



# Daimler AG

## Green Finance Second Opinion

June 17, 2020

**Daimler AG (“Daimler”)** is a global automotive company head-quartered in Stuttgart, Germany and the thirteenth-largest manufacturer of cars globally by number of cars sold by Mercedes-Benz and one of the world’s largest manufacturer of commercial vehicles. Daimler’s electric passenger car share in 2019 amounted to 0.9%. Daimler anticipates allocating at least 50% of the use of proceeds to clean transportation. With the first issuances, investments are expected to be largely refinancing of capital expenditures from the last 1-3 years.

**The clean transportation category focuses on the development and production of zero-emission electric and hydrogen transport solutions where production processes will be CO<sub>2</sub> neutral as of 2022.** According to the European Federation for Transport and Environment, electric cars in Europe emit, on average, almost 3 times less CO<sub>2</sub> than equivalent petrol/diesel cars and in the worst scenario, an electric car with a battery produced in China and driven in Poland, still 22% less CO<sub>2</sub>. It is a clear strength that Daimler has a focus also on reducing emissions in the production phase and also includes a renewable energy category. In Germany, 43% of a medium-sized electric vehicle’s life-cycle emissions are associated with its production.

**While Daimler excludes direct investments in new and improved fossil fuel based production equipment, investments in production efficiency and production’s pollution prevention and control for all types of vehicles are eligible.** The merits of these categories rely on Daimler’s selection process as no eligibility thresholds are defined. Daimler has extensive climate risk and climate impact expertise, contributed as a “data provider” to the TCFD development and considers lock-in and rebound effects. This framework allows for investments in the improvement of production processes of commercial vehicles (conventional light, medium and heavy duty trucks and buses) globally.

**Daimler has set Science-Based Targets for GHG emissions reductions for its passenger cars and vans business unit as well as an “Ambition 2039” targeting CO<sub>2</sub> neutrality of some aspects of Daimler’s business.** Daimler provided an indicative list of impact indicators, will most likely report on a portfolio level and will not obtain third party impact verification.

**Increased zero-emission vehicle production can lead to increased pressure on material sourcing in the production of batteries and production emissions.** We encourage Daimler to continue to increase efforts and to be transparent on supply chain issues, especially regarding battery material sourcing and production emissions, as these account for approximately half of Daimler’s production emissions of the model Mercedes-Benz EQC.

Based on an assessment of the framework’s alignment with the Green Bond Principles, the project categories and Daimler’s governance, Daimler’s green bond framework receives the overall **CICERO Dark Green** shading and a governance score of **Excellent**. This shading reflects the framework’s strength focusing on zero emission and transformative transportation solutions, but also Light and Medium Green elements such as improved production of fossil fuel vehicles.

### SHADES OF GREEN

Based on our review, we rate the Daimler’s green finance framework **CICERO Dark Green**.

Included in the overall shading is an assessment of the governance structure of the green finance framework. CICERO Shades of Green finds the governance procedures in Daimler’s framework to be **Excellent**.



### GREEN BOND and GREEN LOAN PRINCIPLES

Based on this review, this Framework is found in alignment with the principles.





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# 1 Terms and methodology

This note provides CICERO Shades of Green's second opinion of the client's framework dated March 2020. This second opinion remains relevant to all green bonds and/or loans issued under this framework for the duration of three years from publication of this second opinion, as long as the framework remains unchanged. Any amendments or updates to the framework require a revised second opinion. CICERO Shades of Green encourages the client to make this second opinion publicly available. If any part of the second opinion is quoted, the full report must be made available.

The second opinion is based on a review of the framework and documentation of the client's policies and processes, as well as information gathered during meetings, teleconferences and email correspondence.

## Expressing concerns with 'shades of green'

CICERO Green second opinions are graded dark green, medium green or light green, reflecting a broad, qualitative review of the climate and environmental risks and ambitions. The shading methodology aims to provide transparency to investors that seek to understand and act upon potential exposure to climate risks and impacts. Investments in all shades of green projects are necessary in order to successfully implement the ambition of the Paris agreement. The shades are intended to communicate the following:

### CICERO Shades of Green



**Dark green** is allocated to projects and solutions that correspond to the long-term vision of a low carbon and climate resilient future. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Ideally, exposure to transitional and physical climate risk is considered or mitigated.



**Medium green** is allocated to projects and solutions that represent steps towards the long-term vision, but are not quite there yet. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Physical and transition climate risks might be considered.



**Light green** is allocated to projects and solutions that are climate friendly but do not represent or contribute to the long-term vision. These represent necessary and potentially significant short-term GHG emission reductions, but need to be managed to avoid extension of equipment lifetime that can lock-in fossil fuel elements. Projects may be exposed to the physical and transitional climate risk without appropriate strategies in place to protect them.



**Brown** is allocated to projects and solutions that are in opposition to the long-term vision of a low carbon and climate resilient future.

### Examples



Wind energy projects with a strong governance structure that integrates environmental concerns



Bridging technologies such as plug-in hybrid buses



Efficiency investments for fossil fuel technologies where clean alternatives are not available



New infrastructure for coal

Sound governance and transparency processes facilitate delivery of the client's climate and environmental ambitions laid out in the framework. Hence, key governance aspects that can influence the implementation of the green bond are carefully considered and reflected in the overall shading. CICERO Green considers four factors in its review of the client's governance processes: 1) the policies and goals of relevance to the green bond framework; 2) the selection process used to identify and approve eligible projects under the framework, 3) the management of proceeds and 4) the reporting on the projects to investors. Based on these factors, we assign an overall governance grade: Fair, Good or Excellent. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.



