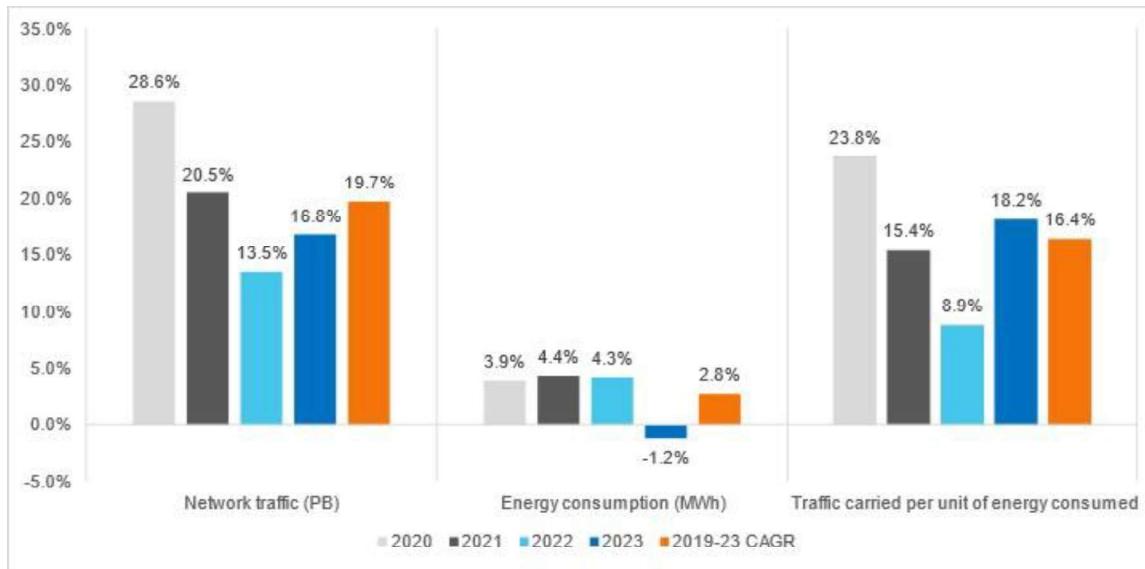


Figure 2: Growth rates of traffic, energy, and traffic per unit of energy consumed, 2020-23*

Sources: MTN Consulting; company filings.

*Traffic data per telco SASB filings. Traffic expressed in terabytes, i.e. petabytes * 1,000. Total energy consumption is considered, not just electricity.

The biggest jump in network energy efficiency was in 2020, when traffic surged during COVID shutdowns, but energy grew at a relatively slow rate. At least some of this surge can be attributed to telco employees consuming more energy in home offices and on their own personal mobile devices, though, as opposed to an overall reduction in energy consumption. The energy efficiency metric also saw a promising step up in 2023. The 11.11 TB/MWh result for that year was an 18.2% improvement from the prior year. That could be a sign of faster improvements to come, or it could just be a data blip. It is possible that telcos' use of AI tools to optimize energy consumption in the network may be having a concrete impact on energy consumption and traffic. Tools to shut down network resources when underutilized, for example, can make a dent. Shutting down 2G and 3G radio networks can have a sizable impact, as can retiring old copper physical plant. Data for 2024 will not be available for many months, unfortunately.

Two of the most energy efficient telcos in our sample, based on the TB/MWh metric, are Charter and Comcast, both US-based telcos with cable TV origins. Other telcos reporting a relatively high volume of traffic and a low level of energy consumption were all over the map, including: Airtel (India), Rogers (Canada), Tele2 (Sweden), and BT (UK). Telcos with a relatively low level of traffic per unit of energy include Korea's three big telcos, all the way at the bottom: KT, SK Telecom, and LG Uplus. Korea is known for having among the world's most advanced fixed broadband networks, and it was among the first country markets to deploy 5G. For these three telcos to place at the bottom, there is likely a very restrictive definition of traffic in common across the three companies. PLDT, China Mobile, and America Movil also have a relatively low level of traffic per energy consumed.

The most improved telcos, based on 2019-23 growth in TB/MWh, are BT, Entel, Rogers, Tele2, and Veon.