

Natural Capital



SDGs impacted



Material Topics included

- Climate change, energy efficiency and emission reduction
- Resource efficiency and waste management
- Water efficiency
- Green ICT solutions
- Sustainable supply chain management

At Airtel, we recognise the critical importance of our natural capital in sustaining operational excellence and strengthening service delivery. As one of the leading global telecommunications providers, we are acutely aware of our environmental footprint and the imperative to harmonise growth ambitions with environmental conservation.

Guided by our senior leadership, we continue to uphold the 'war on waste' strategy by embracing circularity in our operations. We are strengthening our sustainability efforts by increasing the contribution of renewable energy in the overall energy mix, improving the efficiency of our assets, and collaborating with our partners to reduce our network cost at each location. Our commitment to Environmental, Social, and Governance (ESG) principles is steered by the Board-level ESG Committee and management council that vigorously promotes our ESG goals.



Additionally, we are **ISO 14001: 2015** (Environmental Management System) certified for 100% of our sites (including Airtel center, circle offices, main switching centres, tower sites, large data centers etc.), which underscores our proactive efforts to reduce and neutralise our environmental impact and conserve resources.

Climate change, energy efficiency and emission reduction

223,930 MWh

Renewable energy consumed in own operations (**170% increase from FY 2020-21 baseline**)

8,151 MWh

Electricity savings through energy conservation measures (ECM)

1,614 KL

Diesel savings through energy conservation measures (ECM)

Our proactive and practical approach addresses climate-related challenges, mitigating risks while seizing circular economy opportunities for sustainable development. Committed to reducing our carbon emissions, we are enhancing energy efficiency and shifting to cleaner energy alternatives. Our decarbonisation efforts are supported by strategic network planning, infrastructure sharing, adoption of energy-saving technologies, and engagement with key stakeholders. We are climate-proofing our network and overall infrastructure, elevating tower heights, and situating data centers above flood levels among other initiatives.

Case study

Adapting infrastructure to withstand floods


Drawing from previous experiences of flooding, we strengthened the vulnerable locations in the Brahmaputra floodplains to withstand such events. We uplifted our infrastructure assets to limit damage to the network and maintain service delivery during critical times for our customers.



Airtel's Decarbonisation Goal

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

Bharti Airtel has committed to reducing absolute Scope 1 and 2 GHG emissions to 50.2% by FY 2030-31 from base year FY 2020-21. We have also committed to reducing absolute Scope 3 GHG emissions by 42% over the same timeframe.



Energy efficiency and emission reduction

Energy efficiency is a key pillar of our pursuit of responsible business. This reflects our dedication to environmental conservation, commitment to decarbonise operations and meet the expectations of key stakeholders. Energy efficiency not only enhances our reputation but also ensures the reliability of our services to customers.



Natural Capital

Case study

Solarisation of networks

To make clean energy the foundation of our network operations, we are progressing with a strategic focus on the solarisation of our network. We have successfully installed solar rooftop panels across 15,045 owned and third-party network sites in FY 2023-24. This initiative not only reduces the reliance on conventional power sources but also significantly cuts down carbon emissions.



82+ MWp

Additional solar capacity installed at network sites* in FY 2023-24

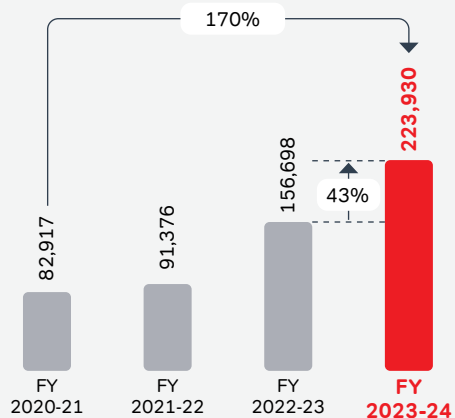
* Across owned and third-party network sites



GHG emissions management

Managing emissions is a crucial aspect of our environmental strategy and corporate responsibility. Effective emissions management allows us to minimise impact on the environment, advance climate action, adhere to regulatory requirements, and align with global sustainability goals. It also significantly enhances operational efficiency, as reducing emissions often goes together with optimising energy use.

