# GSMA

# Mobile Net Zero: Latin America

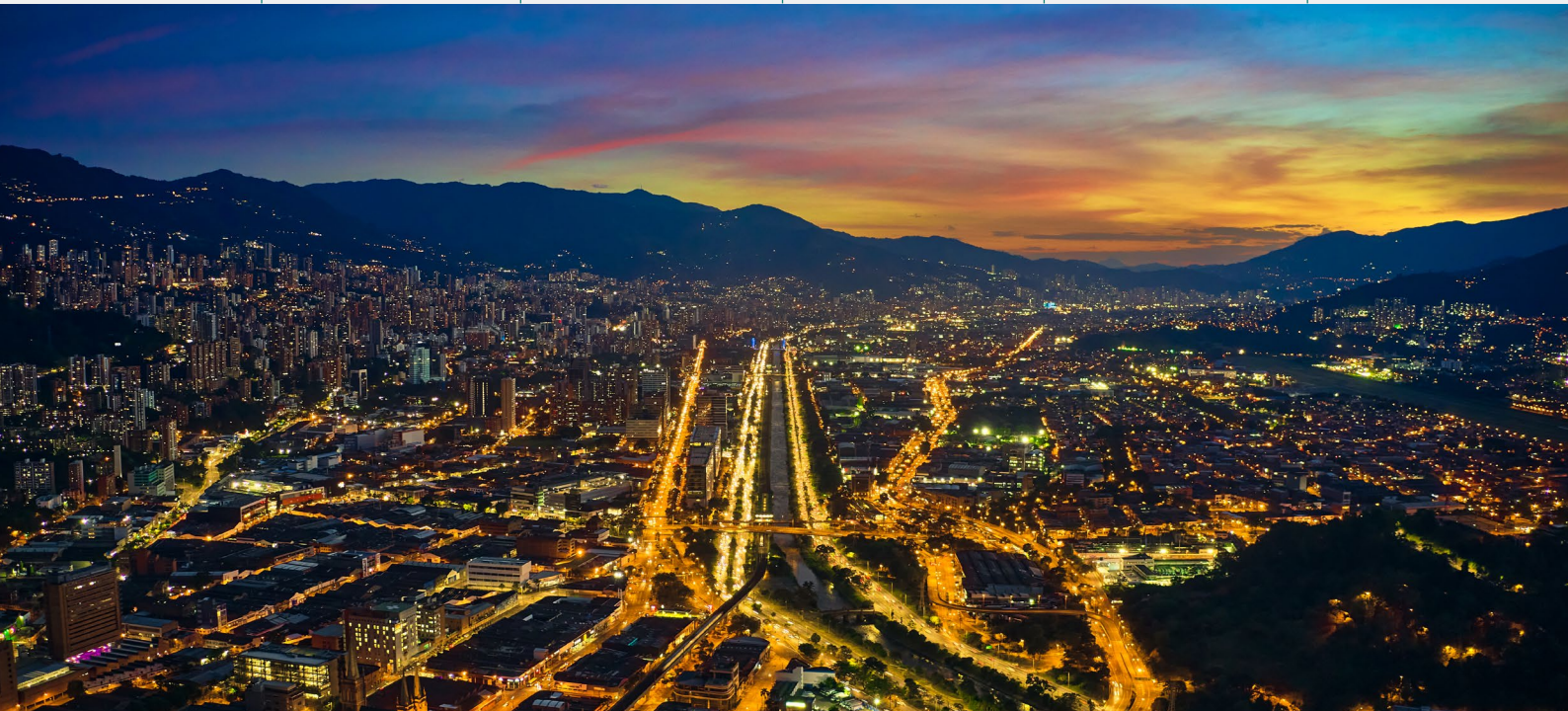## Regional Focus on Climate Action 2024

# GSMA™

The GSMA is a global organisation unifying the mobile ecosystem to discover, develop and deliver innovation foundational to positive business environments and societal change. Our vision is to unlock the full power of connectivity so that people, industry and society thrive. Representing mobile operators and organisations across the mobile ecosystem and adjacent industries, the GSMA delivers for its members across three broad pillars: Connectivity for Good, Industry Services and Solutions, and Outreach. This activity includes advancing policy, tackling today's biggest societal challenges, underpinning the technology and interoperability that make mobile work, and providing the world's largest platform to convene the mobile ecosystem at the MWC and M360 series of events.

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# Contents

# Summary

**Climate action is a key priority for the mobile industry in Latin America.** The region is highly vulnerable to climate impacts, but is well placed to capitalise on clean energy opportunities with its rich renewable energy and critical mineral resources. This report provides an in-depth look at the industry's progress on climate action in the region.

**Mobile network operators in Latin America have been leaders in proactively committing to voluntary climate targets.** Operators representing 85% of the region's mobile connections have set near-term science-based targets, with many of the same operators also committed to net zero targets.

**Operators in the region are also leaders in publicly disclosing their climate impacts.** Ten operators representing over 90% of connections disclosed to the CDP in 2023 – the second highest share globally and nearly 40 percentage points higher than the global share.

**Emissions from operators in the region fell 30% between 2019 and 2022 despite surging demand for data and connectivity, thanks to progress on energy efficiency and renewable energy.** Over the same period, mobile data traffic in the region more than tripled, while connections rose 8%.

**Operators have made strong progress on energy efficiency.** Between 2019 and 2022, electricity use per connection fell by 4%, while the energy needed to transmit a byte of data fell by 50%.

