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ASSESSMENT
23 June 2023

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Denso Corporation

Second Party Opinion – Sustainable Bond Framework Assigned SQS2 Sustainability Quality Score

Summary

We have assigned an SQS2 Sustainability Quality Score to Denso Corporation's (Denso, A2 stable) green, social and sustainability bond framework, dated July 2021. Denso's use-of-proceeds framework has been established with the aim of financing projects across one eligible social category and two eligible green categories. The framework is aligned with the four core components of the International Capital Market Association's (ICMA) Green Bond Principles (GBP) 2021 (including the June 2022 Appendix 1), Social Bond Principles (SBP) 2021 (including the June 2022 Appendix 1) and Sustainability Bond Guidelines 2021. The framework demonstrates a high contribution to sustainability.

Sustainability quality score

SQS2

SQS5 Weak | SQS4 Intermediate | SQS3 Good | SQS2 Very good | SQS1 Excellent

Alignment with principles
USE OF PROCEEDS

Overall alignment

Not aligned | Partially aligned | Aligned | Best practices

FACTORS	ALIGNMENT
Use of proceeds	
Evaluation and selection	
Management of proceeds	
Reporting	

Contribution to sustainability

Overall contribution

Poor | Limited | Moderate | Significant | High

Expected impact
Relevance and magnitude

ADJUSTMENTS	
ESG risk management	No adjustment
Coherence	No adjustment

Scope

We have provided a second party opinion (SPO) on the sustainability credentials of Denso's green, social and sustainability bond framework, including the framework's alignment with the ICMA's GBP 2021 (including the June 2022 Appendix 1), SBP 2021 (including the June 2022 Appendix 1) and Sustainability Bond Guidelines 2021. Under its framework, the company plans to issue use-of-proceeds green, social or sustainability bonds with the aim of financing projects comprising two green categories and one social category, as outlined in Appendix 2 of this report. The framework applies to Denso and its subsidiaries.

Our assessment is based on the last updated version of Denso's framework dated July 2021 and the draft impact report 2022 dated 23 June 2023, and our opinion reflects our point-in-time assessment of the details contained in this version of the framework, as well as other public and non-public information provided by the company.

We produced this SPO based on our Framework to Provide Second Party Opinions on Sustainable Debt, published in October 2022.

Issuer profile

Headquartered in Aichi Prefecture, Japan, Denso Corporation (Denso) is a global tier-one supplier of automotive parts. Denso reported consolidated revenue of ¥5.5 trillion ($49 billion) for the fiscal year that ended March 2022 (fiscal 2021). Denso has strong customer relationships, and a concentration with Toyota Motor Corporation (A1 stable) and its group companies, which account for around 50% of revenue.

As an automotive parts manufacturer, Denso faces sustainability challenges similar to other manufacturers, and the company's materiality matrix includes the following challenge categories: “environment”, which includes scope 1, 2 and 3 greenhouse gas (GHG) emissions; “peace of mind”, which includes reduction in traffic accidents; and “corporate foundation”, such as compliance and information security.

Strengths

» Financing of electrification, which is likely to have a high contribution in terms of reducing GHG emissions

» Well-established project evaluation and selection process, including robust environmental and social risk mitigation practices

» Management of proceed commitments are in line with market best practices, including a commitment to allocate proceeds within 24 months

Challenges

» The advanced safety and autonomous driving category includes various products and technologies, limiting the visibility of how the projects will transfer into social benefit.

» The reporting indicator for the advanced safety and automated driving category and electrification category is revenue, which does not directly quantify the environmental and social benefits of these categories

» No commitment to undertake the independent audit or verification of the allocation and impact reporting

» Use of power purchasing agreements (PPAs), which may not necessarily lead to the addition of new renewable energy capacity in project locations

Alignment with principles

Denso's green, social and sustainability bond framework is aligned with the four core components of the ICMA's GBP 2021 (including the June 2022 Appendix 1), SBP 2021 (including the June 2022 Appendix 1) and Sustainability Bond Guidelines 2021:

