

**DALMIA BHARAT SUGAR AND INDUSTRIES LTD.
UNIT- SHREE DATTA KOLHAPUR**

PRESENTED BY-

**PRADEEP MITTAL, DY. E. D.
MANISH KUMAR AGRAWAL, AGM (COGEN)**

OUR PRODUCTS & CERTIFICATION



- ✓ Double Sulphited White Crystal Sugar (M31, L30 & L31, S30 & S31)



Bonsucro Certification



- ✓ Ethanol



Food Safety and Standards
Authority of India



- ✓ 100% Renewable Energy



Food Safety Management
System Certification 22000

SPECIFICATIONS OF SECTIONS

- ✓ **SUGAR** Initially plant capacity was **2000 TCD** and now it is **9000 TCD** with latest energy efficient technology & state of art automation.
- ✓ **COGEN** - In 2013-14 We had successfully commissioned **120 TPH** latest technology boiler along with **23 MW** four extraction cum condensing TG set with Air cooled condenser for minimizing water consumption.
- ✓ **ETHANNOL** - In 2015-16 we had commissioned **60 KLPD** Distillery with **18 TPH** incineration boiler & **1.76 MW** TG set for waste management & inhouse consumption. Further expansion was done in 2020-21 for **120 KLPD** Distillery & **21TPH** Boiler capacities for full waste consumption & 100% elimination of fossil fuel (Coal).

Last Year Financial

TURN OVER IN MILLION RUPEES	TOTAL ENERGY COST OF MANUFACTURING COST (%)	ENERGY COST (Rs./Kwh)
4983	8	7

MANUFACTURING PROCESS

Process

- Double Sulphited White crystal Sugar from cane sugar with auto cane feeding system & Mill speed control through DCS for maximum extraction & minimum bagasse moisture, energy efficient falling film evaporator & Pan (DCS Control) for minimum human error & maximum clean production. Automatic sugar weighing & bagging machines for contamination free packing of white crystal sugar.

Cogen

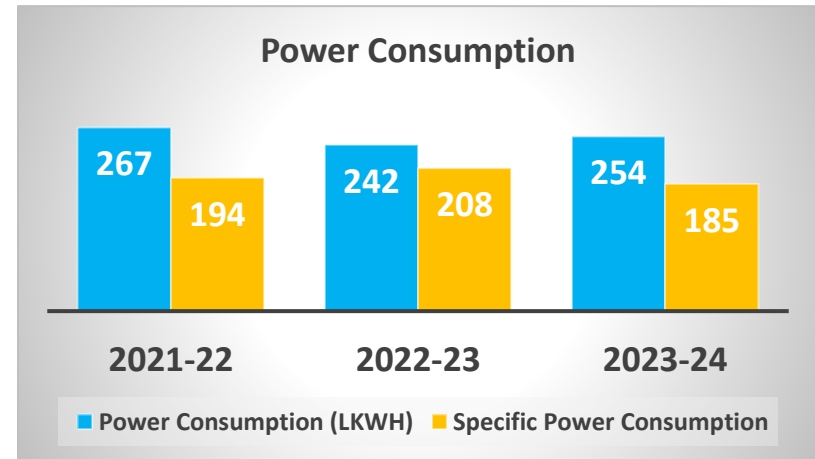
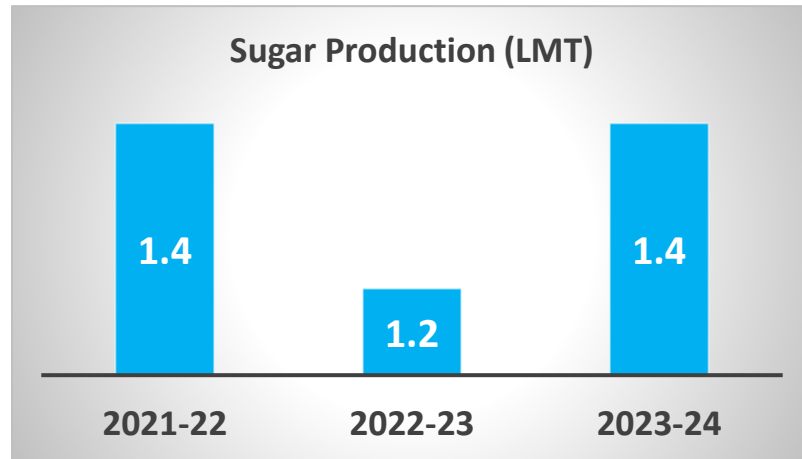
- Bagasse from mill is directly feed to our Cogeneration boilers for 100% green power production so lesser the moisture in bagasse improves boiler efficiency & proper combustion for minimum emission. We had installed four extraction cum condensing TG set with latest automation & DCS control & export surplus power to MSEDCL grid.

Distillery

- Syrup, BH & CH molasses sent to our Distillery for green fuel (Ethanol) production.
- Distillery waste (SLOP) is used as fuel with bagasse as support fuel in incineration boiler (21TPH & 1.76 MW TG) for green energy production and inhouse consumption.

