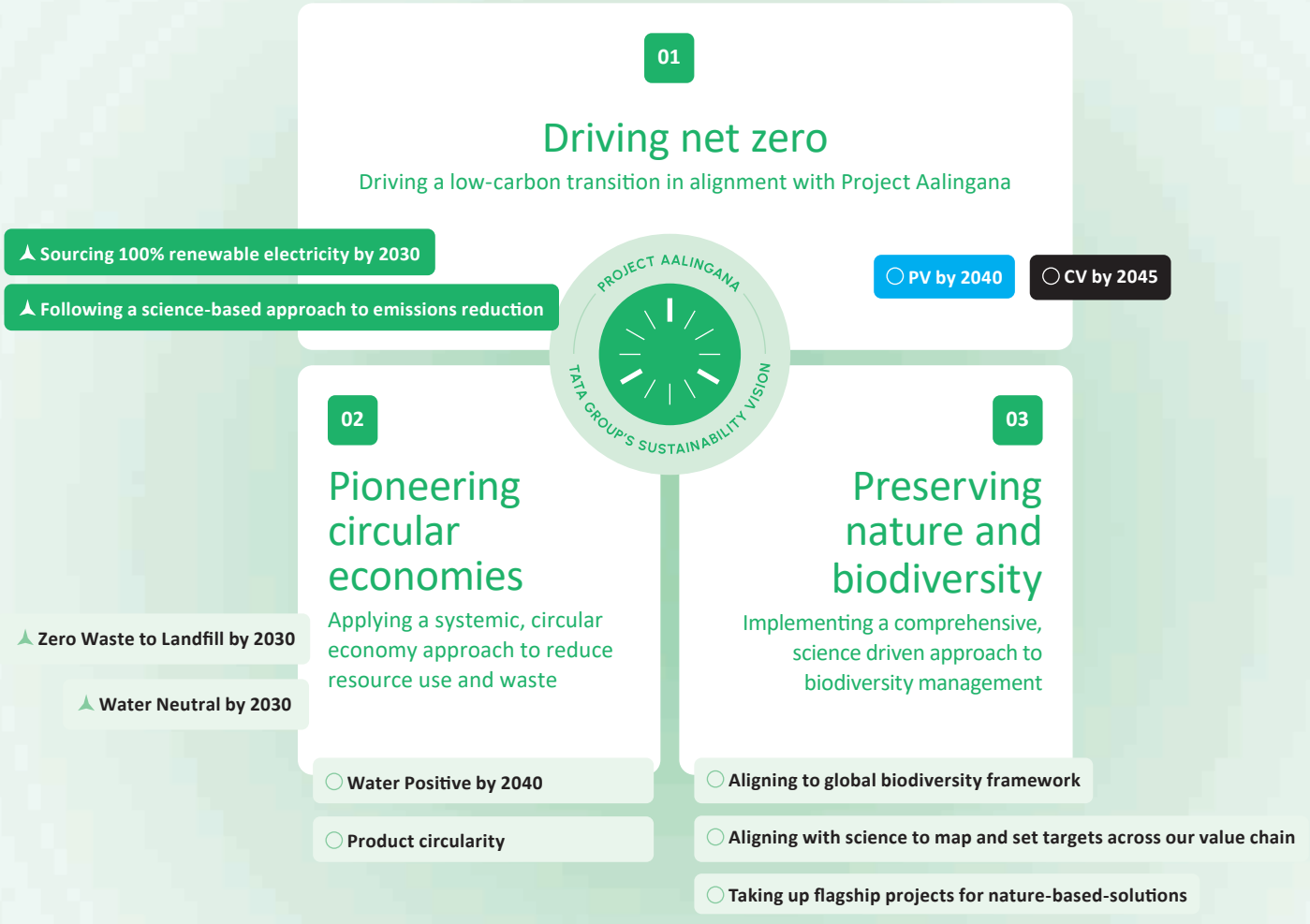
Planet

To promote planet resilience, our efforts are focused on three interconnected pillars of action that resonate the Tata Group's vision of environmental stewardship encapsulated by Project Aalingana.

Aalingana *(Sanskrit: Embrace)*

'Embrace' in Sanskrit, embodies the Tata Group's vision for a greener, cleaner, more sustainable and equitable future for the planet.

