



# Daimler Truck Group Green Finance Second Opinion

25 July 2023

## Executive Summary

**Daimler Truck Group (“Daimler Truck”) is an automotive OEM for trucks and buses.** As one of the world’s largest manufacturers of such vehicles, in 2022 it sold 520,291 units, of which 914 were electric.

**Daimler Truck will allocate at least two-thirds of proceeds under the framework to the clean transportation category, that is, to finance or refinance the manufacturing and research and development of battery- or fuel-cell electric trucks and buses, and relevant supporting technologies.** Battery- and fuel-cell electric trucks and buses are key technologies in the low-carbon transition of the road transportation sector. Notwithstanding, such vehicles entail substantial lifecycle emissions (arising, e.g., in the manufacturing process and from raw material sourcing), and the clean transportation category contains elements exposed to greater climate risk or considered more transitional (e.g. fossil fuel powered equipment in the manufacturing process and the manufacturing of batteries). Investments in energy efficiency, pollution prevention and control - which are likely to relate to processes or equipment for conventional combustion engine vehicles - and renewable energy projects are also eligible.

We rate the framework **Dark Green** and give it a governance score of **Excellent**. The Dark Green shade reflects that at least 80% of proceeds under the framework will be allocated to the Medium Green to Dark Green clean transportation and renewable energy categories, coupled with the Excellent governance score.

## Strengths

**Daimler Truck’s production of zero emission buses, and their inclusion under the framework, represents a strength.** In a 2050 perspective, the largest amount of carbon savings in society in respect of road transportation come from switching from individual modes of transport (e.g. individual cars and trucks) to mass transit, such as electrified public transport and freight trains. Notwithstanding the need for modal shifts in a 2050 perspective, Daimler Truck’s investments in zero emissions trucks are important, particularly, given the difficulty in developing zero-emission technologies for such vehicles, its research and development investments.

**The framework’s evaluation process includes consideration of important climate risks.** In particular, it includes express assessment of lock-in and rebound effects. This is an important commitment, particularly as investments under the energy efficiency and pollution prevention and control project categories are not restricted to zero emission vehicle production or processes. Nonetheless, the framework does not contain information about how these risks will be assessed in practice.

## SHADES OF GREEN



## GOVERNANCE ASSESSMENT



## GREEN BOND AND LOAN PRINCIPLES

Based on this review, this framework is found to be aligned with the principles.



### *Weaknesses*

**Investments under the energy efficiency and pollution prevention and control project categories are likely to include improvements of production processes or equipment related to conventional combustion engine vehicles, which Daimler Truck plans to produce well towards the middle of the century.** While these investments can reduce greenhouse gas emissions and pollutants or have other positive environmental impacts, and the share of conventional combustion engine vehicles should fall given Daimler Truck's targets, they also entail significant lock in risks and rebound effects, exacerbated by the lack of defined improvement thresholds or requirement to go beyond regulation.

**Proceeds can finance fossil fuel powered equipment used in the manufacturing of zero emission vehicles under the framework.** According to Daimler Truck, in some facilities where the zero emission vehicles will be produced, there is some fossil fuel powered equipment, which, according to Daimler Truck, cannot currently be decarbonized (though will be once technically and financially viable). We understand, according to Daimler Truck, that proceeds can in principle finance such equipment.

### *Pitfalls*

**Both battery- and fuel-cell electric vehicles come with significant climate, environmental and social risks.** Climate risks include high energy use in the production of batteries and the mining and processing of their raw materials, and increased demand for raw materials and their sourcing from areas highly exposed to physical climate risk. Other environmental risks arise from biodiversity impacts from mining, while social risks stem from deep supply chains, often in less well-regulated jurisdictions. Daimler Truck looks to mitigate such risks through, for example, its use of lifecycle assessments and emissions calculations in battery procurement, the inclusion of standards and requirements (including audit rights) in its contracts in respect of social risks, and its membership of the Responsible Mining Initiative and the Automotive Partnership 'Drive Sustainability'. Investors should note that, according to Daimler Truck, it is not currently clear (though currently under assessment) whether it will manufacture batteries itself, enter into partnerships to do so, or purchase batteries from battery manufacturers. Given the greater proximity and exposure of battery manufacturing to key risks and impacts set out here, we encourage Daimler Truck to transparently report on the extent to which it manufactures its batteries.

