

Success story:

Building a greener network

A 360-degree view of a sustainable mobile service



ERICSSON

In partnership with



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Lower emissions, higher performance

To help achieve its vision of a totally sustainable network, Indosat Ooredoo has partnered with Ericsson to reduce the energy consumption of its mobile services without impacting performance.

Preparing the network with spectrum migration and modernization

Indosat Ooredoo's collaboration with Ericsson has demonstrated that preparing the network, activating energy-saving software features and operating site infrastructure intelligently are all key to reducing energy consumption while supporting mobile traffic growth.

The first, and arguably most important, step towards a more sustainable network is aggressive LTE spectrum migration and Ericsson Radio System modernization. When measuring energy savings per GB, this makes the most significant impact on overall consumption. Usage can then be further decreased by taking advantage of the many energy-saving features available for all Radio Access Network (RAN) technologies.

Indosat Ooredoo has already demonstrated that it is possible to break the energy curve – reducing emissions while increasing data traffic. By the end of its migration to LTE earlier this year, the Indonesian telecoms company had achieved the highest spectral efficiency in all of Jakarta and was producing more traffic on fewer sites than its competitors.

In 2017, five years into the migration process, Indosat Ooredoo began rolling out the Ericsson Radio System. This modernization involves upgrading hardware, software and related services to build a modular RAN. Maintained by a common management system, these networks are designed to fit every site type and traffic scenario – even when sites grow in size and complexity.

All Indosat Ooredoo's investments over the past four years have been into Ericsson Radio System modernization, including 4X4 upgrades on legacy sites. More than 70 percent of their high-band radios are now Ericsson Radio System- and 5G-ready in Greater Jakarta, as are nearly 100 percent of base-band radios. These improvements have led to a 20–30 percent energy saving when compared to the previous RBS 6000 series.

Activating energy-saving software

When networks seek to reduce consumption, operators are often understandably concerned that the customer experience will suffer.

About the customer

- Indosat Ooredoo is one of Indonesia's leading telecoms companies, having served over 60 million customers.
- In 2021, Indosat Ooredoo launched its commercial 5G service in cities such as Jakarta, Surabaya, Makassar and Solo.
- Ericsson announced a strategic five-year partnership with the Ooredoo Group at the start of 2021.

Figure 2 shows that Ericsson and Indosat Ooredoo were able to increase efficiency without substantial impact on KPIs during the trial in 2018. By activating several energy-saving features, including Micro Sleep Tx, Low Energy Scheduler Solution (LESS) and MIMO Sleep Mode, Indosat Ooredoo saw energy savings of 8 percent on average. With continuous enhancement of various energy-saving programs, as of 2021, up to 3 percent savings are achieved on a nation-wide network.

