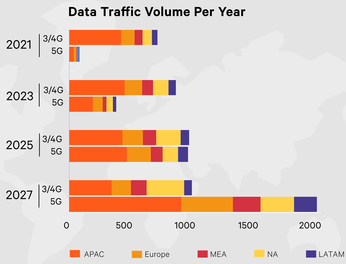
5G The New Network's Success Will Depend on Its Energy Management

Telecommunications and their cellular network technologies have come a long way:
From the first telegraph masts of the 19th century and the dial telephone in the 20th century, through to the omnipresent internet of the 21st, telecommunications have developed rapidly. The next step: 5G. However, it will take effective energy management for the new cellular network to prevail.

Telecommunications Through the Ages

Challenge	New Developments	
Availability, efficiency and preservation of telecommunication resources	**COORDINATION AGE** • **Connects:** people, computers, things, processes, etc. • **Form:** information & insights, automated actions • **Business models:** decentralized B2B2C platforms • **Benefits:** better resource outcomes	2020
General access to telecommunications	**INFORMATION AGE** • **Connects:** people and computers • **Form:** digital infotainment, transactions • **Business models:** freemium, B2B2C platforms • **Benefits:** lower transaction costs	1990
Rapid communication across long distances	**COMMUNICATIONS AGE** • **Connects:** people to each other • **Form:** voice and text communications • **Business models:** subscription, billing per unit • **Benefits:** time saved and overcoming distances	1850

The Rapid Development of 5G Data Traffic



2021 > 100 exabytes
2023 ~ 400 exabytes
2025 ~ 1000 exabytes
2027 ~ 2000 exabytes
By comparison, 3/4G will stagnate at approx. 1000 exabytes

5G: Savior or Energy Hog?

5G can curb excess energy use...

- 90% more energy-efficient per data unit than 4G
- Greater "energy elasticity" means that 5G can be turned down during off-peak periods
- Virtualization means faster, cheaper renewal cycles and better performance
- Greater opportunity for resource sharing
- Decommissioning of 2, 3 and 4G networks

...but challenges remain

- Data traffic will grow due to higher performance and reduced costs for end users
- Up to twice as many cell sites for the same network coverage
- Cloud native infrastructure that requires a data center environment (cooling, UPS)
- Increase in edge data centers including "brownfield" conversions

Save Energy with the Right Implementation

Best practices in design, deployment and management of 5G networks save large amounts of energy:

	Energy Reduction Impact Short-Term	Long-Term
Use energy-efficient hardware and optimized software components, such as AI-enhanced sleep modes	⚡⚡	⚡⚡
Use high-performance electricity, ventilation, and cooling systems, as well as renewable energy resources on-site	⚡⚡⚡	⚡⚡
Use accurate and differentiated data to improve the remote management of telecom sites	⚡⚡	⚡⚡
Prioritize efficiency over short-term CapEx by taking a holistic approach across the entire company	⚡	⚡⚡
Participate in the energy ecosystem as a prosumer and develop innovative business models with energy suppliers	⚡⚡	⚡⚡⚡

⚡ 5-10% ⚡⚡ 10-15% ⚡⚡⚡ 15-30% ⚡⚡⚡⚡ 30% +

Find out more at Vertiv.com/5G

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All findings are taken from the "Why Energy Management Is Critical To 5G Success" report by STL Partners and Vertiv. This document uses research results, including a survey of 500 companies worldwide, to outline the challenges facing telecoms companies given increased energy consumption and costs associated with 5G.