°CICERO Shades of Green

Green Cargo
Green Finance Second Opinion

October 16, 2019

Green Cargo is Sweden's most experienced operator in rail logistics. With about 2,000 employees, 400 locomotives and 5,000 wagons, Green Cargo offers low carbon door-to-door transportation in a network that spans all of Sweden, and through their partners, to thousands of locations throughout Europe. Green Cargo's share of goods transport on rail in Sweden is more than 60%. Green Cargo is wholly owned by the Swedish state and administered by the Ministry of Enterprise and Innovation.

The green finance framework of Green Cargo is well aligned with the Green Bond and Green Loan Principles (2018). The eligible categories – **Clean transport** and **Energy efficiency** – are well defined and provide important steps toward a low carbon future. The criteria for eligible projects emphasis new and more energy efficient electrical locomotives, new wagons with higher capacity, capacity building for eco-driving and some maintenance investments in older electric locomotives. Investors should note that the wagons will be used in all types of transports (electric and diesel). The issuer states that the goal is that 100 % of green financing will initially be used for new electric locomotives, with a look back period not exceeding two years.

The governance procedure of Green Cargo's green financial framework is Excellent. Green Cargo is committed to support the UN sustainable development goals. They have a sound selection process and a basic plan for impact reporting. Reporting is in line with GRI standards. Green Cargo works with infrastructure managers, regulators and other players in the rail sector to improve preparedness and prevention disturbances due to extreme weather. There seems to be a lack of climate scenario analysis or risk assessments in alignment with the methodology recommended by TCFD.

Based on the overall assessment of the project types in the framework of Green Cargo, governance and transparency considerations, the green finance framework receives an overall **Dark Green** shading.

SHADES OF GREEN

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

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

GREEN BOND and GREEN LOAN PRINCIPLES

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

°CICERO Dark Green

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1 Terms and methodology

This note provides CICERO Shades of Green's (CICERO Green) second opinion of the client's framework dated October 2019**.** This second opinion remains relevant to all green bonds and/or loans issued under this framework for the duration of three years from publication of this second opinion, as long as the framework remains unchanged. Any amendments or updates to the framework require a revised second opinion. CICERO Green encourages the client to make this second opinion publicly available. If any part of the second opinion is quoted, the full report must be made available.

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

Expressing concerns with 'shades of green'

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

CICERO Shades of Green	Examples
Dark green is allocated to projects and solutions that correspond to the long-term vision of a low carbon and climate resilient future. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Ideally, exposure to transitional and physical climate risk is considered or mitigated.	Wind energy projects with a strong governance structure that integrates environmental concerns
Medium green is allocated to projects and solutions that represent steps towards the long-term vision, but are not quite there yet. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Physical and transition climate risks might be considered.	Bridging technologies such as plug-in hybrid buses
Light green is allocated to projects and solutions that are climate friendly but do not represent or contribute to the long-term vision. These represent necessary and potentially significant short-term GHG emission reductions, but need to be managed to avoid extension of equipment lifetime that can lock-in fossil fuel elements. Projects may be exposed to the physical and transitional climate risk without appropriate strategies in place to protect them.	Efficiency investments for fossil fuel technologies where clean alternatives are not available
Brown is allocated to projects and solutions that are in opposition to the long-term vision of a low carbon and climate resilient future.	New infrastructure for coal

Sound governance and transparency processes facilitate delivery of the client's climate and environmental ambitions laid out in the framework. Hence, the governance aspects are carefully considered and reflected in the overall shading of the green finance framework. CICERO Green considers four factors in its review of the client's governance processes: 1) the policies and goals of relevance to the green finance 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.

2 Brief description of Green Cargo's green finance framework and related policies

Green Cargo is rooted in the origins of Swedish rail traffic and is Sweden's most experienced operator in rail logistics. With about 2,000 employees, 400 locomotives and 5,000 wagons, Green Cargo offers low carbon door-to-door transports in a network that spans all of Sweden, and through their partners, have access to thousands of locations throughout Europe. Of the 400 locomotives, 63% are electric, the rest is running on diesel fuel. Actual transport work carried out in 2018 was 95.6% by electric trains, 2.6% by diesel trains and 1.8% by trucks. Green Cargo's share of goods transport on rail in Sweden is more than 60% today. Green Cargo is wholly owned by the Swedish state and administered by the Ministry of Enterprise and Innovation.

The framework for green financing is based on the 2018 version of "Green Bond Principles" and the 2018 version of "Green Loan Principles", published by ICMA (International Capital Markets Association) and LMA (Loan Market Association), APLMA (Asia Pacific Loan Market) Association) and LSTA (Loan Syndications and Trading Association). On its website, Green Cargo will provide information related to specific sustainability-related debt instruments and green loans.

