

Driving Transparency:

Navigating Scope 3 Category 11 Emissions Disclosure in the Automotive Industry

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Executive Summary

Across the world, regulatory frameworks like EU's CSRD and California's SB 253 are pushing original equipment manufacturers (OEMs) toward more accurate disclosures. Scope 3 Category 11 (use of sold products' emissions) constitutes the largest share of their value chain carbon footprint.

However, varying reporting methodologies, geographic scopes and vehicle lifetime assumptions create inconsistencies among OEMs. S&P Global Mobility provides a solution with its comprehensive datasets, offering reliable, consistent and comparable emissions insights. By aligning with the Science Based Targets Initiative and regulatory requirements, OEMs can improve transparency and meet decarbonization goals while navigating the evolving regulatory landscape.

Introduction

The automotive industry faces a critical challenge in disclosing Scope 3 emissions, which are indirect greenhouse gas emissions generated throughout a company's value chain, including emissions from suppliers, product use and waste disposal. Understanding Scope 3 emissions is essential for car OEMs, as they often represent the largest share of their carbon footprint.

Specifically, Category 11, which covers use-phase emissions, represents about 75%-80% of these emissions for most OEMs. As global regulatory landscapes evolve, OEMs face mounting pressure to enhance transparency and accuracy in their emissions reporting.

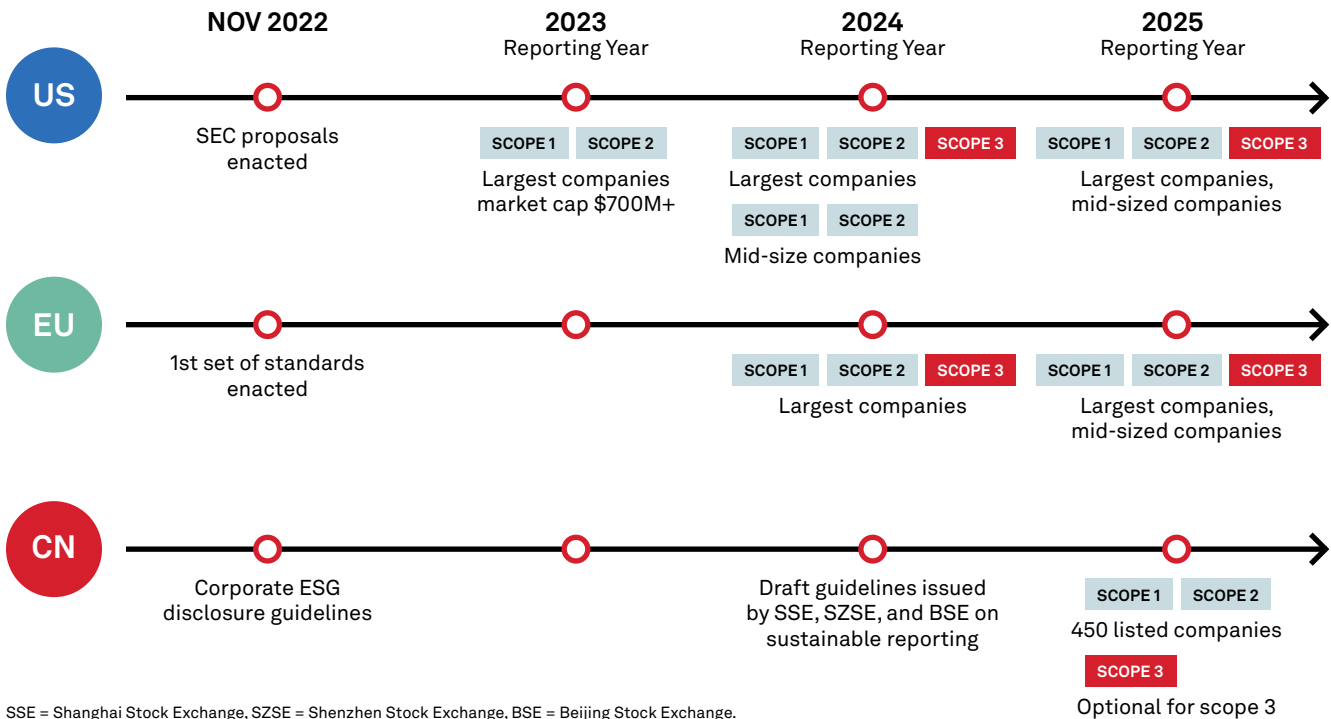
In 2024, the regulatory landscape for Scope 3 emissions disclosure saw significant advancements. In Europe, the Corporate Sustainability Reporting Directive (CSRD) mandates comprehensive emissions reporting, including Scope 3, using a double materiality approach. This directive requires large public interest entities (PIEs) to disclose their environmental and financial impacts, with assurance standards becoming stricter by 2027. The Corporate Sustainability Due Diligence Directive (CSDDD) further compels companies to align their transition plans with the Paris Agreement, setting specific targets for Scope 3 emissions.

