

Environmental report 2022





Three aspects of energy: security of supply, environment, and economy

The year 2022 put the availability and price of energy on the agenda of practically all companies and industries at once. Now, in March, it seems that Finland has coped reasonably well with the tumult in the energy market caused by Russia's invasion of Ukraine. For us, the topic is still current, as Telia has at least three important perspectives on energy: security of supply, the environment, and the economy.

Our telecommunications networks and services are at the core of critical national infrastructure. Electricity is part of our network infrastructure because networks and data centres must operate under all circumstances. The planned restrictions on electricity distribution or a shortage of electricity would also affect communication networks and services and, at worst, the functioning of society as a whole.

We see to the operation of the network and critical services under all circumstances. We are prepared for possible crises and disruptions as well as for continuity management under exceptional circumstances. Network redundancy is based on a regulation issued by the Finnish Transport and Communication Agency.

Our communication connections can cope with short outages. Telia has quite good battery and backup power reserve at its sites, and there are no problems with the basic coverage of the mobile network due to these outages. Due to energy and the changed security situation, we have increased preparedness and monitoring with exceptional circumstances in mind.

The use of digital services is growing continuously. The digital transition enhances the efficiency of many processes and reduces the environmental load from physical processes. However, growth also means an increase in the volumes of telecommunications and data, and inevitably energy consumption.

Energy consumption is a significant environmental impact for Telia. Throughout the group, we have decided that we will only buy electricity produced with renewable energy. We are switching to fossil-free district heating in our premises and exploring the possibilities of producing electricity ourselves,

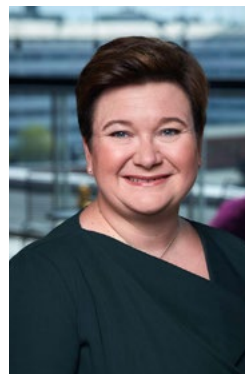
for example, with solar panels. Less will not suffice, as the climate targets we have set are challenging: we aim for zero emissions by 2030 throughout our value chain, from suppliers to customers.

We are modernising our mobile network and building 5G with Finnish technology in collaboration with Nokia. With the transition to the 5G network, considerably less electricity will be needed to transfer the same amount of data. With the transition to 5G, we will have a twice as energy-efficient mobile network, and when we phase out the 3G network at the end of the year, more and more bits will move to more energy-efficient networks. Our most modern Finnish data centre in Helsinki also works in an energy-efficient manner, and its waste heat will also be transferred to Helen's district heating network to heat the homes of Helsinki residents.

Our entire industry is contributing to this effort. The energy consumption of telecommunications has grown clearly less significantly than the consumption of data because the development work of operators and network equipment manufacturers is guided at every point of the infrastructure by the improvement of energy efficiency.

In July–September 2022, the energy we used in Finland cost three times as much as a year ago in the same period. Fortunately, the cost pressure now seems to be easing.

Energy efficiency therefore has business importance, and we do feel encouraged by the fact that more efficient and economical use of energy is shown in our income statement. It is, however, important that we do our share to curb climate change and offer our customers services that are produced as responsibly and efficiently as possible, and at best also help them to act responsibly.



Heli Partanen
CEO
Telia Finland Oy

New technologies promoting energy efficiency

In our industry, rapid technological development leads to continuously improving energy efficiency, at data centres, in core, mobile and fixed networks, as well as in terms of terminal devices. In 2022, we achieved significant energy savings, for example by modernising our network. Our goal is still to replace old technology with new 5G technology and to increasingly route data traffic to 5G.

During 2022, we continued our energy efficiency projects with the aim of saving energy as well as reducing emissions. We promoted circular economy by launching the Telia Recycled range of phones to business customers and significantly reduced our amount of packaging plastic waste by launching the ecoSIM card. We started a study of our impact on nature to better understand how our operations impact nature and natural resources in addition to climate impacts. The study will be continued during 2023.

