GSMA

13 CLIMATE ACTION

2019 Mobile Industry Impact Report: Sustainable Development Goals

Climate Action Deep Dive

The GSMA represents the interests of mobile operators worldwide, uniting more than 750 operators with almost 400 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations in adjacent industry sectors. The GSMA also produces the industry-leading MWC events held annually in Barcelona, Los Angeles and Shanghai, as well as the Mobile 360 Series of regional conferences.

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Mobile technology and climate change

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Climate change threatens sustainable development everywhere. Collaboration, on a global scale, is key to mitigating the catastrophic impacts of the world's rising temperatures.

The SDGs and the Paris Agreement on Climate Change[1] signal a global effort to transition to a sustainable, low-carbon future. The Paris Agreement commits governments to act to keep global temperature rise to well below 2°C above pre-industrial levels, and to pursue efforts to limit temperature rise even further to 1.5°C.

Since Paris, the Intergovernmental Panel on Climate Change has issued its starkest warning yet on the consequences of climate inaction and the importance of limiting global heating to 1.5°C. It recommends that countries reduce carbon emissions by 45% by 2030 and to net zero by 2050.[2]

Encouragingly, recent analysis launched at the 2018 UN climate meeting outlined that 16% of global GDP was now covered by a net zero target.[3] Yet the level of urgency and action needed to meet these targets is lagging behind the harsh reality of what climate science is telling us. There is an increasingly powerful voice from civil society calling for bolder, faster action.[4]

Compared to many other sectors, the mobile industry is not the largest contributor of carbon emissions, but as we increasingly enter a digitised world, it can be part of the solution. Collaboration is needed to limit the industry's own emissions and maximise its potential to help other sectors reduce their impact. In support of this, the GSMA has announced an industry-wide plan for disclosure and emissions target setting and along with many of its members, has committed itself to be net zero by 2050.

1.
Enabling the transition towards a zero carbon economy

Mobile technology's biggest impact on climate change is from its ability to enable other sectors of the economy to reduce their greenhouse gas (GHG) emissions.

This is through providing the connectivity for digital solutions that reduce energy use, reduce travel and transport, or otherwise reduce GHG emissions. Examples include connectivity for buildings to support energy management and for vehicle telematics (reducing fuel consumption and optimising routing). This is in addition to more traditional areas of remote and mobile working, reducing emissions from travel and commuting. Emerging areas with significant

potential for future emissions reductions include agriculture, health, the sharing economy and smart cities.

With the impact of mobile-based solutions closely linked to improvements in connectivity, operators' networks offer a scalable, secure and standardised way to connect assets across a variety of services in an economically sustainable manner.

Figure 1

How mobile is enabling a low-carbon future
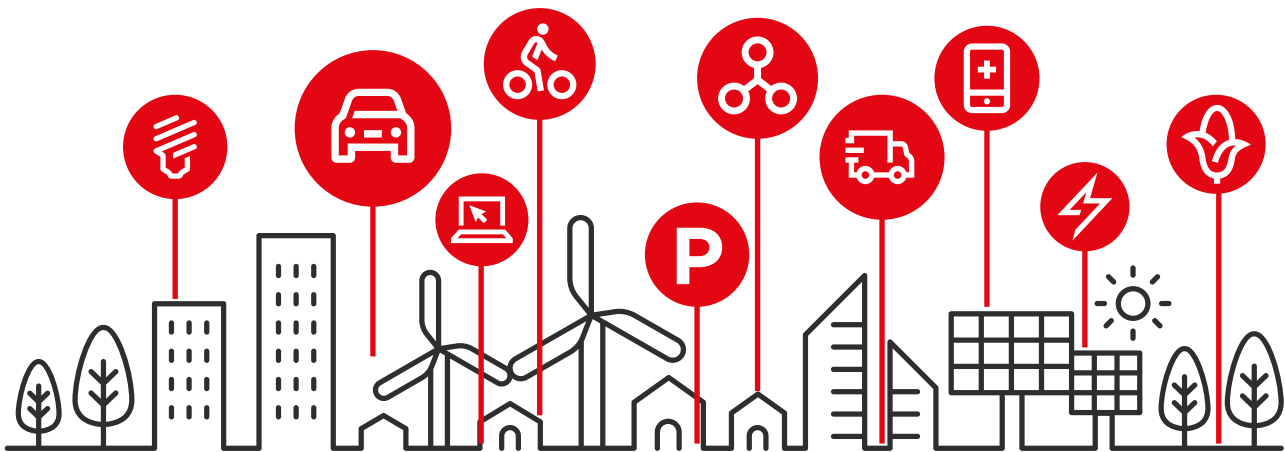
Smart traffic management: This enables more efficient traffic flows, thereby easing congestion and lowering vehicle pollution. Verizon is using intelligent asphalt, with embedded sensors that monitor traffic flow, permitting cities to adjust traffic signals to reduce commuting times and carbon emissions.[5]