In the United States, California's Climate Corporate Data Accountability Act (SB 253) requires companies with over \$1 billion in revenue to disclose Scope 3 emissions starting in 2026. This legislation, along with similar initiatives in other states, underscores the growing importance of emissions transparency in the US market.

China's three major stock exchanges—the Shanghai Stock Exchange, Shenzhen Stock Exchange, and Beijing Stock Exchange—have announced new sustainability reporting guidelines that will require larger cap and dual-listed companies to disclose a wide range of ESG topics beginning in 2026. Notably, these guidelines include mandatory reporting on Scope 3 greenhouse gas emissions, highlighting a significant focus on emissions transparency.

Globally, the Greenhouse Gas Protocol provides a framework for calculating Scope 3 emissions, influencing corporations to adopt these standards to meet investor and regulatory expectations. Despite the US Securities and Exchange Commission (SEC) excluding Scope 3 emissions from its final climate risk disclosure rules, the push for comprehensive reporting continues, driven by investor demand for robust environmental, social and governance (ESG) criteria.

Timeline Chart



As these regulations unfold, OEMs must enhance their data collection and validation processes and collaborate with supply chain partners to meet disclosure requirements. The drive for transparency and accountability in Scope 3 emissions is intensifying, with significant implications for the automotive industry’s future sustainability efforts.

These emissions, which occur during the use phase of vehicles, represent a significant portion of an OEM’s carbon footprint. This underscores the need for accurate reporting to ensure regulatory compliance and support sustainability initiatives that align with consumer and investor expectations.

This whitepaper will examine the challenges and opportunities in Scope 3 Category 11 emissions disclosure, highlighting the strategic importance of comprehensive reporting practices. It will also discuss how S&P Global Sustainable Mobility can enhance this reporting through advanced data analytics and life cycle assessment, providing automotive industry stakeholders with the tools needed to navigate regulatory complexities and achieve their sustainability goals in a competitive, eco-conscious market.

The Status Quo Analysis

The automotive industry faces growing scrutiny over Scope 3 emissions, which cover indirect emissions across the value chain. The top 10 OEMs, including Toyota, Ford, Honda, Volkswagen and others, face challenges in disclosing Scope 3 Category 11 emissions due to differences in geographic scope, vehicle types, and assumptions like lifetime mileage and well-to-tank (WTT) factors. These discrepancies have caused significant variations in reported emissions, emphasizing the need for standardized methodologies and clearer guidelines.

Top 10 automaker's disclosed Scope 3 emission for year 2022

Car manufacturer (OEM)	Scope 3 emissions (million metric tons CO2)	Scope 3 Category 11 emissions (million metric tons CO2)	Vehicle Lifetime Mileage (kilometer)	Vehicle Types Covered	Geographic Coverage
OEM #1	116.58	92.95	200,000	PC	EU, USA, mainland China, South Africa, and Mexico
OEM #2	334.83	286.50	241,000*	PC & LCV	North America, EU, mainland China & South Africa
OEM #3	327.27	208.55	200,000	PC & LCV	US, Canada, Brazil, mainland China & Other Regions
OEM #4	275.72	228.87	200,000	PC, Motorcycles, Aircrafts & power products	Japan, mainland China, Asia & Oceania, South & North America, Africa & Middle East
OEM #5	105.79	82.96	150,000	PC & MHCV	USA, Korea, EU, mainland China & India
OEM #6	123.30	98.00	200,000	PC & LCV	South & North America, EU, Asia, Africa, Australia & New Zealand
OEM #7	447.23	395.50	225,000	PC & LCV	EU, Asia, Africa, Australia & New Zealand
OEM #8	30.1	3.41	321,869*	PC & LCV	USA, Canada, mainland China, Australia, EU & Middle East
OEM #3	570.49	439.45	100,000	PC, LCV & MHCV	Japan, North America, EU & Asia
OEM #10	395.62	287.77	200,000	PC & LCV	EU27, UK, Norway, Iceland, mainland China & USA

Note: PC = passenger car, LCV = light commercial vehicle, MHCV = medium and heavy-duty commercial vehicle.

