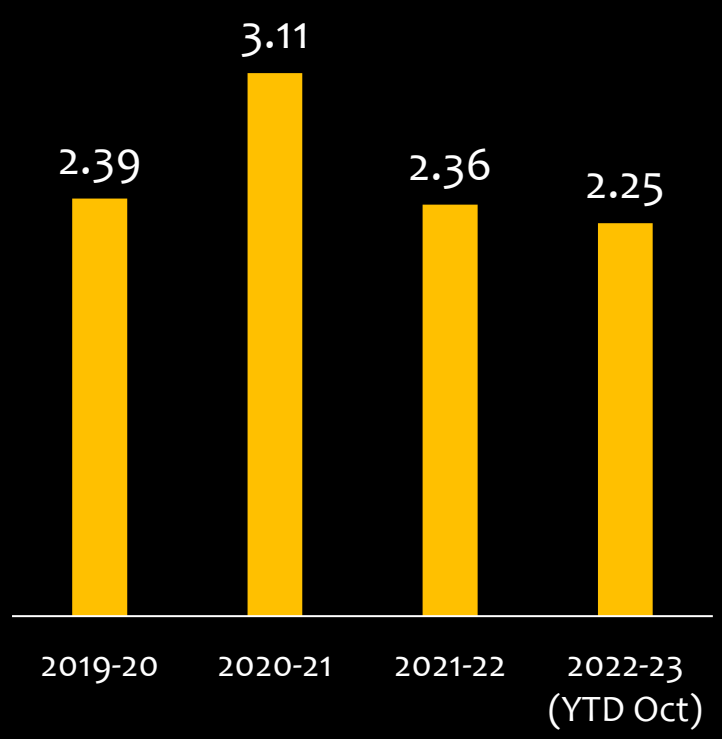
FOLDING & WAREHOUSE

Energy Review

Energy Review

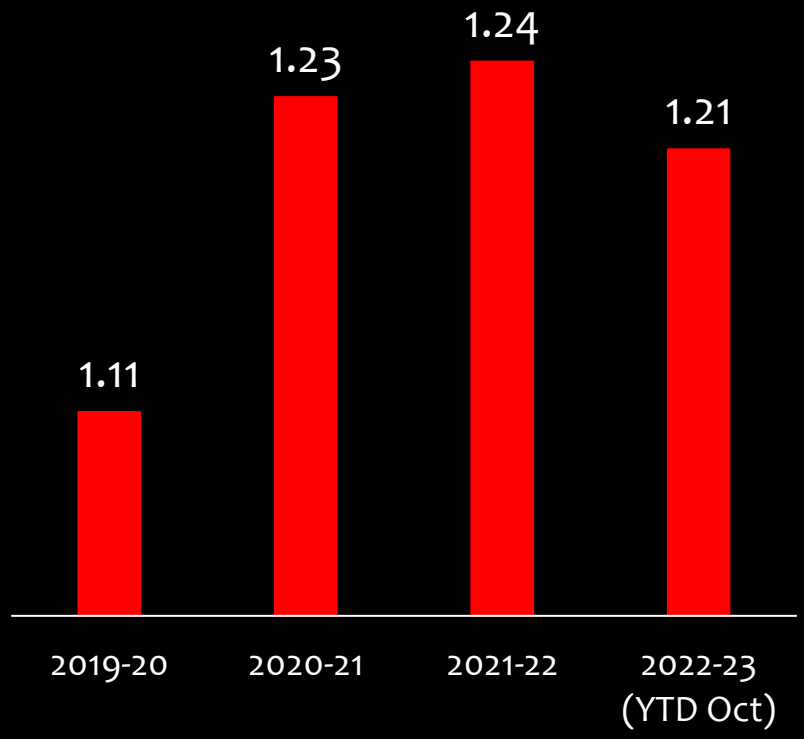
SEC- Electrical

kWh/mtr of Production



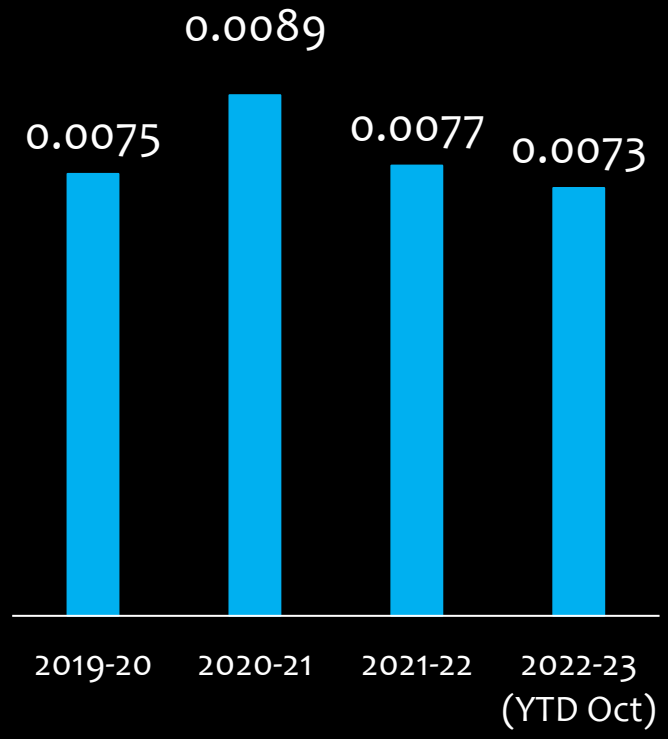
SEC- Thermal

