Energy Efficiency

Our energy demand and fossil fuel-based energy consumption in our operations are inextricably linked to greenhouse gas emissions and influence the achievement of our decarbonisation targets. To reduce our overall energy demand and leverage clean energy for our operations, we have adopted a three-pronged approach of monitor, minimise, and decarbonise.

Our Approach Towards Energy Management

Monitor
Monitor our energy consumption over the years, analyse the trends, setting internal and external energy benchmarking and set control action plans to achieve our target.

Minimise
Minimise the use of energy-intensive sources by transitioning to energy efficient processes, and recover waste heat for further utilisation.

Decarbonise
Reduce carbon footprint from our energy sources by adopting cleaner fuel alternatives and shifting to renewable energy sources.

Monitor

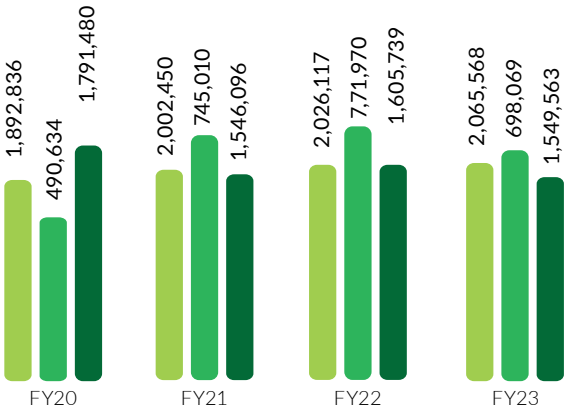
Monitoring our energy consumption helps us identify patterns and irregularities, validate energy savings, and make informed decisions on areas of intervention. Regular monitoring also aids in extrapolating current energy consumption trends to infer and forecast future energy demand, set energy reduction targets, and assess the effectiveness of implemented energy-saving initiatives.

This section highlights our annual energy consumption trends over the past four years. A steady decline in the proportion of non-renewable sources in our energy mix also characterises our overall decrease in energy intensity.

Energy Consumption (in GJ)[48]	FY20	FY21	FY22	FY23
Total energy from non-renewable sources	3,249,576	2,984,789	3,020,730	2,936,517
Total energy from renewable sources	925,374	1,308,767	1,383,094	1,376,682
Total energy consumption	**4,174,950**	**4,293,557**	**4,403,824**	4,313,199
Energy intensity (GJ/revenue in ₹ Million)[49]	**18.67**	**18.67**	**16.81**	15.04

[48]GRI 302-1, [49]GRI 302-3

Energy Consumption FY23 (in GJ)

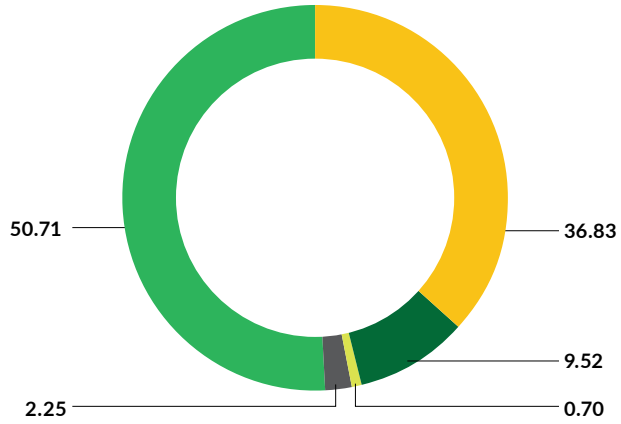


- Electricity consumption
- Steam consumption
- Fuel consumed

Energy Mix FY23 (in %)

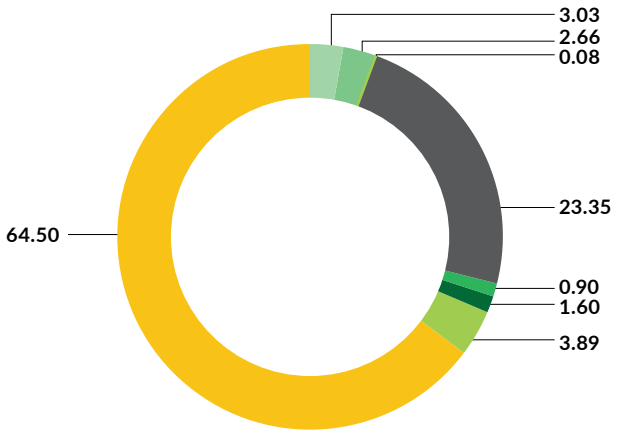
- Total Energy from Renewable Sources
- Total Energy from Non-renewable Sources

Renewable Energy Mix FY23 (in %)



- Biomass
- Solar rooftop (including solar street light)
- Windmills
- Renewable sources - power purchased
- Steam purchased

Non-renewable Energy Mix FY23 (in %)



- High speed diesel (HSD)
- Furnace oil
- Petrol
- Compressed natural gas (CNG)
- Liquefied petroleum gas (LPG)
- Light diesel oil (LDO)
- Coal
- Grid electricity

Minimise and Decarbonise

We have been progressively integrating renewable energy within operations to reduce dependence on fossil fuels and decrease greenhouse gas emissions. In FY23, we invested ~₹2,143 Million in clean energy and energy-efficient projects.

We have successfully reduced our consumption of high-speed diesel (HSD), furnace oil, and coal by transitioning to biomass fuel, a carbon-neutral energy source.

Environmental Stewardship (continued)

In FY23, we have implemented focused energy efficiency measures[50]. Some of these are enumerated below:

1

Installation of Hybrid (Wind + Solar) Power Plant This strategic investment is expected to result in an annual GHG reduction potential of 37,530 tCO_2e.

2

Solar Rooftop Installations, contributing to an annual GHG reduction potential of 3,340 tCO_2e.

3

Energy Efficient Chillers and Heat Pumps at sites are anticipated to lead to an annual GHG reduction potential of 1,788 tCO_2e.

4

Other projects, such as VFD and LED, among others, resulted in a cumulative annual GHG reduction potential of ~10,474 tCO_2e.

Emissions Management

Scope 1 GHG Emissions[51]

We periodically monitor and report on the emissions of direct fuels consumed (HSD, furnace oil, petrol, CNG, LPG, LDO, and coal) in our operations. Our Scope 1 emissions demonstrate a declining trend over the past four years, both in absolute and intensity terms.

Scope 1 Emissions (tCO_2)

Emission Intensity for Scope 1 [tCO_2/revenue (in ₹ Mn)]

The emissions from using biomass in our operations have been classified as biogenic emissions, accounting for a total of 57,577 tCO_2e in FY23.

[50]GRI 302-4 and 305-5, [51]GRI 305-1 and 305-4