Source: OEM's Sustainability reports

* Converted from miles to km

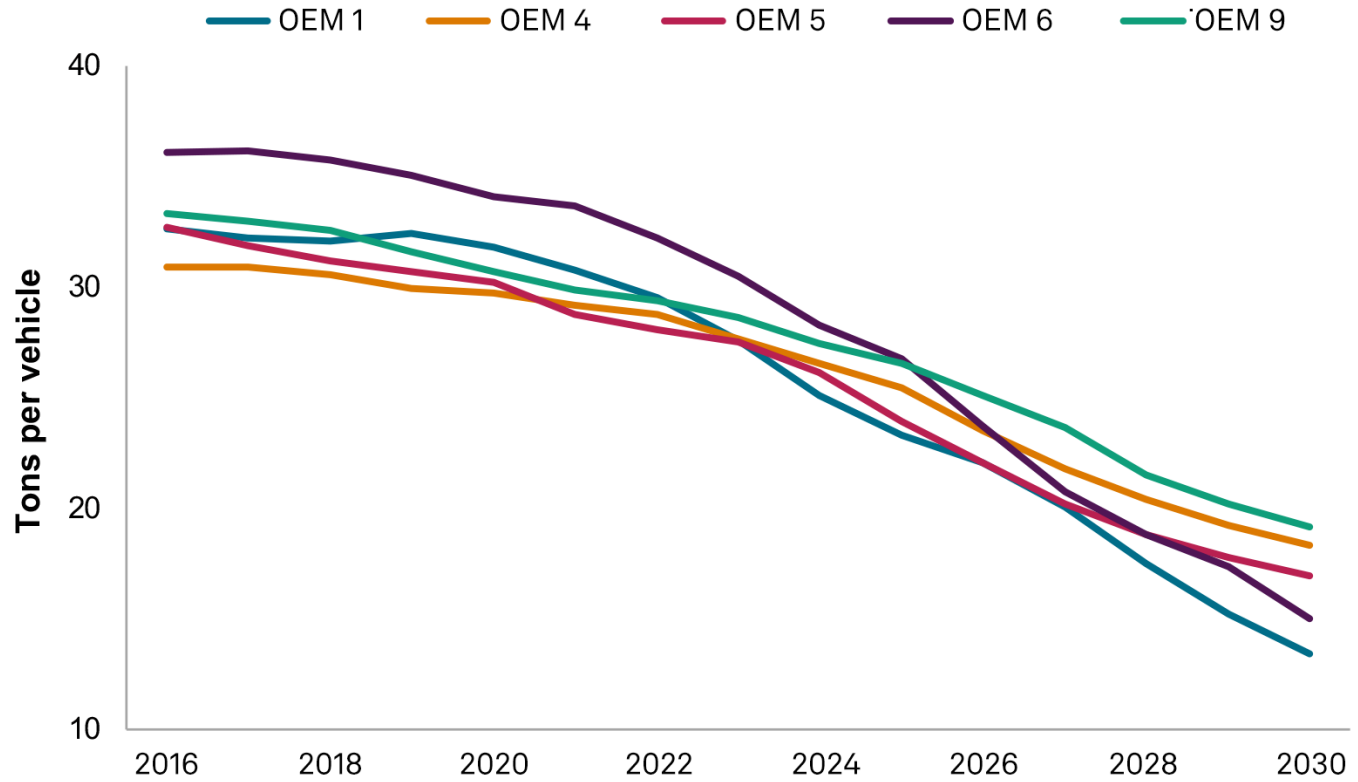
Geographic coverage plays a key role in emissions reporting inconsistencies, as OEMs often focus on specific markets shaped by local regulations, fuel types and driving conditions. Regions with stricter laws report lower emissions, while less regulated areas show higher emissions, complicating industry-wide comparisons.