Our climate and circular economy work is based on an ISO14001 certified environmental management system and the EES+ certified Energy Efficiency System, which cover all our operations in Finland. In 2022, Telia achieved the highest-level Platinum recognition in the climate management assessment of the business sustainability rating provider EcoVadis. This recognition ranks Telia among the top 1% of the 75,000 companies evaluated worldwide by EcoVadis. In addition, Telia received recognition for its efforts to mitigate climate change, achieving the high A-level in CDP's climate programme.

Telia's environmental impacts and targets for 2023

The most significant environmental impacts of Telia's activities concern energy consumption, waste generated in network construction, and the emissions of the manufacture of the equipment and devices we procure, such as network equipment and mobile devices. Our services also have positive climate impacts, i.e., emissions reduction potential for the customer.

As part of Telia group, we are committed to significant measures to curb climate change. Our goal is to have zero emissions by 2030 throughout our value chain, all the way from suppliers to customers. We also intend to reduce the amount of our waste to zero by 2030 through circular economy.

We are progressing towards zero emissions and zero waste through milestones. In 2023, our goal in Finland is to reduce the carbon dioxide emissions caused by our operations by 37,000 tonnes and to be carbon neutral in terms of our own operations. We will reach this goal by:

- Continuing to purchase electricity produced with 100% renewable energy.
- Gradually transitioning to fossil-free district heating.
- Continuing our energy efficiency initiatives.
- Compensating any remaining and unavoidable greenhouse gas emissions generated in the course of our operations.
- Reducing the emissions generated by our logistics chain by 5% (compared to 2021) in cooperation with our suppliers.
- Continuing to reuse equipment and devices.

To reach our long-term goals, we are progressing through milestones. We have received approval from the Science Based Targets initiative (SBTi) for our 2025 milestones. SBTi only accepts businesses that are committed to doing their part to ensure that the climate will not warm by more than 1.5 degrees Celsius. We are currently awaiting approval from the Science Based Targets initiative (SBTi) for Telia's new 2040 net zero target. The target is aligned with the new SBTi Net-Zero Standard.





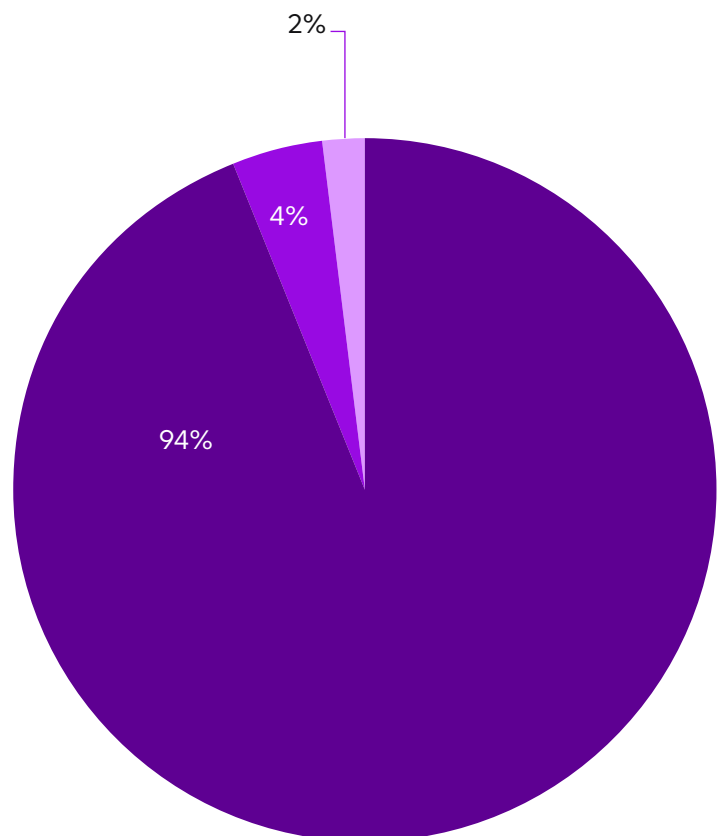
Telia's emissions

We track our carbon footprint annually in accordance with the calculation principles set in the Greenhouse Gas (GHG) Protocol. The emissions from Telia's own operations (Scope 1, Scope 2, and Scope 3 category 6) are low, only two per cent of the overall emissions, due to our purchase of electricity produced with renewable energy sources.