Renewable energy consumption in own operations (MWh)





Energy consumption in own operations[#]

Categories	Units	FY 2023-24	FY 2022-23
Renewable electricity consumption	MWh	223,930	156,698
Grid electricity consumption	MWh	1,447,276	1,402,527
Diesel consumption	KL	19,718	19,866

[#]operations directly controlled by Airtel

Scope 1 and Scope 2 emissions

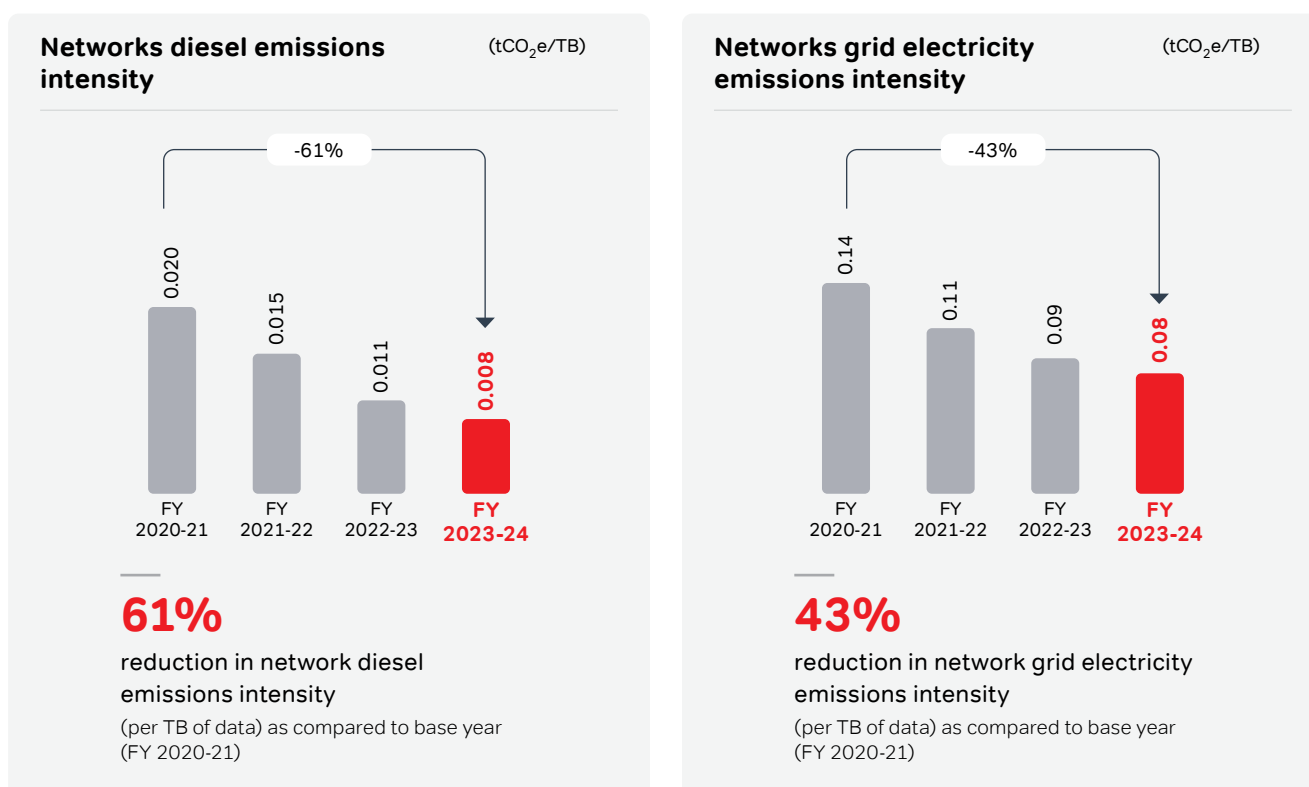
Parameter	Units	FY 2023-24	FY 2022-23
Total Scope 1 emissions	tCO ₂ e	74,956	70,251
Total Scope 2 emissions	tCO ₂ e	1,036,249	995,794
Total Scope 1 + Scope 2 emissions	tCO₂e	1,111,205	1,066,045

