

CASE STUDY

MobiFone reduces
radio network energy
consumption by close to
14% with Digital Design

- First operator in the world to leverage Nokia's new Digital Design service for improving energy efficiency
- Close to 14 percent overall energy savings achieved in the 4G pilot cluster by implementing power reductions in 88 percent of radio cells
- Enhanced throughput at cell edge with no compromise on other key KPIs

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“At MobiFone, we want to be at the forefront of deploying innovative, more energy-efficient technologies and solutions to support Vietnam’s shift to a green economy.

Nokia’s Digital Design service helped us lower the radio network energy consumption in our pilot cluster by almost 14 percent. Nokia also helped us ensure that the optimizations had no negative impact on our key KPIs.

With this innovative and fast approach to reducing energy consumption of existing radio cells, there was no need for additional investments. The initial results are very promising, and we are planning to expand the scope of this project together with Nokia to save more energy costs.”

Mr. Vu Tuan Trung

Deputy Manager of Technology Department,
MobiFone



In Vietnam, MobiFone gave Nokia the challenge to develop a solution that would help them reduce energy consumption, related carbon emissions and cost of energy while at the same time maintaining a high network performance. To tackle the challenge, Nokia developed a complete solution of digital tools and services.

Nokia is a key 3G and 4G Radio Access Network (RAN) provider for MobiFone, with over 53 percent share in 4G including the major cities of Hanoi, Danang and Ho Chi Minh City.

MobiFone builds digital infrastructure and ecosystem for its customers, partners and the society in line with its vision, “Creating the digital future”.

The operator helps enterprises and organizations to realize the full potential of their digital transformation, contributing to Vietnam’s transition to a digitally competitive country.

This case study illustrates how Nokia helped MobiFone tackle the raising energy consumption and energy costs by implementing energy efficiency improvements with help of the new Digital Design service.



OBJECTIVE

Reducing energy consumption with no degradation in network performance

MobiFone is running multiple generations of radio networks from 2G to 4G in Vietnam. The increasing energy costs make it important for the operator to find innovative ways for improving the energy efficiency of its networks while offering best-in-class subscriber experience.

Typically, operators design their entire network with the same power setting on all cells of a network layer, spectrum band or carrier. With this approach, many radio cells end up using more transmit power than needed.

MobiFone set its target to:

- Adjust power settings on radio cell level
- Reduce energy consumption, related carbon emissions and cost of energy
- Maintain high network performance.

Nokia recommended leveraging its innovative Digital Design service to identify opportunities for energy savings and optimize the power settings in MobiFone's radio network.

SOLUTION AND RESULTS

Optimized power settings and performance with Nokia Digital Design

To address MobiFone's target for reducing energy consumption in its radio network, Nokia applied the Digital Design service, performed on the Nokia Design Engine as part of the Nokia analytics tool ecosystem.

Nokia Digital Design is a service that helps improve energy efficiency by tackling network power settings on top of the in-built energy-saving features in RAN.

In a typical radio network, the downlink transmit power is often higher than necessary. Nokia helped MobiFone move from the usual network-wide or cluster-wide power settings to cell-level settings:

- Cell specific parameter settings for pMax (transmit power)
- Cell selection, reselection and mobility measurement thresholds.

This approach considers each individual cell in the network with respect to interference, load, and beam-set configuration, and finds an optimal radio link power balance with overall lower transmit power.

Any potential performance impact detected during the testing phase is compensated by 3D electrical tilt and beam-set re-adjustment, which means that energy savings are achieved without compromise on subscriber experience.

With Nokia's help, MobiFone implemented power reduction in 88 percent of the radio cells in the 4G pilot cluster, achieving on average almost 14 percent reduction in energy consumption across all these cells. The energy savings did not cause degradation in key KPIs such as traffic volume, downlink and uplink throughput as well as channel quality. In fact, data from the network shows an enhancement in throughput at the cell edge after the energy efficiency optimizations.

Average reduction in energy consumption

~14%

Cells with implemented power reductions

88%

Digital Design helps reduce energy consumption and costs

MobiFone was the first operator in the world to adopt the Nokia Digital Design service for improving radio access network energy efficiency, which we described in this case study.

The radio access network (RAN) typically accounts for about 80 percent of all mobile network energy consumption, making the RAN the most logical target for energy efficiency measures.

In-built RAN software functions can tackle the power consumption during low traffic hours, for example, by reducing capacity layers in a cell. With Digital Design, operators can in addition address the peak hour power consumption and achieve overall energy savings.

Nokia's digital analytics tool ecosystems is available today for operators across the world to improve the energy efficiency of all radio access technologies from 2G to 5G.



Visit Nokia Network Planning and Optimization webpage to learn more.

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At Nokia, we create technology that helps the world act together.

As a B2B technology innovation leader, we are pioneering the future where networks meet cloud to realize the full potential of digital in every industry.

Through networks that sense, think and act, we work with our customers and partners to create the digital services and applications of the future.

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