



NOKIA

Nokia AVA Energy Efficiency
Harness AI for more sustainable energy use

Energy is one of the largest¹ and fastest-growing costs for communications service providers (CSPs). Cutting consumption isn't just important to the bottom line: it's also key to meeting corporate social responsibility commitments. But it can't hamper network growth or performance.

The intelligent network optimization of Nokia AVA (Analytics, Virtualization, Automation) can decouple energy consumption from network growth and help reduce your energy use by up to 20%.²

1 - Energy consumption accounts for 20-40% of CSP OPEX spending according to GSMA Intelligence (2020).

2 - Savings are dependent on network configuration, equipment, traffic and energy prices.

Network intensification is driving up energy consumption — and costs

The more complex mobile networks become, the more base stations they need. One analysis of Western European CSPs³ found the number of base stations rose nearly 80% between 2005 and 2020 — and is expected to climb another 35% by 2025. Every one of those base stations is a significant energy consumer. With energy costs already accounting for up to 40% of many CSPs’ operating expenditures (OPEX), the proliferation of base stations could drive those costs up another 40–60%.

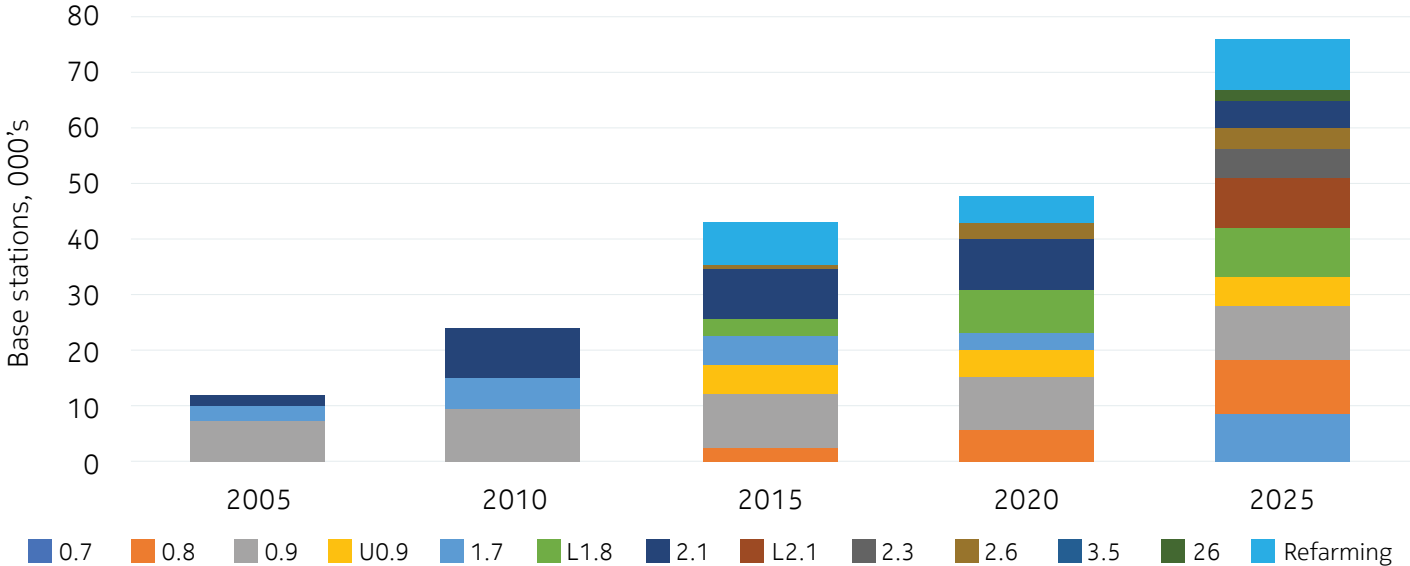
The direct costs of energy consumption are compounded by energy leakage and faulty equipment, and also by theft and fraud, all of which often go undetected. Beyond increasing OPEX, these bring operational risks and can have a negative impact on the customer experience.

Declining average revenue per user (ARPU) and fierce competition for market share mean you can’t rely on revenues to cover these additional

costs. So the challenge is to reduce OPEX without sacrificing growth or service quality — while meeting your CSR commitments, upholding

environmental regulations and protecting your brand in today’s eco-conscious society.

The number and complexity of base stations will continue to climb to 2025 and beyond.