Scope 3 emissions

Parameter	Units	FY 2023-24	FY 2022-23
Category 1: Purchased goods and services	tCO ₂ e	133,411	222,792
Category 2: Capital goods	tCO ₂ e	750,868	462,472
Category 3: Fuel and energy related activities not included in Scope 1 and 2	tCO ₂ e	309,166	300,161
Category 4: Upstream transportation and distribution	tCO ₂ e	44,659	52,672
Category 6: Business travel	tCO ₂ e	13,909	3,782
Category 7: Employee commuting	tCO ₂ e	12,284	12,939
Category 8: Upstream leased assets	tCO ₂ e	5,310,842	4,626,161
Total Scope 3 emissions	tCO₂e	6,575,139	5,680,979

Network infrastructure

Emission trend in network infrastructure*



* Network Infrastructure: Includes own tower sites, third-party network sites and Main Switching Centers (MSCs)

Initiatives to reduce emissions in FY 2023-24

We have introduced various measures to reduce dependence on fossil fuels and cut emissions across network infrastructure. Here are some key initiatives undertaken in FY 2023-24:



Installation of DC air conditioners

We have installed DC air conditioners at 54 telecom shelters, which can maintain the required temperature without the need of diesel generators. These run on DC batteries, thus significantly reducing emissions and resulting in a saving of ~62,495 litres of diesel.



'Project Green City'

Working with our network infrastructure partners, we are transforming our sites and making them eco-friendly; 58% of our network sites – those owned by Airtel as well as those owned by third party have earned the tag of being green sites, consuming less than 100 litres of diesel per quarter.



Hybrid battery bank solutions

To optimise energy use and reduce the reliance on diesel, we have installed cutting-edge lithium-ion and VRLA (valve-regulated lead-acid) batteries. We have added additional/upgraded battery banks, thus saving 1,515,150 litres of diesel and a corresponding emission reduction of ~3,983 tCO₂e.



Site sharing

Our site sharing strategy with partners, which has led to greater use of passive infrastructure, has led to optimisation of resource use. Of the newly-rolled out sites, 8% are co-located.



Auto-shutdown

An auto-resource shutdown feature, implemented at more than 70,000 5G radios, including all 4G sites, gets activated during non-peak hours, thereby reducing energy requirement during those periods.



Optimisation through AI and ML

Artificial Intelligence and Machine Learning algorithms are used to put to sleep underutilised radios, allowing other cells to manage traffic efficiently.



