

An aerial photograph of a city skyline at sunset or sunrise. In the foreground on the right, a large, white, multi-tiered 5G antenna tower is visible. The city below is a mix of modern high-rise buildings and older structures, with a dense forest of trees in the lower portion of the frame. The sky is a gradient of orange, yellow, and blue.

Ericsson Sustainability Finance Investor Report 2024

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Introduction

In November 2023, Ericsson issued its inaugural green bond to finance R&D aimed at enhancing the energy performance of both existing and future solutions. In 2024, an amount equivalent to the proceeds raised was allocated. In addition, further progress was made on the target to reduce the average energy consumption of typical radio base station sites by 40% by 2025 compared to a 2021 baseline.

Ericsson was founded on the belief that communication is a basic human need, and for over 145 years, we have been a part of transforming lives, industries, and society for the better. Ericsson puts focus on embedding sustainability programs and practices across the organization to deliver positive impact to stakeholders and continues a cultural transformation of integrity-led business.

While the Information and Communications Technology (ICT) sector is responsible for only 1.4% of the global carbon footprint, [1] it has the potential to enable a 15% reduction of emissions across industries by 2030 through connectivity solutions such as smart building management systems and connected electric vehicle charging infrastructure. [2] With technologies like 5G and IoT, the enablement potential can be up to 20%. [3] The networks, software, and services Ericsson delivers to its customers support the digital transformation of industry and society. Digital technologies, supported by 5G networks, play a pivotal role in supporting the digital transformation of industry and society, by cutting energy consumption, reducing material waste, and driving economic growth and social inclusion.

Sustainability is a key element not only in Ericsson's technology, but also in its treasury strategy: In 2021, Ericsson established its first sustainability-linked revolving credit facility of USD 2 billion linked to two of Ericsson's sustainability KPIs; in 2023, Ericsson started investing excess cash into green securities; and in 2024, Ericsson signed its first green guarantee facility. Moreover, in December 2022, Ericsson established its first Green Financing Framework to enable issuance of green bonds and other green financing instruments to finance investments in energy efficiency

and renewable energy. The Framework was developed in alignment with the ICMA Green Bond Principles 2021 and the LMA Green Loan Principles 2021 (and the subsequent 2023 version). CICERO Shades of Green [4] provided the second party opinion and assigned the Framework a rating of Medium Green and a governance score of Excellent.

In November 2023, Ericsson issued its inaugural EUR 500 million green bond under the Green Financing Framework (the "2028 EUR bond"), aimed at financing R&D to enhance the energy performance of both existing and future solutions. Specifically, the proceeds were allocated towards hardware and software R&D in Radio, to support Ericsson's performance goal to reduce the energy consumption of typical new radio base station sites by 40% by 2025 compared to a 2021 baseline (the "Type Site Target"). In 2024, the full amount equivalent to the proceeds was allocated, and by year-end, Ericsson achieved a reduction of 37% and is on track to achieve this target.

This report outlines the allocated amounts, details the impact of the eligible assets, and provides examples of how energy efficiency is achieved through several case studies.

Links to other publications

[Ericsson Green Financing Framework](#)

[Green Finance Second Opinion - CICERO Shades of Green](#)


[Ericsson's Sustainability and Corporate Responsibility report 2024](#)

Allocation report

In 2024, the 2028 EUR bond was fully allocated to R&D projects in the energy efficiency category, of which 75% constituted financing, and 25% refinancing. Through its green financing instruments, Ericsson is committed to directly support the sustainability corporate objectives.

The eligible projects have been evaluated and selected by the Sustainable Finance Committee in accordance with Ericsson's Green Financing Framework 2022. The committee has decided to include costs related to R&D for Radio hardware and software as eligible assets. However, it should be noted that additional assets exist that would fulfill the eligibility criteria. On an annual basis, Ericsson intends to add qualifying eligible expenditures to the portfolio in accordance with the Green Financing Framework, based on its financing needs.

In 2023 and 2024, Ericsson raised several bilateral loans with the European Investment bank ("EIB") and Nordic Investment Bank ("NIB") to finance Radio Hardware R&D within Energy Efficiency in Sweden. The eligible assets financed by EIB and NIB are a subset of the eligible assets under the Green Financing Framework. Hence, the eligible assets allocated to the loans with EIB and NIB cannot also be allocated to the 2028 EUR bond, to avoid any double counting.