- ☑ Green Bond Principles (GBP)
- ☑ Social Bond Principles (SBP)
- ○ Green Loan Principles (GLP)
- ○ Social Loan Principles (SLP)
- ○ Sustainability-Linked Bond Principles (SLBP)
- ○ Sustainability Linked Loan Principles (SLLP)

Use of proceeds

Not aligned	Partially aligned	Aligned ▼	Best practices

Clarity of the eligible categories – BEST PRACTICES

Denso has clearly communicated the nature of expenditure, eligibility, and exclusion criteria for all the eligible projects. The eligible categories include research and development (R&D), and capital spending for advanced safety and automated driving, electrification and Monozukuri (manufacturing), which entails the introduction or purchase of renewable energy.

While the issuer's framework stated that the project location was Japan only, the issuer has subsequently decided to expand the scope to global in light of Denso's global operation and continued expansion, although most of the projects will be in Japan.

Clarity of the environmental or social objectives – BEST PRACTICES

The environmental objectives associated with the eligible categories are clear and relevant. In addition, the objectives are coherent with international standards, including the UN's Sustainable Development Goals (SDGs) 3, 7, 9, 11, 12 and 13.

Clarity of the expected benefits – ALIGNED

The expected benefits identified are clear and relevant, which include realizing a safe mobility society without traffic accidents, contributing to the electrification of vehicles and introducing renewable energy. However, the reporting indicator of the advanced safety and automated driving, and electrification categories, which is "percentage of sales increase", is not a direct measure of the benefits. The company has committed to have no refinancing.

Best practices identified

» Eligibility criteria are clearly defined for all project categories

» Objectives set are defined, relevant and coherent for all project categories

» Commitment to transparently disclose the share of proceeds used for refinancing where feasible

» Commitment to transparently communicate the associated lookback period(s) where feasible

Process for project evaluation and selection

Not aligned	Partially aligned	Aligned	Best practices ▼

Transparency and quality of process for defining eligible projects – BEST PRACTICES

Denso has established a clear process to select and determine the eligible projects, which will involve key participants with relevant expertise from the business planning, technology, production, quality and sales departments. In addition, Denso will organize and manage group-wide meetings to determine the R&D and capital spending of the eligible projects. This process will be documented and traceable through internal meeting minutes.

Denso will monitor the eligible projects annually to ensure they remain in compliance with the eligibility criteria until the bonds are fully redeemed, and the projects will be replaced in case they are not compliant.

Environmental and social risk mitigation process – BEST PRACTICES
Denso will ensure that the environmental and social risks are monitored, identified and managed appropriately through its internal policies and guidelines, including DENSO Group Sustainability Policy[1].

In case an ESG controversy arises, the department related to the controversy and the ESG department will be responsible for discussing the appropriate responses. The status and responses to the controversy will be reported to the chief risk officer for appropriate action.

Best practices identified

- The roles and responsibilities for project evaluation and selection are clearly defined and include relevant expertise
- There is evidence of continuity in the selection and evaluation process through the life of the financial instrument(s), including compliance verification and procedures to undertake mitigating actions when needed
- The process for project evaluation and selection is traceable
- Material environmental and social risks for most project categories are identified
- Presence of corrective measures to address environmental and social risks across projects
- ESG controversies are monitored

Management of proceeds

Not aligned | Partially aligned | Aligned | Best practices

Allocation and tracking of proceeds – BEST PRACTICES
Denso has defined a clear process for the management and allocation of proceeds in the framework. The finance department will place the proceeds in a dedicated bank account. The department will also track and manage the eligible expenditures through an internal management system to ensure the balance of the net proceeds matches the allocations to the eligible projects.

The company intends to allocate the proceeds of the bonds within 24 months.

Management of unallocated proceeds – BEST PRACTICES
Unallocated proceeds will be treated as cash and cash equivalents, and Denso has confirmed that such a temporary placement will not be directed to GHG-intensive or controversial activities.

Furthermore, in case of a cancellation or postponement of a project, the company will reallocate the proceeds to other eligible projects on a best effort basis within 24 months.