Our goal of achieving net zero by 2045, and our mission to secure the future with innovation focuses on a commitment to integrate sustainability into a business strategy by concentrating on three interlinked pillars of decarbonisation, circularity, and preserving nature and biodiversity.



○ Product driven ▲ Operational driven

“I believe that the social responsibility of our industrial enterprises should now extend, even beyond serving people, to the environment. This need is now fairly well recognised but there is still considerable scope for most industrial ventures to extend their support not only to human beings but also to the land, to the forests, to the waters and to the creatures that inhabit them.”

JRD Tata
Founder, Tata Motors
(1904-1993)

01

Driving net zero

We understand the urgency of the climate crisis. The world is shifting towards new energy sources, cleaner fuels, and sustainable business practices that minimise environmental harm. In tandem, we are developing new products, technologies, and business models that are environment-positive while creating exciting new opportunities for our customers and other stakeholders.

We have committed to a comprehensive decarbonisation strategy based on science and we are making our product line-up cleaner and greener. Our goal is to achieve net zero emissions by 2040 for our PV business and by 2045 for the CV business. We are signatories to the RE100 initiative, which means we are committed to using 100% renewable electricity by 2030.

We are driving innovation across our core business and working on various powertrain options to deliver zero-emission solutions across our product portfolio. We are exploring different engine technologies such as battery electric, hydrogen fuel cells, and even hydrogen-powered internal combustion engines.

We are also developing new low-carbon and sustainable materials, elimination of paints without compromising aesthetics and using IoT to improve operational efficiency. Our products use materials with high recyclability and we are working towards improving the recycled content in our input materials.
We are proud to be leading the EV revolution in India, with our passenger car and commercial vehicle electric subsidiaries playing a major role in putting clean, electric vehicles on the road.

Energy management

Building on our commitment to sustainable manufacturing, we expanded our on-site renewable energy generation capacity in FY24.

↑ y-o-y increase

Total on-site renewable power installations 13 ↑
(MWp)

56.3

FY24	56.3
FY23	43.3
FY22	34.3

Renewable electricity 74.23 ↑
(million kWh)

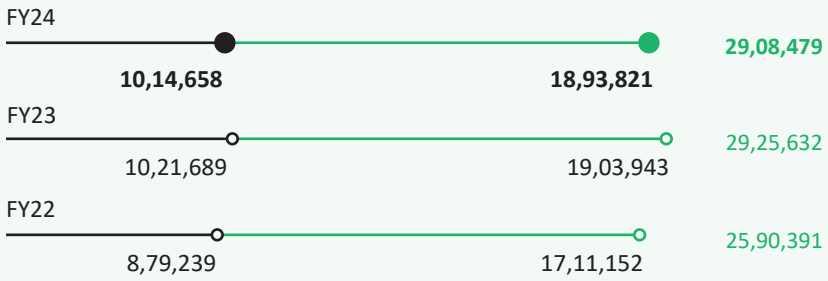
211.45

FY24	211.45
FY23	137.22
FY22	79.96

↑ y-o-y increase ↓ y-o-y decrease

Energy consumption
(GJ)

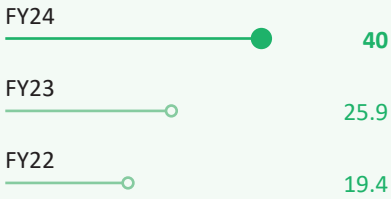
0.6% ↓



Direct (energy from fuels) Indirect (energy from electricity)

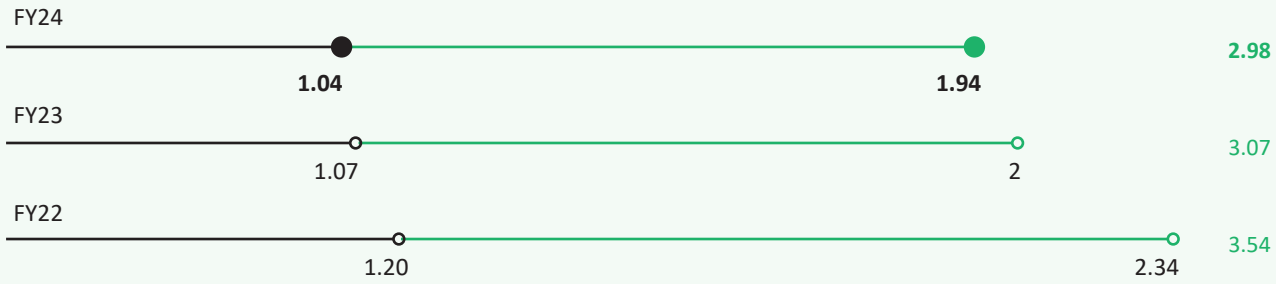
Renewable electricity share
(%)

