

An S&P Global Second Party Opinion (SPO) includes S&P Global Ratings' opinion on whether the documentation of a sustainable finance instrument, framework, or program, or a financing transaction aligns with certain third-party published sustainable finance principles. Certain SPOs may also provide our opinion on how the issuer's most material sustainability factors are addressed by the financing. An SPO provides a point-in-time opinion, reflecting the information provided to us at the time the SPO was created and published, and is not surveilled. We assume no obligation to update or supplement the SPO to reflect any facts or circumstances that may come to our attention in the future. An SPO is not a credit rating, and does not consider credit quality or factor into our credit ratings. See [Analytical Approach: Second Party Opinions](#).

## Second Party Opinion

# Volvo Car AB (publ.) Green Financing Framework

March 19, 2026

**Location:** Sweden

**Sector:** Automotive

## Alignment Summary

Aligned = ✓ Conceptually aligned = ○ Not aligned = ✗

- ✓ Green Bond Principles, ICMA, 2025
- ✓ Green Loan Principles, LMA/LSTA/APLMA, 2025

See [Alignment Assessment](#) for more detail.

## Primary contact

**Tim Axtmann**  
Oslo  
+47-9415-7046  
tim.axtmann  
@spglobal.com

**Dark green**

Activities that correspond to the long-term vision of a low-carbon climate resilient future.

Our [Shades of Green Analytical Approach](#) >

## Strengths

**Volvo Car AB (publ.) (Volvo Cars) leads the way among legacy car manufacturers for its share of electric-vehicle sales.** In 2025, fully electric and plug-in hybrid vehicles accounted for 46% of Volvo Cars' sales, the highest share among its peer group of traditional carmakers.

**Volvo Cars has several innovative approaches to the circular economy.** For example, Volvo Cars' ambition to generate additional revenue pools from remanufacturing and close-loop initiatives.

**Prior to each issuance, Volvo Cars intends to provide an estimate of the share of proceeds it uses for financing and refinancing and any relevant look-back period.** We welcome this additional transparency and granularity, especially because, unlike in its previous framework, Volvo Cars only commits to a specific look-back period for operational expenditure.

## Weaknesses

No weaknesses to report.

## Areas to watch

**The proceeds can finance initiatives that may apply to both fully electric and plug-in hybrid vehicles.** In such cases, for example, potential investments in core computing or the full technology stack, Volvo Cars will pro-rate the investments so that the allocations only reflect the applicable share of fully electric vehicles. While this is pragmatic and valid, more information on the approach to pro-rating, whether in the framework or the post-issuance reporting, could increase transparency.

## Shades of Green Projects Assessment Summary

Volvo Cars' Green Financing Framework contains only one project category relating to fully electric vehicles. Within this, Volvo Cars expects to allocate the proceeds to both research and development (R&D) and manufacturing, although it expects a fall in R&D investments as it transitions from platform development to industrialization.

Both financing and refinancing are eligible under the framework. Prior to each new issuance, Volvo Cars intends to provide an estimate of the share of financing and refinancing.

Based on the project category's Shades of Green detailed below and our consideration of the environmental ambitions reflected in Volvo Cars' Green Financing Framework, we assess the framework Dark green.

### Clean transportation

### Dark green

The design, development, industrialization, manufacturing, and circular life-cycle management of zero-tailpipe-emission battery electric vehicles, related components, and technologies.

See [Analysis Of Eligible Projects](#) for more detail.

## Issuer Sustainability Context

This section provides an analysis of the issuer's sustainability management and the embeddedness of the financing framework within its overall strategy.

## Issuer Description

Volvo Cars is an automotive manufacturer headquartered in Gothenburg, Sweden. In 2025, Volvo Cars manufactured and sold 710,000 cars, of which 46% were electrified. Of these electrified cars, 21% were fully electric. Volvo Cars' key markets are Europe (47% of 2025 sales), China (21%), and the U.S. (17%). Volvo Cars' largest shareholder is Zhejiang Geely Holding Group Co. Ltd., which has about 79% of the shares.

