## DALMIA BHARAT SUGAR & INDUSTRIES LTD
### UNIT- NIGOHI

<table>
<thead>
<tr>
<th>Presented By:</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Kuldeep Kumar</td>
<td>Unit Head</td>
</tr>
<tr>
<td>Pankaj Srivastava</td>
<td>Engineering Head</td>
</tr>
<tr>
<td>Pawan Pal</td>
<td>Power Plant Head</td>
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<td>9792202020</td>
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<td>6390009226</td>
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<td>9792202026</td>
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</table>
OUR PRODUCTS

- Refined Cane Sugar
- Dalmia Sanjeevani Hand Sanitizer
- Ethanol: Is it the best alternative fuel for India?
- Sulphur Free White Crystal Sugar
Nigohi unit
Was commissioned in 2007 with 7500 TCD
crushing capacity & Co-gen capacity 27 MW

60KLPDDistillery Unit
Commissioned in Nigohi

Nigohi Unit Crushing Capacity
Increased to 10000 TCD
and Cogen capacity increased to 28 MW

Nigohi Distillery Capacity
Increased to 120KLPD

<table>
<thead>
<tr>
<th>TURN OVER IN MILLION RUPEES (FY 21-22)</th>
<th>TOTAL ENERGY COST OF SUGAR MANUFACTURING COST (%)</th>
<th>ELECTRICAL ENERGY COST (Rs./Kwh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7572</td>
<td>8.99</td>
<td>1.79</td>
</tr>
</tbody>
</table>
POWER GENERATION DATA

Power Generation Data FY

<table>
<thead>
<tr>
<th>Year</th>
<th>Production Quantity (Million Kwh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017-18</td>
<td>107.9</td>
</tr>
<tr>
<td>2018-19</td>
<td>146.1</td>
</tr>
<tr>
<td>2019-20</td>
<td>104.4</td>
</tr>
<tr>
<td>2020-21</td>
<td>116.1</td>
</tr>
<tr>
<td>2021-22</td>
<td>105.9</td>
</tr>
</tbody>
</table>

Production Quantity (Million Kwh)
ELECTRICAL ENERGY CONSUMPTION (KWh/MT OF CANE)

Specific Electrical Consumption

Year | Specific Electrical Consumption (KWh/MT)
--- | ---
2017-18 | 29.89
2018-19 | 29.15
2019-20 | 27.56
2020-21 | 26.82
2021-22 | 26.18

Power Consumption (kwh/Ton Cane)
THERMAL ENERGY CONSUMPTION (STEAM % CANE)

Steam Consumption % cane (Gross)

<table>
<thead>
<tr>
<th>Year</th>
<th>Consumption %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016-17</td>
<td>43.39</td>
</tr>
<tr>
<td>2017-18</td>
<td>45.07</td>
</tr>
<tr>
<td>2018-19</td>
<td>46.34</td>
</tr>
<tr>
<td>2019-20</td>
<td>44.95</td>
</tr>
<tr>
<td>2020-21</td>
<td>41.60</td>
</tr>
<tr>
<td>2021-22</td>
<td>39.19</td>
</tr>
</tbody>
</table>
BENCHMARKS - SPECIFIC POWER CONSUMPTION FOR SEASON 2021-22

Power KWH per ton of Cane

<table>
<thead>
<tr>
<th>SY</th>
<th>Jawaharpur</th>
<th>Gularia</th>
<th>Biswan</th>
<th>Ramgarh</th>
<th>Ajbapur</th>
<th>Nigohi</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>27.2</td>
<td>31.16</td>
<td>30.63</td>
<td>27.1</td>
<td>27.75</td>
<td>26.18</td>
</tr>
</tbody>
</table>

Legend:
- Jawaharpur
- Gularia
- Biswan
- Ramgarh
- Ajbapur
- Nigohi
**BENCHMARKS - SPECIFIC STEAM CONSUMPTION**

Steam Consumption % cane

- Hariawan: 40.38
- Ajbapur: 41.36
- Ramgarh: 42.76
- Loni: 40.87
- Nigohi: 39.19
- Jawaharpur: 39.22
## Energy Saving Projects Implemented in last three years