14 ↑



Specific energy consumption
(GJ/vehicle)

3% ↓

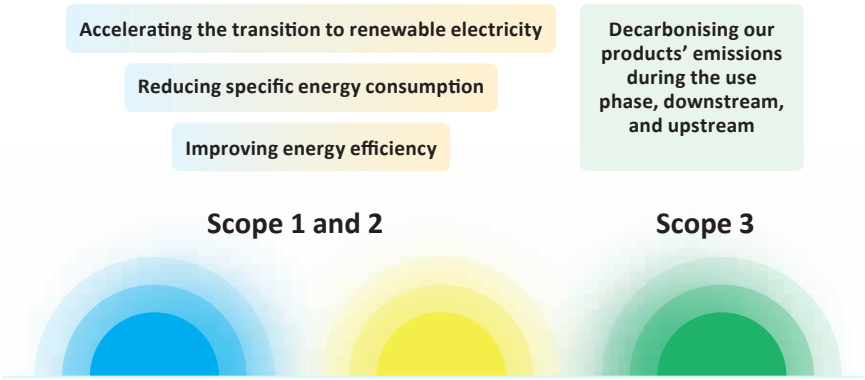


Direct (energy from fuels) Indirect (energy from electricity)

GHG emissions reduction

Taking a significant step towards a greener future, a comprehensive roadmap has been established to reduce our Scope 1, 2, and 3 greenhouse gas emissions

Emission reduction action plan



All our product plans are aligned with our decarbonisation and net zero targets. Our product plans involve a whole spectrum of clean alternatives across battery electric vehicles, hydrogen fuel cell vehicles and hydrogen ICE vehicles.

GHG emissions

↓ y-o-y decrease

Scope 1 GHG emissions (tCO_2) — 0.7% ↓

63,306

FY24	63,306
FY23	63,728
FY22	54,793

Scope 2 GHG emissions (tCO_2) — 19.1% ↓

2,25,252

FY24	2,25,252
FY23	2,78,465
FY22	2,81,098

Specific GHG (Scope 1+2) emissions (tCO_2/vehicle) — 17.5% ↓

0.296

FY24	0.296
FY23	0.359
FY22	0.459

Scope 3 emissions in FY24 (tCO_2)

Purchased goods and Services[1]	38,55,145
Fuel and Energy-Related Activities	75,115
Waste Generated in Operations	7,683
Business Travel	10,458
Employee Commuting[2]	13,899
Upstream Leased Assets[3]	2,359
Use of Sold Products[4]	17,22,69,033
Franchises[5]	1,96,339

[1] Spend based method.
[2] This includes coverage of only the employee commute though Company buses contracted by third parties at each plant location.
[3] The leased assets are shared offices by TML CV business, TMPVL and TPEML. The utility expenses are shared between the entities.
[4] This includes emissions from products sold by TML (Commercial vehicles), TMPVL (Passenger Vehicles) and TPEML (Passenger Electric Vehicles). The calculation methodology incorporates Well to Wheel emissions.
[5] The calculation methodology involves data collected on Scope 1 and Scope 2 from 353 dealer partners and extrapolation of the average emissions for each outlet category across 4,466 total outlets.

1 Upstream

2 Production, operation and logistics

DECARBONISING OUR VALUE CHAIN

Committed to net zero by

2040 PV

2045 CV

2039 JLR

IN ALIGNMENT WITH PROJECT AALINGANA

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

Targets to be validated

Advancing supply chain sustainability roadmap

Supply chain emissions, though smaller, are critical to decarbonisation. AIKYAM, our collaborative platform, tackles this challenge by fostering innovation, knowledge-sharing, and co-creation with suppliers for a holistic, accelerated transition to a sustainable future.

