

# GREEN BOND REPORT

---

STENA METALL GROUP, NOVEMBER 2019



Recycled copper granules from scrap cables, and shredded pieces of scrap cables.

# INTRODUCTION

---

The Stena Metall Group issued its first green bond on May 23, 2018. The amount was SEK 800 million, with a term of five years. The net proceeds have been exclusively used for sustainable investment at the Stena Nordic Recycling Center, one of Europe's most advanced and efficient recycling facilities. This is the second yearly report. It presents the allocation of green net proceeds and adherence to the Green Terms.

Stena Metall's green bond framework states that the sole use of proceeds is to finance and refinance expenditure and future investments at the Stena Nordic Recycling Center.

At the Stena Nordic Recycling Center we take care of the materials which are the most difficult to recycle and to do it in more efficient ways than ever before. Resources that were previously lost can now be used to manufacture new products, or to provide energy resources for the industry. Thanks to the large quantities of raw material that we return into circulation, this facility makes a vital contribution to the circular economy and a more sustainable society. Recycling also helps to reduce large amounts of carbon dioxide emissions.

Complex products from both households and industries are fed into the plant at a steady pace. These products include everything from computers, phones and tv:s to cars and trucks. The common factor is that they all contain a wide range of materials, representing a major challenge for recyclers.

The materials are treated in a series of technologically advanced processes. These processes are conducted at high speed with the greatest possible accuracy. What comes out of our mills, magnets, sieves and sensors is a wide range of raw materials that are delivered back to industry, both in Sweden and the rest of the world. Stena Nordic Recycling Center makes the chain complete. This innovative plant takes recycling all the way from end-of-life products to high quality recycled raw materials.

This makes the Stena Nordic Recycling Center a game changer in recycling. And at the same time it plays an important role in the circular economy.



## DARK GREEN RATING BY CICERO

---

A second opinion on the Green Bond Framework were provided by Cicero when the bond was issued. The full report is publicly available at the Group's website. Below is an extract of the summary.

*"Stena Metall's Green Bond Framework provides a clear and sound framework for climate-friendly investments. The framework lists eligible categories of "Green Projects", such as pollution prevention and control connected to waste recycling activities at the Stena Nordic Recycling Center (SNRC) in Halmstad, Sweden. /.../ These activities clearly promote a transition to low-carbon and climate-resilient growth and are an essential part of the green transition. /.../*

*CICERO found that the framework was aligned with the Green Bond Principles. Based on the overall assessment of the project types that will be financed by the green bond and governance and transparency considerations, Stena Metall's Green Bond Framework is rated CICERO Dark Green."*



# PROCESSES MEETING THE NEW RECYCLING CHALLENGES

The multitude of different recycling processes, gathered in one location, is what makes Stena Nordic Recycling Center unique. This also increases efficiency and reduces the need for transportation.

- 1. NON-FERROUS METAL PROCESSING**  
Stainless steel, copper, aluminium and other non-magnetic metals are separated from each other. This mixture comes from vehicles and other complex products - including those from municipal recycling centres. Before processing, the materials are ground into smaller pieces in a powerful shredder.
- 2. SHREDDER LIGHT FRACTION PROCESSING**  
Shredder Light Fraction is a tangled, difficult to sort residue produced when vehicles and other complex products are ground in shredders. It consists of textiles, foam rubber, wood and small fragments of plastic and metal which, in the past, was mostly sent to landfill sites. Thanks to our technology, a large proportion of the metal content can now be recycled. Much of the other material can be used as high-quality fuel for energy-intensive industries, or in the production of district heating and electricity.
- 3. FIRST TREATMENT**  
All the electronic products sent to the Stena Nordic Recycling Center are handled by specially trained personnel. They remove all hazardous waste, such as batteries and components containing mercury and PCB, so that no environmentally harmful substances enter the recycling process. This is carried out manually, as there are currently no automated processes that can assure high-quality results.
- 4. PRECIOUS METAL RECYCLING**  
After first treatment, decontaminated electronic products are processed in an advanced, automated system. Copper and aluminium fractions are extracted, along with circuit boards containing gold and silver. Even plastics are extracted into a recyclable fraction. Plastic containing harmful flame retardants are removed and can be used as fuel.
- 5. REUSE**  
Some electronic products contain screens and other components that still function. At the Reuse Department, these are extracted and tested before being delivered to electronics manufacturers, where they can live on in new products. From a circular perspective, reuse is a better option than material recycling, whenever it is possible.