## Material Sustainability Factors

### Climate-transition risk

Road passenger and freight vehicles contribute approximately 19% of global energy emissions according to the International Energy Agency. We expect the number, scope, and aims of the regulatory requirements regarding greenhouse gases in the automotive sector to increase significantly. In particular, there are risks around bans on the sale of new internal combustion engine vehicles and their use in urban areas; stricter vehicle fuel-efficiency regulations and emissions standards; and regulations that apply to production facilities in the supply chain. As a result, climate-transition risk management is at the forefront of global original equipment manufacturers' and suppliers' strategies and is transforming their value chains. The transformation requires significant investments in manufacturing plants and R&D.

### Pollution

The sector contributes significantly to air pollution due to vehicles' combustion of fossil fuels. The implications of such emissions range from declining public health in cities to harm to ecosystems. More stringent regulation has significantly reduced the air pollutants (such as nitrogen oxides) emitted by internal combustion engines. Accelerating sales of electric vehicles could reduce local air pollution relating to vehicle use. Nevertheless, as mining and raw-material processing are crucial in facilitating the large-scale rollout of electric vehicles, the sector is also exposed to air and wastewater pollution risks in its supply chains.

### Waste and recycling

Original equipment manufacturers and regulators are paying increasing attention to the recyclability of batteries and other significant materials used in vehicles--such as steel and aluminum--due to the environmental risks associated with their disposal at the end of their life and the emissions associated with their production. To manage such risks, we anticipate that circular-product life-cycle management will become more strictly regulated globally. Since 2015, the EU has required that, on average, more than 95% of vehicle materials by weight are recovered and reused at end-of-life. While steel and aluminum retain some economic value thanks to established recycling chains, vehicle battery recycling is at an earlier stage.

## Issuer And Context Analysis

**Volvo Cars primarily seeks to address climate-transition risk through its framework.** Use-phase emissions are the sector's largest source of emissions, and investments in fully electric vehicles are therefore an important means of mitigating these. By their nature, fully electric vehicles address air pollution from engines. Volvo Cars' approach to circularity is relevant to climate-transition, waste, and recycling risks. Nonetheless, electrification introduces other risks. Batteries, for example, typically involve high-emission and energy-intensive manufacturing processes.

**Volvo Cars' largest source of emissions occurs in the use phase.** Volvo Cars reported total greenhouse gas emissions of about 35 million tons of carbon dioxide (CO<sub>2</sub>) in 2025, about four million tons less than in 2024. Volvo Cars attributes this to a higher share of fully electric vehicles. Of these emissions, about 67% relate to the use phase, from the combustion of fuel or the production and distribution of electricity. The next largest source of emissions--about 28%--is the purchase of goods and services, such as steel, aluminum, and battery components. Scope 1 and 2 emissions, for example from production facilities, account for less than 1% of the total.

**Volvo Cars has a range of relevant absolute and intensity-based climate ambitions.** These focus on full electrification and minimizing emissions from materials and operations. Volvo Cars' long-term aim is to be net zero across its value chain by 2040, with a key step being its ambition to reduce CO<sub>2</sub> emissions per vehicle by at least 65% by 2030 (2018 baseline). In 2025, CO<sub>2</sub>

emissions per vehicle were 31% below the baseline. In addition, Volvo Cars has the following goals:

- **Electrification.** By 2030, Volvo Cars aims for at least 90% of sales to be of fully electric or plug-in hybrid vehicles. However, to achieve its target of reducing tailpipe emissions per vehicle by at least 85% by 2030 (2018 baseline), this proportion will need to skew heavily toward fully electric vehicles. In 2025, electrified vehicles amounted to 46% of sales, of which 21% were fully electric. Volvo Cars introduced this target in September 2024 due to changing market conditions and customer demands influencing the pace of electrification. Prior to this, it aimed for 100% sales of fully electric vehicles by 2030.
- **Emissions from materials.** By 2030, Volvo Cars seeks to reduce the emissions from materials by 30% per vehicle (2018 baseline). In 2025, these emissions were 3% below the baseline. According to Volvo Cars, this primarily reflects higher embodied emissions in fully electric vehicles, particularly in batteries. That said, the company expects increased use of lower-carbon aluminum and sheet steel, and a reduction in emissions from battery components to contribute to further reductions.
- **Operational emissions.** Volvo Cars aims to reduce operational emissions per vehicle by 30% by 2030 (2018 baseline). In 2025, the reduction already stood at 37%. Key levers are increased energy efficiency in production, the electrification of production processes, and the use of renewable energy.