Best practices identified

- Broad disclosure of a clearly articulated and comprehensive management of proceeds policy to external stakeholders; bondholders or lenders at a minimum
- Short allocation period, for example typically less than 24 months
- Disclosure on temporary placement and presence of exclusion criteria toward environmentally or socially harmful activities
- Commitment to reallocate proceeds to projects that are compliant with the framework

Reporting

Not aligned | Partially aligned | Aligned | Best practices

Transparency of reporting – ALIGNED

Denso will publicly report on the allocation of proceeds and the impacts of its eligible projects annually, and in case of significant changes, until the proceeds are fully allocated. The selected reporting indicators, which will be at the category level, are clear, relevant and exhaustive, although the indicators for advanced safety and automated driving, and electrification are indirect measures of the benefits. The reporting will also include significant developments, issues or controversies related to the projects, if any.

While Denso commits to publishing a post-issuance review, there will be no independent audit of the allocation of funds or on the environmental and social benefits[2]. However, Denso will report case studies of R&D related to advanced safety and automated driving, and electrification.

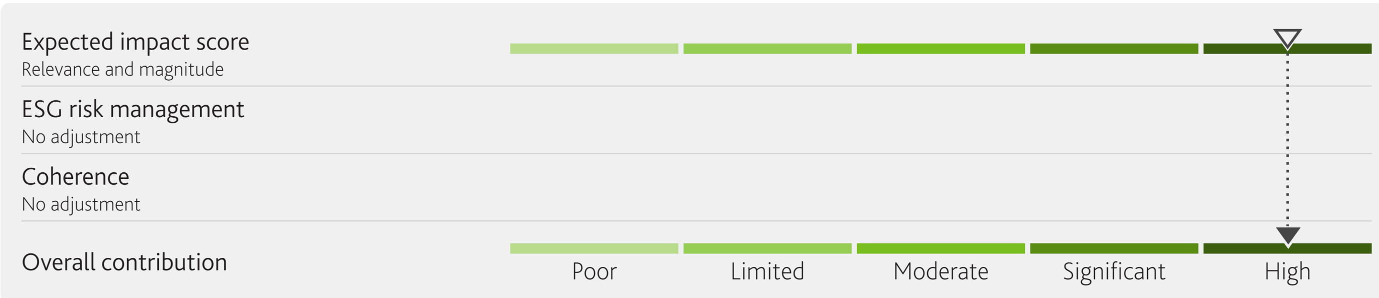
Denso has already published its Impact Report 2021 and disclosed the draft Impact Report 2022 to us. Based on the draft Impact Report 2022, we believe that the organization has adhered to the commitments made in the framework. In addition, while the company does not commit to disclosing the methodologies and assumptions used to report on the environmental and social impacts of the eligible projects, it has disclosed the detailed breakdown for the purpose of its draft Impact Report 2022 to us.

Best practices identified

- Reporting covers material developments and issues related to the projects or assets
- Reporting on allocation of proceeds and benefits done at least at eligible category level
- Exhaustive allocation reporting – balance or % of unallocated funds, types of temporary investments (e.g. cash or cash equivalent) and share of financing vs re-financing

Contribution to sustainability

The framework demonstrates a high overall contribution to sustainability.

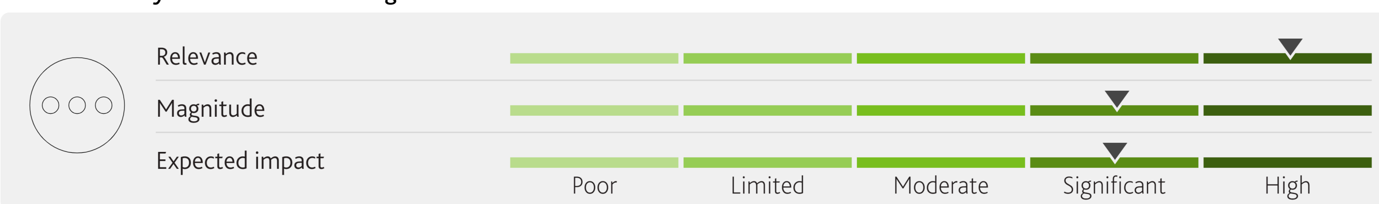


Expected impact

The expected impact of the eligible project categories is high. Based on information provided by Denso, we expect most of the proceeds from future issuances to be allocated toward the advanced safety and automated driving, and electrification categories. This information has guided the weights used when determining the overall expected impact.