Smart urban lighting: Intelligent street lighting can lower electricity demand by switching off when not required. Using IoT technology, in the city of Guadalajara, Spain, Vodafone connected 13,500 LED lights to a central management system, reducing street lighting energy consumption by 68%.[6]

Smart parking: Mobile apps help drivers find available parking spaces, reducing congestion and GHG emissions. Deutsche Telekom's Park and Joy app shortens the time spent looking for a parking spot. In 2018, users could search around 30,000 parking spots in 45 cities with the app.[7]

Smart logistics: Mobile connectivity allows the collection of vehicle data. This can then be used for optimisation of route planning, load optimisation, and improvement of driver behaviour. Smart vehicle or fleet management solutions reduce fuel consumption and associated GHG emissions. AT&T-enabled wireless fleet management technology allows fleet managers to use data to more efficiently deploy and route vehicles to help reduce delivery and idle time, improve mileage and reduce fuel costs.[8]

Building energy management systems: Machine-to-machine (M2M) connectivity allows for the automation and monitoring of building systems remotely – for example, allowing systems to be switched on and off depending on occupancy or temperature. It can also apply analytical tools for predictive maintenance and more sophisticated building control policies, such as adjusting heating in line with the weather forecast and historical data. For example, Telefónica's Big Data Service LUCA Energy optimises energy consumption and forecasts future energy consumption costs.[9]

5.   https://www.verizon.com/about/sites/default/files/corporate-responsibility-report/2018/environment/efficiency.html
6.   Sustainable Business Report 2019, Vodafone Group, 2019
7.   https://www.cr-report.telekom.com/site19/customers-products/sustainable-products-and-services#atn-15804-15812
8.   Progress to 2025 — 10x Goal Update, AT&T, 2019
9.   https://luca-d3.com/energy-cost-savings/index.html

Remote working: Smartphones and mobile connectivity enable remote working and collaboration, reducing the need for travel and therefore reducing GHG emissions. For AT&T, its mobile work tools and virtual collaboration technology represent its largest source of technology-enabled carbon reduction in 2018. Desk-based video conferencing using AT&T voice and data connectivity reduce the need for travel. [10]

Sharing economy: Ride-sharing, car-sharing, bike-sharing and other exchange activities such as finding new owners for unwanted goods or offering unused space for accommodation help to reduce travel emissions or emissions from manufacturing new goods. In addition, smartphones can provide remote access to personal services such as mobile banking and smart home control, reducing energy consumption.

Smart grids: M2M technology is important for the functioning of smart grids to actively manage and monitor the generation and distribution of electricity. This enables greater amounts of renewable energy generation to be connected to the grid, as the greater decentralisation and intermittence of renewables needs different and more distributed management systems. Vodafone is helping utilities deliver electricity sustainably and efficiently through remote data management and monitoring capabilities, automation and control. [11]

Connected health: Mobile solutions are expanding access to medical and health services. Using solutions such as remote patient monitoring, patients can reduce the number of trips to see a medical provider, saving time and reducing fuel usage and hospital emissions. In 2018, Verizon avoided 147,023 tonnes of CO2e through remote patient monitoring and reduced travel and days in hospital. [12]

Precision agriculture: This refers to the combination of monitoring crops with satellites, thermal imaging and sensors. Data collected can help farmers precisely optimise yields and reduce fertiliser and pesticide use, as well as improving water efficiency in irrigation, saving GHG emissions. For example, Telefónica is using big data to support small and medium-sized cattle ranchers in Ecuador.

10. Progress to 2025 — 10x Goal Update, AT&T, 2019
11. https://www.vodafone.com/business/iot/end-to-end-solutions/smart-grid-and-metering
12. https://www.verizon.com/about/sites/default/files/corporate-responsibility-report/2018/environment/efficiency.html

Q SPOTLIGHT

Emerging technology supporting climate action

Artificial intelligence (AI), the Internet of Things (IoT), big data analytics and other frontier technologies – underpinned by mobile connectivity – offer significant potential in engineering innovative climate solutions in the areas of adaptation, mitigation and finance.

Using AT&T IoT connectivity to collect temperature data, ndustrial.io combined temperature, energy and food information to enable Lineage Logistics to manage its cooling operations, reducing costs and GHG emissions. Based on data for three years, AT&T has calculated an average annual electricity cost reduction worth $4 million and an emissions avoidance equivalent to 2.4 million gallons of gasoline.[13]

Telefónica's Big Data for Social Good unit is geared towards using data to help the development of society, thereby contributing to the SDGs. The "Climate-Smart Agriculture" project in Ecuador is designed to provide information and training to

small and medium-sized cattle ranchers in ways to improve the production of their cattle while minimising the impact of the GHG emissions of their holdings. For that purpose, advanced mathematical and analytical models are being used to generate relevant and industrialised information to each cattle ranch.[14]

Recent research by PwC[15] estimates that the application of AI could reduce worldwide GHG emissions by 4% by 2030. The enablement potential of these and similar solutions could be further enhanced by the increased bandwidth and reduced latency of 5G networks.