Allocation [5] (Portfolio Date: 31 December 2024)	(A)	(B)	(A) - (B)
Green bonds and loans	Total	Bilateral loans	2028 EUR bond
Nominal value (SEKm) [6]	12,627	6,944	5,683
Issue date	n.a.	Dec 2023 - Jul 2024	Nov 2023
Maturity date	n.a.	Dec 2030 - Jul 2031	May 2028
Breakdown of proceeds allocated [7]	12,627	6,944	5,683
Financing	7,417	3,155	4,262
Refinancing	5,210	3,789	1,421
UN SDG			
Financing vs refinancing			
Financing	59%	45%	75%
Refinancing	41%	55%	25%
Share of proceeds allocated			
Allocated	100%	100%	100%
Unallocated	—	—	—

Impact report

Ericsson is pursuing a target to reduce the average energy consumption of typical radio base station sites by 40% by 2025 compared to a 2021 baseline. By year-end 2024, Ericsson achieved a reduction of 37% [8] and is on track to achieve this target.

The eligible asset category Energy Efficiency in Ericsson's Green Financing Framework sets a target to reduce energy consumption by at least 35% compared to previous generation. When issuing the inaugural green bond in 2023, Ericsson chose to tie the bond proceeds to R&D supporting the target to reduce energy consumption of a predefined typical radio site by at least 40% by 2025, compared to a 2021 baseline. Hence, R&D costs that support the Type Site Target meet the eligibility criteria set out in the Green Financing Framework.

About 90% of Ericsson's emissions come from the electricity use of its products in the communication service providers' mobile networks, of which most comes from products at radio base station sites (i.e., Scope 3 category 11 emissions). The Type Site Target aims to reduce these downstream

emissions through energy performance improvements in the product portfolio, supporting Ericsson's 2040 Net Zero target.

The Type Site Target is intended to track Ericsson's capability to provide energy-efficient solutions to its customers. It measures reductions in energy consumption, compared to a base year, using the best-performing software and hardware solutions available in the target and reporting year, respectively. Energy consumption is measured in kWh, and target performance is expressed as the average potential reductions for modeled type sites in rural, suburban, and urban locations for a service provider operating in Europe. These values represent the maximum potential energy savings possible each year. By year-end, Ericsson achieved a 37% reduction and is on track to meet its 40% reduction target by 2025. Assuming the energy mix remains unchanged, this also corresponds to a CO2 reduction of 37%.

Scope	Base year	Target year	Target energy reduction (%)	2024 energy reduction (%)
Type Site Target	2021	2025	40	37

Ericsson relies on three levers for reducing the indirect Scope 3 downstream emissions

1

Improve the energy performance of hardware, software, and service solutions. Ericsson also provides guidance to customers on how to plan, build and operate energy-optimized networks, e.g., through its Breaking the Energy Curve approach. [9]

2

The share of renewable electricity used when customers operate networks, which Ericsson has limited ability to influence. However, Ericsson is supporting its customers with the integration of onsite renewable energy generation such as solar and wind energy at base station sites.

3

Greening of national electricity grids. There are uncertainties as to how fast the global share of renewable energy will grow, as this depends on external factors such as national policies.

Case studies

Sustainability and energy efficiency are key for designing mobile networks today. The following case studies showcases how Ericsson's product portfolio have been used to support our customers in their ambitions to lower the energy consumption and carbon emissions in mobile networks. [\[10\]](#)

Case 1 – Hardware Modernization

Vodafone has joined forces with Ericsson to deploy its leading energy-efficient Radio 4485 for the first time globally in Portugal as part of its advanced 5G network. [\[11\]](#), [\[12\]](#)

The challenge

- As traffic continues to grow, there is a need to increase network capacity while cutting energy consumption and the carbon footprint.
- Vodafone Portugal has committed to achieve Net Zero emissions across its value chain by 2040.
- Vodafone is looking to enhance the capacity, performance, and coverage of its Portugal nationwide 5G network, while reducing the environmental impact and helping to decarbonize society.

The solution

- Deploying the triple band Radio 4485 (1800MHz, 2100MHz and 2600MHz) not only contributes to achieving

Net Zero emissions across Vodafone Portugal's value chain by 2040, but also sets the stage for the widespread deployment of similar technology throughout the country, enhancing the capacity, performance, and coverage of its nationwide 5G network.

