

Going Green While Reducing a \$1B Expense

\$1 billion annually — that's the average amount Tier 1 service providers in the US spend on their electricity bills. It represents approximately 4 to 8% of their operating expenses (OpEx) and a line item they want to reduce.

The Need for Energy Efficiency

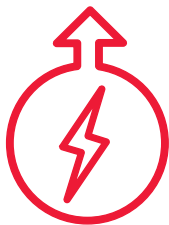
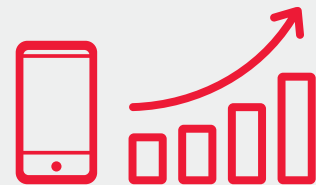


Growing Energy Costs

Electricity costs **have doubled since 2020**, increasing OpEx costs for operators. OpEx costs for energy has increased by 2%.

Mobile Traffic Growth

Mobile traffic grew by a factor of 300 in the last decade and **will grow at an annual rate of around 54% through 2030**. It's imperative to find ways to limit networks' power usage for sustainable growth.

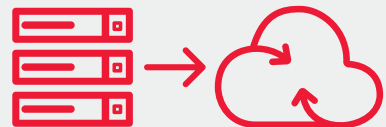


Layered Technologies

5G is much more energy-efficient than 4G per 1GB of data. But you still need to support the frequency bands used in 4G. The network's **absolute power consumption will increase by around 68%**.

Virtualization

Radio access networks (RAN) are becoming virtualized. Base stations are starting to be run on servers. It remains unclear if the tradeoff between highly optimized hardware and 100% resource optimization will end up being more efficient.

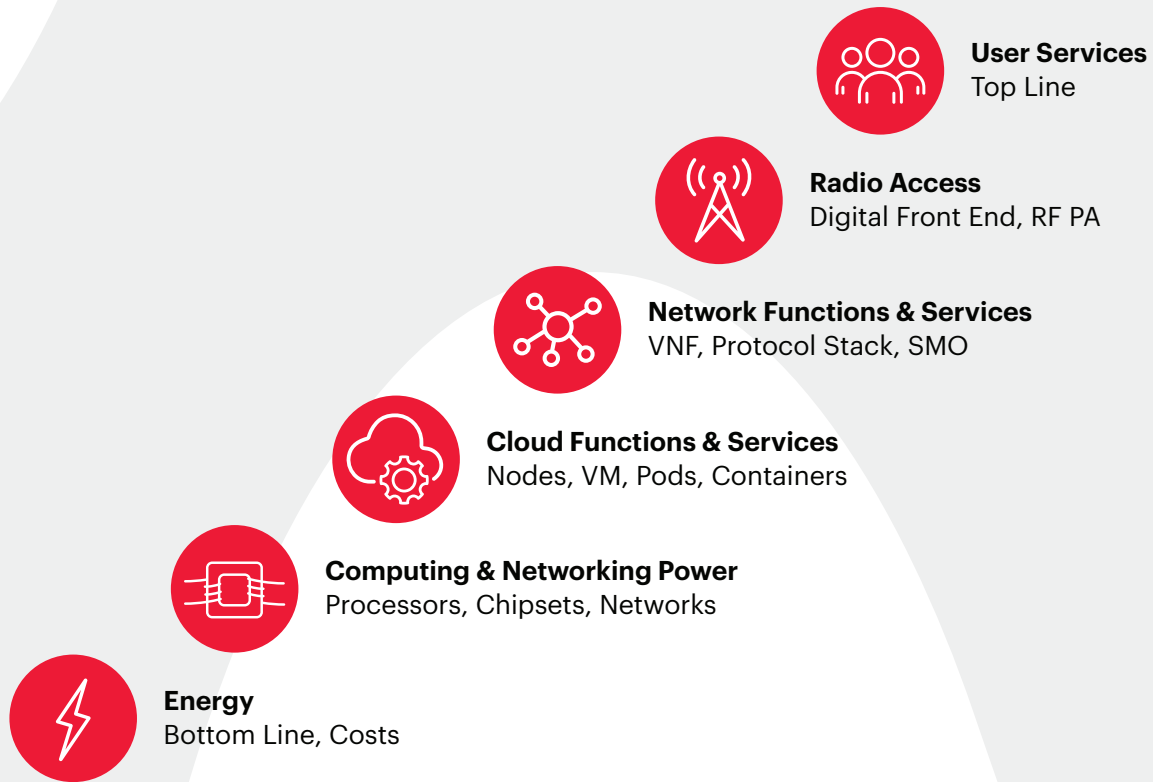


Network Disaggregation

An Open RAN topology makes it possible to distribute all functions across a network, but each component might come from different vendors. Work across all vendors to reduce the power consumption on the entire system.

How to Drive Efficiency Across the Energy-to-Services Value Chain

Energy flows through the wireless infrastructure from pure energy at the bottom of the chain, to user services at the top. From electrical energy to computing energy to providing cloud and network services to the radio using that same energy to reach the end user. Operators are concerned with how much energy is consumed at each element and where they can adjust while still delivering the top line services.



Understand the Energy Efficiency of Radio Units in Next-Generation Open Radio Access Networks

See how Analog Devices and Keysight are collaborating to deliver cutting-edge technology and tools that accelerate the transition to green and sustainable wireless communications.

▶ **start here**

New energy efficiency metrics and test methodologies that recognize the significance of measurement in optimization are in development.