Environmental Strategies and Policies

Green Cargo works with five target areas within sustainability: Safety, Employees, Environment, Customer & Quality and Finance. They measure and follow up the operations via a balanced scorecard, the scoreboard, which is part of a three-year business plan. The scoreboard as a whole is Green Cargo's overall sustainability goal. The environmental target is measured in kWh/tonkm. In 2018, the number was 0.037 kWh/tonkm for the electric rail transport. The short-term target is to reduce this by 3% annually in 2019 and 2020 and by 5% in 2021.. The issuer has begun the process of setting more long-term sustainability goals, as a part of the strategic planning process. These goals are expected to have a ten-year timeline. Overall, the rail transports resulted in 2.95 gCO_2/tonkm in 2018, marginally higher than in 2017 and 2016. Total CO_2 emissions from transports, mainly from diesel trains, was 33.2 kt in 2018, a small increase from 2017, but below the 2016 number.

Reporting is in line with GRI standards. Green Cargo works with infrastructure managers, regulators and other players in the rail sector to improve preparedness and prevention disturbances due to extreme weather. There seems to be a lack of climate scenario analysis or risk assessments in alignment with the methodology recommended by TCFD.

Green Cargo operates a whistle-blower service which allows employees to report on unwanted episodes or practices.

Use of proceeds

An amount corresponding to net income from the issuances will be used to finance green assets according to the green financing framework. The proceeds from green financing will be used exclusively to finance or refinance investments and projects that are eligible based on the criteria in the green financing framework and which have been evaluated and selected by Green Cargo in accordance with this framework. Eligible categories for green financing are 1) Clean transport, mainly investments in new electric locomotives, and 2) Energy efficiency, new wagons and capacity building on eco-driving, see table 1 for more details.

The goal is that 100% of green financing will initially be used for new more energy efficient electric locomotives, with a look back period not exceeding two years. The total allocated amount to a specific green asset, with one or more sources of funding, will not exceed the value of the asset. The proportion of the proceeds allocated to new projects and assets will be reported in the annual report.

Green Cargo conducts operations mainly in the Swedish market but also has its own traffic in Norway and Denmark. Funds are therefore used to finance or refinance investments in these markets. Only financing or refinancing of eligible assets (without age restriction) will be considered.

Net revenues will not be allocated or linked to investments and projects related to fossil fuel.

Selection

Green Cargo has a process where investments in assets and projects are assessed from a sustainability perspective by an Investment Council. Ordinary members of the Investment Council are CFO, Sustainability and Communications Director, Chief Counsel, Purchasing Manager, Treasury Manager and Controller responsible for investment matters. The CFO is the President of the Council. There is a Green Investment Council within the Investment Council, which determines whether an asset is eligible for green financing and funds can be allocated in accordance with this framework. That group consists of the Sustainability and Communications Director, Chief Treasury, as a specialist on green financing, and the Controller responsible for investment issues, where the Sustainability and Communications Director has a veto on which assets can be allocated funds from green financing.

Green Cargo, by the Controller responsible for investment matters, will keep a register of the investments that are eligible for financing with green loans. Records of green loans and which assets have been selected to be financed with specific debt instruments are kept by Treasury.

All Green Cargo suppliers must sign a Code of Conduct that is aligned with the issuer's sustainability work. Suppliers fill in a self-assessment form, and Green Cargo may conduct an audit. The issuer prioritizes audits of strategic suppliers, suppliers in high risk geographies or high risk industries.

Management of proceeds

CICERO Green finds the management of proceeds of Green Cargo to be in accordance with the Green Bond and Green Loan Principles.

An amount equal to the net proceeds of any green finance instruments raised will be credited to a green account that will support Green Cargo's lending to eligible assets. The Treasury manages and monitors the account. During the term of outstanding green loans, Green Cargo will compile and keep records of investments and projects at an accumulated amount that at least corresponds to borrowed and outstanding loans. In the case that green debt is raised but not allocated/not yet used in investments, that will be disclosed in the reporting

During the term of outstanding green debt, Green Cargo will compile at portfolio level and keep records of investments and projects at an accumulated amount that at least corresponds to borrowed and outstanding loans. In the event that accrued green debt may periodically exceed the value of selectable assets and projects, these funds will be placed in a bank account or managed in accordance with Green Cargo's normal management of short-term liquidity. No funds will be invested in assets linked to fossil fuels.

Reporting

Transparency, reporting, and verification of impacts are key to enable investors to follow the implementation of green finance programs. Procedures for reporting and disclosure of green finance investments are also vital to build confidence that green finance is contributing towards a sustainable and climate-friendly future, both among investors and in society.

