

Granules India Limited Gagillapur Plant Hyderabad - India

**25th National Award for Excellence in
Energy Management**

SI No	Name	Designation	Department
1	Bangarubabu Bhagavathula	General Manager	HOD – Engineering & Projects
2	Venkateswar Chelluri	Assistant General Manager	Head – Electrical
3	Suresh Pathi	Deputy General Manager	Head - Operational Excellence

- Granules India Ltd is a vertically integrated pharmaceutical company, headquartered in Hyderabad, India.
- Revenue : 4500+ Cr./Annum
- Total Manufacturing Sites : 9 Nos
- Presence : Across 75+ Countries
- Team Strength : 3800+ Employees.
- Unique Feature : Worlds Largest PFI Facility
- We manufacture :
 - Active Pharmaceutical Ingredients (APIs)
 - Pharmaceutical Formulation Intermediates (PFIs) and
 - Finished Dosages (FDs)
 - Strong presence in Products **Paracetamol, Ibuprofen, Metformin and Guaifenesin.**



Facility & Major Equipments



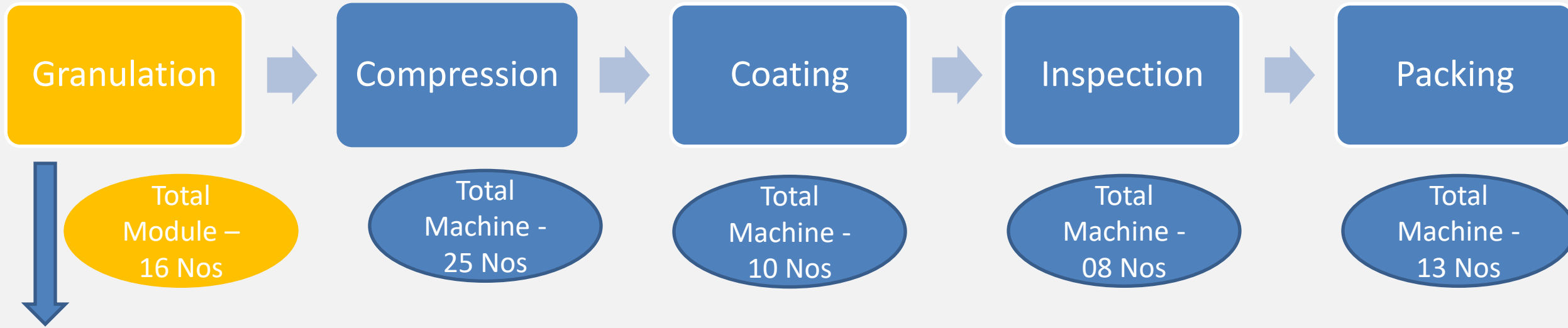
Facility	Sq. ft
FD	52380
PFI	46350
MUPS	54876
Built up Area (Plinth Area)	298120
Others (Greenery, Roads & Parking)	849853
Total Area	1147974

Process Equipment/Area	NOS	Capacity	UOM
Granulation	16	2833	Metric Tons
Compression Machines	25	3780	Million
Coating	10	2763	Million
Packing (Bottle and Blister)	13	2284	Million

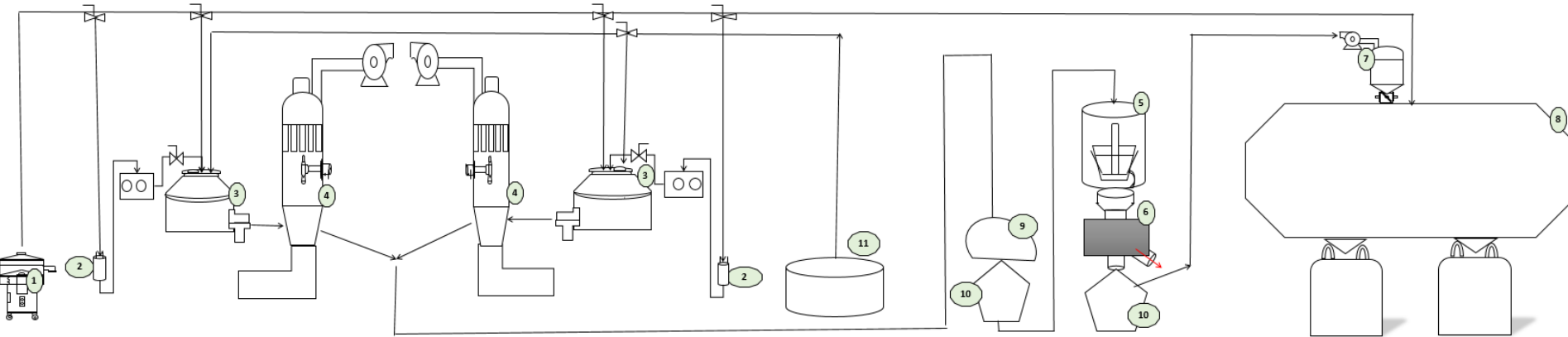
Utility	NOS	Capacity	UOM
Chillers	6	3400	TR
Air Compressors	6	10480	CFM
Coal Boiler	1	6	TPH
FBC Boiler	1	10	TPH
F.O Boiler	1	6	TPH

Electrical	
Contract Demand	5800 KVA/HP
Connected Load	21293 HP
Transformers	13000 Kva
DG system	9370 Kva

