Dalmia Cement (Bharat) Limited - Rajgangpur Unit

25th CII National Award for Excellence in Energy Management 2024

Our Leaders

Shri Chetan Shrivastav
Unit Head- RGP

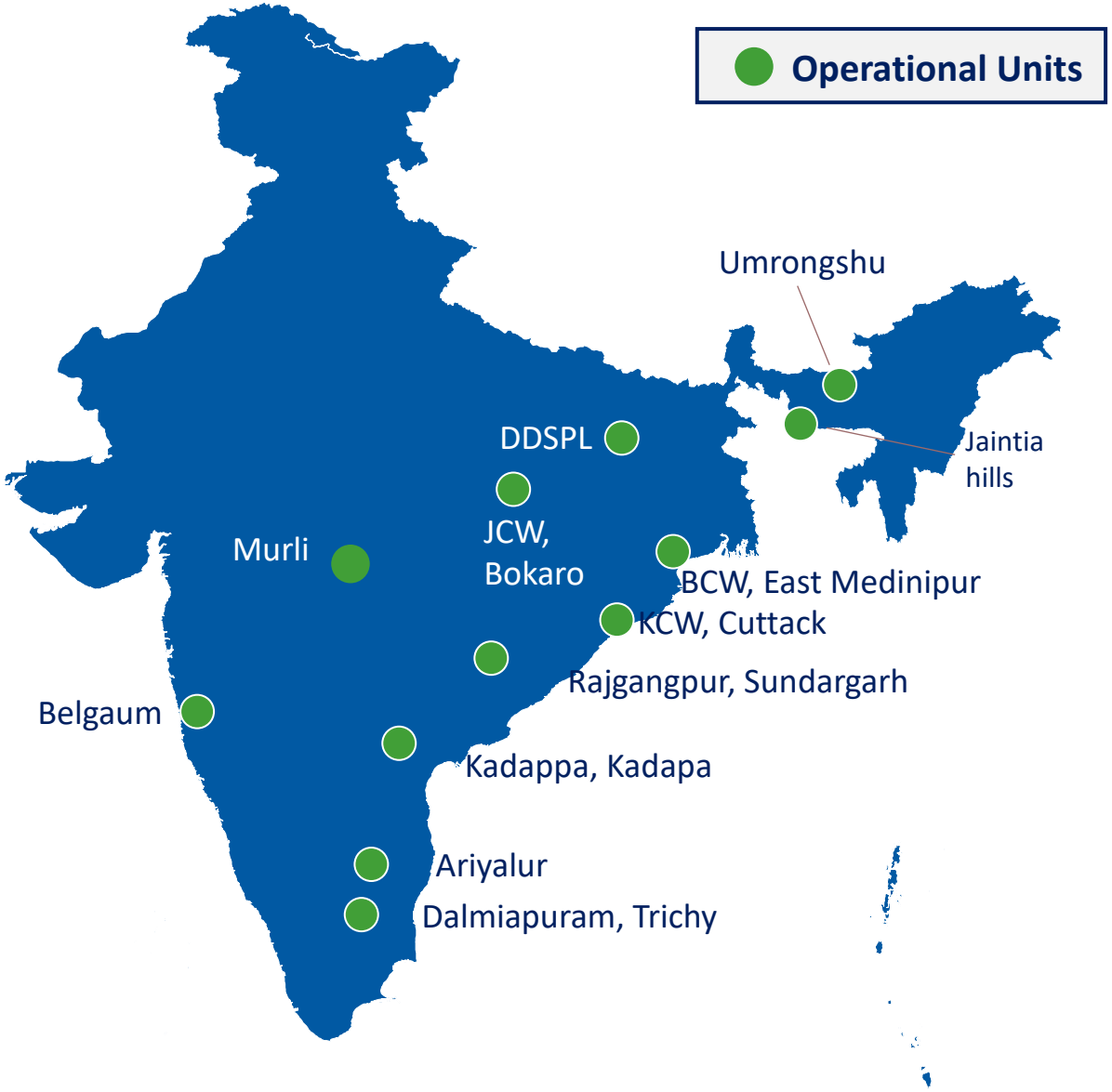
Shri Sandeep Verma
FH- Technical

Mr. Shivesh Ranjan
Manager Process

Mr. Manmohan
TC- Process

Mr. Mukti Ranjan Nayak
RW process

Introducing Dalmia Group



Among the **oldest cement companies in India** – established in 1939, was the Primary supplier to Hirakud Dam in 1952.

Fastest growing cement company in India – from 12 Mn Tons installed capacity in 2014 to 45.6 Mn Ton today.

4th Largest Cement Manufacturer in India spreading across 11 states.

Dalmia Rajgangpur Overview

6.2 MTPA
Installed Clinker Capacity

4.3 MTPA
Clinker Production
FY 23-24

54 MW
Installed Capacity Captive Power plant

214 KMT/Annum
Recycled waste Utilization

4 MTPA
Installed Cement Capacity

2.94 MTPA
Cement Production
FY 23-24

23.2 MW
Waste Heat Recovery System

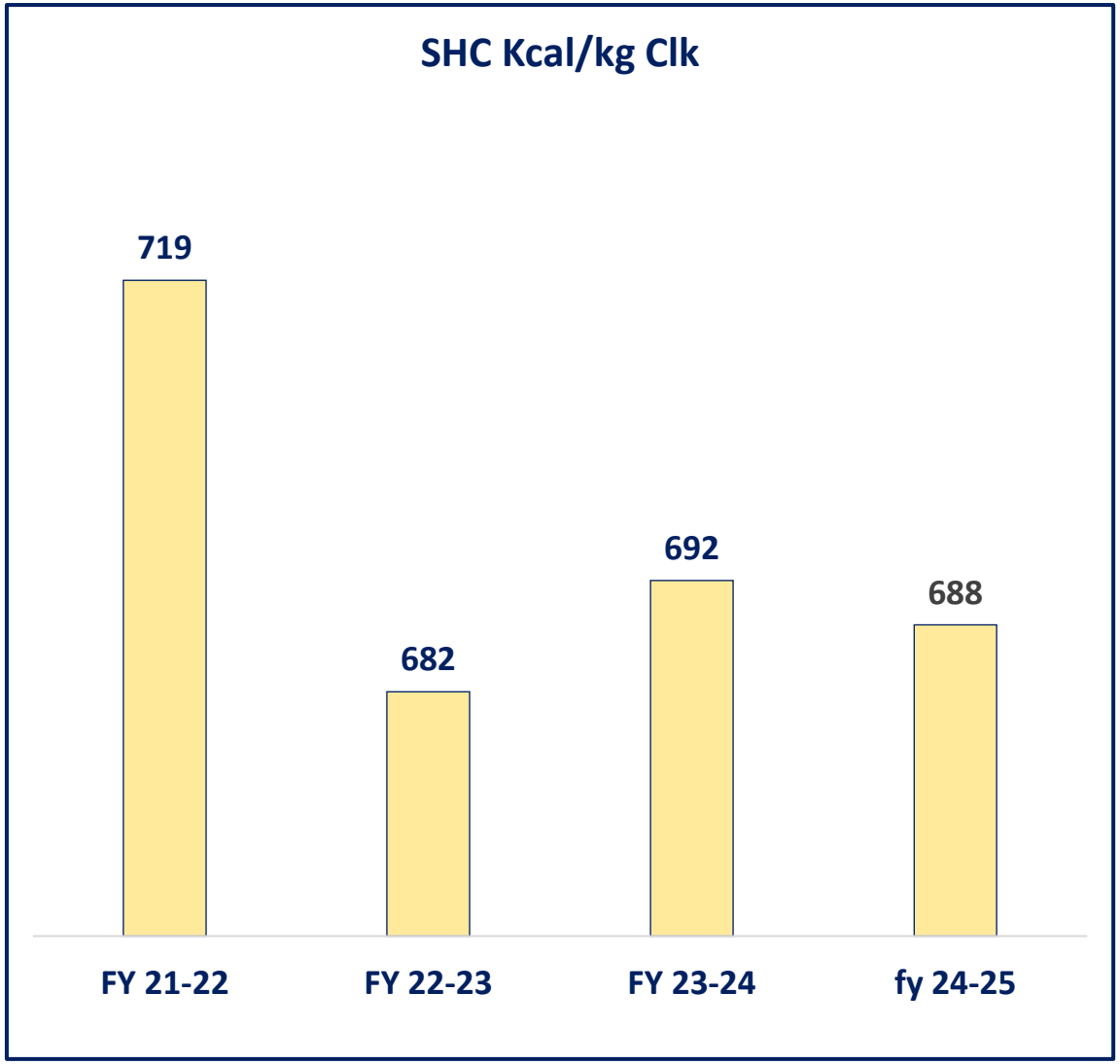
1.74 MW
Installed Capacity Solar Power plant
(Renewable Energy)