Based on the draft Impact Report 2022, we believe that the bonds issued in 2021 have positively contributed to sustainability. Of the total proceeds allocated, 45% were allocated toward advanced safety and automated driving projects, 48% toward electrification projects and 7% toward Monozukuri projects. A detailed assessment by eligible category is provided below.

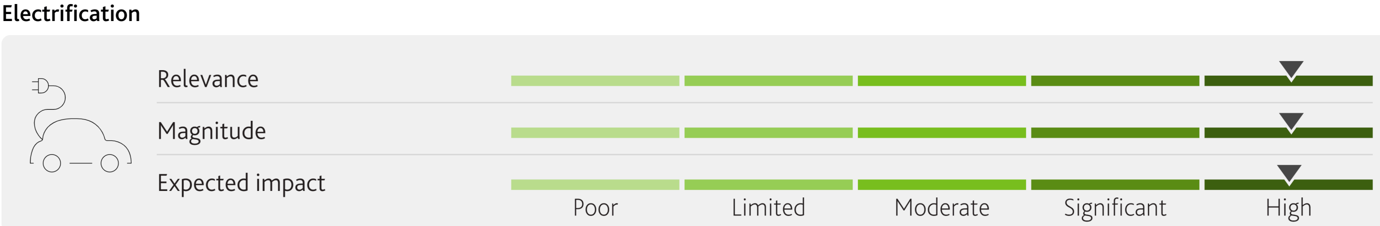
Advanced safety and automated driving



The category exhibits high relevance overall. Safety for vehicles is a highly important issue for the automotive sector and is a top focus area according to Denso's materiality matrix. It is especially important in Japan because traffic injuries and fatalities continue to be a critical social issue in the country, with road accidents accounting for one of the highest causes of death among most age groups[3]. Against the backdrop of Japan's aging demographic trend, there is a particularly high need for improvements in vehicle and road safety levels because senior citizens are at an especially higher risk of road accidents — typically recording a higher casualty ratio than other age groups.

The category is likely to have a significant magnitude because it will generate a substantial positive impact for a broad range of users of road transport in Japan and worldwide. The projects will have a positive impact on the broader population because it directly addresses the root cause of road fatalities and helps prevent traffic accidents. Furthermore, Denso's R&D efforts will take into account a wide range of accident scenarios in different regions, which significantly surpasses the legal national safety requirement in Japan[4]. However, this category includes various products and technologies, making it unclear how the projects will contribute specifically to the vulnerable population such as pedestrians, the elderly and children.

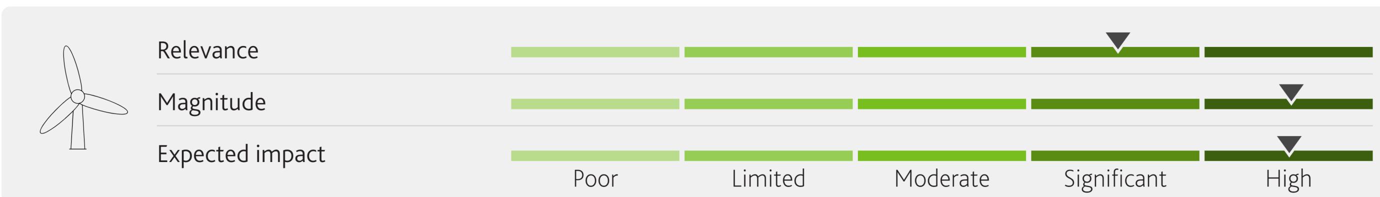
Electrification



The category exhibits high relevance overall. The electrification of vehicles addresses one of the most important sustainability challenges faced by the automotive sector, which is to tackle scope 3 emissions because they account for the largest share of emissions in the sector. Electrification is also highly relevant to Denso, being one of its key focus areas according to the firm's materiality matrix. There is a high need to transition to electrified vehicles because the transportation sector is a major contributor of GHG emissions globally and it accounts for roughly 17.7% of Japan's overall GHG emissions (as of fiscal 2020)[5]. The category is also highly relevant for Japan because it aligns with the national plans to promote the adoption of low-carbon vehicles as part of its carbon neutrality target by 2050[6].

