Summary

For a group of 16 telcos, MTN Consulting has analyzed data on network traffic, energy consumption, carbon emissions, and revenues. This brief examines the relationship between energy consumption and network traffic in the telco market.

The group of 16 telcos included in this analysis represent over 40% of the global market, based on revenues. On a revenue basis, our data verify the well-known revenue-traffic conundrum: in 2022, the average telco carried 1.93 Petabytes of traffic per US$1M in revenue, up 37% from 1.41 PB/$M in 2020. In the 2020-22 timeframe, this group increased network traffic at an average annual rate (CAGR) of 13.8%, while their total energy consumption grew at a CAGR of 1.2%. As such, in 2022 the average telco consumed 64.4 MWh of energy per Petabyte of traffic, down from 81.3 MWh/PB in 2020. This improvement is in line with the stated goal of both telcos and their vendors: to improve the network's energy efficiency over time. The average telco's carbon footprint per unit of traffic also declined in the same period, from 110.8 millions of tons of CO2 equivalent (MTCO2e) per Petabyte in 2020 to 83.3 MTCO2e/PB in 2022.

Telco sustainability reports emphasize the importance of adopting energy efficient technologies and network designs. Vendors consider the energy efficiency of their solutions a crucial differentiator. As telcos attempt to lower energy costs and reduce their carbon footprints, vendors have an opportunity to support further improvements.

Telco network energy efficiency rising 12% per year

Overview of the dataset

This brief examines energy, emissions, and traffic data for a group of 16 telcos. The companies are not selected randomly. They were selected based on the availability of traffic data, as filed with the Sustainability Accounting Standards Board (SASB). Not all telcos publish SASB reports, and not all of the publishers include the traffic data stipulated by the SASB reporting format. For instance, Canada's BCE – not included in our analysis – publishes data in the SASB format but excludes traffic stats, saying traffic data is "competitively sensitive." Fortunately, many of the largest telcos do have a few years of reliable traffic data in the SASB format. We have created a sample of 16 telcos which have published such data.

The sample includes telcos from every region of the world: America Movil, AT&T, Axiata, BT, Charter Communications, Comcast, Deutsche Telekom, KT, PLDT, Singtel, SK Telecom, STC, Telefonica, Telenor, Verizon, Vodafone. In total, these 16 telcos account for between 42-44% of the global market, based on 2020-22 revenues. Table 1 provides summary stats for the group of 16 telco sample.