# DALMIA BHARAT SUGAR AND INDUSTRIES LTD
# UNIT- SHREE DATTA
# KOLHAPUR


**PRESENTED BY-**

- S.RANGAPRASAD, D.E.D (UNIT HEAD)
- MANISH KUMAR AGRAWAL, AGM (C&I)

# OUR PRODUCTS & BUSINESS PARTNER

Dalmia Bharat Group

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


Ethanol Production for use as alternate green fuel for vehicles

100% Clean & green Electrical Energy

Sanitizer for keeping away germs & viruses

HERSHEY THE HERSHEY COMPANY

Mondelēz International

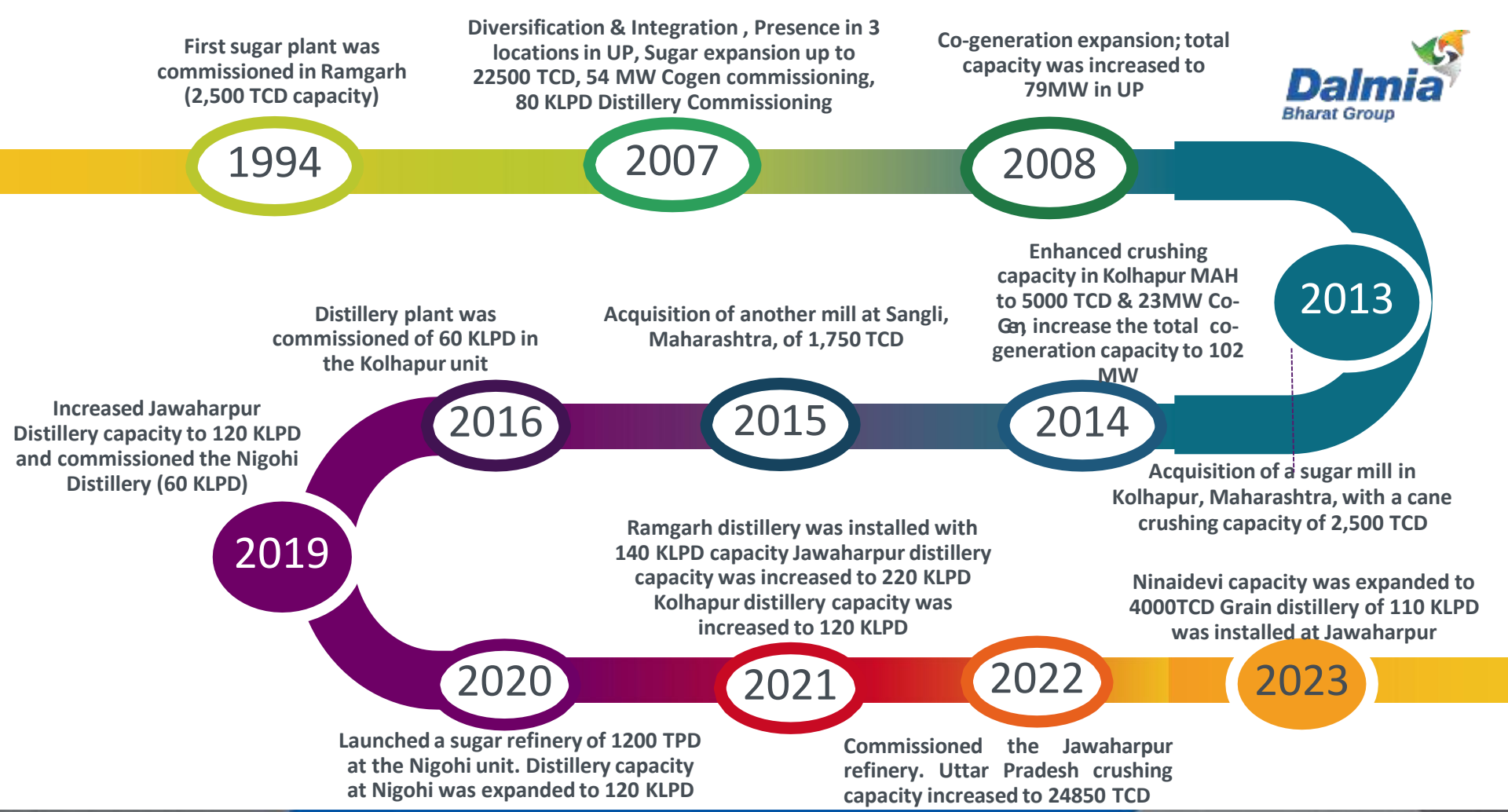
Kellogg's

pepsi

Coca-Cola

UB GROUP


BARRY CALLEBAUT


First sugar plant was commissioned in Ramgarh (2,500 TCD capacity)
1994
Diversification & Integration , Presence in 3 locations in UP, Sugar expansion up to 22500 TCD, 54 MW Cogen commissioning, 80 KLPD Distillery Commissioning
2007
Co-generation expansion; total capacity was increased to 79MW in UP
2008
Enhanced crushing capacity in Kolhapur MAH to 5000 TCD & 23MW Co-Gen, increase the total co-generation capacity to 102 MW
2013
Acquisition of another mill at Sangli, Maharashtra, of 1,750 TCD
2014
Distillery plant was commissioned of 60 KLPD in the Kolhapur unit
2015
Increased Jawaharpur Distillery capacity to 120 KLPD and commissioned the Nigohi Distillery (60 KLPD)
2016
Acquisition of a sugar mill in Kolhapur, Maharashtra, with a cane crushing capacity of 2,500 TCD
Ramgarh distillery was installed with 140 KLPD capacity Jawaharpur distillery capacity was increased to 220 KLPD Kolhapur distillery capacity was increased to 120 KLPD
2019
Ninaidevi capacity was expanded to 4000TCD Grain distillery of 110 KLPD was installed at Jawaharpur
2020
2021
2022
2023
Launched a sugar refinery of 1200 TPD at the Nigohi unit. Distillery capacity at Nigohi was expanded to 120 KLPD
Commissioned the Jawaharpur refinery. Uttar Pradesh crushing capacity increased to 24850 TCD