- 6. PLASTIC RECYCLING**  
New raw materials are produced by recycling plastic from electronic products and packaging film. The recycled plastic raw material is equivalent to the raw material produced by oil. The major advantage is that fossil resources are saved, when existing plastics can be used again.
- 7. CABLE RECYCLING**  
Used cables contain a lot of precious materials, copper being the most valuable. Recycling them in an efficient way, with high quality output requires skilled staff and advanced automated sorting machines. During the year a state-of-the-art cable recycling process was installed at Stena Nordic Recycling Center. The capacity is 15,000 tonnes per year.



# STENA RECYCLING LAB

---

At the Stena Nordic Recycling Center, we have created the Stena Recycling Lab, a test bed and collaboration arena for new recycling technology and the development of sustainable materials and products. This serves as a meeting place for entrepreneurs, researchers, students and companies and acts as a catalyst for innovation and development of new solutions.

Stena Recycling Lab is located right at the heart of Stena Nordic Recycling Center. The meeting and collaboration areas are designed and built with sustainability in focus. Re-used furniture, building materials made from recycled materials are mixed with old sustainable building techniques, like the wood block flooring in the canteen.

## MATERIAL LIBRARY

The material library at Stena Recycling Lab consists of a variety of different types of recycled materials, materials that need new technologies to be recycled, and products made from recycled materials. The materials consist of everything from different plastics to mixtures of metals and mineral materials. The purpose is to inspire and simplify the development of new materials, products and processes.

## MACHINERY AND EQUIPMENT

Stena Recycling Lab also offer access to machines for test driving, a mill for crushing materials and space for storing materials.

## EXPERTS TO COOPERATE WITH

Stena Recycling Lab offers access to experts from different parts of Stena Recycling. This includes both experts on various materials and personnel with detailed knowledge of the processes currently used in recycling.

## EXAMPLES

Robotization of the sorting process. Development of sorting solutions, in collaboration with ABB and Combitech.

Sound absorbers made from recycled polyurethane from car seats, in collaboration with Volvo Cars and Repur AB.

Repur cement: a new light-weight filler that fulfills a need where previously there were only products made from new raw material. The product consists mostly of recycled material, insulation from end-of-life refrigerators.