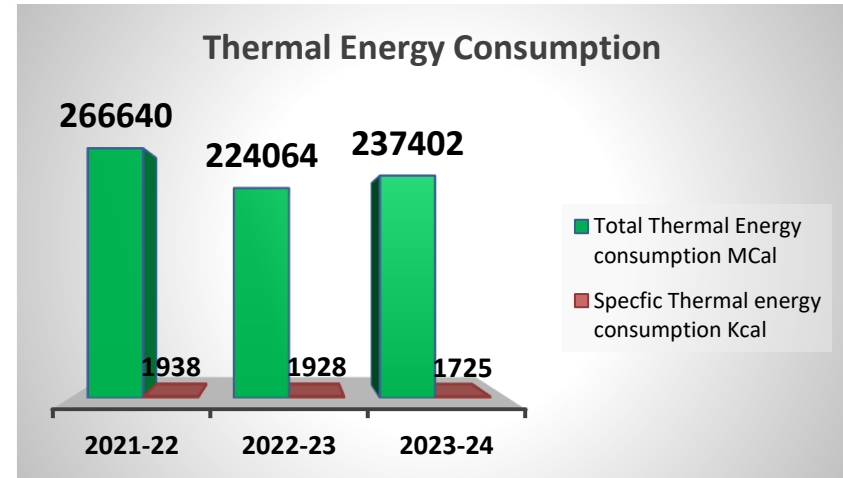
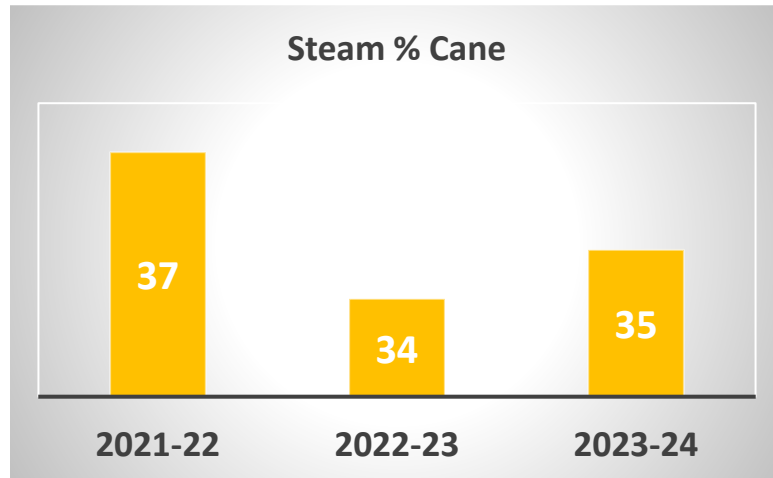
SPECIFIC CONSUMPTION

- **Normative Sugar Recovery:** Sustained at 13.3% over the last 3 years, the highest in India.
- **Production Decline (2022-23):** Due to sugar diversion for ethanol production.
- **Power Consumption:** Increased last year due to no sugar diversion.
- **Specific Power Consumption:** 12% lower this year.
- **Total Power Consumption:** Decreased by 3% to 5% over the last three years, thanks to energy-saving devices.