**The climate risks and impacts of hydrogen use in transportation also depend on its production method.** Hydrogen produced from renewable energy is considered most aligned with the 2050 solution, while hydrogen produced from natural gas, including with insufficient carbon capture rates, is not considered part of the 2050 solution.

**While Daimler Truck has relevant climate targets in place, these allow for significant production of conventional combustion vehicles towards 2050.** Daimler Truck has an overarching aim to be CO<sub>2</sub>-neutral throughout its entire value chain globally by 2050, with intermediate targets including up to 60% of new vehicle sales in Europe, United States, and Japan to be zero emission vehicles by 2030 (100% by 2039). Under these targets, there will be continued production of conventional combustion vehicles well towards the middle of the century.

**It is a pitfall that, in respect of impact reporting, the framework does not contain any express metrics, instead referring generally to the indicators in Daimler Truck's sustainability report as potential examples.** The sustainability report contains numerous indicators and metrics, further reducing clarity, though, prima facie, these seem relevant.



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# 1 Daimler Truck's environmental management and green finance framework

## Company description

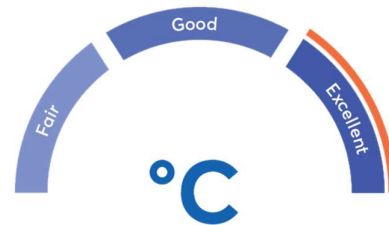
Daimler Truck Group (“**Daimler Truck**”) is an automotive OEM for trucks and buses. One of the world's largest manufacturers of commercial vehicles, in 2022 it generated revenues of around EUR 51 billion. Headquartered in Leinfelden-Echterdingen, Germany, Daimler Truck has over 100,000 employees across more than 40 locations.

In 2022, Daimler Truck sold 520,291 units, representing a 14.2% increase from 2021. Daimler Truck currently produces eight electric truck and bus models and sold 914 such vehicles in 2022.

## Governance assessment

Daimler Truck has relevant climate targets in place, with an overarching aim to be CO<sub>2</sub>-neutral throughout its entire value chain globally by 2050. This can include the use of purchased renewable electricity, offsetting and the use of carbon removal technologies - Daimler Truck should look to minimize the use of these as far as possible. Intermediate targets are in place: for example, up to 60% of new vehicle sales in Europe, United States, and Japan to be zero emission vehicles by 2030 (100% by 2039). These targets allow for significant production of conventional combustion vehicles towards 2050. An increasing focus on supply chain emissions, substantiated via the use of lifecycle assessments for its product portfolio and focus on key materials such as steel and aluminum, are welcome.

Daimler Truck's project selection process seems robust. Its evaluation process includes assessments of lock-in and rebound effects. This is an important commitment, particularly as investments under the energy efficiency and pollution prevention and control project categories are not restricted to zero emission vehicles production or processes. Nonetheless, the framework does not contain information about how these risks will be assessed in practice.



It is a shortcoming that, in respect of impact reporting, the framework does not contain any express metrics, instead referring generally to the indicators in Daimler Truck's sustainability report as potential examples. The sustainability report contains numerous indicators and metrics, further reducing clarity, though, prima facie, these seem relevant.

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



## Sector risk exposure

### *Physical climate risks.*

Science shows that extreme weather events are becoming more frequent and intense, that incremental climatic changes are highly likely to happen, and that their impacts are expected to grow more severe over the coming years and decades. The impacts of physical risks are uncertain in probability, magnitude, and timing. Physical climate change may impact the function and performance of Daimler Truck' products, its production facilities (for example via extreme weather events or water-stress) and shipments/logistics. Daimler Truck's global supply chain will also be at increased risk, for example disruption to raw material supply.

