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Second Party Opinion

# Stena Metall Group Green Bond Framework

April 25, 2025

**Location:** Sweden

**Sector:** Waste and Recycling Materials Services

## Alignment Summary

Aligned = ✓ Conceptually aligned = ○ Not aligned = ✗

✓ Green Bond Principles, ICMA, 2021 (with June 2022 Appendix 1)

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

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**Dark green**

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

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

## Strengths

**Investments eligible under the framework aim to expand the issuer's recycling and circular services and reduce the associated greenhouse gas emissions.** Stena Recycling's (a segment of Stena Metall) circular services are key to reducing industrial carbon footprints by replacing virgin materials with recycled inputs. It also addresses emissions in its operations and value chain, with Science-Based Targets initiative (SBTi)-approved targets to cut scopes 1 and 2 emissions by 50% and selected scope 3 emissions by 25% by 2030. Since 2021, it has reduced its overall emissions—especially in transport and electricity—achieving a 16% and 26% reduction in scope 1 and 2, respectively. Scope 3 fell slightly but remains the main source. Stena Recycling aims to be net zero by 2050.

**The framework emphasizes battery recycling infrastructure.** Recovering valuable materials from end-of-life batteries can help reduce reliance on virgin raw materials and support the broader transition to electric vehicles.

## Weaknesses

No weaknesses to report.

## Areas to watch

**The recycling process remains energy-intensive, particularly the treatment of complex materials and thermal processes.** While decarbonization and electrification efforts are underway at Stena Recycling, supported by investments under this framework, the overall climate impact will depend on the pace of implementation and access to low-carbon electricity.

**Stena Recycling does not currently screen individual assets for physical climate risks, beyond what is required by regulation.** However, it has initiated high-level scenario analysis aligned with Task Force on Climate-related Financial Disclosures (TCFD) guidance to support strategic planning and assess broader climate-related impacts.

## Shades of Green Projects Assessment Summary

Over the three years following issuance of the financing, Stena Metall expects to allocate 85% of proceeds to projects within the circular economy category, 12% to clean transportation, and the remaining 3% to renewable energy projects. Eligible assets will be Stena Recycling and its subsidiaries.

The issuer expects a small proportion of proceeds to be allocated to the financing of new projects, while more than 90% of proceeds will be directed to refinancing.

Based on the project category's Shades of Green detailed below, the expected allocation of proceeds, and considering the environmental ambitions reflected Stena Metall's Green Bond Framework, we assess the framework as Dark green.

### Circular Economy

 Dark green

Investments in comprehensive solutions within recycling and circular services. All investments aiming to move waste upward in the waste hierarchy and to increase the share of products and materials that can be reused or recycled including related infrastructure. When applicable, best available technology (BAT) conclusions are used for investment decisions.

### Clean Transportation

 Dark green

Investments in electric vehicles and working machines for use in the recycling operations, including associated infrastructure such as charging stations.

### Renewable Energy

 Dark green

Investments in renewable energy and associated infrastructure such as grid connections, transmission systems, and structural foundations.

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

## Issuer Sustainability Context

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

### Company Description

Stena Metall Group, a part of the Stena Sphere, has seven business areas and operations at over 200 locations in nine countries. The group was founded in 1939 and is based in Gothenburg, Sweden. Through the subsidiary Stena Recycling, six million tons of waste and end-of-life products are recycled and refined each year, providing customers with comprehensive waste management solutions as well as recycled raw materials. Business offerings from the other companies in the group include aluminum alloys, steel products, marine fuels, and confidential material handling. In the full financial year 2023-2024 (ending Aug. 31, 2024), it derived about 70% of its EBITDA from Recycling (Swedish krona [SEK] 2,049 million of SEK2,946 million total), 10% from Oil (SEK302 million), and 19% from other activities (SEK574 million).