Vehicle types covered in emissions reporting add another layer of complexity. OEMs differ in terms of which vehicles they include, from passenger cars and light commercial vehicles to medium-heavy commercial vehicles, motorcycles and even specialized vehicles like aircraft or power products. For example, OEM 4 reports emissions for a diverse range of products, including motorcycles, aircraft and power equipment, and mixes automobile use-phase emissions with those from its other sectors, making accurate peer comparisons within the automotive sector difficult.

Vehicle lifetime mileage assumptions play a critical role in these discrepancies. Different OEMs estimate varying vehicle lifetimes, leading to significant differences in total emissions. For example, an OEM that assumes its vehicles will last for 150,000 km will report lower emissions compared to a company that assumes 200,000 km or more. This variance complicates direct emissions comparisons between OEMs.

Calculated vehicle use phase carbon Intensity based on automakers' reported Scope 3 Category 11 Emissions

S&P Global Mobility calculated vehicle average use phase CO₂ intensity



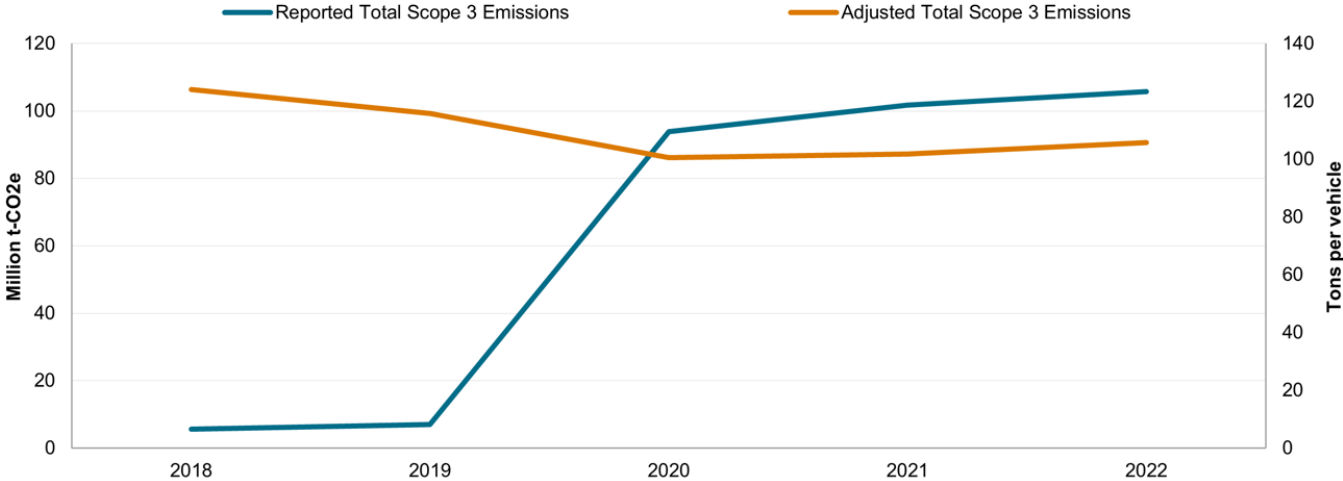
Data compiled Sep. 2024
 Source: S&P Global Mobility
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This difference can be directly reflected in the reported data. OEM 4's Scope 3 Category 11 emissions encompass all business segments, including motorcycles, aircraft, automobiles and power products, reflecting a comprehensive approach.

OEM 1 also saw an increase in reported Scope 3 Category 11 emissions from 2020 to 2021. Initially, only Scope 3 Category 11 emissions were recorded in 2020, but from 2021, emissions from company cars (Scope 1) were included on a pro-rata basis under employee commuting and use phase, further increasing their emissions figures. Additionally, OEM 1 adjusted its lifetime mileage assumptions from 150,000 km in 2019 and 2020 to 200,000 km starting in 2021. Vehicle efficiency and energy consumption (i.e., fuel and electricity) associated carbon factors are also built upon different granularity levels or from various data vendors, which could impact reliability and comparability of the reported data.

