

Natural Capital



SDGs Impacted



Material topics included

- Climate Change, energy efficiency and emission reduction
- Resources efficiency and waste management
- Water efficiency
- Green ICT solutions

Relationship with other capital



Financial



Social and Relationship



Human

At Airtel, we are dedicated to ethical and sustainable development while also protecting, preserving, and regenerating the environment and generating value for our stakeholders. We support and encourage the adoption of environmentally friendly and cost-effective technology and energy sources. Our commitment to implementing sustainable practices in our operations and throughout the value chain is reinforced by our environment, health, and safety policy.

We embrace our environmental responsibilities by aligning with the Task Force on Climate-related Financial Disclosures (TCFD) framework to ensure transparency and effective management of climate risks and opportunities. We recognise the urgency of addressing environmental challenges and thus actively take measures to minimise our carbon footprint, promote sustainable practices, and contribute to a greener future.

Under the guidance of our senior leadership, we are committed to our strategy of war on waste, which is realised through the adoption of alternate power sources like solar, enhanced asset optimisation and renegotiating commercial agreements with partners to save network costs at each site. Our ESG agenda is driven by our board appointed ESG committee as well as the management council that drives our ESG initiatives with vigour.

Airtel's Decarbonisation Goal

In 2021, we were the first Indian telecommunication Company to have approved Science Based Targets.

We have committed to reduce absolute scope 1 and 2 GHG emissions by 50.2% by FY 2030-31 from the base year of FY 2020-21. We have also committed to reducing absolute scope 3 GHG emissions by 42% over the same time frame.



Climate change, energy efficiency and emission reduction

Climate change

We are aware of the threat that climate change poses to our Company's operations. We are aware of the physical and transitional risks associated with climate change.

Airtel acknowledges that climate-related risks and opportunities can significantly affect our business. To evaluate the potential severity of these risks and the value of the opportunities, we have undertaken the necessary steps recommended by TCFD. Airtel has conducted a thorough analysis of different scenarios based on the IPCC Shared Socioeconomic Pathways (SSPs) across various timeframes to assess the resilience of our business in the face of climate change. This analysis enables us to evaluate the impact and likelihood of material climate-related risks and opportunities at a Group level for each scenario and time period. This enables us to enhance our resilience and develop effective mitigation strategies to combat climate change and its related impact.

To enhance our preparedness in addressing these risks, we are implementing various measures, including climate-proofing our network infrastructure, raising tower heights, and locating data centers on upper floors to mitigate the risks associated with flooding. In our efforts to reduce carbon emissions, we are implementing multiple initiatives to enhance efficiency and achieve emission reduction. These include energy efficient network planning, infrastructure sharing, adoption of Renewable Energy Technology (RET), deployment of energy-efficient technologies, and key stakeholder engagement.

71%

Increase in use of renewable energy from FY 2021-22

Steps taken to fight the changing climatic conditions

- Deploying infrastructure that can improve the reliability of service delivery, extend the life of assets, protect loss of revenue, and deliver the best customer experience
- Elevating infrastructure from the ground to a raised platform in flood-prone areas
- Strengthening of towers
- Regular maintenance and health checks



Microwave installed with additional support rod to withstand high wind pressure



Infrastructure elevated to combat flood impact

Overcoming the Bihar Flood case

- Based on past flood experience, we climate-proofed the sites which were identified to be at risk. Our aim was to mitigate the adverse impact of calamity on our network and to continue to serve our customers when they need us the most
- When the flood hit the state, our sites were well prepared to work effectively as planned and our customers were able to stay connected
- Avoided significant loss to infrastructure/ revenue due to network outage

Energy efficiency and emission reduction

Airtel is expanding the use of green energy across its operations and with its partners by utilising open-access green energy and solar power. These efforts help us move towards our SBTi commitments and align with our country's and the world's environmental targets.

We gradually lower our emissions intensity each year while increasing our investments in environmentally friendly and clean energy sources to run our business.