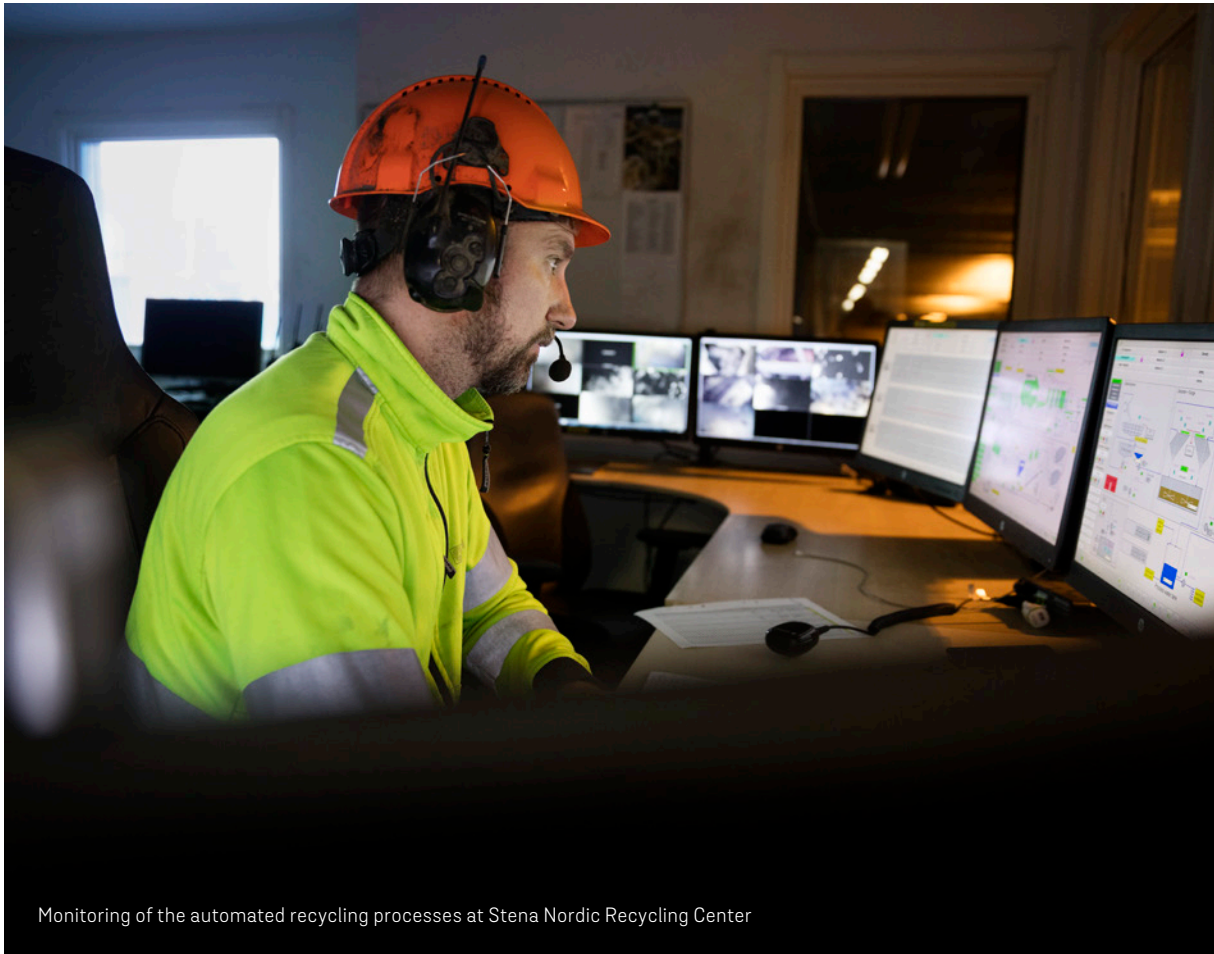
Hans Qvirist, Project manager Stena Recycling, and Johan Gunnarsson, CTO Combitech, in a meeting at Stena Recycling Lab.



# FUTURE OUTLOOK

---

To maintain its position as the leading industrial recycling company, and to meet the changing demands of the manufacturing industry, Stena Recycling is taking new steps to develop and test new technique and processes. Stena Nordic Recycling Center will act as a pilot plant and testing arena when Stena Recycling steps into the era of Industry 4.0.\*



Monitoring of the automated recycling processes at Stena Nordic Recycling Center

## COLLABORATING ON NEW SOLUTIONS

Stena Recycling has started a systemized work concerning Industry 4.0, where new technology, digitalization and smart collaborations will enable a more attractive, flexible and efficient production. Our ambition is to be a key player in a larger ecosystem, where strong digital capabilities and co-creation strengthen our ability to innovate and develop new circular material flows.

With its variety of different processes at one place, collaboration areas and experts at hand, Stena Nordic

Recycling Center will be the place where a lot of the Industry 4.0 solutions will be developed and tested.

The work will be focused within these six prioritized areas: Automated processing, Data & Connectivity, Quality & Traceability, Responsible production, Optimal production time and Work smarter. To evolve and strengthen production Stena Recycling will in these areas in new ways benefit from for example robotics, digital tools and usage of big data from machinery and processes.

\* Industry 4.0 is the trend towards automation and data exchange in manufacturing technologies and processes which, among other concepts, include cyber-physical systems, industrial internet of things, cognitive computing and artificial intelligence.

# USE OF PROCEEDS

The net proceeds from the issue of the Green Bond are used exclusively to finance and refinance investment in Stena Nordic Recycling Center.

From September 2013 until August 31, 2019, the Group has invested SEK 901 million in the Stena Nordic Recycling Center. These investments are built on collaborations with customers and partners, not least vehicle manufacturers and suppliers of electrical and electronic goods.

Since start, large investments (SEK 288 million) have been made in adaptations to make the site suitable for industrial recycling and meet environmental and workplace safety requirements.

The single largest investment (SEK 271 million) has been in non-ferrous metal (NF) processing - sorting metals from other material and from each other. The latest steps added are x-ray and laser sorting machines. These machines use advanced technology to separate mixed metals into clean metal fractions that can be sold directly to metal smelters.