13. AT&T 10x Case Study, AT&T, 2018
14. Integrated Management Report 2018, Telefónica, 2019
15. "Using AI to better manage the environment could reduce greenhouse gas emissions, boost global GDP by up to US $5 trillion and create up to 38m jobs by 2030", PWC, April 2019

Ambitious goals to enable emissions reductions

In recent years, an increasing number of mobile operators have been setting ambitious enablement impact goals (or avoided emissions impact). Mobile operators are already reporting good progress on enabling GHG emission reductions through their mobile products and services.

- AT&T has partnered on the Net Positive Project.[16] It is seeking to harness the power of mobile technology to enable GHG emissions reductions that are 10 times greater than its own by 2025. At the end of 2018. AT&T enabled GHG savings equivalent to approximately double the carbon footprint of its operations.[17]

- Similarly, by 2025, for each ton of CO2 emitted by Telefónica, it aims to avoid 10 tons of CO2 in the atmosphere through its services. In 2018, Telefónica calculated that the emissions that its customers avoided through "digitalisation" were 1.15 times the sum of its scope 1 and 2 emissions.[18]

- Deutsche Telekom calculated that the "positive CO2 effects" facilitated for its customers in Europe were 21% higher than its total emissions in 2018 (an enablement factor of 1.21).[19]

- For the 2018/19 financial year, BT stated that its "carbon-saving products and services" (including teleconferencing and cloud networking) helped customers save 11.7 MtCO2e: equivalent to 2.6 times its own end-to-end emissions.[20]

- In 2018, Verizon's solutions enabled the avoidance of 8.2 million metric tons of CO2e, equivalent to taking 1.6 million cars off the road. The emissions avoided represent approximately 1.68 times the emissions generated by Verizon's operations (scope 1 and 2).[21]

2.
Improving resilience to the effects of climate change

Climate change has made weather patterns harder to predict, and extreme events such as droughts and floods have become more frequent and severe, resulting in famine, hunger and displacement. Even with global efforts to reduce emissions, some climate change is inevitable. Action to adapt to its impacts is needed.

The Task Force on Climate-related Financial Disclosures[22] initiative urges companies to assess and disclose their financial exposure to climate risk. For the mobile sector, network infrastructure is exposed to climate risk from extreme weather events. For example, Hurricane Maria damaged 90% of Puerto Rico's telecoms infrastructure, costing an estimated $1.2 billion. Of the 1,600 cellular sites on the island, over 80% were knocked out of service.[23] The risk of future events can be mitigated – for example, through increasing the resilience of masts and switching sites.

The industry has an important role to play in adapting and responding to the effects of climate change. For example, mobile networks are facilitating access to information and coordinating assistance before, during and after climate-related emergencies. These efforts are often supported by operators' in-house disaster response teams,[24] while mobile technology has rapidly become an attractive delivery channel for many forms of aid.[25]

16. https://www.netpositiveproject.org/
17. Progress to 2025 – 10x Goal Update, AT&T, 2019
18. I.e. direct and indirect emissions. Further descriptions are provided in Section 3.3. Integrated Management Report, 2018, Telefónica, 2019
19. https://www.cr-report.telekom.com/site19/facts-figures/environmental-indicators/enablement-factor#
20. Digital impact and sustainability report 2018/19, BT Group, 2019
21. https://www.verizon.com/about/sites/default/files/corporate-responsibility-report/2018/environment/efficiency.html
22. For more detail, see: https://www.fsb-tcfd.org/
23. The 2017 Atlantic Hurricane Season: Mobile industry impact and response in the Caribbean, GSMA, 2018
24. For example, AT&T: https://www.greenbiz.com/article/att-dives-deep-climate-data
25. Partnership Guidelines: Building effective partnerships between MNOs and NGOs in complex environments and crises, GSMA, 2016