# UNIT-SHREE DATTA, KOLHAPUR

- DBSIL acquired Shree Datta Sahkari Sakhar Karkhana in 2013 and achieved highest sugar recovery in Asia.
- Initially plant capacity was 2000 TCD and We had taken 3 major expansions in 2013, 2015 & 2023 for 5000, 7500 & 8800 TCD with latest energy efficient technology & state of art automation.
- In 2014 We had successfully commissioned 120 TPH, 125 ata, 525 DegC latest technology boiler along with 23 MW four extraction cum condensing TG set with Air cooled condenser for minimizing water consumption.
- In 2016 we had commissioned 60KLPD Distillery with 18 TPH incineration boiler & 1.76 MW TG set for waste management & inhouse consumption. Further expansion was done in 2021 for 120 KLPD Distillery & 21TPH Boiler capacities for full waste consumption.

| TURN OVER IN MILLION RUPEES (FY 22-23) | TOTAL ENERGY COST OF MANUFACTURING COST (%) | ELECTRICAL ENERGY COST (Rs./Kwh) |
|---|---|---|
| 9565 | 8.5 | 6.76 |

# MANFACTURING 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 and surplus power exported to MSEDCL grid.

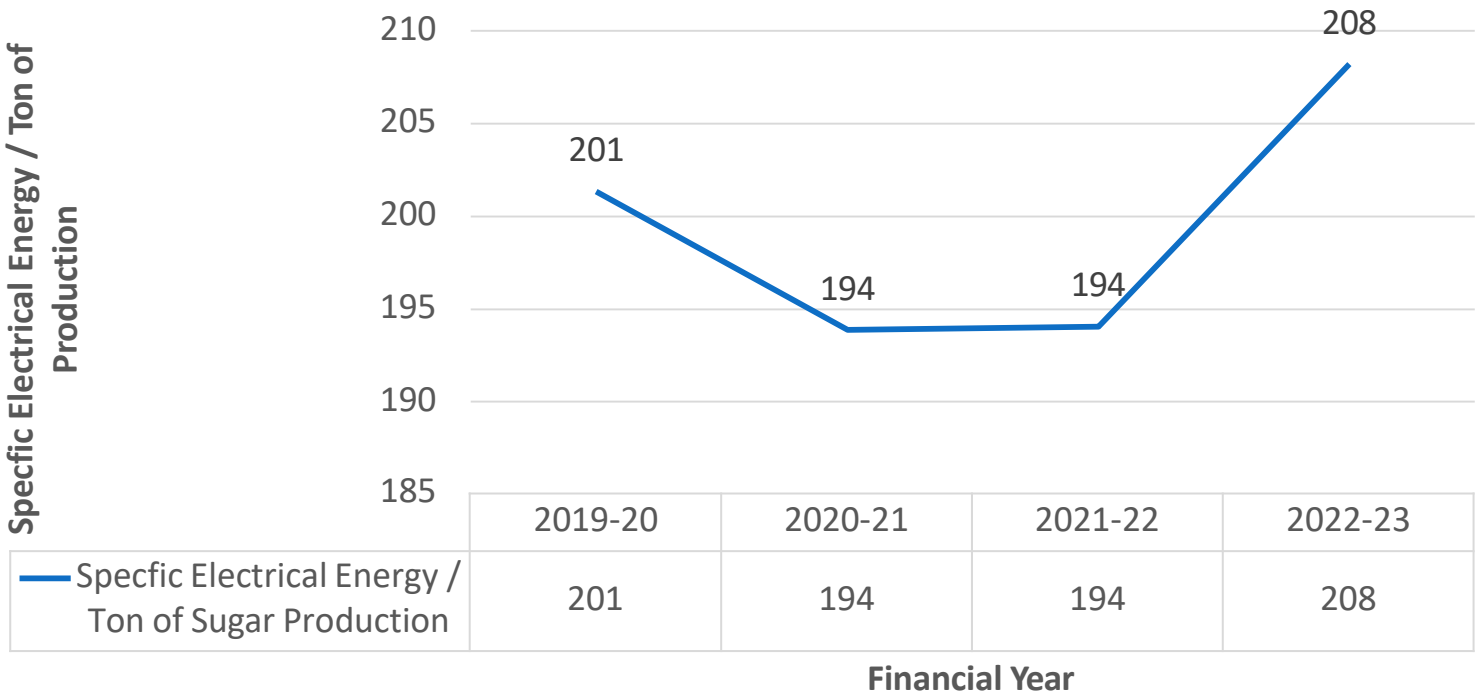
**Distillery**

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

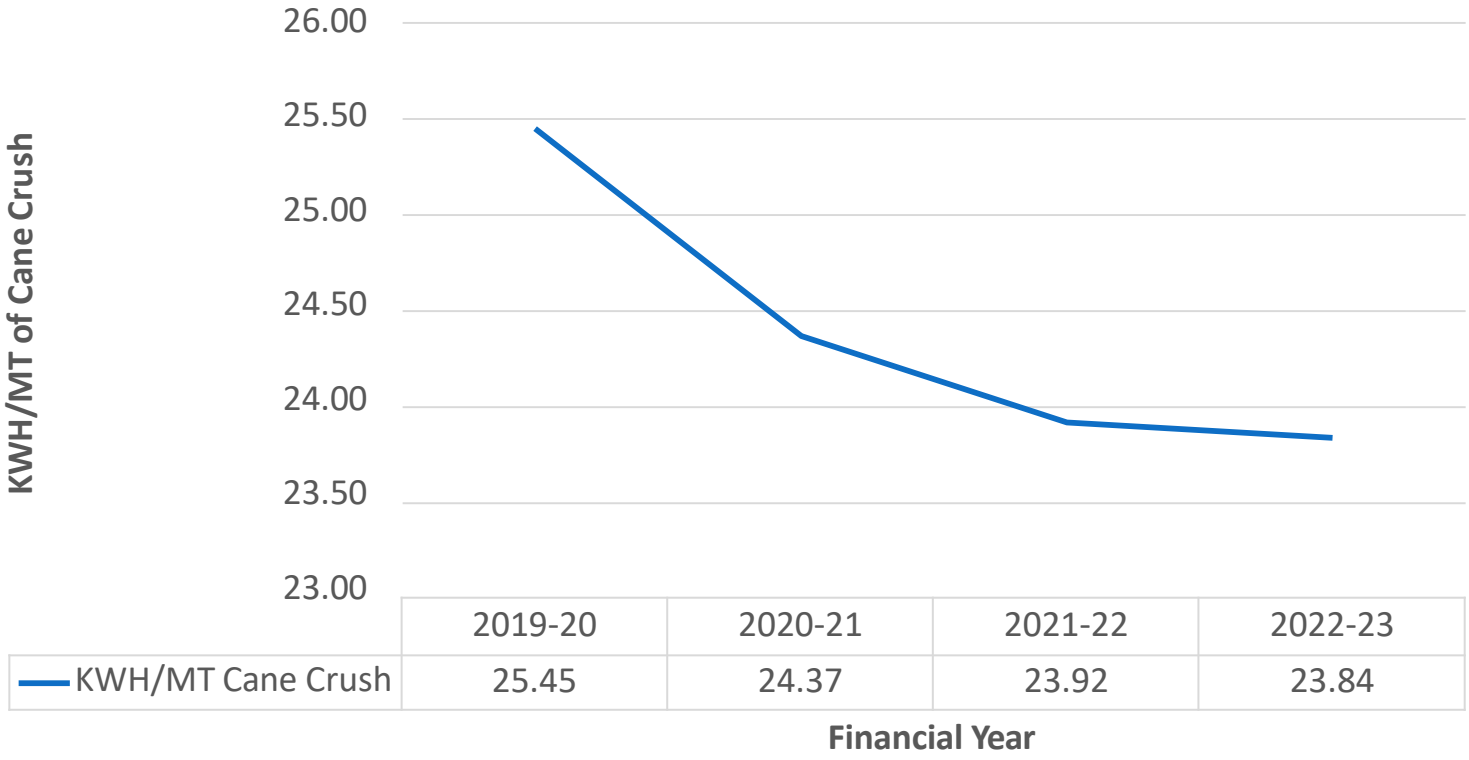
# OUR VALUES


VALUES FOR LIFE
HUMILITY
LEARNING
TRUST & RESPECT
COMMITMENT
EXCELLENCE
SPEED
INTEGRITY
TEAMWORK
VALUES FOR LIFE

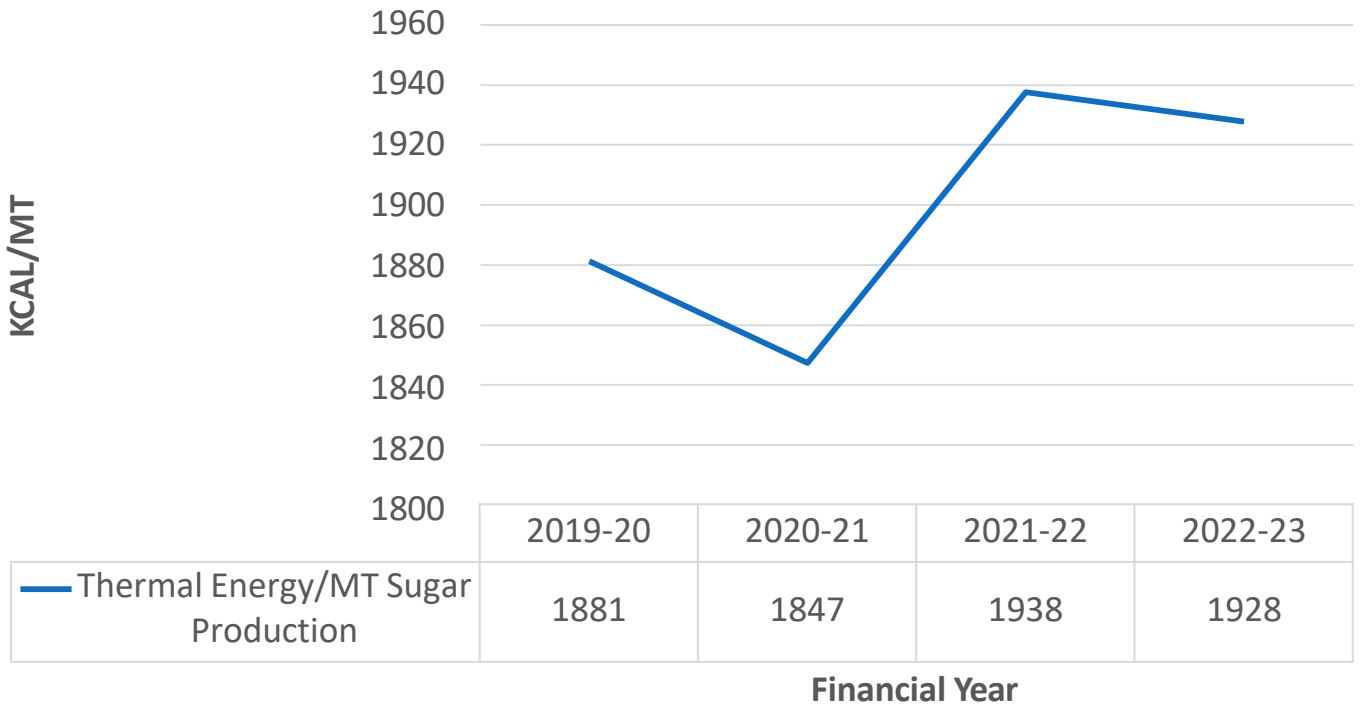
# SPECIFIC ELECTRICAL ENERGY/TON OF PRODUCTION