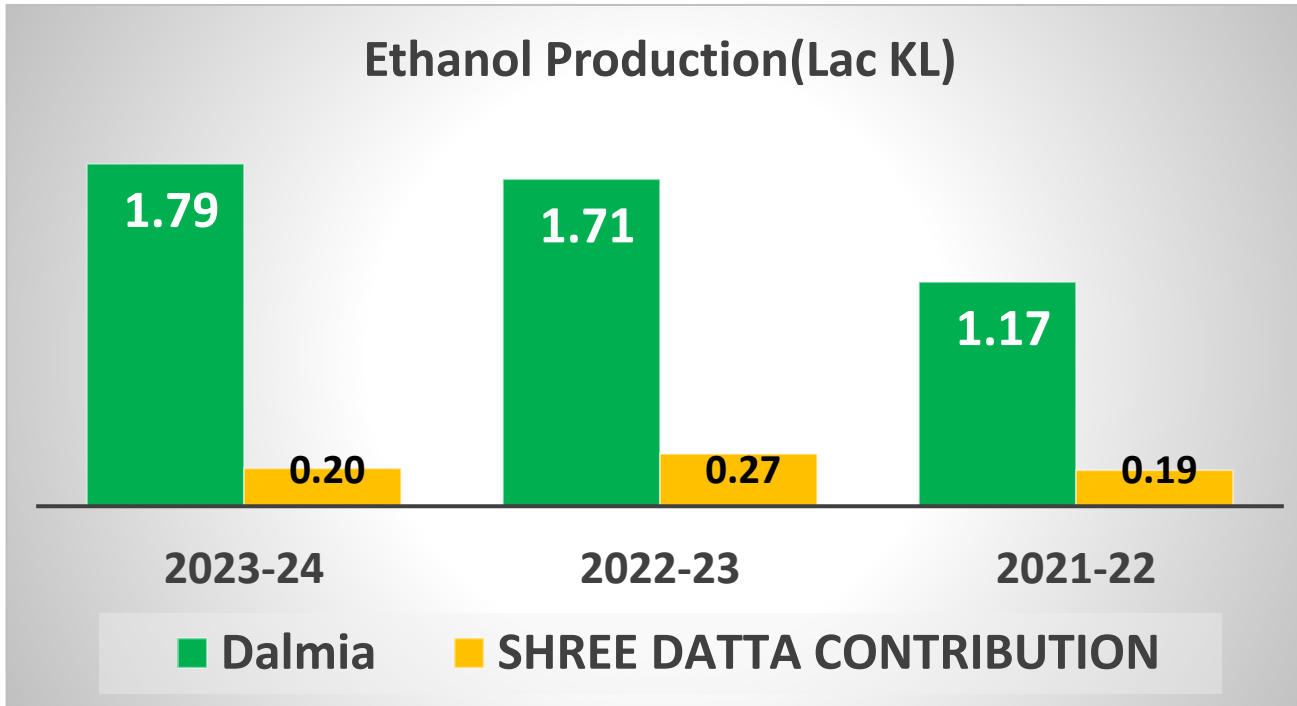


SPECIFIC CONSUMPTION

- **Thermal Energy Consumption:** Increased from last year due to process changes with no sugar diversion.
- **Specific Thermal Energy Consumption:** 10% lower this year compared to last year.
- **Steam % Cane:** Slightly higher due to no sugar diversion, but reduced significantly using energy-saving devices and automation.
- **Energy Consumption:** Both thermal and electrical energy consumption are influenced by sugar diversion for ethanol production.

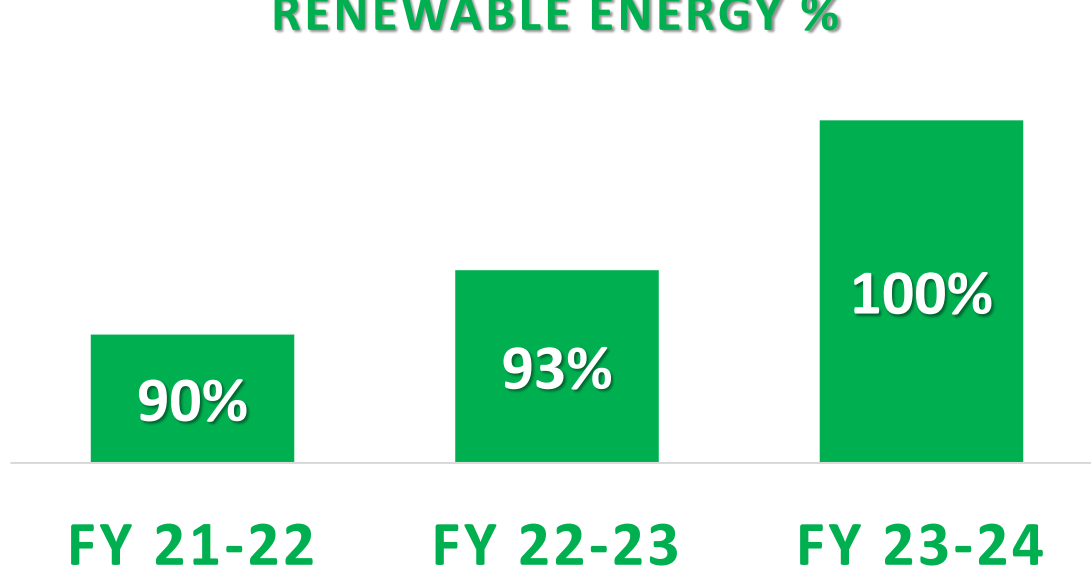


ETHANOL PRODUCTION DATA FY 2021-22 TO 2023-24



UTILISATION OF RENEWABLE ENERGY SOURCES (ONSITE)