**Volvo Cars considers pollution across its value chain.** According to Volvo Cars, its primary sources of pollution are in its supply chain, linked to the extraction and processing of raw materials, and in the use phase, for example from fuel combustion and tire wear. Volvo Cars considers such issues in its due diligence of suppliers, for example in its sustainability assessment questionnaires. It also details its expectations in its Code of Conduct for Business Partners, other internal policies, and its position paper on sustainable materials. Of note is Volvo Cars' work around substances of high or very high concern, which is expanding as part of the company's ongoing engagement with the EU Taxonomy.

**Volvo Cars' approach to circularity and resource use has positive implications for waste and recycling.** Volvo Cars' ambition is, by 2030, to increase recycled or bio-based content to over 30% across its entire fleet and to 35% in its new models. In 2025, the company achieved 20% and 19%, respectively. In addition, Volvo Cars launched one new electrified model in January 2026, the EX60, with 27% recycled material.

# Alignment Assessment

This section provides an analysis of the framework's alignment to Green Bond and Green Loan principles.

## Alignment Summary

Aligned = ✓    Conceptually aligned = ○    Not aligned = ✗

- ✓ Green Bond Principles, ICMA, 2025
- ✓ Green Loan Principles, LMA/LSTA/APLMA, 2025

### ✓ Use of proceeds

The framework's project category is assigned a Shade of Green (see the Analysis of Eligible Projects section for more information). Volvo Cars commits to allocating the net proceeds issued under the framework exclusively to eligible green projects.

Both financing and refinancing are eligible under the framework. Prior to each new issuance, Volvo Cars intends to provide an estimate of the share of financing and refinancing and any relevant look-back period. Assets can qualify for refinancing without a look-back period, while operational expenditure has a three-year look-back period.

### ✓ Process for project evaluation and selection

The framework outlines the process for selecting eligible projects. Volvo Cars has a sustainable financing committee with members from sustainability, treasury, business control, and investor relations. The committee meets at least semiannually. As well as alignment with the eligibility criteria, the committee's responsibilities include evaluating eligible projects for environmental and social risks. This entails, for example, a sustainability assessment of potential controversies, such as lock-in and rebound effects, and evaluation against Volvo Cars' Code of Conduct and Code of Conduct for Business Partners.

### ✓ Management of proceeds

Volvo Cars will use a dedicated register to track its eligible investments, with proceeds earmarked for specific projects and investments. The company intends to allocate the proceeds at its earliest convenience, and in any case within two years of issuance. Volvo Cars will manage any unallocated proceeds in accordance with its financial policy, meaning that it will hold them in cash, cash equivalents, and/or other marketable liquid instruments.

According to the framework, Volvo Cars will not issue any loans under the framework that can include non-green tranches.

### ✓ Reporting

Volvo Cars will report annually on allocation and impacts, at least until full allocation and thereafter in case of any material change to the allocation of net proceeds.

Allocation reporting will include the share of net proceeds allocated to each sub-category within the framework (R&D and manufacturing); the share of proceeds used for financing versus refinancing; unallocated amounts; and, where feasible, an estimate of alignment with the EU Taxonomy.

For impact reporting, Volvo Cars will use corporate-level indicators, such as fully electric vehicles as a percentage of sales, and a reduction in tailpipe CO2 emissions per vehicle. According to Volvo Cars, it adopts this approach because the environmental benefits of the allocated proceeds will take several years to materialize and will depend on manufacturing and sales volumes.

Volvo Cars has been preparing green financing reporting for several years under its previous frameworks. The company has similar reporting commitments in the current framework to those in its previous frameworks.

## Analysis Of Eligible Projects

This section provides details of our analysis of eligible projects, based on their environmental benefits and risks, using the "[Analytical Approach: Shades Of Green Assessments](#)".

### Overall Shades of Green assessment

Based on the project category shades of green detailed below, the expected allocation of proceeds, and our consideration of the environmental ambitions reflected in Volvo Cars' Green Financing Framework, we assess the framework Dark green.

