



Driving down energy usage across telecoms networks: 5G RAN and beyond



Rupert Wood and Caroline Gabriel

About this report

This report is about energy consumption and cost across mobile and fixed networks and provides practical measures for bringing it down. It also outlines best- and worst-case scenarios for usage and cost.

The report provides recommendations for operators and policy makers.

It is based on several sources:

- Analysys Mason's internal research
- a review of the relevant literature.



KEY QUESTIONS ANSWERED IN THIS REPORT

- How much energy is consumed by operators and by the whole value chain (from data centres to consumers)?
- What are the long-term trends in energy usage in telecoms networks?
- What technological and commercial levers can operators pull to reduce their energy usage and lower their energy costs?
- What should policy makers consider if they want to define green networks?



GEOGRAPHICAL COVERAGE

- Worldwide, but with a specific focus on countries in which 5G networks have been deployed.



WHO SHOULD READ THIS REPORT

- Networks teams
- Investor relations and analyst relations departments
- Government policy makers
- Regulators



Executive summary

Research overview





Measuring energy usage and efficiency

5G: problems and solutions





Beyond 5G: what else could be achieved?

About the authors and Analysys Mason

Our research programmes

- 
Consumer Services programmes
 - Fixed Broadband Services
 - Mobile Services
 - Fixed-Mobile Convergence
 - Smart Devices
 - Future Comms
 - Video, Gaming and Entertainment
 - Digital Services
- 
Networks programmes
 - Next-Generation Wireless Networks
 - Wireless Infrastructure Strategies
 - Fibre Infrastructure Strategies
 - Operator Investment Strategies
 - Telecoms Strategy and Forecast
- 
Applications programmes
 - Network Automation and Orchestration
 - Customer Engagement
 - Monetisation Platforms
 - Digital Experience
 - Automated Assurance
 - Service Design and Orchestration
 - Telecoms Software Market Shares
- 
Cloud programmes
 - Cloud Infrastructure Strategies
 - Data, AI and Development Platforms
 - Edge and Media Platforms



- 
Operator Business Services and IoT programmes
 - Enterprise Services
 - SME Services
 - IoT Services
 - Private Networks
- 
SMB IT Channels and Forecasts programmes
 - Cyber Security
- 
Regional Markets programmes
 - Global Telecoms Data and Financial KPIs
 - Americas
 - Asia-Pacific
 - Middle East and Africa
 - European Core Forecasts
 - European Telecoms Market Matrix
 - European Country Reports
- 
DataHub
 - ~2800 forecast and 280+ historical metrics
 - Regional results and worldwide totals
 - Operator historical data

analysismason.com/what-we-do/practices/research

PUBLISHED BY ANALYSYS MASON LIMITED IN **AUGUST 2022**

Analysys Mason Limited. Registered in England and Wales with company number 05177472. Registered office: North West Wing Bush House, Aldwych, London, England, WC2B 4PJ.

We have used reasonable care and skill to prepare this publication and are not responsible for any errors or omissions, or for the results obtained from the use of this publication. The opinions expressed are those of the authors only. All information is provided “as is”, with no guarantee of completeness or accuracy, and without warranty of any kind, express or implied, including, but not limited to warranties of performance, merchantability and fitness for a particular purpose. In no event will we be liable to you or any third party for any decision made or action taken in reliance on the information, including but not limited to investment decisions, or for any loss (including consequential, special or similar losses), even if advised of the possibility of such losses.

We reserve the rights to all intellectual property in this publication. This publication, or any part of it, may not be reproduced, redistributed or republished without our prior written consent, nor may any reference be made to Analysys Mason in a regulatory statement or prospectus on the basis of this publication without our prior written consent.

© Analysys Mason Limited and/or its group companies 2022.