Process Flow & Major Equipment Specification: DSP Unit-1

Dalmia Bharat

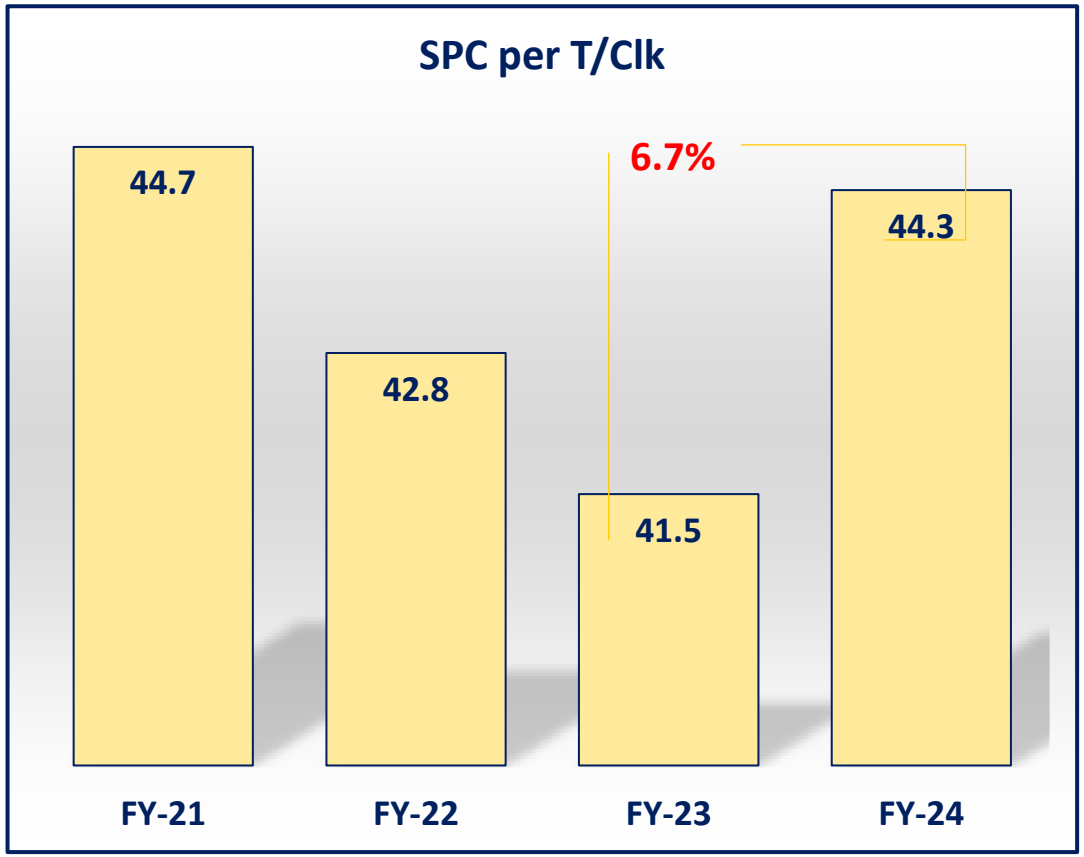
Crushing	Raw Mill & Coal Mill	Recycled waste	Kiln and Cooler	Cement Mill	Packing Plant
Crushing Crusher2- L&T APPM2022 1200 TPH Crusher3- FLS EV250 1200 TPH Crusher4- Thyssenkrupp DHB-2028 1850 TPH	**Raw Mill** HRP- FLS HRPG 3.07 600 TPH **Coal Mill** VRM- FLS ATOX 32.5 37 TPH Pet Coke **Coal Stacker** Make- FLS 600 TPH **Coal Reclaimer** Make FLS 250 TPH	**Solid RW** Shredder-1 Metso, 25 TPH Shredder-2 Metso, 25 TPH Shredder-3 Harden , 40 TPH Shredding 90 TPH **Liquid RW** Pump- 10 KLH (5*2) Storage Tank- 50 KL	**Kiln** FL Smidth ILC – 5.0 X 81 8000 TPD Kiln Slope 4.5% **Cooler FLS** Cross bar 18X63 190.5 M2	**Mill-01** LM 46.2+2 S/C 120 TPH **Mill-02** LM 46.2+2 S/C 120 TPH **Mill-03** LM 56.3+3 S/C 250 TPH	**Packers** Total Nos- 06 Spectrum No. of spouts per Packer- 16 Capacity- 240 TPH

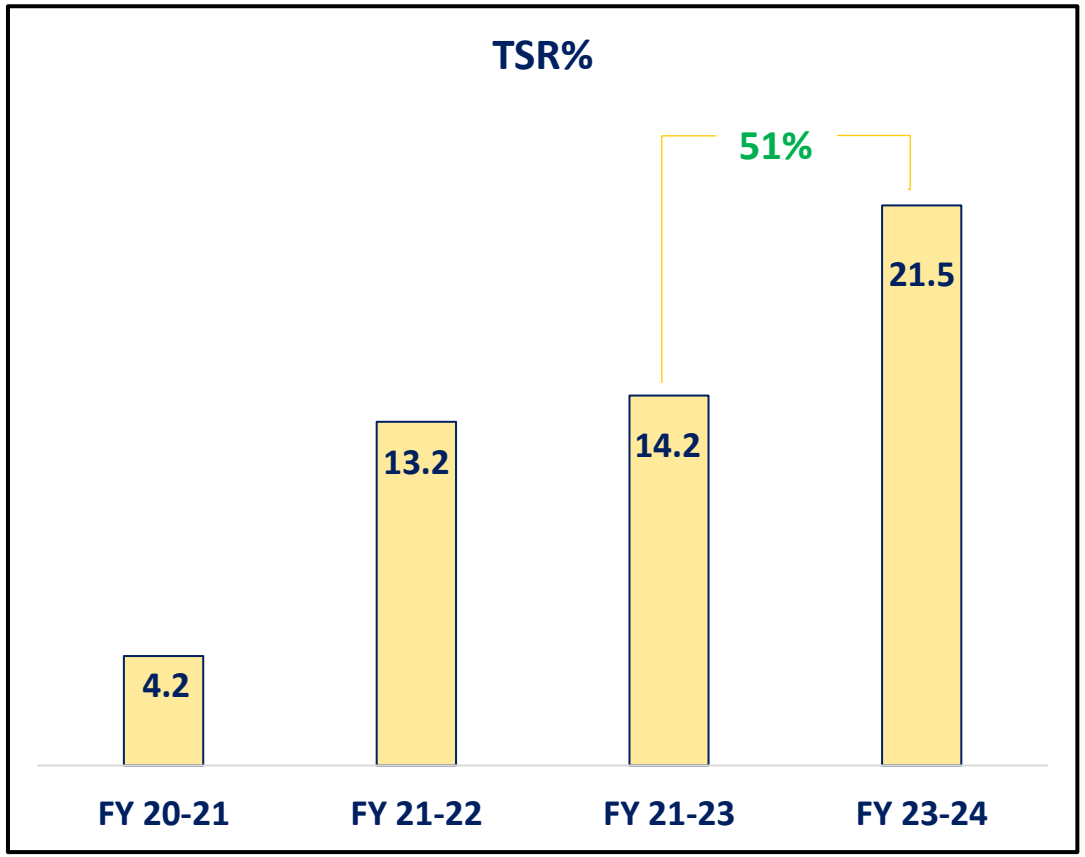
Thermal Specific Fuel Consumption: DSP Unit-1