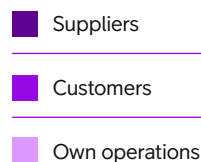
A large part of our emissions, 94%, is caused by emissions from our supply chain (Scope 3 categories 1, 2, 3, 4, 5, and 7). Approximately 68% of these consist of emissions generated during the manufacture of products and services (such as mobile phones, laptops, and tablets) purchased by Telia. Four per cent of our emissions are caused by in-service emissions of equipment and services sold to Telia's customers and by the disposal of devices related to these (Scope 3 categories 11, 12, and 13).

Compared to previous years, the emissions in 2022 were lower mostly due to significantly reduced emission factors of purchased energy production (Scope 2) and indirect emissions (Scope 3 categories 1, 2, 11 and 13). The emission factor for purchased electricity was affected by the growth in the share of fossil-free energy sources in Finland's electricity production. The decrease in the emission factors used to calculate emissions in the supply chain was mainly due to changes in global carbon intensity factors during the pandemic.

The EU taxonomy is part of the European Green Deal, which contributes to the achievement of environmental objectives and the green transition by channelling funding towards sustainable targets. Telia has identified its taxonomy eligibility for climate change mitigation regarding its following activities: data processing, hosting and related activities, as well as data-driven solutions for GHG emissions reductions. Telia is not yet able to demonstrate the taxonomy-alignment of these activities, since the evaluation criteria are still under development. [Read more](#)



Carbon footprint 2022



More information about Telia's carbon footprint [on our website](#).

Measures to reduce emissions

Emissions from own operations

We have been carbon neutral since 2020, in terms of greenhouse gases caused by our operations (Scope 1 & 2) and business travel (Scope 3, Category 6).

We reduce our emissions by purchasing electricity produced only with 100% renewable energy sources. We are also gradually moving towards the procurement of fossil-free district heating.

Energy efficiency measures play an important role in reducing emissions. As the 5G network expands, the mobile network is modernised and the capacity of the network increases, the speeds of our connections and data consumption have also increased. Naturally, this has also increased our electricity consumption in 2022. With the 5G network, the energy efficiency of data transferred improved significantly, because less electricity was needed to transfer the same amount of data. Energy efficiency will improve further as we move to the use of the 5G network together with our customers. In addition, we have introduced several of the latest power-saving features of network equipment software. When building new base stations, we take energy efficiency into account by using the latest technology from network equipment manufacturers.

We have also improved our energy efficiency by continuing the transfer of our data centre operations to the energy-efficient facility in Finland, Telia Helsinki Data Center, and closing old sites.

The target related to the [energy efficiency agreements](#) we reached already in 2020. The total energy savings we have achieved since 2015 are almost 21%.

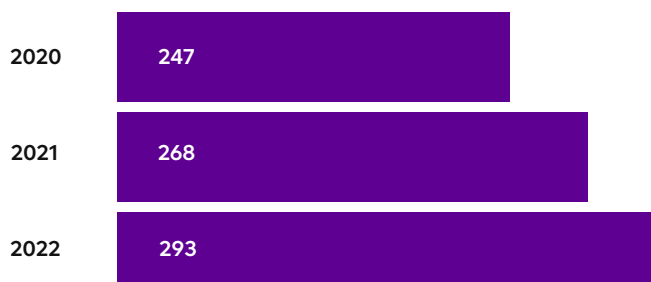
In addition to these emission reduction initiatives, since 2020, we have compensated all remaining, unavoidable greenhouse gas emissions generated from our own operations. The emissions we compensate consist of emissions from district heating and cooling, fuel oil used in backup power generators, and the coolants used in our refrigeration units, as well as emissions from Telia's fleet of vehicles and business travel.

In 2022, we allocated half of our compensation to biological carbon sequestration and half to new technologies aimed at capturing carbon from the atmosphere.

“The electricity consumption of using streaming services raises discussion once in a while. It is true that as the use of digital services increases, so does the use of data, which will also inevitably increase energy consumption. However, telecommunications technology is developing rapidly and therefore energy efficiency is also continuously improving. In the digital world, the increase of energy consumption has been modest despite growing data consumption.