## 2 Brief description of Daimler’s green finance framework and related policies

Founded in 1886, Daimler AG (“Daimler”) is a global automotive company headquartered in Stuttgart, Germany, listed on the Frankfurt and Stuttgart Stock Exchanges and mainly manufacturing passenger cars, vans, trucks, buses and other types of specialized vehicles. With 3.3 million vehicles sold in 2019, Daimler is the thirteenth-largest manufacturer of cars globally by number of cars sold by Mercedes-Benz and one of the world’s largest manufacturer of commercial vehicles. The group also offers financial services and mobility services such as car-sharing.

Daimler sells its vehicles and services in nearly every country of the world and has production facilities in Europe, North and South America, Asia and Africa. Daimler owns a range of different brands. In addition to Mercedes-Benz and Mercedes-AMG, Mercedes-Maybach and Mercedes me, Smart and the electric brand EQ, its brand portfolio includes also the commercial vehicles brands Freightliner, Western Star, BharatBenz, FUSO, Setra and Thomas Built Buses as well as the brands of Daimler Mobility: Mercedes-Benz Bank, Mercedes-Benz Financial Services and Daimler Truck Financial.

Daimler’s global operations include more than 75 production plants in 30 countries with approximately 8,500 retailers. 51.9% of Daimler’s revenue comes from Mercedes-Benz Cars and 22.2% of Daimler Trucks. In 2019, Daimler sold 42% of its cars and 16% of its trucks in Europe. 39% of the vehicles of the Mercedes-Benz Cars division were sold in Asia (28% for Daimler Trucks) and 15% in the NAFTA region (41% for Daimler Trucks). 15.3% of Daimler’s revenue comes from Daimler Mobility services.

### Environmental Strategies and Policies

Daimler’s goal is to set standards for sustainable mobility and aims at reducing CO<sub>2</sub> emissions along the whole value chain. Its overall vision is emission-free mobility. Daimler is in the process of phasing in zero-emission transportation solutions for cars, transporters, trucks and buses. In 2019, Daimler sold 2.38 million passenger cars of which 0.9% were all electric passenger cars (2018: 0.7%) and 1.4% were Hybrid and Plug-in Hybrids (2018: 1.5%). Daimler’s strategy is based on “electric first”. The company has decided to keep some flexibility regarding market developments and will base its fleet on a mix of combustion engines and hybrid drives as well as locally emission-free electric vehicles with battery or fuel cells.

Daimler currently reports the following emissions for vehicles and operations:

- **Overview of use-phase emissions of produced vehicles:**
  - **Light Vehicles:** Differing type standards and measuring procedures hinder a common global average value of use-phase emissions. Daimler, therefore, reports on a regional level:
    - EU 27 + UK, Norway and Iceland: Daimler’s fleet emitted an average of 137g/km in 2019, which is an increase of 10% compared to 123g/km in 2015. Daimler names increased SUV sales as well as reduced Diesel car sales and the emission measurement routine as main reasons.
    - US: Daimler’s passenger car fleet emitted 270g/mile and light commercial vehicles 327g/mile. The goal to improve fuel efficiency by 25% compared to 2012 was not achieved and Daimler is not yet on the trajectory to achieve this improvement.



- China: Daimler's fleet in China consumed 8.1 l/100km for imported cars and 6.7 l/100km for cars produced within China. The goal of 25% improvement compared to 2012 could be achieved through purchase of external credits to close consumption gaps. In the future, Daimler aims to achieve the target through increased all-electric sales.
  - **Light Transport vehicles (Vans):** While Daimler also aimed to reduce emissions of its vans by 10% in 2018 compared to 2014, it achieved only a reduction of 6%. Daimler's vans had average emission values of 189 g/km in 2019 (increase of 1% compared to 2018).
  - **Heavy-duty trucks:** 80% of Daimler's heavy trucks reached the company's goal of reducing the EU fleet's emissions by 20% in 2020 compared to 2005.
  - **Buses:** 100% of Daimler's city buses and 90% of Daimler's coaches and city buses over 18 tonnes reached the company's goal of reducing the EU fleet's emissions by 20% in 2020 compared to 2005.
- **Overview of current emissions of own operations:** Daimler's Scope 1 and Scope 2 total market-based emissions in 2019 amounted to 2,516 ktCO<sub>2</sub>. While Daimler's Scope 1 emissions have been increasing since 2015 by 17%, Scope 2 location-based emissions have decreased by 21%. The main reason for increased Scope 1 emissions was increased vehicle production (14% compared to 2014) and natural gas consumption increased for company owned combined heat and power plants (CHPs) which, accordingly, led to less purchased electricity and a decrease in Scope 2 emissions. In addition, Daimler has estimated annual Scope 3 emissions related to passenger cars to approximately 79,3 MtCO<sub>2</sub>.<sup>1</sup> 73% of these Scope 3 emissions are due to operation of the personal vehicles Daimler produced and approximately 20% are due to Daimler's supply chain. For trucks and buses, unlike for passenger cars, the existence of legally harmonized prescribed test cycles worldwide is different and, currently, Daimler has no estimation of respective Scope 3 emissions available.

The company has two sets of emission targets:

- **Targets for use-phase emissions of produced vehicles:**
  - With "Ambition 2039", the company has set itself the target of making its fleet of new passenger cars and privately used vans CO<sub>2</sub>-neutral over the vehicles' entire life cycle by 2039. In case that off-sets are required Daimler will follow criteria for off-sets, such as CER and Gold Standard according to the issuer. Daimler Trucks & Buses aims to offer only new vehicles that are CO<sub>2</sub>-neutral in driving operation ("tank-to-wheel") in the triad markets of Europe, Japan, and North America by 2039.
  - Mercedes-Benz Cars & Vans has Science Based Targets (SBTi) in place and aims at reducing the greenhouse gas emissions of the car fleet produced in 2030 from "well-to-wheel" by more than 40 percent compared to 2018 globally. In addition, Mercedes-Benz Cars aims to offer at least one electric alternative in each of its model series (e.g., sedans, SUV etc.) by 2022 and expects that all-electric models will account for up to 25% of new cars by 2025 and aims to sell a passenger EV (plug-in hybrids or all-electric models) share of the fleet of more than 50 % by 2030. The other business segments have no intermediate targets before 2039. In addition, the company informed us that internal targets for its model series' emissions exist for steering and monitoring purposes, but these are not publicly disclosed.
- **Targets for emissions from own operations:** The company has achieved its goal to reduce Scope 1 and 2 emissions by 66% (emission intensity per produced vehicle) and by 20% (absolute emissions) by 2020 compared to 1990 for European production sites. The new goal for the Mercedes-Benz Cars & Vans division is an absolute emission reduction of 50% by 2030 compared to 2018. In addition, from 2022