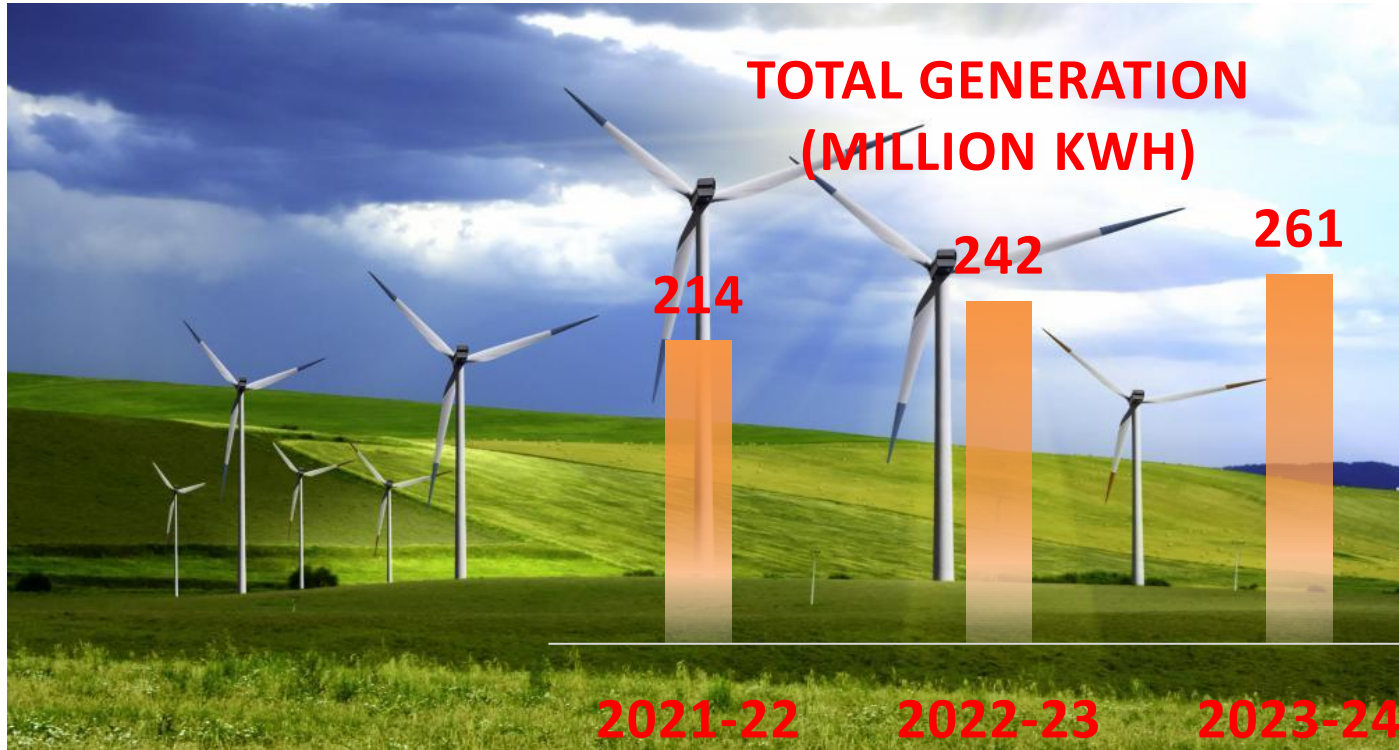
RENEWABLE ENERGY %



WE ARE 100%
RENEWABLE



UTILISATION OF RENEWABLE ENERGY SOURCES WIND (OFFSITE)



UTILIZATION OF RENEWABLE ENERGY SOURCES

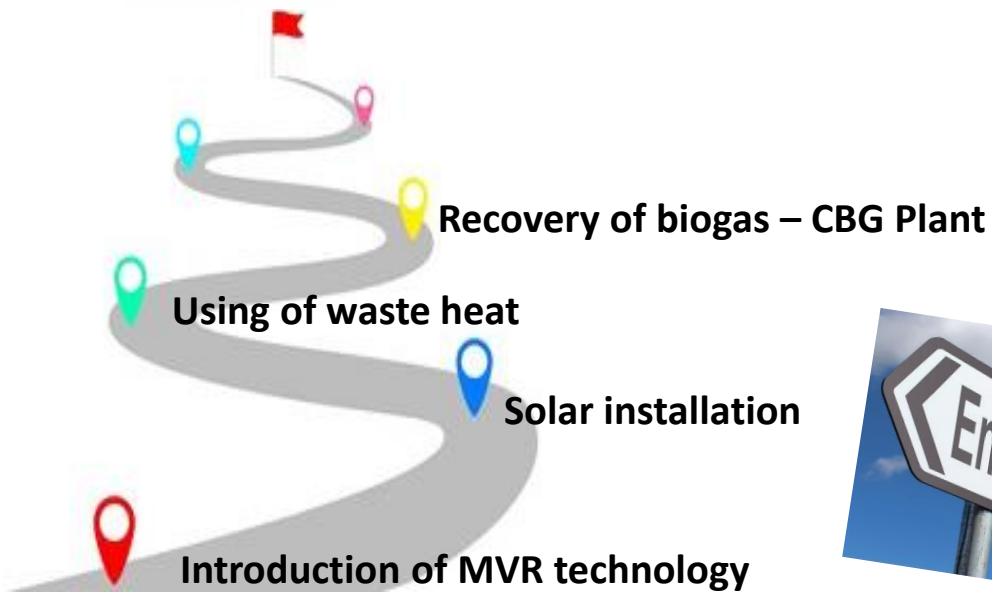
- ✓ We have **100% green & clean energy** generation from biomass.
- ✓ Export the surplus power to MSEDCL grid after inhouse consumption.
- ✓ Total plant consumption reduced approx. 9% from 2021-22 despite of reduction in generation.