There are dozens of variable factors in different parts of the network that affect electricity consumption. For example, when streaming a movie, data is transferred from the core network with a fixed or mobile connection to the router or directly to the terminal device. Electricity is consumed at every point of watching a movie: servers, terminal devices and other electronics use electricity to process and move data. This complexity poses a challenge to calculate the consumption, for example, of viewing a single movie. It is still okay to continue streaming movies because that does not significantly increase [electricity consumption](#),” says Telia Head of Energy Petri Rannikko.

Total electricity consumption (GWh)





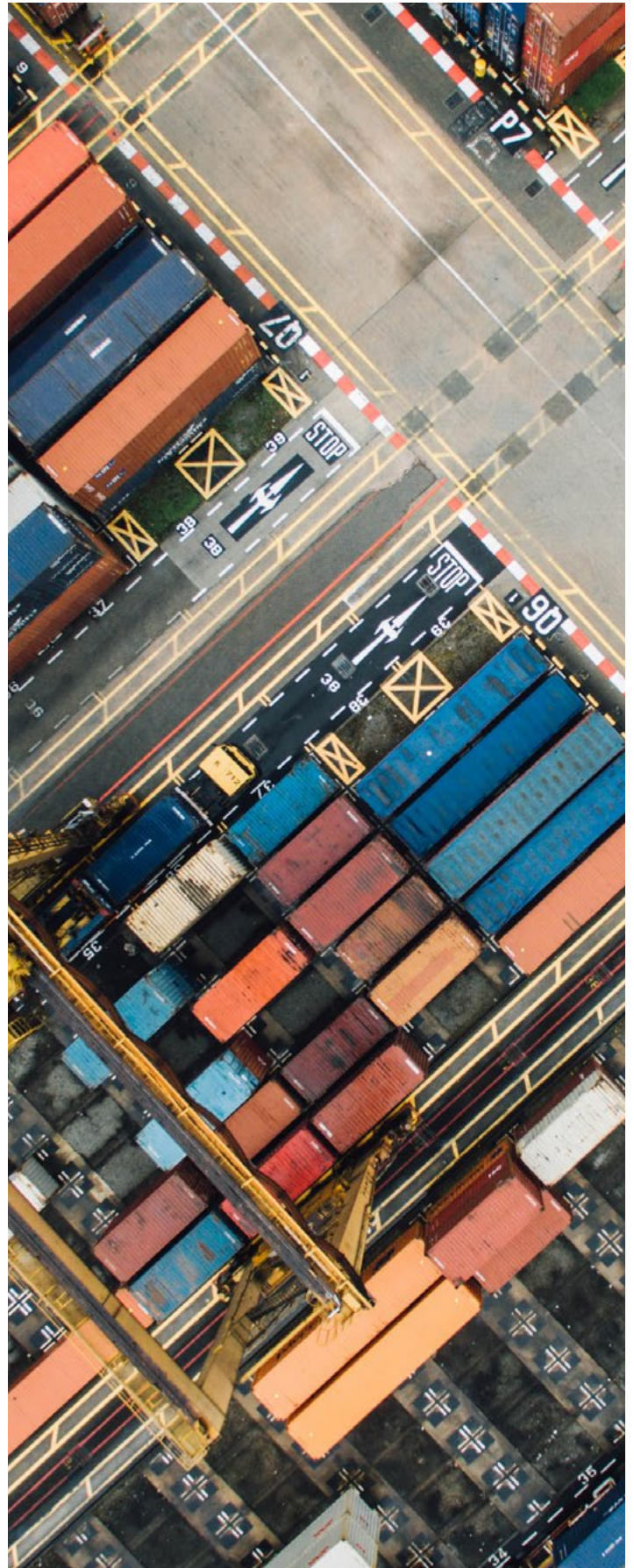
Supply chain emissions

We work closely with our suppliers to reduce the greenhouse gas emissions of our value chain (Scope 3). CO₂e emissions are part of the selection criteria for our suppliers. In 2021, we added climate and circular economy requirements as part of our supplier requirements. Among other things, we require that our suppliers set science-based climate targets and that our equipment and device suppliers proactively implement circular economy practices in their operations. In 2022, 35% of Telia Group's supply chain emissions were covered by the SBTi (Science Based Targets initiative) targets.