<table>
<thead>
<tr>
<th>Year</th>
<th>No of energy saving projects</th>
<th>Investment (INR Million)</th>
<th>Electrical Saving (Million KWH)</th>
<th>Thermal Savings (Million K Cal/MTOE)</th>
<th>Savings (INR Million)</th>
<th>Impact on SEC (Electrical, Thermal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019 - 20</td>
<td>3</td>
<td>10.7</td>
<td>1.5</td>
<td></td>
<td>4.498</td>
<td>(1.39, 1.59)</td>
</tr>
<tr>
<td>2020 - 21</td>
<td>2</td>
<td>120.01</td>
<td>.032</td>
<td></td>
<td>8844</td>
<td>78.492 (3.35, 0.74)</td>
</tr>
<tr>
<td>2021 -22</td>
<td>3</td>
<td>140</td>
<td>9.336</td>
<td></td>
<td>73280</td>
<td>99.415 (2.41, 0.64)</td>
</tr>
</tbody>
</table>
In year 2021-22, we replaced 27 MW Condensing turbine by 28 MW Back Pressure Turbine in our unit with investment of Rupees 9.5Cr. We have got pay back in one season. Following were the highlights after addition of this turbine:

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>UOM</th>
<th>2020-21</th>
<th>2021-22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bagasse GCV</td>
<td>Kcal/Kg</td>
<td>2307</td>
<td>2314</td>
</tr>
<tr>
<td>Steam Enthalpy at 87 ATA</td>
<td>Kcal</td>
<td>816</td>
<td>816</td>
</tr>
<tr>
<td>Steam generation</td>
<td>MT</td>
<td>155</td>
<td>152</td>
</tr>
<tr>
<td>Bagasse Raising</td>
<td></td>
<td>2.38</td>
<td>2.41</td>
</tr>
<tr>
<td>Bagasse Consumption per day</td>
<td>MT</td>
<td>1557</td>
<td>1512</td>
</tr>
<tr>
<td>Bagasse saving per day</td>
<td>MT</td>
<td>433</td>
<td>753</td>
</tr>
</tbody>
</table>
We installed Ion Exchange Columns in the existing refinery system & expanded the refining capacity to 1200 TPD.

Steam consumption reduced after its installation to the extent of \(0.2 - 0.4\%\) on cane as the re-circulation of refinery molasses within the process reduced.

It facilitates us in production of export quality sugar with average colour value below 25 IU throughout the season.

The sugar keeping quality and shelf life improved.
RSD with capacity of 65TPH sugar was installed as Drying unit along with Dehumidifier and chiller units.

RSD enables us to produce more smaller size grain quantity upto 95% of total sugar production.

The outlet sugar has moisture less than 0.04% which improves the sugar keeping quality and shelf life.

The bagged sugar has temperature less than 35°C, which is optimum temperature and improves the sugar keeping quality and shelf life.

The dust in the S-30 bagged sugar remains less than 0.75%
Waste Utilization and Management

- Filter Cake - Used as manure by farmers
- Bagasse - Used to generate power for captive use and surplus sold to UPPCL
- Spent Wash - Used as fuel for cogeneration
- Incineration Boiler Ash - Used as fuel for cogeneration
- Effluent Water - After treatment treated water recycled for plant use and balance is used by farmers for irrigation.
## EMISSIONS

<table>
<thead>
<tr>
<th>FY</th>
<th>KG CO2 PER TON OF CANE CRUSHED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018-19</td>
<td>1982</td>
</tr>
<tr>
<td>2019-20</td>
<td>1562</td>
</tr>
<tr>
<td>2020-21</td>
<td>1913</td>
</tr>
<tr>
<td>2021-22</td>
<td>1486</td>
</tr>
</tbody>
</table>

![Kg CO2/Ton Of Cane crushed](chart.png)
GREEN HOUSE GASES (GHG)

GHG Intensity

GHG Intensity

0.05 0.1 0.15 0.2 0.25 0.3 0.35

0.25 0.26 0.23 0.2

2018-19 2019-20 2020-21 2021-22

GHG Intensity

GHG Intensity
Innovation Projects

• 100% treatment and utilization of effluent water. We are first in our industry successfully utilized effluent treated water for 87 ATA high pressure boiler and eliminated ground water requirement for power plant operation.

• We replaced our condensing cum extraction turbine with back pressure turbine which resulted in increase in plant crushing capacity without increasing steam generation capacity.
Effluent Treatment
PROJECTS IMPLEMENTED - ANAEROBIC DIGESTOR WITH EXISTING ETP

- We enhance our effluent treatment plant to the treatment capacity of 3200 m³/day.

- Effluent from Boiling House, Mill House, Power plant, Distillery condensate and Spray Pond is being treated here.

- The outlet treated water is being utilised as raw water in power plant and distillery process.

- The zero ground water extraction for power plant was achieved during peak crush.