- Thermal SHC increased due to increase in TSR% from 14.2% to 21.5 % which required to maintain oxygen higher side.
- Dust loss reduced from 15 to 7 % by replacing CCX with HR + Cyclone which saving of 6 Kcal/Kgclk.
- 6 -7 % moisture reduction and 10-12 % Ash reduction of RDF by trommel operation

Electrical Specific Power Consumption: DSP Unit-1

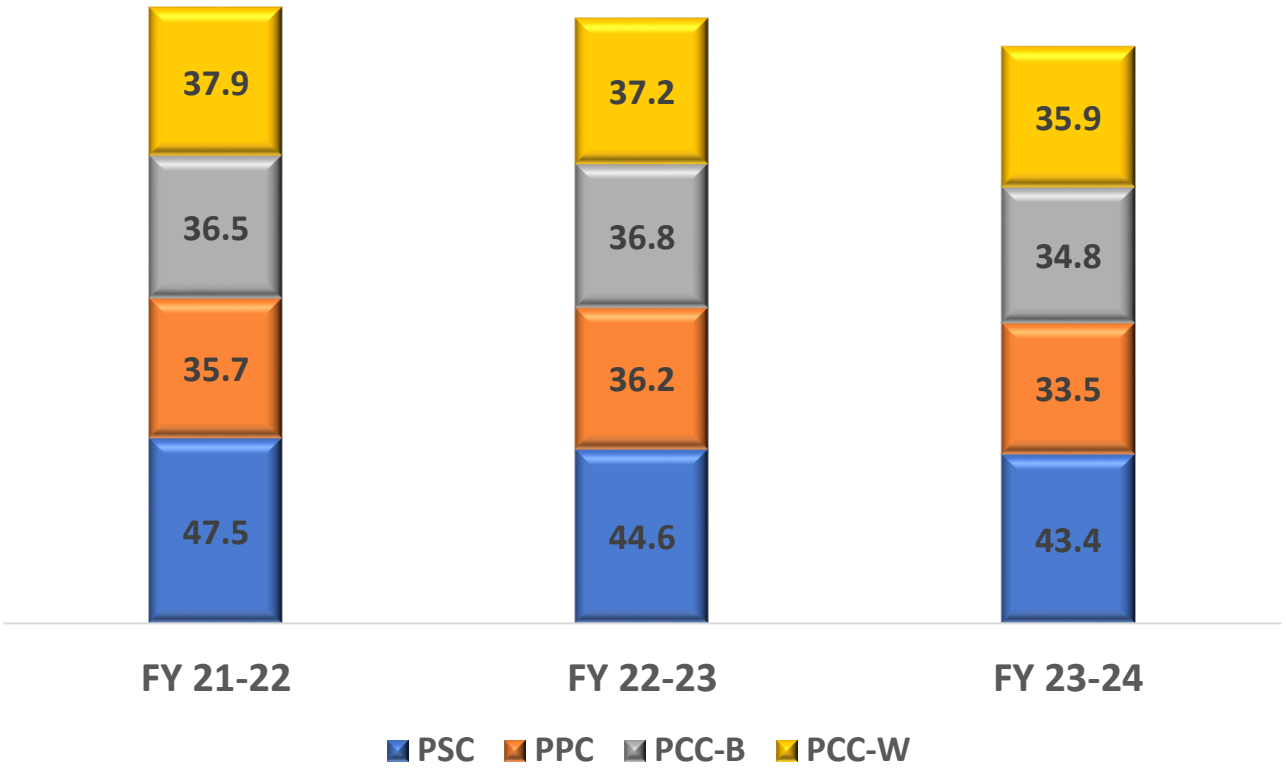




- % TSR increase 14.2 % in FY 23 to 21.5 % in FY 24 and FY 25 target is 35%.
- Low CV (<1000 Kcal/Kg) firing required more PH fan.
- Impact of 1.5 Unit power after installation of 3rd Shredder & 3 new trommels for ash reduction of RDF.

SPC Cement Grinding: RGP Unit

Product Wise Power Consumption kWh/Ton of Cement



- Decrease in 1.3 kWh/ton of Cement in PCC-W.
- Decrease in 2.0 kWh/ton of Cement in PCC-B.
- Decrease in 2.7 kWh/ton of Cement in PPC.
- Decrease in 1.2 kWh/ton of Cement in PSC.

EnCon Major Projects

Encon Major projects in FY 2023-24

Title of Project	Replacement of CCX cyclone with HR+ cyclones									
Annual Electrical Saving (KWH)	Electrical Savings (kW)	Annual Electrical Cost Saving (Rs million)	Annual thermal Saving			Annual thermal Cost Saving (Rs million)	Total Energy Saving (ToE)	Total Annual Savings (Rs million)	Investment Made (Rs million)	Payback (Months)
			Quantity		UOM					
			TOE	million kcal	kcal/kg Clk					
1872272	14828397720	0.47	2826.30	28263	10.7	3380000	2987.3	16515600	37785700	27.45

Encon Major projects planned in FY 2024-25

S.No	Title of the Project	Annual Electrical Saving (Million kWh)	Annual Thermal Saving (Million Kcal)	Annual Energy Saving (ToE)	Investment (Rs in Million)	Estimated Payback Period (months)
1	Recycle Waste Shed with 40 TPH shredder and trommel Installation (90x150mx15m) for Line -3	-	36000	3597.6	240	100
2	Bearing Cooling Axial Flow Fan	0.9636	-	82.85	2	33

Innovative Project - 1

Title of Project	Solar robotic cleaning system
Brief Description	DRC4700 Model (“cleaning robot”) is a sharable/portable Solar panel cleaning device, Intended to perform automated and waterless cleaning of ground mounted or rooftop solar plants.
Trigger for implementing the project	Safe operation during roof top PV module cleaning.
Year of Implementation	2023
Annual Savings (Rs. In lakhs)	5.9
Investment (Rs. In lakhs)	1.25

1 In house Design & development

2 Awards & Appreciation

Innovative Project - 2

Project- Annadata

A Vision For Sustainable Growth

Overview

Transform the lives of farmers in community through agriculture by focusing on paddy cultivation and bamboo plantation, and by providing sustainable livelihoods through the supply of waste paddy straw and bamboo stems as alternative fuel resources

01.
MoU with NABARD

02.
livelihood opportunity through 100 acres of bamboo plantation covering 10000 bamboo plantations.in community

03.
Distributed paddy seeds to 1,500 farmers for cultivation and encourage them to prevent burning of waste paddy straw after the harvest

04.
5000 farmer involve in Paddy cultivation and so far 300 ton waste paddy straw collected from farmers supplied as AFR to plant

05.
Bamboo saplings distributed and planted in 50 acres of land

06.
Bamboo plantation for carbon sequestration and soil conservation to water purification and renewable energy production