- Newer products, such as the Radio 4485, will also have lower embodied emissions, i.e., greenhouse gases released before the product is deployed.

The impact

- The triple band Radio 4485 reduces energy consumption by more than 20 percent compared to typical deployments in Vodafone networks for 1800MHz, 2100MHz and 2600MHz, allowing Vodafone Portugal to improve both energy performance and network capacity.
- The radio's embodied carbon emissions are shown to be 50 percent lower than comparable products.
- Additionally, the radio's 50 percent lighter footprint will help reduce Vodafone Portugal's maintenance costs and simplify the 5G site upgrade process.

"As part of Vodafone Portugal commitments to operate ethically and sustainably, we continuously search for innovative solutions and embed them in our strategy and operations. This partnership with Ericsson and specifically this energy saving solution is completely aligned with our purpose, reducing environmental impact and helping decarbonize society, while leveraging on the 5G implementation across the country." -

Paulino Corrêa,
Network Director of Vodafone Portugal

"Vodafone Portugal and Ericsson have a long-standing partnership going back to 1992 with the deployment of 2G in the country. Today, we are taking the next step with a world-first deployment that is rooted in Vodafone's unwavering commitment to sustainability, leveraging Ericsson's unique hardware and software co-design to deliver substantial carbon emissions reductions throughout their value chain."

Juan Olivera,
Head of Ericsson Portugal

Case 2 – Intelligent Operations

Telstra, in collaboration with Ericsson, is the first operator in the Southern Hemisphere to successfully launch Automated Energy Saver (AES), a first-of-its kind energy management feature, in a commercial network. This innovative solution enables Telstra to manage network operations based on defined business intents in an advanced, intelligent, and automatic fashion. Seamless user experiences are maintained by optimizing resources and energy consumption on a real-time basis from observed traffic flows. [\[13\]](#), [\[14\]](#)



The challenge

- Network capacity is typically deployed to handle peak traffic during the busiest hours, resulting in over-capacity for most of the day. To achieve optimal energy performance, communications service providers (CSPs) use software functionality with the aim to adjust installed capacity to real-time traffic demand without affecting user experience.
- Prior to launching AES, energy efficiency features are activated or deactivated manually based on parameters that do not directly reflect user experience. Furthermore, optimally setting the parameters manually at each individual site for that sweet spot between energy savings and network performance is extremely challenging for CSPs.
- Enabling high-performing programmable networks are becoming increasingly essential to unlock the full potential of 5G with new advanced services, more efficient operations, and enhanced user experience. Intent-based automation is a key technological pillar of programmable networks. It brings a new operations paradigm where CSPs can use service-related metrics such as user throughput inputs to the radio access network rather than setting radio parameters manually.



The solution

- AES in the first release orchestrates based on real-time data, and optimizes the 5G Massive MIMO Sleep function, by dynamically finding ideal benchmarks for activating or deactivating antenna branches. This ensures that, where possible, user experience is maintained, and energy is saved during both low-traffic and high demand.
- Unlike previous manual solutions, AES makes it possible to easily set the desired level of user experience on a node, enabling automatic and continuously optimized feature parameters helping Telstra make its network more efficient, contributing to its sustainability goals without compromising the service quality or network performance.
- In the Telstra trial cluster, the AES intent was configured on the node to maximize energy savings from the 5G Massive MIMO Sleep feature while ensuring at least 70 Mbps downlink throughput for 90% of users.

The impact

- AES was observed to maintain the set intent whilst achieving ~30% additional sleep time in the trial sites.
- The AES deployment resulted in aggregated additional savings compared to the baseline 5G Massive MIMO Sleep feature. The highest additional energy saving recorded in a trial cell was approximately 7%.
- Equally important, cells were observed to be less likely to enter sleep mode when user experience fell below the set intent. AES helped Telstra to simplify the radio access network energy optimization by natively handling the trade-off between user experience and energy consumption.

“Our collaboration with Ericsson on the Automated Energy Saver (AES) is a key step to start the intent driven ways of advanced, intelligent and automated networks. The AES feature is showing promising results as we test, validate and optimise the feature in our live commercial network. Our key objective in implementing intent-based solutions is to optimise performance without impacting the experiences of our customers. We look forward to working with Ericsson to introduce additional automated solutions that support our customer experience while improving the efficiency and sustainability of our 5G network.”