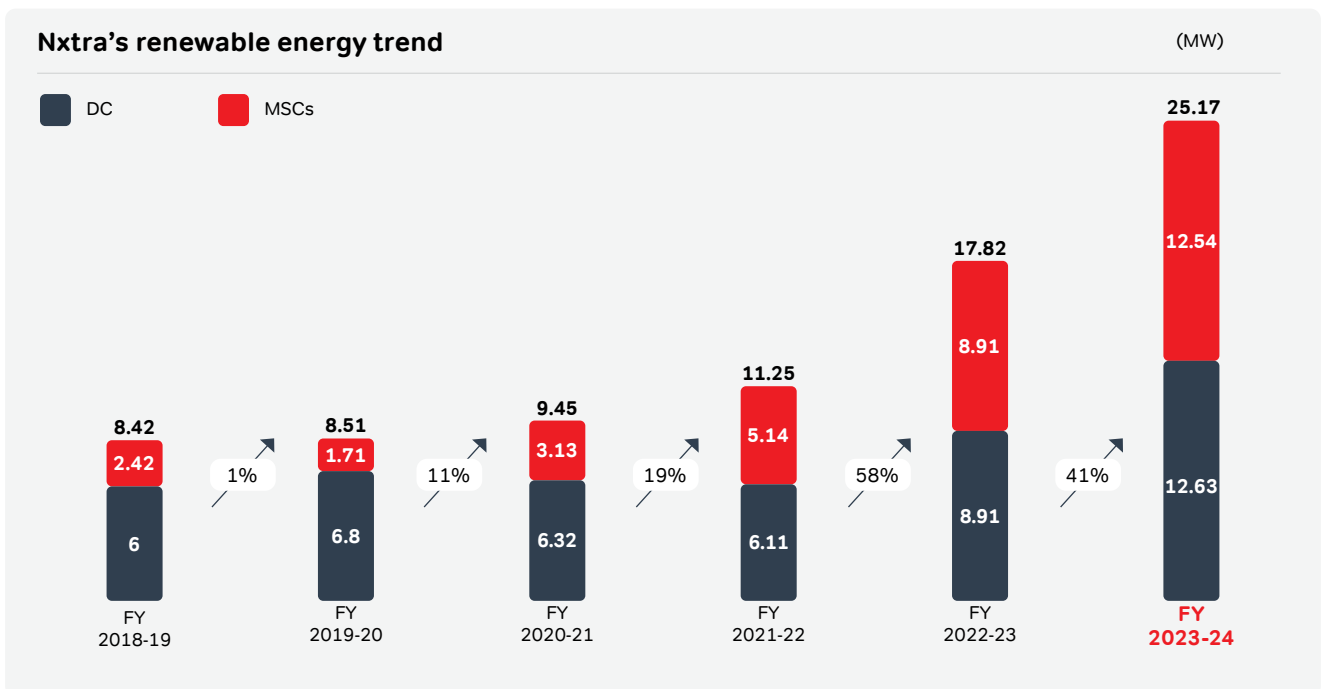
Data centers and MSCs

'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 next 3 to 5 years, Nxtra aims to increase the capacity from current level of 190 MW to more than 400 MW.

Renewable energy

Nxtra has a goal to create a sustainable and green data center brand in the industry. To realise this vision, Nxtra is actively procuring and investing in renewable energy for its data centers and setting up on-site solar panels. These initiatives have led to several advantages, such as reduced expenses, diminished carbon footprint, and significant progress on our climate change objective.

To further strengthen its green energy footprint, Nxtra has entered into an agreement with Ampln Energy and Amplus Energy to set up captive solar and wind power plants, with the respective capacity of 48 MWdc and 24.3 MW, for Nxtra's data centers in Tamil Nadu, Uttar Pradesh, and Odisha.





Energy efficiency

Nxtra has implemented multiple strategies to enhance the efficiency of data center operations. Further, Nxtra is employing energy-saving measures, adopting efficient equipment, and integrating innovative designs and technologies, including digitisation and IOT.

Some key initiatives undertaken in FY 2023-24



Cold aisle containment

To improve cooling efficiency and reduce energy consumption, we adopted the cold aisle containment strategy for data centers, which has resulted in electricity saving of 426,845 kWh and diesel saving of 2,124 litres.



Optimum cooling

The implementation of active tiles, precise set point control, and the use of air diverters led to significant electricity and diesel savings of 1,277,230 kWh and 32,125 litres, respectively, at data centers, optimising the cooling process.



Optimum lighting

The adoption of LED lighting and motion sensors in multiple data centers resulted in significant savings of 47,068 kWh of electricity and 1,875 litres of diesel while enhancing lighting efficiency.



Replacement of End of Life equipment with more efficient equipment

Upgrading to more energy-efficient Precision Air Conditioning (PAC) units, as older equipment reaches the end of their lifespan, has enhanced energy conservation and resulted in the saving of 1,734,852 kWh of electricity.



Other MSC initiatives

The installation of cold aisle containment, along with replacement of old PAC units with high-efficient PAC units, led to the saving of 4,594,810 kWh of electricity.



Green ICT solutions

We provide business clients IoT solutions that enhances energy efficiency and minimises the need of physical travel. Airtel IoT, a comprehensive connectivity solution, is designed to deliver cloud-based and video conferencing services. By improving connectivity and reducing fuel usage associated with commuting, these services mitigate GHG emissions.