YEAR	SOURCE	INSTALLED (MW)	ADDITION AFTER 2020-21 (MW)	TOTAL GENERATION (Million KWH)	TOTAL PLANT CONSUMPTION (Million KWH)	SHARE % WITH RESPECT TO OVERALL CONSUMPTION
2021-22	Biomass /Coal	26	NIL	147.3	40.7	90%
2022-23	Biomass/coal	26	NIL	128.8	38.1	93%
2023-24	Biomass	26	NIL	114.1	37.0	100%

ROADMAP & MAJOR PROJECTS



Target – To reduce steam consumption by 5% within next 5 year



Planned for next 5 years

ENERGY SAVING PROJECTS IMPLEMENTED IN LAST 3 YEAR

YEAR	NO.	INVESTMENT (INR MILLION)	SAVING (MILLION KWH)	SAVING (MILLION KCal)	TOTAL SAVING/YEAR (INR MILLION)	PAYBACK PERIOD (In MONTH)
FY2021-22	2	77	0.5	74	6	2
FY2022-23	3	59	0.2	186	77	9
FY2023-24	3	10	0.6	316	5	24

ENERGY SAVING PROJECTS IMPLEMENTED IN LAST 3 YEAR



SR. NO.	NAME OF ENERGY SAVING PROJECT	INVESTMENT (INR MILLION)	SAVING (MILLION KWH)	SAVING (MILLION KCal)	TOTAL SAVING/YEAR (INR MILLION)	PAYBACK PERIOD (In MONTH)
FY 23-24						
1	11KV VFD Installation for Mill-1(1000Kw)	9	0.3	248	2	54
2	Additional VFD Installation for Screen Juice Pump	1	0.2	68	1	7
3	ETP Power Optimization	0	0.1	213	2	0
FY 22-23						
1	Sulphited Juice VFD Installation	1	0	57	0	14
2	Baggase Feeding system	58	0	87	76	9
3	Energy Saving by installing VFD for Injection Pump	1	0	42	0	18
FY -21-22						
1	Installation of 37KW motor in place of 90KW	0.2	0.2	150	1	2
2	Water Management	76	0.2	183	4	2
3	Energy saving by Eliminating Rori Melter & pumping system	0.3	0.2	83	1	6

UTILIZATION OF 100% CLEAN & GREEN ENERGY

FY	ANNUAL ENERGY CONSUMPTION MILLION KWH	INSTALLED CAPACITY IN MW/HR	TOTAL THERMAL ENERGY CONSUMPTION MILLION KCAL	INSTALLED CAPACITY IN MILLION KCAL/HR
2020-21	40	26	612929	103
2021-22	41	26	583466	103
2022-23	38	26	509890	103
2023-24	37	26	451638	103

INNOVATIVE PROJECTS – CNG KIT

Project

CNG Kit for cane transportation tractors to minimize pollution & save environment.

Project Details

We are committed to minimize fossil fuel usage & same we had implemented in our cane transporting tractors as a pilot project for study the impact. We are excited to use of the same & this year we had planned to add more tractors in this category. Farmers are also benefitted by this project having less cost of mileage & more saving on cane transportation.

Replication Potential

Yes this can be replicated but require to educate farmers for it's benefits.

Why Innovative

This technology in tractors is not proven & farmers was afraid of less power of tractor & engine problems. Our cane team educated them & demonstrated the same in one vehicle to show the results.

Impact

It has benefitted both factory & farmers too & have a large impact on carbon footprint of the plant.