**Renewables are playing a major role in reducing operators' carbon emissions.** Operators purchased over 5 TWh of renewable electricity in 2022 – over 40% of their purchased electricity. Combined with over 60% of the region's grid electricity coming from renewables, this means that operational emissions per connection in Latin America are among the lowest in the world.

**Over two-thirds of the mobile industry's overall carbon emissions are Scope 3 value chain emissions,** highlighting the importance of engaging supply chains and customers, and increasing the circularity of mobile phones and network equipment.

**Achieving the industry's net zero goal requires concerted action from operators and suppliers, supported by policies and investment from governments.** Governments in the region should play a key enabling role across these areas by implementing strong climate policies and ensuring energy markets and regulations encourage investment in renewable energy and grids.

# 1. Net zero ambition

Operators in Latin America have been among the global leaders in setting ambitious climate targets.

In 2019, the GSMA Board committed to transform the mobile industry to reach net zero carbon emissions by 2050. The GSMA's latest annual assessment of the industry's progress towards net zero showed how several regions, including Latin America, have made significant progress on climate action.

**This report provides further in-depth analysis of progress in Latin America, including how operators in the region are setting climate targets and reducing their emissions through energy efficiency, renewable energy and supply chain engagement.**



## CLIMATE ACTION IN LATIN AMERICA

Climate action is a critical issue in the region, given its vulnerability to climate impacts. Despite contributing less than four per cent to cumulative global $CO_2$ emissions[1], the region is disproportionately impacted by extreme weather events and droughts. For example, severe droughts and record low water levels in the Amazon in 2023 disrupted access to food and water for millions and forced major hydropower plants to shut down. At the same time, the Amazon rainforest plays a key role in fighting climate change, absorbing a quarter of the $CO_2$ absorbed by all forests on Earth.

1    Cumulative $CO_2$ emissions from fossil fuels and industry from 1750 to 2022.
Source: Our World in Data (2024).

# Climate targets

Operators in Latin America are among the leaders in setting climate targets, with around 85% of mobile connections and 80% of revenues covered by near-term climate targets under the Science Based Targets initiative (SBTi) – nearly all of which are validated by SBTi (Table 1). This compares with 48% of connections and 68% of revenues covered by targets at the global level.

Many of the same operators have also announced commitments to achieve net zero. Telefónica and Millicom have formally submitted net zero targets to the SBTi, and Telefónica's 2040 net zero target has been validated by the SBTi.
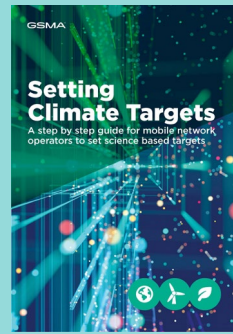
**GUIDANCE ON SETTING CLIMATE TARGETS**

Operators interested in setting their science-based targets can learn more in the GSMA's step-by-step guide on **Setting Climate Targets**

**Table 1** | Operators' climate targets as of April 2024

| Company | Near-term science-based target* | Scope 1 and 2 | Scope 3 |
|---|---|---|---|
| **Algar Telecom** | Committed | | |
| **América Móvil** | 1.5°C aligned | −52% by 2030 (vs. 2019) | −14% by 2030 (vs. 2019) |
| **AT&T** | 1.5°C aligned | −63% by 2030 (vs. 2015) | 50% of suppliers** by spend set science-based Scope 1 and 2 targets by 2024 |
| **Liberty Costa Rica** | 1.5°C aligned | −30% by 2027 (vs. 2021) | −39.8% per million colones by 2027 (vs. 2021) |
| **Millicom (Tigo)** | 1.5°C aligned | −50% by FY2030 (vs. FY2020) | −20% by FY2035 (vs. FY2020) |
| **Telefónica** | 1.5°C aligned | −80% by 2030 (vs. 2015) | −56% by 2030 (vs. 2016) |
| **TIM Group** | 1.5°C aligned | −75% by 2030 (vs. 2019) | −47% by 2030 (vs. 2019)*** |

\* Near-term science-based targets give companies a clearly defined path to reduce greenhouse gas emissions in line with the Paris Agreement goals. First, an organisation commits to a target, then it is validated against a target level (e.g. 1.5°C aligned) by the Science-Based Targets initiative (SBTi). Validated targets are in line with the ambition of the mobile sector to be net zero by 2050.
\** Covers purchased goods and services, capital goods, and downstream leased assets.
\*** Covers purchased goods and services, capital goods and use of sold products.

Source: SBTi Target Dashboard.

# 2. Tracking progress on climate action

Operators in Latin America are leaders in disclosing climate risks and opportunities.

# Climate disclosures

Public disclosure of climate impacts is vital for transparency and to understand progress towards net zero. The CDP provides the most widely used global disclosure system for investors, companies, cities, states and regions.

In 2023, eight mobile operators covering 92% of mobile connections in Latin America disclosed to the CDP, the second highest share globally (Figure 1). An additional four operators covering 2% of connections disclosed energy and emissions data in their corporate sustainability reports.