The category is likely to have a high magnitude because the projects constitute the use of best available technologies and have no negative lock-in effects. Vehicle types included in this category are limited to zero-tailpipe emission vehicles, such as battery electric vehicles (BEVs), fuel cell electric vehicles (FCEVs) and electric vertical take off and landing aircfaft (e-VTOLs). Only the projects that aim to improve fuel efficiency and reduce energy consumption of core auto components will be eligible, which can result in longer driving distances, shorter recharging times and lower system costs for EVs. Such technological improvements can ultimately help promote the further adoption of BEVs and FCEVs through better affordability. On the other hand, the short- to medium-term impact may be less because of the high reliance on fossil fuels in Japan's current energy mix, while the financed projects will have a high positive impact on emissions reduction in the long term, with the gradual decarbonization of the country's electricity grid.

Monozukuri (manufacturing)



The category exhibits significant relevance overall because the prevention of global warming is a top material issue for the firm. In addition, increasing and promoting the use of renewable energy is an important challenge globally and in Japan because it aligns with the country's national carbon neutrality goal and strategy to increase the share of renewable energy in its grid to 36%-38% by 2030[7]. However, the category only addresses Denso's scope 1 and 2 emissions, which account for a fairly small share of the firm's total carbon footprint[8]. This is in line with the automotive sector's emission profile because scope 3 emissions typically account for most of the sector's total emissions.

The category is likely to have a high magnitude because investments in renewable energy constitute the use of the best available technology and have no negative lock-in effects. While the types of renewable energy are not specified, the on-site installations so far were limited to solar photovoltaic systems, which are likely to reduce GHG emissions and have no significant negative externalities. The category also includes a small allocation to the purchase of PPAs and Renewable Energy Certificates (RECs). The use of PPAs and RECs can have a lower environmental impact than on-site generation because they do not necessarily directly contribute to the addition of new renewable energy capacity.

ESG risk management

We have not applied a negative adjustment for environmental, social and governance (ESG) risk management to the expected impact score. Denso has a strong ESG risk management procedure in place to minimize the potential negative externalities from the eligible projects.

Coherence

We have not applied a negative adjustment for coherence to the expected impact score. The projects to be financed under the framework align with the sustainability priorities of Denso, which according to the Group Long-term Policy 2030, focuses on creating value in the areas of “environment” and “peace of mind” by enhancing mobility and promoting sustainability, contributing to the realization of sustainable societies.

Appendix 1 - Mapping eligible categories to the United Nations' Sustainable Development Goals

The three eligible categories included in Denso's framework are likely to contribute to six of the United Nations' (UN) SDGs, namely:

UN SDG 17 Goals	Eligible Category	SDG Targets
GOAL 3: Good Health and Well-being	Advanced Safety and Automated Driving	3.6: Halve the number of global deaths and injuries from road traffic accidents
GOAL 7: Affordable and Clean Energy	*"Monozukuri* (Manufacturing)	7.2: Increase substantially the share of renewable energy in the global energy mix
GOAL 9: Industry, Innovation and Infrastructure	Advanced Safety and Automated Driving Electrification	9.4: Upgrade infrastructure and retrofit industries to make them sustainable, with all countries taking action
GOAL 11: Sustainable Cities and Communities	Advanced Safety and Automated Driving	11.2: Provide access to safe, affordable, accessible and sustainable transport systems for all
GOAL 12: Responsible Consumption and Production	*"Monozukuri* (Manufacturing)	12.2: Achieve the sustainable management and efficient use of natural resources
GOAL 13: Climate Action	Electrification *"Monozukuri* (Manufacturing)	13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

The mapping of the UN's SDGs in this SPO considers the eligible project categories and associated sustainability objectives/benefits documented in the issuer's financing framework, as well as resources and guidelines from public institutions, such as the ICMA's SDG Mapping Guidance and the UN's SDG targets and indicators.