Reducing embodied emissions

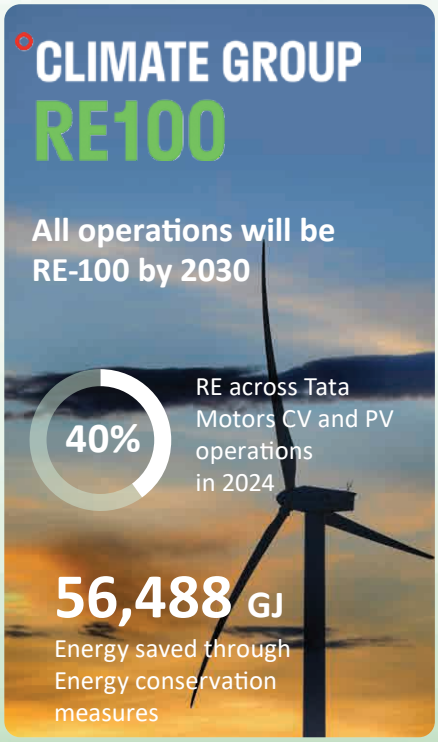
By adopting the principles of circular economy we are focusing on reducing embodied emissions in our materials.

Reimagining the supply chain JLR

JLRs 'Reimagine' strategy directly addresses supply chain challenges by fostering collaboration with suppliers. Through knowledge sharing and co-creation initiatives, JLR aims to accelerate the transition towards a sustainable future throughout our entire value chain.

Upscaling renewable energy usage

Our strategy tackles emissions through 100% renewable energy transition, energy conservation, and phasing out fossil fuels in logistics. We are making significant progress on renewables and conservation to achieve a greener future. All operations will be RE-100 by 2030.



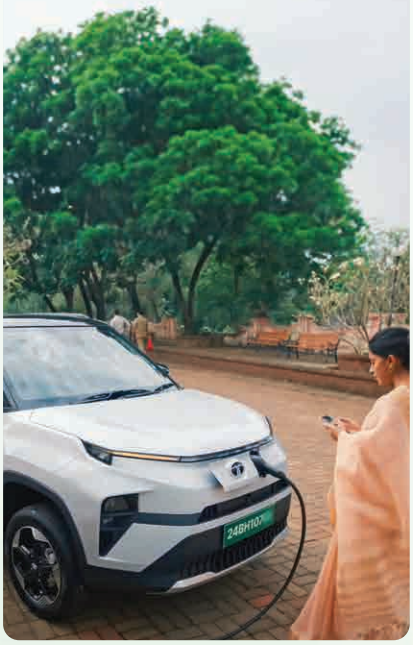
Optimising operations JLR

JLR prioritises operational sustainability through on-site efficiency initiatives, renewable energy integration, and process electrification to minimise energy consumption and emissions. We have an ambitious SBTi target of a 46% reduction in direct operational emissions by 2023.

Downstream

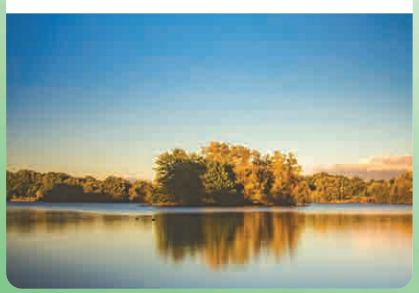
Tata UniEVerse

Synchronised efforts to develop a holistic e-mobility ecosystem to accelerate the adoption of EVs in India.



Increasing renewable energy usage JLR

Our global renewable energy strategy focuses on increasing self-generated power to exceed 35% of global consumption by 2030. This approach reduces reliance on the local grid and minimises the need for purchased grid-based renewable energy.



Expand EV portfolio

We are committed to decarbonising our downstream operations, especially from our use phase and our channel partners. We have already embarked on a business transformation drive to accelerate this process.

TML to launch 10 EV models by 2025

Building EV charging infrastructure

Our product strategy focuses on a complete shift towards zero and low-carbon vehicles like EVs, hydrogen vehicles, and flex fuels. We are also collaborating with partners to build a robust EV charging network, including green options, and green hydrogen infrastructure.

EV Dealerships

293

Covering 93 cities and expanding

Recycling With Respect

5

Re.Wi.Re- Registered vehicle scrappage facilities operational and plans to expand further

72,000

Annual vehicle scrappage capacity

Promoting shared mobility

2,600+

EV buses operationalised

16 million kms

Clocked by ACE EV vehicles

Decarbonising together: Partnering for progress JLR

In the collective pursuit of net zero emissions, JLR is committed to a two-pronged approach. We are actively electrifying our product portfolio, while simultaneously collaborating with our downstream value chain to decarbonise the supply of key materials. Through SBTi targets, we aim for a significant reduction of 60% in downstream emissions per vehicle kilometre across the entire use phase of our vehicles.