Manufacturing Process

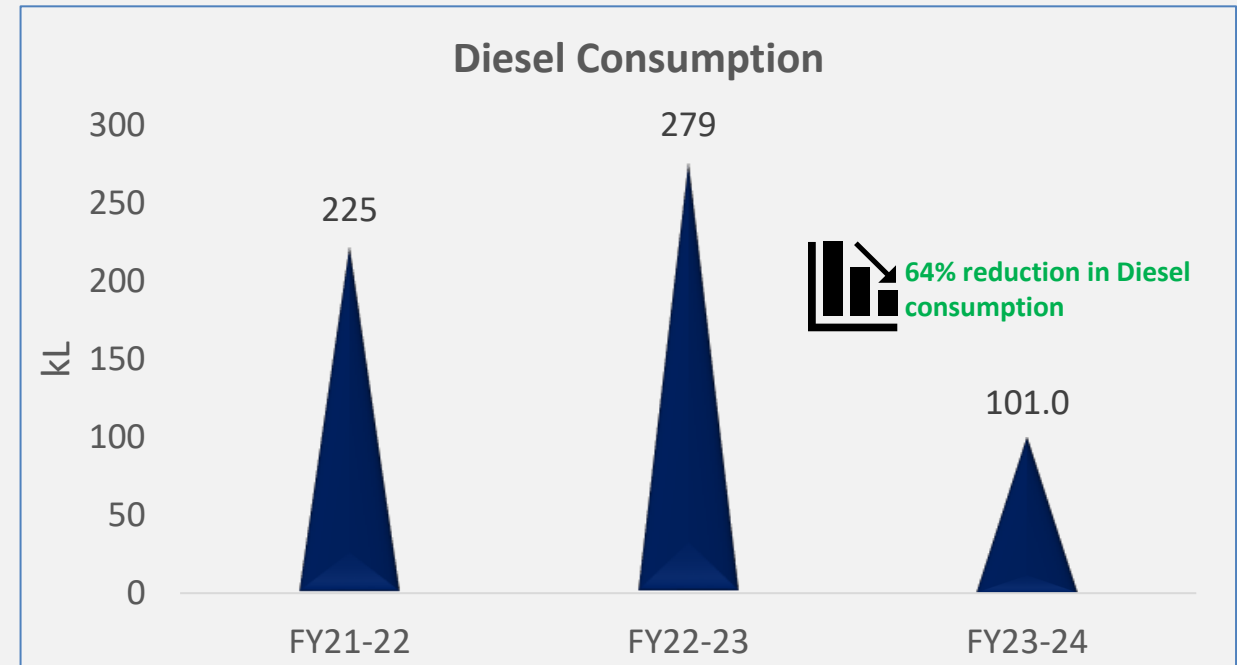
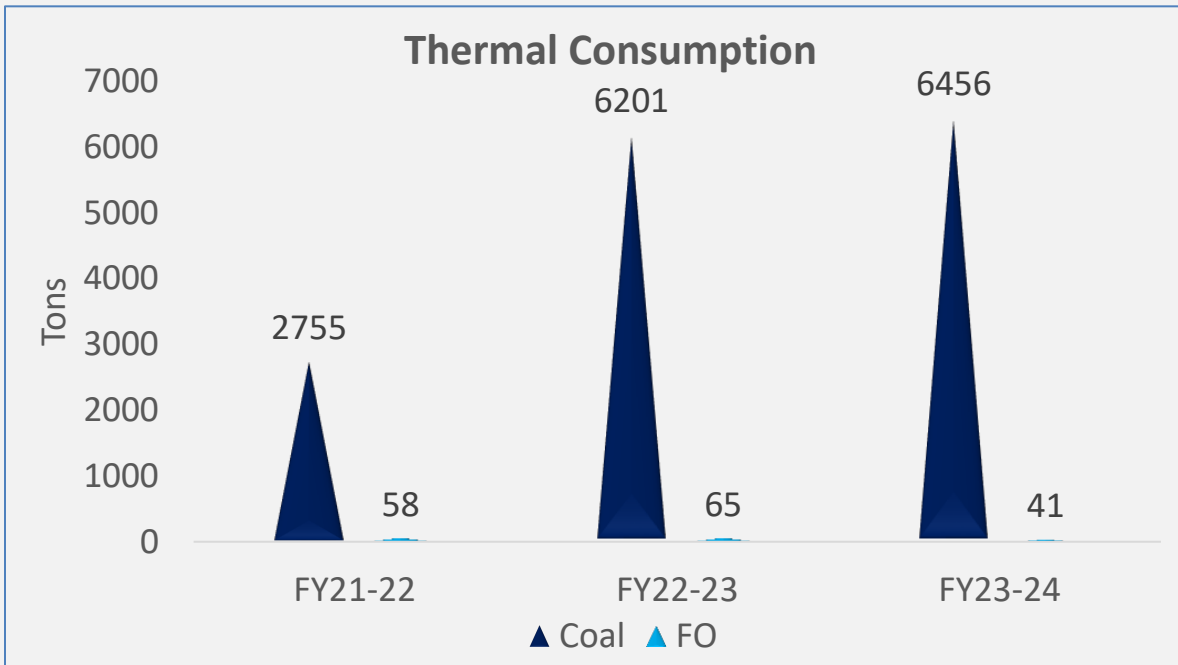
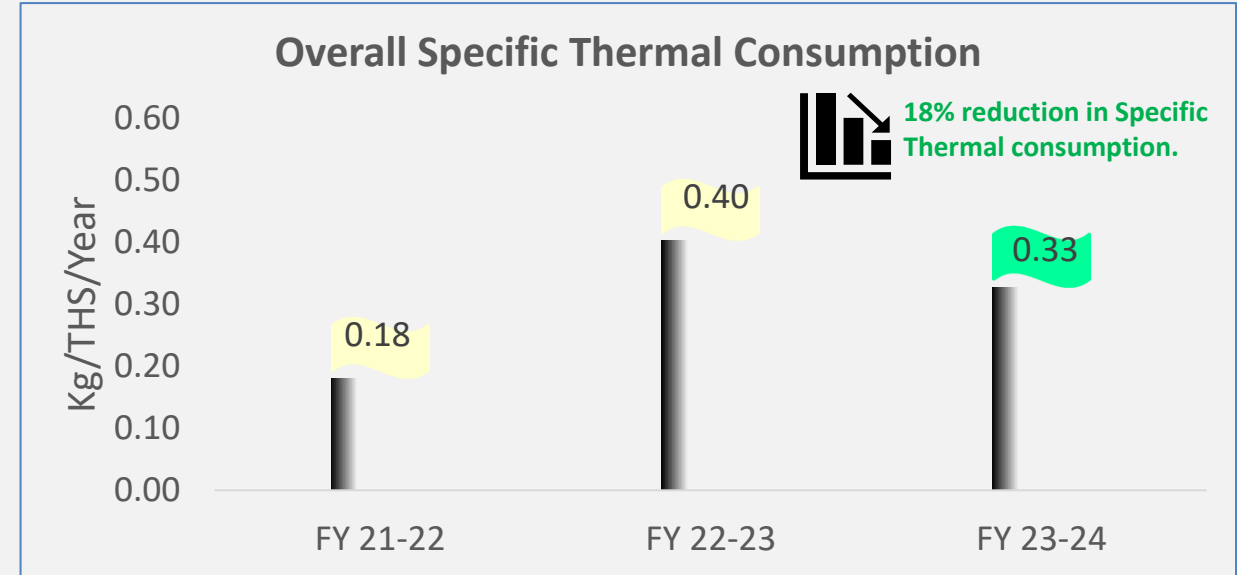
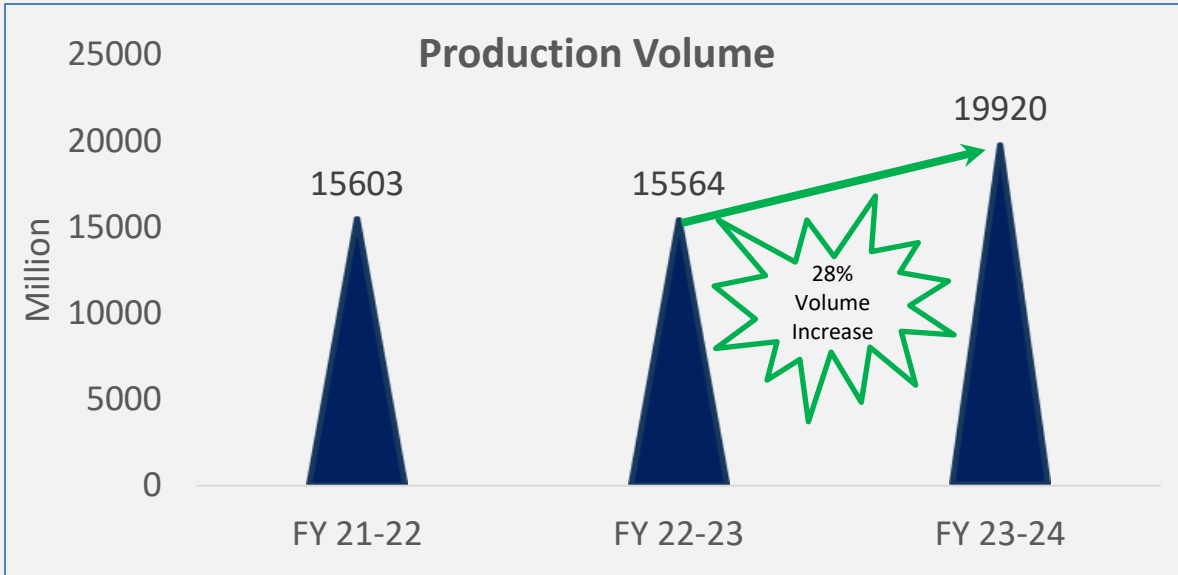