Figure 2

Mobile's role predicting and protecting during climate-related disasters
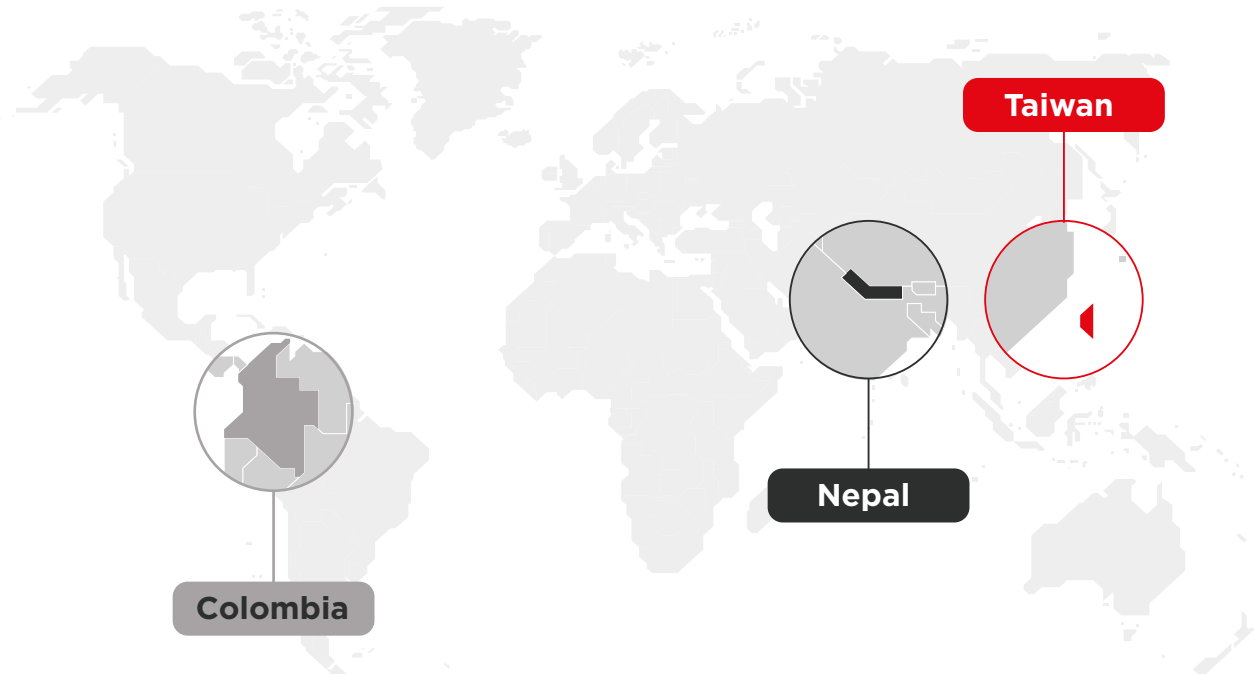
Predicting climate disasters

As part of a 4G Smart City Project, telecoms company Far EasTone and the Tainan City Government (Taiwan) have implemented a smart water disaster management system, allowing authorities to successfully predict flooding and the potential for disasters.[26]

Alerting high-risk citizens

Ncell has partnered with the Department of Hydrology and Meteorology (DHM) to send early-warning alerts to its customers living in high-risk areas of floods and landslides in Nepal, encouraging them to move to government-designated safe locations when water levels become too high.[27]

Supporting vulnerable communities

The GSMA, Telefónica and the UN Food and Agriculture Organization (UN FAO) have leveraged mobile big data to measure how and to what extent climate change contributes to the internal displacement and movement of citizens in Colombia. Identifying and quantifying migration flows helps the government make more informed and targeted policy interventions, facilitating support for vulnerable communities.[28]

26. Maximising the smart cities opportunity: Recommendations for Asia-Pacific policymakers, GSMA, 2017
27. 2018 Mobile Industry Impact Report: Sustainable Development Goals, GSMA, 2018
28. The Mobile Economy Latin America and the Caribbean 2018, GSMA Intelligence, 2018

Mobile is also supporting, and will drive further innovations in, climate adaptation across many markets. It plays a key role in disseminating valuable weather information, complementing broadcast media. In a changing climate, weather content is highly valued by smallholder farmers accessing mobile agriculture information services – for example, Ooredoo Myanmar's Site Pyo and Airtel's 321 service in Malawi.[29] Meanwhile, Orange Business Services and Dacom's smart agriculture service leverages big data analysis to allow farmers to better understand and adjust to climate change.[30]

The industry is also increasingly bridging the data gap in weather monitoring and forecasting. For example, low-cost connected weather stations are being deployed at base stations for access to power, while mobile networks' microwave links data is being utilised for accurate rainfall measurements. New mobile financial services, including digital weather index insurance,[31] are also emerging to strengthen the climate resilience of rural populations.

⊕ CASE STUDY

Orange uses digital expertise to monitor climate change and promote alpine biodiversity

In the mountains, climate change is having a larger and faster impact. It is most visible in the melting of glaciers, but it is also having significant observable effects on flora and fauna.

In terms of biodiversity, Mont Blanc is a unique site of European and global importance. Over its 4,300 m of elevation, its animal and vegetable diversity equals that found over a 4,300 km stretch from Northern to Southern Europe, from Greenland to Barcelona.

Orange has partnered with CREA Mont-Blanc, the Research Center for Alpine Ecosystems, since 2014, to help make Mont Blanc a key site for monitoring the planet's climate. High altitude antennas, for example, measure data which is then shared by mountain range researchers throughout the world. Connected cameras monitor the behavioural and habitat changes of certain animal species.

