

# SCANIA



## 2022

## GREEN BOND

## IMPACT REPORT



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## DRIVING THE SHIFT TOWARDS A SUSTAINABLE TRANSPORT SYSTEM

Scania is a world-leading provider of transport solutions, including trucks and buses for heavy transport applications combined with an extensive product-related service offering. We offer vehicle financing, insurance and rental services to enable our customers to focus on their core business. Scania is also a leading provider of industrial and marine engines. Our purpose and strategy are to drive the shift towards a sustainable transport system, creating a world of mobility that is better for business, society and the environment.

At Scania, we view the United Nations' 2030 Agenda for sustainable development as a shared agenda that requires collaboration across governments, businesses and the wider civil society. We strongly support all the 17 Sustainable Development Goals (SDG's) and believe they have the potential to deliver transformative change for both societies and businesses. Advances in transport will play an integral role in achieving all of the SDG's. Scania commits to the role as a partner in delivering on the Agenda 2030.

Sustainable transport is all about moving people and goods while contributing to economic and social development. But, without jeopardising human health and safety or endangering the environment. There is no single solution for transforming the transport system. Rather, a holistic approach is called for, considering the specific transport assignment and the maturity of the transport and logistics infrastructure in different parts of the world. Scania's sustainable transport solutions are developed in close cooperation with our customers, and other stakeholders. It centres around three pillars: Energy efficiency, Renewable fuels and electrification and Smart and safe transport.

### ELECTRIFICATION – THE KEY TO FOSSIL-FREE TRANSPORT

For the transport system to become sustainable, it must be rapidly decarbonised – and that depends in large part on drastically ramping-up the use of electric vehicles. Electric vehicles operate cleanly and quietly, with zero particles and NOx (nitrogen oxide) emissions and a greatly reduced total carbon footprint (especially when electricity provided comes from fossil-free energy sources). Battery technology is improving rapidly, and other solutions such as fuel cell technology are in development.

At Scania, to phase out carbon emissions from our rolling fleet is a key part of our strategy– a strategy that is rooted in a clear understanding of the world we operate in, informed by continuous dialogue with our stakeholders, risk assessments, scenario analysis, insights around our life cycle impacts,

and scientific research. Therefore, in line with what is dictated by science, we have a science-based target in place to support our decarbonisation journey. Shifting to electric is vital to realise that target.

Scania's electrification journey started as early as 2014 with our electric hybrid buses, followed by hybrid trucks in 2016. In 2020, we launched our first battery electric truck, designed for urban applications. The launch was the first phase in an electrification roadmap that will see us at Scania ramp-up our production of electric vehicles, including trucks designed to carry increasingly heavier loads over longer distances. The BEV landscape became significantly wider in June 2022, with the launch of our first line of BEV heavy trucks designed for regional haulage. The new generation, is part of a complete solution that will open the door to electrified transport for many more customers and applications. The trucks offer ranges of up to 350 km, and increased load-carrying capacities with GTW of up to 64 tonnes. Scania also provides supporting services such as charging, finance, insurance and maintenance.

Customer partnerships play a vital role in helping us develop the electrified transport solutions of the future. In 2022, we worked with customers on a range of important pilot projects, road testing prototype electric solutions from extremely heavy transport to trucks designed for the most demanding mining applications. The work has shown that no application is too heavy to electrify.

At the same time, we are working with our battery and charging infrastructure partners to make charging points available wherever our customers need them, and reduce the charging time these vehicles will require, keeping our vehicles on the road for longer.

## SCIENCE-BASED TARGETS

To manifest our commitment and be transparent on the progress to phase out carbon emissions, we have set science-based carbon reduction targets (SBT). These commit us to reduce emissions at the scale and pace science dictates is necessary to limit global warming by 2025. Scania will cut CO2 emissions from our own operations by 50 percent and reduce emissions from our products by 20 percent (using a 2015 baseline). This commitment represents a radical leap in our carbon reduction aims, as the targets encompass not only emissions from our direct global operations, but also from our customers' vehicles when in use. The latter constitutes more than 90 percent of our products' environmental impact.