Granulation



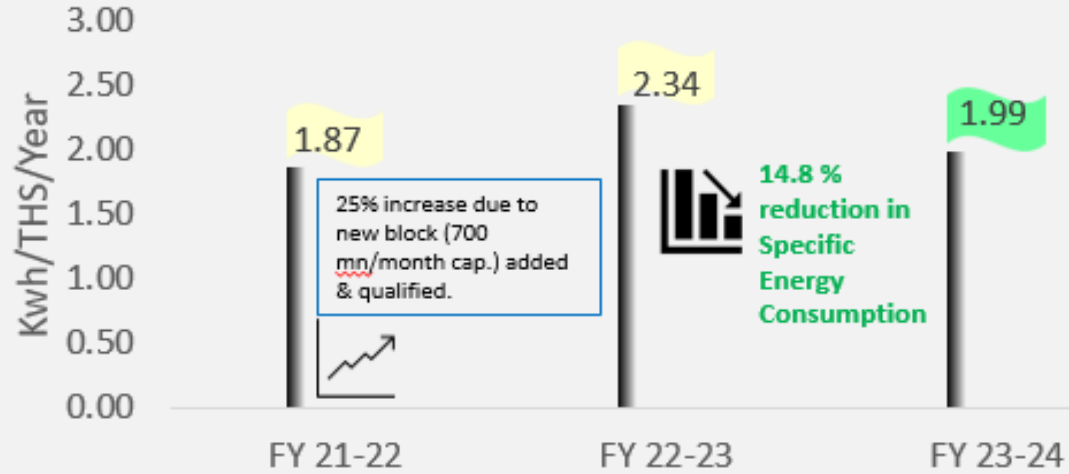
S.No.	Details	1	2	3	4	5	6	7	8	9	10	11
1	Equipment	Sifter	Binder Preparation Vessel	RMG	FBD	Quadro Mill	Metal Detector	PTS	Octagonal Blender	Tippler	IPC	Binder preparation vessel
2	Process	Sifting	Binder Preparation	Dry mixing & Granulation	Drying	Milling	Rejection of metal particles	Inprocess material transfer	Blending	Dried granules unloading	Dried granules/Milled Granules storage and transfer	Binder Preparation
3	Capacity	250kg/hr	150ltr	800ltr	1500ltr	3900kg/hr	Range: 0-299	4000kg/hr	16000ltr	1500ltr bowl	1000ltr	150