**"Over 90% of mobile connections in Latin America were represented by CDP disclosures in 2023"**

**Figure 1** | Climate disclosures by region
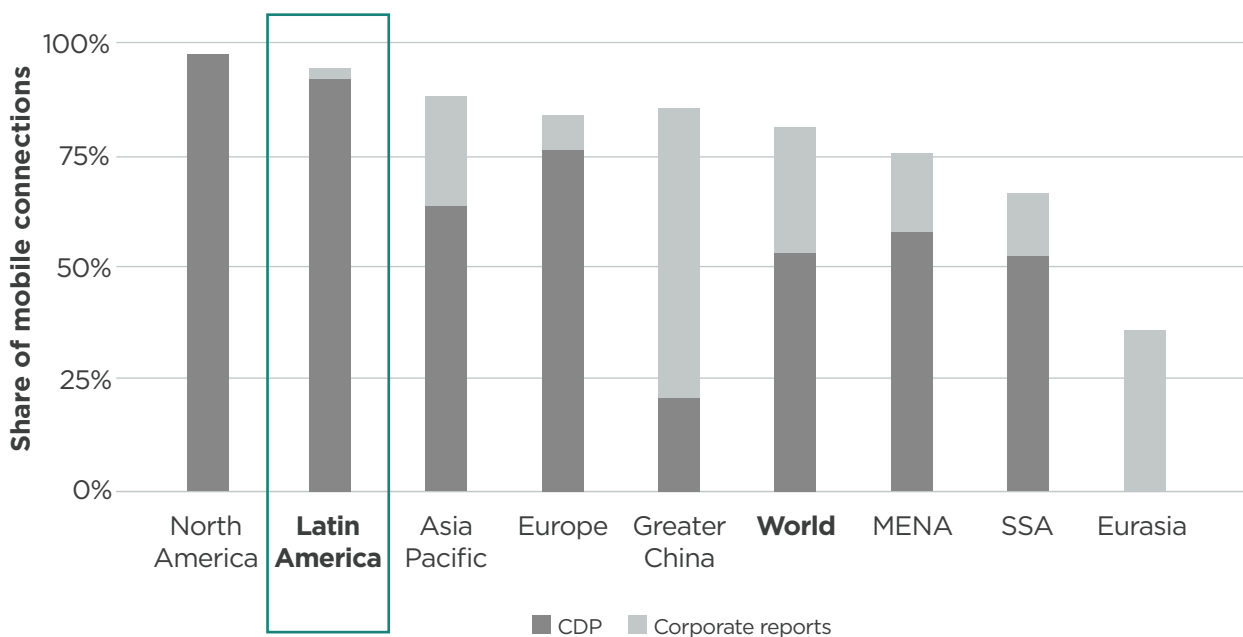


Note: MENA = Middle East and North Africa; SSA = Sub-Saharan Africa.

Source: GSMA analysis of CDP (2023) and corporate sustainability reports.

# Operator emissions

Based on the GSMA's analysis of data disclosed to CDP and corporate reports, the mobile industry's operational emissions in Latin America (Scope 1 + Scope 2 market-based) were an estimated 3.2 million tonnes (Mt) $CO_2$e in 2022, or around 0.1% of the region's overall GHG emissions.

This means that Latin American operators accounted for less than 2.5% of global operator emissions while representing 8% of global mobile connections.

## SCOPE 1, 2 AND 3 EMISSIONS

GHG emissions are reported in three types or "scopes". For mobile operators, **Scope 1** emissions include emissions from the operator's vehicle fleet for network maintenance and diesel generators to operate base stations. **Scope 2** emissions for operators mostly come from the electricity used in network base station sites, data centres and other buildings. **Scope 3** emissions are all other indirect emissions which the organisation is indirectly responsible for, up and down its value chain.

To learn more, see the **GSMA Climate Action Handbook**

# 3. Emissions from mobile operators

Despite huge growth in demand for data and connectivity, operators' emissions have fallen sharply since 2019, thanks to strong progress on energy efficiency and renewable energy.

# Trends

Operational emissions in Latin America – combined Scope 1 and 2 (market-based) emissions – fell by around 30% between 2019 and 2022. Over the same period, the number of mobile connections in the region rose 8%, while mobile data traffic more than tripled (Figure 2). Operational emissions at the global level fell by 6% over the same period, led by a 50% reduction in Europe.

The majority of operational emissions came from generated and purchased electricity used to power networks, data centres, offices, stores and other operations. Operators consumed around 13 terawatt-hours (TWh) of electricity in 2022, or 0.9% of regional electricity use.