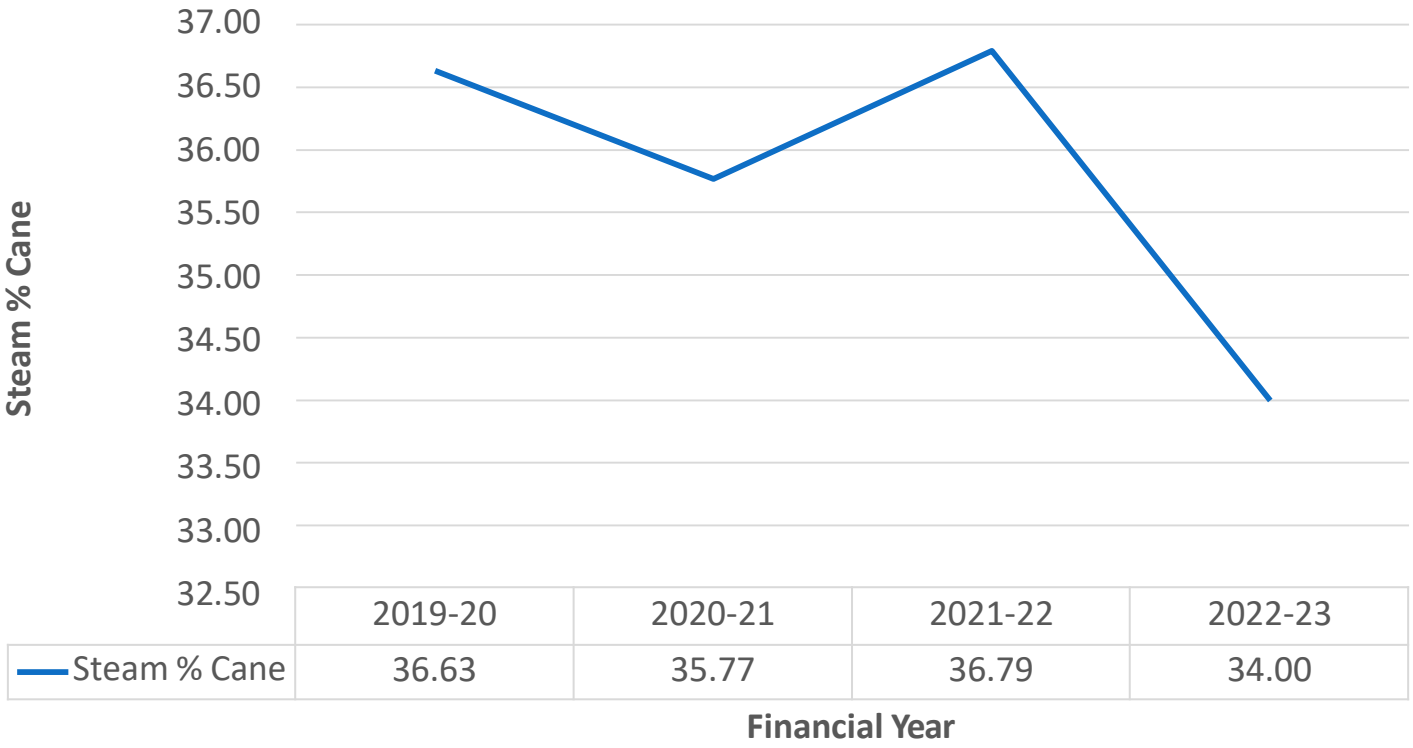
# POWER CONSUMPTION PER MT OF CANE CRUSH



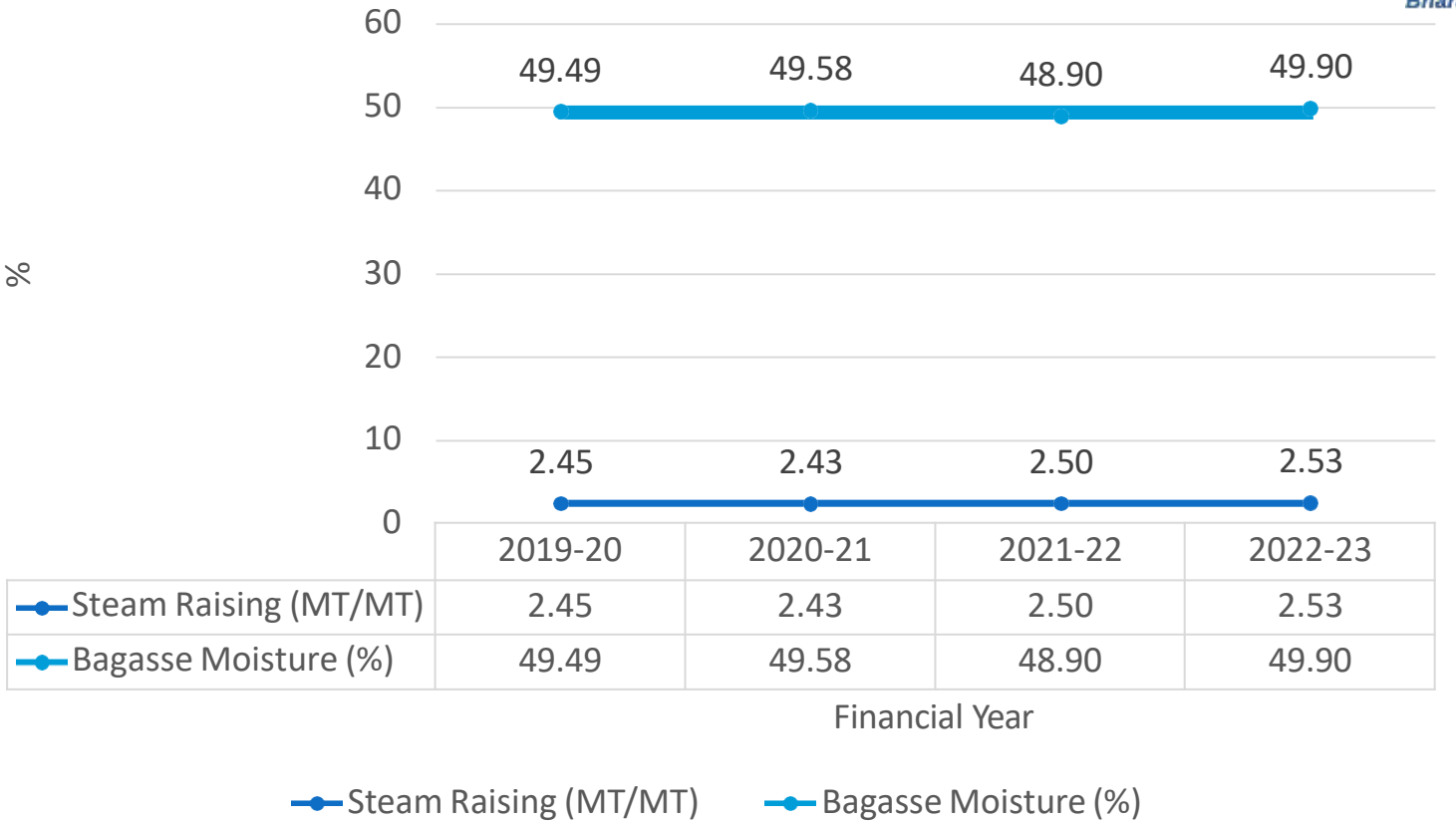
# THERMAL ENERGY CONSUMPTION/MT SUGAR PRODUCTION