<sup>1</sup> <https://www.daimler.com/dokumente/nachhaltigkeit/sonstiges/2018-scope-3.pdf>



onwards, own production sites worldwide will produce on a CO<sub>2</sub>-neutral basis. New plants in Europe are planned to be CO<sub>2</sub>-neutral already now.

Daimler has programs in place and aims at reducing the CO<sub>2</sub> emissions that are associated with the procurement of components, raw materials, and non-production materials, as well as with logistics. In 2012, Daimler has established an energy management system according to ISO 50001 in Germany and is rolling out compliance with this standard globally. The company also has a supplier policy in place that, e.g., takes into account emissions reduction strategies and requires ISO 140001, EMAS or comparable standards. Step by step, the company is aiming at purchasing all components CO<sub>2</sub>-neutral and also strives to reduce CO<sub>2</sub> emissions for procurement of non-production materials. Since 2019, Daimler has been participating in the CDP Supply Chain Program in order to encourage suppliers to report on their environmental impact. In addition, according to Daimler, approximately 98 percent of their employees work at locations with environmental management systems certified according to ISO 14001. In addition, Daimler aims at resource efficiency and is involved in research and development of recycling and reuse concepts, and, e.g., produces all Mercedes-Benz car models to be more than 85% recyclable and 95% recoverable (energy) verified on the basis of the ISO 22628 calculation model.

In addition to low-carbon vehicles and operations, Daimler also has additional climate relevant initiatives, such as eMobility Consulting for decarbonized municipal transport solutions, public and private charging infrastructure development as well as mobility, micro-mobility, ride hailing and electric and conventional car sharing services such as YOUR NOW.

Daimler has been providing CDP reporting for more than 15 years, and is a member of the LEAD group of the UN Global Compact as well as the DAX 50 ESG Index, which highlights the 50 German top companies with regards to their environmental, social and governance (ESG) performance, market capitalization and stock exchange turnover. Daimler has also been a member of the Global Reporting Initiative (GRI) since 2006.

Climate-related risks and opportunities are integrated into Daimler's overall risk management process. Daimler's risk management system is intended to systematically and continually identify, assess, control, monitor and report risks threatening Daimler's existence as well as other material risks and opportunities, in order to support the achievement of corporate targets and to enhance risk awareness at the Group. Daimler contributed to the development of the TCFD guideline that was published in June 2017 as one of six industrial companies ("data prepares"). Climate scenario analysis was performed when developing Daimler's Science-Based Targets.

### Use of proceeds

Proceeds raised by Daimler from green financing can be used for financing or refinancing of acquisition, development and construction of new eligible assets as well as renovation, retrofitting and upgrading of existing eligible assets as defined in Table 1. Refinancing is defined as the financing of assets that have been taken into operation more than one year before the time of approval by the Green Finance Committee. Daimler has set a look-back period of 3 years and assumes that the first issuance will mainly be based on refinancing and, with subsequent issuances, will shift toward more financing. Daimler includes the project categories clean transportation, energy efficiency, pollution prevention and control, and renewable energy in the green financing framework. According to Daimler, net proceeds from green financing instruments will be allocated to assets, capital expenditures and Research & Development. Operational expenditures are not included. More than 50% of proceeds will be allocated to the category clean transportation. The issuer informed us that while the sole discretion of final decision lies with the respective selection body (s. Selection below) the Clean Transportation category could receive up to 100% of all proceeds for the first issuance and that the remaining part can be assumed to be evenly distributed to the other three categories.



According to the company, investments in new fossil fuel infrastructure (e.g., natural gas fired combined heat and power plants (CHPs), fossil fuel boilers, fossil fuel heating etc.) are excluded from financing under this framework. In addition, the company informed us that Daimler excludes investments in improvements of fossil fuel powered equipment (e.g., cooling systems, heat recovery systems and thermal power stations, etc.) under this framework.

### **Selection**

The selection process is a key governance factor to consider in CICERO Shades of Green's assessment. CICERO Shades of Green typically looks at how climate and environmental considerations are considered when evaluating whether projects can qualify for green finance funding. The broader the project categories, the more importance CICERO Shades of Green places on the governance process.

Daimler has established a Green Finance Committee in order to evaluate the compliance of proposed assets, ensuring the alignment of the asset list with the project categories and criteria, replacing investments that no longer meet the eligibility criteria (following divestment, liquidation, concerns regarding alignment of underlying activity with eligibility criteria etc.). The Green Finance Committee has six members in total and is comprised of representatives from Treasury, Corporate Responsibility Management, Group Environmental Protection and Energy Management, Sustainability as well as Finance and Controlling of all Daimler Divisions. According to Daimler, the committee will decide in consensus the project portfolio that will be proposed to the Group Sustainability Board for final approval. Any changes to the pool of Eligible Green Investments will be approved by the Group Sustainability Board. The Group Sustainability Board decides by majority vote and is comprised of various members of the management board and the top management covering all divisions and functions relevant for ESG topics. It is chaired by the two members of the Management Board. Decisions can be escalated to the Daimler AG Board of Management.