29. 2018 Mobile Industry Impact Report: Sustainable Development Goals, GSMA, 2018
30. "Smart Agriculture: fertile ground for digital technology", Orange, December 2016
31. ACRE in Kenya by Syngenta Foundation in partnership with seed company Seedco and MNO Safaricom, and EcoFarmer in Zimbabwe, a partnership between Econet Wireless and Mercy Corps, are early examples of mobile weather index insurance products. See: mAgri: Weather forecasting and monitoring: Mobile solutions for climate resilience, GSMA, 2016

3.
Reducing emissions and driving energy efficiency

The latest estimate of the energy footprint of mobile networks is about 130 TWh per year, with a GHG footprint of about 110 MtCO2e per year – this is equivalent to approximately 0.6% of global electricity consumption and 0.2% of global GHG emissions. This is for the network emissions only; including the emissions of mobile phones (including their manufacture and use) brings the total annual footprint to about 200 MtCO2e, or about 0.4% of global GHG emissions.[32] [33]

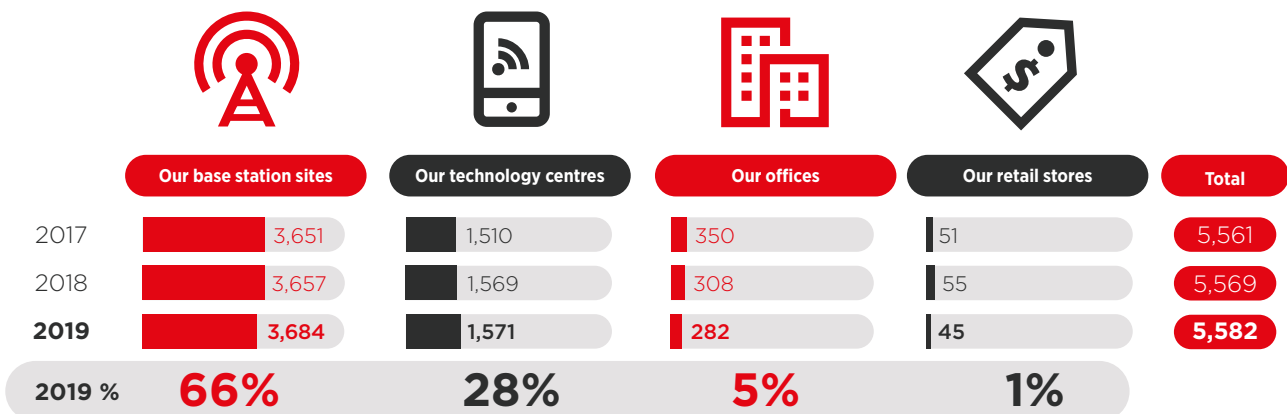At a company level, GHG emissions are classified under three categories, or 'scopes':

- **Scope 1:** All direct sources of emissions owned or controlled by the operator, predominantly arising from fuel consumption to power fleet, heat buildings and power back-up generators.

- **Scope 2:** Indirect emission sources, predominantly power consumption through electricity purchased to power networks and data centres.

- **Scope 3:** Emissions from corporate business travel; emissions from suppliers providing goods and services; and emissions associated with the use of products and services by customers.

For many mobile operators, the largest emissions within their own operations (scope 1 & 2) stem from the deployment and running of networks. This is where the bulk of the energy consumption and therefore GHG emissions lie. For many operators, this is approximately 90% of the energy consumption of their operations (e.g. 94% for Vodafone: base stations plus technology centres).

Figure 3

Source: Vodafone

Energy use (GWh) by business area at Vodafone[34]

	Our base station sites	Our technology centres	Our offices	Our retail stores	Total
2017	3,651	1,510	350	51	5,561
2018	3,657	1,569	308	55	5,569
2019	**3,684**	**1,571**	**282**	**45**	**5,582**
2019 %	**66%**	**28%**	**5%**	**1%**	

Mobile operators recognise the urgency of the climate crisis and are striving to minimise their own climate impact, embarking on an ambitious journey towards decarbonisation. Delivering a zero carbon future will necessitate timely and effective action in a number of areas, especially energy efficiency, sourcing renewable energy, and working with stakeholders to decrease value chain emissions.