# THERMAL ENERGY CONSUMPTION (STEAM % CANE CRUSH)



# BAGASSE MOISTURE Vs STEAM RAISING




| | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|---|---|---|---|---|
| Steam Raising (MT/MT) | 2.45 | 2.43 | 2.50 | 2.53 |
| Bagasse Moisture (%) | 49.49 | 49.58 | 48.90 | 49.90 |

# BENCHMARKS AND ACHIEVED

| PARAMETERS | GLOBAL BENCHMARK | NATIONAL BENCHMARK | COMPETITOR-1 (SH CH SHAHU SAHAKARI SAKHAR KARKHANA LTD KAGAL) | COMPETITOR-II (KUMBHI KASARI SAHAKARI SAKHAR KARKHANA LTD, KUDITRE) | DALMIA SHREE DATTA ACHIEVED |
|---|---|---|---|---|---|
| SPECIFIC THERMAL ENERGY CONSUMPTION (%) | 38 (As per ISSCT proceedings 2005) | 38-40 | 34.25 | 43.85 | 34 |
| SPECIFIC ELECTRICAL ENERGY CONSUMPTION (KWh/MT OF CANE) | 27-28 (As per NFCSF) | 28 | 23.86 | 23.95 | 23.84 |

# MAJOR PROJECTS PLANNED 2023-24

- Electrified Gravel Bed Precipitator E&C at outlet of ESP in 21 TPH incineration boiler for additional dust collection for better surrounding environment.
- Replacement of 1st mill LT motor to HT for energy saving & added power in intermediate mills by replacing Motors & Gear boxes better results like moisture & pole.
- Replacement of DOL starter to VFD in standby screened juice pump
- Installation of rooftop solar heaters.
- Fossil fuel replacement from Bagasse
- Use of 100% 3rd vapor in place of 2nd and 3rd in PAN.
- Installation of state of art CPU for 100% treatment and recycling of Effluents
- Installation of Air Cooled Condenser to reduction water consumption in power plant.

# ENERGY SAVING PROJECTS IMPLEMENTED IN LAST THREE YEARS

| YEAR | NO OF ENERGY SAVING PROJECTS | INVESTMENT (INR Million) | ELECTRICAL SAVING (Million KWH) | THERMAL SAVING (Million KCal) | TOTAL SAVING/YEAR (INR Million) | PAYBACK PERIOD (In Month) |
|---|---|---|---|---|---|---|
| FY2020-21 | 2 | 1.3 | 0.086189 | 74 | 0.81 | 19 |
| FY2021-22 | 3 | 1 | 0.513972 | 442 | 8.5 | 1 |
| FY2022-23 | 3 | 59.3 | 0.563484 | 55041 | 6.44 | 110 |

# ENERGY SAVING PROJECTS IMPLEMENTED IN 2020-21

| Sr. No. | NAME OF ENERGY SAVING PROJECT | INVESTMENT (INR Million) | ELECTRICAL SAVING (Million KWH) | THERMAL SAVING (Million KCal) | TOTAL SAVING/YEAR (INR Million) | PAYBACK PERIOD (In Month) |
|---|---|---|---|---|---|---|
| 1 | Energy saving by replacing HPMV & FTL Fixture by LED High bay Fixture & LED Tube fixture | 0.5 | 0.007825 | 6.7 | 0.071 | 85 |
| 2 | Energy saving by addtion of AC VFD in 2* 100T Pan Mechanical Circulator | 0.8 | 0.078364 | 67.3 | 0.74 | 13 |

# ENERGY SAVING PROJECTS IMPLEMENTED IN 2021-22

| Sr. No. | NAME OF ENERGY SAVING PROJECT | INVESTMENT (INR Million) | ELECTRICAL SAVING (Million KWH) | THERMAL SAVING (Million KCal) | TOTAL SAVING/YEAR (INR Million) | PAYBACK PERIOD (In Month) |
|---|---|---|---|---|---|---|
| 1 | Installation of 37KW motor inplace of 90KW | 0.2 | 0.204792 | 176.09 | 1.92 | 1 |
| 2 | B2 Single curing Benefits | 0.5 | 0.00966 | 182.74 | 5.67 | 1 |
| 3 | Energy saving by Eliminating Rori Melter & pumping system | 0.3 | 0.21252 | 83.11 | 0.91 | 4 |