- All treated water parameters are under the control limits set by CPCB.
GREEN SUPPLY CHAIN MANAGEMENT

DRONE CANE SURVEY

Drone

Sugar Cane Survey possibility through Drone

Satellite

Sugar Cane Survey Through Satellite

VARIETY VARIFICATION IN YARD AND CANE UNLOADING CONFIRMATION ON CANE CARRIER
GREEN SUPPLY CHAIN MANAGEMENT

RFID SYSTEM
Radio frequency identification (RFID) of vehicle has been incorporated in cane H & T vehicles which help in minimising the traffic at factory gate and speed up the process of cane tokening and enable auto queuing.

Also help in identify actual yard balance
Sustainable agricultural practices are strengthened through our Green Growth approach and are driven by farmers as well as our employees. We use this approach to improve farm productivity by introducing organic activities, providing subsidised fertilisers and educating farmers. Several measures such as soil improvement, inter cropping for nitrogen fixation, green manuring, vermicomposting have been introduced to boost sustainable practices in agriculture. Drip irrigation and drought resistant variety of cane is planted in areas with very less water availability.
GREEN SUSTAINABILITY AGRICULTURAL PRACTICES - SUSTAINABLE AGRICULTURAL PRACTICES

- Transportation of seeds and its harvesting
- Insecticidal/fertilizer foliar spray provided
- Soil testing
- Farmer subsidy and services
- Health & education/CSR programs
- Automatic trench cutter planter & trench opening
- Press mud/filter-cake distribution for soil enrichment
We have a strong grievance mechanism system to address farmer issues. A farmer can report online through www.mykisaan.org, upcane.gov.in, www.caneup.in, E-ganna-AAP, portals or toll-free numbers 1800-121-3203, 1800-103-5823. Offline, they can approach to Mill Enquiry Window or Kisan Seva Kendra (KSK) or Cane Development Assistant (CDA) to report any issue. Any complaint is addressed within 3 days of being reported.
SOIL AND WATER CONSERVATION

- Construction and rejuvenation of 31 village ponds was undertaken in the three locations of Uttar Pradesh.
- These 31 ponds will help in conservation of 22.34 crore litres of water in a year benefitting 5000 farmers and a large number of villagers. 45 new ponds have been identified for rejuvenation in this year.
- 4200 saplings of different plant species being planted on the banks and bunds of the de-silted 31 village ponds in all the 3 locations in Uttar Pradesh.

ACCESS TO CLEAN ENERGY

- Mini Grid project distributing electricity to 102 households and 119 farmers for pumping water for irrigating their lands.
- Revenue of INR 2.18 lakh generated from both the Mini Grids till Dec’ FY20.
- 96 households from Jawaharpur, Nigohi and Ramgarh connected to Ujjwala Scheme of the Government to avail the LPG connections.
MONITORING & REPORTING SYSTEM

- POWER PLANT
- ELECTRICAL
- DISTILLERY
- PRODUCTION

- DEPARTMENT HEAD
- HO TECHNICAL TEAM
- PLANT HEAD
- CEO

- Daily Monitoring
- Weekly Monitoring
- Monthly Monitoring

- CEO

[Diagram showing the flow of monitoring and reporting between different departments and roles]
AWARDS

**ICC Social Impact Awards 2019**
DBSIL was awarded by Indian Chamber of Commerce in 2019 under the theme ‘Access to Clean Energy’.

**IICA-NGOBOX Good Practice Recognition Awards 2015**
NGOBOX awarded DBSIL for Energy Conservation and Climate Change Mitigation

**ET 2 GOOD 4 GOOD**
DBSIL was awarded by ET under CSR category in 2017

**Golden Peacock Awards (CSR Awards 2015)**
Institute of Directors awarded DBSIL in 2015
Industry Excellence Award
AWARDS

Dalmia Bharat Sugar and Industries Ltd. (DBSIL) was conferred the prestigious CII-ITC Sustainability Award 2019 at a virtual award ceremony on Friday, 10th July, 2020. DBSIL received the ‘Commendation for Significant Achievement in Corporate Social Responsibility’ for its excellent efforts in deployment of policy and processes.

Mr. BB Mehta – Whole Time Director, DBSIL attended the presentation in the presence of Shri Prakash Javadekar – Minister of Heavy Industries and Public Enterprises of India.

One of the most credible sustainability awards in the country, the CII-ITC Sustainability Awards recognise excellence in businesses that are seeking ways to be more sustainable and inclusive in their activities.
Thank You