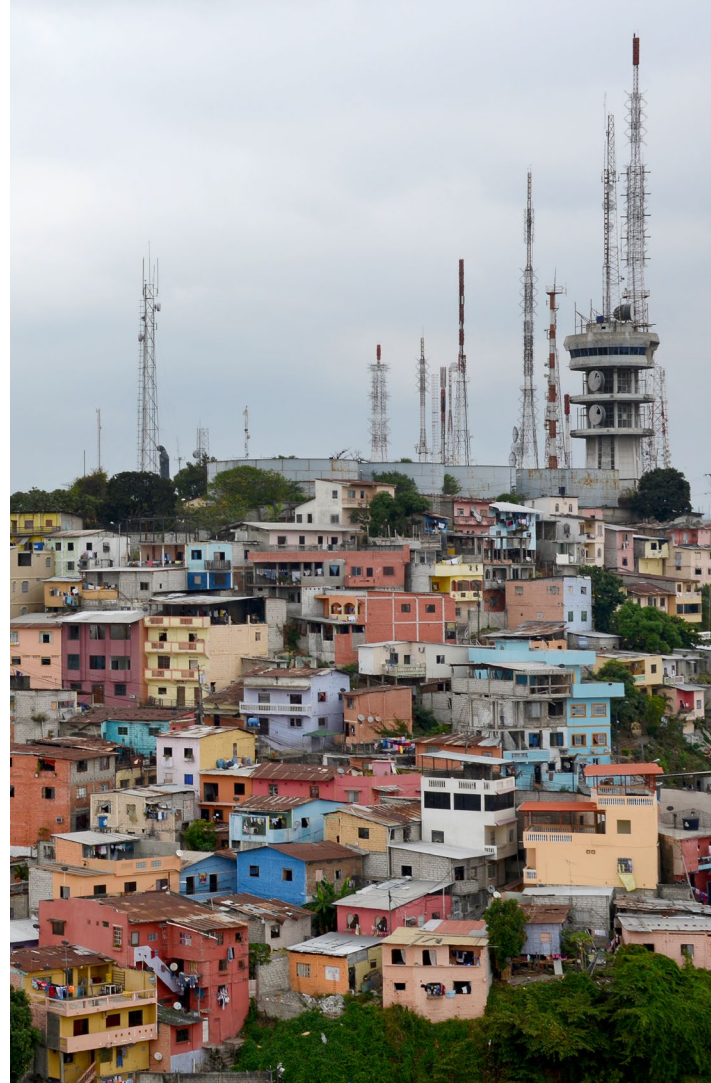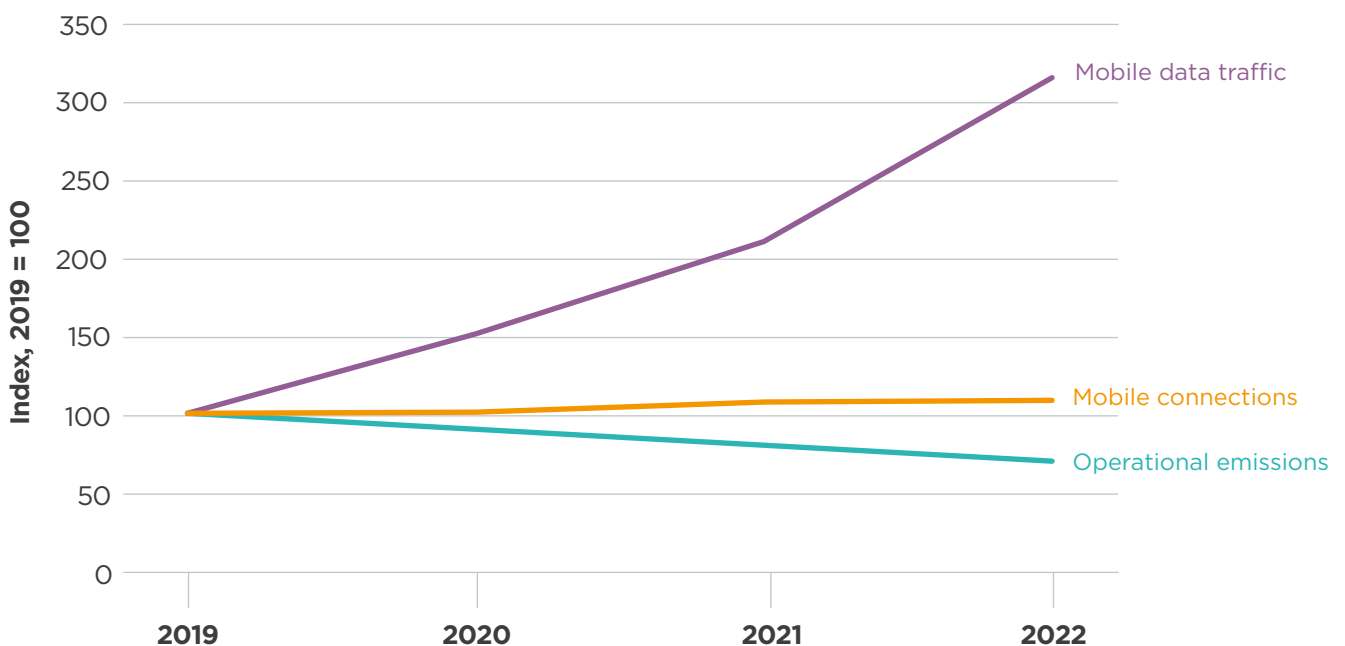**"Between 2019 and 2022, operational emissions fell by 30%, while connections rose 8% and data traffic tripled"**

**Figure 2** | Operational emissions in Latin America, 2019-2022



Mobile data traffic

Mobile connections

Operational emissions

Source: GSMA analysis. Connections data from GSMA Intelligence and mobile traffic data from Ericsson (2023).

# Energy efficiency

Energy efficiency is a strategic priority for mobile network operators, with energy accounting for an important share of operational costs. Electricity use per connection fell by around 4% between 2019 and 2022, indicating good progress on energy efficiency in the region.

## "The energy intensity of data transmission across four Latin American operators fell by over 20% per year between 2019 and 2022"

Operators in Latin America were among the leaders in reducing the energy intensity of data transmission – the amount of energy needed to transmit one bit of data. Data from across four operators in the region showed average annual improvements of over 20% between 2019 and 2022 (Figure 3).

Actions to improve the energy efficiency of mobile networks are particularly important since radio access networks typically account for around three-quarters of operators' energy use[2]. For example, América Móvil implemented a "Power Saving RAN functions" project to save energy in base stations when traffic is low without compromising network quality.

The phase out of 2G and/or 3G legacy networks could also deliver significant energy savings for operators, with data from European operators showing potential energy savings of over 20%.