156,698 MWh

Renewable energy consumed in our operations

3,330 Tonnes

E-waste recycled

14,676 MWh

Electricity savings through conservation initiatives

246 KL

Diesel savings through conservation initiatives

~401 Mn

Sheets of paper saved through e-bill initiatives

Energy-efficient 5G infrastructure

- Our 5G Towers will generate 86% lesser carbon emissions for every GB compared to what 4G towers would consume during peak hours
- Designed network with optimum radio nodes and minimise coverage overlapping to reduce site power consumption

Green power wheeling

- Airtel aims to reduce its carbon footprint by green energy wheeling
- We have raised the quantity of renewable energy we purchased through open access contracts or power wheeling agreements in Main Switching Centres (MSCs) and data centers to ~154,384 MWh, which decreased our carbon emissions by ~109,612 tCO₂e

Solarisation of networks

- Rooftop solar plants have been erected at 30 different locations in our data centers and MSCs till FY 2022-23
- 177 of our owned network sites have been solarised till FY 2022-23. With installed capacity of 1.2 MWp+ at telecom tower sites spread across many states of India such as Andhra Pradesh, Arunachal Pradesh, Assam, Jammu and Kashmir, Jharkhand, Manipur, Meghalaya, Mizoram, Nagaland, Rajasthan, Tripura, Telangana with the aim to cover entire India soon.



Energy consumption in our operations[#]

Categories	Units	FY 2022-23	FY 2021-22
Renewable Energy Consumption	MWh	156,698	91,376
Grid Energy Consumption	MWh	1,402,527	1,239,209*
Diesel Consumption	KL	19,866	18,732*

Note: The boundary has been increased in FY 2022-23 to include warehouses.

[#] Energy consumption in operations directly controlled by Airtel

* Values have been revised to reflect data from accurate meter reading for electricity and diesel consumption at facilities

Scope 1 and 2 emissions

Parameter	Unit	FY 2022-23	FY 2021-22
Total Scope 1 Emissions	tCO ₂ e	70,251	62,713*
Total Scope 2 Emissions	tCO ₂ e	995,794	978,975*

Note: * Scope 1 and 2 value for FY 2021-22 has been revised to include fugitive emissions and more accurate data from facilities

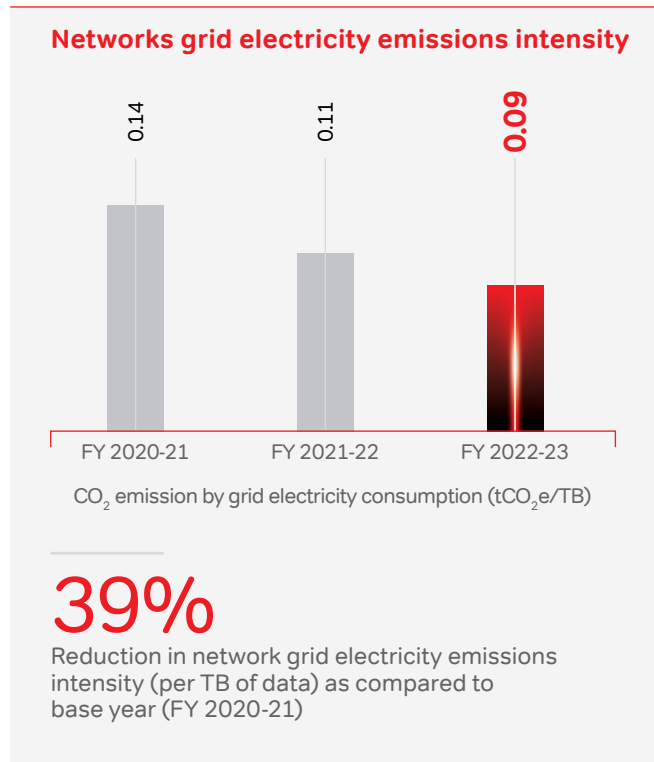
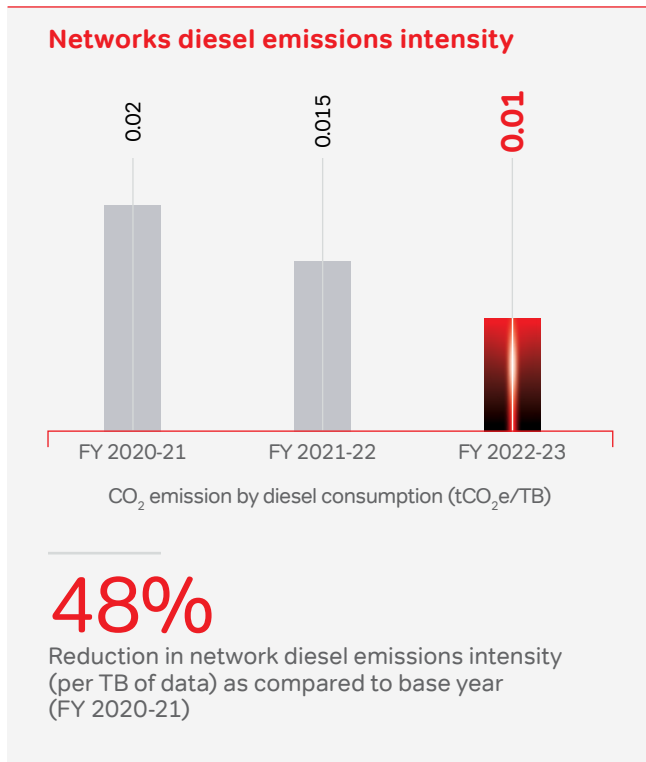
Scope 3 emissions