# ENERGY SAVING PROJECTS IMPLEMENTED IN 2022-23

| Sr. No. | NAME OF ENERGY SAVING PROJECT | INVESTMENT (INR Million) | ELECTRICAL SAVING (Million KWH) | THERMAL SAVING (Million KCal) | TOTAL SAVING/YEAR (INR Million) | PAYBACK PERIOD (In Month) |
|---|---|---|---|---|---|---|
| 1 | Sulphited Juice VFD Installation | 0.5 | 0.06576 | 56.54 | 0.62 | 10 |
| 2 | Baggase Feeding system | 58.3 | 0.448404 | 49992 | 5.36 | 131 |
| 3 | Energy Saving by installing VFD for Injection Pump | 0.5 | 0.04932 | 4992 | 0.46 | 13 |

# INNOVATIVE PROJECTS*

| NAME OF PROJECT | DESCRIPTION |
|---|---|
| Energy Saving by installing VFD drives & auto loop control through DCS | We had made logic to control & regulate VFD drive speed through DCS system in Auto mode which results reduction in energy consumption. |
| Cane Purchase Requisition to Farmer via mobile SMS | We started usage of SMS service to our farmers for intimating about their cane supply related information. This resulted in saving of paper and reduced time wastage. |
| CPU Installation (Anaerobic followed by Aerobic) | We have commissioned CPU & RO unit in our Sugar plant for both Sugar & Distillery, which resulted in zero discharge from Distillery Plant and other hand river water extraction also reduced. |

# OTHER INNOVATIVE PROJECTS

| S.No | DESCRIPTION |
|---|---|
| 1 | Energy Saving by eliminating Rori melter pumping system |
| 2 | Control of Boiler feed pump speed according to drum pressure & level in place of fixed speed |
| 3 | No usage of Plastic in Plant premises. |
| 4 | In house brick manufacturing unit from fly ash. |
| 5 | Replacement of Coal with renewable fuel (bagasse) in Distillery Cogen. |
| 6 | One of the 1st project installed with Air Cooled Condenser for 23MW power generation from Bagasse Fired 120 TPH, 125 ata Boiler. |

# One of the 1st project installed with ACC

Air Cooled Condenser for 23MW power generation trough Bagasse Fired 120 TPH, 125 ata Boiler.

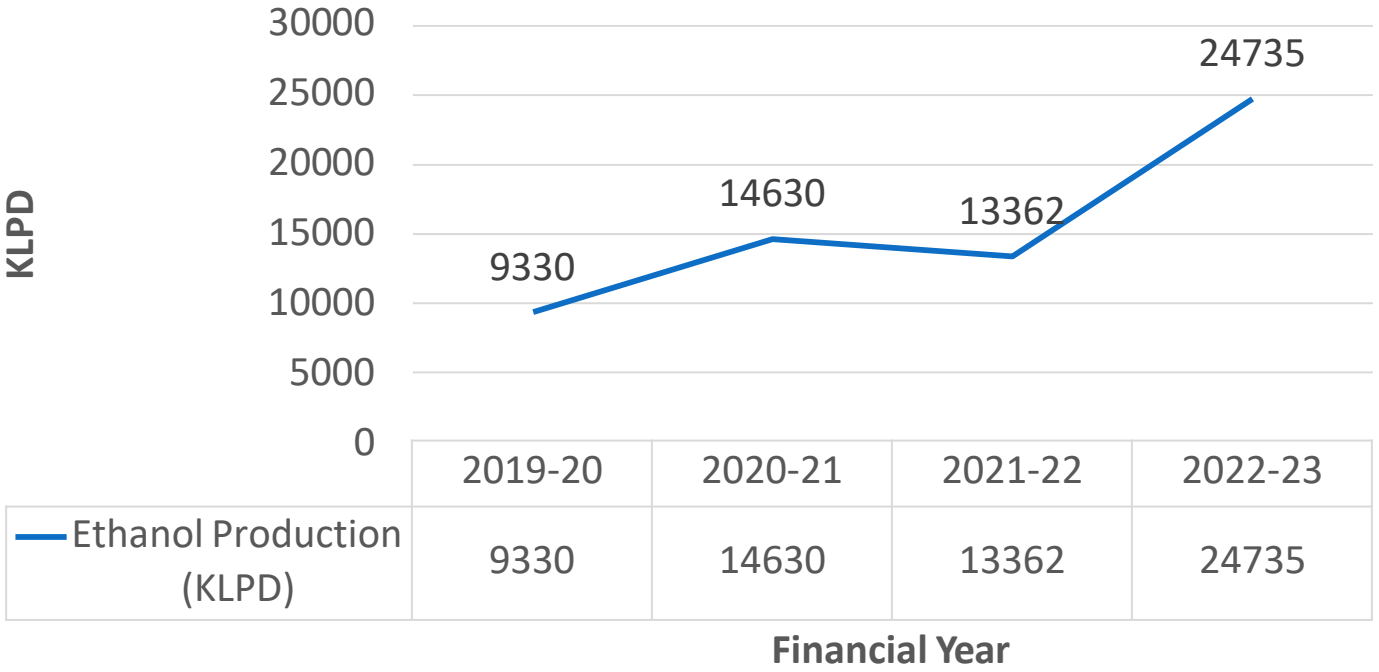
# UTILIZATION OF 100% CLEAN & GREEN ENERGY

Dalmia Bharat Group

| FY | Annual Elecrtical consumption in Millon KWH | Installed Capacity in MW/Hr |
|---|---|---|
| 2019-20 | 23 | 26 |
| 2020-21 | 27 | 26 |
| 2021-22 | 27 | 26 |
| 2022-23 | 24 | 26 |