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32. These figures are based on research by Ericsson and Telia of the global ICT GHG footprint, published in 2018 using 2015 data: The Energy and Carbon Footprint of the Global ICT and E&M Sectors 2010–2015, Jens Malmodin and Dag Lundén, Sustainability 2018, 10(9), 3027; https://doi.org/10.3390/su10093027 - Global ICT footprint 730 MtCO2e; global ICT networks footprint 180 MtCO2e
33. That research itself was based on a more detailed analysis, by the same authors, of the carbon emissions of ICT networks, using primary data from telecoms operators in different countries: The electricity consumption and operational carbon emissions of ICT network operators 2010-2015, Jens Malmodin and Dag Lundén, KTH Centre for Sustainable Communications, 2018; http://www.diva-portal.org/smash/get/diva2:1177210/FULLTEXT01.pdf - approximate split in emissions for mobile/fixed networks is 60%/40%.
34. Sustainable Business Report 2019, Vodafone, 2019
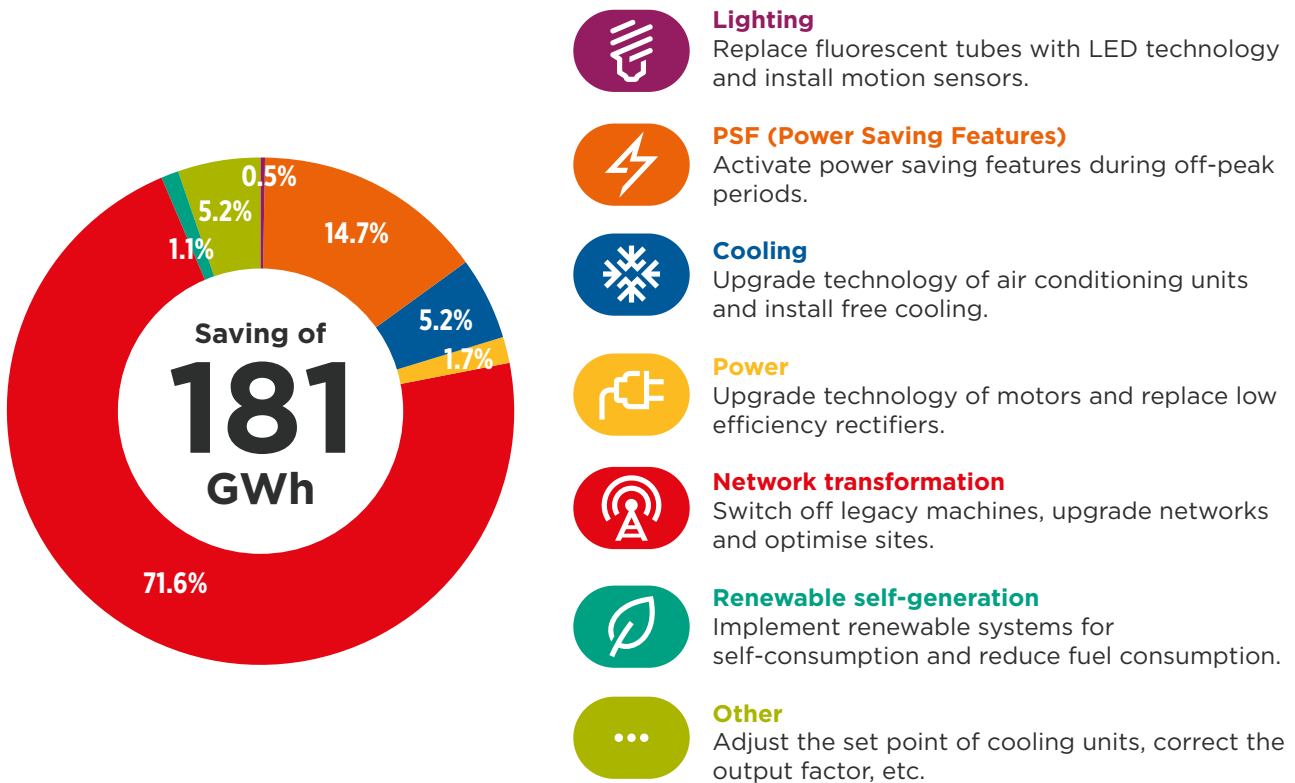
Energy efficiency

Energy efficiency initiatives help operators decouple energy consumption from data traffic growth, stabilising the former in spite of huge increases in the latter. As mobile usage continues to grow at pace, so does the demand for energy, particularly from network infrastructure. With the risk of energy cost inflation in the future, mobile operators' targets for reducing energy use and GHG emissions are intrinsically linked to the implementation of energy efficiency practices.

For example, since the launch of Telefónica's energy efficiency plan in 2010, it has implemented 740 individual projects, saving more than 4,000 GWh and €553 million, and avoided close to 1.3 million tons of CO_2e emissions. In 2020, efficiency measures are expected to deliver opex savings equivalent to €90 million. The energy efficiency plan has enabled Telefónica to reduce energy consumption and GHG emissions, despite experiencing data traffic growth of 176% over the 2015-2018 period.[35]

Figure 4

Telefónica's energy savings attribution in 2018

Lighting
Replace fluorescent tubes with LED technology and install motion sensors.

PSF (Power Saving Features)
Activate power saving features during off-peak periods.

Cooling
Upgrade technology of air conditioning units and install free cooling.

Power
Upgrade technology of motors and replace low efficiency rectifiers.

Network transformation
Switch off legacy machines, upgrade networks and optimise sites.

Renewable self-generation
Implement renewable systems for self-consumption and reduce fuel consumption.

Other
Adjust the set point of cooling units, correct the output factor, etc.