Case Study 1 | OEM 9

OEM 9 Scope 3 emissions and use phase CO2 intensity



As of October 2024
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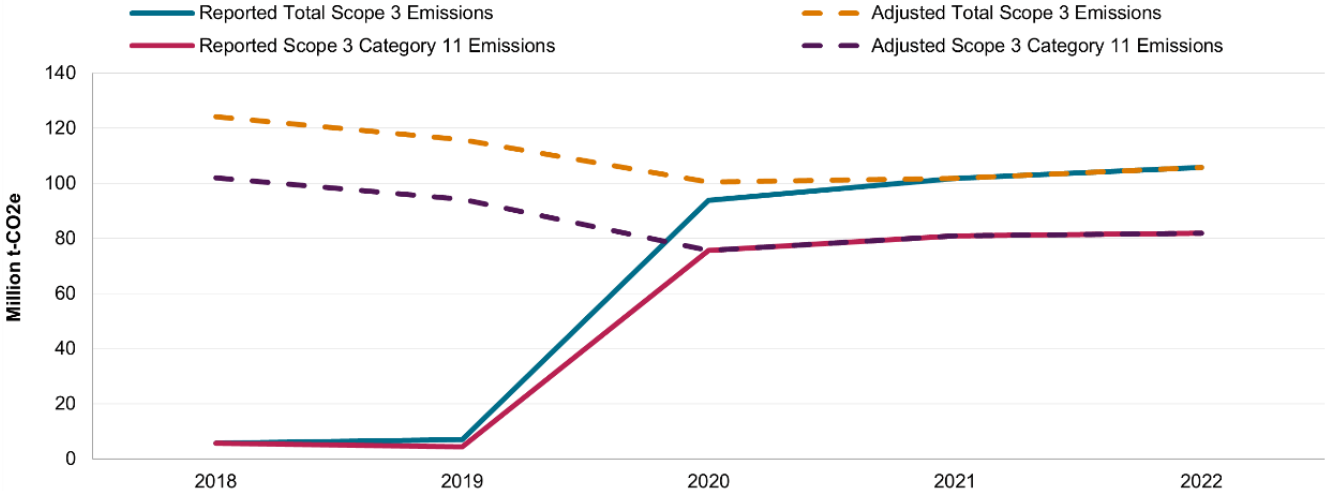
In 2022, OEM 9 reported its Scope 3 Category 11 emissions at 439.45 million metric tons of CO2, with a CO2 intensity of 49.81 tons per vehicle. This marks a 64.24% increase in total emissions from 267.39 million metric tons in 2021, and a 53.79% rise in CO2 intensity from 32.48 tons per vehicle reported in the previous year.

In 2021, emissions calculations were based on International Energy Agency (IEA) Emissions Factors and data from Japan’s Ministry of Land, Infrastructure, Transport and Tourism. The assessment focused on average fuel efficiency across regions, including Japan, the US, Europe, mainland China and others, while excluding freight, trucks and buses.

Since 2022, OEM 9 has aligned its calculations with the Science Based Targets initiative (SBTi) standards, introducing a +10% adjustment to the Worldwide Harmonized Light Vehicles Test Procedure (WLTP) figures for more accurate real-world fuel efficiency. SBTi guidance informed estimates for annual driving distances, and the IEA Mobility Model was used for vehicle lifespan estimates. Notably, freight, trucks and buses were included in emissions calculations for the first time.

Case Study 2 | OEM 5

OEM 5 reported emissions



As of October 2024.
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OEM 5 has exhibited significant inconsistencies in its Scope 3 emissions reporting, particularly regarding its Category 11 emissions. The data over the past five years reveals significant changes in how emissions are calculated, especially following a substantial change in methodology in 2021.

In 2021, OEM 5 made key changes to emissions reporting by excluding well-to-tank (WTT) emissions, emissions associated with energy supplies for vehicle operations, omitting a critical component of the emissions life cycle. This change could significantly underestimate the overall emissions associated with vehicle use.

OEM 5 also shifted from using production units to sales units for vehicle numbers, altering emissions calculations and potentially lowering reported figures since unsold vehicles no longer contribute to emissions. The inclusion of completely knocked-down (CKD) units further complicates comparisons with past data.

Methodological shifts in 2021 have underrepresented their Scope 3 emissions, particularly in Category 11. By focusing only on tailpipe emissions and adjusting historical data, OEM 5 risks not accurately reflecting the decarbonization efforts.