*Transition risks.* The number, scope, and ambition of regulatory requirements regarding greenhouse gas emissions are expected to increase significantly in the future for the road transportation sector. In particular, there are risks around banning the sale of new internal combustion engine vehicles, fuel efficiency regulations and emissions standards, as well as regulations that apply to production facilities in the supply chain. The market size and demand for critical minerals and rare earth metals, necessary to produce electric vehicle batteries, are projected to grow almost sevenfold between 2020 and 2030. This could pressure an already tightly pressed supply chain of raw materials, consequently reducing available supply and increasing prices. As technology improves and uptake increases, an overall gradual decline in government subsidies for electric vehicles is also expected. Electric vehicles rely on the concurrent development of charging infrastructure. While Daimler Truck can influence the proliferation of this infrastructure to some extent, this also relies heavily on other stakeholders.

*Environmental risks.* Daimler Truck has a large and complex global supply chain. Local environmental impacts such as air and noise pollution, wastewater discharge, ground pollution and other negative impacts may occur. While mining is crucial to facilitating the large-scale implementation of zero emission technologies, it involves significant risks to the local environment. Such risks include biodiversity loss, air pollution and wastewater pollution.

*Social risks.* Electric vehicles rely to a large extent on the sourcing of scarce resources, which brings social risk, especially in less well-regulated jurisdictions. A global presence and deep supply chain can also lead to human rights and labour risks.

## Environmental strategies and policies

Daimler Truck reports Scope 1 and 2 emissions from energy consumption in production. In 2022, such Scope 1 emissions totaled 357,000 tCO<sub>2</sub>, the main source of which was natural gas. According to Daimler Truck, natural gas is mainly used for the co-creation of process heat and power. In 2022, Scope 2 emissions, from electricity and district heating, totaled 330,000 tCO<sub>2</sub> (market based) and 591,000 tCO<sub>2</sub> (location based). This equates to 1,888 kgCO<sub>2</sub> per bus in 2022 and 1,278 kgCO<sub>2</sub> per truck. Daimler Truck does not currently measure or report on Scope 3 emissions, though we understand it has started collecting Scope 3 data and will publish its findings once that process is complete. Daimler Truck expects the use of its sold products to be its largest source of Scope 3 emissions.



Daimler Truck has several climate and environmental targets in place, with an overarching aim to be CO<sub>2</sub>-neutral throughout its entire value chain globally by 2050, including through the use of purchased renewable electricity, offsetting and the use of carbon removal technologies. In respect of its products, for example, by 2030, Daimler Truck aims for up to 60% of new vehicle sales in Europe, United States, and Japan to be electric or hydrogen (according to Daimler Truck, the prevalence of electric vis a vis hydrogen cannot be quantified) and, by 2039, for 100% of new vehicles sold in these markets to be zero emission vehicles.

Daimler Truck has several targets in respect of its production for 2030, including:

- i) reduce energy consumption by around 590 GWh, water use by around 470,000 m<sup>3</sup>, and waste generation by around 40 kt, compared to 2013/14 levels,<sup>1</sup>
- ii) reduce Scope 1 and 2 emissions by 42%, compared to 2021 levels – Daimler Truck expects this to be driven primarily through increased use of renewable energy (see point iii, below) and energy efficiency projects, and
- iii) at least 55% of energy consumption from renewable energy sources. This includes an ambition of 100% of externally sourced power/electricity to be from renewable sources by 2030 (primarily via guarantees of origin or other certifications) and >5% of power generation on site to come from renewable sources.

Since 2022, Daimler Truck's production plants in Europe and at some other sites have been CO<sub>2</sub>-neutral. This includes the purchase of green electricity and the use of carbon offsets. Production plants in the United States, Japan, and India are scheduled to be supplied by green electricity by 2025.

