

Safeguarding nature for posterity, producing responsibly



Tata Motors has been investing in sustainable mobility for safety, emission reduction and environmentally-sustainable materials as a priority, going far beyond compliance. We are leading the way, for over several decades, as a benchmark corporation with a community conscience.

Building on this leadership position and on the backdrop of the global focus on Climate Change, natural resource conservation and biodiversity loss, we have re-examined the Sustainability Agenda on how to elevate our Sustainability Ambition to Global leadership levels and align, translate and integrate them into our entire value chain.

We have articulated our sustainability and climate change policies that address key climate change issues related to products, processes and services, and are committed to reducing the greenhouse gas emissions throughout the lifecycle of our products. Greenhouse gas emissions from our manufacturing operations are generated from combustion of fossil fuels and power consumption. In line with our Climate Change Policy, we are consciously working towards mitigating these emissions by improving energy.

Jaguar Land Rover's Reimagine strategy sets out the roadmap towards a sustainability-rich future of modern luxury, unique customer experiences, and positive societal impact. Central

to this strategy is the electrification of both the Land Rover and Jaguar brands, which envisages electric vehicles as the mainstream product line-up within a progressively zero-carbon value chain. Jaguar Land Rover's transformational product strategy is aligned with its future business vision. Over the next five years, Land Rover will welcome six all electric variants, across two architectures – the flexible Modular Longitudinal Architecture (MLA) and the Electric Modular Architecture (EMA). From 2024, a pure-electric Range Rover will join the family. Given the accelerated EV push for Jaguar Land Rover a well-defined roadmap is already in place.

Jaguar Land Rover: Our Reimagine strategy will accelerate integration of Sustainability into all aspects of business.

Using the Science Based Targets initiative (SBTi) as the reference and validation framework, we have committed to approved science-based targets as part of our carbon reduction strategy. This will see us reduce absolute Scope 1 and 2 greenhouse gas (GHG) emissions by 46% by FY30 from a FY20 base year. We also commit to reduce Scope 3 GHG emissions from purchased goods and services and use of sold products by 54% per car by FY30 from a FY20 base year. These targets are consistent with reductions required to keep warming to 1.5°C above pre-industrial levels.



Tata Motors – Energy and GHG emissions

Our endeavour is to decouple our operational growth from GHG emissions thereby reducing energy costs and mitigating GHG emissions. Energy efficiency of our processes and increased renewable energy use are our major drivers to reduce GHG emissions from our manufacturing operations.

Energy consumption (GJ)

▲ 32.3% ▲ 29.8%

FY22	8,79,239	17,11,152	25,90,391
FY21	6,64,746	13,18,489	19,83,235
FY20	9,14,947	14,87,049	24,01,996

● Direct energy ● In-direct energy

Specific GHG (Scope 1+2) emissions (tCO₂e/vehicle)

▼ 16.9%

FY22	0.49
FY21	0.59
FY20	0.69

In FY22, Tata Motors generated/sourced 92.39 million kWh of renewable electricity for its manufacturing operations, which is 19.4% of the total power consumption leading to avoidance of 72,992 tCO₂e avoidance.

Key interventions undertaken to reduce emissions during the year

We are a signatory to RE100 - a global collaborative initiative of influential businesses committed to use of 100% renewable power. Our approach includes investment in captive wind power as well as power purchase agreements with renewable energy producers and in-house generation through rooftop solar power to increase the percentage of renewable energy utilised.

Share of renewable power in total power consumption (%)

▼ 60 bps

FY22	19.4
FY21	20.0
FY20	21.4

Renewable power (million kWh)

▲ 26.0%

FY22	92.39
FY21	73.33
FY20	88.43

Total on-site renewable power installations (MWp)

▲ 89.1%

FY22	34.31
FY21	18.14
FY20	16.04

Read more 126



Jaguar Land Rover – Energy and GHG emissions

Jaguar Land Rover continues to purchase 100% renewable-backed electricity for all its core UK operations. Over the last year, we have focused relentlessly on reducing non-essential energy use; on improving transparency in usage data and on capturing the real-time consumption information. Measures like changes made to air handling units and shutdown processes and equipment replacement have significantly enhanced process efficiencies. All our emissions-related data is compiled in accordance with the Greenhouse Gas Protocol for Corporate Accounting and Reporting.