Figure 1: The elements and benefits of breaking the energy curve

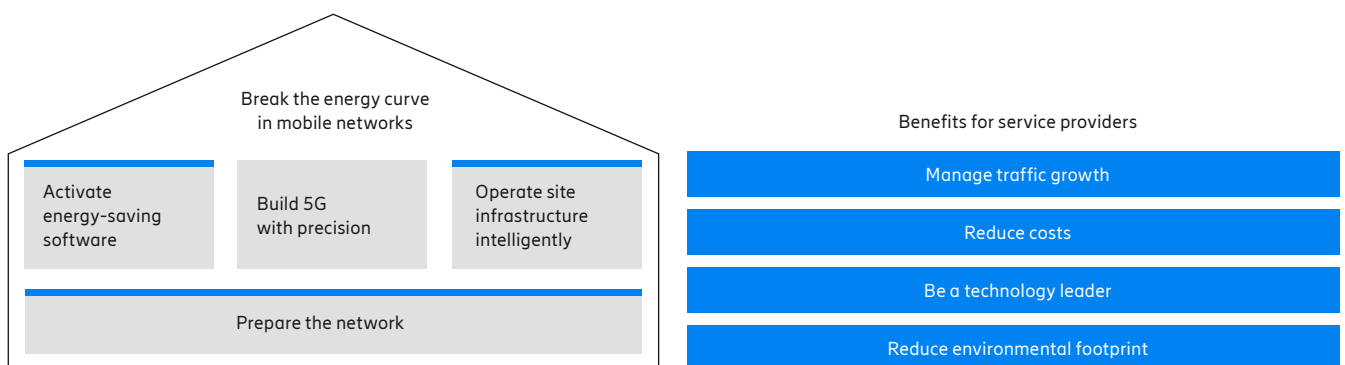


Figure 2: Power consumption with energy-saving features activated

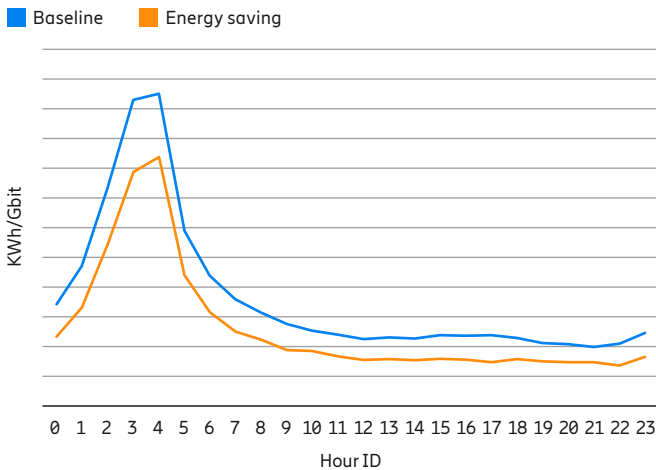
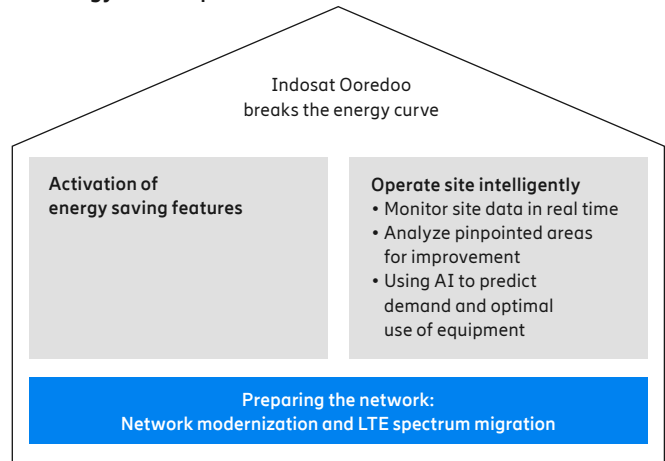


Figure 3: How Indosat Ooredoo reduced its energy consumption



Operating site infrastructure intelligently

In another decisive step towards a more sustainable future, Indosat Ooredoo has embraced Ericsson’s Energy Infrastructure Operations (EIO). EIO is an AI-powered, data-driven operations solution, which focuses on managing all energy related assets efficiently through digitalization of sites with intelligent site measurements, offering AI-powered automation and control. Using AI and data analytics, EIO creates energy efficiencies through predictive infrastructure operations and Cell/Site Energy Management. EIO not only addresses site-related energy savings, but also improves operational efficiencies. Ultimately, it enables service providers to reduce both opex and emissions simultaneously.

Indosat Ooredoo’s EIO journey can be broken down into roughly four key steps. In the first, sensors were deployed to monitor

site infrastructure in real time, identifying energy leaks and benchmarking energy consumption to identify anomalies. Next, data analysis pinpointed the areas where they could make immediate improvements, including automated configuration changes in passive infrastructure to ensure power savings and implementation of appropriate temperature settings for the air.