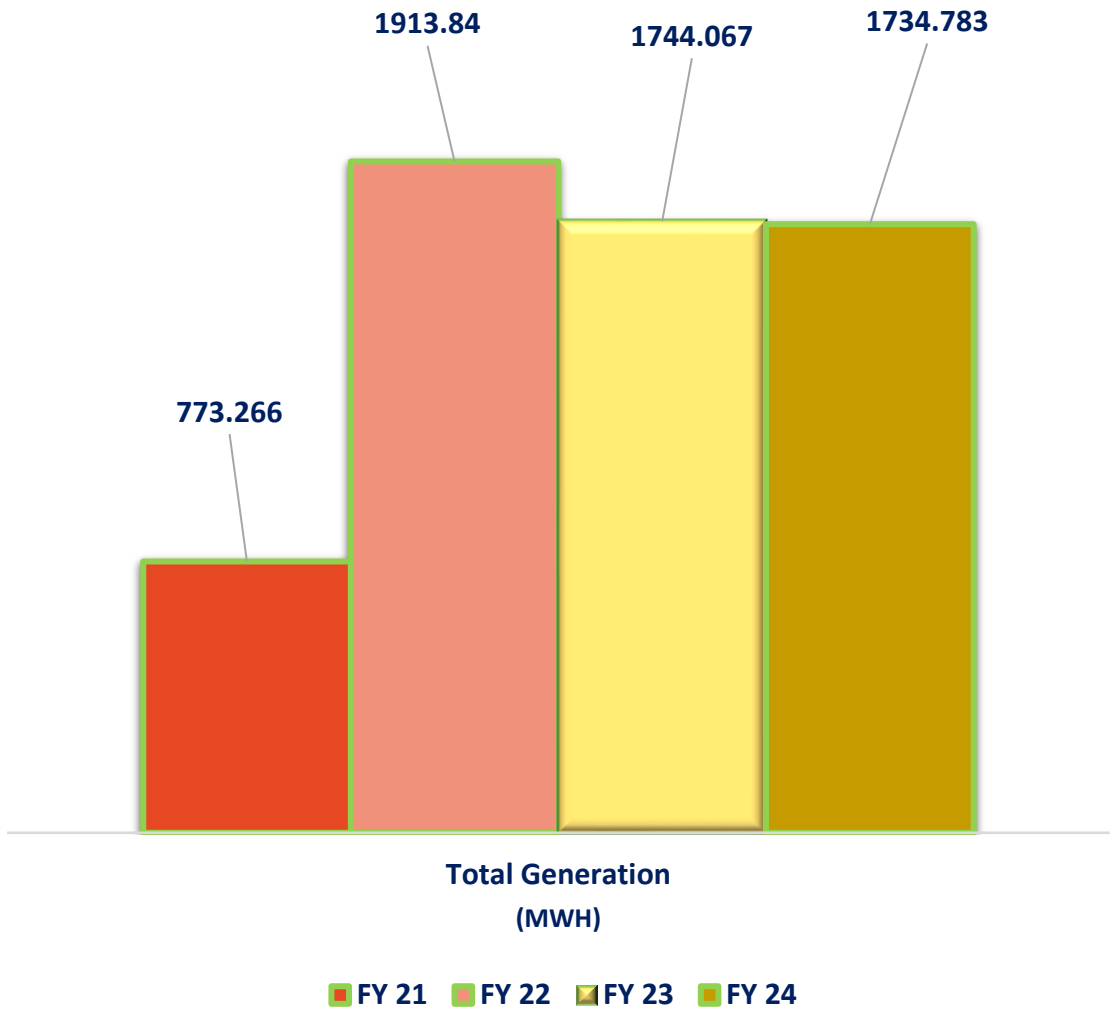
07.
Paddy straw is a valuable resource for bioenergy production, offering renewable energy alternatives and reducing dependence on fossil fuels

Innovative Project - 3

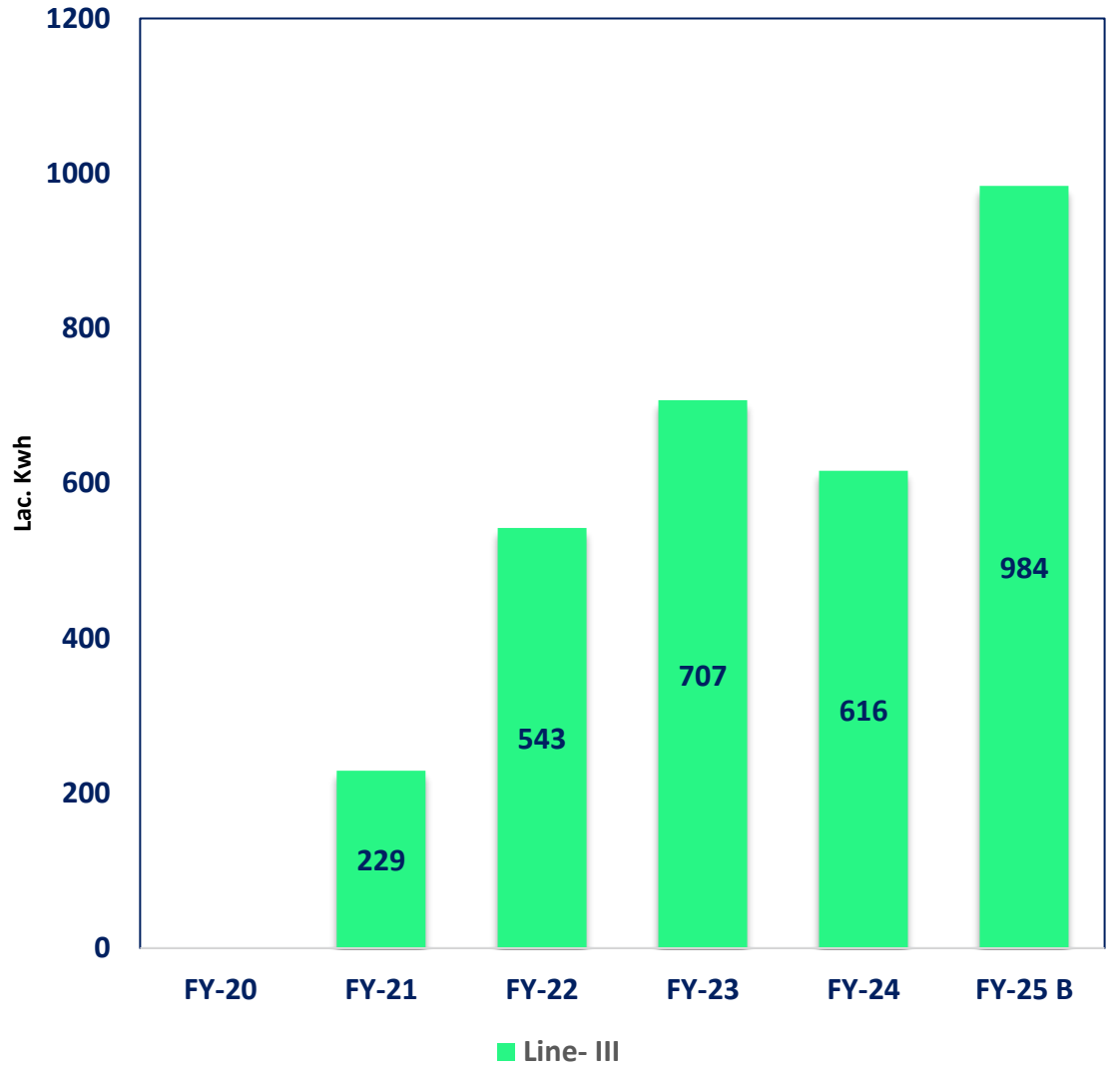
Title of Project	In-house Trommel
Trigger for implementing the project	Reduction of ash% and moisture% in RW
Year of Implementation	2023
Investment (Rs. In lakhs)	14