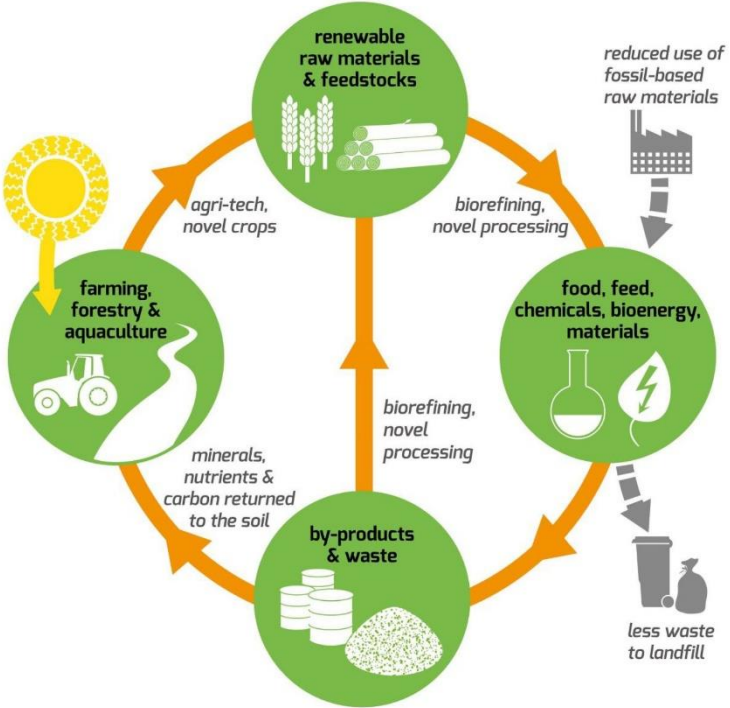
TRANSITION TO RENEWABLE ENERGY



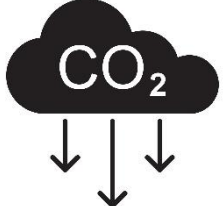
Improved Efficiency



Renewable Resource



Environmental Benefit



Carbon Emissions Reduction

Net Zero to be achieved by 2050 at all level

ASH BRICK PLANT INSTALLATION



Utilization of Waste

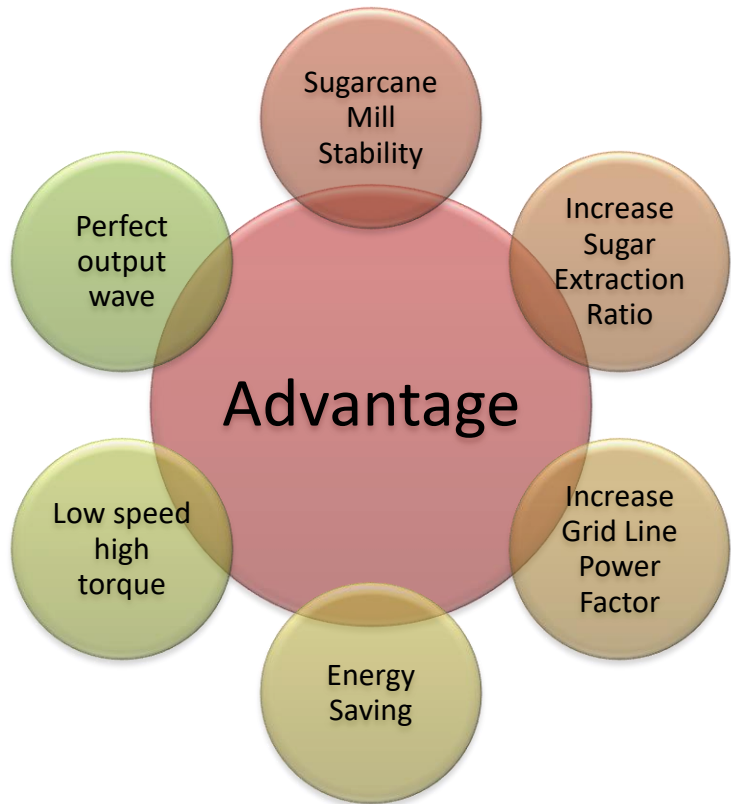
Cost Efficiency

Environmental Benefits

Supports Circular Economy



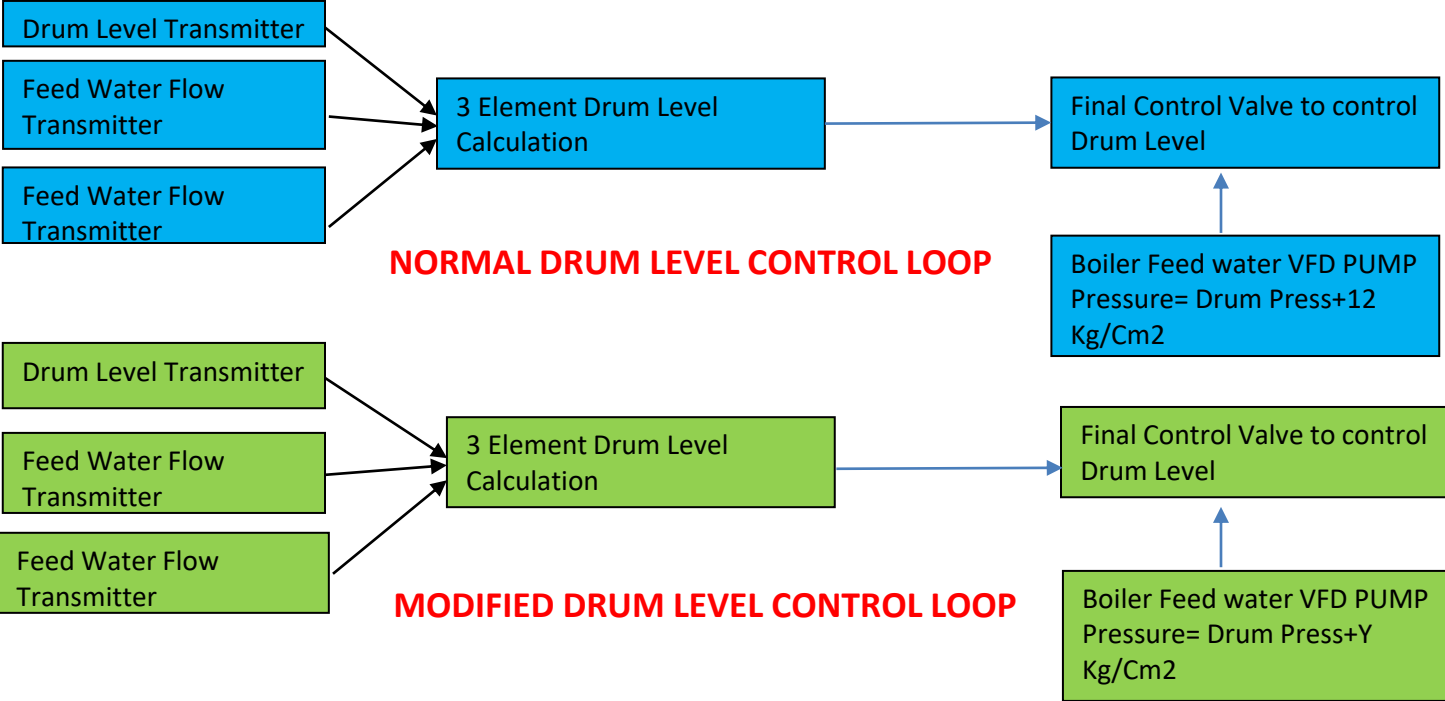
HIGH-VOLTAGE VFD: DRIVING EFFICIENCY AND CONTROL