Read more on our Science based targets: <https://www.scania.com/group/en/home/sustainability/initiatives-and-commitments/scania-science-based-targets.html>

See GHG scope reporting on: <https://www.scania.com/group/en/home/sustainability/responsible-business/environmental-footprint/environmental-performance.html>

## LIFE CYCLE ASSESSMENT

To get a better understanding of the true sustainability performance of battery electric trucks, and how they measure up against those powered by fossil fuels, we needed more insight into these cradle-to-grave impacts. In 2021 Scania became the first player in the heavy commercial vehicle industry to carry out a full life cycle assessment (LCA) of our battery electric trucks. The assessment compares a battery electric, European distribution truck with its diesel counterpart and was done using the internationally recognised ISO 14040/44 method. Result shows that battery electric vehicles (BEV) show a dramatic total life cycle reduction potential, thanks to the much lower impact from the user phase. Depending on the carbon intensity in the EU electrical grid, the life cycle GHG reduction spans from 38 percent (EU mix 2016) to 63 percent (prognosed EU mix 2030). To power the vehicle with green electricity is the way to fully utilise the BEV's potential. The results show a life cycle GHG reduction of 86 percent. A BEV entering the EU market after 2020 will have more than 50 percent life cycle GHG reduction compared to the diesel alternative. With today's energy mix (EU), the life cycle climate impact of a battery electric truck will be lower than that of a fossil-fuelled truck within two years of operation. There is also a dramatic reduction potential for other impact categories like fine particle formation, ozone creation and terrestrial acidification. The reduction in these categories lies between 83-97 percent, mainly due to eliminating tailpipe emissions. Tail pipe emissions which is the basis for EU legislation categorise battery electric vehicles as zero-emitting. This is also what is used within the EU Taxonomy regulation.

Read our LCA report on: <https://www.scania.com/content/dam/group/press-and-media/press-releases/documents/Scania-Life-cycle-assessment-of-distribution-vehicles.pdf>

## SUPPLY CHAIN DECARBONISATION

With a basis in our life cycle assessment we know that when moving into electrification and as more and more transport turns electric, the climate impact will shift from when vehicles are in use to when they are produced and the supply chain emissions increase in relation to the total (Scania's ambition is that half of our sold vehicles will be electric by the end of this decade). To address this impact, we are working to decarbonise our supply chain, focusing on the raw materials we use in manufacturing that are especially carbon-intensive to produce: steel, aluminium, batteries and cast iron. In 2022, we took a major step forward in decarbonising our supply chain, with the launch of a series of industry leading carbon reduction targets. By 2030, we are aiming for the batteries, steel, aluminium and cast iron we use in our European production to be 100 percent green. By "green", we mean that the main sources of emissions used to produce each material will be eliminated using new technologies, renewable energy or recycled

material. We are already working closely with our suppliers to ensure these changes happen. For example, we have developed a green steel roadmap for 2030, in close dialogue with our suppliers so that they are aware of their role and our expectations on the needed ramp-up of green steel production.

## BATTERIES: NEW IMPACTS, NEW CHALLENGES

While the electrification of transport brings major environmental benefits, it also creates new social challenges – in particular, those related to the raw materials needed for battery production. Responsible mineral and battery material sourcing is a major issue on the global sustainability agenda, as extraction of these materials can be linked to violence, conflict and human rights abuses.

As part of the supply chain sustainability work we carry out within the Volkswagen Group, we have identified four battery raw materials that we consider high risk: cobalt, lithium, graphite and rare earth elements such as neodymium. Through our supply chain management system, we work continuously to improve the traceability of these materials and identify risks, working with independent auditors and certification initiatives to raise standards and ensure we are using minerals from responsible sources.

Scania has the ambition to work with batteries in closed loops, meaning we work in partnership and pilot possibilities to reuse and repurpose the batteries before recycling them at the end of the battery life.

## GREEN BOND

In 2020, Scania, as the first pure manufacturer of commercial vehicles, received approval for issuing green bonds. The aim was to use green investment instruments as a way to tap sustainable financing and give investors the opportunity to fund projects that accelerate the shift towards a sustainable transport system in line with Scania's purpose.

The Green Bond Framework has been developed in cooperation with the bank SEB to align with the ICMA 2018 Green Bond Principles (GBP). The Framework constitutes the basis to identify, select, verify and report projects eligible for financing by green bond proceeds. Well-established Norwegian CICERO Shades of Green has rated the Framework 'dark green', a rating allocated to projects and solutions that correspond to the long-term vision of a low carbon and climate resilient future.

Scania's green bonds strive to reflect best practices in line with evolving market standards. The projects selected for the Green Bond Framework are aligned with the European Union's Taxonomy framework.

The proceeds from Scania's green bonds are exclusively channelled to projects that will have a profound impact on reducing CO2 emissions. These

include boosting the performance of heavy electric trucks and buses, e-bus-based public transport systems and establishing an efficient charging infrastructure for electric trucks and buses.