**Figure 3** | Energy intensity of data transmission, select operators
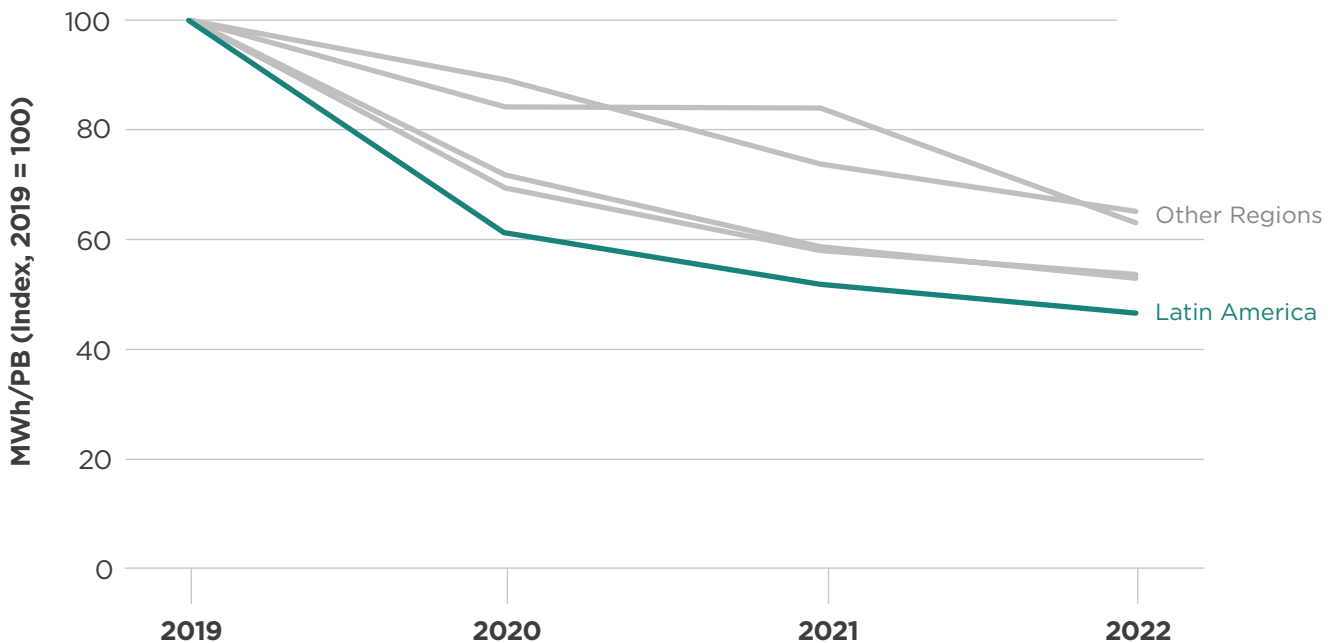


Note: Other regions include Asia Pacific, Europe, Greater China and North America. The data shown are averages across a limited number of operators disclosing this data and are intended to show indicative trends.

Source: GSMA analysis of corporate sustainability reports of mobile network operators.

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2    See GSMAi (2024), *Going green: measuring the energy efficiency of mobile networks.*

# Renewable energy

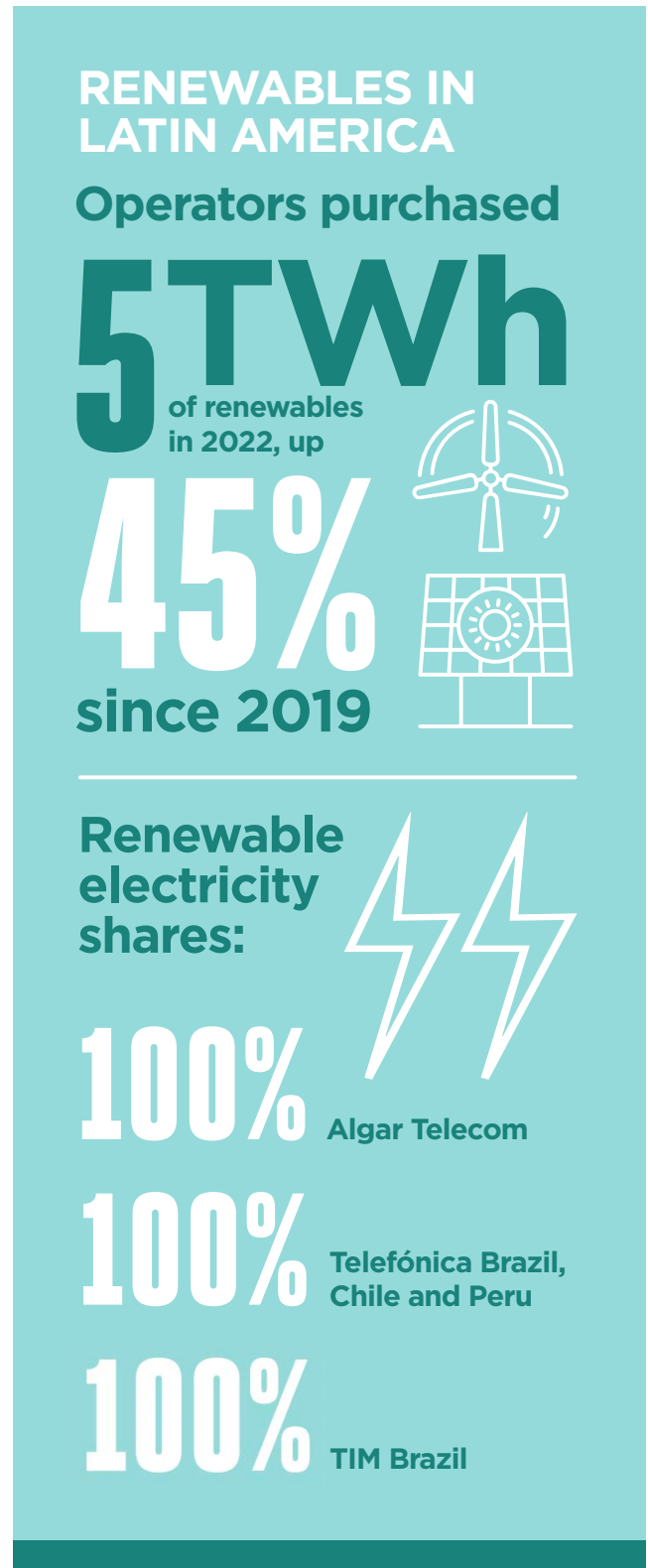Electricity grids in Latin America are some of the cleanest in the world, with renewables accounting for over 60% of overall generation in the region[3], compared with just 30% globally. In fact, five countries are already generating over 90% of their electricity from renewable sources: Brazil, Costa Rica, El Salvador, Paraguay and Uruguay.