POLLUTION CONTROL DEVICE – ELECTRIFIED GRAVEL BED



MODIFICATION IN CONTROL LOGIC



X= Drum Level
Y=Numeric value to add or subtract

UPGRADING WATER MANAGEMENT



✓ **Water Recycling**



✓ **Water Conservation**



✓ **Improved Water Quality**



✓ **100% Water Reused**



CARBON FOOT PRINT REDUCTION

61432 MT CO₂e

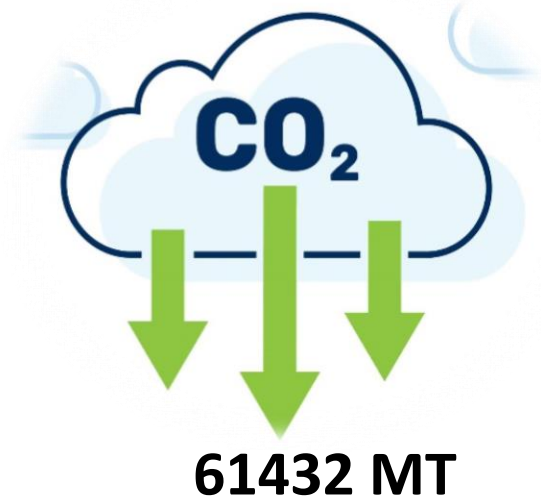
Annual Carbon Footprint Reduction

Removed Coal - 44669

Manufacturing of Fly Ash Brick Plant- 69

Water Management- 1659

HT VFD Installation - 102



BENCHMARKS AND ACHIEVED – OUTSIDE

PARTICULAR	UNIT	DALMIA		DCM SHRIRAM		EID PARRY	
		FY					
		23-24	22-23	23-24	22-23	23-24	22-23
Total Scope 1	Million T CO2e	0.14	0.13	0.59	0.64	0.24	0.22
Total Scope 2	Million T CO2e	0.001	0.001	0.02	0.02	0.01	0.01

Target

- ✓ To reduce Scope 1 – 50 % within 10 year
- ✓ To reduce Scope 2 – Already negligible
- ✓ Net Zero by 2050 (Company level)

BENCHMARKS AND ACHIEVED – INSIDE

SR NO	PARTICULAR	UOM	SHREE DATTA		RAMGARH		JAWAHARPUR		NIGOHI		NINAIDEVI	
			FY									
			23-24	22-23	23-24	22-23	23-24	22-23	23-24	22-23	23-24	22-23
1	Steam Consumption	MT/MT	35	34	36	35	41	39	37	39	38	39
2	Power Consumption	KWH/MT	25	24	31	29	27	27	30	27	23	20
3	Steam Fuel Ratio		2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.2	2.2
4	Steam Power Ratio		5	5	6	6	6	6	6	6	15	17
5	Specific Water Consumption	KL/MT	0.2	0.1	0.3	0.4	0.1	0.1	0.0	0.1	0.1	0.1

PEER GROUP'S INITIATIVE



Dalmia Bharat Sugar	Balrampur Chini Mills Limited	Shree Renuka Sugars Limited	Dwarikesh Sugar Industries Limited
CPU	VFD with level control	Electrostatic Precipitators	Planetary gears
Ultra Filtration	Planetary gears	Real Time Cane Control (RTCC)	Digitized architecture
Reverse osmosis	Screw pumps / high flow pumps	Brown sugar packing system	Spent wash incineration boiler
Fly Ash Brick Machine Installation	Pneumatic Plough	Planetary Gear Boxes	Deep submersible pumps
MVR	Auto feed control valve (IRIS)	VFD	Multi-stage effective flue gas treatment systems
HT VFD at Milling	Online monitoring of levels		
Highly Efficient Gearbox + VFD Drive Combo	Dense based ash withdrawal system		
High Velocity Water Spray (HVWS)			