Parameter	Unit	FY 2022-23	FY 2021-22
Total Scope 3 Emissions	tCO ₂ e	5,680,979	5,394,813
Category 1: Purchased Goods and Services	tCO ₂ e	222,792	231,893*
Category 2: Capital Goods	tCO ₂ e	462,472	322,303*
Category 3: Fuel and Energy- Related Activities not included in Scope 1 and 2	tCO ₂ e	300,161	265,959*
Category 4: Upstream Transportation and Distribution	tCO ₂ e	52,672	64,493*
Category 6: Business Commute	tCO ₂ e	3,782	2,016*
Category 7: Employee Commuting	tCO ₂ e	12,939	36,501*
Category 8: Upstream Leased Assets	tCO ₂ e	4,626,161	4,471,647

Note: * Values of scope 3 emissions for FY 2021-22 have been revised to align with updated supply chain emission factors as per US EEO v1.1.1 (2021) [link](#) (C1, C4, C6), Updated emission factors as per DEFRA [2021](#) and [2022](#) (C3), updated activity level data (C2, C3, C7).

Network Infrastructure

Emission trend In network infrastructure



Network Infrastructure: Includes own tower sites, third-party network sites and MSCs.

To lower our reliance on fossil fuels, we have implemented several energy-saving and emission reduction strategies throughout our network infrastructure. The following are some of the major initiatives in FY 2022-23:

- **A 'Project Green City':** Working with our network infrastructure partners, we are transforming our sites into eco-friendly ones. 43% of our network sites, including both owned by Airtel and as well as by partners have been tagged as green sites, consuming less than 100 litres of diesel per quarter.
- **Hybrid battery bank solutions:** To optimise energy use and lessen our reliance on diesel, we have installed cutting-edge lithium-ion and VRLA (Valve-Regulated Lead-Acid) batteries. We have added additional/upgraded battery banks resulting in saving of 4,112,680 L of diesel corresponding to emission reduction of ~10,812 tCO₂e.
- **Site sharing:** Through greater use of passive infrastructure, our site sharing strategy with partners has optimised our resource use and dramatically decreased carbon emissions. 39% of newly rolled out sites are co-located.
- **Auto-shutdown** in non-peak hours: An auto-resource shutdown feature has been implemented at more than 1.6L sites, including all 4G sites, thereby reducing energy requirement during non-peak hours.
- **Increasing outdoor Base Transceiver Station (BTS) –** We moved 2,496 inside BTS sites outside, which decreased BTS energy usage.
- We have installed **DC air conditioners** at our telecom shelters since they can maintain temperature without running of DG as these air conditioners run in DC batteries and hence reducing our emissions.
- **AI (Artificial Intelligence) and Machine learning algorithms** are implemented to put to sleep radios of less load and other cells can take the traffic.

Data centers and MSCs

'Nxtra by Airtel' operates India's largest network of 12 large and 120+ edge data centers, with a planned investment of ₹5,000 crores by 2025 to triple capacity to over 400 MW.

In FY 2022-23, we obtained ISO 50001 certificates for all main data centers and developed Nxtra's Energy Policy in accordance with Energy Management System (EnMS) guidelines. Pune-2 DC is LEED (BD+C), USGBC certified. Chennai-2 DC achieved "Gold Certification" from IGBC this year. Most upcoming data centers are LEED certified.

Energy Efficiency

Energy efficiency is crucial for ensuring sustainable operations of our data centers. We have undertaken various measures to optimise our data center facilities. Nxtra targets to attain 10% reduction in PUE by FY 2024-25, with base year as FY 2020-21. We are working to accomplish this through energy conservation measures like deployment of energy-efficient equipment, innovation in design & technology, operational efficiency via digitisation and IOT enablement.