kg of coal/mtr of Production



SEC- Total Energy vs Production

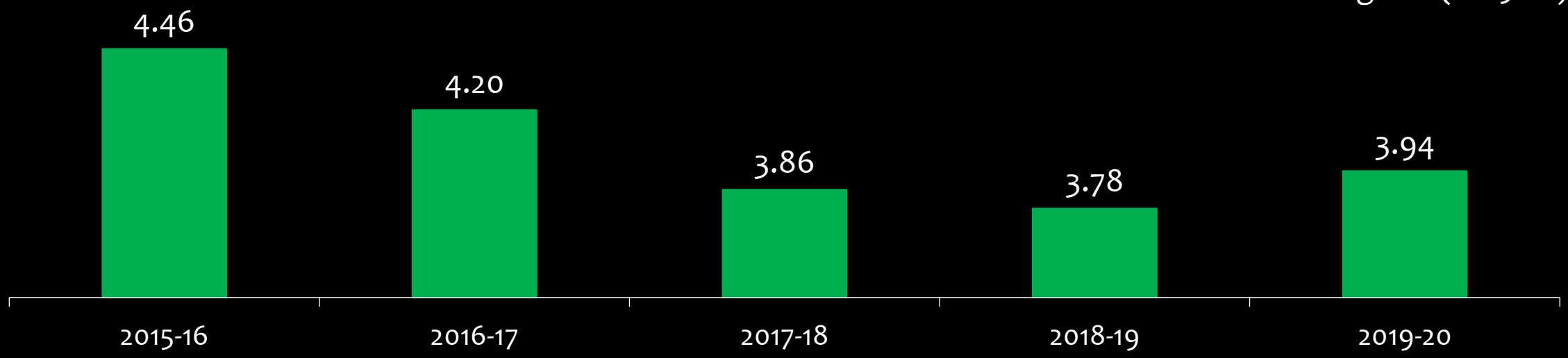
Gcal/ mtr of production



PAT Targets

Raymond Ltd, Vapi plant was under PAT Cycle III

SEC Baseline (2015-16)- 4.46
SEC Target (2019-20)- 4.19