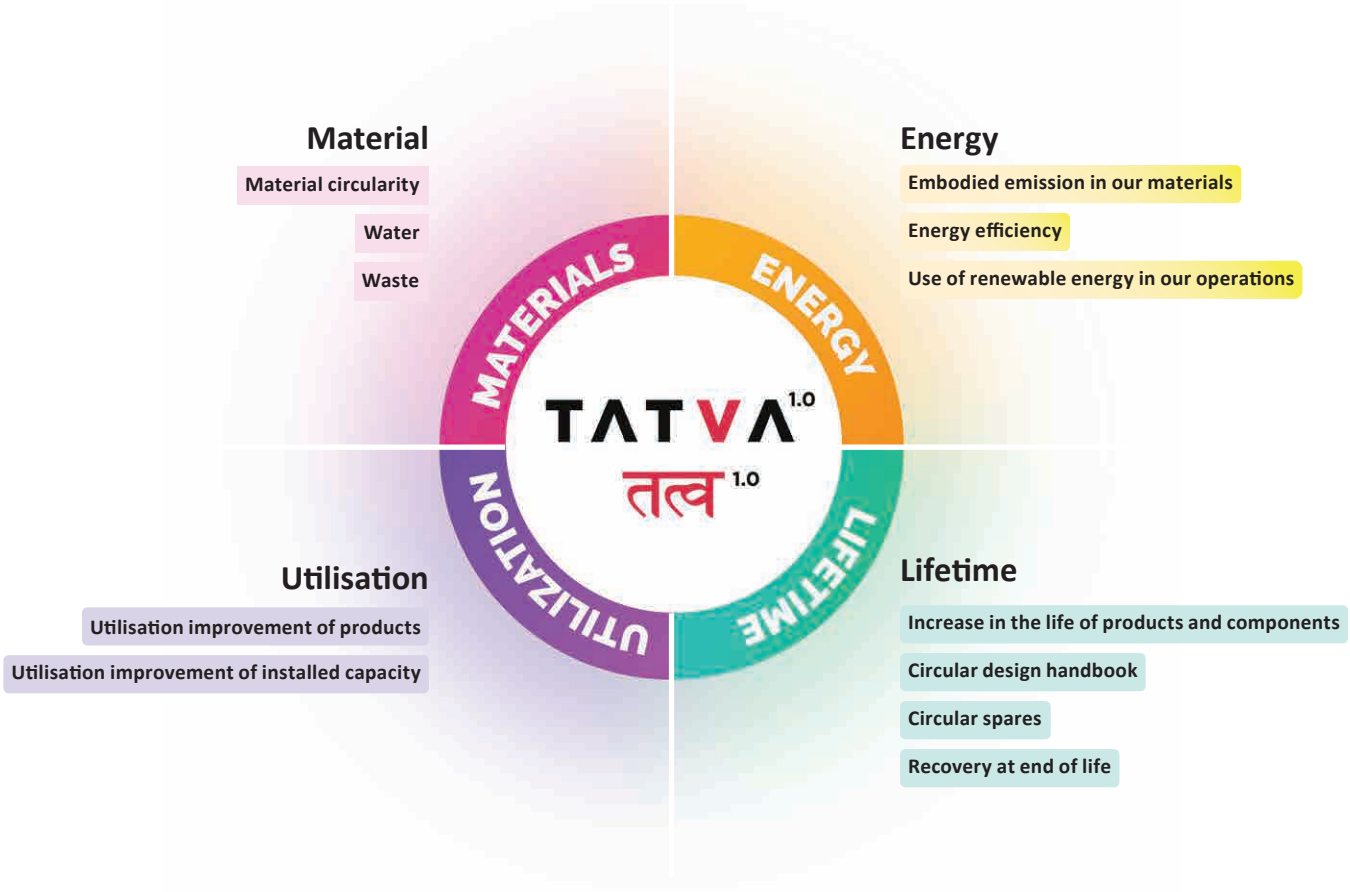
02

Pioneering circular economies

We have developed a comprehensive framework 'Tatva' to reaffirm our dedication to be a circular business. Tatva signifies the integration of circularity principles across our entire organisation, impacting our design, engineering, procurement, customer care, aftermarket support, and end-of-life management processes. This will result in minimising usage of virgin materials, reducing our material carbon footprint, extending life of our products and parts and improving product utilisation.