For its supply chain, with its direct suppliers, Daimler Truck targets CO<sub>2</sub>-neutral products and services in Europe, the United States, and Japan by 2039, and globally by 2050. According to Daimler Truck, the carbon footprint of materials is increasingly becoming a criterion in purchasing decisions and its contract terms include requirements on environmental performance including emissions. It also uses the Sustainability Assessment Questionnaire from the European Drive Sustainability initiative and data from the Carbon Disclosure Project's supply chain program. Key focus is on materials, based on lifecycle assessments, considered to be main drivers of supply chain emissions, such as steel and aluminum.

According to Daimler Truck, emissions calculations are also used for the procurement of batteries and suppliers are expected to support its 2050 target. In respect of social risks in battery production, Daimler Truck includes requirements in its business partner standards, and partners are expected to verify compliance with such requirements, and it furthermore includes standards and requirements (including audit rights) in its contractual terms. According to Daimler Truck, special attention is paid to critical raw materials used in battery production, and it is a member of the Responsible Mining Initiative and the Automotive Partnership 'Drive Sustainability'. Environmental risks are furthermore considered within its assessment of direct suppliers, and such suppliers are expected to address such risks in their own supply chains.

Daimler Truck has undertaken lifecycle assessments for its product portfolio. Alongside its use of lightweight engineering and its approach to recycled materials and recycling, lifecycle assessments feed into its approach to design its vehicles to be as resource-conserving and environmentally friendly as possible during their entire lifecycle. More specifically, lifecycle assessments are used to evaluate trucks and buses, which are investigated over their whole lifecycle (supply chain, production, customer use, and end-of-life phase) to identify improvement potential.

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<sup>1</sup> Representing a 16% reduction per vehicle in respect of energy efficiency and a 12% reduction per vehicle in respect of both water efficiency and waste production.



According to Daimler Truck, screening for physical climate risk is included in its internal audit process undertaken at a site level. While this includes assessment of water risks, we understand Daimler Truck is only at the start of its evaluation process in using climate scenarios.

Daimler Truck prepares an annual integrated report, including sustainability reporting prepared in accordance with the GRI. Daimler Truck does not report in accordance with TCFD recommendations though is preparing for CSRD reporting.

### **Green finance framework**

Based on this review, this framework is found to be aligned with the Green Bond Principles and the Green Loan Principles. For details on the issuer's framework, please refer to the green bond framework dated July 2023.

#### *Use of proceeds*

For a description of the framework's use of proceeds criteria, and an assessment of the categories' environmental impacts and risks, please refer to section 2.

#### *Selection*

Daimler Truck's selection process involves three groups/committees. Daimler Truck has established a green finance working group, which meets on a frequent basis and is comprised of members of various teams, including sustainability management. The green finance working group screens, evaluates and proposes an eligible green asset portfolio, aligned with the framework criteria. This stage of the evaluation will include consideration of asset lifecycle, EU Taxonomy criteria, lock in, and rebound effects. The green finance working group's proposals are then presented to the sustainability steering committee, which consists of senior management representatives of various units and meets at least once a quarter, and which may propose changes to the proposed eligible green asset portfolio. The final approval of the eligible green asset portfolio is from the corporate sustainability board (consisting of the same members as the board of management of Daimler Truck Holding AG and Daimler Truck AG), which is the central management and decision-making body for all sustainability topics at Daimler Truck. In approving the eligible green asset portfolio, the corporate sustainability board votes by simple majority.

#### *Management of proceeds*

Proceeds under the framework will be earmarked and tracked and accounted for using a green finance register.

Proceeds under the framework will be allocated within one year of issuance. If there are unallocated proceeds, these will be held in line with Daimler Truck's general liquidity guidelines until allocation. According to Daimler Truck, it will ensure that an amount equal to the unallocated proceeds is deposited with banks until allocation.

#### *Reporting*

Daimler Truck will provide an annual green finance investor report until full allocation of proceeds issued under the framework, and thereafter in case of any material changes to the allocation.. Information may be provided on an aggregated portfolio basis.