Thermal & Diesel Consumption : FY22-24

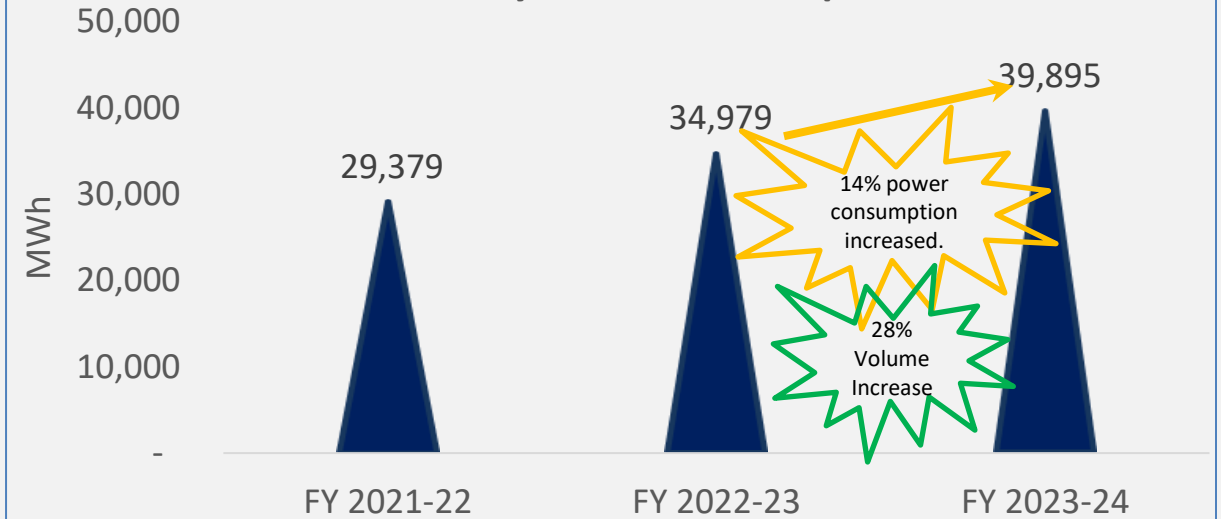


Power Consumption: FY22-24

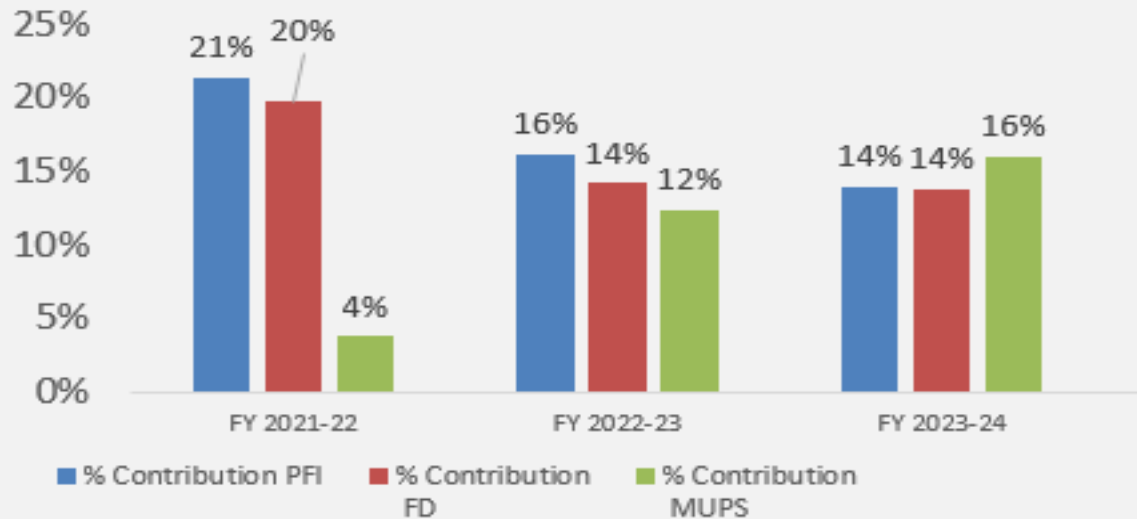
Overall Specific Power Consumption



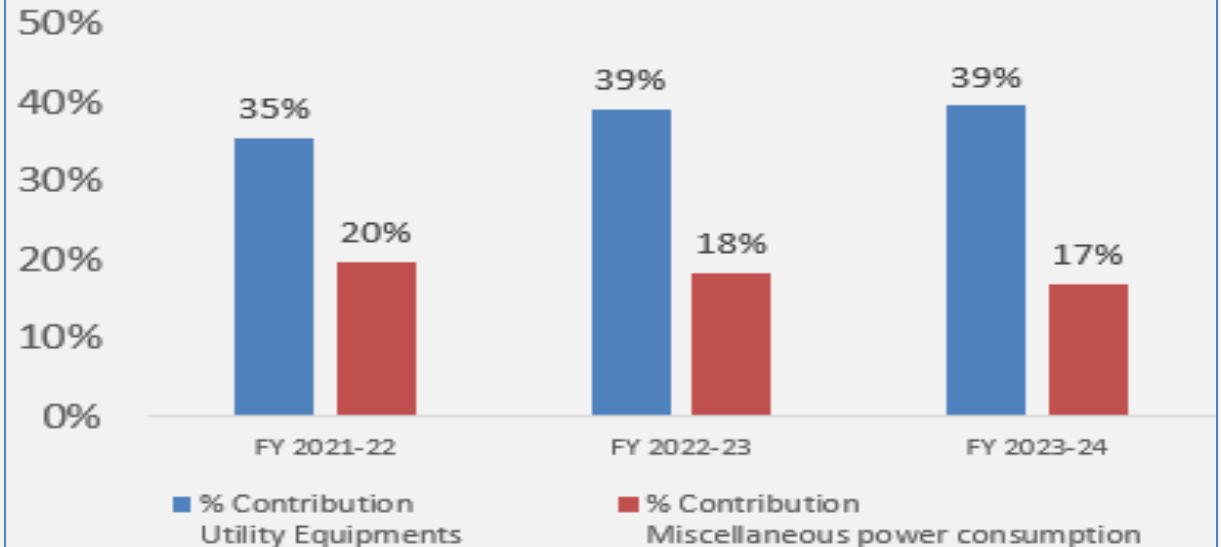
Total Facility Power Consumption



Manufacturing block wise energy consumption contribution



Other Energy Consumption Contribution



Sr. No.:	Equipment/Area	Measured Value	UOM	Baseline FY'24	Target FY'25
1	Chiller	Efficiency	Kw/TR	0.74	0.73
2	Boiler	Fuel Economy	Kg Steam/Kg Coal	5.5	6.0
3	Air Compressor	Specific power consumption	Kw/CFM	0.17	0.16
4	DG	Fuel Economy	Kw/Lt	3.45	3.6



Projects Implemented: FY21-24


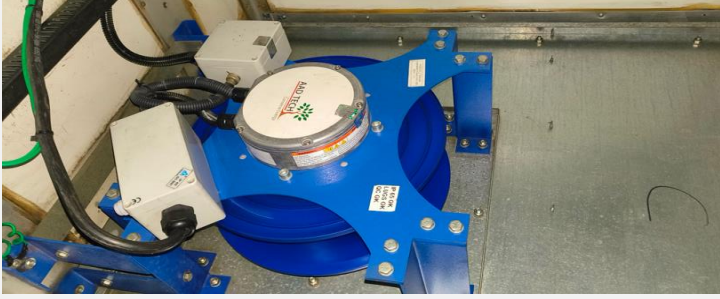


Year	No of Energy saving projects	Investment (INR Million)	Electrical savings (Million kWh)	Thermal savings (Million Kcal)	Total Savings (INR Million)	Payback period (in months)
FY 2021-22	2	19	1.97	0	13.5	16
FY 2022-23	2	20	1.0	0	7.43	32
FY 2023-24	2	12	0.83	0	4.6	31