By mapping the interconnection between various functions, we aim to streamline information flow and establish clear targets across metrics. These metrics track our progress towards becoming a circular business while establishing a standardised definition and measurement system in the absence of industrywide standards. Tatva represents our unwavering commitment to a more sustainable future for our business and the environment.

Key elements of our framework along the pathways



Tatva encompasses

12 key elements

22 metrics

Focused on four pathways*:
Energy, Material, Lifetime and Utilisation

* Pathways as described in the Circular Cars Initiative by WBCSD and WEF

Circularity through design

At Tata Motors, we are committed to upholding sustainable practices and our end-of-life product management strategies. We continuously strive to improve our products' recyclability quotients through improved designs, selection of sustainable materials, and facilitating easy dismantling.

Our design-for-recycling approach seeks to minimise waste and environmental impact. Currently, over 85% of materials used in our vehicles are recyclable and recoverable.

In order to promote end-of-life management of our products, the dismantling information of Tata Nexon EV, Tata Nexon MCE, Tata Tiago, Tata Tigor, Tata Altroz, and Tata Harrier is published on IDIS (International Dismantling Information System) website. This information is useful to dismantlers for the safe disposal of Tata vehicles.

Circularity through re-use and re-manufacture

Our practices to re-use and re-manufacture promotes circularity in the following ways:

- 'Tata Assured' offers certified used cars through its 150+ outlets, extending vehicle life and reducing landfill waste
- For businesses, 'TATA OK' provides a trusted platform with 350+ dealers to buy, sell, or exchange commercial vehicles with 120-point inspections, warranties, and financing
- TATA OK@Home offers convenient doorstep evaluations for buying or selling used vehicles

Life Cycle Assessments (LCAs)

In line with our commitment to sustainability, Tata Motors conducts thorough Life Cycle Assessments (LCAs) to evaluate the environmental impacts of our products. These assessments cover resource use, ecological consequences such as greenhouse gas (GHG) emissions and ecotoxicity, as well as human health considerations including human toxicity and ionising radiation. We quantify these impacts using metrics such as Global Warming Potential, Acidification Potential, Eutrophication, Abiotic Depletion, Ozone Layer Depletion, and Photochemical Ozone Creation.

LCA methodology and approach

Our LCA approach, adhering to ISO 14040 and ISO 14044 standards, comprehensively evaluates the total environmental impacts or ecological burden arising from the entire lifecycle of our products. This includes stages from raw material extraction through manufacturing, usage, and end-of-life disposal. Using our rigorous methodology, we have completed Cradle to Gate calculations, commonly referred to as supplier emissions, for several models including Nexon BS 6, Altroz Dark, Tiago BS 6, Tigor BS 6, and Puch BS 6. For upcoming models like Sierra and Avinya, we have set targets for decarbonisation and material circularity, driving these objectives systematically into our development process.

Our initiatives

1. **Integrating innovative technologies such as nanotechnology, utilising natural fiber composites, repurposing pre-consumer waste for textiles, promoting the recovery of precious materials, and extending the drainage period of oils**
2. **Using recycled materials such as upto 7% recycled steel, 40% recycled aluminium and 20% recycled glass in vehicle components**
3. **Conducting lifecycle impact assessments to identify major hot spots so that corrective actions can be taken to reduce the vehicle's carbon footprint**

Enhancing vehicle sustainability

We are committed to:

- Increasing recycled content in vehicles
- Streamlining designs for longer life and end-of-life management
- Collaborating with suppliers through our AIKYAM forum to enhance circular business practices

Re.Wi.Re

The state-of-the-art Tata Motors Re.Wi.Re. facility is designed to dismantle end-of-life passenger and commercial vehicles of all brands. These facilities will drive responsible scrapping and recycling of end-of-life vehicles by using globally benchmarked and optimised processes. With the launch of Re.Wi.Re., we aim to offer better value capture in downstream businesses, generate employment, and support the minimisation of environmental pollution caused by aged vehicles. We are committed to expanding Re.Wi.Re. facilities across the country to promote circularity and enhance and organise its value chain play.