Operational energy consumption (MWh)

▼ 0.14%

FY22	1,133,506
FY21	1,135,049
FY20	1,358,225

Operational carbon emissions (tCO₂e) (Location based)

▼ 2.2% ▼ 12.7%

FY22	118,503	117,939	236,442
FY21	121,149	135,098	256,246
FY20	148,753	157,316	306,070

- Scope 1 covers direct emissions from owned or controlled sources
- Scope 2 covers indirect emissions from the generation of purchased electricity and steam

Note:
 –Energy data includes purchased gas, electricity and steam
 –50% of China JV data due to financial control
 –Sites in scope Solihull, Halewood, Castle Bromwich, Engine Manufacturing Centre, Gaydon, Whitley, Nitra, Brazil, CJLR (50% data due to financial ownership)

Case study

Creating landmarks in green manufacturing: India's largest solar carport

India's largest grid-synchronised, 6.2 MWp solar carport setup created at Car Plant Chikhali, Pune. Covering 30,000 square meters, this carport will not only generate green power, but will also provide covered parking for finished cars in the plant.

Energy conservation (ENCON) projects have been implemented at all Tata Motors plants and offices in a planned and budgeted manner. These ENCON efforts in FY22 have resulted in energy savings of 59,766 GJ (37,944 GJ from power + 21,822 GJ from fuel), with 9,664 tCO₂e of emissions avoided.

Scope 3 emissions (tCO₂e)

65,364

Purchased goods and services¹

13,711

Employee commuting²

71,53,468

Use of sold products⁷

7,253

Franchises (Tata Motors downstream value chain)⁴

2,580

Waste generated in operations³

2,124

Business travel

1,051

Upstream Leased Assets⁵

21,441

Upstream transportation and distribution⁶

86,438

Fuel and energy related activities

¹ Purchased Goods & Services: Based on engagement with 108 suppliers in FY22

² Employee Commuting: Emissions from Company buses.

³ Waste generated in operations: Includes emissions from composting of biodegradable waste, incineration & landfill of hazardous waste.

⁴ Franchises: Based on engagement with 73 Channel partners in FY22

⁵ Upstream leased assets: Emissions from Company offices (rented)

⁶ Upstream transportation & distribution: Based on engagement with 108 suppliers in FY22

⁷ Use of sold products: Emissions from PVs



Water conservation

Tata Motors acknowledges the significance of water as a shared and scarce resource. We are committed to use water efficiently by maximising effluent recycling and re-use at all our manufacturing plants and minimising leakage and wastage. We have created water bodies within our manufacturing premises using storm water run-off and groundwater recharge wherever feasible.

Process water consumption is optimised by technological interventions and employee engagement through Kaizen events. These efforts reduce dependence on fresh water sources minimising the risk. We also take conscious efforts to replenish water through groundwater recharge structures in communities where we operate.

In FY22, Company conserved a total of 9.24 lakh m3 of water through recycling effluent and rainwater harvesting, which is 19.7% of total water consumption.



Waste management

Waste management forms a critical part of Tata Motors operational eco-efficiency. In FY22, we sustained efforts across Plants to divert hazardous waste from landfill/incineration and derive value from the same. Several Plants divert hazardous wastes for energy recovery through co-processing at cement Plants. We will continue this initiative to ultimately achieve 'Zero Waste to Landfill' status for all its manufacturing operations

Waste reduction initiatives are identified and implemented by employees via Kaizens across our manufacturing plants.