Utilization of Renewable Energy sources

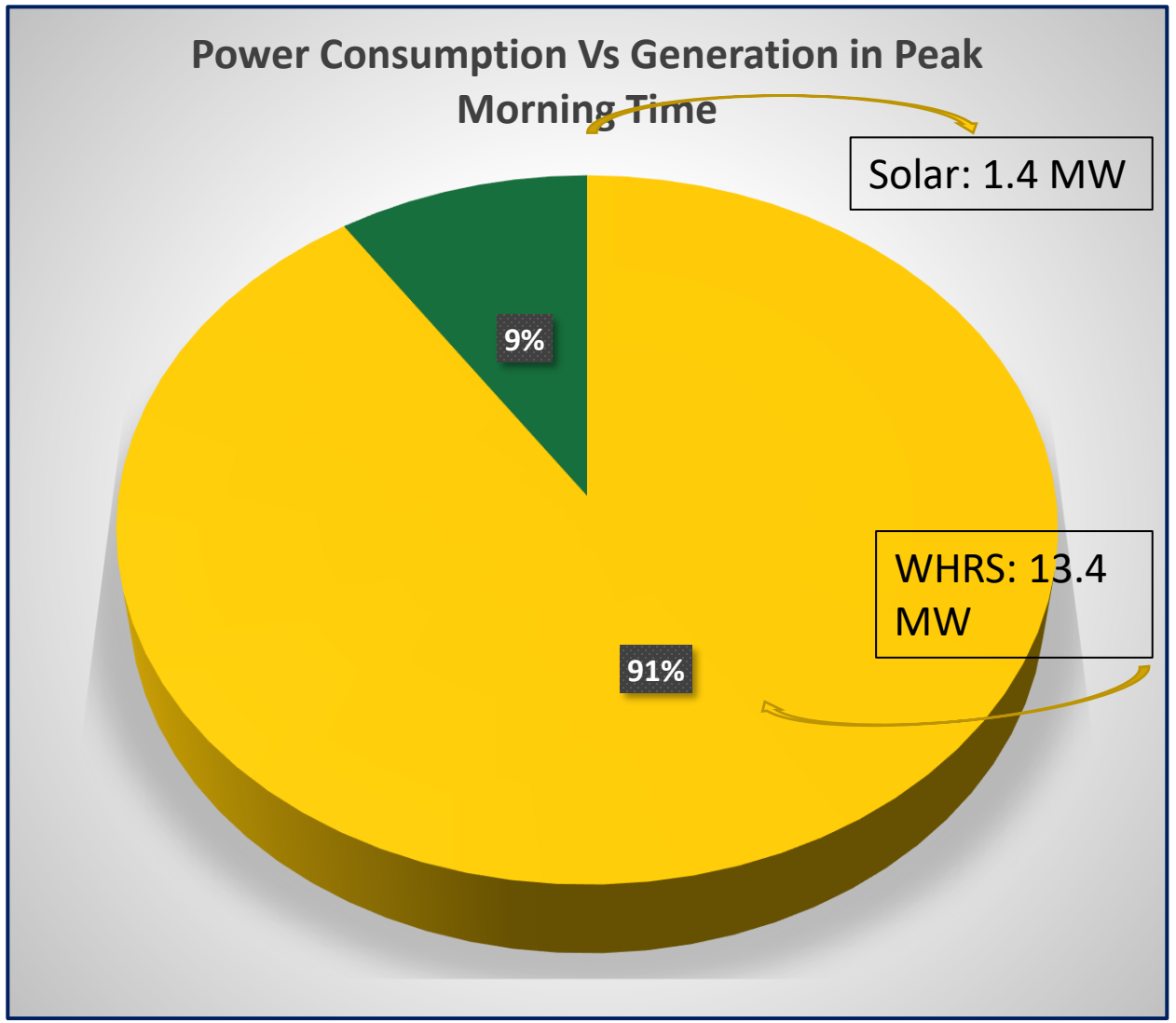
Solar Plant



WHRS Net Generation



Road Map for Sustainable 100% RE



- RGP DSP Unit-I total requirement is 14.8 MW
- 13.4 MW through WHRS
- 1.4 through Solar Plant during peak Sunny time leading “ZERO” intake from Captive plant.
- During night only 1.4 MW is taken from CPP.

Action Plan :-

- Increasing WHRS to 15 MW (Best weekly Figure :-14.8 MW)
- Additional 1.7 MW solar power which will be commissioned in FY 25 but area development is under progress.

Various Types Waste Usage at DSP Unit-1, RGP

Solid Non-Hazardous Waste

- Beverages Sludge
- Plastic Waste
- RDF
- MSW
- Dolochar
- Flue Dust
- FMCG Waste

Solid Hazardous Waste

- Process Sludge from MCPI Haldia
- ETP sludge from MCPI Haldia
- Paint Sludge
- Pharmaceutical Waste
- IOCL Sludge
- Pre-processed Organic Waste

Liquid Waste

- Spent Solvent Liquid

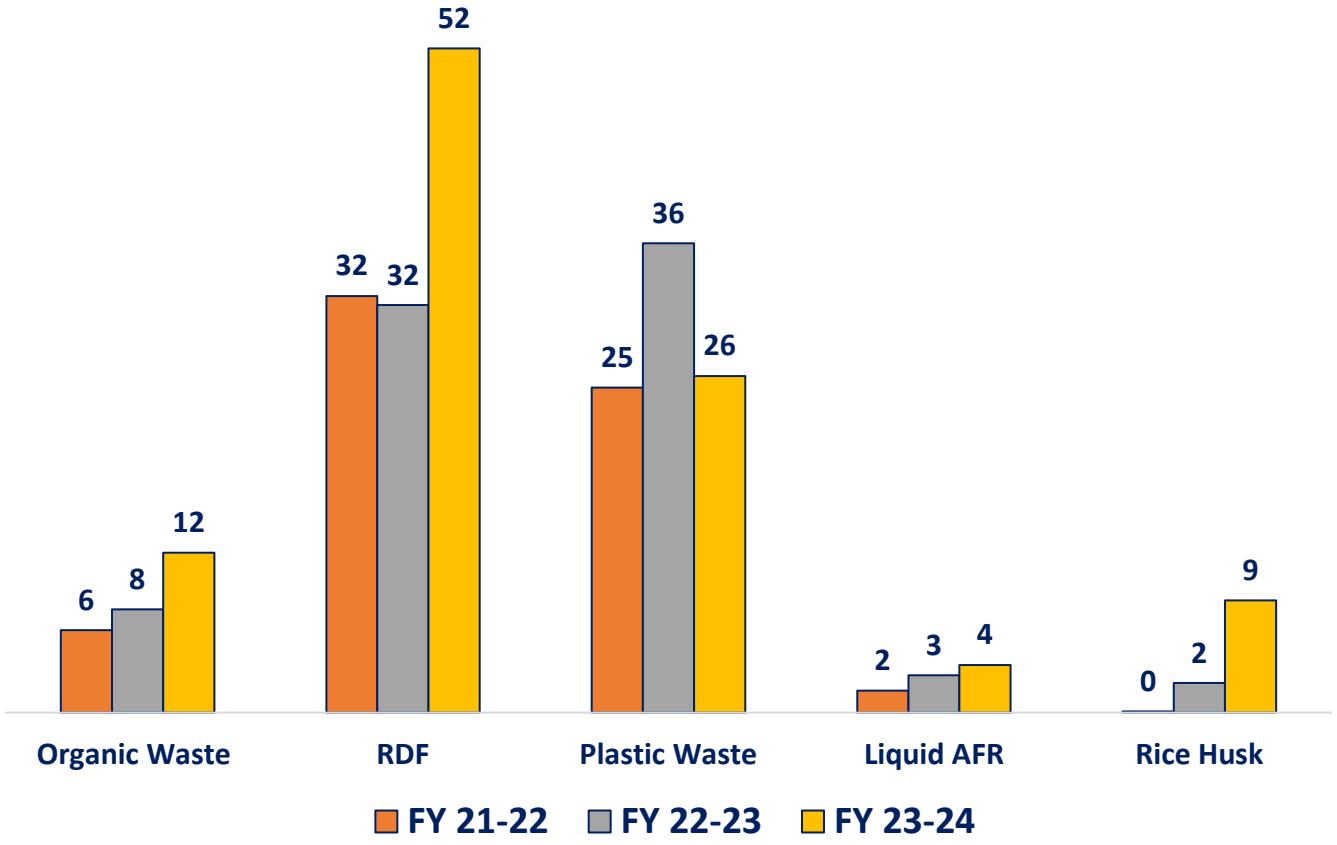
Agri Waste / Biomass

- Rice Husk
- Rice Straw
- Saw Dust
- Sugarcane Bagasse
- Wood Chips
- Cashew Nut Shell