New facilities launched in FY24, totalling

5 facilities

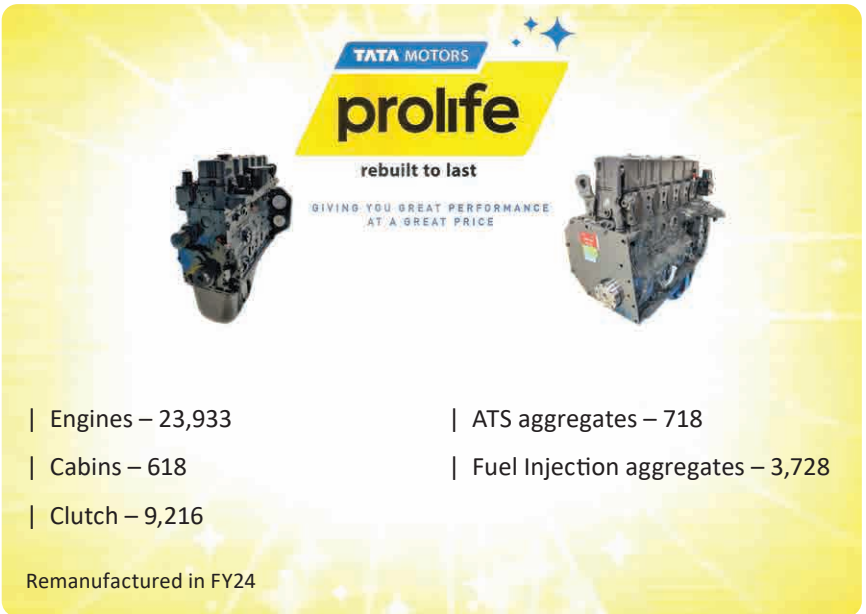
Locations: Jaipur, Bhubaneshwar, Surat, Chandigarh and Delhi-NCR

72,000 vehicles

Annual dismantling capacity

Tata Prolife

Over the past 23 years, Tata Motors Prolife has focused on remanufacturing old and used vehicle parts to products standards, extending their life cycles and reducing waste. This initiative covers a wide range of vehicle aggregates, including engines, clutch assemblies, cabins, after-treatment systems, and fuel injection equipment. By adopting a circular economy model, Tata Motors Prolife aims to redefine growth by emphasising a Take-Make-Recycle approach, which minimises resource consumption and waste generation. Through salvaging processes and re-machining, the initiative enables the reuse of engine parts, reducing the need for virgin raw materials and resources required for manufacturing.



- Engines – 23,933
- Cabins – 618
- Clutch – 9,216
- ATS aggregates – 718
- Fuel Injection aggregates – 3,728

Remanufactured in FY24

Waste management

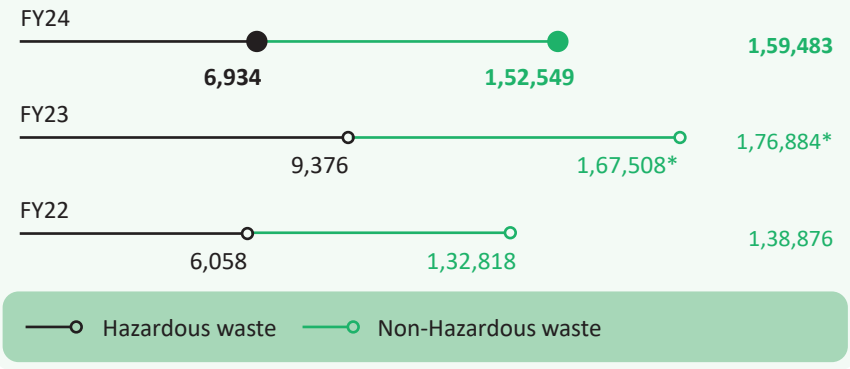
At Tata Motors, we approach waste management through the lens of circularity. We are prioritising recycling and co-processing to eliminate disposal to landfill and incineration by 2030. Our innovative Circularity Framework guides our efforts to extract value from all waste streams, ensuring their safe and sustainable management.