One fifth of the investment (SEK 167 million) was used to create Europe's largest precious metals recycling (PMR) facility, where precious metals are extracted from electronic products. Before being fed into the process, hazardous substances are removed at a pre-treatment unit. The pre-treatment unit was moved from another facility and, therefore, incurred costs of only SEK 1 million.

An innovative process has been installed to recycle shredder light fraction in an efficient way (investment SEK 94 million). SLF is a difficult to recycle mix of plastic, metal, rubber, textiles and other material, in small fragments, that results when cars and other products are ground up in a hammer mill.

The processes for recycling soft plastic and plastic from electronic products required investments of SEK 11 million and SEK 35 million respectively. These processes produce plastic raw material in the form of pellets, which act as a sustainable substitute for plastic produced from virgin sources.

During the year, a process for cable recycling has been installed - investment SEK 33 million. This highly efficient process, produces clean metal fractions to be sold to metal smelters around the world.

Improvements related to working environment and the environment for visitors has also been done during the year. Stena Nordic Recycling Center attracts a lot of visitors, and today there is a structured way of handling all these visits and to guide groups around the plant in a professional way.

## INVESTMENTS

PROJECT	AMOUNT (SEK MILLION)
PMR	167
Plastic (from electronic products)	35
First treatment	1
Property	288
NF	271
SLF	94
Plastic (Soft plastics)	11
Cable	33
Other	1
<b>TOTAL</b>	<b>901</b>

# IMPACT AND PERFORMANCE METRICS

For its investment in the Stena Nordic Recycling Center, the Stena Metall Group has developed relevant impact and performance metrics, in accordance with the main Green Bonds Principles category Pollution Prevention and Control and the secondary categories (i) Waste Management and Waste Recycling, (ii) Environmental Monitoring and Reduction of Negative Environmental Externalities, (iii) Eco-efficient, Circular and Value Added Products from Waste and Remanufacturing as well as (iv) Energy and Resource Efficiency.

Presented in the tables below are the key figures for the financial year 2018/19.

## KEY FIGURES

1	Processed waste	244,571 tonnes	
2	Fractions and volumes of sorted waste		
	Fe (incl stainless steel)	48,971 tonnes	
	Al	55,675 tonnes	
	Cu	15,117 tonnes	
	Other metals	11,775 tonnes	
	Plastic	7,799 tonnes	
	Glass	2,123 tonnes	
	Other reuse and recycling	1,682 tonnes	
	Total material recovery	143,142 tonnes	
3	Processed numbers of cars per year	241,673	
4	Percentage of recyclable materials from cars	95.1 %	
5	Prevented CO <sub>2</sub> e emissions due to recycled material	924,874 tonnes	
6	Water consumption, per tonne of material processed	0.090 cbm	
7	Energy consumption and GHG emissions		
	<b>ENERGY TYPE</b>	<b>CONSUMPTION</b>	<b>EMISSIONS</b>
	District Heating	6,685,000 kWh	709 tonnes CO <sub>2</sub> e
	Electricity	15,962,222 kWh	128 tonnes CO <sub>2</sub> e
	Diesel, machinery	279,961 liters	814 tonnes CO <sub>2</sub> e
	<b>Total</b>	<b>-</b>	<b>1,651 tonnes CO<sub>2</sub>e</b>

### DEFINITIONS

1. Total amount of waste processed at SNRC. Calculated as the sum of all outbound fractions from the processes at SNRC.
2. Material recovery from waste processed at SNRC. Calculated from outbound fractions and contents of processed materials.
3. Number of recycled end-of life vehicles (ELV) from which waste is processed at SNRC. Calculated as the sum of processed ELVs at the shredders that delivers material to SNRC for further upgrading.
4. Recycling rate of ELV material processed at Stena Recycling shredders and SNRC. The recycling rate for car bodies delivered to Stena Recycling is based on batch tests at Stena shredders and SNRC. Data regarding disassembly before delivery to Stena comes from Bil Sweden reporting.
5. Prevented CO<sub>2</sub>e emissions when recycled material is used instead of virgin material. Calculated based on the amounts of materials recovered at SNRC and established factors for CO<sub>2</sub>e prevention for different materials.
6. Water consumption at SNRC per tonne of processed material. Calculated with input from KPI 2 and input from reading of flowmeters (water) also confirmation from supplier invoice.
7. Total energy consumption and GHG emissions from SNRC.