### Material Sustainability Factors

#### Waste and Recycling

Waste and recycling systems are under increasing scrutiny due to their environmental and regulatory implications. Materials such as plastics, batteries, and industrial by-products present complex challenges related to chemical content, recyclability, and end-of-life treatment. Companies like Stena Recycling operate at the intersection of industrial waste management and secondary raw material production, processing large volumes of diverse waste streams across several European countries. Their role is becoming more prominent as policy frameworks tighten, with growing emphases on circular economy principles, extended producer responsibility, and restrictions on landfilling and single-use materials. Regulatory developments are pushing for higher recycling rates and improved treatment of hazardous and complex waste, while also encouraging innovation in sorting, separation, and material recovery technologies. At the same time, lifecycle considerations are becoming more relevant, particularly for plastics and other short-lived products. The ability to recover critical materials—such as metals from batteries or plastics from mixed waste—has implications for supply security, emissions reduction, and resource efficiency.

#### Pollution

Recycling processes can emit harmful air pollutants, while leakages and spills—particularly during production, transport, use, and end-of-life management—can have significant consequences for human health, natural capital, and biodiversity. Battery recycling, in particular, poses risks due to the presence of hazardous materials such as heavy metals and electrolytes. Improper handling can lead to soil and water contamination, fire hazards, and toxic exposure. As battery volumes grow with electrification, facilities must apply strict safety and environmental controls to manage these risks and comply with regulatory requirements.

#### Climate transition risk

While recycling reduces emissions by displacing virgin material use, waste and resource management companies still face transition risks—such as stricter emissions regulations, carbon pricing, and evolving expectations from customers and investors. Stena Recycling's activities—including transport, processing, and materials handling—generate emissions across scopes 1, 2, and 3, particularly from fuel use and externally sourced transport. As governments implement more ambitious decarbonization plans—such as the EU's Fit for 55 package and Sweden's net-zero goal by 2045—industrial operators may face growing pressure to electrify fleets, cut fossil fuel use, and improve energy efficiency.

## Physical climate risk

Extreme weather events—including storms and heat waves—can disrupt transportation routes that deliver goods and therefore, supply chains across different sectors, including recycling. Facilities located in climate-sensitive regions—such as coastal areas—are typically more exposed. These events, which are generally becoming more frequent and severe (although this varies by region), could directly affect large waste treatment and recycling facilities and logistics hubs, including through delivery delays.

## Issuer And Context Analysis

**Stena Metall's Green Bond Framework includes projects that aim to expand the issuer's recycling and circular services as well as reduce the associated greenhouse gas emissions.** A significant emphasis of this update to the framework targets operations linked to battery and plastics recycling. Financed projects also include the electrification of working machinery, transport, and other elements of the waste recycling process, to reduce greenhouse gas emissions across the value chain.

**Stena Recycling's core business model is based on waste management and material recovery.**

The company plays an important role in improving the carbon footprint of industries through its business model of supplying recycled raw materials. According to the company, in fiscal 2024 avoided carbon dioxide emissions from its products amounted to 5,805 kilotonnes. These calculations are based on the differences in energy consumption between producing recycled materials and extracting equivalent virgin raw materials. As assumptions and best-available data are used in the methodology, the figure should be viewed as an estimate. In that year, Stena Recycling achieved a recycling rate of 76.9%, calculated as the share of material recovered through reuse, material recycling, biotreatment, and other recycling relative to total processed waste. The main materials recycled were ferrous metals (about 38% of total waste), paper (21%), other waste fractions (26%), plastics (4%), non-ferrous metals (3%), and electronics (2%). Stena Recycling has made targeted investments to enhance its waste processing capacity, including a new plastics recycling facility and a lithium-ion battery recycling plant in Sweden. Waste is handled at 178 locations across multiple countries, with infrastructure in place for sorting, treating, and recovering a wide range of materials.

**Stena Recycling's operations involve the handling of materials that could pose pollution risks to soil and water through surface runoff and rainwater contamination.** To manage these risks, the company implements a range of site-specific measures, including stormwater filtration, rainwater cleaning systems, sealed and hardened surfaces, and procedures for storage and cleaning. These measures are based on environmental risk analyses it conducts at each facility and are designed in accordance with applicable environmental legislation and permit requirements. The aim is to prevent contaminants from entering surrounding ecosystems and ensure that operations remain compliant with local regulatory standards.