**Dark green**

Activities that correspond to the long-term vision of a low-carbon climate resilient future.

Our [Shades of Green Analytical Approach](#) >

### Green project categories

#### Clean Transportation

##### Assessment

 **Dark green**

##### Description

Investments and capital expenditure (including costs directly relating to product development) that enable the design, development, industrialization, manufacture, and circular life-cycle management of zero-tailpipe-emission battery electric vehicles, related components, and technologies.

Investments specifically target Volvo Cars' fully electric product architectures, core computing, propulsion, structures, software, digital features, and sustainable manufacturing systems.

##### R&D

Investments in the design and development of fully electric vehicles and enabling technologies, including:

- Superset technology stacks (core computing, software-defined architecture, connectivity, and AI applications) and fully electric platforms.
- Advanced propulsion and energy systems, e-motors, power electronics, and battery innovations, including increased energy density, cell-to-body integration, and advanced battery management systems.
- Structural and manufacturing innovations such as mega-casting and lightweight materials.
- Digital features and vehicle systems, validation and testing infrastructure, and sustainability-by-design, including durability, repairability, and circularity initiatives.

### Manufacturing

Investments in facilities, equipment, and processes for industrializing battery electric vehicles and components, including:

- The construction and upgrades of plants for fully electric car production and battery assembly.
- Tooling and automation for mega-casting, e-motor and battery lines, and integration of cell-to-body technology.
- Sustainable operations, including energy efficiency, low-carbon materials, and closed-loop recycling of batteries and structural components.
- End-of-life systems for repair, remanufacture, and material recovery to enable a circular value chain.

### Analytical considerations

- Mitigating greenhouse gas emissions from road transport will be crucial to meet global decarbonization goals, with road transport accounting for about 19% of global energy emissions according to the International Energy Agency. Zero-tailpipe-emission vehicles therefore play a crucial role in the sector's decarbonization. Nevertheless, such vehicles also entail climate and environmental risks, such as in the sourcing and processing of raw materials, and the climate impact depends on the energy source used.
- We assess this project category as Dark green. This primarily reflects the centrality of fully electric vehicles in the transport sector's climate transition and Volvo Cars' approaches to mitigating climate and environmental risks and impacts in its value chain, for example, its approaches to life-cycle emissions and circularity.
- As per the eligibility criteria, Volvo Cars will use the proceeds for R&D into fully electric vehicles and their manufacture. According to Volvo Cars, certain initiatives essential to its broader electrification strategy--such as core computing or the full technology stack--may apply to both fully electric and plug-in hybrid vehicles. In such cases, Volvo Cars will pro-rate investments so that the allocations only reflect the applicable share of fully electric vehicles. For refinancing, this will be based on actual output, while for financing, it will derive from the cost-tiering designations. Additionally, according to Volvo Cars, it will prioritize investments that relate wholly to fully electric vehicles, and, in the case of pro-rated investments, the share of fully electric vehicles will be substantial.
- Batteries account for a sizable share of fully electric vehicles' cradle-to-gate emissions. It is therefore crucial to decarbonize their manufacture and increase focus on their remanufacture and recycling in parallel with electrification. An emphasis on batteries will be necessary for Volvo Cars to achieve its target of reducing emissions from materials by 30% per vehicle (2018 baseline). Among its current actions, Volvo Cars points to cell manufacturers' use of renewable energy, including some assurances from tier 2 anode/cathode suppliers, and measures to increase the use of recycled materials, particularly in cathodes.
- Efficient and circular resource use is similarly important, not only from an emissions standpoint, but also from a biodiversity, water, and pollution perspective. To this end, it is positive that the framework's example projects include mega-casting, lightweighting, and end-of-life systems for repair, remanufacture, and material recovery. More broadly, Volvo Cars has circular-economy targets that relate to the vehicles under the framework. Notable actions include introducing closed-loop recycling systems for aluminum and steel scrap in certain Chinese facilities; and entering an agreement with Swedish steel manufacturer SSAB to use recycled steel for certain components of its EX60 model.
- Fixed assets, such as Volvo Cars' manufacturing facilities, are exposed to physical climate risk, and this risk is also present in the company's supply chain. Volvo Cars considers such risks when establishing new facilities and business operations. It also conducts risk and vulnerability analyses as part of its selection procedures for suppliers and locations. In addition, it assesses manufacturing facilities as part of its risk management and underwriting processes.