In respect of allocation, the report will include:

- Information on the eligible green asset portfolio including a brief description of eligible green assets and the amounts allocated
- Type of different green finance instruments utilized and corresponding outstanding amounts
- Ratio of new financing to refinancing
- Distribution of eligible assets by Daimler Truck segments



- Information about unallocated proceeds, if any

Daimler Truck will report on impacts where feasible and subject to data availability as well as confidentiality and competitiveness considerations. According to the framework, this will include information methodologies used to calculate impacts. The framework does not contain any express metrics, instead referring generally to the indicators in Daimler Truck's sustainability report as potential examples.

An independent auditor will verify the internal tracking method used and the allocation of funds reported. Impact reporting will not be independently verified.






## 2 Assessment of Daimler Truck’s green finance framework

The eligible projects under Daimler Truck’s green finance framework are shaded based on their environmental impacts and risks, based on the “Shades of Green” methodology.

### Shading of eligible projects under Daimler Truck’s green finance framework

- Proceeds under the framework can be used for financing or refinancing of capital expenditures. Refinancing is defined as the financing of existing assets taken into operation more than one year prior to their approval by the corporate sustainability board in the selection process. Daimler Truck intends to allocate proceeds to assets originating no more than three years prior to year of issuance of the relevant instruments under the framework. According to Daimler Truck, the share of financing and refinancing cannot currently be specified, though it expects that proceeds from the first issuance under the framework will mainly be used for refinancing and that, over time, there will be an increasing shift to financing.
- According to the framework, at least two-thirds of proceeds will be allocated to projects in the clean transportation project category and at least 80% of proceeds will be allocated to the clean transportation and renewable energy project categories.
- Proceeds may be allocated within the segments Daimler Truck North America, Mercedes-Benz Trucks, Daimler Truck Asia, and Daimler Buses.
- Other than in respect of nuclear energy, the framework contains no express exclusions.

| Category  | Eligible project types  | Green Shading and considerations  |
|---|---|---|
| Clean transportation<br> | <b>Zero emission vehicles:</b> Battery Electric Vehicles (BEV) and Fuel-Cell Electric Vehicles (FCEV) for trucks and buses, as well as the supporting technologies, such as batteries/fuel cells, and supporting infrastructure such as charging/refueling stations. This includes: | <b>Medium Green to Dark Green</b><br><br>✓ Battery- and fuel-cell electric trucks and buses are key technologies in the low-carbon transition of the road transportation sector, and battery electric and fuel-cell electric heavy vehicles have lower lifecycle emissions than diesel equivalents. <sup>2</sup> Nonetheless, the project category also |

<sup>2</sup> A recent life-cycle assessment by the International Council on Clean Transportation found that battery electric heavy duty vehicles showed greenhouse gas emissions saving of up to 76% compared to a diesel equivalent, when the EU grid average electricity is used, while heavy duty vehicles run on hydrogen reduce greenhouse gas emissions by 15-33% if the hydrogen is produced using natural gas and up to 89% if the hydrogen is produced using renewable energy, compared to a diesel equivalent: [O’Connell et al \(2023\)](#).



- ✓ **Manufacturing of Zero Emission Vehicles**
    - Production facilities for the manufacturing of zero emission vehicles and supporting technologies such as batteries and fuel cells
  - ✓ **Research & Development**  
Research & Development of:
    - Zero emission vehicles
    - Supporting technologies such as batteries and fuel cells
    - Supporting infrastructure such as charging and refueling stations
  - ✓ **Recycling of batteries/fuel cell systems**
    - Recycling and recovering facilities
  - ✓ **Supporting infrastructure for zero emission mobility**
    - Manufacturing & installation of charging and refueling stations for different zero emission vehicles
- contains elements exposed to greater climate risk or considered transitional, including to fossil fuel powered equipment in the manufacturing process and the manufacturing of batteries.
- ✓ According to Daimler Truck, all CAPEX for manufacturing is directly attributable to zero emission vehicles, so that there is no overlap of such investments with the production of conventional combustion engine vehicles.
  - ✓ According to Daimler Truck, some of its facilities where zero emissions vehicles are manufactured use fossil fuel powered equipment. We understand, according to Daimler Truck, that proceeds under the framework can be allocated to such equipment.
  - ✓ Both battery- and fuel-cell electric vehicles come with significant climate, environmental and social risks. Climate risks include high energy use in the production of batteries and the mining and processing of their raw materials,<sup>3</sup> and increased demand for raw materials and their sourcing from areas highly exposed to physical climate risk. Other environmental risks arise from biodiversity impacts from mining, while social risks stem from deep supply chains, often in less well-regulated jurisdictions.<sup>4</sup>
  - ✓ The climate risks and impacts of hydrogen use in transportation also depend on its production method. Hydrogen produced from renewable energy is considered most aligned with the 2050 solution, while hydrogen