Daimler is aware of rebound and lock-in risks and is preparing life-cycle assessment (LCAs) studies on a vehicle basis in addition to LCAs for material and technology concepts. The results are published on Daimler's website. Daimler has an integrated screening and assessment of controversies in the group-wide risk management system.

### **Management of proceeds**

CICERO Green finds the management of proceeds of Daimler to be in accordance with the Green Bond and Green Loan Principles. Net proceeds of Daimler's green financing instruments are managed through a newly established green financing register. The proceeds of each of Daimler's green financing instrument will be earmarked against the pool of eligible assets and expenditures identified in the green financing register. At the end of each year, the net proceeds will be reduced by the amounts invested in Eligible Assets within the annual period.

The green financing register will be reviewed annually by the Green Finance Committee to account for any re-allocation, repayments or drawings on the eligible assets and expenditures within the pool. In the event that funds cannot be immediately and fully allocated, or in the event of any early repayment, proceeds will be held in line with Daimler's general liquidity guidelines until the allocation to eligible assets. The company informed us that the liquidity of Daimler is generally invested in short-term interest-bearing instruments, i.e. CP's, bank deposits, bank accounts and money market funds. Daimler stated that the company will provide information as to how these funds have been invested until full allocation.

### **Reporting**

Transparency, reporting, and verification of impacts are key to enable investors to follow the implementation of green finance programs. Procedures for reporting and disclosure of green finance investments are also vital to



build confidence that green finance is contributing towards a sustainable and climate-friendly future, both among investors and in society.

Daimler will publish a Green Finance Investor Report on an annual basis until full allocation of the proceeds and thereafter in case of any material change in the allocation. The Finance department of Daimler will coordinate the reporting and the input will be provided by the respective business divisions.

The allocation reporting, to the amount feasible, will consist of a description of the portfolio, the type of financing and respective amounts, the split of financing and refinancing as well as a list of eligible assets including amounts allocated and disbursed per category and geographical distribution.

The impact reporting, to the amount feasible and to the extent of which data is available, will be provided on an aggregated portfolio basis. In particular, Daimler will report in the clean transportation category the number of zero-emission vehicles (BEV, FCEV) sold and CO<sub>2</sub> emission saved in the use phase as well as in the energy efficiency category the annual CO<sub>2</sub> emissions saved (in tonnes). Daimler considers other impact indicators and has provided us with a list of indicative impact indicators for each of its project categories but has not yet taken a final decision on the choice of indicators.

Daimler's annual reporting will also be subject to external verification by an independent auditor verifying the internal tracking method and the allocation of funds. The external auditor's report will be published on Daimler's website. Daimler informed us that the company will not obtain an external review of its impact reporting.





### 3 Assessment of Daimler’s green finance framework and policies


The framework and procedures for Daimler’s green finance investments are assessed and their strengths and weaknesses are discussed in this section. The strengths of an investment framework with respect to environmental impact are areas where it clearly supports low-carbon projects; weaknesses are typically areas that are unclear or too general. Pitfalls are also raised in this section to note areas where Daimlers should be aware of potential macro-level impacts of investment projects.

#### Overall shading

Based on the project category shadings detailed below, and consideration of environmental ambitions and governance structure reflected in Daimler’s green finance framework, we rate the framework **CICERO Dark Green**.

#### Eligible projects under the Daimler’s green finance framework

At the basic level, the selection of eligible project categories is the primary mechanism to ensure that projects deliver environmental benefits. Through selection of project categories with clear environmental benefits, green finance aims to provide investors with certainty that their investments deliver environmental returns as well as financial returns. The Green Bonds Principles (GBP) state that the “overall environmental profile” of a project should be assessed and that the selection process should be “well defined”.

Category	Eligible project types	Green Shading and some concerns
Clean Transportation	 <p>Development and production of zero emission vehicles such as Battery Electric Vehicles (BEV) and Fuel-Cell Electric Vehicles (FCEV)/hydrogen-powered vehicles as well as development, production and recycling of batteries/fuel cells and related infrastructure throughout the value chain including;</p> <ul style="list-style-type: none"> <li>• Research &amp; Development Research &amp; Development of:               <ul style="list-style-type: none"> <li>○ electrified drivetrain systems including sourcing, tooling and testing concepts, products and production processes</li> <li>○ charging/supporting infrastructure</li> </ul> </li> </ul>	<p><b>Dark Green</b></p> <ul style="list-style-type: none"> <li>✓ Electric vehicles and other zero emission transport solutions incl. charging infrastructure are part of a 2050 solution.</li> <li>✓ No fossil fuel based equipment is eligible in this category.</li> <li>✓ Only development and production of zero-emission vehicles and related infrastructure are eligible in this category and conventional vehicles, biofuel concepts or hybrid vehicles are excluded.</li> <li>✓ Production of zero-emission vehicles will be CO<sub>2</sub> neutral as of 2022. This as well as the operation of buildings dedicated to zero-emission vehicle R&amp;D may include the purchase of off-sets in the case where electricity/heat is used from, e.g., company owned natural gas fired combined heat and</li> </ul>



