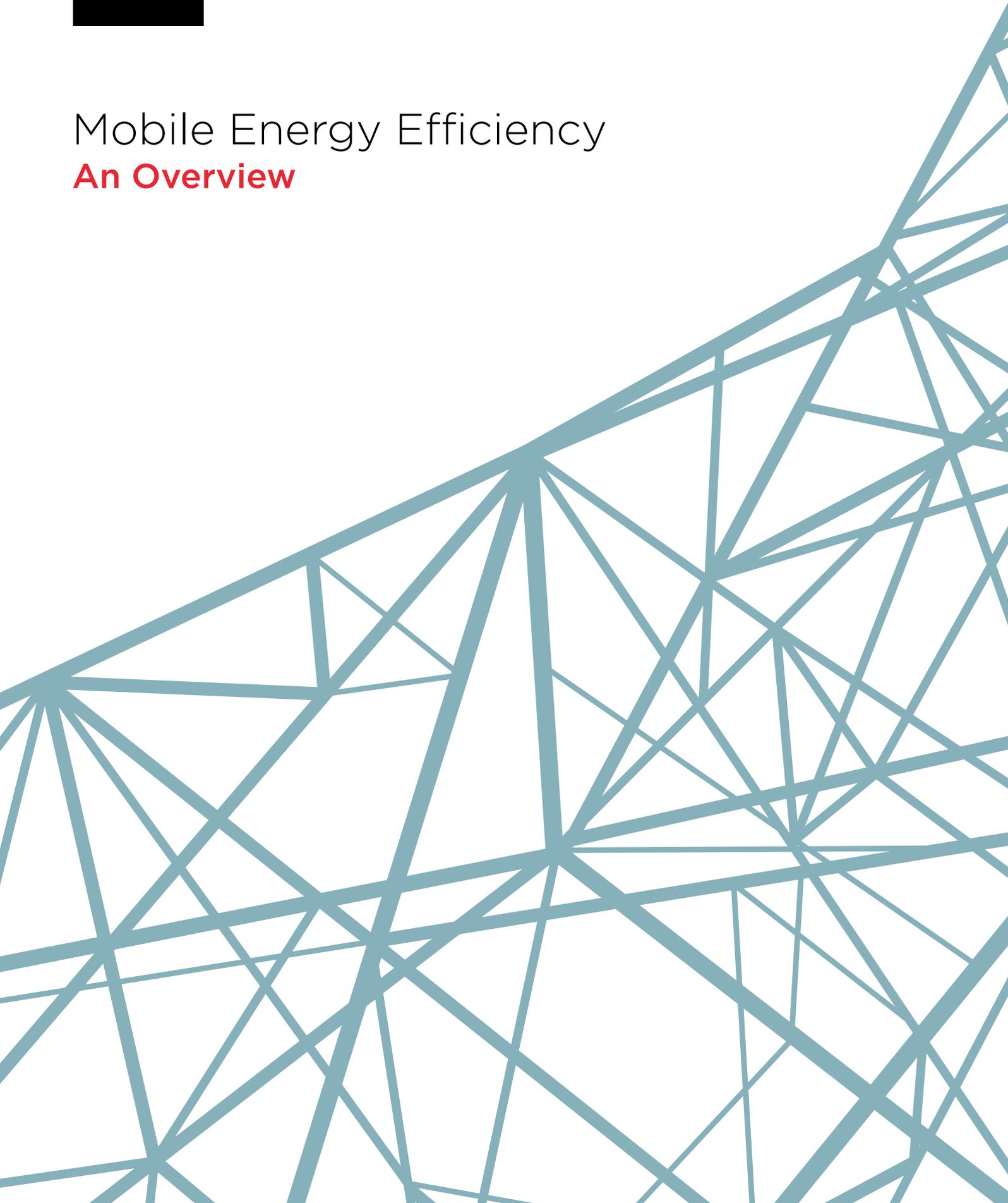




Mobile Energy Efficiency

An Overview



Mobile network operators (MNOs) spend approximately US\$15 billion on their annual energy use. Therefore, it is no surprise that energy efficiency is becoming a strategic priority for them globally. As mobile use continues to grow, so does the demand for energy, particularly by the network infrastructure.

To help MNOs reduce their energy costs and greenhouse gas emissions, the GSMA runs two key Mobile Energy Efficiency (MEE) services:

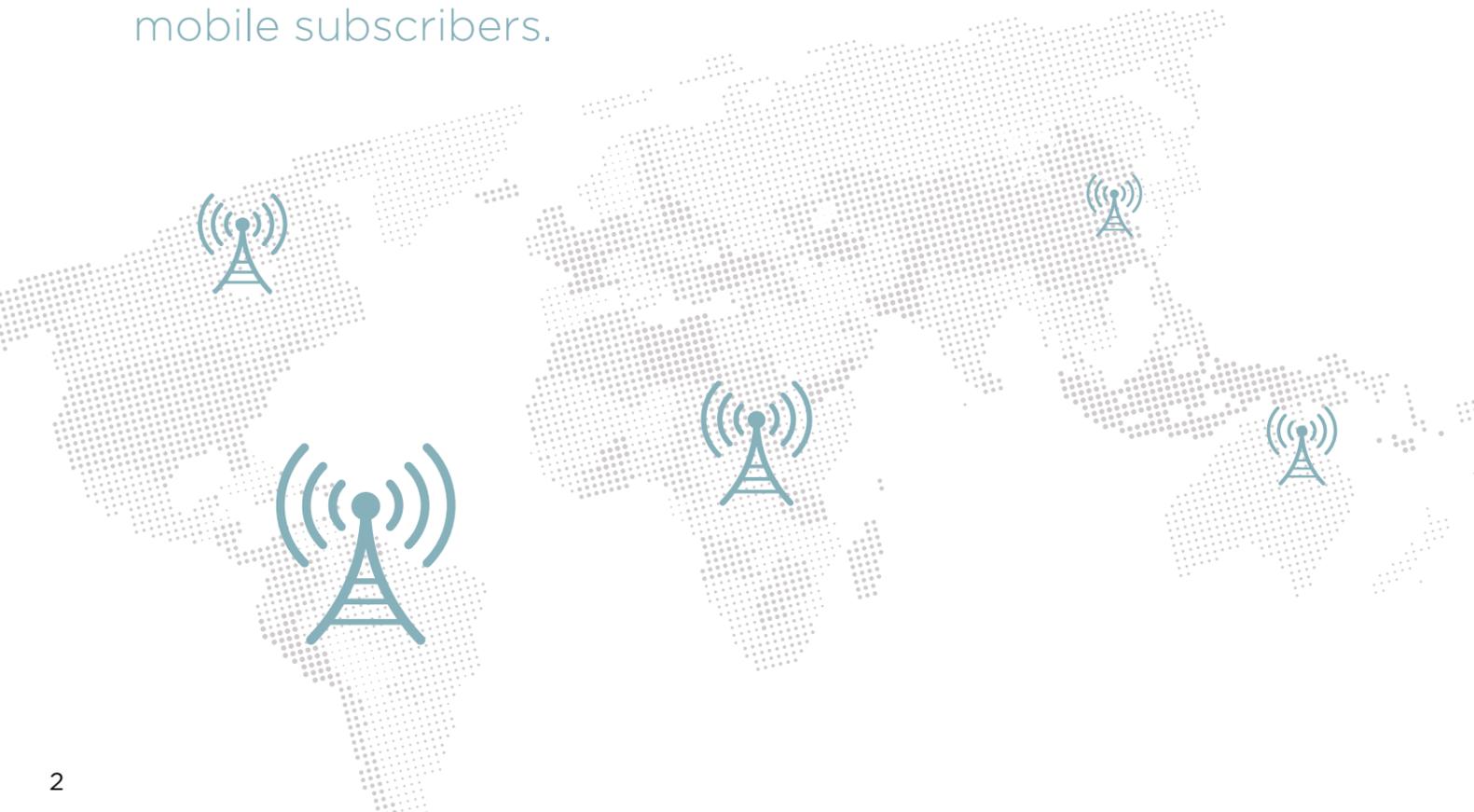




MEE Benchmarking

Introduced in 2010, the MEE Benchmarking service measures the relative efficiency of an MNO's radio access network. It identifies under-performing networks and quantifies any potential efficiency gains, which are typically around 10-25 per cent across a portfolio.

To date 40 MNOs have participated in the service, including Vodafone, Telefónica, Deutsche Telekom, América Móvil, VimpelCom and Airtel, accounting for over 200 networks in 160 countries and more than half of global mobile subscribers.



The six key MEE Benchmarking benefits for operators are:

- 1) A detailed analysis of the operator's relative network performance against a large dataset, compared anonymously to maintain confidentiality. This is done by comparing networks against four main performance indicators:

Energy consumption:

- I) per mobile connection
- II) per unit of mobile traffic
- III) per cell site
- IV) per unit of mobile revenue.

- 2) A unique 'normalisation' approach which enables a like-for-like comparison using multi-variable regression techniques.
- 3) Annual participation to track improvements over time and quantify the success of cost reduction initiatives.
- 4) Insights to improve energy efficiency, including access to case studies from top performing networks.
- 5) The option to participate in MEE Optimisation, which implements energy reduction projects.
- 6) Demonstration of positive action on energy and emissions reduction to stakeholders.

The GSMA is currently collaborating with the European Telecommunications Standards Institute to help develop its technical standards on energy efficiency measurement. The GSMA has also worked extensively with the European Commission and the International Telecommunication Union on standardisation, including methodologies to assess environmental impact.



MEE Optimisation

MEE Optimisation commenced in 2011 and is a complementary service to MEE Benchmarking. The service undertakes site audits and equipment trials, analyses the costs and benefits of specific actions to reduce energy and emissions, and then rolls out the most attractive solutions. Examples of these measures include:

- upgrading to high efficiency rectifiers
- implementing free air cooling in cell sites
- installing energy saving software features
- installing smart meters
- reducing diesel consumption (e.g. using generator-battery hybrids)

The projects are run in partnership with third party providers, and the GSMA has a Technology Partner Group comprising Ericsson, Purcell Systems and Enertika to deliver the service globally.

The latest MEE Optimisation project was completed in 2014 with Warid Pakistan. The project identified annual savings of US\$6.2 million in energy costs and 19,700 tonnes of carbon dioxide, with 14-18 month financial paybacks.

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For further information, please visit www.gsma.com/mee or contact:
Mark Anderson andersonm@gsma.com

GSMA Head Office
Second Floor, The Walbrook Building, 25 Walbrook
London, EC4N 8AF, United Kingdom
Tel: +44 (0)207 356 0600

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