**The company has set emissions reduction targets aligned with the SBTi, aiming to reduce absolute scope 1 and 2 emissions by 50% and selected scope 3 emissions by 25% by 2030, using 2021 as the base year.** As of 2024, scope 1 and 2 emissions had declined by 16% and 26%, respectively, primarily due to increased use of biofuels, electrification of vehicles and machinery, and the transition to renewable electricity in several markets—achieved mainly through the purchase of guarantees of origin, with some additional contribution from on-site solar installations. Scope 3 emissions within the target categories decreased by 9%, although emissions from capital goods rose due to increased investment activity. The company has also adopted a net-zero target for 2050, committing to a 90% reduction in absolute emissions across scopes 1, 2, and 3. In particular, transport- and logistics-related emissions from Stena Recycling's own operations and value chain represent the most significant share of its total greenhouse gas emissions footprint. In 2021, emissions from company-owned trucks and working machinery accounted for nearly 30,000 tCO<sub>2</sub>e, or roughly three-quarters of total scope 1 emissions. By 2024,

## Second Party Opinion: Stena Metall Group Green Bond Framework

these emissions had declined by around 16%, driven by a gradual transition to fossil-free fuels, increased electrification, and improved vehicle efficiency. The company's strategy includes the further electrification of its fleet and expanded use of sustainable fuels such as HVO100 in selected markets.

**Stena Recycling operates sites in several European countries where, in our view, exposure to extreme weather and flooding may pose physical climate risks.** While the company does not screen assets individually for climate risk, it says it applies operational measures to increase resilience. Stena Recycling has also initiated high-level climate-related scenario analysis at the group level in line with TCFD recommendations. The analysis includes at least two reference scenarios, one of which is a 2°C pathway, based on frameworks such as those developed by the IEA or Intergovernmental Panel on Climate Change (IPCC). The purpose is to support strategic planning and assess potential impacts of climate change and related policy developments.

# Alignment Assessment

This section provides an analysis of the framework's alignment to the ICMA Green Bond Principles.

## Alignment Summary

Aligned = ✓ Conceptually aligned = ○ Not aligned = ✗

✓ Green Bond Principles, ICMA, 2021 (with June 2022 Appendix 1)

### ✓ Use of proceeds

We assess all the framework's green project categories as a shade of green. The issuer commits to allocate the net proceeds issued under the framework exclusively to eligible green assets within Stena Recycling and its subsidiaries or acquired entities. Please refer to "Analysis of Eligible Projects" for more on our analysis of the environmental benefits of the expected use of proceeds. The issuer has not set a uniform look-back period for refinanced eligible assets. Any proceeds raised under the framework can be applied to ownership, capital expenditure, and operational expenditure. Net proceeds will be allocated solely to eligible companies and activities listed in the framework, excluding Stena Stål, Stena Oil, Stena Confidential, Stena Aluminum, and Stena Metal Inc., as well as any assets linked to fossil energy, harmful extraction, or waste-to-energy projects.

### ✓ Process for project evaluation and selection

Stena Metall has set up a green finance committee (GFC) to evaluate and select assets in line with the use-of-proceeds criteria. The committee, which includes representatives from treasury, sustainability, business control, and the group CEO, meets at least annually or when needed. The sustainability representative holds veto power and the deciding vote in case of a tie. An internal framework is developed to assess the environmental benefits and risks of each project, including fossil fuel lock-in and local social/environmental impacts in line with the group's policies. The GFC is also responsible for ensuring continued compliance of assets with eligibility criteria and replacing those that no longer qualify.

### ✓ Management of proceeds

Stena Metall states that net proceeds from green bonds will be credited to a dedicated account used to finance eligible assets. Funds can be drawn from this account as disbursements are made. The account enables tracking and monitoring of allocations, which are managed by the group treasury. If an asset no longer meets the eligibility criteria, it will be removed from the pool. Unallocated proceeds will be held in liquidity reserves and invested in low-risk instruments (such as Swedish treasury bills or highly rated bank notes). The issuer says it aims to allocate proceeds within one year, and no later than two years after issuance.

### ✓ Reporting

Stena Metall will publish an annual Green Bond Investor Report for as long as green bonds are outstanding, and thereafter in case of material allocation changes. The report will include information on both allocation and impact reporting and will be published on the issuer's website. In particular, the issuer will disclose details on the eligible assets portfolio, types and amounts of financing instruments, the split between new financing and refinancing, and allocation by category and region. To the extent possible, the issuer will include impact reporting metrics such as the environmental impact of financed eligible assets, proportional to its financing share. This may include recycling rates, avoided carbon dioxide emissions of recycled materials, installed renewable energy capacity, among others. The issuer confirms that all methodologies used will be disclosed.