## GREEN FINANCING GOVERNANCE

Scania has a Green Bond Committee that consists of the Head of Sustainability and the Head of Treasury. The Green Bond Committee evaluates potential Eligible Assets. Decision is made in consensus on which assets meet the requirements of the Framework and will be financed with proceeds from Scania's Green Bonds. Only projects with a high likelihood that the net, long-term environmental effects are positive, are approved.

An amount equal to the net proceeds from the issue of Green Bonds was credited to a segregated Green Account with the purpose to finance Scania's Eligible Assets. As long as Green Bonds are outstanding and proceeds from issues are available on the Green Account, Scania shall, at the end of every fiscal quarter, deduct funds from the Green Account in an amount equal to disbursements for the financing of Eligible Assets made during that quarter. Until disbursement to Eligible Assets, the Green Account balance will be placed in a bank account. If, for any reason, a financed Eligible Asset no longer meets the eligibility criteria, it will be removed from the pool of projects financed with proceeds from Scania's Green Bonds.

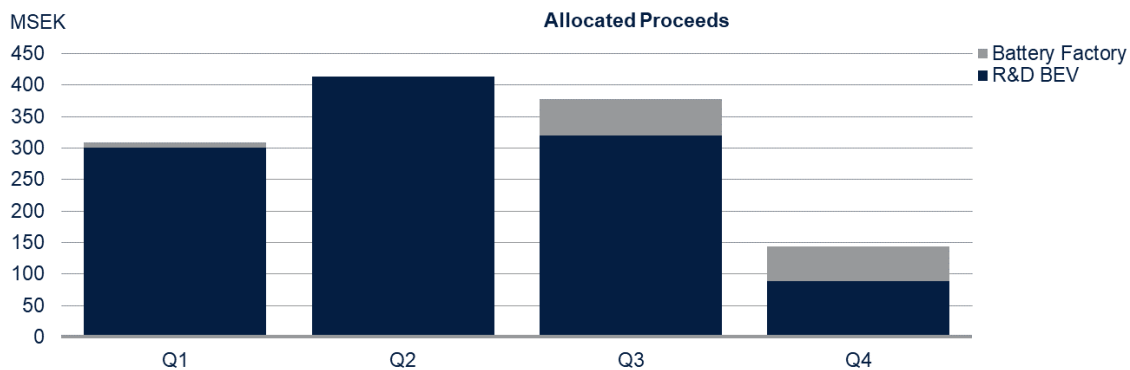
The Green Bond Impact Report is approved by Scania Sustainability Board (SSB), Scania's internal forum for sustainability coordination, decision making and follow-up. SSB is a cross-functional group, where all corporate functions are represented. SSB is reporting directly to Scania's Executive Board (ExB).

Scania had the Green Bonds Framework reviewed ex-ante by an experienced external reviewer, who will issue an independent Second Party Opinion. The internal tracking method, the allocation of funds from the Green Bond proceeds and the Green Bond Impact Report are verified ex-post by an external auditor appointed by Scania with the relevant expertise and experience.

## ALLOCATED PROCEEDS

The total nominal amount of Green Bonds issued and outstanding is 4,250 MSEK, 31 December 2022.

## 2021 BOND 1 250 MSEK



1 250 MSEK of the proceeds were allocated to Scania Electrification R&D and the Battery factory during the fiscal year 2021, split as per above.

## 2022 BOND 3 000 MSEK

1 976 MSEK of the proceeds have been allocated to Scania Electrification R&D during the fiscal year 2022. This project has also passed the Taxonomy screening for DNSH criteria (Do no significant harm) as well as social safeguards.

## SELECTED PROJECTS

The projects selected for funding through Scania’s Green Bond are key projects to support the electrification journey as well as for Scania to reach its decarbonisation targets. The first one through securing the ability to produce batteries and the second one through making sure that Scania develops the most efficient and well performing battery electric vehicles.

With many elements of uncertainty such as market development and dependencies on the availability of green electricity for example, Scania is unable to give an exact figure of the reduced CO2 emissions from customers’ use phase, which these projects will result in. However, as described in the LCA report the reduction impact of BEVs that will be rolled out by the end of 2023, and which have been funded by Green Bonds, will be significant.