Case study



Airtel Business to power 20 million smart meters for Adani Energy

Airtel Business is set to transform the smart meter infrastructure of Adani Energy Solutions Limited (AESL) by powering 20 million smart meters across India with its cutting-edge smart IoT solutions. Leveraging Airtel's expansive and robust communications network, the collaboration will ensure seamless and secure connectivity for AESL's smart meter operations nationwide.

Airtel's innovative solutions, supported by technologies such as NB-IoT, 4G, and 2G, guarantee real-time connectivity and the continuous flow of vital data between the smart meters and central applications. Their integration with Airtel's IoT platform, the 'Airtel

IoT Hub', will enhance the functionality of these smart meters through advanced tracking, monitoring, analytics, and diagnostic tools. This platform provides real-time insights and services, granting customers greater control over their energy usage.

Natural Capital

Resource efficiency and waste management

We have implemented robust strategies to manage electronic waste generation and facilitate the recycling and repurposing of materials. We aim to minimise the environmental footprint through innovative approaches and partnerships, while driving economic value by reducing or transforming waste into resources, thus aligning with global sustainability goals.

3,859 tonnes

E-waste sold to authorised recyclers

~2,718 tonnes

Paper saved through e-bills (98% billed transactions are paperless)

~494 Mn

Sheets of paper saved via online billing

71%

CPE repaired out of total collected through take-back schemes

Performance FY 2023-24#	Waste generated (tonnes)*	Waste recycled (tonnes)**	Waste disposed (tonnes)***
E-waste	4,040	3,859	-
Battery Waste	5,318	5,298	-
Other Hazardous Waste	698	725	-
Other Non-hazardous Waste	5,274	5,271	1

#Assets transferred in past acquisition, which had reached end of economic life, were cleared

*Calculations are based on approximate weight of sample lot items

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

***Waste disposed via landlord or municipal waste collection system

Due to the 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.

Case study

Airtel switches to Recycled PVC Consumer SIM cards

We are proud to collaborate with our SIM supplier for a breakthrough initiative to shift from virgin plastic to recycled PVC consumer SIM cards. We are the first in India's telecom sector to make such a sustainable transition. Our efforts will curtail the use of over 195 tonnes of virgin plastic and reduce CO₂ emissions by approximately 750 tonnes a year. This step is a testament to our firm commitment to environmental stewardship, and our aim to inspire our suppliers and stakeholders to embrace waste reduction, recycling, and reuse.



Case study

Elimination of single-use plastic from packaging

This year we took a significant step by eliminating plastic packaging from all our customer premise routers, including both Outdoor and Indoor Units (ODU/IDU). This eco-conscious move not only reduces environmental impact but also champions responsible consumption, aligning with our overarching commitment to sustainable waste management practices.





Curtailing paper waste

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

KPI	FY 2023-24 (tonnes)
Paper used	46
Paper saved through e-bills	2,718



Water efficiency

At Airtel, we are acutely aware that water is a precious resource. We are actively engaged in its conservation, recycling, and reuse. In larger facilities, we prioritise water conservation and have set-up wastewater treatment plants, enabling the recycling of water for various uses, including gardening. To preserve water, Nxtra is designing all new data centers as 'zero discharge' facilities. Nxtra is tracking Water Usage Effectiveness (WUE) across all its core data centres as a water efficiency performance indicator. Nxtra is enhancing its water management systems to enable real-time tracking of water quality, WUE, and consumption. This involves the implementation of advanced Sewage Treatment Plants (STPs), the establishment of Rainwater Harvesting (RWH) systems, and the integration of cutting-edge membrane-based filtration units to ensure a clean drinking water supply.

KPI	Units	FY 2023-24
Total water withdrawn*	Mn L	323
Water recycled	Mn L	53
Water recycled and reused out of total water withdrawn (%)	%	16%

*Water withdrawal from un-metered facilities, calculated by taking 45 litre/per employee/per working day. 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.