## Analysis Of Eligible Projects

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

### Overall Shades of Green assessment

Based on the project category shades of green detailed below, the expected allocation of proceeds, and consideration of environmental ambitions reflected in Stena Metall's Green Bond Framework, we assess the framework as Dark green.

**Dark green**

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

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

### Green project categories

#### Circular Economy

##### Assessment

 Dark green

##### Description

Investments in comprehensive solutions within recycling and circular services. All investments aiming to move waste upward in the waste hierarchy and to increase the share of products and materials that can be reused or recycled including related infrastructure. When applicable, best-available-technology conclusions are used for investment decisions.

#### Analytical considerations

- Waste management is an important pollution prevention measure that can prevent harm to human health and local ecosystems from waste streams. Recycling, if done properly, increases the useful life of materials, thereby reducing carbon and other air pollutants' emissions, energy, and natural-resource use. Waste prevention and reuse solutions are preferred under the waste management hierarchy because they have the lowest negative environmental impacts of all the waste management options, followed by recycling, energy recovery, and finally disposal.
- Eligible projects include investments in recycling lithium-ion vehicle batteries, which, according to the issuer, will receive a substantial share of proceeds, as well as investments in the recycling of plastics, electronic waste, and non-ferrous materials. We consider the eligible recycling investments to be Dark green, reflecting the importance of resource recovery in a low carbon future and actions already undertaken by the issuer to reduce emissions associated with recycling. Furthermore, battery recycling is an important enabler of the transition of the transportation sector.
- The main investment is expected to be the new recycling facility for lithium-ion batteries in Halmstad, one of Europe's first industrial-scale battery-recycling facilities. The plant has an initial yearly recycling capacity of 10,000 tons and will handle battery material from all Stena Recycling's existing facilities and processes in Sweden, Denmark, Poland, Finland, Norway, Germany, and Italy. In this process, batteries are first tested for reuse potential, and those not suitable are processed to recover valuable materials. This involves mechanical dismantling, and separation of components to extract critical metals—such as lithium, cobalt, and nickel—in the form of black mass, which is then refined for use in new battery production. By enabling the recovery of critical raw materials and reducing end-of-life waste, battery recycling contributes to aligning the automotive value chain with climate and resource-efficiency goals.

- To recycle other materials, investments include the development of a hard mechanical plastic recycling line at the issuer’s new plant in Lanna, Sweden, with a processing capacity of 15,000 tonnes annually. The facility is designed to recover plastics as secondary raw materials. According to the issuer each kilogram of recycled material is estimated to save around two kilograms of carbon dioxide compared to using new raw materials. This is because recycling uses significantly less energy than extracting and processing virgin raw materials. Additional investments include a facility in Wschowa, Poland, targeting the recycling of precious metals and plastics from waste electrical and electronic equipment (WEEE), as well as a mechanical recycling line for low-density polyethylene (LDPE) aimed at producing recycled pellets for use in new plastic products. These activities are important for advancing circularity in resource-intensive sectors and reducing reliance on virgin materials. However, as for battery recycling, the environmental benefits can vary significantly depending on the material type, processing methods, and contamination levels. While such investments may contribute meaningfully to climate and resource efficiency goals, we note that they tend to involve higher energy use and emissions compared to upstream solutions such as waste prevention or reuse. This underlines the importance of the issuer’s continued efforts to reduce greenhouse gas emissions linked to recycling by means of the electrification of transport and working machinery, as well as fuel-switching toward biofuels for heavy machinery where electric solutions are limited.
- Stena Recycling has initiated climate-related scenario analysis at the group level in line with TCFD recommendations. However, it currently has no systematic process for climate risk assessments for specific investments or sites. In some cases, physical climate risks such as extreme weather may be addressed through external assessments conducted as part of local planning or permitting processes.
- Investments under the framework may involve both brownfield and greenfield sites, with environmental and permitting requirements varying by location. There is no group-wide procedure for managing biodiversity impacts, and biodiversity risks are addressed through compliance with national legislation in each market of operation. In parallel, waste management operations are subject to permitting requirements across all relevant jurisdictions. Companies involved in the handling, transport, or treatment of waste must obtain appropriate authorizations and adhere to both national and EU regulations, which set standards for environmental protection and operational safety.