<p>Design for Environment (DfE) solutions including sourcing, tooling and testing concepts, products and production processes</p> <ul style="list-style-type: none"> <li>• Manufacture of Zero Emission Vehicles and its drivetrains           <ul style="list-style-type: none"> <li>○ Upgrading and retrofitting of manufacturing facilities for the purpose of enabling and/or expanding the production of zero emission vehicles.</li> <li>○ Construction of new manufacturing facilities used for the production of zero emission vehicles, its drivetrains and/or the production and recycling of batteries/fuel cells.</li> </ul> </li> <li>• Charging/supporting infrastructure Development and installation of electric charging infrastructure such as charge@home, charge@Daimler, charge@public (e.g., charge@highway (High Power Charging (HPC)) and charge@fleet.</li> </ul>	<p>power (CHP) plants and other technical processes that cannot be reduced.</p> <ul style="list-style-type: none"> <li>✓ Daimler sees the necessity, but also the technical possibility and the environmental relevance of hydrogen more for long-distance trucks and less for passenger cars.</li> <li>✓ If the production of hydrogen involves the use of natural gas, it contributes to the emission of greenhouse gasses. Daimler is aware that the majority of hydrogen is currently produced through fossil fuels, but also that hydrogen produced on a renewable basis is already available today.</li> <li>✓ The production of batteries and sourcing of raw materials can have substantial climate and environmental impact. Daimler is aware of these risks and is aiming to procure CO<sub>2</sub> neutrally produced battery cells from suppliers (in the beginning batteries for the EQ series will be produced with renewable energy) and monitor supply chain impacts through strategic partnerships.</li> <li>✓ This category can include new factory buildings and conversion of factory buildings. Daimler has no additional targets regarding these buildings and no climate neutrality requirement for construction, but will ensure climate neutrality by 2022 in the operation phase and has a thorough climate resilience approach.</li> </ul>
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Energy efficiency

Energy and resource efficiency<sup>2</sup>

**Light to Medium Green**

<p>Reduction of energy from non-fossil sources and reduction of other resources incl. water, used per unit of output compared to the pre-investment situation in:</p>	<ul style="list-style-type: none"> <li>✓ This category includes investments in efficiency improvement of equipment in Daimler’s production processes for conventional combustion engine vehicles. Daimler is aware of the lock-in risks and rebound effects and is striving for CO<sub>2</sub> neutral production.</li> </ul>
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<sup>2</sup> Production at Daimler plants in Europe will be CO<sub>2</sub> neutral as of 2022 when 100% of purchased electricity will come from renewable sources. Until then, purchased electricity will not be entirely from renewable sources. Therefore, this criteria does not include purchased electricity.

The level of energy and resource efficiency gains achieved varies between different processes and facilities. The expected or (when possible) actual efficiency gains achieved will be reported upon and described in the Green Finance Investor Report.



- production processes, e.g., welding, as well as in lighting, ventilation, heating/cooling and building insulation
  - digitalization in production processes.
- ✓ The company informed us that Daimler excludes efficiency improvements of fossil fuel powered equipment (e.g., cooling systems, heat recovery systems and thermal power stations, CHPs, motors etc.).
  - ✓ No quantified energy efficiency or other improvement thresholds are defined to qualify under the framework as gains vary between different processes and facilities.
  - ✓ This category can also finance investment in improvement measures other than energy or water.

Pollution prevention and control



- **Waste management**  
Prevention and reduction of waste as well as to increase the re-use and recovery of materials.
- **Emission reduction**  
Prevention or reduction of greenhouse gas emissions, harmful substances and other pollutants into the air, soil or water.

**Medium Green**

- ✓ This category includes investments in pollution prevention and control that can be related to fossil fuel equipment in Daimler’s production processes for conventional vehicle production. No quantified thresholds are defined to qualify under the framework.
- ✓ Examples include paint process improvement (VOC emissions reductions, exhaust air treatments), plastic waste reduction measures and other circular economy concepts.
- ✓ Daimler states that emission reduction projects are only eligible if they feature high likelihood of positive, long-term effects.
- ✓ Waste-to-energy projects are excluded in this category.
- ✓ Some projects implemented in this category might not exceed regulation.

Renewable Energy



- Production of electricity and heat from renewable sources
- Installation and upgrading of renewable energy capacity from solar PV, wind or other non-fossil sources, e.g., solarthermal or geothermal.
- Nuclear sources are excluded.

**Dark Green**

- ✓ Solar and wind is key to a low-carbon transition.
- ✓ Land-use issues may arise from building large scale plants and negative impacts on biodiversity might arise.



- ✓ Potential concerns regarding supply-chain emissions of energy generation technology (e.g., solar panels).
- ✓ Consider potential emissions and climate resilience for geothermal projects. No emissions threshold for eligibility is defined.
- ✓ This category could also include bio-energy and waste-to-energy from food-waste or scrap-wood pellets. Be aware of environmental/sustainability impact of sourcing raw materials for these types of energy.

Table 1. Eligible project categories

## Background

Global transport emissions grew by only 0.6% in 2018 (compared to 1.6% annually over the past decade), as efficiency improvements, electrification helped limit the growth in energy demand. To meet the 2°C target goals, however, direct transport emissions must peak around 2020 and then fall by more than 10% by 2030.<sup>3</sup> The largest amount of carbon savings come from switching from inefficient modes of transport (e.g., private cars) to mass transit.<sup>4</sup>

In the EU, road transport contributes approximately 21% of total EU emissions of CO<sub>2</sub> with cars and light commercial vehicles being responsible for the majority of road transport emissions (15% of total EU emissions)<sup>5</sup>. One goal of the EU commission is to increase the share of zero-emission vehicles in the fleet. According to the European Federation for Transport and Environment<sup>6</sup>, 1.3 million electric vehicles were sold in Europe by the end of 2019, which is estimated to increase to 44 million in 2030. The current limit for average emissions of vehicles sold in the EU is set at 130 grams of CO<sub>2</sub> emitted per kilometer.<sup>7</sup> In addition, the EU allows for manufacturer-specific emission limits depending on average mass of produced cars. E.g., Daimler's cars reached an average of 137gCO<sub>2</sub>/km in EU 28 + Norway and Iceland and, thus, Daimler's EU specific target value of 140g CO<sub>2</sub>/km was reached. The EU limit will be reduced to 95 gCO<sub>2</sub>/km by the year 2021, which corresponds to a manufacturer-specific emissions limit of 107 gCO<sub>2</sub>/km for Daimler. In addition, the EU allows for so-called "super credits" to reward low-emission vehicle production by, e.g., counting one electric vehicle as 1.67 vehicles in the average fleet emissions in 2021. If the average CO<sub>2</sub> emissions of a manufacturer's fleet exceed its target in a given year, the manufacturer has to pay an excess emissions premium for each car registered. Since 2019, the penalty is EUR 95 for each g/km of target exceedance. In addition, the EU has set a 37.5% (passenger cars) and 31% (vans) reduction target for 2030 compared to 2021 absolute fleet emission levels.<sup>8</sup>