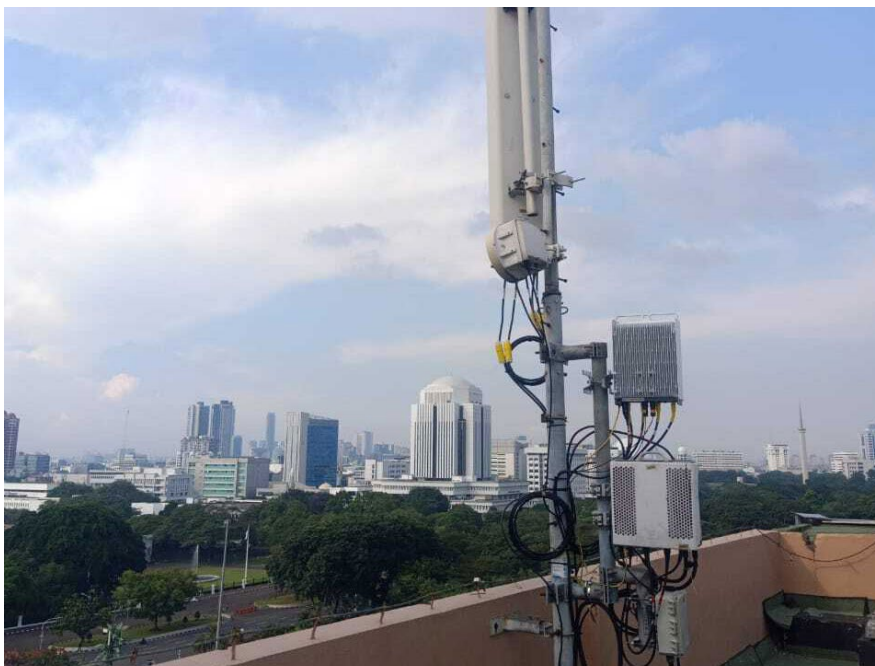
In the third and fourth steps, EIO’s AI and automation tool suite is deployed to enable real-time savings with closed loop automation. Through AI-powered Cell/Site Energy Management, Ericsson enabled a prediction algorithm to identify which RAN cells can be put to sleep based on historical traffic trend analysis. Using the locking criteria sets defined by Indosat Ooredoo, this algorithm not only provided predictions on which cells to be locked, but it also actuated the locking and

unlocking of radio cells in real-time based on these predictions through closed loop automation. Indosat Ooredoo was able to reduce energy bills by up to 3.6 percent and CO2 emissions by 4 percent on the sites where this solution is deployed.

Breaking the energy curve

Indosat Ooredoo is already ahead of schedule in terms of meeting its energy saving targets and is likely to reach its goal by the end of 2021. With Ericsson’s support, they have shown that it is possible to increase data traffic while reducing power consumption.

Case studies such as this are a win-win. Indosat Ooredoo enjoys the financial savings that come with reducing power consumption, the environment benefits from the drop in CO2 emissions and other networks see that breaking the energy curve is a necessary and realistic target.



Ericsson’s energy-saving features helped Indosat Ooredoo reduce power consumption while maintaining service quality

The challenge

- Reduce power consumption without damaging KPIs in a highly loaded 4G residential cluster (over 3,000 sites)

The solution

- Deploy AI-powered Energy Infrastructure Operations
- LTE spectrum migration
- Modernize the network
- Activate 4G energy-saving features:
 - Micro Sleep Tx
 - LESS
 - MIMO Sleep Mode

The benefits to Indosat

- Improved return on capital employed (ROCE)
- Lower operating costs
- Neutral net growth in carbon footprint

About Ericsson

Ericsson enables communications service providers to capture the full value of connectivity. The company's portfolio spans Networks, Digital Services, Managed Services, and Emerging Business and is designed to help our customers go digital, increase efficiency and find new revenue streams. Ericsson's investments in innovation have delivered the benefits of telephony and mobile broadband to billions of people around the world. The Ericsson stock is listed on Nasdaq Stockholm and on Nasdaq New York.

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