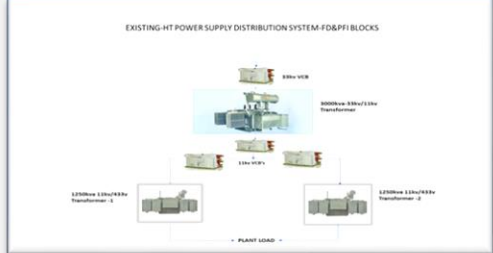
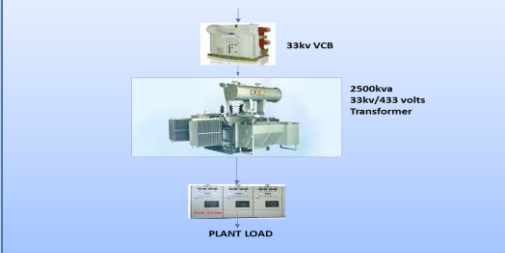
Summary of Energy Saving Projects

S.no.	Description of Energy Conservation Projects	Energy Saving / year (kwh)	Cost saving/year (lacs)	FY
1	EC blowers in place of conventional belt driven motor blowers	474000	34.2	2023-24
2	Rooftop Solar power installation (Solar Power Generation)	359000	12.14	2023-24
3	EC blowers in place of conventional belt driven motor blowers	762000	54.94	2022-23
4	Transformers optimization (one Transformer in place of 3 Transformers)	238000	19.34	2022-23
5	Centrifugal water cooled chillers in place of Air cooled chillers	1740000	120	2021-22
6	Intelligent controllers installation in place of manual AHU operation	214000	15.43	2021-22
7	Other Energy Projects	-	298.89	2021-24

Project 1: Conventional blowers to EC Blowers (FY22-24)


Elements	Before	After
Picture		
Condition	Conventional Blowers	EC Blowers (Electronically commutated)
Energy Consumption/Blower (KWH)	8.27	5.48
Working	<p>Belt-driven blower motor fan used in HVAC systems to circulate air through the system. The function of this blower is to move air over the heating or cooling coils and distribute it throughout the building. The belt-driven mechanism allows for the adjustment of fan speed and efficiency by changing the belt's tension or by using different pulley sizes. Due to belts there is a significant power losses.</p>	<p>The rotor of an EC motor is a permanent magnet and the stator has a coil arrangement. By apply DC power to the coil, the coil is energized and become an electromagnet. The operation of an EC motor is based on the force interaction between the permanent magnet and the electromagnet. Power losses will be 30% lesser compare to conventional blowers.</p>
Quantity	83	83
Cost Saving/Annum (Lacs)	-	61

Project 2: Optimization of transformer from 3 to 1 NOS.(FY22-23)

Elements	Before	After
Actual Picture		
Systematic Picture		
Number of Transformers	3	1
Transformer Capacity (Kva)	3000, 1250, 1250	2500
Voltage Level	33kv/11kv, 11kv/433 V	33kv/433 V
Full Load Losses (Kw)	32.5, 13.1, 15.75	25
Energy Saving (kwh)	-	238820
Energy cost saving/Year (Lacs)	-	19.34
ROI	-	24 months

Project 3: Air cooled chiller to Centrifugal Chiller (FY21-22)

Elements	Before	After
Picture		
Number of chillers	2	1
Capacity (TR)	400	1000
Specific Energy Consumption	1.1 Kw/TR	0.6 Kw/TR
Power Savings (KWH)	-	1740000
Cost Saving (lacs)	-	120
Capex (Lacs)	-	130
ROI	-	13 Months

Elements	Before	After
Picture	Manual Control	
Number of controllers	-	30
Annual Electrical Saving (Kwh)	-	214000
Cost Savings (lacs)	-	15



Replacement of conventional CFL,FTL & HPMV lamps with LED Lights.

- Energy Saving: 1,01,040 kwh
- Cost Saving per Annum: 7.89 lacs
- Year of Implementation: FY20-21



33 KV HT Dedicated power supply line from 132KV substation.

- Energy Saving: 20 KL diesel/Month
- Cost Saving per Annum: 200 lacs
- Year of implementation: FY22-23



FBC Boiler Installation.

- Coal Saving: 679 MT/Year
- Cost Saving per Annum: 69 lacs
- Year of Implementation: FY21-22



Installation of flash jet pumps for steam condensate recovery

- Coal Saving: 216 MT/Year
- Cost Saving per Annum: 22 lacs
- Year of Implementation: FY21-22

Renewable Energy (On-site): Roof Top Solar Panels 320 Kwp

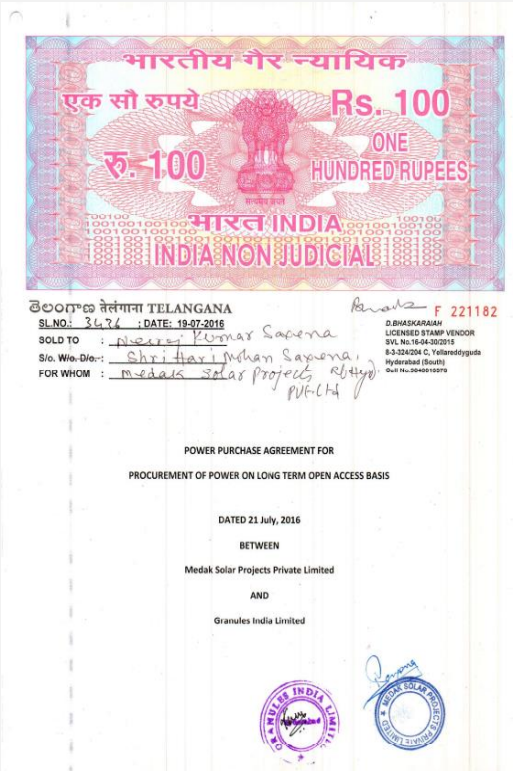
Year	Source (Solar, wind, etc.,)	Installed capacity (in Kwp)	Capacity addition (MW) after FY 2021	Total Generation (million kWh)	Share % w.r.t to overall energy consumption	Cost Saving w.r.t. EB v/s Solar (Lacs)
FY23-24	Solar	320	0	0.359	0.9%	12



Renewable Energy (Off-site): Solar (Medak Solar-PPA)



Year	Source (Solar, wind, etc.,)	Total offsite Installed capacity (MW)	Capacity addition (MW)	Total Generation (million kWh)	Share % w.r.t to overall energy consumption
FY21-22	Solar (Medak Solar-PPA)	-	-	7.6	26%
FY22-23	Solar (Medak Solar-PPA)	-	-	7.2	20%
FY23-24	Solar (Medak Solar-PPA)	-	-	6.5	16%