Some major initiatives undertaken:

- **Optimum lighting:** Lighting optimisation through LED lights and motion sensors across various data centers saved 88,464 kWh of energy.
- **Optimum cooling:** Cooling optimisation through the installation of active tiles, set points management, and air diverters saved 1,984,494 kWh of energy at our data centers.
- **Cold aisle/Hot aisle containment:** Cold aisle/hot aisle containment at different locations saved 562,070 kWh of energy.
- **UPS optimisation and Power Factor (PF) improvement:** UPS and Switched Mode Power Supply (SMPS) optimisation along with PF improvement at various locations saved 1,648,465 kWh of energy.
- **Other Main Switching Centre initiatives:** We installed LED lights, motion sensors, air diverters, active tiles, and blanking panels in our Main Switching Centre sites. In addition, we installed solutions for temperature, rack, UPS and SMPS optimisation, cold aisle containment and natural cooling to reduce energy consumption. These measures helped us save 9,010,672 kWh of energy in the reporting year.



Out of the total electricity consumed in our data centers, 33% comes from renewable sources.

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Emission reduction via Renewable Energy (RE) sourcing

'Nxtra by Airtel' is continually increasing the Renewable Energy share in the overall energy mix of data centers via sourcing green energy through open access and installing on-site solar rooftop plants. We have increased renewable energy usage at our own operations from 91,261 MWh in FY 2021-22 to 156,147 MWh in FY 2022-23 sourced through various green power wheeling agreements and captive solar rooftop plants.

We have strengthened our green energy footprint with the commissioning of Solar and Wind power plants in various states. The captive units with capacity 34 MW Solar, 13 MW Solar and 1.5 MW Hybrid (Solar + Wind) were commissioned to supply clean energy in the state of Tamil Nadu, Karnataka, and Gujarat respectively. The captive power units have been set up in partnership with Avaada (Tamil Nadu and Karnataka) and Continuum (Gujarat) to supply clean energy to Nxtra by Airtel's large and edge data centers.

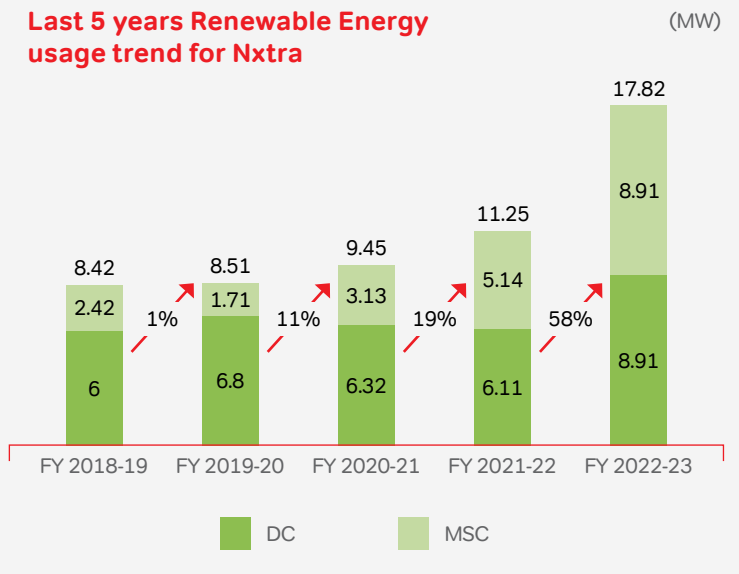
Nxtra Data Limited has partnered with Bloom Energy to deploy low environmental impact fuel cell tech

We have become the first data center company in India to install solid oxide fuel-cell technology to provide clean energy. We partnered with Bloom Energy to deploy low environmental impact fuel cell installation at Karnataka data center, reducing carbon emissions through a cleaner, hydrogen ready fuel supply.

We deployed solid oxide fuel cell technology to reduce carbon emissions at its data center while unlocking cost and sustainability benefits. Started the unit on non-combusted natural gas and will switch to 50% hydrogen in future without any significant investment. The natural gas-powered cells will be used for primary generation with utility electrical grid and generators as backup sources.