<sup>3</sup> <http://www.iea.org/tcep/transport/>

<sup>4</sup> [https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc\\_wg3\\_ar5\\_chapter8.pdf](https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter8.pdf)

<sup>5</sup> [https://ec.europa.eu/clima/policies/transport/vehicles\\_en](https://ec.europa.eu/clima/policies/transport/vehicles_en)

<sup>6</sup> <https://www.transportenvironment.org/sites/te/files/T%26E%E2%80%99s%20EV%20life%20cycle%20analysis%20LCA.pdf>

<sup>7</sup> [https://ec.europa.eu/clima/policies/transport/vehicles/cars\\_en](https://ec.europa.eu/clima/policies/transport/vehicles/cars_en)

<sup>8</sup> [https://ec.europa.eu/clima/policies/transport/vehicles/regulation\\_en](https://ec.europa.eu/clima/policies/transport/vehicles/regulation_en)



In 2019, 3% of new passenger cars in the EU were electric compared to 1.8% of newly registered vehicles in Germany.<sup>9,10</sup> Demand for new electric cars in the EU increased by 66.2% and by 75.5% in Germany compared to 2018. For the US in 2018, 1.2% all cars sold were electric which represents an increase of 63.3%.<sup>11</sup> In 2019, in terms of absolute electric vehicles sold globally, the American company Tesla sold most, followed by the Chinese companies BYD, BAIC, SAIC and German companies BMW and Volkswagen.<sup>12</sup> BMW's electric share of all of its passenger cars delivered globally, therefore, amounted to approximately 5.1%<sup>13</sup> and Volkswagen's share was 1.3%<sup>14</sup>. Daimler's electric vehicle share in 2019 amounted to 0.9% in 2019.

For projects aimed at like-for-like replacement of transport infrastructure, the improvements in environmental performance depend on the fuel type and efficiency. In order to assess the environmental impacts of the electric cars the emission factor for the electricity grid should be considered. While electric modes of transportation are preferable both when it comes to reducing carbon emissions and local pollution to those that directly use fossil fuels, we should nevertheless be aware of the indirect GHG emissions stemming from the production and use of cars and strive to keep increasing their efficiency.<sup>15</sup>

However, according to the European Federation for Transport and Environment<sup>6</sup>, electric cars outperform diesel and gasoline cars in all scenarios in the EU in a life-cycle perspective. According to this briefing, a medium-sized car purchased in 2020 and operated in Germany has approximately 43% of its life-cycle emissions associated with the production and 57% with its use-phase due to the electricity grid emissions in Germany. According to Daimler, the production of the electric passenger car EQC has 51% of its overall life-cycle emissions (assuming an EU average electricity grid mix in the production and operation phase) associated with its production, mainly due to the production of batteries (approximately half of total production emissions). With a tool launched together with the briefing<sup>16</sup>, the European Federation for Transport and Environment concludes that in a life-cycle perspective, this electric car is approximately 56% better than an average petrol car and 54% better than an average diesel car. The outlines a best and a worst case scenario: *"In the worst case scenario, an electric car with a battery produced in China and driven in Poland still emits 22% less CO<sub>2</sub> than diesel and 28% less than petrol. And in the best case scenario, an electric car with a battery produced in Sweden and driven in Sweden can emit 80% less CO<sub>2</sub> than diesel and 81% less than petrol."*<sup>16</sup> In addition, they estimate that electric cars will reduce vehicles' CO<sub>2</sub> emissions four-fold by 2030 due to the shift of the European grid toward renewable energy.

In regions where the electricity grid is highly based on low carbon sources such as in the Nordic countries and/or have in place ambitious policies to make the grid greener (such as in the EU), electric cars clearly represent environmental benefits compared to fossil fuel cars in the longer term. The charging infrastructure for electric cars needs to be developed in parallel to greening the grid.

<sup>9</sup> [https://www.kba.de/DE/Statistik/Fahrzeuge/Neuzulassungen/n\\_jahresbilanz.html?nn=644522](https://www.kba.de/DE/Statistik/Fahrzeuge/Neuzulassungen/n_jahresbilanz.html?nn=644522)

<sup>10</sup> <https://www.acea.be/press-releases/article/fuel-types-of-new-cars-petrol-11.9-diesel-3.7-electric-81.3-in-fourth-quart>

<sup>11</sup> <https://evadoption.com/ev-market-share/ev-market-share-state/>

<sup>12</sup> <https://de.statista.com/statistik/daten/studie/561568/umfrage/die-groessten-hersteller-von-elektroautos-nach-absatz/>

<sup>13</sup> <https://www.press.bmwgroup.com/global/article/detail/T0306824EN/bmw-group-annual-report-2019?language=en>

<sup>14</sup> <https://www.volkswagen-newsroom.com/en/press-releases/volkswagen-passenger-cars-brings-2019-to-a-successful-close-5720>

<sup>15</sup> <https://www.sciencedirect.com/science/article/pii/S030626192030533X>

<sup>16</sup> <https://www.transportenvironment.org/what-we-do/electric-cars/how-clean-are-electric-cars>



### Governance Assessment

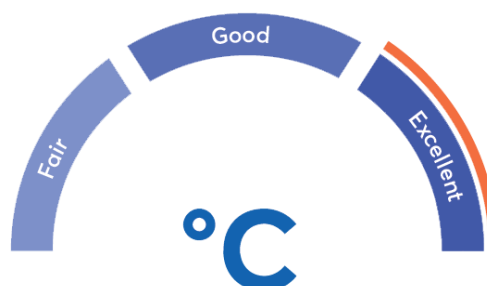
Four aspects are studied when assessing the Daimler's governance procedures: 1) the policies and goals of relevance to the green finance framework; 2) the selection process used to identify eligible projects under the framework; 3) the management of proceeds; and 4) the reporting on the projects to investors. Based on these aspects, an overall grading is given on governance strength falling into one of three classes: Fair, Good or Excellent. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.