In 2022, through reductions and cooperation with contractors, we decreased Telia's emissions from transport and logistics by about three per cent compared to the total logistics and transport emissions in 2021.

We will also reduce Scope 3 emissions by increasing the reuse of equipment and devices in our own operations. This way we reduce emissions caused by the manufacture of new equipment. In 2022, we reduced emissions by about 1,700 tCO₂e through the reuse of equipment and devices.

Our enablement effect describes the positive environmental and climate impacts of our operations, meaning the emission reduction potential of the products and services we provide to our customers. According to a [study by GSMA](#), the industry's umbrella organisation, mobile technology products and services can help reduce greenhouse gas emissions by up to ten times the rate of emissions they cause. According to [Telia Company's calculations](#), in 2022, our customers reduced emissions by a total of 330,000 tCO₂e by using Telia's services.



Circular economy

We are committed to promoting the principles of circular economy in our operations. In practice, this means that we primarily reduce the generation of waste and redirect materials to be reused as such. If reuse is not possible, we take care of recycling the materials into new raw materials. We also enable circular economy through our product range by promoting sustainable mobile phone design (e.g., [Ecorating](#)), by selling refurbished devices (e.g., [Telia Recycled](#)) and by offering new forms of ownership to our customers ([Telia device as a service](#)).



[Kuusakoski](#) is a significant Telia partner in promoting circular economy, both as an enabler of the reuse of equipment and devices and as a processor of our waste streams. In 2022, we developed our common operating models towards more efficient and environmentally sound material use. Enabled by Kuusakoski, we will be able to direct unused equipment and devices from our warehouse to retail channels instead of material recycling. In addition, with help of Kuusakoski, we can direct a wider range of equipment and devices to recycling channels than before.

To monitor the effectiveness of our circular economy measures and to make visible the benefits from the perspective of climate and material savings, Kuusakoski provides us with valuable information on the processed materials, the emissions related to the processing, and the climate benefits of using the materials.

Kuusakoski is the leading recycling services company in Northern Europe, whose vision is to be the customers' chosen partner in recycling services and business sustainability. The strength of Kuusakoski is based on its expertise in materials, recycling, and environmental technology.



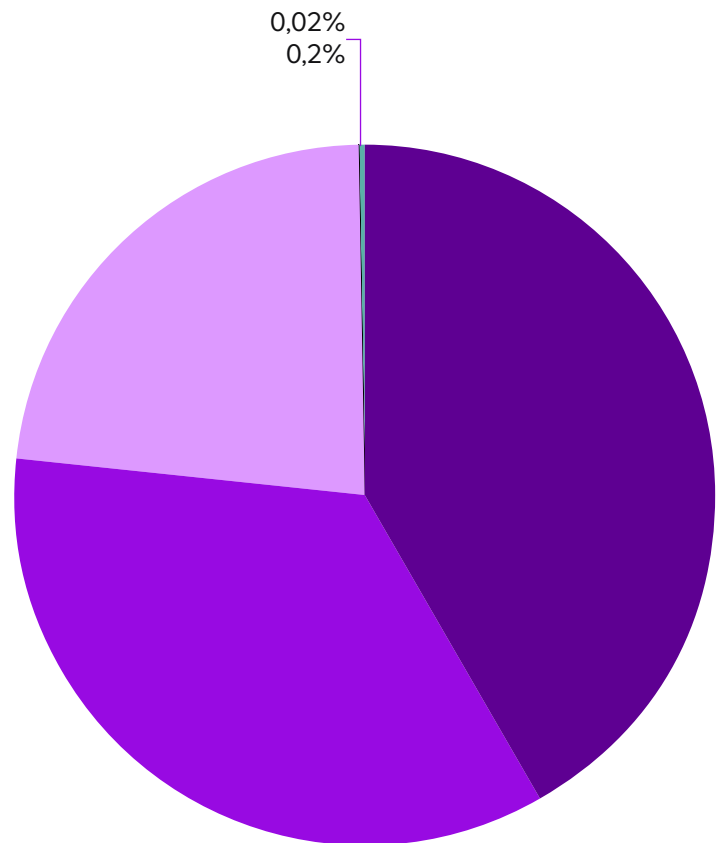
Not as waste, but as material

Our operations generate a significant amount of waste material, most of which is the result of network construction and maintenance operations. Waste generated in network construction includes asphalt removed when the street is opened, cables, electronic waste, and discarded back-up power batteries and telephone poles.