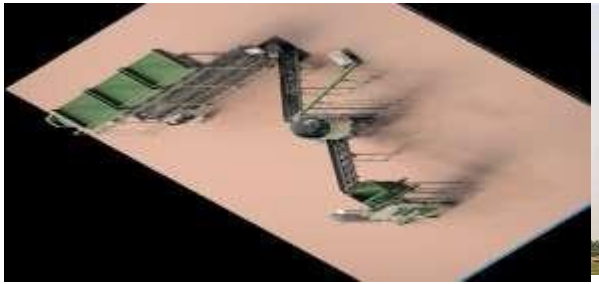
| FY | Total Thermal Energy consumption Million Kcal | Installed Capacity in KCal/Hr |
|---|---|---|
| 2019-20 | 216565 | 103870 |
| 2020-21 | 255508 | 103870 |
| 2021-22 | 266640 | 103870 |
| 2022-23 | 224064 | 103870 |

# ETHANOL PRODUCTION DATA FY 19-20 TO 22-23

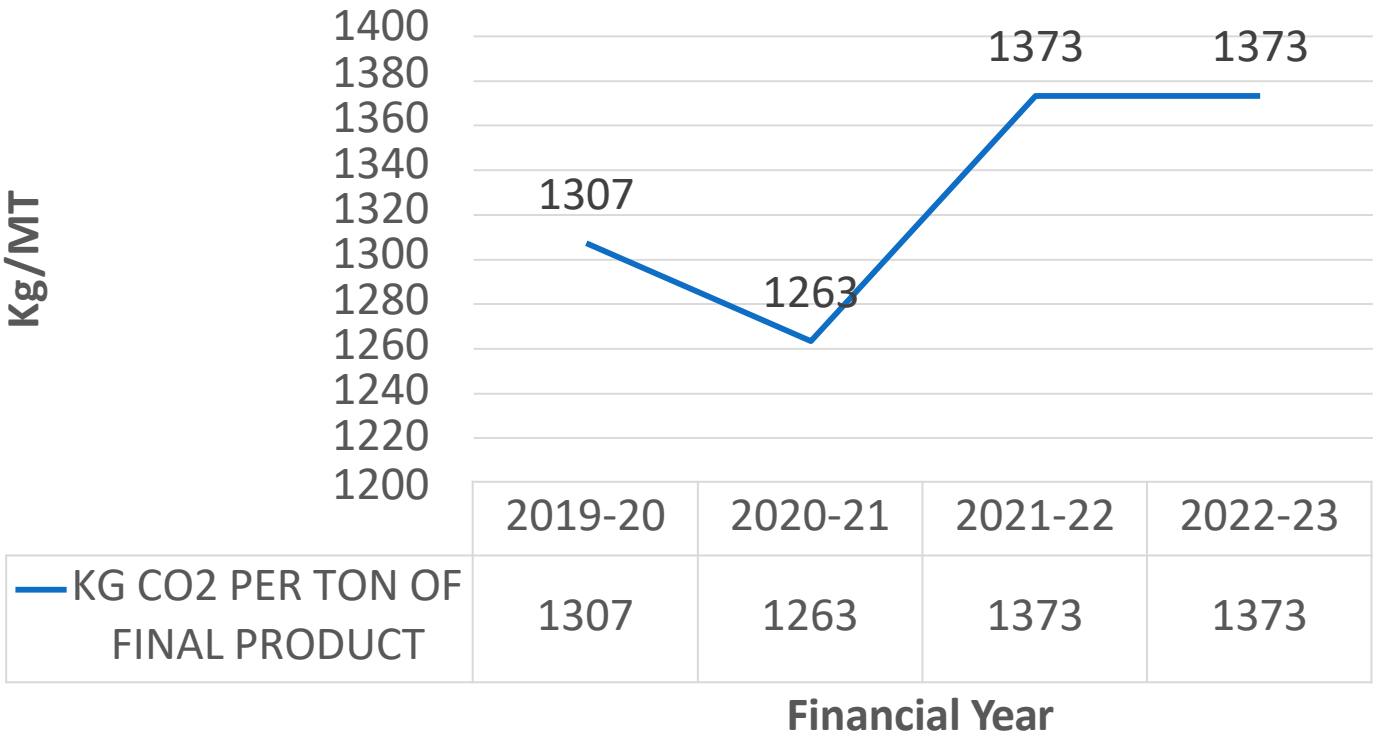


# WASTE UTILIZATION & MANAGEMENT

- Filter Cake -Used as fuel for brick manufacturers & as manure by farmers
- Bagasse -Used to generate power for captive use and surplus export to MSEDCL
- Spent Wash -Used as fuel for Cogeneration plant (GCV-1584Kcal/Kg).
- Incineration Boiler K Ash – Sold to fertilizer manufacturers
- Other ash used for manufacturing fly ash bricks.
- Effluent Water -After treatment, treated water recycled for plant use and balance is used by farmers for irrigation.