# POSITIVE IMPACT ON THE CLIMATE

---

With the aid of advanced technology and efficient processing, the Stena Nordic Recycling Center achieves higher recycling rates than were previously possible. Producing raw materials from recycled material helps to conserve the earth's resources and reduce carbon dioxide emissions. Gathering many processes at one site also reduces transportation.

The Stena Nordic Recycling Center is an integrated recycling facility that ensures sustainable waste reutilization from all of parts of society. The facility is strategically located near the Port of Halland (in Halmstad) and the railway network. It has on-site rail infrastructure for loading and unloading waste, which provides efficient and environmentally sound transportation. The Stena Nordic Recycling Center's unique set up and ability to process a large variety of waste products provides new opportunities for how waste can be reused, reduced and recycled.

Producing raw materials by recycling consumes significantly less energy than using virgin raw materials. For example, recycling aluminum consumes 95 percent

less energy than producing it from bauxite. This way, recycling reduces carbon dioxide emissions and benefits the climate. During the 2018/19 financial year, the Stena Nordic Recycling Center reduced carbon dioxide emissions by 925,000 tonnes, in comparison to the use of virgin raw materials. This is equivalent to the annual emissions generated by heating 960,000 normal sized houses in Sweden.

Concentrating many processes at one site also reduces carbon dioxide emissions by minimizing the transport of materials between facilities. This benefit is increased as more processes are introduced.



## Further reading:

[https://www.stenametall.com/siteassets/investor-relations/arsredovisning/stenametall\\_annual-review\\_and\\_sustainability\\_report\\_2018-19\\_eng.pdf](https://www.stenametall.com/siteassets/investor-relations/arsredovisning/stenametall_annual-review_and_sustainability_report_2018-19_eng.pdf)

## Contact:

Anna Sundell / Sustainability Manager, Stena Metall Group / Phone: +46 (0)10-445 19 34

## Stena Metall

Fiskhamnsgatan 8B, 414 48 Göteborg / Phone: +46 (0)10-445 00 00  
[www.stenametall.se](http://www.stenametall.se)





## Independent Auditor's Limited Assurance Report

To Stena Metall Group

We have been engaged by Stena Metall Group ("Stena Metall") to undertake a limited assurance engagement of the Stena Metall Group *Green Bond Report 18/19* (dated November 2019), concerning the Stena Metall Green Bond issued in May 2018.

### Responsibilities of the management

The management of Stena Metall is responsible for evaluating and selecting eligible investments, for the use and management of bond proceeds, and for preparing a Green Bond Report that is free of material misstatements, whether due to fraud or error, in accordance with the *Stena Metall Group Green Bond Framework* (per April 2018, available on the Stena Metall website, [www.stenamettall.com](http://www.stenamettall.com)).

### Responsibilities of the auditor

Our responsibility is to express a limited assurance conclusion on the Green Bond Report based on the procedures we have performed and the evidence we have obtained.

We conducted our limited assurance engagement in accordance with ISAE 3000 *Assurance Engagements Other than Audits or Reviews of Historical Financial Information* issued by IAASB. A limited assurance engagement consists of making inquiries, primarily of persons responsible for the management of bond proceeds and for the preparation of the Green Bond Report, and applying analytical and other limited assurance procedures, including inspection of documentation, and limited sample testing of selected information.

The procedures performed in a limited assurance engagement vary in nature from, and are less in extent than for, a reasonable assurance engagement conducted in accordance with IAASB's Standards on Auditing and other generally accepted auditing standards in Sweden. The procedures performed consequently do not enable us to obtain assurance that we would become aware of all significant matters that might be identified in a reasonable assurance engagement.

### Our independence and quality control

We have complied with the independence and other ethical requirements of the *Code of Ethics for Professional Accountants* issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

Our firm applies ISQC 1 (*International Standard on Quality Control*) and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Our procedures are based on the criteria defined by the Group Management as described above. We consider these criteria suitable for the preparation of the Green Bond Report.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion below.

### Conclusion

Based on the limited assurance procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the Green Bond Report is not prepared, in all material respects, in accordance with the reporting criteria.

Gothenburg, November 28, 2019

PricewaterhouseCoopers AB



Johan Rippe  
Authorised Public Accountant



Fredrik Ljungdahl  
Sustainability Expert Member of FAR