The total amount of waste generated by our operations each year depends on the network construction projects carried out during the year and their scope. In 2022, our operations generated 4,000 tonnes of waste, of which 36% was recycled and 64% recovered. In addition, the dismantling project of old telephone poles generated 2,200 tonnes of pole waste, which was used for energy.

We also regularly review the use of packaging materials and look for opportunities to reduce material consumption and use more environmentally friendly materials. During 2022, we introduced the so-called ecoSIM card. The size of the ecoSIM card frame has been halved compared to the traditional card frame. In this way, we reduce the consumption of plastic for our packaging by about 2,300 kg annually.

In 2023, our goal is to further increase the recycling rate of waste materials generated by our operations and to reduce the amount of waste which is energy recovered. We are developing the reuse of materials and waste sorting processes together with our suppliers and contractors.



Waste disposal method

- Energy recovery 10%
Cables, mixed waste

- Recovery 54%
Asphalt, construction waste, privacy material, mixed waste

- Recycling 36%
Batteries, metals, electronics, cables, mixed waste

- Disposal without recovery and landfill 0.2%
Hazardous waste, industrial waste

Refurbishment and reuse of equipment and devices for a longer life cycle

By extending the life cycle of equipment and devices, we can significantly reduce the environmental impact, emissions, and consumption of virgin materials caused by their manufacture. World events such as the decrease in consumer's purchasing power and component shortages affected the availability of refurbished equipment and devices in 2022.

Our operating model is fully compatible with the reuse of network and customer equipment, which extends their lifetime and reduces the need for new ones. During 2022, we continued the refurbishing of business customer equipment. Depending on the product, up to 46% of the equipment delivered was reused (2021: 50%). The global availability challenges were particularly visible in the procurement of factory-refurbished customer equipment, as its procurement halved compared to the previous year. Also in our consumer business, we have continued to reuse customer equipment, which in 2022 accounted for 13% of our total deliveries (2021: 29%). Reuse volumes were affected by, among other things, the introduction of a new equipment base.

By purchasing a refurbished smart device, our customers can reduce their own environmental footprint from their own device purchases. The Telia Recycled concept for refurbished mobile devices expanded during 2022, as we launched the Telia Recycled phones previously available only for consumer customers also for our business customers. The popularity of refurbished phones increased by about a quarter from the 2021 level. Telia Recycled iPhone 8 phones were also seen among the ten best-selling phone models in June and August.

In addition to our internal reuse processes, we direct equipment for refurbishment through our partners. In 2022, these actions allowed more than 40,000 equipment, devices, and accessories to get a second life.

Towards a sharing economy with device as a service

We offer a model of purchasing devices as a service, so there is no need to purchase it as your own. The device as a service model enables Telia and our customers a way to promote circular economy and reduce emissions. Extending the lifetime of a device reduces the annual customer-allocated emissions caused by the manufacture of the device. In device as a service model, the devices return to Telia at the end of the agreement period. We make sure that the returned device gets a new life through refurbishing or that the materials of the device are properly recycled at the end of its life cycle. Out of the total purchase of our business customers, nearly every second phone or tablet was sourced as device as a service in 2022.

Recycling equipment, devices, and materials for reuse

As in previous years, we collected pre-owned phones from our customers through the Telia Vaihtodiili take-back programme. The take-back programme allows pre-owned phones to be refurbished and given a new life as a Telia Recycled phone, for example. We also collect non-reusable phones at our shops and send them for recycling, where their materials are recovered for other needs. In 2022, our customers brought 3,000 kg of smart devices for recycling.

