CASE STUDY

XL Axiata achieves close to 10 percent energy savings with Nokia's Digital Design

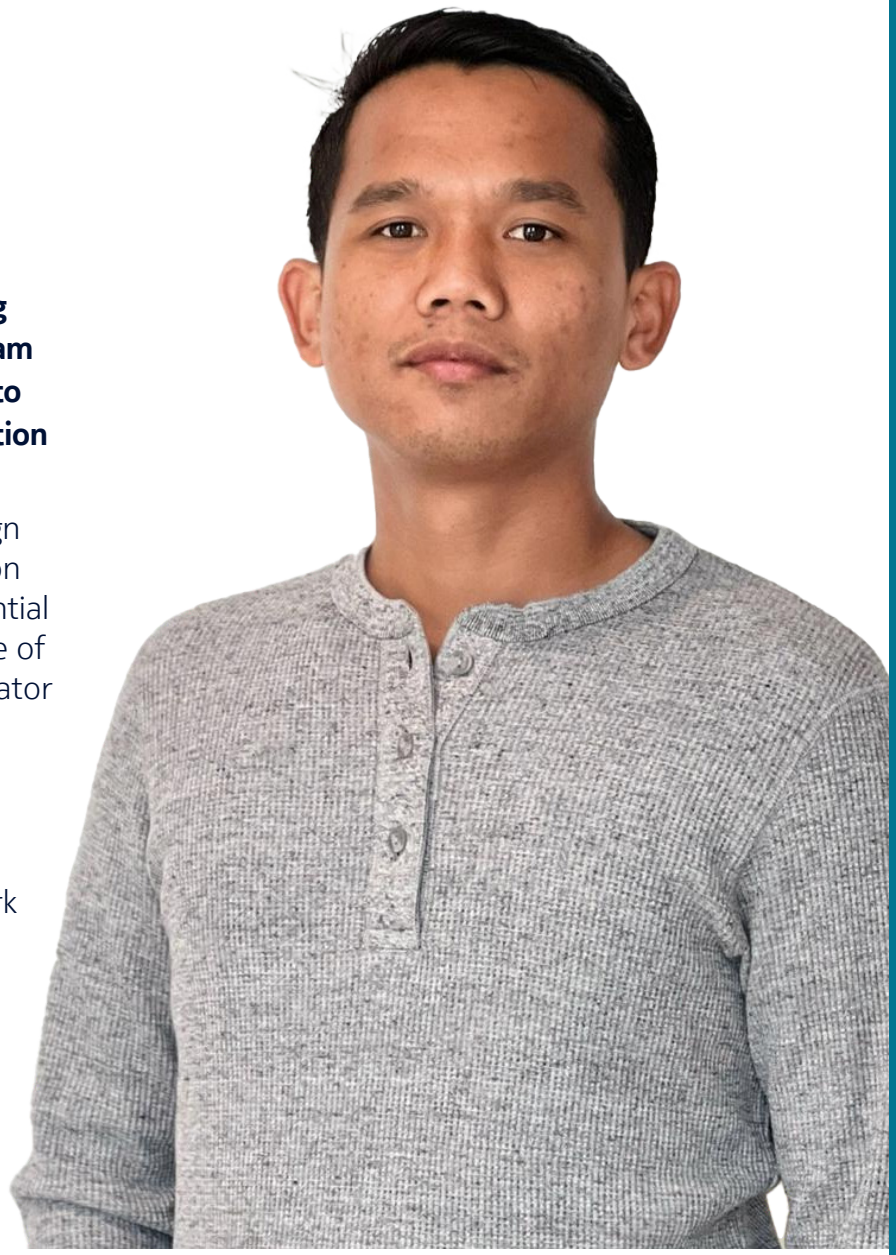
- Close to 10 percent overall energy savings achieved in the 4G network
- No compromise on network performance
- Network coverage maintained across all cells

“One of the core values of us at XL Axiata is the passion for collaboration. I’m very pleased with the close working relationship with the Nokia team during this important project to fine-tune the power consumption in our radio network.

Nokia’s innovative Digital Design service is an impressive solution that helped us achieve substantial energy savings, addressing one of the key challenges of any operator in the world.

XL Axiata is at the forefront of enabling Indonesia’s digital transformation. With this new approach to optimizing network energy savings, we can also contribute to the nation’s sustainability goals.”

Jhon Paber Ompusunggu
Head Strategic Operation and Automation, XL Axiata



XL Axiata is a leading telecom company in Indonesia, providing convergence services to enhance people’s daily lives and boost the digital economy. Its purpose is to bring the world closer in a simple way for a brighter life.

In 2015, XL Axiata introduced a nationwide 4G network and expanded to 5G in Q3 2021. It also runs a 2G network across the country. The operator has close to 60 million mobile subscribers.

Nokia is a 4G and 5G Radio Access Network (RAN) provider for XL Axiata.

This case study illustrates how Nokia’s Digital Design service was a game changer for XL Axiata in reducing the energy consumption and related costs in its 4G network.

As result Nokia has been recognised as the most valuable partner in this project.

OBJECTIVE

Reducing network energy consumption and related costs

Mobile subscribers in Indonesia have come to expect a superior user experience, which drives XL Axiata's investments in 4G and 5G.

At the same time, global developments are impacting energy prices, which are a substantial part of a network's operational costs.

It has been essential for XL Axiata to find new measures for enhancing network energy efficiency and reducing related costs.