Daimler has an emission-free mobility vision and a multitude of different intermediate emission targets for own emissions and Scope 3 emissions from produced vehicles in place. Daimler also has environmentally relevant supply chain policies, recycling policies and energy efficiency policies in place and is part of several initiatives related to emissions-free land transport. Daimler was one of the "data preparers" for the TCFD in 2017 and has performed scenario analysis when developing its Science-Based Targets.

For its selection process, Daimler has established a Green Finance Committee that is responsible to propose eligible projects unanimously to the Group Sustainability Board which ultimately approves projects by simple majority vote. Therefore, environmental experts do not have a veto right in the ultimate decision making. This decision can be escalated to the Daimler AG Board of Management. The selection process considers life-cycle assessment studies, lock-in and rebound effects.

Daimler will report annually on allocation of proceeds as well as on impacts of its investments. Daimler confirmed that reporting will largely be on portfolio basis. It remains unclear to which extent the reporting will contain project level information. The reporting will also contain information on how unallocated proceeds have been invested. Daimler has put forward a full list of indicative impact metrics, but will not obtain an external review of its impact reporting.

The overall assessment of Daimler's governance structure and processes gives it a rating of **Excellent**.



### Strengths

It is a strength that Daimler focuses strongly on zero-emission vehicles within the clean transportation category and also includes development of the corresponding charging infrastructure. This is supported by recent studies, e.g., by Cox *et al.* (2020)<sup>17</sup>, confirming that "electrification of passenger vehicle powertrains is an effective way of reducing greenhouse gas emissions without incurring significant cost penalties; to the contrary, it may even provide minor cost benefits in the future." While this of course depends on the de-facto electricity mix in the grid, Cox *et al.* conclude that electric drivetrains provide climate benefits in a life-cycle perspective for grids with up to 500 gCO<sub>2</sub>/kWh. The European Federation for Transport and Environment estimates that the average EU electric car emits almost 3 times less CO<sub>2</sub> than equivalent petrol or diesel cars and that electric cars provide a better CO<sub>2</sub> footprint in all scenarios in Europe.<sup>16</sup> For long-range requirements, Cox *et al.* confirmed that hydrogen obtained from electrolysis outperforms combustion engine vehicles if the electricity used for the electrolysis emits less than 200 gCO<sub>2</sub>/kWh.

<sup>17</sup> Cox, B., Beltran A.M., van Vuuren, D.P. and Mutel, C.L. (2020). 'Life cycle environmental and cost comparison of current and future passenger cars under different energy scenarios'. *Applied Energy*, 269. Available at: <https://www.sciencedirect.com/science/article/pii/S030626192030533X>



Daimler is aware of these challenges and is working toward providing green hydrogen. This strength is corroborated by Daimler's collaboration within the joint venture H2 MOBILITY, a joint venture formed by the industry partners Daimler, Air Liquide, Linde, Shell, OMV and TOTAL in order to expand the German hydrogen network, that also operates a H2 filling station that supplies green hydrogen. Daimler also announced recently that it will establish a joint initiative with the Volvo Group to develop, produce and commercialize fuel cell systems for heavy-duty vehicle applications and other use cases. Daimler will consolidate all its current fuel cell activities in the joint venture.

It is a strength that Daimler is establishing partnerships regarding battery manufacturing including monitoring of the impact of the material supply chains incl. rare earth materials and is aiming at procuring battery cells that are produced with renewable energy. Approximately 70% of batteries life-cycle emissions result from the material supply chains<sup>17</sup>. Daimler informed us that approximately half of the production emissions of its model EQC result from the battery. CICERO Shades of Green encourages Daimler to strengthen its focus on supply chain impacts and efforts on renewable energy consumption in the battery production.

It is a strength that Daimler has actively contributed to TCFD development as a "data provider" and that Daimler has an integrated climate risk approach as well as that the company has performed climate scenario analysis. In addition, it is encouraging that Daimler has developed a range of short-, medium- and long-term targets for the company and its various business units.

### Weaknesses

Investments in new fossil fuel infrastructure as well as in improvements of existing fossil fuel equipment are excluded according to Daimler. However, investments in efficiency improvements are included in the categories energy efficiency and pollution prevention and control without additional requirements and without necessarily going beyond regulation or best available technology. As there is no additional link to scaling down combustion engine production there is a risk of lock-in and rebound. In addition, it constitutes a weakness of these two categories that investments in improved production of conventional combustion technology is eligible. This could lead to significant rebound effects through increased production, e.g., with efficient production of more heavy-duty diesel trucks which are not necessarily part of a 2050 solution.

### Pitfalls

Daimler's strategy is based on "electric first", but the company will also continue investing in modern combustion engines and hybrid technologies. This bears a significant risk of lock-in as investments into combustion engine improvements, e.g., in the energy efficiency category or the pollution prevention and control category. The company is aware of this risk.

It should be noted that for personal vehicle solutions smaller cars with a longer lifetime provide larger climate benefits. Cox et al. concluded that "vehicles with smaller batteries and longer lifetime distance travelled have the best relative performance".<sup>17</sup> In 2019, Daimler's first electric Mercedes-Benz car of the EQ model series<sup>18</sup> was launched, which is an SUV with a total power of 408HP, a consumption of 222 Wh/km, a weight of 2420kg and a battery size of 80kWh.<sup>19</sup> While Daimler aims at adding electric alternatives for all its model series, CICERO Shades of Green encourages the issuer to consider its overall climate impact through vehicle weight, battery size, power and energy consumption. Since 2009, Daimler has been offering light electric cars – most recently the smart EQ fortwo<sup>20</sup>.