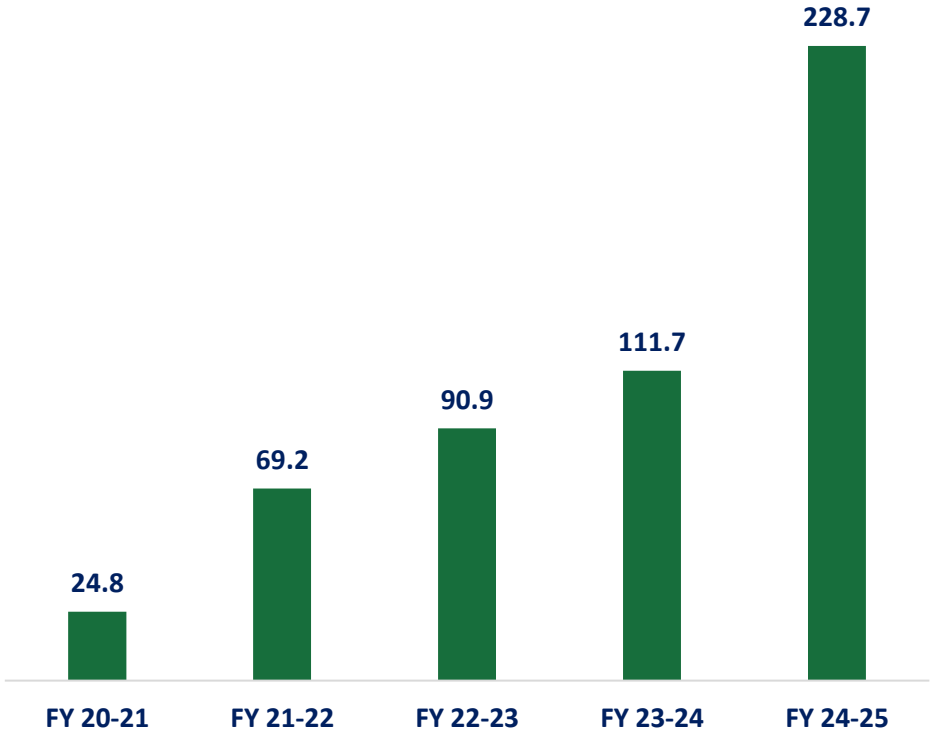
Waste utilization and Management in DSP Unit-1

Alternative Fuel Consumption

Major Recycled waste consumption (KMT/Annum)

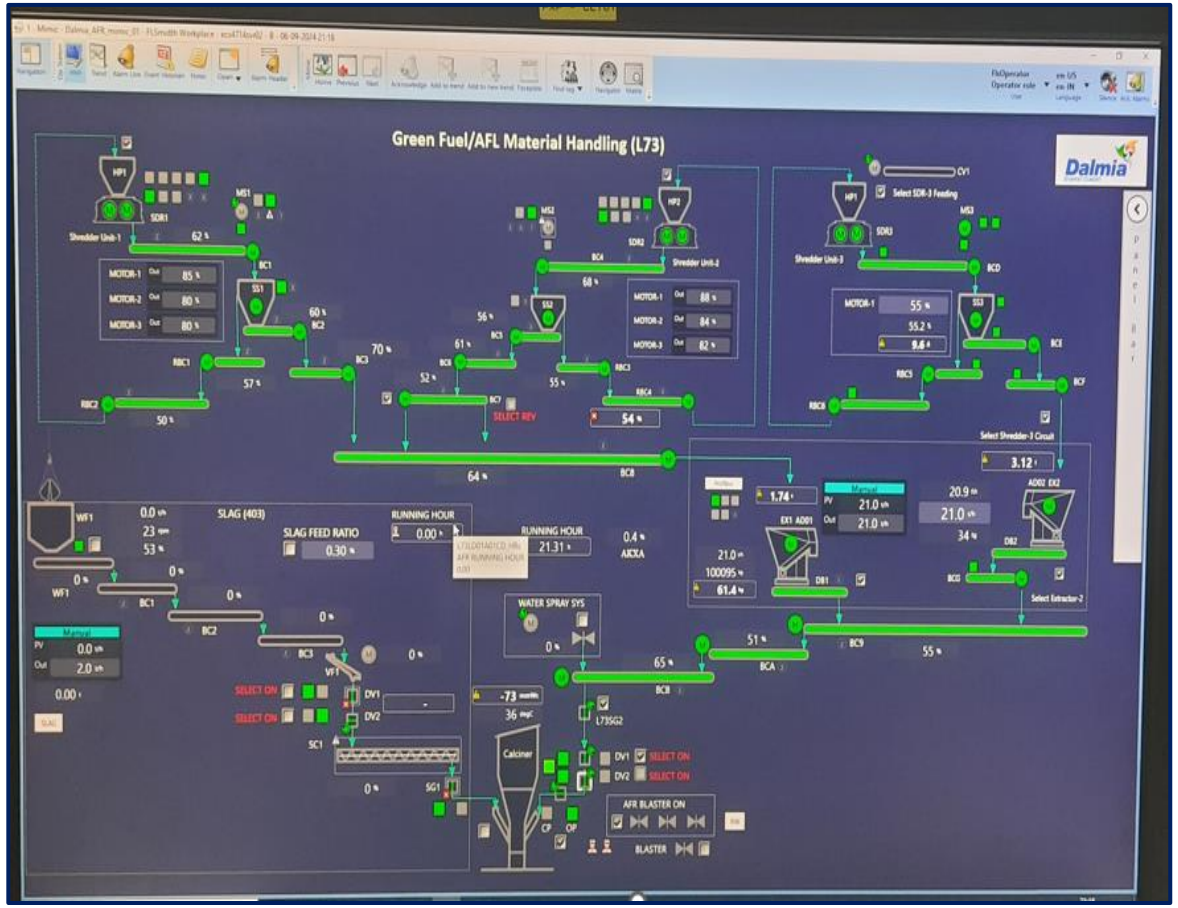


Total Quantity Green Fuel (KMT)

