

Do 5G base stations consume a lot of electricity

Source: <https://www.halkidiki-sarti.eu/Sun-02-Nov-2025-34832.html>

Title: Do 5G base stations consume a lot of electricity

Generated on: 2026-02-25 22:16:15

Copyright (C) 2026 HALKIDIKI BESS. All rights reserved.

"A 5G base station is generally expected to consume roughly three times as much power as a 4G base station. And more 5G base stations are needed to cover the same area," -IEEE ...

In a regular cellular network, the BSs consume more than half of the total energy, therefore their increased numbers have a significant influence on the overall energy consumption.

The model shows that there is significant energy consumption in the base station even at the times when there is no output power i.e. when the base station is in an idle state.

One 5G base station is estimated to consume about as much power as 73 households (6), and 3x as much as the previous generation of base stations (5), (7). When base stations, data centers ...

For Dorina Dragomir and Cristina Gheorghe, as stated in their research entitled "Energy efficiency for 5G mobile communications"¹⁸, 5G energy efficiency could be increased through:

5G base stations use high power consumption and high RF signals, which require more signal processing for digital and electromechanical units, and also put greater pressure ...

This paper presents an exhaustive review of power-saving research conducted for 5G and beyond 5G networks in recent years, elucidating the advantages, disadvantages, and ...

Although base stations (BSs) are inherently energy-intensive, their energy consumption can be optimized by dynamically disabling certain hardware components based on traffic load. ...

Website: <https://www.halkidiki-sarti.eu>

