# 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 19<sup>th</sup> century and the dial telephone in the 20<sup>th</sup> century, through to the omnipresent internet of the 21<sup>st</sup>, 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

Availability, efficiency and preservation of telecommunication resources

**General access to** telecommunications

**Rapid communication** 

across long distances

### **New Developments**

#### COORDINATION AGE

- Connects: people, computers, things, processes, etc.
- Form: information & insights, automated actions
- Business models: decentralised B2B2C platforms
- Benefits: better resource outcomes

### **INFORMATION AGE**

- Connects: people and computers
- Form: digital infotainment, transactions
- Business models: freemium, B2B2C platforms
- Benefits: lower transaction costs

### COMMUNICATIONS AGE

- Connects: people to each other
- Form: voice and text communications
- Business models: subscription, billing per unit
- Benefits: time saved and overcoming distances

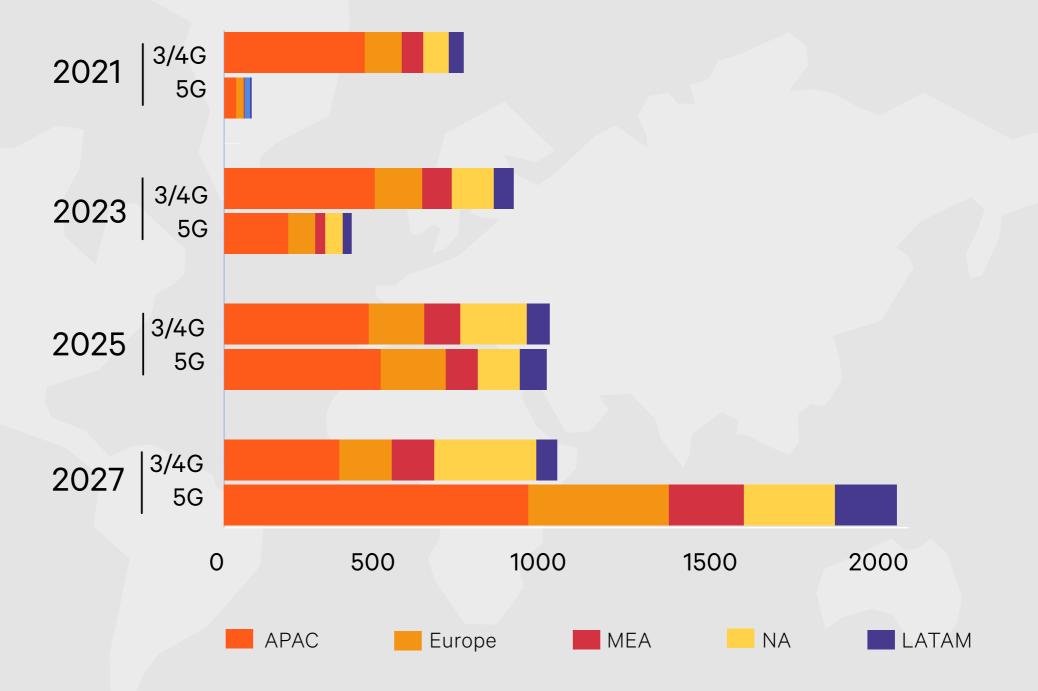
2020

## 1990

1850

# The Rapid Development

## of 5G Data Traffic



### **Data Traffic Volume Per Year**

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

## **5G: Saviour or Energy Hog?**

### 5G can curb excess energy use...

...but challenges remain

90% more energy-efficient per data unit than 4G

Greater "energy elasticity" means that 5G can be turned down during off-peak periods

Virtualisation means faster, cheaper renewal cycles and better performance

> Greater opportunity for resource sharing

Decommissioning of 2, 3 and 4G networks 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 centre environment (cooling, UPS)

Increase in edge data centres including "brownfield" conversions

## Save Energy with the Right

## Implementation

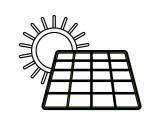
Best practices in design, deployment and management of 5G networks save large amounts of energy:

**Energy Reduction Impact** Short-Term Long-Term



Use energy-efficient hardware and optimised 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

Prioritise 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%







### Find out more at Vertiv.com/5G-EMEA



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.

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