Tata Motors – Operational waste disposed (MT)

▼ 26.9%

FY22	6,058	1,32,818	1,38,876
FY21	4,209	1,85,758	1,89,967
FY20	4,897	1,09,002	1,13,899

- Hazardous waste
- Non-hazardous waste

Waste management lies at the core of Jaguar Land Rover's sustainable operations lever. This strategic priority is well integrated into every aspect of our plants' operations and business processes as we follow the principles of circular economy and resource efficiency.

JLR – Operational waste generated (MT)

▲ 8.6%

FY22	8,860	21,148	30,008
FY21	6,376	21,262	27,638
FY20	8,583	28,460	37,043

- Hazardous waste
- Non-hazardous waste

Note:
 – Waste data excludes metal and construction waste
 – 50% of China JV data due to financial control
 – Sites in scope Solihull, Halewood, Castle Bromwich, Engine Manufacturing Centre, Gaydon, Whitley, Nitra, Brazil, CJLR (50% data due to financial ownership)

Case study

Water stewardship by Pantnagar and Lucknow

Our manufacturing Plants located in Pantnagar and Lucknow are model examples of water stewardship. Both Plants recycle treated effluent for reuse in the process. Both Plants championed efficient water use and conservation awareness among village communities and recharged more than they consumed in the entire year through scientifically designed groundwater recharge structures within and outside Plant premises. Projects were undertaken throughout the year to reduce fresh water abstraction by maximising recycling and minimising leakages.

We at Jaguar Land Rover, know the importance of water security to our business, suppliers and communities – we all rely on good-quality fresh water. We are striving to reduce our total potable water withdrawal by focusing on how much water comes into our operations and using it more efficiently.

Tata Motors – Water withdrawal intensity (m³/ vehicle)

▼ 27.3%

FY22	6.06
FY21	8.33
FY20	11.05

JLR – Operational water consumption (m³)

▲ 24.1%

FY22	1,658,929
FY21	1,336,479
FY20	1,720,965

Note:
 – Water data includes mains water & borehole consumption
 – 50% of China JV data due to financial control
 – Sites in scope Solihull, Halewood, Castle Bromwich, Engine Manufacturing Centre, Gaydon, Whitley, Nitra, Brazil, CJLR (50% data due to financial ownership)



Tata Motors – Circular economy and recourse efficiency

Circular economy decouples economic activity from the consumption of finite resources. As a responsible automotive company, Tata Motors is working continuously to meet existing and upcoming environmental regulations by using new technologies and taking voluntary initiatives. Some of the pioneering compliance processes that we have initiated are:

- Continuously focusing on new initiatives to track and upgrade our sustainability and environmental performance. These include our efforts to eliminate the hazardous material, PoP (Persistent Organic Pollutants) and paints from polymeric parts of our products
- The first Indian OEM to become a member of IMDS (International Material Data System) and to publish vehicle level dismantling information in the public domain
- Our passenger vehicles are compliant with the Automotive Industry Standard (AIS) 129 regulations for End-of-Life Vehicles (ELVs)
- We have been certified by European Vehicle Certification Agency for various systems and processes followed for European ELV & RRR directives. We have an agreement in UK to take back and dispose our ELVs by an authorised and certified dismantler

Partnering to build India's sustainability infrastructure

The recent launch of India's vehicle scrapping policy has created a favourable environment for a viable circular economy that will help both supply and demand side forces.

Tata Motors has signed two Memorandums of Understanding with the State Governments of Gujarat and Maharashtra for the setting up of Registered Vehicle Scrapping Facility (RVSF) for end-of-life passenger and commercial vehicles. These RVSFs will be set up in association with a partner.

The move will have sustained benefits for the ecosystem stakeholders and the environment, lower import bill for scrap and crude oil, create job opportunities for MSMEs, with the possible upside in new vehicle sales for OEMs.

As the country's largest vehicle maker, we are contributing towards positive drivers that will accelerate the transition to sustainable mobility and a circular economy.