The reported total Scope 3 emissions surged from 5.66 million metric tons in 2018 to 105.79 million metric tons in 2022. However, adjusted figures present a different narrative due to the changes made in 2021. This inconsistency raises concerns about transparency and comparability, potentially providing incorrect information to stakeholders regarding the actual emissions associated with OEM 5's vehicle sales and their life-cycle impacts.

S&P Global Mobility Solution

S&P Global Mobility provides comprehensive datasets of global car manufacturers' Scope 3 Category 11 emissions and vehicle model-level use-phase well-to-wheel carbon intensity with extensive geographic coverage. This enables automotive stakeholders to self-report, set industry benchmarks, track decarbonization target fulfilment, plan for competitive strategy, and make supply chain or investment decisions using reliable data resources and a consistent methodology.

The data we offer is built on a unified set of input from S&P global Mobility product family, as a consistent scope covering vehicle types and geographies. Our market coverage is divided into five key regions: European Union, mainland China, the United States, Brazil and the Rest of the World (RoW), with individual sales countries available upon request. Bottom-up method has built upon millions of global vehicles from 77 countries and 175+ companies with the forecast horizon of 12 years, with the historical data from 2014, under a standardized lifetime mileage of 150,000 km.



Use phase carbon emissions are comprised of WTT, i.e., energy-related CO₂ emissions from fuel production and electricity generation and tank-to-wheel (TTW), i.e., tailpipe CO₂ emissions. The unified accounting methodology is based on a regional and yearly carbon intensity factor database derived from global energy generation outlooks and test cycles that are consistent with a vehicle's sales market. This ensures robust and comparable emissions insights across global automotive portfolios.

Distinct from scattered reporting data, calculated data from S&P Global Mobility is based on consistently reliable and regularly updated vehicle sales forecasts and vehicle efficiency simulation data, reflecting ongoing trends of the use-phase carbon footprint. The data after 2024 is aligned with the sales forecast and energy consumption data forecast in the S&P Global Mobility product family.

S&P Global Mobility Calculated Scope 3 Use Phase CO2 Intensities

The calculated use phase carbon emissions not only remain at the same order of magnitude of the reported value but also provide a reliable future forecast of OEMs' average vehicle use phase CO2 intensity. Namely, using the unified calculation methodology, calculated results can better reflect the current reporting levels of OEMs, although there are differences based on different calculation methods.

Automotive companies have joined the SBTi to commit to scope emissions reduction targets. The output will help OEMs get better alignment with the SBTi targets.

Based on the projections, both OEM 1 and OEM 6 will be reduced by more than 55% of their use-phase carbon footprint by 2030 compared to baseline year of 2019 for OEM 1 and 2018 for OEM 6, which appears to be in line with their SBTi Scope 3 target commitments focusing on use of sold products. OEM 9 will also have a use-phase decarbonization rate of over 35% from 2019 to 2030 that achieves the Scope 3 target.

Aggregated OEM-level use phase emissions are measured by intensity and absolute volume, enabling direct benchmarking for performance evaluation and strategic best practices. Powered by unified data assumption, the carbon emissions could be compared consistently across companies and investments in various regions. OEMs can also evaluate risks levels imposed by regional carbon regulations or policies where the company operates based on forward-looking projection.

In summary, S&P Global Mobility can help OEMs fill gaps in Scope 3 Category 11 reporting by providing comprehensive tools and insights to improve transparency and accuracy of emissions disclosure. These solutions enable OEMs, auto suppliers and automotive industry investors to navigate the complex regulatory environment and effectively meet growing investor expectations, and help OEMs achieve their sustainability goals.

For more info and data sample, please visit:

S&P Global Mobility – Vehicle Use Phase Carbon Emissions

<https://www.spglobal.com/mobility/en/products/automotive-carbon-accounting.html>

For more questions of consulting services and integrated solutions, please visit:

S&P Global Mobility – Automotive Consulting Services

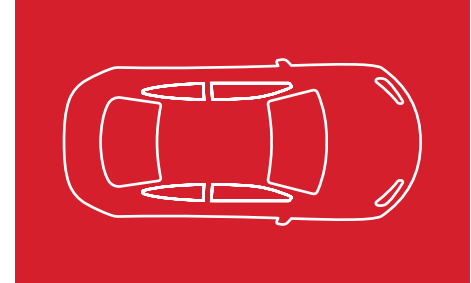
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