Operators are taking further steps to reduce emissions from electricity, with renewable energy purchases accounting for roughly half of operational emission reductions between 2021 and 2022.

Latin American operators collectively purchased 5.3 TWh of renewable electricity in 2022 (up from 3.6 TWh in 2019), equivalent to the annual electricity demand of Nicaragua. The share of electricity from purchased renewables exceeded 40% in 2022, compared with the global average of 33%.

Several operators are leading the way on renewable energy. In 2022, 100% of Algar Telecom's electricity came from renewables, while Telefónica also achieved 100% renewables in Brazil, Chile and Peru. 100% of TIM's electricity use in Brazil came from renewables, including about a third from self-generated renewables.

Some operators are also reducing their fleet emissions by switching from gasoline to ethanol. In Brazil, 90% of Algar's fuel consumption in 2022 was supplied by ethanol, while América Móvil consumed 2.7 million litres of ethanol – about a fifth of its liquid fuel consumption.

## RENEWABLES IN LATIN AMERICA

### Operators purchased

**5TWh** of renewables in 2022, up

**45%** since 2019

### Renewable electricity shares:

**100%** Algar Telecom

**100%** Telefónica Brazil, Chile and Peru

**100%** TIM Brazil

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**3**   Including the Caribbean. Source: IEA (2023).

# 4. Emissions from supply chains and customers

Scope 3 emissions account for around 70% of the industry's overall footprint. Further engagement with suppliers is critical to improve measurement, reduce emissions and increase circularity.
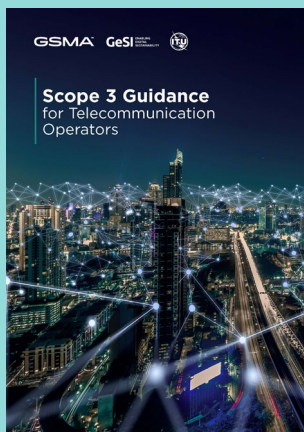
# Scope 3 emissions

In 2022, Scope 3 value chain emissions were around eight $MtCO_2e$, or around 70% of the total regional emissions of the industry.

Over 90% of Scope 3 emissions came from four key categories:
1) Purchased goods and services
2) Capital goods
3) Fuel- and energy-related activities
11) Use of sold products.

Operators covering over 90% of regional connections disclosed Scope 3 emissions in 2023, with most disclosing emissions from the four key categories.

The relative shares of Scope 3 emissions from different categories can differ substantially between operators. Some of these differences may stem from actual differences in their businesses, while others may come from methodological differences or a lack of data. New guidance is helping to improve measurement and the accuracy of figures published in future.

**SCOPE 3 GUIDANCE**

Last year the GSMA published **guidance to help mobile companies assess Scope 3 emissions**, including key principles, methodologies and data sources

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# E-waste and circular economy

### Electronic waste

According to the 2024 Global E-Waste Monitor, about 10 kg of e-waste was generated per person in Latin America in 2022 and less than 3% of it was formally collected for recycling.

Small IT and telecommunications equipment – including mobile phones – accounts for only 8% of overall global e-waste, or around 1.2 kg per person in Latin America in 2022. But mobile phones contain valuable critical minerals which are essential in the manufacture of electronics and clean energy technologies.

The GSMA conducted new research[4] that estimated there are over five billion mobile phones lying dormant around the world. These phones could contain over 50,000 tonnes of copper, 500 tonnes of silver and 100 tonnes of gold. There is also enough cobalt in them for 10 million electric vehicle batteries.

### New circularity targets for mobile phones

In June 2023, the GSMA announced that leading operators had committed to two new circularity targets[5]. The targets aim to increase take-back of mobile phones to at least 20% and prevent them from being sent to landfill or incineration.

Telefónica, representing over a quarter of mobile connections in the region, has signed up to the targets. In 2023, they reported an 11% take-back rate and 99% of phones reused or recycled across the group. The GSMA invites all mobile network operators to consider aligning to these targets. For more information, please contact betterfuture@gsma.com.

The take-back and reuse of customer premises equipment (CPE) can also help reduce emissions and costs for operators. In 2023, Millicom recovered 83% of customer premises equipment through its recovery program for reuse or recycling, avoiding emissions and over $130 million in capex.

### Engaging device manufacturers

Device manufacturers have the biggest role to play in increasing the circularity of mobile phones. They can increase the longevity of devices through design choices and greater repairability, and use recycled materials and renewable energy in manufacturing.

Four device manufacturers – Samsung, Lenovo (Motorola), Xiaomi, and Transsion – account for over 70% of the market share for new devices in Latin America. Action from these manufacturers in particular is critical to increase the circularity of devices in the region.