S&P Global Ratings' Shades of Green

Assessments					
Dark green	Medium green	Light green	Yellow	Orange	Red
<b>Description</b>					
Activities that correspond to the long-term vision of an LCCR future.	Activities that represent significant steps toward an LCCR future but will require further improvements to be long-term LCCR solutions.	Activities representing transition steps in the near-term that avoid emissions lock-in but do not represent long-term LCCR solutions.	Activities that do not have a material impact on the transition to an LCCR future, or, Activities that have some potential inconsistency with the transition to an LCCR future, albeit tempered by existing transition measures.	Activities that are not currently consistent with the transition to an LCCR future. These include activities with moderate potential for emissions lock-in and risk of stranded assets.	Activities that are inconsistent with, and likely to impede, the transition required to achieve the long-term LCCR future. These activities have the highest emissions intensity, with the most potential for emissions lock-in and risk of stranded assets.
<b>Example projects</b>					
 Solar power plants	 Energy efficient buildings	 Hybrid road vehicles	 Health care services	 Conventional steel production	 New oil exploration

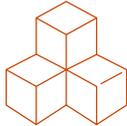
Note: For us to consider use of proceeds aligned with ICMA Principles for a green project, we require project categories directly funded by the financing to be assigned one of the three green Shades.

LCCR--Low-carbon climate resilient. An LCCR future is a future aligned with the Paris Agreement; where the global average temperature increase is held below 2 degrees Celsius (2 C), with efforts to limit it to 1.5 C, above pre-industrial levels, while building resilience to the adverse impact of climate change and achieving sustainable outcomes across both climate and non-climate environmental objectives. Long term and near term--For the purpose of this analysis, we consider the long term to be beyond the middle of the 21st century and the near term to be within the next decade. Emissions lock-in--Where an activity delays or prevents the transition to low-carbon alternatives by perpetuating assets or processes (often fossil fuel use and its corresponding greenhouse gas emissions) that are not aligned with, or cannot adapt to, an LCCR future. Stranded assets--Assets that have suffered from unanticipated or premature write-downs, devaluations, or conversion to liabilities (as defined by the University of Oxford).

# Mapping To The U.N.'s Sustainable Development Goals

Where the financing documentation references the Sustainable Development Goals (SDGs), we consider which SDGs it contributes to. We compare the activities funded by the financing to the International Capital Markets Association (ICMA) SDG mapping and outline the intended linkages within our SPO analysis. Our assessment of SDG mapping does not affect our alignment opinion.

This framework intends to contribute to the following SDGs:

Use of proceeds	SDGs			
Clean transportation	 <b>9. Industry, innovation and infrastructure</b>	 <b>11. Sustainable cities and communities*</b>	 <b>12. Responsible consumption and production</b>	 <b>13. Climate action</b>

\*The eligible project categories link to these SDGs in the ICMA mapping.

## Related Research

- [Analytical Approach: Second Party Opinions](#), March 6, 2025
- [FAQ: Applying Our Integrated Analytical Approach For Second Party Opinions](#), March 6, 2025
- [Analytical Approach: Shades Of Green Assessments](#), July 27, 2023
- [Sustainability Insights: Climate Transition Trends: The Progress And Potholes on Automakers' Road to Decarbonization](#), Nov. 4, 2025

## Analytical Contacts

### Primary contact

**Tim Axtmann**

Oslo  
+47-9415-7046  
tim.axtmann  
@spglobal.com

### Secondary contacts

**Pierre-Brice Hellsing**

Stockholm  
+46-707-822-823  
pierre-brice.hellsing@spglobal.com  
@spglobal.com

## Second Party Opinion: Volvo Car AB (publ.) Green Financing Framework

Standard & Poor's Financial Services LLC or its affiliates (collectively, S&P) receives compensation for the provision of the Second Party Opinions product and the European Green Bond External Review product (separately and collectively, Product).

S&P may also receive compensation for rating the transactions covered by the Product or for rating the issuer of the transactions covered by the Product.