Last 5 years Renewable Energy usage trend for Nxtra



Green ICT solutions

The IoT-enabled services offered by Airtel to business customers increase energy efficiency while reducing the need for customer mobility. The connectivity or complete end-to-end platform known as Airtel IoT was created to offer cloud and video conferencing services. These services enhance connectivity while lowering fuel consumption related to travel, preventing greenhouse gas emissions.

Water efficiency

Water management

At Airtel, we recognise the value of water and advocate for sustainable methods for its preservation, recycling, and reuse. Majority of the large facilities are promoting conservation of water and have installed waste-water treatment plants to ensure reuse of recycled water for activities such as gardening. With the aim to achieve 100% wastewater recycling at all our data centers and become water positive in near future, all our new data centers are being designed with 'zero discharge' spaces. We are currently in the process of incorporating IOT for tracking real time water efficiency (Water Usage Effectiveness-WUE), water usage and water quality parameters along with revamping our water management infrastructure.



KPI	Units	FY 2022-23
Total water withdrawn	KL	284,944*
Water recycled	KL	51,412
Water consumed from recycled and harvested sources	%	~18%**

Note:

* Boundary increased to include un-metered facilities, calculated by taking 45 Ltr/per employee/per working day.

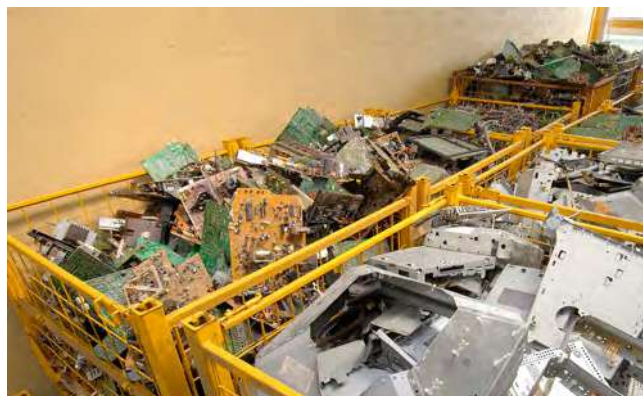
** With the above referred increased boundary, % of Water consumed from recycled and harvested sources has reduced. Water from the un-metered facilities is discharged to the building connected water system. From there the water is routed to effluent treatment plant(s), as set up by the landlord or the local authorities outside the operational boundary of the Company.

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Resource efficiency and waste management

Waste management

As we transition to a new future to meet the needs of a new generation, we try to reduce our resource consumption and recycle whenever it is practical to do so and replenish what can be done. Airtel has adopted the 3R approach of Reduce, Reuse and Recycle to minimise the wastes.



Performance FY 2022-23	Waste generated* (tonnes)	Waste recycled** (tonnes)	Waste disposed# (tonnes)
E-waste	3,169	3,330	-
Battery waste	3,919	3,781	-
Hazardous	44	44	-
Other non-hazardous	3,204	3,600	13

* Calculations are based on approximate weight of sample lot items.

** Actual weight of waste sent to authorised recycler(s).

Due to above reasons and closing stock of waste at FY closing which will be processed in due course, waste generated does not tally with waste recycled and disposed.

Waste disposed via landlord or municipal waste collection system.

Promoting a circular economy

We aim to strategically alter the value generation model and switching from a linear to a circular one. At Airtel, we always thrive to have a positive impact on ecology and the environment. By implementing revolutionary digital projects across our operations and supply chain through new partnerships and collaborations, we are realising our focus on the circular economy.

We urge and suggest our partners to utilise minimum amount of packaging materials and look for resources that are recyclable, hygienic, and protective for the shipping of goods. We encourage all our suppliers and business partners to reduce waste, recycle, and reuse products.

We have also started several projects with external Stakeholders to recycle products after use and to stop value loss by throwing away the products.

E-waste

To limit the procurement of virgin materials, Airtel repairs damaged modules both internally and through outside repair facilities. All scrap auctions are done via authorised partners who enable recycling.

In addition, we undertook various initiatives during the reporting year to reduce e-waste, including:

- Double validation of non-repairable modules, first by a strategic partner and followed by a local agency.
- Inter-circle movement of materials to reuse obsolete material from one circle into another circle.
- Material handling and packaging capabilities to minimise damage during transit from sites to warehouses.

Paper waste

We are using less paper because of the rapid adoption of digital practices throughout the business ecosystem. We have replaced physical copies of customer bills with electronic statements and online payment methods.

KPI	FY 2022-23 (tonnes)
Paper used	70
Paper saved through e-bills	4,412