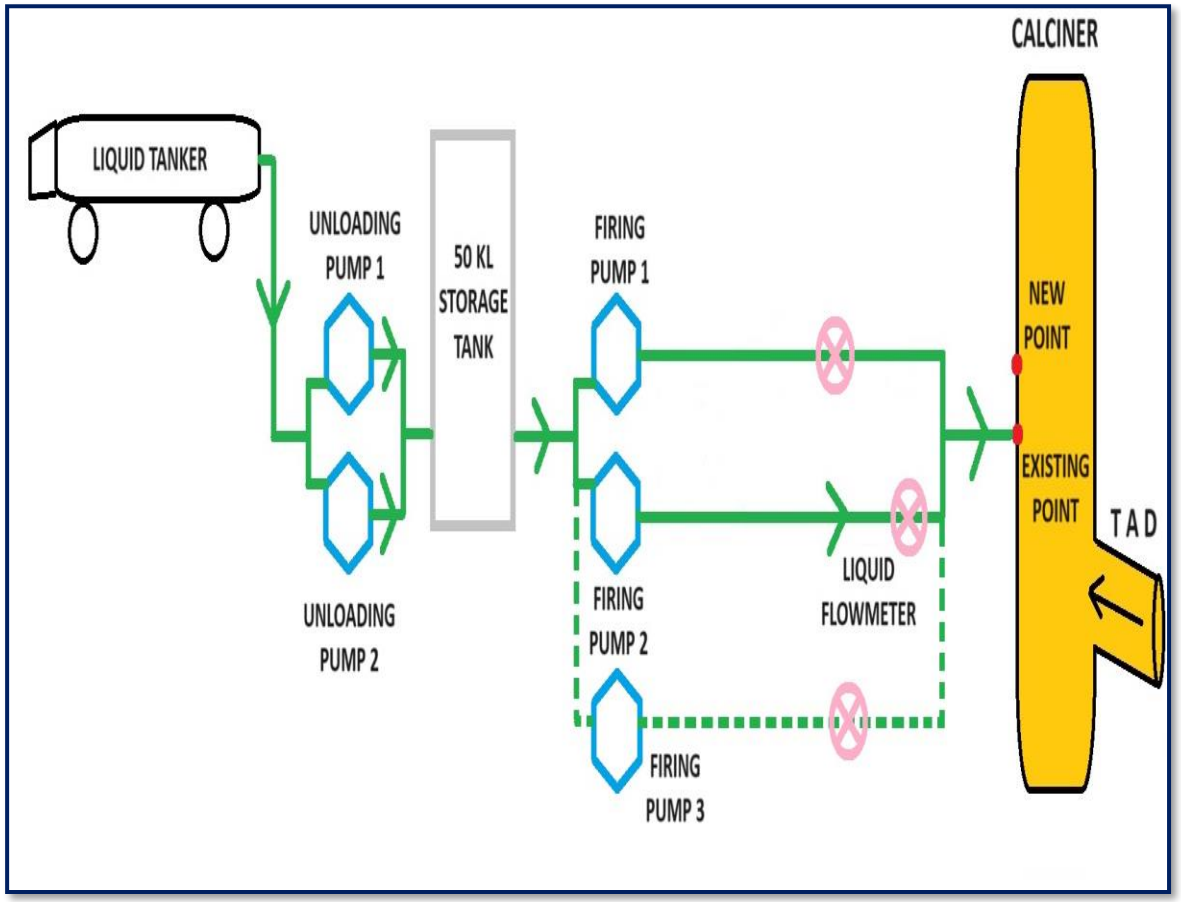


Solid and Liquid RW Co-Processing Unit

Solid RW System



Liquid RW System

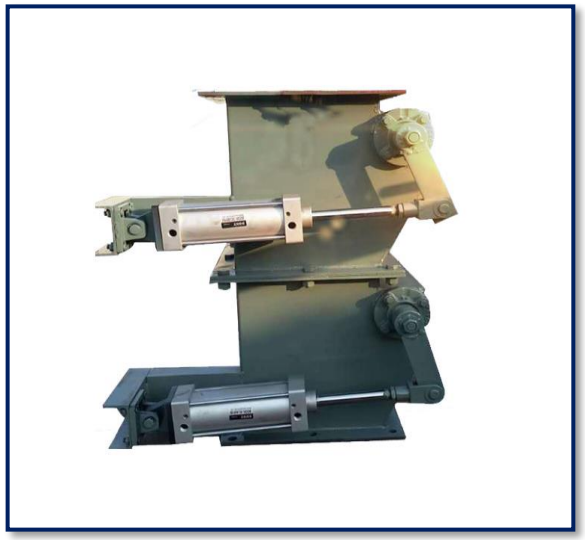


Equipment of Solid RW unit

Shredder

Extractor

Screen



Double Flap Gate

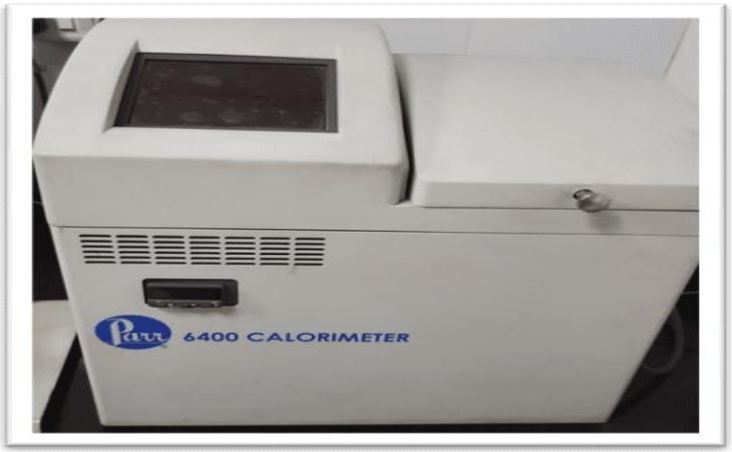
Trommel

Dedicated state of art Recycled waste laboratory

For measuring viscosity of all liquid RW

Sulphide analyzer for all liquid and solid analyzer

Moisture analyzer for solid RW

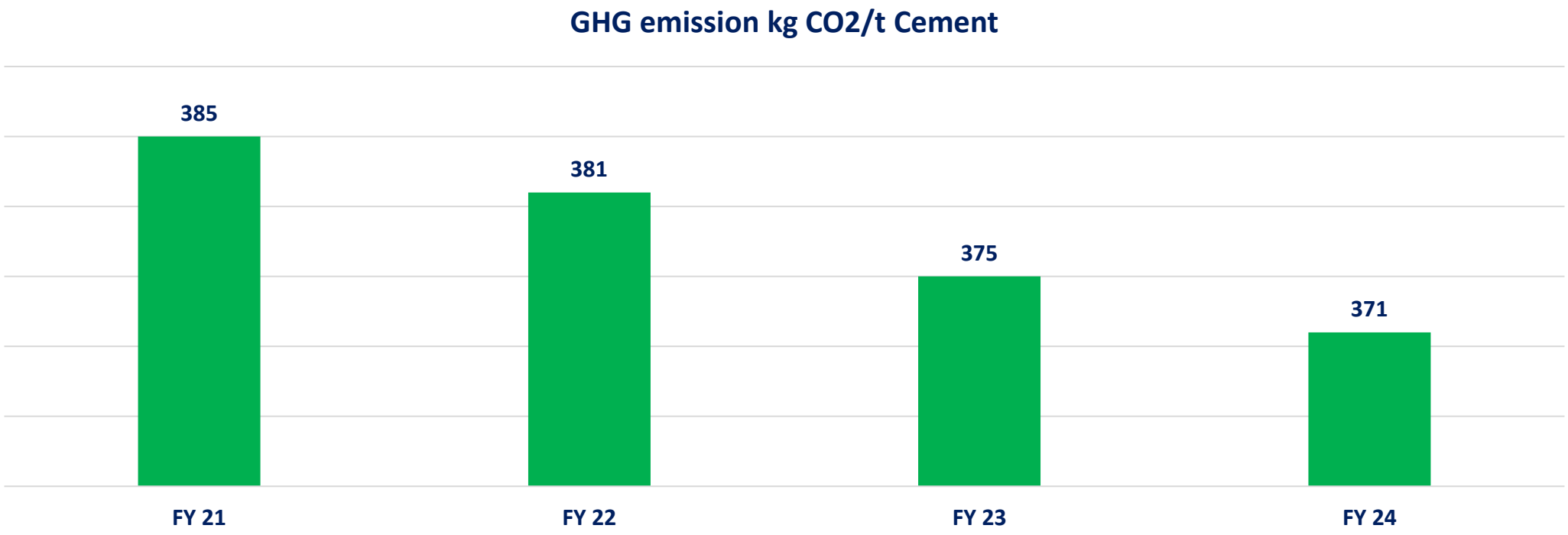


Bomb calorimeter for Gross Calorific value

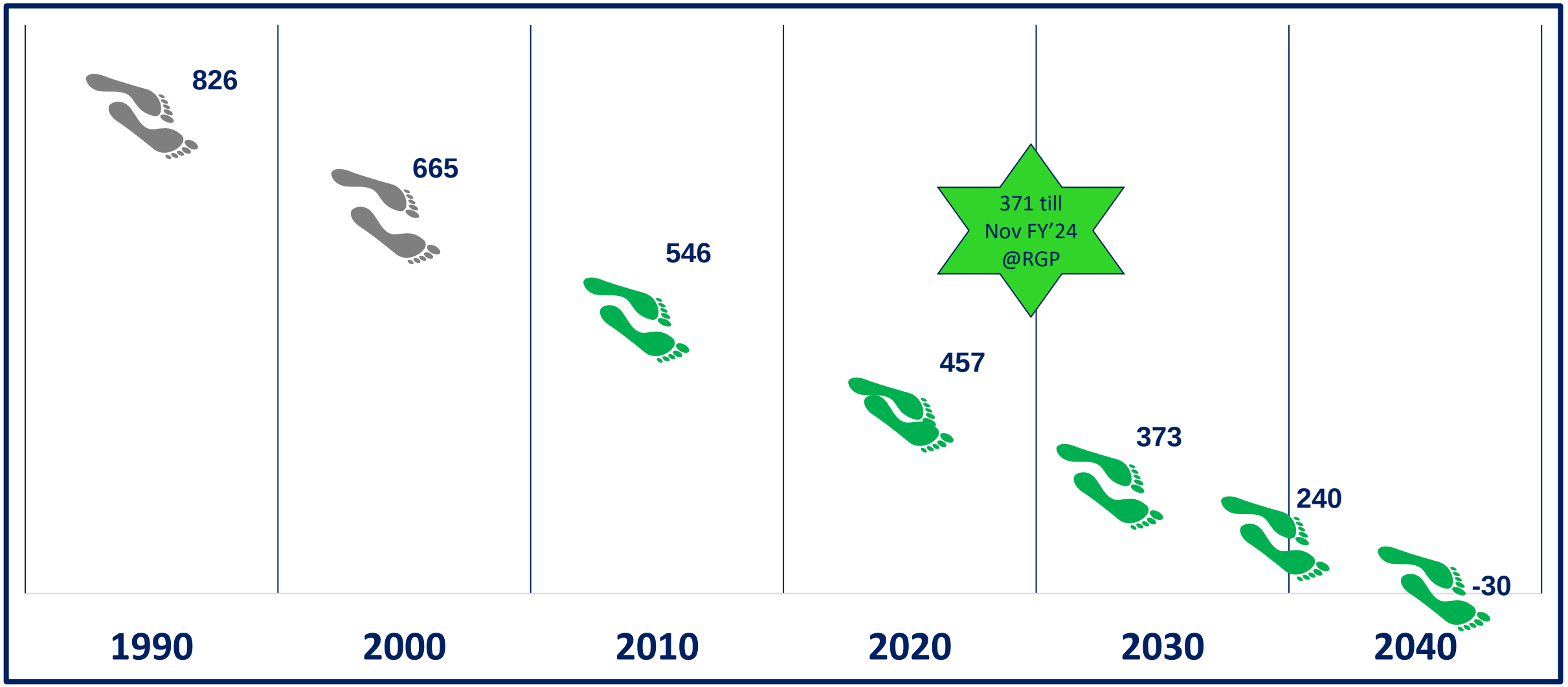
Flash point analyzer

Auto titrate to check chloride content

GHG Inventorisation



- Moving from grey to green-Road map for Carbon negative transition (CO_2 emissions in Kg/ton of cement)



GHG Reduction Action Plan

- Alternative fuel - Most important levers to achieve carbon negative commitment.
- Dalmia RGP, is marching strongly towards the ambitious goal of becoming carbon negative.
- In FY 23-24, Dalmia cement kilns co-processed 111.7 thousand tons of hazardous and non- hazardous waste and to be doubled in FY 24.
- Average YTD TSR% is 21.5 % in FY24 and FY 25 our target is 35 % so for that Trommel and shredder under installation.
- We are increasing CC cement production to maintain CC Ratio 2.41
- Vehicle which is used for Clinker transportation to KCW grinding from RGP unit and same backloaded with RDF from BBSR municipality.

GHG Reduction Action Plan

- **Reduce vehicle emissions** from transportation by improving air quality, reducing smog, and providing more travel options such conversion of conventional to electric.
- **Use less energy** by switching to more efficient lighting using solar energy, installing solar panels, and using energy-efficient appliances.
- **Cleaner production technologies**: These include using alternative fuels and raw materials, and implementing Arc furnace (First time introduction in India by Saltx).
- Aggressive green cover target of 58250 saplings plantation in FY 25 with a survival rate of 94.7%

Eco-friendly E-vehicle utilization in Plant and colony

Dalmia group mitigated 1.06 million tonnes CO_2/year

"As India's pioneer in green cement manufacturing, we are making concrete efforts to introduce innovative solutions that promote sustainable transport as well as increase the decarbonization of our fleet. We are confident that our commitment to walk the green path will pave the way for smarter transport that optimizes energy use."