Sri Amirthalingam,
Telstra Network Engineering Executive

“As the demand for 5G services continues to grow, it is critical to ensure that we do so in a sustainable way. The introduction of the Automated Energy Saver (AES) for NR Massive MIMO Sleep in Telstra’s 5G network, demonstrates how we can balance network performance with environmental responsibility. This milestone reflects the importance of innovation in driving both sustainability and customer experience, showcasing the potential of intent based automation in 5G networks. Our collaboration with Telstra is key as we move into the next phase of 5G development, and we look forward to expanding these capabilities in the future.”

Emilio Romeo,
Head of Ericsson Australia and New Zealand

Case 3 – Onsite Energy Generation

With the help of Ericsson’s hardware and software solutions, Deutsche Telekom became the first service provider in the world to implement a unified solution using a single management system for core, transport, radio access network (RAN), and hybrid power management, including renewable power sources at a commercial 5G mobile broadband site near the small German town Dittenheim. [\[15\]](#)

The challenge

- As Deutsche Telekom expand the network to serve the increased traffic demand, there are more sites in remote locations without grid access. A smart solution is needed to bring coverage to these locations without establishing a grid connection and higher energy consumption as in the past.
- Additionally, the solutions implemented will need a fully integrated system providing information on availability, capacity, network performance and energy management, along with unprecedented control over network stability.

The solution

- Installation of a wind turbine and solar panels at the site and connecting them to the existing power and connectivity hardware.

- Creating a Smart Connected site that provides full visibility of network performance, power generation, local security, and environmental conditions.
- Integrating power storage at the site that can store cheap, renewably generated electricity and shave peaks during periods of high electricity demand across the grid.

The impact

- Power generation from renewable sources that stands for around a fifth of the total yearly power needs – escalating to full renewable operation at times of optimal conditions.
- Full control for the service provider over the site’s operations, from power generation to connectivity performance, from one single management platform.
- A workable, proven solution using existing hardware and software that can be replicated at similar sites elsewhere – from rural locations to major cities.
- The possibility to integrate new hardware and software solutions will reduce total power consumption, increase the renewable energy share, and enhance overall site sustainability.

“Ensuring an integrated management of clean, efficient and reliable power sources and usage is key for sustainable mobile site operations. Together with innovative partners we explore in trials how we can apply intelligent solutions and capabilities to optimize energy consumption and control at mobile sites.”

Leif Heitzer,
SVP Technology Guidance and Economics, Deutsche Telekom

“At Ericsson, we are committed to working with our customers to support them in cutting their carbon emissions. This partnership is a great example of how we’re achieving this through our best-in-class energy efficient equipment, which can be operated entirely with renewable energy.”

Heather Johnson,
Vice President for Sustainability and Corporate Responsibility, Ericsson

17 %

of the site’s total energy needs is generated on-site, via renewable sources

12 sq m

total area of the solar panels at the Dittenheim site

24 %

reduction in energy consumption achieved using new hardware and software solutions

Auditor's Assurance Report on Sustainability Finance Allocation Report

To Telefonaktiebolaget LM Ericsson, corporate identity number 5560160680.

Introduction

We have been engaged by the Executive Management of Telefonaktiebolaget LM Ericsson, ("Ericsson") to perform a limited assurance engagement on the Sustainability Finance Allocation Report for 2024 ("Reporting") set out on page 4 in Ericsson Sustainability Finance Investor Report 2024.

Responsibilities of the Executive Management

Ericsson Executive Management is responsible for the preparation of the Reporting in accordance with the applicable criteria, as explained in the Ericsson Green Financing Framework dated December 2022 (available at <https://www.ericsson.com/en/investors/debt-information/green-financing>) as well as the accounting and calculation principles that the Company has developed. This responsibility also includes the internal control relevant to the preparation of the Reporting that is free from material misstatements, whether due to fraud or error.

Responsibilities of the auditor

Our responsibility is to express a conclusion on the Reporting based on the limited assurance procedures we have performed. Our engagement is limited to historical information presented and does therefore not cover future-oriented information.

We conducted our limited assurance engagement in accordance with ISAE 3000 (revised) Assurance Engagements Other than Audits or Reviews of Historical Financial Information. A limited assurance engagement consists of making inquiries, primarily of persons responsible for the preparation of the Reporting, and applying analytical and other limited assurance procedures. The procedures performed in a limited assurance engagement vary in nature from, and are less in extent than for, a reasonable assurance engagement conducted in accordance with International Standards on Auditing and other generally accepted auditing standards in Sweden.