Case study

TATA Prolife for commercial vehicles: It's not just one life, it's a longer life

TATA Motors Prolife - a pioneering after-market product support strategy – provides commercial vehicle customers with reconditioned aggregates in exchange of old aggregates such as engines, clutch pressure plates, truck cabins, among others.

Remanufacturing of vehicular aggregates is followed by restoration of factory settings to operate at designed efficiency levels. In FY22, 21,149 engines were remanufactured.

JLR - Circular economy and resource efficiency

We know the value of the resources within our cars and our operations, and it is our goal to make sure we use those resources responsibly. We aim to not send any waste direct to landfills from our UK manufacturing and product development sites and we strive to reuse and recycle as much as possible, to retain the value of these resources within our business.

Our Materiality strategy ensures materials used in our vehicles are sustainable, traceable, respectful and without compromise, governed by seven guiding principles: Circularity, Health & Wellbeing, Lightweight, Performance, Provenance, Respectful, and Responsible. We have already pioneered innovative sustainable materials in Jaguar and Land Rover vehicles. Our Kvadrat interior with natural wool blend utilises 53 recycled plastic bottles and is 58% lighter than a leather equivalent.

Ultrafabrics PU, featured in the New Range Rover, is a responsible alternative to leather and represents a progressive approach to luxury materials. It offers all the tactile qualities of leather but is 30% lighter and generates only a quarter of the CO₂. Jaguar Land Rover's Colour and Materials team continue to explore new innovations in Materiality for future products, led by an ethos of aesthetics with ethics.

New Life for Batteries in Energy Storage

We are committed to re-deploying and re-using batteries from our electric vehicles and one significant use is in energy storage and demand management. We have partnered with Pramac to develop a portable zero-emission energy storage unit powered by second-life Jaguar I-PACE batteries.

The mobile off grid battery Energy Storage System (ESS) supplies zero-emission power where access to the main supply is limited or unavailable, with fulfilment capacities upto 125kWh. Reusing vehicle batteries will create new circular economy business models for Jaguar Land Rover in energy storage and beyond.

Hazardous Substances Commitment

Jaguar Land Rover's Restricted Substance Management Standard (STJLR.99.9999) ensures the phase out of restricted substances in line with both legal and company-specific requirements. Jaguar Land Rover prohibits the use of TDCP flame retardants from foams for new models due to its potential hazardous properties. These requirements are reviewed on an annual basis to ensure compliance remains up-to-date and is cascaded to suppliers through our engineering statement of work.

Compliance is verified via supplier declarations in IMDS (International Material Data System).

The environmental quality requirements for interior materials and components (STJLR.51.5229) covers substances emitted from materials. This includes thresholds for CMRs (Carcinogens, Mutagens, Reprotoxics), STOT substances (Specific Target Organ Toxicity substances) and sensitisers, to minimise the exposure of these substances to vehicle occupants. Jaguar Land Rover's TUV Toxproof Certification Requirements for Interior Materials introduces restrictions for materials that come into prolonged contact with the skin. STJLR.51.5229 and TUV Toxproof (STJLR.51.5232) are verified via laboratory reports. These requirements are applicable to all new vehicle programmes, unless specified.

Assuring traceability through blockchain technology, to bring what is truly sustainable

As a part of Jaguar Land Rover's commitment of offering customers more sustainable and responsible material choices for their vehicle's interiors, we trialled the use of secure blockchain technology to ensure full transparency within a sustainable leather supply chain. For the first time in the world, we partnered with supply chain traceability provider Circular, a leading UK leather manufacturer Bridge of Weir Leather Company and the University of Nottingham.

- A 'digital twin' of the raw material was created, allowing its progress to be tracked through the leather supply chain, both in the physical and digital form
- A combination of GPS data, biometrics and QR codes were used to digitally verify the movement of leather at every step of the process using blockchain technology