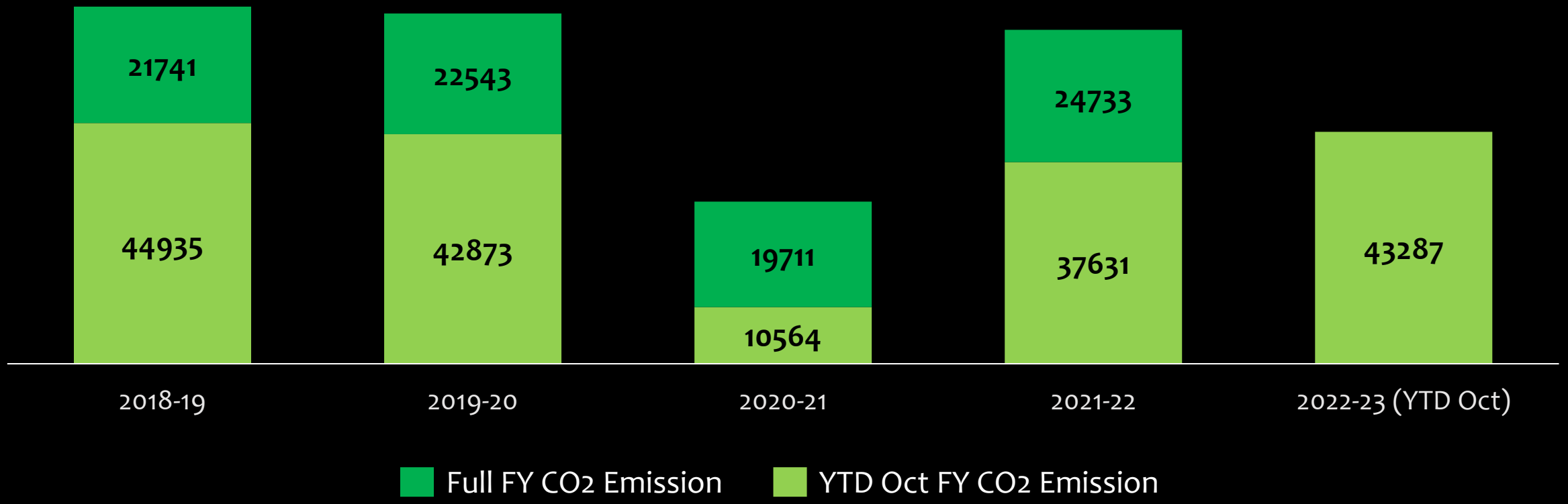


After M&V completion, BEE had recommended 1340 escerts to Raymond, as per additional saving we had achieved.

Now, we are under PAT Cycle VIIA
New Baseline SEC (2019-20)- 2.0357
New Target SEC (2024-25) - 1.8958