The firm applies International Standard on Quality Management 1, which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements. We are independent of Ericsson in accordance with professional ethics for accountants in Sweden and have otherwise fulfilled our ethical responsibilities in accordance with these requirements.

The procedures performed consequently do not enable us to obtain assurance that we would become aware of all significant matters that might be identified in a reasonable assurance engagement. Accordingly, the conclusion of the procedures performed do not express a reasonable assurance conclusion.

Our procedures are based on the criteria defined by Ericsson Executive Management as described above. We consider these criteria suitable for the preparation of the Reporting.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion below.

Conclusion

Based on the limited assurance procedures we have performed, nothing has come to our attention that causes us to believe that the Reporting for the year 2024, is not prepared, in all material respects, in accordance with the applicable criteria, as explained in the Ericsson Green Financing Framework.

Stockholm, date as per digital signing

Deloitte AB

Thomas Strömberg

Authorized Public Accountant

Lennart Nordqvist

Expert Member of FAR

References

1. Malmodin et al. (2023) ICT sector electricity consumption and greenhouse gas emissions – 2020 outcome, SSRN Electronic Journal. See also <https://www.ericsson.com/4adb7e/assets/local/reports-papers/mobility-report/documents/2024/ericsson-mobility-report-november-2024.pdf>.
2. Malmodin & Bergmark (2015) Exploring the effect of ICT solutions on GHG emissions in 2030, Atlantis Press
3. <https://www.ericsson.com/en/about-us/sustainability-and-corporate-responsibility/environment/climate-action/decarbonizing-industries>.
4. CICERO Shades of Green is part of S&P Global. Any developments in rating methodology since the date of the Second Party Opinion has not been considered.
5. Ericsson's green finance portfolio complies with the activity-based exclusions listed in the EU PAB exclusion list.
6. The 2028 EUR bond is denominated in EUR, and the Bilateral loans are denominated in USD. The SEK values presented herein are based on the exchange rates at each disbursement date.
7. Financing is defined as spend during 2024 and refinancing is defined as spend during 2023. The allocation decisions were made by the Sustainability Finance Committee in 2024 and March 2025. The geographical distribution of the allocated costs cannot be disclosed due to confidentiality and competitive considerations.
8. Although outside the scope of the Auditor's Assurance Report on Sustainability Finance Allocation Report in this report, the 2024 energy reduction reporting has been reviewed as part of the limited assurance of [Ericsson's Sustainability and Corporate Responsibility Report](#).
9. See <https://www.ericsson.com/en/about-us/sustainability-and-corporate-responsibility/environment/product-energy-performance>.
10. It should be noted that there is often a delay between R&D expenditure and the commercialization of the corresponding products, particularly for hardware. Hence, these case studies may not necessarily correspond directly to the allocation of costs outlined in this report. Instead, they should be viewed as examples of how Ericsson's R&D investments into energy efficiency are implemented to support our customers in the real world.
11. Read more about the case: <https://www.ericsson.com/en/press-releases/3/2024/vodafone-portugal-takes-sustainability-stride-with-ericsson-energy-saving-radio-upgrade>.
12. See also: Sustainable Networks – The RAN modernization guide: <https://www.ericsson.com/en/reports-and-papers/further-insights/sustainable-networks-the-ran-modernization-guide>.
13. Read more about the case: <https://www.ericsson.com/en/press-releases/7/2024/ericsson-and-telstra-launch-automated-energy-saver-for-smarter-sustainable-5g-network-management>.
14. See also: Sustainable Networks – The Intelligent Operations guide: <https://www.ericsson.com/en/reports-and-papers/further-insights/sustainable-networks-the-intelligent-operations-guide>.
15. Read more about the case: <https://www.ericsson.com/en/cases/2022/deutsche-telekom-and-ericsson-make-sustainable-connectivity-possible>.

Ericsson's high-performing, programmable networks provide connectivity for billions of people every day. For nearly 150 years, we've been pioneers in creating technology for communication. We offer mobile communication and connectivity solutions for service providers and enterprises. Together with our customers and partners, we make the digital world of tomorrow a reality.