4   gsma.com/betterfuture/wp-content/uploads/2023/06/Research-Methodology-2023.pdf
5   gsma.com/betterfuture/reuse-refurbish-recycle

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# 5. Recommendations to accelerate progress

Achieving the industry's goal of net zero emissions by 2050 requires strong and concerted action from operators and suppliers, supported by policies and investment from governments.

# Moving the whole mobile industry to net zero emissions by 2050 will require concerted effort and action by all key stakeholders.

Over the past year, the GSMA has worked with operators to support this journey, with the immediate focus being on the rapid cuts needed by 2030.

Table 2 outlines key recommended actions to accelerate progress towards net zero.

**Table 2** | Key recommended actions

| Area of action | Operators | Suppliers | Governments and policymakers |
|---|---|---|---|
| **Climate targets, policy and strategy** | Set science-based and net zero targets aligned with a 1.5°C pathway<br><br>Develop a climate transition plan that clearly outlines the principles, plans and processes to meet climate targets | Set science-based and net zero targets aligned with a 1.5°C pathway<br><br>Develop a climate transition plan that clearly outlines the principles, plans and processes to meet climate targets | Prioritise a just transition to economy-wide net zero emissions by 2050 at the latest, including strengthening countries' nationally determined contributions and 2030 targets in line with a 1.5°C trajectory<br><br>Implement and enhance national climate, energy and industrial policies to enable the achievement of these targets<br><br>Support the private sector in their decarbonisation efforts, including through policies and incentives to reward companies' low-emissions strategies |
| **Climate disclosure** | Assess and publicly disclose carbon emissions and climate risks and opportunities, for example through CDP | Assess and disclose carbon emissions and climate risks and opportunities through CDP | Ensure electricity markets and regulations encourage renewables and actively engage in dialogue with private sector where there is a lack of access for the private sector |
| **Energy efficiency and electrification** | Optimise energy use of networks by adopting energy efficient hardware and best practices and retiring legacy networks<br><br>Reduce fossil fuel use in fleets and diesel generators | Develop more energy efficient equipment and devices | Encourage action on energy efficiency, including supporting the retirement of 2G/3G legacy networks where possible and encouraging innovation for more efficient technologies |

*Continued >>*

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| Area of action | Operators | Suppliers | Governments and policymakers |
|---|---|---|---|
| **Renewable energy** | Purchase and use renewable energy | Purchase and use renewable energy | Ensure electricity markets and regulations encourage renewables and actively engage in dialogue with private sector where there is a lack of access for the private sector |
| **Circularity** | Engage suppliers on climate action and integrate climate requirements into procurement<br><br>Develop circular economy initiatives for network equipment, mobile phones, and customer premises equipment | Engage supply chains on climate action, including encouraging suppliers to use of renewable energy and recycled materials<br><br>Develop circular economy initiatives for network equipment, mobile phones and customer premises equipment | Implement laws and regulations that ensure used mobile phones are recovered and recycled responsibly |
| **Enabling climate action** | Deploy and support digital solutions that enable climate action across all sectors | Deploy and support digital solutions that enable climate action across all sectors | Recognise the enablement effect of the digital transformation and foster innovation and investment in green digital technologies and solutions |

## GSMA CLIMATE ACTION TASKFORCE

The GSMA created a Climate Action Taskforce in 2019 to collaborate across the industry on climate action. The Taskforce has grown rapidly over the last three years and now has 66 members across the world, including the largest operators in Latin America.

**The Climate Action Taskforce welcomes new mobile network operator members.** Please contact *betterfuture@gsma.com* if you would like to join.

MILLICOM THE DIGITAL LIFESTYLE    Telefónica    AT&T    TIM    américa móvil

## FURTHER READING

The **GSMA Climate Policy**, updated in December 2023, provides additional details and recommendations for governments to help accelerate the mobile industry's transition to net zero

## FREE CLIMATE COURSE FOR POLICYMAKERS

To support governments around the world in better understanding the intersection of climate change and the mobile industry, the GSMA has developed a **new Capacity Building course** for policymakers and regulators

# 6. Case studies

# How Telefónica Brazil is achieving climate targets

Telefónica Brazil (Vivo) acknowledges the urgency of reducing $CO_2$ emissions. As an integral part of the Telefónica Group, Vivo has strengthened its commitment to limiting global temperature rise to 1.5°C. They have a science-based target to achieve net zero emissions by 2040, including short (2025), medium (2030), and long-term (2040) goals.

Vivo has committed to reduce and maintain a 90% reduction in Scope 1 and 2 emissions compared to 2015; decrease Scope 3 emissions by 90% compared to 2016; and, finally, neutralise residual emissions with carbon removal credits (10%).

To reduce their Scope 1 and 2 emissions, they have taken several actions: implemented measures to reduce fuel usage in generators; switched to using ethanol in their flex fleet and added 200 electric cars to their fleet; conducted leak controls on air conditioning equipment and replaced refrigerant gases by others with lower impact.

Vivo has invested in energy efficiency projects and achieved the ISO 50.001 certification. Since 2018, they have been generating a portion of their energy through a distributed generation model sourced from renewable sources (hydro, solar and biogas). It has 67 small power plants in operation and the goal is to reach 86 units in 2024.

Since 2019, Vivo has intensified engagement with its key suppliers to reduce its Scope 3 emissions. They are working directly on developing action plans to enhance the management of greenhouse gas emissions to reduce their supply chain emissions by 56% by 2030 and achieve zero emissions by 2040.

### What was the impact?

The use of renewable energy and biofuels, coupled with rigorous control measures and resource efficiency, has enabled Vivo to achieve a 90% reduction in its emissions (Scope 1 and 2) over the past eight years. Since 2015, Vivo has reduced its energy intensity (MWh/Pb) by approximately 90%.