In a typical radio network, many cells end up using more transmit power than needed because operators use the same power setting on all cells of a network layer, spectrum band or carrier.

Nokia recommended tackling the power consumption with the new Digital Design approach for enhancing energy efficiency.

XL Axiata worked in close collaboration with Nokia to achieve the following objectives:

- Reduce the overall energy consumption of the 4G network and related carbon emissions
- Achieve OPEX savings
- Maintain high network performance and cell coverage

SOLUTION

Optimized power settings and performance with Nokia Digital Design

Together with XL Axiata, Nokia's network planning and optimization services team established a project to reduce energy consumption and related costs in the operator's 4G network with the Digital Design approach.

Nokia Digital Design is a service that tackles network power settings on a detailed level. It is performed on the Nokia Design Engine as part of the Nokia analytics tool ecosystem.

With this approach, energy savings are achieved on top of the in-built energy-saving hardware and software features in Nokia RAN equipment.

Nokia Digital Design meticulously analyzes each individual cell in the network to determine parameters such as interference, load, beam-set configuration and inter-site distance. After the advanced analysis, it finds an optimal radio link power balance on a cell level that helps reduce transmit power and related energy consumption.

In the testing phase, any potential performance impact is detected and compensated by 3D electrical tilt and beam-set re-adjustment, which means that the new power settings will not compromise the customer-defined network performance level.

With Digital Design, Nokia helped XL Axiata plan and implement the transmit power settings on a cell level instead of the usual network-wide or cluster-wide settings.

RESULTS

Substantial energy savings across 4G radio cells

With Nokia Digital Design, XL Axiata was able to accurately identify the 4G radio cells in which the downlink transmit power was higher than necessary.

As a result, XL Axiata implemented new transmit power settings, which helped reduce energy consumption across the cells covered in this project.

On average, the energy savings were close to 10 percent.

As energy costs are a big part of the network's total operational expenses, the reduction in energy consumption translates directly into substantial cost savings for the operator.

Energy savings also help reduce carbon emissions of society and contribute to reaching XL Axiata's and Indonesia's sustainability goals.

The Digital Design approach also ensured optimized network performance and coverage, which was essential for maintaining a superior 4G user experience for XL Axiata's subscribers.

Average reduction in energy consumption

10%

Digital Design helps reduce energy consumption and costs

The radio access network accounts for approximately 75 percent of the energy used in an operator's network. This means that RAN energy efficiency measures have a big impact on overall energy savings and related carbon emissions.

Nokia's RAN equipment is designed to be highly energy efficient with both hardware and software-based energy-saving capabilities.

In-built RAN software features can tackle power consumption in response to variations in traffic load, for example, by muting resources with deep sleep and extreme deep sleep modes. These features have the greatest potential to reduce energy consumption during low-traffic hours.

With Nokia's Digital Design, operators can also address peak-hour power consumption on the radio cell level and achieve additional energy savings.

The approach is fast and enables an immediate reduction in energy consumption and related costs since it has no hardware impact and does not require large-scale deployments, network modernization or architecture re-design.

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

Visit Nokia Network Planning and Optimization webpage to learn more.

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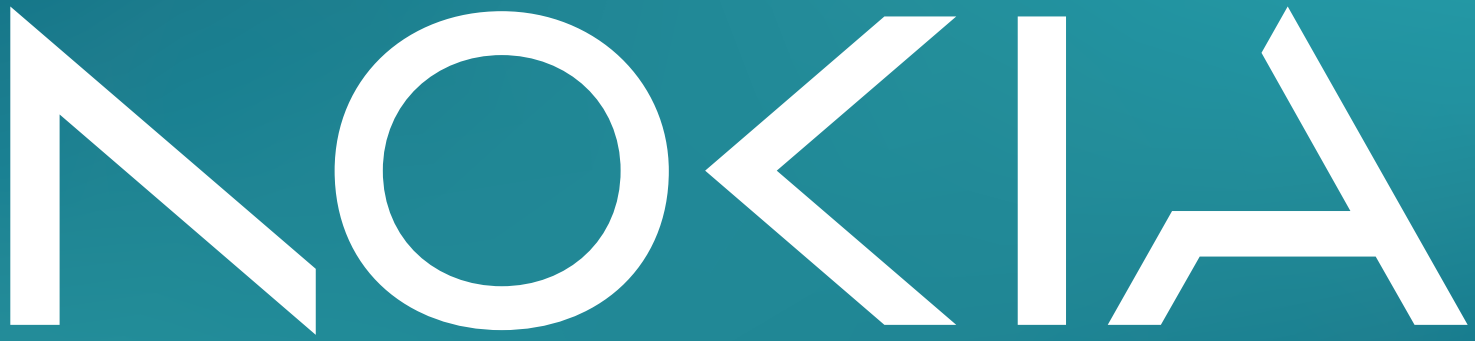

At Nokia, we create technology that helps the world act together.

As a B2B technology innovation leader, we are pioneering networks that sense, think and act by leveraging our work across mobile, fixed and cloud networks. In addition, we create value with intellectual property and long-term research, led by the award-winning Nokia Bell Labs.

With truly open architectures that seamlessly integrate into any ecosystem, our high-performance networks create new opportunities for monetization and scale. Service providers, enterprises and partners worldwide trust Nokia to deliver secure, reliable and sustainable networks today – and work with us to create the digital services and applications of the future.