<sup>3</sup> According to recent studies, emissions from the production of lithium-ion batteries range from 61-106 kgCO<sub>2</sub>e/kWh: [IVL - Lithium-Ion Vehicle Battery Production - 2019](#).

<sup>4</sup> According to Daimler Truck, its next generation of batteries will be lithium-iron-phosphate, dispensing of the need for nickel and cobalt. The sourcing of cobalt from the Democratic Republic of Congo, in particular, increases exposure to potential social risks.



produced from natural gas, including with insufficient carbon capture rates, is not considered part of the 2050 solution.<sup>5</sup>

- ✓ While the decarbonization of heavy vehicles is crucial, and the difficulty in developing zero-emission technologies for such vehicles is acknowledged, in a 2050 perspective, the largest amount of carbon savings in society in respect of road transportation come from switching from individual modes of transport to mass transit. Daimler Truck’s manufacturing of trucks and, conversely, buses should be seen in this context.
- ✓ According to Daimler Truck, it is not currently clear (though under assessment) whether it will produce batteries itself, enter into partnerships to do so, or purchase batteries from battery manufacturers. According to Daimler Truck, it currently has an agreement with CATL for the supply of batteries until beyond 2030. Given the greater proximity and exposure of battery manufacturing to key issues such as high energy use in production and supply chain risks, it is typically considered a Medium Green activity.
- ✓ Battery recycling will play an increasingly important role in a 2050 future, though is currently energy intensive and can use materials with high embodied emissions such as chemicals.

Energy efficiency

**Energy and resource efficiency**

**Light Green**

Replacement of production processes powered by fossil energy sources, e.g. welding

<sup>5</sup> According to a calculation by the International Renewable Energy Association, in 2021 only around 1% of global hydrogen production was produced using renewable energy: [IRENA - Hydrogen Overview](#).



Reduction of energy use from non-fossil sources and reduction of other resources incl. water, used per unit of output compared to the pre-investment situation. This includes:

- ✓ production processes e.g. welding, as well as in lighting, ventilation, heating/cooling
- ✓ digitalization in production processes

- ✓ A Light Green is awarded to this project category because energy efficiency investments are likely, given Daimler Truck's current production output, to include improvements of production processes or equipment related to conventional combustion engine vehicles. While these investments can reduce emissions in the near term, they can also entail significant lock in risks and rebound effects by supporting continued production of conventional combustion engine vehicles, exacerbated by the lack of defined improvement thresholds or requirement to go beyond regulation.
- ✓ According to Daimler Truck, efficiency improvements of fossil fuel powered equipment is excluded.

Pollution prevention and control



**Waste management**

Prevention and reduction of waste as well as increase of re-use and recovery of materials.

**Emission reduction**

Prevention or reduction of emissions of greenhouse gases, harmful substances and other pollutants into the air, soil or water.

**Light Green**

- ✓ A Light Green is awarded to this project category because investments are likely, given Daimler Truck's current production output, to relate to processes or equipment for conventional combustion engine vehicles. There is, furthermore, a lack of defined improvement thresholds for investments, requirement to go beyond regulation, or use best available technology.

Renewable energy



**Generation 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.

**Medium Green to Dark Green**

- ✓ According to Daimler Truck, the most likely sources are solar, wind, geothermal and hydropower. Geothermal and hydropower, in particular, can entail significant lifecycle emissions. It therefore constitutes a risk that the eligibility criteria do not include a lifecycle emissions threshold.
- ✓ The list of potential renewable energy sources is not definitive, and bio-based sources may therefore be eligible. Such energy sources carry



climate risks, often depending on inputs and land use considerations, which should be screened for and mitigated.