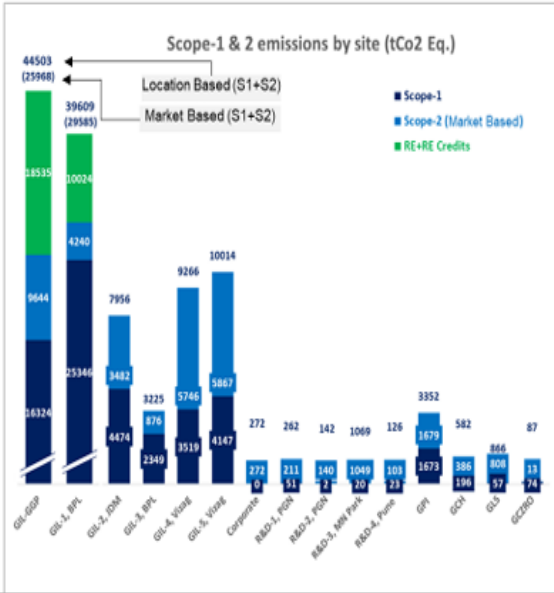
Information : GHG Inventorisation and Public disclosure



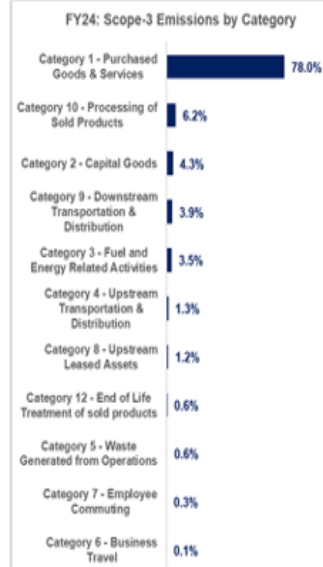
GIL's Carbon footprint

Scope (t Co2 Eq.)	FY23	FY24
Scope-1	57,816	58,247
Scope-2 Market Based	57,974	34,399
Scope-3	6,27,630	6,66,694
Total Emissions	7,43,420	7,59,341

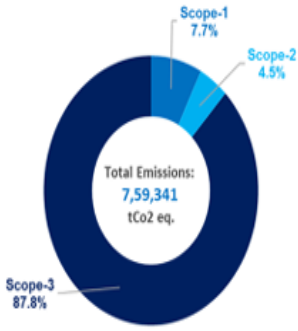
Our Scope 1 & 2 emission by unit



Our Scope 3 emission: by category



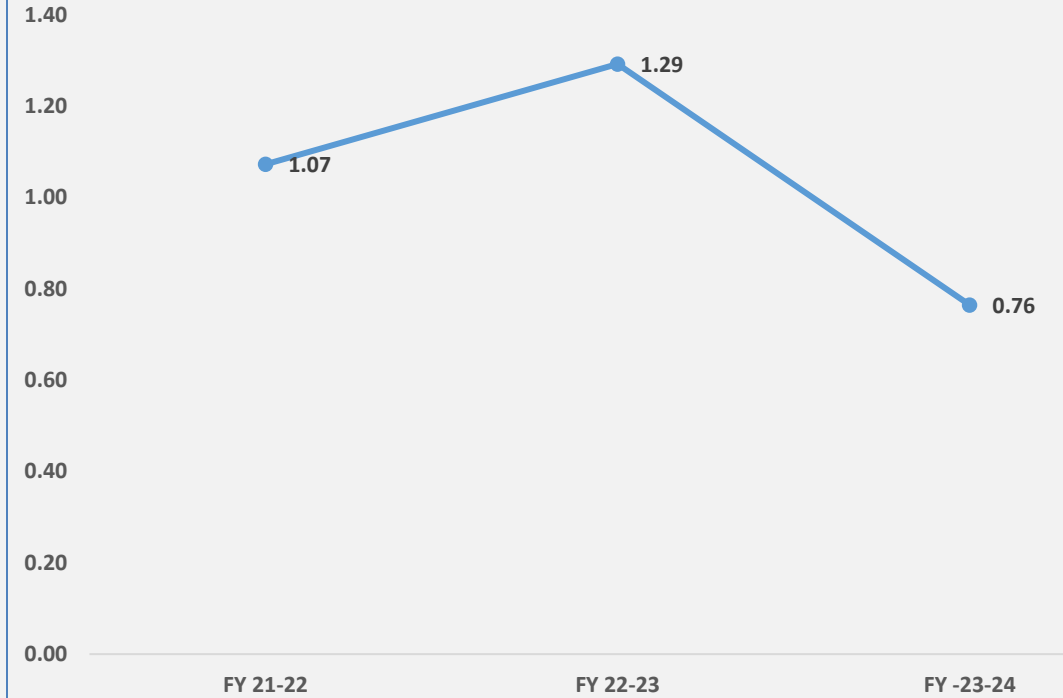
Granules Emission Profile - FY24



Our emission disclosures for FY 23 has been updated during FY 24 disclosure cycle to **include emissions for all our subsidiaries** and now includes disclosure of our **comprehensive scope 3 emissions** in addition to previously disclosed Scope 1 and Scope 2 emissions.

Granules scope 3 emission which represents 87.8% of our total carbon footprint, calculation of which is based on **GHG protocol's corporate value chain (scope-3) accounting** and includes **11 out of 15 categories** which are applicable to Granules operations.

Intensity (Scope 1+2) Tons of CO2e/MT of production



GHG Emissions Category

FY 21-22

FY 22-23

FY -23-24

SCOPE 1 ,Tons of Co2e

14652

15975

16227

SCOPE 2,Tons of Co2 e

16399

22897

9644

Scope-1+2 Tons of CO2e

31051

38872

25871

SCOPE 3 ,Tons of Co2e

....

3,25,494

3,53,681

Action Plan: Short & Long Term

Accelerating Renewable Adoption

Accelerated transition to renewable for GGP and BPL (PPA, Solar Roof Top & REC)

- GGP FD site & BPL API site contributing to 68% of Grid Energy Consumption
- Renewable adoption through PPA, Roof top Solar and RECs

Net Zero Roadmap

- **Scope 1** – Efficiency measures (20-25% reduction) + Biofuel boiler/ Electrification
- **Scope 2** – Efficiency measures (20-25% reduction) + Renewable Energy (PPA & RECs)
- **Roadmap for Net Zero by 2050** – focused on **Scope 3 reduction (CZRO)**

Cascade & Beyond

Scope 3 is the biggest component of our emissions

- **Cascade** : Adopting Supplier's sustainability framework, Suppliers to set SBTi targets
- **Going Beyond | Granules CZRO** : Solve Scope 3 emission challenge through Pioneering initiative involving Green energy, Green Molecule and Circular Economy