Appendix 2 - Summary of eligible categories in Denso's framework and impact report

Eligible Category	Description	Sustainability Objectives	Impact Reporting Metrics
Advanced Safety and Automated Driving = "reliable"	Finance, in whole or in part, new or existing Advanced Safety and Automated Driving business. - Scope of Business: Electronic systems, services, and platforms relating to mobility, including but not limited to millimeter wave radar, image sensors, driver status monitors, airbag systems, and other areas - Research and Development: Technologies to improve the performance of millimeter wave radar and image sensors (such as increasing Detection Range, widening Field of View, etc.), both of which are the core products of Advanced Safety and Automated Driving. - Capital expenditure: CAPEX to expand the production of the core products described above	Pursue the goal to create a safe mobility society without traffic accident Target - All around in-vehicle sensors, strengthening map functions and V2X (vehicle technology to communicate with infrastructure or between vehicles) and DSM (Driver Status Monitor) - Achieve ADAS Sales 500 billion yen by 2025	- Percentage of sales increase in Advanced Safety and Automated Driving (year-on-year) - Status of implementation of safety features and benefit necessary for Advanced Safety and Automated Driving
Electrification (Battery Electric Vehicle (BEV), Fuel Cell Electric Vehicle (FCEV) and e-VTOL (air mobility)) = "Environment"	Finance, in whole or in part, new or existing electrification businesses, research and development and capital expenditure - Research and Development: Technology development that contributes to improving performance such as energy efficiency and electric mileage of vehicle with Inverters, Motor Generators, Battery ECUs, etc., which are essential for driving system of electric vehicles - Capital expenditure: CAPEX to grow the production of those core products	Contribute to electrification of vehicles - Contribute to minimizing environmental impact of mobility by achieving sales of one trillion yen in electrification by 2025	- Percentage of sales increase in electrification (year-on-year)
"Monozukuri" (Manufacturing) = "Environment"	Finance, in whole or in part, new projects in "Monozukuri (Manufacturing)" - Introduction of renewable energy such as solar power generation facilities - Expenditures related to the purchase of renewable energy power etc.(including expenditures of the purchase of renewable energy through PPA /Renewable Energy Certificate)	Carbon Neutrality in Manufacturing - Achieve carbon neutrality for electricity (use credits for gas) by 2025 - Achieve full carbon neutrality for manufacturing by 2035	- Reduction of CO2 emission in "Monozukuri (Manufacturing)"

Summary of impact report

Sustainability bond terms	Percentage of sales increase in Advanced Safety and Automated Driving (%)	Percentage of sales increase in electrification (%)	Reduction in CO2 emission in "Monozukuri (Manufacturing)" (t-CO2)
Issue date: 16 September 2021 Maturity date: 16 September 2026 Issue amount: USD 500 million	+23.1 (vs fiscal 2020) +13.5 (vs fiscal 2021)	+460.7 (vs fiscal 2020) +114.3 (vs fiscal 2021)	236,247 (since second half of fiscal 2021) 219,329 (in fiscal 2022)

Moody's related publications

Second Party Opinion analytical framework:

» Framework to Provide Second Party Opinions on Sustainable Debt, October 2022

Topic page:

» ESG Credit and Sustainable Finance

Endnotes

1 DENSO Group Sustainability Policy, revised in December 2018, accessed on 25 April 2023.

2 The post-issuance review or the issuance of an SPO by us is not considered an audit of the allocation and reporting because we are not an auditing firm.

3 Traffic Accidents and Violations of Road Traffic Laws in 2022, accessed on 9 June 2023.

4 Safety Standards for Collision Damage Mitigation Brakes for Passenger Cars, accessed on 9 June 2023.

5 GHG emissions in 2020, accessed on 9 June 2023.

6 Green Growth Strategies for Carbon Neutrality by 2050, December 2020, accessed on 9 June 2023.

7 Current Status of Domestic and Foreign Renewable Energy, October 2022, accessed on 9 June 2023.

8 Denso Performance Data (Environment) FY2021, accessed on 9 June 2023.

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