Vivo received the "Climate Guardians" award during COP28 in Dubai, an unprecedented recognition from the UN Global Compact in Brazil for their low-carbon strategy.

Through the Supplier Carbon Program, Vivo has gathered information to understand the level of maturity among suppliers regarding climate change. They have provided training through webinars, sharing best practices and encouraging innovation to reduce carbon emissions, with a focus on the 125 carbon-intensive suppliers. As a result, they found that 60% of the participating suppliers in the program are committed to addressing climate issues, representing 82% of their emissions from suppliers.

# Return to Tigo and Protect the Planet!

"Return to Tigo and Protect the Planet!" is a campaign to raise customer awareness of the environmental impacts of incorrectly disposing of WEEE (waste from electrical and electronic equipment).

It has also become the basis of Tigo's strategy for taking back unused decoders and modems from Colombian homes with the aim of mitigating the environmental impact, prolonging the useful life of the devices, using fewer natural resources by not importing new equipment, and leveraging the company's figures.

Tigo's environmental volunteers play an important role in this initiative by educating their customers and the wider community. They use a number of different channels: home pick-up points and collection points (via parcel) nationwide through Inter Rapidísimo and Servientrega. They also hold local collection days and WhatsApp campaigns to contact customers. There are significant challenges in increasing the accessibility and recognition of these channels throughout the country but, as these have increased, Tigo has been able to ensure a more effective collection of customer-premises equipment. The main challenge now is therefore to improve this effectiveness, which currently stands at 89%, as this is how they can avoid the rapid obsolescence of equipment and reduce the environmental impact.

Once the equipment has been taken back, it enters a refurbishment process during which it is checked for technological obsolescence, functionality and aesthetics. This latter aspect has become a major challenge for Tigo because it is dependent upon how well the customer has looked after the equipment in their home. They therefore

run campaigns through their Help Centre to engage with people on how to look after these devices properly. Devices that are able to be refurbished are then sent out for reuse in Colombian homes. If this is not possible, the device is sent to licenced environmental managers for disposal as electronic waste or recycled as material in other industries, thus promoting circularity.

Over the last two years, Tigo has taken back a total of 4.3 million devices and reached approximately 1,414,980 Colombian households. They have also saved 870 tonnes of WEEE that might otherwise have ended up inappropriately in the environment. Of the equipment taken back, 3.8 million devices have been refurbished and sent out for reuse in customers' homes.

There is also a social aspect to this in that Tigo's partner Woden, together with the Bogotá Ministry of Social Inclusion and the Best Buddies Foundation, hires people with a physical or learning disability to refurbish Tigo's devices, thus providing them with job opportunities. Along the same lines, 50% of the staff of Tigo's refurbishment partner Ecoservicio are female heads of household, thus promoting this group's integration into the labour market.

# CDP: TIM's journey to A-List

TIM fosters innovation in the telecommunications sector by developing unique solutions to global climate issues in order to become a sustainability-focused company. Key projects like the Distributed Generation Project have been intensified, enabling TIM to derive over half of its energy from its own clean sources. Continuous enhancements in gas maintenance, waste reduction and energy efficiency have facilitated GHG reductions. A climate risk and opportunity study was conducted following TCFD guidelines, and climate targets were validated by SBTi.

TIM engages with its supply chain via the CDP Supply Chain program and has fortified its relationship with the CDP through workshops, webinars and the Benchmark Club. As an active partner of the Global Compact and CEBDS, TIM collaborates externally with regulators, governments, NGOs and stakeholders on innovative climate solutions, while internally focusing on risk mitigation and opportunity leveraging.

TIM's governance review, including the ESG Committee and Steering Committee, along with the dedicated ESG area, have been instrumental in fostering an "ESG culture" and company-wide engagement. Investments in infrastructure and strategic partnerships have facilitated the transition to a low-carbon economy, with a focus on efficient and renewable energy management. These investments, part of the company's Industrial Plan, were financially sensible and overcame potential disinterest or detachment from the company's strategy. The projects had VPs as internal sponsors, alongside the CEO and other leaders.

Overcoming initial challenges (culture/engagement, investment, senior leadership sponsorship) propelled the company's success in climate management. Throughout this journey, they made the CDP A-list and achieved numerous positive results. The 10 most relevant impacts are:

1 Achieve 100% electrical energy from renewable sources;
2 Improve eco-efficiency in data traffic by 160% (base 2019);
3 Improve the PUE (Power Usage Efficiency) of data centres from 1.90 in 2021 to 1.46 in 2023;
4 Reduce GHG emissions from Scopes 1 and 2 by 80% (base 2019);
5 Reduce emissions intensity from 1.23 $KgCO_2e$/Terabit, in 2021, to 0.37 $KgCO_2e$/Terabit, in 2023;
6 Reduce 5,038 $tCO_2$ emitted in the billing process, through digital solutions;
7 Expansion from 46 own energy plants, in 2021, to 101 in 2023;
8 Increase in the energy efficiency of the telecommunications network from 9,827 bits/joule in 2019 to 25,523 bits/joule in 2023;
9 TIM Group's GHG reduction goals validated in 2022 by the SBTi;
10 Achieve the ISE "Top 5" for the first time, from the CDP A-List.

The actions resulted in a significant reduction in $CO_2e$ emissions, contributing to the mitigation of climate change and strengthening TIM's position as a climate leader. This was corroborated by the achievement of the maximum score (A-List) from CDP, greater global recognition of a company's leadership on climate issues and consolidation of the company's role as an ESG reference.

**GSMA**