Various decarbonization levers can be considered by Granules to reach Net Zero

Scope 1 / Scope 2 – Existing Facilities	Raw / Packing Materials	Waste generated from operations	Upstream / Downstream Logistics	Business Travel / Employee Commuting	Enablers
Resource Circularity - Steam / Condensate / Waste Heat Recovery	Sourcing from low-carbon suppliers	Shifting waste treatment (from landfill to other)	Consignment / Container consolidation	Reducing travel (e.g., via virtual meetings)	Raising leadership / employee awareness
Boiler efficiency improv. / conversion (to biomass)	Embracing near-sourcing	Partnering with recycling firms (e.g., for PPES)	Logistics Mode shift (e.g., air to sea)	Commuter Mode shift (e.g., company bus)	Regular tracking / monitoring
Chiller plant <i>optimiz.</i> / automation / replace	Supplier targets for Scope 1 / 2	Reducing hazardous emissions waste	Partnering with "greener" 3PL players		Pursue sustainability transparency
Compressed air system / HVAC optimization	Identifying new "green" suppliers	Reducing single-use items (e.g., paper waste)	Packaging Optimization	Enabling WFH (for support staff)	Refining sourcing contracts / SLAs
Optimizing production pathway (e.g., via enhancing solvent recovery) for lower energy / raw material consumption and emissions			Utilizing green last-mile delivery (port to plant)	Offering EV Charging infrastructure on-site	Supplier Capability Building
Energy Storage Systems (battery, thermal..)	Adopting sustainable raw / packing materials	Adopting sustainable / reusable packaging	Enhance logistics demand forecasting	Supporting EV (2W, 4W) adoption	Implementing internal sustainability policies
Sourcing more renewable electricity	Insourcing select raw materials (i.e., CZRO)	Exploring waste to energy options	Implement logistics digitalization	Promoting public transportation	Sustainability Data Platform
..	Solvent recovery
Country-specific decarbonization trends (e.g., grid decarbonization)					

Green Purchase Policy

Granules India Limited is committed to promoting sustainability and environmental responsibility throughout our supply chain. Our Green Supply Chain Policy aims to minimize the environmental impact of our operations by integrating sustainable practices and encouraging our suppliers to adopt environmentally friendly measures.

Policy Statement

1. Sustainable Sourcing
2. Environmental Compliance
3. Carbon Footprint Reduction
4. Resource Efficiency
5. Sustainable Packaging
6. Supplier Evaluation and Engagement
7. Transparency and Reporting

Supplier Pledge : As a valued partner, we ask you for your commitment to the following pledge

1. Disclose Carbon Footprint

- Disclose Scope 1, 2, and 3 emissions related to Granules business by the end of 2024.

2. Commitment to Science Based Target Initiative (SBTi)

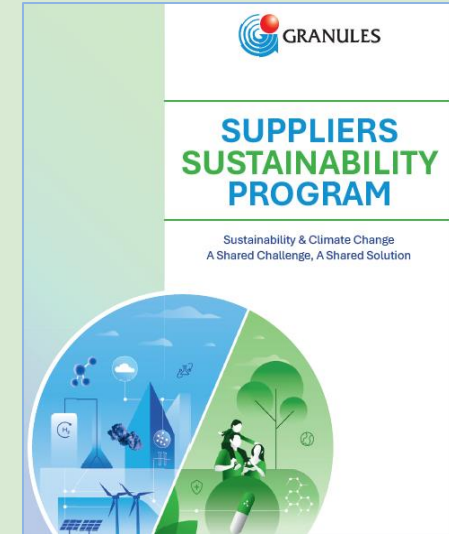
- Develop and submit a science-based target to the SBTi by the end of 2025.

3. Declare Product Carbon Footprint (PCF)

- Provide Product carbon footprint (PCF) for products sold to Granules.

4. Commit to Accelerating Renewable Energy Adoption

- Increase renewable energy in the electricity purchase and to 100% renewable energy within next 5 years.

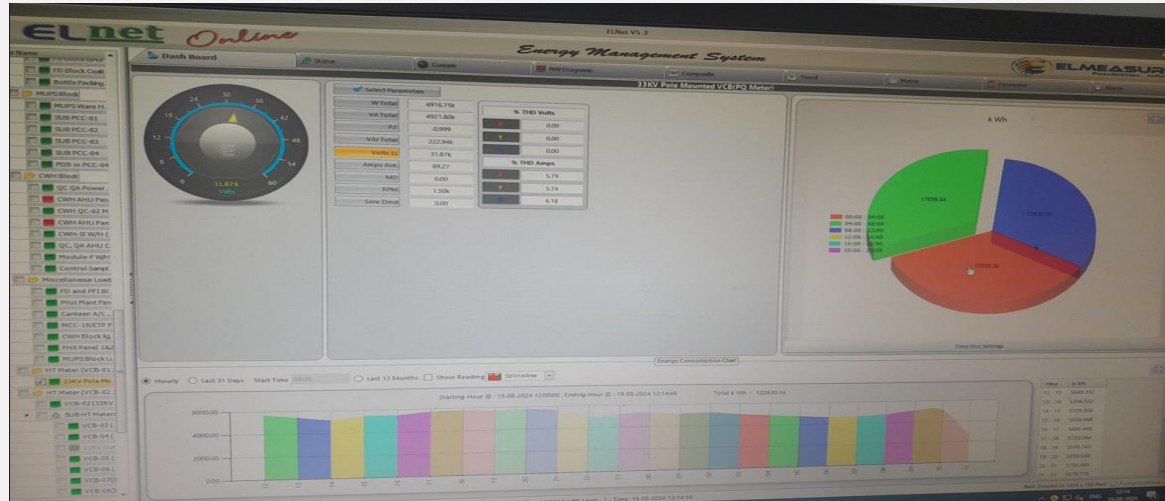
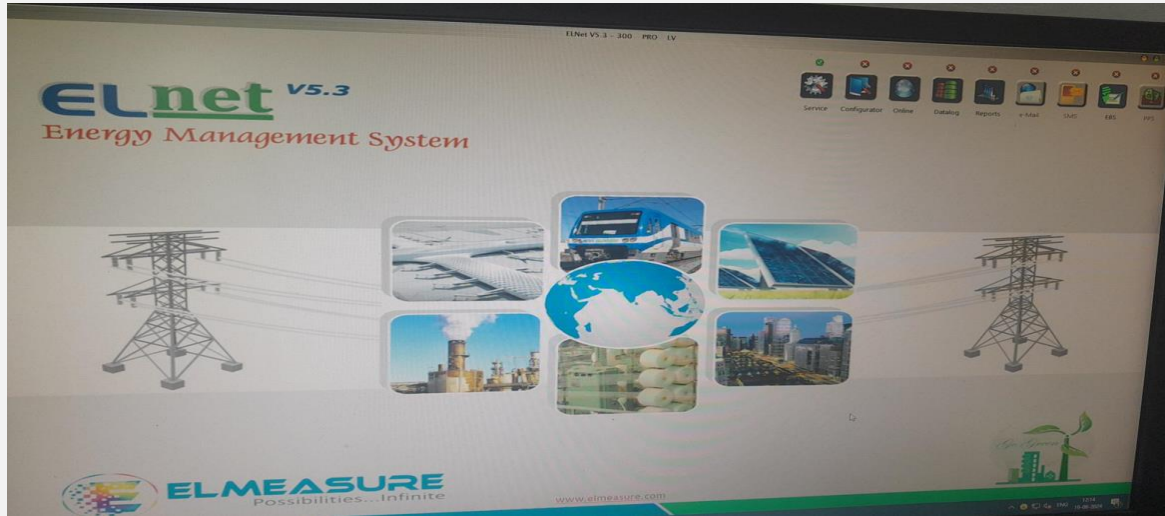