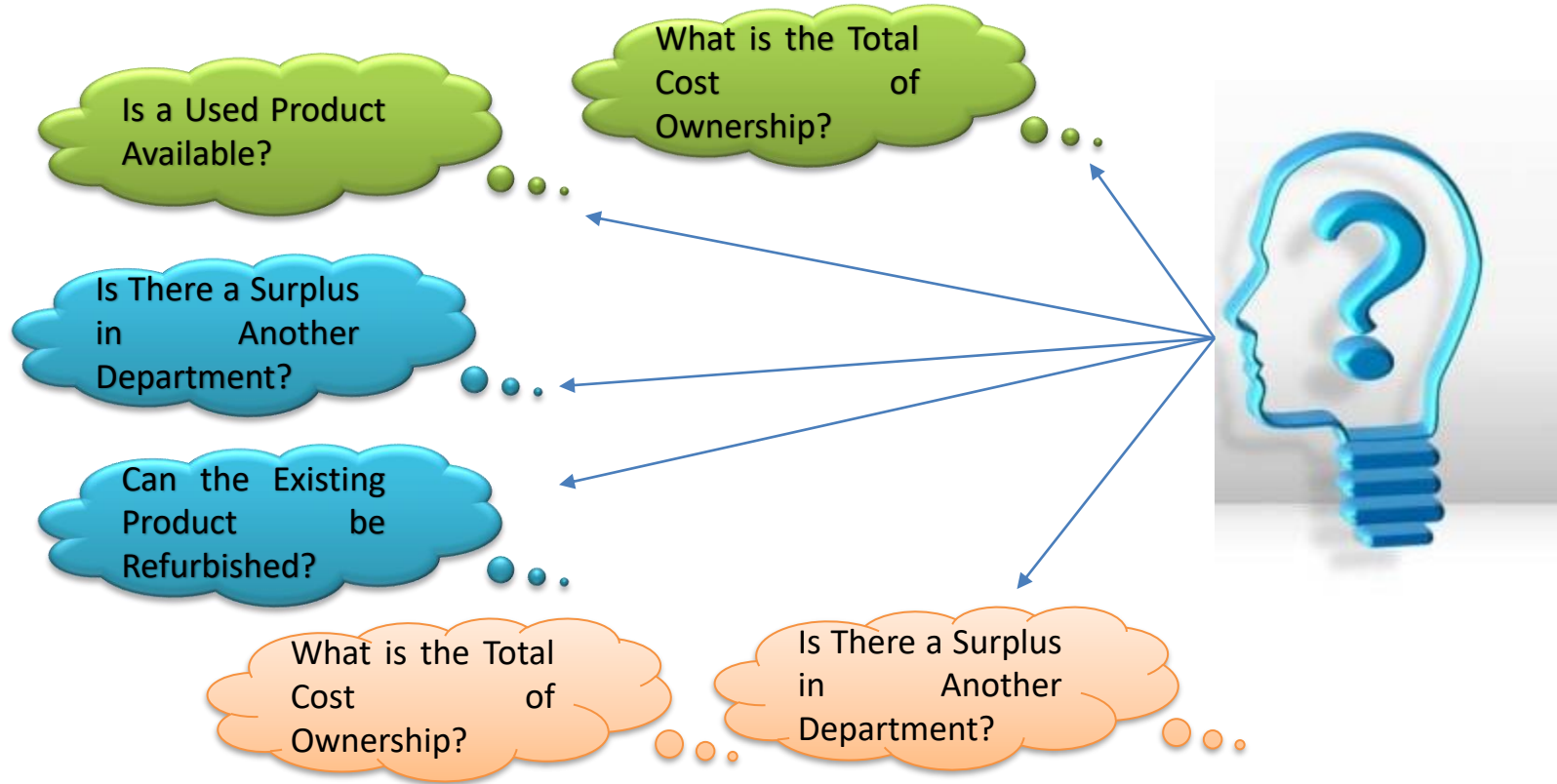
GREEN SUPPLY CHAIN MANAGEMENT

The sustainable performance of firms does not merely gauge their economic performance but also their sustainable development. Since the environmental supply chain management of firms has an important part in maneuvering their sustainable performance.

- We are supplying final product to institutional buyers like Coke, Pepsi, Hershey, BPCL & IOC etc. They have strict customer evaluation process with third party audit every year.
- We are doing supplier evaluation before procurement.
- We are encouraging our suppliers to use maximum green energy & arrange credits wherever necessary.



BUYING SMART: KEY QUESTIONS



BUYING SMART SOLUTIONS



Software Upgradation: ARIBA Software on the top of SAP to make supply as a green in next 5 year



Preserve Resources: Use natural resources efficiently. We have implemented



Cut Pollution: Implement practices that reduce waste and emissions.



Promote Health and Safety: Ensure a healthy environment on campus and in our community.



Encourage Supplier Responsibility: Motivate suppliers to minimize their environmental impact and influence their supply chain.



Support Local Economy: Prioritize local goods and services.

EMS SYSTEM AND OTHER REQUIREMENTS

- **Manual Data Entry**
- **Delayed insights**
- **Scalability Issue**
- **Data Consistency**

Challenges With
Pervious System



- **SAP/ARIBA
Implemented**
- **DCS Integration**
- **Report Automation**
- **Field Energy Meter
Integration**

Current System



AWARDS AND ACOLADES



Best Cogeneration award 2022 & 2023 along with following individual awards from Cogen Association of India



CII Excellence in Energy Efficiency Award 2023



Best WTP in-charge in 2023



Best Cogeneration Manager in 2023.



Best Reconstruction of Sick Unit Award by Bhartiya Sugar in 2015

AWARDS AND ACOLADES



CII Excellence in Energy Efficiency Award 2023



Award For Excellence in Water Management 2023

AWARDS AND ACOLADES



Best Cogeneration award continuously for last 3 year

SUSTAINABILITY INITIATIVES



SKILL CENTRE



DISKSHA CENTRE

Thank You