<sup>18</sup> <https://www.daimler.com/nachhaltigkeit/klima/elektro-offensive.html>

<sup>19</sup> <https://www.daimler.com/produkte/pkw/mercedes-benz/mercedes-unter-den-elektrofahrzeugen.html>

<sup>20</sup> <https://www.daimler.com/produkte/pkw/smart/smart-e-mobilitaet.html>



It is a strength that Daimler aims at ramping up its zero-emission vehicle production and that the company will allocate at least 50% of the investments to this purpose. However, for emission-free passenger vehicles, Daimler will obtain “super-credits” from the EU leading to less need to reduce emissions for its conventional combustion engine passenger vehicles fleet in the short- and medium term. In addition, since the EU has set a 37.5% reduction target for passenger vehicles by 2030 compared to car manufacturers’ absolute fleet emissions in 2021, Daimler might not necessarily aim at overachieving the EU limit for 2021. Daimler is aware of this and is working toward its vision of emission-free mobility in general.

CICERO Shades of Green recognizes individual modes of zero-emission transportation as Dark Green and part of a 2050 solution. However, the largest amount of carbon savings come from switching from inefficient modes of transport (e.g., private cars) to mass transit.<sup>4</sup> Daimler has a business unit for buses which has the ambition to decarbonizing public transport solutions by 2039 in North America, Japan and Europe. CICERO Shades of Green encourages Daimler to consider mass transport solutions as a primary solution and individual modes of transport as secondary.

Regarding transportation of goods, shipments by electric trains are the eco-friendliest alternative available in the market and have a much lower impact than road transportation. This is also the case for transportation of goods via conventional diesel trains. While CICERO Shades of Green recognizes that Daimler has little influence on final deployment of its heavy-duty trucks, it constitutes a pitfall that Daimler invests in more efficient production of heavy-duty trucks without considering the final deployment of the trucks and potential greener alternatives such as rail transportation.

It is a pitfall that some of Daimler’s targets and goals are ambitious while they do not always cover the whole company. E.g., the target of 50% absolute emission reductions only covers the Mercedes-Benz Cars & Vans division. In addition, there are no intermediate targets for Daimler’s trucks and buses.

Regarding reporting, it constitutes a pitfall that Daimler generally aims to report on portfolio basis, e.g., due to confidentiality and competitiveness considerations, while not mentioning specific thresholds in the eligibility criteria in the energy efficiency and pollution prevention and control category. CICERO Shades of Green encourages Daimler to report on a project level where possible and to obtain an external review on Daimler’s achievements. Such a review could alleviate some of the concerns while keeping Daimler’s information confidential.

It is a pitfall that substantial increase in electric vehicle production could lead to increased pressure on rare earth material sourcing and other environmental impacts that might occur especially in regions with environmental regulation that is less strict than in the EU. Daimler is aware of this challenge and is taking active measures to address these issues. CICERO Shades of Green encourages Daimler to transparently report on key issues Daimler encounters in order to support a global approach toward avoidance of negative environmental and social impacts of material sourcing.





# Appendix 1: Referenced Documents List

Document Number	Document Name	Description
1	Daimler's Green Finance Framework, June 2020	
2	Daimler's Sustainability Report 2018 & 2019	Daimler's Sustainability Report
3	Daimler's Scope 3 emissions estimation, <a href="https://www.daimler.com/dokumente/nachhaltigkeit/sonstiges/2018-scope-3.pdf">https://www.daimler.com/dokumente/nachhaltigkeit/sonstiges/2018-scope-3.pdf</a>	Document estimating Daimler's Scope 3 emissions together with ETH Zurich
4	Supplier Sustainability Standards.	Daimler's standards for supplier's sustainability
5	Daimler Geschäftsbericht 2019	Daimler's annual report 2019
6	Non-Financial Report, February 2020	Daimler's non-financial report in accordance with Sections 289b – 289e, 315b and c of the German Commercial Code (HGB)
7	Declaration on Corporate Governance, Corporate Governance Report	Daimler's declaration regarding the German Corporate Governance Code
8	Indicative impact reporting metrics, June 05, 2020	A list of indicative impact metrics for all of Daimler's project categories



## Appendix 2: About CICERO Shades of Green

CICERO Green is a subsidiary of the climate research institute CICERO. CICERO is Norway's foremost institute for interdisciplinary climate research. We deliver new insight that helps solve the climate challenge and strengthen international cooperation. CICERO has garnered attention for its work on the effects of manmade emissions on the climate and has played an active role in the UN's IPCC since 1995. CICERO staff provide quality control and methodological development for CICERO Shades of Green.

CICERO Green provides second opinions on institutions' frameworks and guidance for assessing and selecting eligible projects for green finance investments. CICERO Shades of Green is internationally recognized as a leading provider of independent reviews of green bonds, since the market's inception in 2008. CICERO Shades of Green is independent of the entity issuing the bond, its directors, senior management and advisers, and is remunerated in a way that prevents any conflicts of interests arising as a result of the fee structure. CICERO Shades of Green operates independently from the financial sector and other stakeholders to preserve the unbiased nature and high quality of second opinions.

We work with both international and domestic issuers, drawing on the global expertise of the Expert Network on Second Opinions (ENSO). Led by CICERO Shades of Green, ENSO contributes expertise to the second opinions, and is comprised of a network of trusted, independent research institutions and reputable experts on climate change and other environmental issues, including the Basque Center for Climate Change (BC3), the Stockholm Environment Institute, the Institute of Energy, Environment and Economy at Tsinghua University and the International Institute for Sustainable Development (IISD).