³ Nokia analysis of Western European CSP networks



Control costs with advanced energy management



Reduce your energy consumption with intelligent automation

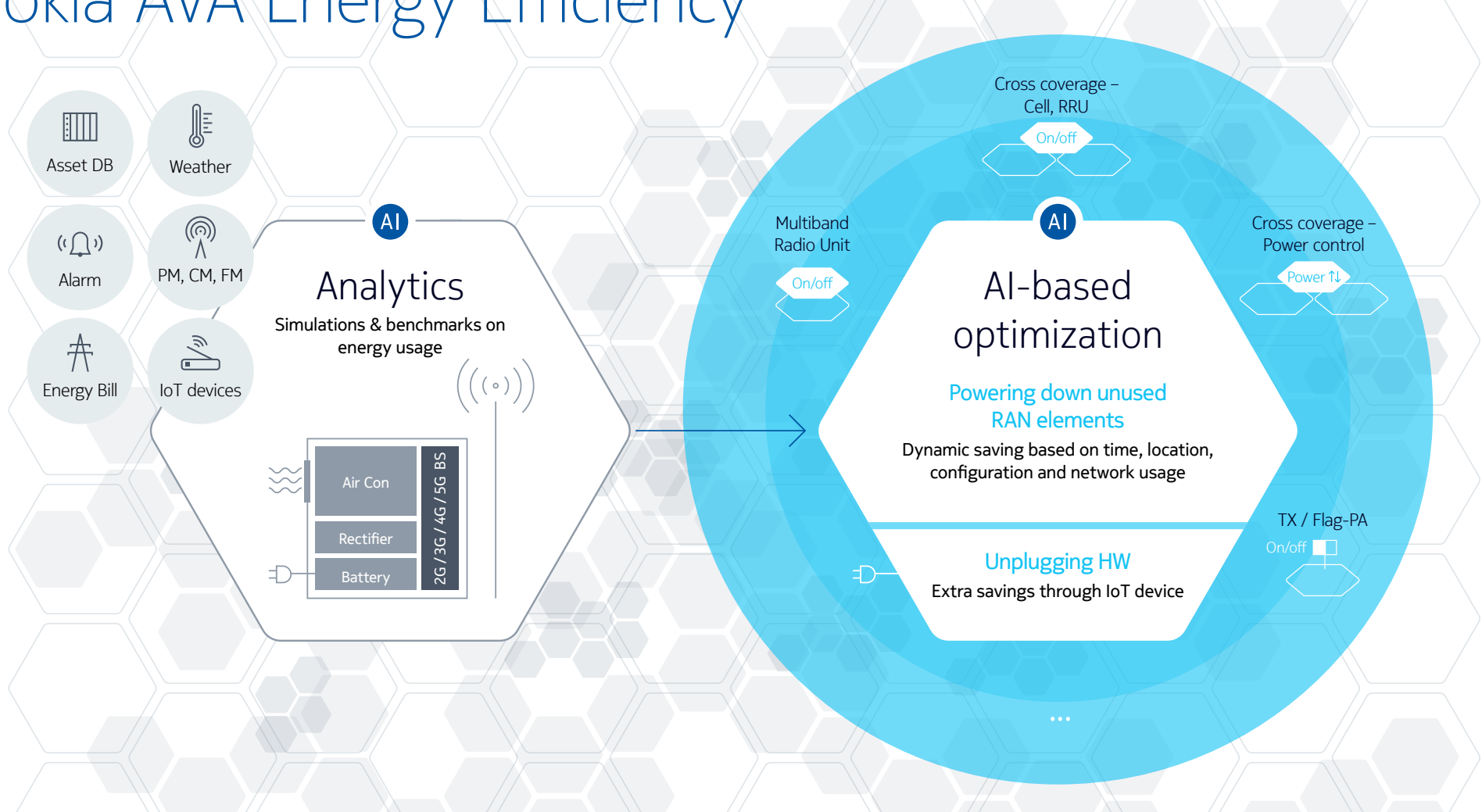
Nokia AVA artificial intelligence (AI)-as-a-service combines Nokia's deep telco knowledge and data science capabilities with leading cloud expertise, giving you tailored insights to reduce your energy consumption.

Drawing from sources including radio networks, connected devices, weather data, asset databases, energy bills and alarms, Nokia AVA uses advanced analytics to identify patterns and

trends and provide benchmarks. This data feeds into a dashboard that can help you isolate anomalies and outliers that could indicate faulty equipment, leakage or theft.

The system can make recommendations to correct, upgrade or modernize, and offers advanced simulation capabilities, so you can see how much energy you'll save by implementing changes.

Nokia AVA Energy Efficiency



Applied Telco expertise:

- ↗ Multi-vendor
- ↗ Field-proven AI

- ↗ Flexible commercial models
- ↗ Modularity – pick and choose

↗ Energy OPEX savings³ up to 20%

↗ Contribute to the global CO₂ emission reduction targets

Holistic AI-driven service delivers energy savings — and great performance

Nokia AVA provides CSPs with the following capabilities:

Dynamic shutdowns of low-traffic cells

Shutting down low-traffic cells is a standard energy-saving practice, but if you're choosing static windows, you have to be conservative to ensure cells are powered up again when they're needed. Nokia AVA uses AI models and machine learning to predict network traffic and adjust shutdown times dynamically to maximize your savings. This ensures network performance and subscriber experience are not degraded by energy saving measures.

Hard power saving control

Base station hardware can continue to use power even when it's not in use unless it's physically shut off. Nokia AVA uses IoT power control to make sure equipment that isn't needed is fully shut down, which can further increase energy savings by up to 50%.

AI-based insights

Powerful analytics can help you benchmark energy trends, and spot anomalies in the performance of historically "invisible" passive equipment such as batteries or air conditioners that could be draining energy unnecessarily. Based on its analysis, Nokia AVA can provide recommendations to help you optimize your configuration and further reduce energy consumption.