Mr. Chetan Shrivastav, Executive Director, DCBL and Unit Head

Dalmia Cement Bharat launches India's First e-Trucks Initiative

Green & Clean, That's the Dream- RGP motto

Clean and Green initiatives – Inside Plant

ISO CERTIFICATION

Dalmia Bharat

TÜV NORD

CERTIFICATE

Management system as per

ISO 9001 : 2015

The Certification Body TÜV NORD CERT GmbH hereby confirms as a result of the audit, assessment and certification decision according to ISO/IEC 17021-1:2015, that the organization

DALMIA CEMENT (BHARAT) LIMITED
Rajgangpur, District: Sundargarh,
Odisha - 770 017,
India

operates a management system in accordance with the requirements of ISO 9001 : 2015 and will be assessed for conformity within the 3 year term of validity of the certificate.

Scope -

Manufacture and Dispatch Clinker and Cement, Mining of Lime Stone and Generation of Thermal Power for Captive Use.

Certificate Registration No. **44 100 19392390**
Audit Report No. **2.5-9111/2019**

Valid from **21.08.2022**
Valid until **20.08.2025**
Initial certification **15.05.2019**

Certification Body
at TÜV NORD CERT GmbH

Mumbai, **14.08.2022**

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TUV India Pvt. Ltd., 801, Raheja Plaza – 1, L.B.S. Marg, Ghatkopar (W), Mumbai - 400 086, India www.tuv-nord.com/in

IAF DAkkS Deutsche Akkreditierungsstelle D-ZM-12007-01-00

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TÜV NORD

CERTIFICATE

Management system as per

ISO 50001 : 2018

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DALMIA CEMENT (BHARAT) LIMITED
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Odisha - 770 017,
India

operates a management system in accordance with the requirements of ISO 50001 : 2018 and will be assessed for conformity within the 3 year term of validity of the certificate.

Scope -

Manufacture and Dispatch Clinker and Cement, Mining of Lime Stone and Generation of Thermal Power for Captive Use.

Certificate Registration No. **44 764 19392390**
Audit Report No. **2.5-9111/2019**

Valid from **21.08.2022**
Valid until **20.08.2025**
Initial certification **15.05.2019**

Certification Body
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Awards and Accolades

Award received:

Awarded on BIS Foundation Day, January 6, 2024 for achieving ZERO failure in RGP product(s) drawn by Bureau of Indian Standards and tested in BIS/BIS recognized laboratory, since 01 April 2021.

THANK YOU