- ✓ Renewable energy projects entail local environmental risks, for example in respect of flora and fauna, which need to be managed.
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Table 1. Eligible project categories









## 3 Terms and methodology

This note provides Shades of Green’s second opinion of the client’s framework dated July 2023. 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. 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.

### ‘Shades of Green’ methodology

Shades of 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:

| Shading  | Examples   |
|--|--|
|  <b>Dark Green</b> is allocated to projects and solutions that correspond to the long-term vision of a low-carbon and climate resilient future.   |  Solar power plants         |
|  <b>Medium Green</b> is allocated to projects and solutions that represent significant steps towards the long-term vision but are not quite there yet.  |  Energy efficient buildings |
|  <b>Light Green</b> is allocated to transition activities that do not lock in emissions. These projects reduce emissions or have other environmental benefits in the near term rather than representing low carbon and climate resilient long-term solutions. |  Hybrid road vehicles       |

The “Shades of Green” methodology considers the strengths, weaknesses and pitfalls of the project categories and their criteria. 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, including potential macro-level impacts of investment projects.

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. Shades of 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.



### *Assessment of alignment with Green Bond Principles*

Shades of Green assesses alignment with the International Capital Markets' Association's (ICMA) Green Bond Principles. We review whether the framework is in line with the four core components of the GBP (use of proceeds, selection, management of proceeds and reporting). We assess whether project categories have clear environmental benefits with defined eligibility criteria. The Green Bonds Principles (GBP) state that the "overall environmental profile" of a project should be assessed. The selection process is a key governance factor to consider in Shades of Green's assessment. 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 Shades of Green places on the selection process. Shades of Green assesses whether net proceeds or an equivalent amount are tracked by the issuer in an appropriate manner and provides transparency on the intended types of temporary placement for unallocated proceeds. Transparency, reporting, and verification of impacts are key to enable investors to follow the implementation of green finance programs.



# Appendix 1: Referenced Documents List

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| Document Number | Document Name                         | Description |
|-----------------|---------------------------------------|-------------|
| 1               | Green Finance Framework (July 2023)   |             |
| 2               | Annual Report (2022)                  |             |
| 3               | GRI Index (2022)                      |             |
| 4               | Code of Conduct (undated)             |             |
| 5               | Business Partner Standards (May 2023) |             |

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## Appendix 2: About Shades of Green

Shades of Green, now a part of S&P Global and formerly part of CICERO, provides independent, research-based second party opinions (SPOs) of green financing frameworks as well as climate risk and impact reporting reviews of companies. At the heart of all our SPOs is the multi-award-winning Shades of Green methodology, which assigns shadings to investments and activities to reflect the extent to which they contribute to the transition to a low carbon and climate resilient future.

Shades of Green is internationally recognized as a leading provider of independent reviews of green bonds, since the market's inception in 2008. 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. Shades of Green operates independently from the financial sector and other stakeholders to preserve the unbiased nature and high quality of second opinions.

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- ★ **2021 Largest External Reviewer**, Climate Bonds Initiative Awards
  - ★ **2020 External Assessment Provider Of The Year**, Environmental Finance Green Bond Awards
  - ★ **2020 Largest External Review Provider In Number Of Deals**, Climate Bonds Initiative Awards
  - ★ **2019 External Assessment Provider Of The Year**, Environmental Finance Green Bond Awards
  - ★ **2019 Largest Green Bond SPO Provider**, Climate Bonds Initiative Awards
  - ★ **2018 External Assessment Provider Of The Year**, Environmental Finance Green Bond Awards
  - ★ **2018 Largest External Reviewer**, Climate Bonds Initiative Awards
  - ★ **2017 Best External Assessment Provider**, Environmental Finance Green Bond Awards
  - ★ **2016 Most Second Opinions**, Climate Bonds Initiative Awards