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35. Integrated Management Report 2018, Telefónica, 2019

#BetterFuture

Sourcing renewable energy

Though mobile operators are working to implement energy efficiency measures, progressing towards absolute zero emissions necessitates that the industry makes big strides in increasing its consumption of renewable energy, including wind, solar, biomass and hydropower. In light of growing mobile data traffic, the migration to renewables also makes business sense. For example, Telefónica considers that its GHG emissions in 2018 would have been 80% higher without its Renewable Energy Plan; in turn, the plan projects a 6% saving on energy opex by 2020 from switching to clean energy, which could reach 26% in 2030.[36]

Operators are setting goals to expand the share of renewables in their energy mix over the coming years as they focus on initiatives that reduce energy consumption and GHG emissions, and contribute to international environmental protection goals. Several operators are targeting 100% renewable electricity. A few examples include:

Operator	BT [37]	Telefónica [38]	T··Mobile [39]	vodafone [40]
Target date	2020	2030	2021	2025

36.   Integrated Management Report 2018, Telefónica, 2019
37.   Digital impact and sustainability report 2018/19, BT, 2019
38.   https://www.Telefónica.com/documents/153952/13347920/Telefónica-Integrated-Management-Report-2018.pdf
39.   "Magenta Goes Green: T-Mobile Commits to 100% Renewable Energy", T-Mobile, January 2018
40.   Sustainable Business Report 2019, Vodafone, 2019

Figure 5

Within the broader shift to renewable energy, operators are approaching the transition in a number of different ways

Self-generation

NTT DoCoMo has developed weather forecast-linked green base stations equipped with solar panels and lithium-ion batteries that can reduce commercial electricity used during normal operations by 10%, compared to conventional green base stations that do not have energy storage or weather forecast-linked capabilities. In addition, the conventional operation time of these base stations is doubled to approximately 63 hours during power outages following such events as natural disasters.

Power purchase agreements (PPAs)

These are typically long-term renewable energy supply contracts that guarantee an agreed amount of electricity from renewable sources at a fixed price. AT&T has announced one of the largest Corporate Renewable Energy purchases in US history, purchasing 820 MW of wind power.

Renewable energy certificates

Operators are using energy attribute certificates, including Renewable Energy Certificates (RECs) in the US and Guarantees of Origin (GoOs) in Europe, to demonstrate that purchased or acquired electricity comes from a renewable source. Telia estimates that it has reduced its GHG emissions by 148 ktCO2e, by purchasing 87% renewables in the Nordics and Baltics using GoOs – equivalent to taking 30,000 cars off the road annually.[41]

Direct sourcing

With direct sourcing, operators pay monthly for existing renewable energy. Over time we should see an increase in direct sourcing as supply grows to meet demand. 100% of the electricity that BT purchases directly in the UK is from renewable sources. BT's equivalent figure worldwide is 87%, as in some markets there is currently no renewable supply or the sources available are not certified as renewable through an internationally recognised scheme.[42]

41.   https://www.teliacompany.com/en/sustainability/responsible-business/environmental-responsibility/
42.   Digital impact and sustainability report 2018/19, BT, 2019

RE100's call to action

RE100 is a global, collaborative initiative led by The Climate Group in partnership with CDP, which brings together influential businesses committed to 100% renewable power.[43]

Businesses account for around half of electricity used worldwide. Switching this demand to renewable energy will aid the transition to a net-zero emissions economy. As more companies recognise the need to reduce greenhouse gas emissions and the rapidly falling cost of renewable electricity, they are sourcing renewable power while also supporting the transition in a proactive, meaningful and commercially advantageous way.

The mobile industry has a key role to play in moving to net zero but needs to work jointly with consumers and policymakers towards a greener future. Renewable energy is highly dependent on market forces and the regulatory environment, necessitating collaboration between stakeholders to maximise the benefits of new digital technologies.

"Opportunities for sourcing renewable electricity vary from country to country. We therefore advise operators to explore which option best suits their needs, be it direct procurement contracts such as a PPA, on-site or near-site renewable options, or tradable certificates. RE100 members are becoming more sophisticated in their approaches to sourcing – for example, there is a growing trend to aggregate demand with other companies in the same region to gain economies of scale, which we welcome as a sign of a maturing market." Sam Kimmins, Head of RE100, The Climate Group

43.   For more detail, see: http://there100.org/

Decreasing value chain emissions

Estimates from the GSMA based on seven operators that disclose scope 1, 2 and 3 emissions, suggest that about 70% of operators' total GHG emissions are categorised as scope 3[44] - approximately two thirds of these on the supply side and a third being downstream emissions. Mobile operators therefore have the potential, and responsibility, to positively influence emissions levels across the value chain.[45] This means working with suppliers and customers to reduce emissions created in the production of goods such as handsets and network equipment, and in the use of products by customers (e.g. from the electricity used when charging mobile devices and other equipment).