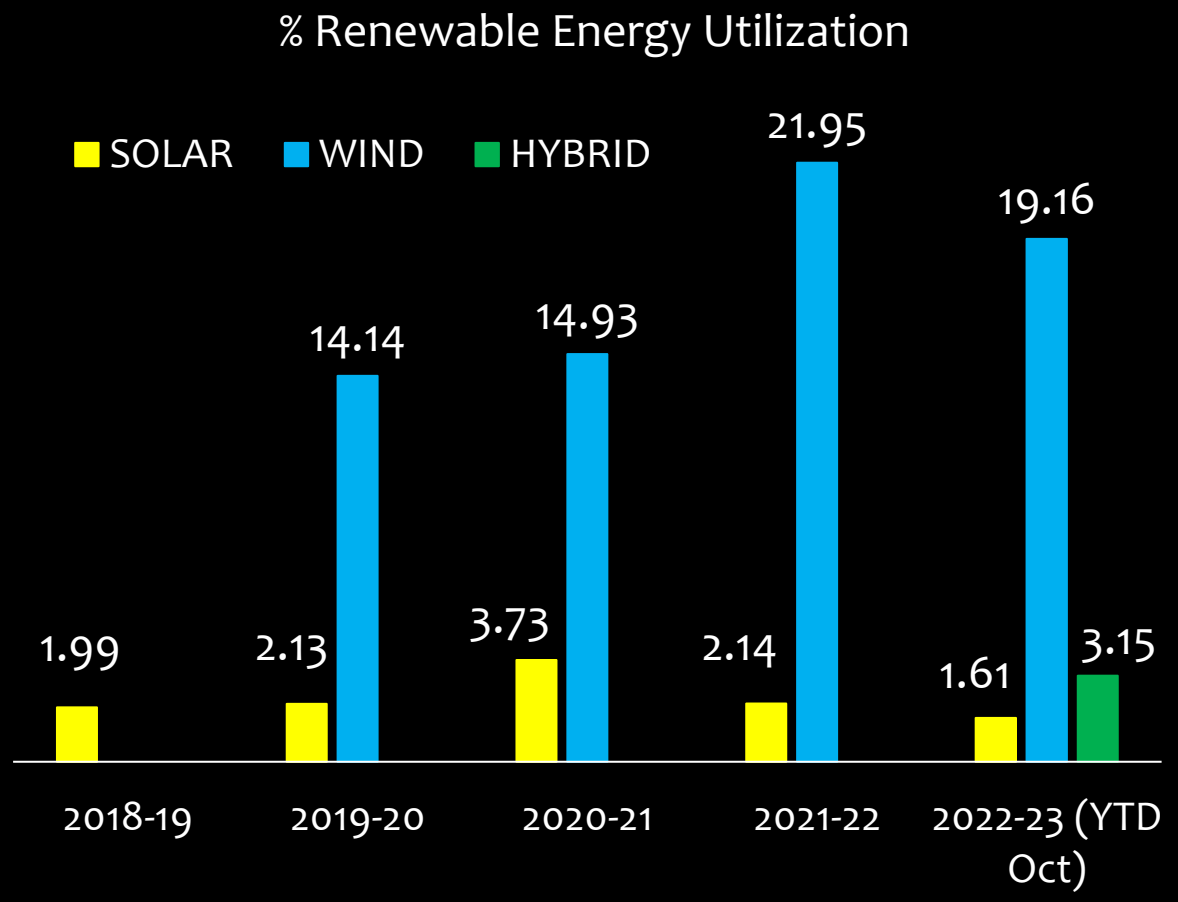
Carbon Footprint

All units are in MT of CO_2



Renewable Energy Portfolio

- In the year 2017-18, we had installed 640kW Solar Roof Top solar plant in our premises.
- We are procuring wind energy from wind turbine generator through bilateral contract of 2.2MW and 0.84MW.
- Also, we are the first in Gujarat to have commissioned a bilateral agreement contract for purchase of 3.15MW of Hybrid power (WIND + SOLAR) in May-22.
- The unit expects 52% of renewable energy utilization at the end of FY 2022-23.



Key Initiatives Implemented

Renewable Power Purchase through Bilateral Agreement

- Clean and green source of Energy.
- Raymond Vapi is purchasing wind power through bilateral agreement from 2.2 MW and 0.84MW wind turbine generator.
- Purchase of hybrid power (Wind + Solar) of 3.15MW has been commissioned from May-22.

Financial Year	Annual kWh generation (lakhs)	Annual Saving (Rs. Lakhs)
2019-20	56.40	66.77
2020-21	29.46	25.79
2021-22	81.93	79.19
2022-23 (YTD Oct)	61.92	76.46

Waste Heat Recovery From PV Motex Stenter

- Hot water of 50-60°C is generated through this system, showing a gain in ΔT of **30°C** against ambient water.
- It also provide an extra advantage of clean environment, as it has a system (ESP) to collect oil content from the exhaust gases so that clean and relative cool air is disperse into atmosphere.