## Clean Transportation

### Assessment

 Dark green

### Description

Investments in electric vehicles and working machines for use in recycling operations, including associated infrastructure such as charging stations.

### Analytical considerations

- Mitigating greenhouse gas emissions from transportation will be crucial to meeting global decarbonization goals, as the transport sector accounts for 23% of global energy-related greenhouse gas emissions, according to the IPCC. Fossil fuel-powered vehicles and vessels also create air pollution, such as nitrogen oxides and sulphur oxides. Electric road (and rail) transport is key to decarbonizing land transportation. The use of biofuels and synthetic fuels may also help lower emissions, as long as climate and environmental risks such as feedstock sourcing, direct and indirect land use change, and energy intensity of production are effectively mitigated.
- Under the framework, the issuer aims to finance projects including battery-driven and/or grid-connected electric vehicles and working machines such as trucks, construction equipment, forklifts, and associated charging infrastructure. Stena Recycling may also finance lighter freight cars for rails, transporting material to and from the facilities. We consider these investments to be Dark green.
- Grid emission intensity varies across the countries where Stena Recycling operates, influencing the overall climate impact of electric vehicles. The Nordic countries benefit from relatively low grid emissions due to high shares of renewable energy, while Poland’s electricity mix remains more carbon-intensive. Italy and Germany are positioned in between, with a moderate emissions profile. As national grids continue to decarbonize, the climate performance of electric vehicles is expected to improve across regions.
- As part of its procurement process, the issuer does not currently have a specific process to assess environmental and social risks throughout the value chain for electric vehicles and working machines, such as those associated with the



## Second Party Opinion: Stena Metall Group Green Bond Framework

sourcing of batteries. However, we understand that supplier options for such equipment are limited. Moreover, the issuer notes that for all investments under the framework, the group's principles for sustainable procurement apply. These principles are intended to support high sustainability standards in procurement activities and serve as a reference for employees involved in purchasing decisions.

- Stena Recycling follows the same approaches to physical climate risk, biodiversity, and procurement as outlined in the previous section.

### Renewable energy

#### Assessment

 Dark green













#### Description

Investments in renewable energy and associated infrastructure such as grid connections, transmission systems, and structural foundations.

#### Analytical considerations

- Renewable energy projects such as solar photovoltaic and wind are key elements in limiting global warming to well-below 2°C, provided their negative impacts on the local environment, and physical risks are sufficiently mitigated.
- Stena Recycling reports a 26% reduction in scope 2 emissions between 2021 and 2024, driven by increased purchases of certified renewable electricity and the installation of on-site solar panels. While most of the electricity used across operations is now covered by guarantees of origin, the company has begun to complement this with direct investments in renewable energy infrastructure, including solar installations at facilities in Poland and Italy. We believe that this approach enhances the credibility of decarbonization efforts, and we view positively efforts to move to on-site renewable generation instead of reliance on market-based accounting systems. Consequently, we assess investments within this category, including wind and solar power as well as the associated charging infrastructure, as Dark green.
- The issuer confirms that financed assets will exclusively power the issuer's recycling operations.
- Stena Recycling follows the same approaches to physical climate risk, biodiversity, and procurement as outlined in the previous sections.

S&P Global Ratings' Shades of Green

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

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

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

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

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

This framework intends to contribute to the following SDGs:

## Use of proceeds

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Circular Economy



**12. Responsible consumption and production**

**13. Climate action**

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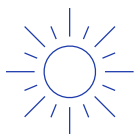
Clean Transportation



**11. Sustainable cities and communities**

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Renewable Energy



**7. Affordable and clean energy**

**9. Industry, innovation and infrastructure**

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[For use of proceeds] \*The eligible project categories link to these SDGs in the ICMA mapping.

## Related Research

- [Analytical Approach: Second Party Opinions](#), Mar. 6, 2025
- [FAQ: Applying Our Integrated Analytical Approach For Second Party Opinions](#), Mar. 6, 2025
- [Analytical Approach: Shades Of Green Assessments](#), Jul. 27, 2023

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## Second Party Opinion: Stena Metall Group Green Bond Framework

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