Waste is segregated as per material type and shape and sold to recyclers for conversion and utilisation. We ensure the sale of all flexible and rigid plastic packaging to authorised plastic waste processors for recycling. Hazardous and other Waste are similarly routed to authorised recyclers or re-processors for material recovery or to co-process for energy recovery. We are also working on a comprehensive plan to ensure maximum reclamation of waste sand from our foundries to minimise fresh sand consumption.

↓ y-o-y decrease

Operational waste generated
(MT)

10% ↓



* The values for FY23 have been re-stated and categories of non-hazardous waste, namely plastic waste and construction & demolition waste have been included in the disclosure.

Water management

Tata Motors acknowledges the significance of water as a shared and scarce resource. We are committed to using water efficiently by maximising effluent recycling and re-use at all our manufacturing plants, and minimising leakage and wastage. We have created water bodies and groundwater recharge structures within our manufacturing sites wherever feasible. Going forward, our approach will be holistic to encompass all aspects of sourcing water, its optimal utilisation. We will also be intensifying recharge efforts for achieving a 'Water Neutral' status by 2030.

Our manufacturing facilities in Lucknow and Dharwad were certified 'water positive' and the Pantnagar facility was certified 'water neutral' by CII-GBC.

5.17 m^3/vehicle

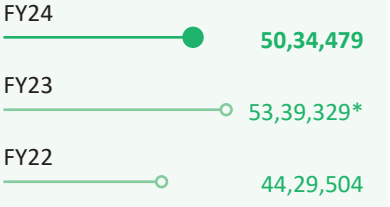
Water withdrawal intensity

* The values of water withdrawal for FY23 have been restated due to a change in methodology of computation of withdrawal from harvested rainwater at one of the operational site.

Operational water withdrawal
(m^3)

6% ↓

50,34,479



03

Preserving nature and biodiversity

We proudly uphold our rich legacy of nurturing biodiverse sanctuaries in proximity to our manufacturing sites throughout India. As pointed out by our founder Mr. JRD Tata, “We didn’t need to create a lake to make a truck. Yet we did,” referring to the creation of what we now know as the Sumanth Sarovar. This lake has blossomed into a veritable oasis amidst an urban industrial landscape, symbolising our commitment to balancing industrial growth with environmental stewardship.

Leveraging Project Aalingana, we are implementing a comprehensive, science-driven approach to biodiversity management. This strategy extends beyond our operations to encompass our entire value chain and the broader ecosystem.

Biodiversity conservation strategy

Science-based targets

Setting science-based goals for nature conservation across our entire value chain

+

OECM integration

Managing habitats around our operations using the Other Effective Area-Based Conservation Measures (OECM) framework to promote ecosystem health and resilience

+

Flagship projects

Leading large-scale transformation by championing innovative biodiversity conservation projects beyond our immediate footprint

Science-Based Targets for Nature (SBTN)

Acknowledging the value chain impact on Biodiversity, Tata Motors has joined the corporate engagement programme for Science-based Targets for Nature. This initiative seeks to reshape economic systems to safeguard our collective environmental heritage – our air, water, land, biodiversity, and oceans.

Over the past year we have conducted extensive biodiversity baseline assessments at key sites and over 1,300 species were identified. This foundational research informs our Biodiversity Management Plan leveraging biodiversity indices as key indicators of environmental quality and richness. Through targeted conservation efforts, we aim to not only create resilient habitats but also to create lighthouse projects that demonstrate the power of scientific rigor in preserving biodiverse urban and industrial environments, hopefully inspiring a far greater collective effort amongst Indian and global industries.

Other Effective Area-based Conservation Measures (OECM) integration

Tata Motors has taken a strategic decision to enlist the Biodiverse habitats in its premises and around each of its campuses under the OECM framework to demonstrate stewardship in biodiversity and ecosystem management. This government-backed initiative allows private actors to contribute to biodiversity conservation, aligning with government and UNDP-backed national and international commitments. Beyond our campuses, we are actively encouraging and enabling our value chain partners to participate in creating OECM-aligned habitats across India.

Flagship projects

In response to the global biodiversity crisis, Tata Motors is committed to investing in Flagship Biodiversity projects that promise transformative change. Focused on habitat restoration and the conservation of umbrella species, these initiatives are poised to become catalysts for collaboration and innovation, underpinned by scientific rigor. Details on these pioneering projects will be unveiled in due course, marking our ongoing dedication to biodiversity conservation.