- Annual Saving Of Steam: **1600 MT**
- Annual Saving in INR: **₹ 40 Lakhs**
- Investment: **₹ 28 Lakhs**

Low Pressure Compressor with Heat Recovery Unit

- Specific power consumption of low pressure compressor is **0.125 kWh/cfm** against **0.18 kWh/cfm** of existing compressors.
- The heat recovery unit is used to generate hot water through waste heat recovered from compressor oil .

INVESTMENT: **₹ 66 Lakhs.**
Annual Saving in INR: **₹ 66 Lakhs**

Annual Electrical Savings: **4.7 Lac kWh**
Annual Thermal Savings: **985 MT Of Steam**

Installation of Drive in Low Pressure Compressor

- Inverter drive has been installed in low pressure compressor to achieve power saving
- Commissioned in Oct-22, it has reduced the power consumption in low pressure compressor by 400 units/day

INVESTMENT: **₹ 5.5 Lakhs.**
Annual Saving in INR: **₹ 12.55 Lakhs**
Annual Electrical Savings: **1.42 Lac kWh**

Installation of VFD across different machineries

We had installed VFD in Cooling tower fan motor, FM suction motor and Fabric dyeing machine Circulation pump motor and obtained huge energy saving.

INVESTMENT: **₹ 0.89 Lakhs.**
Annual Saving in INR: **₹ 4.5 Lakhs**
Annual Electrical Savings: **0.5 Lac kWh**

Fabric dyeing machine

FM Machine

Replacement of TFO Chiller

- Replacement of old steam based TFO chiller with new electrical chiller. This was done due to wear and tear of the existing TFO Chiller which was beyond repair.
- Also, with the increase in coal cost from Rs 6000-7000/ MT in May-21 to Rs 13000-14000/ MT (Current FY), it was decided to replace the existing VAM based chiller with electrical chiller
- Electrical chillers are beneficial from the environmental point of view also as their carbon emission is far less than VAM chillers as our VAM chillers run on steam generated through coal.

INVESTMENT: **₹ 180 Lakhs.**
Annual Saving in INR: **₹ 54 Lakhs**

Energy Efficient Pumps in VAM Chillers

- Installation of energy efficient pumps in VAM chillers.
- Commissioned from May-22
- A total of 11 pumps have been installed.

INVESTMENT: **₹ 25 Lakhs.**
Annual Saving in INR: **₹ 40 Lakhs**
Annual Electrical Savings: **4.6 Lac kWh**

Flash Steam Recovery Pump

- Installation of Flash Jet recovery pump to recover higher condensate temperature and flash steam leading to steam and coal saving (Apr-22)

- We have started to recover condensate at 100 C with the help of this machine. Previously, we were recovering condensate at 75-80 C. Also, we are saving steam of 5 MT per day with this initiative through recovery of flash steam.

INVESTMENT: **₹ 20 Lakhs.**
Annual Saving in INR: **₹ 50 Lakhs**
Annual Thermal Savings: **2000 MT Of Steam**