In the financial year 2024, we extended our efforts through our Scope-3 GHG Assessment. We reached out to all key suppliers to collaborate on providing accurate data related to their manufacturing processes, energy and fuel consumption, Scope 1, Scope 2, and Scope 3 emissions, and product carbon footprint for materials supplied to Granules India.

Furthermore, we launched a Supplier Sustainability Program to engage key suppliers in committing to and disclosing environmental and climate-related metrics. This program encourages suppliers to disclose their emissions data, develop science-based targets certified by the Science Based Targets initiative (SBTi), and provide product carbon footprint information for products sold to Granules India. It also promotes the adoption of renewable energy in their electricity purchases. Through these collaborative initiatives, we aim to enhance transparency, promote sustainability, and drive positive environmental impacts across our entire supply chain.

Energy Monitoring System

EL Measure: Power Monitoring System for each area.



Shift wise Coal, FO & Diesel monitoring report

Date	Day	Power (KWHr)	Diesel (L)	Reason for excursion-Diesel	Water (KL)	Coal (Kg)
1-Aug	Thu	106854	924	33kv incoming EB power failure	500	16590
2-Aug	Fri	102862	0		460	17365
3-Aug	Sat	106878	0		440	16905
4-Aug	Sun	105293	0		420	16470
5-Aug	Mon	108200	336	33kv incoming EB power failure	440	16565
6-Aug	Tue	106342	0		420	17045
7-Aug	Wed	108143	0		360	17325
8-Aug	Thu	108232	1266	33kv incoming EB power failure	460	16555
9-Aug	Fri	108232	0		420	16600
10-Aug	Sat	105451	762	Circuit breakers and UPS Maintenance activities	480	17045
11-Aug	Sun	113634	831	33kv incoming EB power failure	500	16650
12-Aug	Mon	119211	0		440	17265
13-Aug	Tue	119530	0		480	17395
14-Aug	Wed	115027	2800	33kv incoming EB power failure	580	17530
15-Aug	Thu	117818	2900	33kv incoming EB power failure	400	17455
16-Aug	Fri	123224	2500	33kv incoming EB power failure	360	19230

[Safety](#)
[OPEX-Engg](#)
[OEE](#)
[Compression OEE](#)
[Coating OEE](#)
[Packing OEE](#)
[Yield](#)
[Weekly summary](#)
[P vs A](#)
[Produ](#)

Online Monitoring of Power consumption enables to reduce inefficiencies and leakages.

Awards: Telangana State Energy Conservation (TSECA)



Net Zero Commitment

Target

- ▶ Align with SBTi targets for limiting global warming to 1.5°C
 - Achieve net-zero targets by 2050
 - Reduce Scope 1 and 2 absolute emissions by 42% by FY 29-30 from FY 22-23 baseline
 - Reduce Scope 3 absolute emissions by 42% by FY 29-30 from FY 22-23 baseline
- ▶ Work with strategic suppliers to set SBTi emission reduction targets by FY 26-27

Roadmap

1	Baseline (Scope 1, 2 & 3)	Baseline (FY 23) <ul style="list-style-type: none"> ▪ Scope 1 and 2 : 115,790 t Co2 equivalent (GIL, Consolidated including subsidiaries) ▪ Scope 3: ~624,765 t Co2 equivalent (GIL, Standalone)
2	SBTi 1.5° aligned target	SBTi Target submission, aligned to 1.5 C and Net Zero 2050 <ul style="list-style-type: none"> ▪ Scope 1 and 2: 42% absolute emission reduction by 2030 ▪ Scope 3: 42% absolute emission reduction by 2030
3	Accelerating Renewable Adoption	Accelerated transition to renewable for GGP and BPL (PPA, Solar Roof Top & REC) <ul style="list-style-type: none"> ▪ GGP FD site & BPL API site contributing to 68% of Grid Energy Consumption ▪ Renewable adoption through PPA, Roof top Solar and RECs
4	Net Zero Roadmap	<ul style="list-style-type: none"> ▪ Scope 1 – Efficiency measures (20-25% reduction) + Biofuel boiler/ Electrification ▪ Scope 2 – Efficiency measures (20-25% reduction) + Renewable Energy (PPA & RECs) ▪ Roadmap for Net Zero by 2050 – focused on Scope 3 reduction (CZRO)
5	Cascade & Beyond	Scope 3 is the biggest component of our emissions <ul style="list-style-type: none"> ▪ Cascade : Adopting Supplier's sustainability framework, Suppliers to set SBTi targets ▪ Going Beyond Granules CZRO : Solve Scope 3 emission challenge through Pioneering initiative involving Green energy, Green Molecule and Circular Economy

Voluntary Initiatives Commitment



Committed and Submitted SBTi Near term and Net Zero Commitment aligned to 1.5°C for Validation



Committed for UNGC 10 Principles of Human rights, labor, Environment, and anti-corruption



Granules MSCI ESG Ratings



Received "C Score" in Climate Change Disclosure



Received EcoVadis Silver Rating for Granules unit-1 Bonthapally & Received Bronze Rating for Unit-2 Jeedimetta



Granules Gagillapur unit has cleared the C-TPAT (Customs Trade Partnership Against Terrorism | U.S. Customs and Border Protection) Audit with 84% score

Thank you

Bangarubabu Bhagavathula

Phone No.: 7337446129

e-mail: bangarubabu.bhagavathula@granulesindia.com