Better energy performance from end to end

With intelligent solutions based on telco needs and use cases, Nokia AVA helps you decouple network and traffic growth from energy consumption so you can keep expanding your business while reducing your energy-related OPEX.

Gain insights to help you optimize

Benchmarking lets you see the energy usage patterns of different sites and equipment types. Intelligent dashboards enable you to analyze trends against current or historical averages (for example GB of traffic per kWh of energy)

Simulate energy savings

AI models let you simulate the results of proposed changes so you can see which ones will have the greatest impact on your costs.

Detect energy theft and fraud

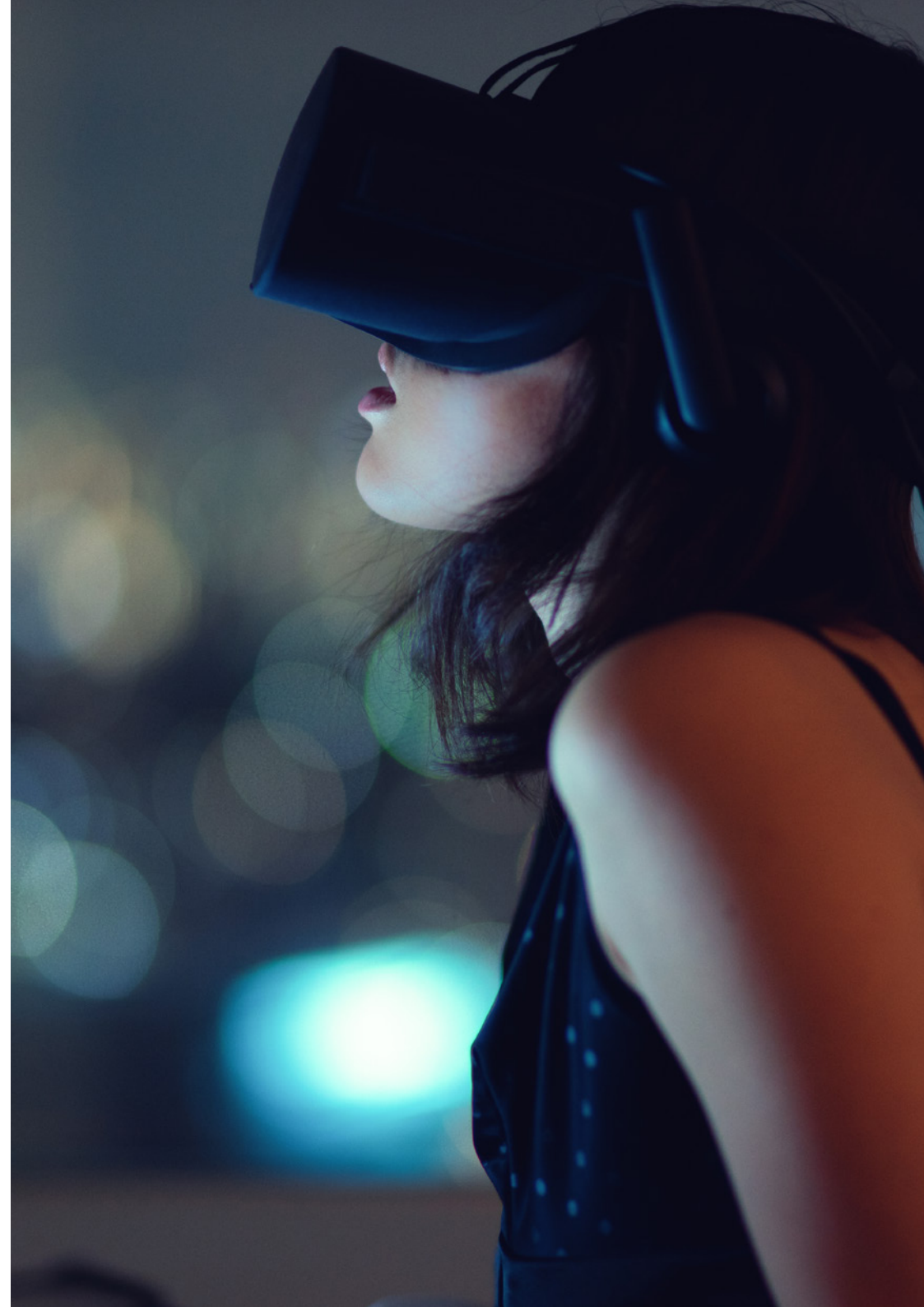
Advanced analytics highlight anomalous patterns that could point to theft and fraud so you can handle them and protect your networks.

Identify faulty equipment

Anomalies can also indicate equipment that is malfunctioning or improperly configured so you can take appropriate action.

Learn more

[Visit our web site](#)



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About Nokia

We create the critical networks and technologies to bring together the world's intelligence, across businesses, cities, supply chains and societies.

With our commitment to innovation and technology leadership, driven by the award-winning Nokia Bell Labs, we deliver networks at the limits of science across mobile, infrastructure, cloud, and enabling technologies.

Adhering to the highest standards of integrity and security, we help build the capabilities we need for a more productive, sustainable and inclusive world.

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