### BATTERY PRODUCTION PROJECT

#### INTRODUCTION

The Battery Production Project will introduce production capabilities for a new generation of batteries for Scania trucks and buses. The design of the batteries is under development by Scania’s R&D department. The trucks and buses will be fully electric and the start of production is planned to be during the fall of 2023. The funding allocated to the battery factory was used in 2021 to finance the project.



## SCOPE OF PROJECT

To produce batteries, a new factory will be built, as no existing building was available or suitable. Two main assembly lines are needed: one for battery modules and one to make complete battery packs. In addition to these logistic flows, storages and IT systems are needed to operate the plant.

In order to avoid unnecessary transport, the location of the factory is close to the truck assembly line in Södertälje, Sweden. Specification of the factory building meets Scania's demand for serviceability, longevity and excellent energy performance, which means it exceeds the Swedish "Boverket" requirements by 25 percent.

The building fulfils the requirements of a "Green Building" certification, even though no certification is available for the factory part of the building.

## PROGRESS 2022

2022 was an eventful year. The construction of the factory building proceeded according to plan despite raw material shortage due to world supply chain challenges that to a smaller degree resulted in delays. The final handover of the factory building will be in April 2023.

Battery module line and logistic equipment was built in Germany during the spring and summer of 2022. After tests and inspections the equipment was moved from Germany to Södertälje. The installations were finalised at the end of the year. Test and start-up activities are currently ongoing to secure safety and quality once the production starts.

The pack line is being built up at the supplier in Germany to accommodate test and inspection before shipment to Södertälje during summer 2023.



## PLAN FOR 2023

During the spring of 2023, the Battery Production organisation is planned to start utilising the factory, both the office area and the production area. First out is the production of modules, which is planned to start in April. At this point the pre-series production period of complete trucks will start, but the battery packs will continue to be built in prototype equipment, until installation and test of pack line are completed in September. Another activity during the spring is the installation of solar panels. The ramp-up of production with deliveries to customer will start during the fall.

The Battery Production Project will be finalised in October. Continuous improvements and continuous introductions will start and be managed by line organisation.

## ELECTRIFICATION WITHIN RESEARCH & DEVELOPMENT



## INTRODUCTION

Scania Electrification R&D fully focuses on developing Battery Electric Vehicles (BEV) for heavy commercial use. The focus is to develop a great number of applications with the aim to have a complete BEV-product portfolio before 2030.

In autumn 2023, the first trucks of the new generation will be launched, with the aim to offer a highly competitive truck for the important regional haulage segment.

## PROGRESS 2022

The division “Electrification R&D”, where design, simulation and testing for all electrical components are concentrated, has been increasing its resources in 2022, but at a more mature pace of approximately +10% versus 2021.

Highly competent engineers in this field of technology are a scarce resource in the market, and it takes a lot of effort to recruit.

### Next generation Battery Electric Vehicles

Scania’s Electrification Product Roadmap covers introductions of new products from now until 2030. All projects intended to start in 2022 are up and running.

The earlier delays in the delivery of battery prototypes are now in a better situation due to intense work from Scania together with Northvolt.

The first part of the project is now in a validation phase with a fleet of trucks out on public roads for the final validation testing. A front collision test with a complete truck has been performed with good results.

## PLAN FOR 2023

The first part of the project with the aim to release a Regional Haulage product is to be finalised. In this intense phase, validation testing will be conducted, both in test rigs and on public roads in real operation.

In part two of the project, updating the distribution segment offering and adding building blocks for a longer range (targeting long-haul customers) will increase the resource need and pace.

During 2023, it is also in plan to start part three which involves the design and testing for the heavy construction segment.

R&D will also support the Production division with the final preparation for the start of the new generation BEV series production that will be introduced this autumn.

## **THE FUTURE OF ELECTRIFICATION AT SCANIA**

The shift to electric power will not just radically change the transport system – it will also transform our business. Increasingly, Scania’s focus is to provide sustainable transport solutions, and offer our customers a complete e-mobility solution from the sourcing of renewable energy to complete charging. The offer is based on a detailed analysis of their fleet and transport requirements and covers everything from installation to management and maintenance of charging equipment. Batteries – including the supply of modules, packs and battery management systems – will also become an increasingly important part of our business.



Electric vehicles are key to cutting transport emissions. But for electric transport to be truly sustainable, we need to reduce impacts at every stage of their life cycle – from operating on fossil-free energy, to the carbon impact of manufacturing vehicles and all the way to the disposal of the batteries. Though we have a good momentum and a clear plan, the progress we have made in electrification to date is just the beginning of our journey.