BT estimates that scope 3 emissions represent more than 90% of its overall carbon footprint.[46] While this is higher than other operators,[47] it reflects the significant progress BT has made in reducing scope 1 and 2 emissions by improving energy efficiency across its operations and buying 87% of its electricity from renewable sources. It has a target to cut scope 3 emissions in its supply chain by 29% by 2030. To achieve this goal, BT is embedding sustainability criteria in the supplier contract process; facilitating capacity building with suppliers on climate and circular economy principles; benchmarking suppliers, with negotiation of target setting to support improvement; and negotiating discounted renewable energy rates for SME suppliers with its main energy provider.

Figure 6

BT supplier sustainability programme[48]

Stage of supplier programme	Started in 2012, extended in 2017
Targets	87% emissions reduction across operations by 2030 and 29% emissions reductions in the supply chain by 2030 – both from a 2016/17 baseline
Key success drivers	Sharing high-quality expertise and experience with suppliers, encouraging them to share successes
Deployment tools	BT Better Future Supplier Forum[49] training, support and assessment of suppliers
Major barriers	Building renewable energy sourcing expertise for non-UK suppliers

Telia and AT&T are also driving momentum on this front, contributing to lowering GHG emissions through a value-chain approach to climate action. Telia has established a new framework for contracting with suppliers, which will involve including target setting on GHG emission reductions in its supplier selection criteria; requiring that suppliers put in place a goal for reaching zero CO2 for their whole operations; and delivering on that goal by 2030.[50]

AT&T is training sourcing professionals on sustainability in the supply chain, providing the tools necessary to engage its strategic suppliers on sustainable business practices.[51] Through its Supplier Sustainability Scorecard, AT&T is working with its top suppliers on tracking and setting goals for their GHG emissions. AT&T, in collaboration with CDP's Supply Chain programme,[52] annually reaches out to about 500 suppliers to report on emissions. Using industry-accepted methods, it gathers and analyses (and subsequently reports) data on these suppliers' emissions, reduction goals and progress.

44. This calculation is an average based on analysis of public disclosures of seven operators that fully disclose scope 1 and 2 emissions and a majority of scope 3 emissions (AT&T, BT, Deutsche Telekom, KDDI, NTT DoCoMo, Telefónica and Vodafone). The weighting of scope 1, 2 and 3 emissions for mobile operators will vary significantly depending on several factors, including, but not limited to, their regional footprint and the business model employed. For example, those only employing a network provider model will have significantly lower scope 3 emissions in comparison to those supplying devices to customers.
45. There are also other emissions which are less significant in volume such as business travel, employee commuting and treatment and disposal of operational waste.
46. Digital impact and sustainability report 2018/19, BT, 2019. We note that from our analysis other operators report a lower percentage of scope 3 emissions; however, we also note that this may be reflective of how successful certain operators have been to date in reducing scope 1 and 2 emissions, as well as what is included under scope 3 (for example, scope 3 may be a larger proportion of total emissions if more components of the business are outsourced).
47. For example, Telefónica and NTT DoComo scope 3 emissions are 65% and 58% of their total emissions respectively.
48. Going Beyond: A guide to integrating renewable electricity into your supply chain, RE100/The Climate Group/CDP, 2017
49. BT uses its Better Future Supplier Forum (BFSF) to understand suppliers' motivations and supports early movers through this initiative. In the forum, BT shares best practice on environmental issues, performance and improvement. Once a supplier is on board, BT analyses its strengths and weaknesses, identifying opportunities to make a difference. With BT's support, suppliers learn how to capture the savings and quantify the benefits of improvements. https://event.edie.net/supplychain/wp-content/uploads/sites/29/2018/06/edie-Sustainable-Supply-Chains-2018-BT-v1-Tony-Roy.pdf
50. https://www.teliacompany.com/en/sustainability/responsible-business/responsible-sourcing/
51. https://about.att.com/csr/home-2015/issue-brief-builder/environment/engaging-our-supply-chain.html
52. For more detail, see: https://www.cdp.net/en/supply-chain

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4.
Guiding the mobile industry towards net zero by 2050

As part of the mobile industry's efforts to support the delivery of the SDGs, it is making a specific commitment on SDG13: Climate Action. This commitment reflects the urgent need to accelerate action to limit global warming to 1.5°C by 2050.

While many mobile operators have been working on climate action for some time, the GSMA is bringing the industry together to develop a collective approach, creating a long-term climate action roadmap. The mobile industry, with the ICT sector, will be one of the first industries to develop its own sector pathway to net zero GHG emissions by 2050.

As a starting point on this journey, in 2019, a group of mobile operators – which together account for more than two thirds of mobile connections globally – committed to disclosing climate impacts, energy and GHG emissions. The next phase will see the development of a decarbonisation pathway for the mobile industry aligned with the Science Based Targets initiative (SBTi).[53]

This goes hand-in-hand with advancing mobile technology innovations in areas such as big data and IoT that can enable energy-efficient and environmental solutions across multiple sectors, including transport, manufacturing, agriculture, building and energy.

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53.   See: https://sciencebasedtargets.org/

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the GSMA website at www.gsma.com