The purchaser of the Product may be the issuer.

The Product is not a credit rating, and does not consider credit quality or factor into our credit ratings. The Product does not consider, state or imply the likelihood of completion of any projects covered by a given financing, or the completion of a proposed financing. The Product is a statement of opinion and is neither a verification nor a certification. The Product is a point in time evaluation reflecting the information provided to us at the time that the Product was created and published, and is not surveilled. The Product is not a research report and is not intended as such. S&P's credit ratings, opinions, analyses, rating acknowledgment decisions, any views reflected in the Product and the output of the Product are not investment advice, recommendations regarding credit decisions, recommendations to purchase, hold, or sell any securities or to make any investment decisions, an offer to buy or sell or the solicitation of an offer to buy or sell any security, endorsements of the suitability of any security, endorsements of the accuracy of any data or conclusions provided in the Product, or independent verification of any information relied upon in the credit rating process. The Product and any associated presentations do not take into account any user's financial objectives, financial situation, needs or means, and should not be relied upon by users for making any investment decisions. The output of the Product is not a substitute for a user's independent judgment and expertise. The output of the Product is not professional financial, tax or legal advice, and users should obtain independent, professional advice as it is determined necessary by users.

While S&P has obtained information from sources it believes to be reliable, S&P does not perform an audit and undertakes no duty of due diligence or independent verification of any information it receives.

S&P and any third-party providers, as well as their directors, officers, shareholders, employees, or agents (collectively S&P Parties) do not guarantee the accuracy, completeness, timeliness, or availability of the Product. S&P Parties are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, for reliance of use of information in the Product, or for the security or maintenance of any information transmitted via the Internet, or for the accuracy of the information in the Product. The Product is provided on an "AS IS" basis. S&P PARTIES MAKE NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDED BUT NOT LIMITED TO, THE ACCURACY, RESULTS, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE WITH RESPECT TO THE PRODUCT, OR FOR THE SECURITY OF THE WEBSITE FROM WHICH THE PRODUCT IS ACCESSED. S&P Parties have no responsibility to maintain or update the Product or to supply any corrections, updates, or releases in connection therewith. S&P Parties have no liability for the accuracy, timeliness, reliability, performance, continued availability, completeness or delays, omissions, or interruptions in the delivery of the Product.

To the extent permitted by law, in no event shall the S&P Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs or losses caused by negligence, loss of data, cost of substitute materials, cost of capital, or claims of any third party) in connection with any use of the Product even if advised of the possibility of such damages.

Some of the Product may have been created with the assistance of an artificial intelligence (AI) tool. Published Products created or processed using AI is composed, reviewed, edited, and approved by S&P personnel.

S&P maintains a separation between commercial and analytic activities. S&P keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of S&P may have information that is not available to other S&P business units. S&P has established policies and procedures to maintain the confidentiality of certain nonpublic information received in connection with each analytical process.

For PRC only: Any "Second Party Opinions" or "assessment" assigned by S&P Global Ratings: (a) does not constitute a credit rating, rating, sustainable financing framework verification, assessment, certification or evaluation as required under any relevant PRC laws or regulations, and (b) cannot be included in any offering memorandum, circular, prospectus, registration documents or any other document submitted to PRC authorities or to otherwise satisfy any PRC regulatory purposes; and (c) is not intended for use within the PRC for any purpose which is not permitted under relevant PRC laws or regulations. For the purpose of this section, "PRC" refers to the mainland of the People's Republic of China, excluding Hong Kong, Macau and Taiwan.

For India only: Any "Second Party Opinions" or "assessments" assigned by S&P Global Ratings to issuers or securities listed in the Indian securities market are not intended to be and shall not be relied upon or used by any users located in India.

Australia: S&P Global Ratings Australia Pty Ltd provides Second Party Opinions in Australia subject to the conditions of the ASIC SPO Class No Action Letter dated June 14, 2024. Accordingly, this Second Party Opinion and related research are not intended for and must not be distributed to any person in Australia other than a wholesale client (as defined in Chapter 7 of the Corporations Act).

Copyright © 2026 by Standard & Poor's Financial Services LLC. All rights reserved.