Key Initiatives Implemented

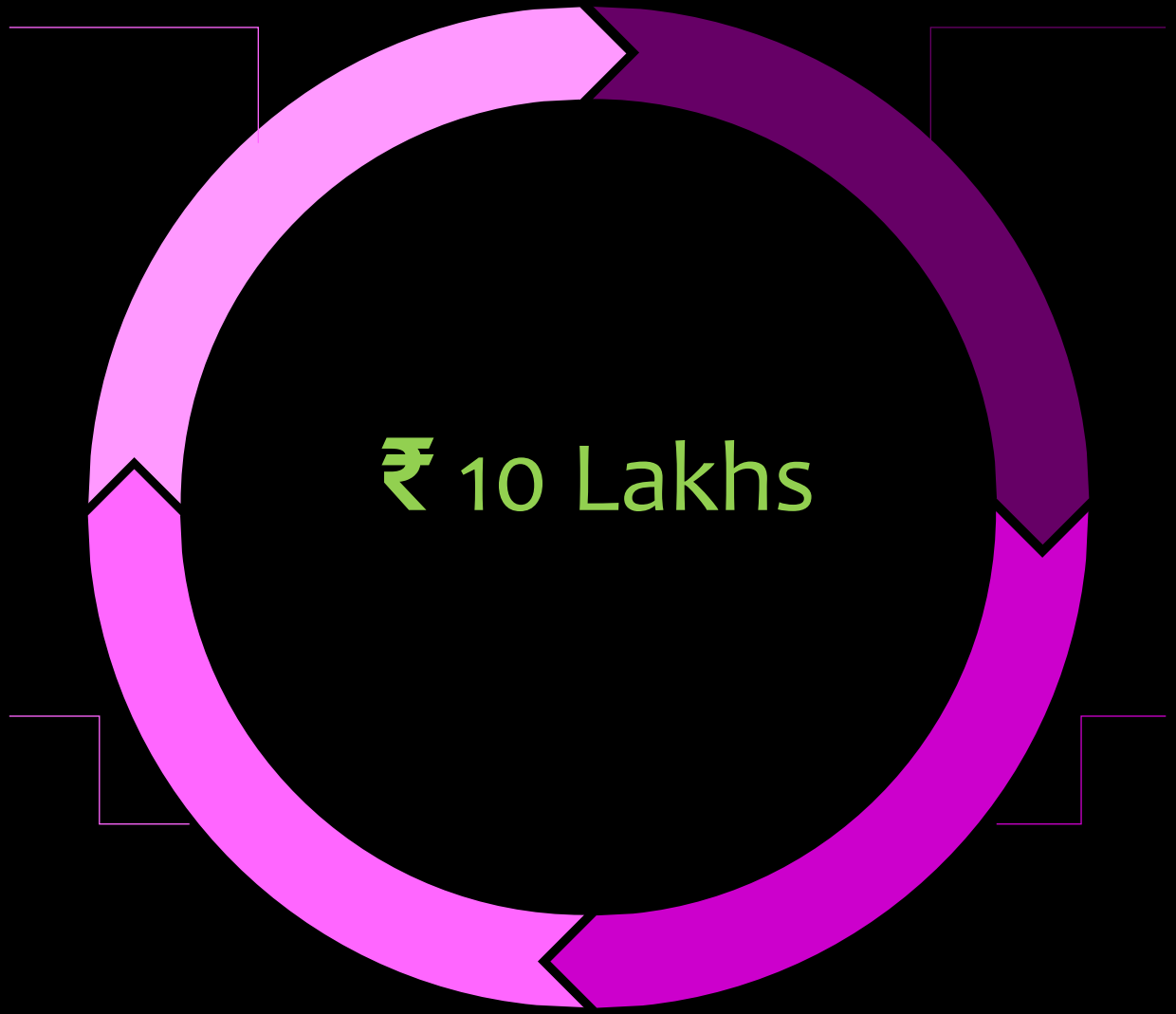
Motor and Lighting Management

Replacement of 36W and 18W conventional Light with 18W and 12W LED light. (460 Nos)

Annual Savings:
₹ 2.1 Lakhs

Replacement of conventional 400W light with 150W LED light. (68 Nos)

Annual Savings:
₹ 5.28 Lakhs



Replacement of 7 Nos standard efficient motor with IE3 Motor

Annual Savings:
₹ 1.81 Lakhs

Plant Lighting: Saving by switching off of 1 No of 100 kVA lighting transformer

Annual Savings:
₹ 0.81 Lakhs

Future Projects

Future Projects

Replacement of 695 TR Weaving VAM Chiller with Electrical Chiller	₹ 150 Lakhs
Waste Heat Recovery from Dyeing Effluents for Hot Water Generation	₹ 52 Lakhs
Replacement of aluminum casting fans with FRP Fans in AWTs	₹ 12 Lakhs
Replacement of current motors with new higher efficiency motors	₹ 5 Lakhs

Thank You