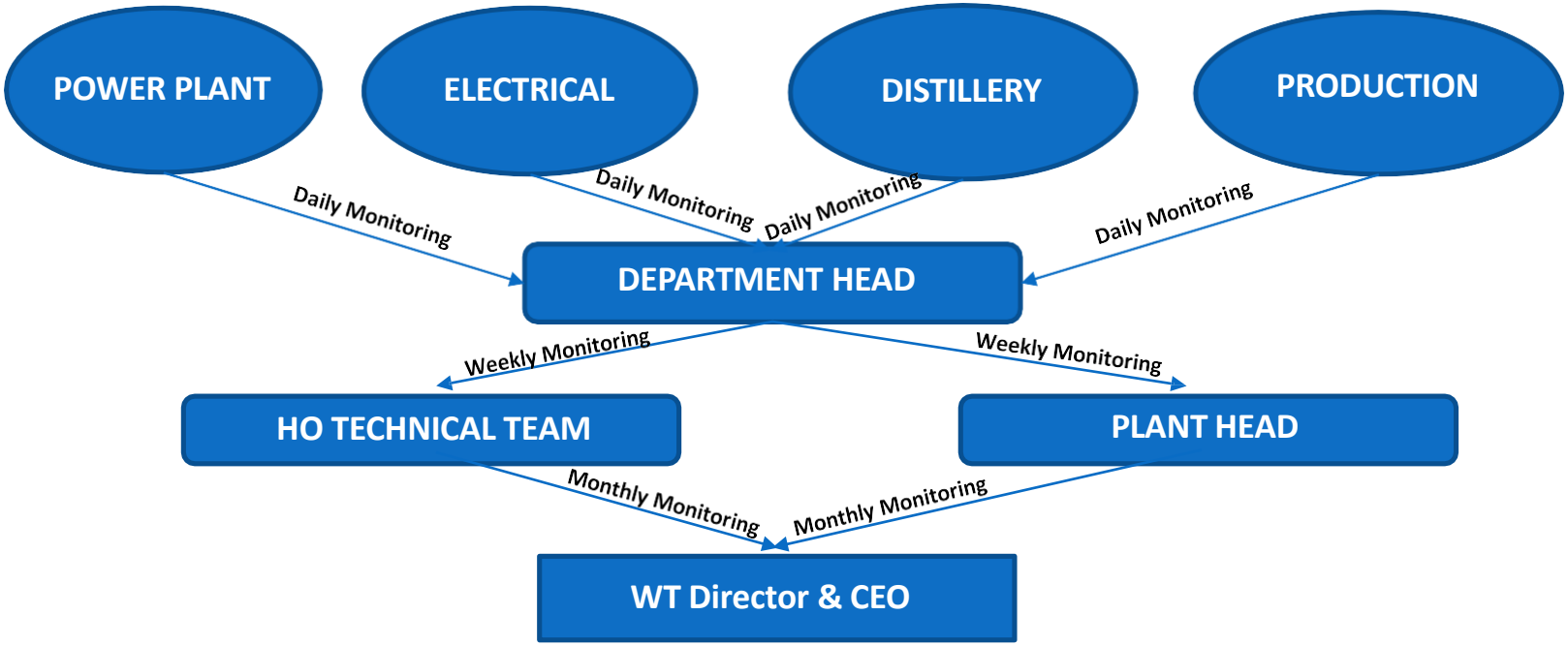
# EMISSIONS


Kg/MT
1400
1380
1360
1340
1320
1300
1280
1260
1240
1220
1200
1307
1263
1373
1373
2019-20
2020-21
2021-22
2022-23
KG CO2 PER TON OF FINAL PRODUCT
1307
1263
1373
1373
Financial Year

# GREEN SUPPLY CHAIN MANAGEMENT

| PROJECT IMPLEMENTED | DESCRIPTION | RESULT |
|---|---|---|
| SAP Implementation | We use SAP in commercial, accounts and engineering department requirements, report and database. | Paper less working |
| e-Purchase | We use e-purchase for procurement of cane. | Paper less working |
| Sugar Sale to Institutional byers (As per buyer's norms) | We are doing vendor evaluation for their best practice & energy conservation. We are totally suppling our Sugar to institutional buyer like coca cola, Pepsi, Hershey, Kellogg's etc and fulfilling their criteria for best practice & social requirements. | Every year we are increasing our Bonsucro cane area and getting premium from our buyers |

# MONITORING & REPORTING SYSTEM



# CERTIFICATION

Dalmia Bharat Group

- Bonsucro Certification
- Food Safety and Standards Authority of India
- Food Safety Management System Certification 22000
- Sedex Certification
- Halal Certification
- V Level Certification (VEGAN)

# SUSTAINABILITY INITIATIVES


**500 LPH, Safe Drinking Water plant installation at Kushire & Waloli villages**

# SUSTAINABILITY INITIATIVES

**Solar lanterns distributed & Street Light-Farmers,SHG Members & labours**

# SUSTAINABILITY INITIATIVES


DIKSHA Skill Training Centre at Kolhapur

# PERSONNEL SAFETY

- DBSIL provides a safe and healthy environment for its employees, farmers , clients, visitors, contractors .The Safety management cell is developed at site.
- **<u>The functions of safety management cell is :</u>**
  - To assess the potential Risks/ Hazards to the Safety ,Health and Environment, of employees within the plant.
  - Monitoring and implement the safety systems in the plant like use of PPE's ,monitoring and maintenance of fire fighting system, plant inspection .
  - We are providing PPE's like Hand Gloves, Safety Helmets, Nose mask, Earplug, Safety Shoes, Aprons, Goggles, Safety belts, & Uniforms to all our employees and ensuring the usage of the same.
- Safety Slogans displayed in the factory for awareness and safety day is being celebrated regularly to emphasize the importance of Safety.


# AWARDS

## Best Reconstruction of Sick Unit Award By Bhartiya Sugar Mill in 2015


## Industry Excellence Award 2022 by Cogen Association of India

# Best Cogeneration award 2022 & 2023 (Declared) along with 3 individual awards From Cogen Association of India

Dalmia Bharat Group

INTEGRITY
TRUST & RESPECT
HUMILITY
COMMITMENT

Dalmia Bharat Sugar

**Congratulations to SDSK Team Kolhapur for winning the Best Cogen Plant Award at the National Cogeneration Awards and Empowering Cogeneration Conference 2022**


We are proud to announce that SDSK Team Kolhapur have been awarded the Best Cogen Plant Award at the National Cogeneration Awards and Empowering Cogeneration Conference 2022 held at Mumbai on 27th August 2022 organized by Cogeneration Association of India. The award was given by the Shri Ninit Gadkari, Minister of Road Transport and Highways of India & Shri Sharad Pawar, MP (Rajya Sabha) in presence of Shri Dinesh Jagdale, Joint Secretary (Biomass) MNRE, GoI & Shri Jaiprakash Dandegaonkar, VP, Cogen India.

# Thank You