Within this framework, Green Cargo will publish annually a report on www.greencargo.com which describes in detail the distribution of green funds and compliance with the green conditions. The report will contain information on the green assets financed by green financing, show how funds have been allocated based on the investment categories specified by the framework at a portfolio level and what is new financing and refinancing respectively.

The first reporting of this kind is expected to take place the year after the company has been allocated funds. The report will be available in Swedish and English. In addition to the annual reporting, a quarterly report is published describing the total amount of outstanding green financing and the total value of green assets. The Treasury will be responsible for the reporting with relevant input from the Sustainability Department.

The reporting will include a presentation of the performance indicators presented in the framework, and the report will seek to show the impacts based on the share of green financing of the total investment. Green Cargo will emphasize energy savings and reductions in carbon dioxide emissions in relation to transport work performed as the most relevant performance indicators (gCO_2/tonkm and kWh/tonkm). In cases where the delimitations and / or accounting principles have changed for the reported data, this will be described where the information is presented. The accounts are audited internally and the key figures bearing on improved environmental performance will be reviewed by an authorized audit firm.

3 Assessment of Green Cargo's green finance framework and policies

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

Overall shading

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

Eligible projects under the Green Cargo's green finance framework

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

Category	Eligible project types	Green Shading and some concerns
Clean transportation	New and more energy efficient electric locomotives Overhaul and maintenance investments in existing electrical vehicle fleet	**Dark Green** ✓ The new and more energy efficient locomotives create opportunities for more efficient logistics solutions, especially in heavier transport arrangements. The increasing traction in itself gives a lower impact on the environment, because overall, less energy is spent compared to driving more and lighter trains. ✓ A partly obsolete electric fleet requires overhaul and maintenance investments. Careful considerations are given to re-use/recycling of locomotives and their parts.

Energy efficiency	New wagons in accordance with the company's vehicle strategy ECO-driving	**Medium Green** ✓ In consultation with stakeholders, various cart development projects are underway to load more weight or volume per train meter and that wagons are equipped with disc brakes for reduced wheel disc wear and extended wheel life as a few examples. ✓ With ECO driving one drive more sparingly. It reduces both the climate impact and saves money. The company has training modules for training in ECO driving for all types of teams. The training module is part of the regular training package for the train drivers. ✓ Be aware that the wagons will be used in all types of transports (electric /diesel). ✓ Be also aware of potential rebound effects associated with energy efficiency improvement.

Table 1. Eligible project categories

Background

Globally, transportation is responsible for 24% of direct CO_2 emissions from fuel combustion. Road vehicles – cars, trucks, buses and two- and three-wheelers – account for nearly three-quarters of transport CO_2 emissions.[1] Global transport emissions grew by only 0.6% in 2018 (compared to 1.7% annually over the past decade) as efficiency improvements, electrification and biofuels helped limit the growth in energy demand. To meet the UN Sustainable Development Goals, direct global transport emissions must peak in the early 2020s and then fall by 13.9% until 2030 to support the IEA's Sustainable Development Scenario.

In Sweden, the transport sector is responsible for approximately 30% of all CO_2 emissions. The official aim is to transfer more of the goods from road to rail and sea transport. Overall, Sweden aim at having net zero emission of greenhouse gases by 2045. Regarding emissions from domestic transport, Sweden has as a target that emissions shall be reduced by at least 70% by year 2030 compared to the 2010 level.

Shipments by electric trains are the most eco-friendly alternative available in the market. More than 95% of Green Cargo's freight operations are carried out by electric trains, about 2.6% by diesel trains and a couple of percent

[1] https://www.iea.org/tcep/transport/

by truck. Table 2 shows some emission factors related to goods transport. According to these sources, all rail freight, also diesel trains, have lower emissions factors then trucks and ocean freight.

Transport mode	**Emission factor (gCO_2/tonkm)**
Electrical trains	0,0022
Diesel trains	19.75
Trucks (Trucks with trailers 50-60 t)	64
Ocean freight (RoRo 14 000 dwt)	40

Table 2. Emission factors from transport of goods. Sources: NTM, Vattenfall

Governance Assessment

Four aspects are studied when assessing the Green Cargo’s governance procedures: 1) the policies and goals of relevance to the green finance framework; 2) the selection process used to identify eligible projects under the framework; 3) the management of proceeds; and 4) the reporting on the projects to investors. Based on these aspects, an overall grading is given on governance strength falling into one of three classes: Fair, Good or Excellent.

The policies and goals of Green Cargo are good, if somewhat vague in the longer term. We are encouraged that the issuer has an ongoing process to set long term sustainability goals. The selection process, management of proceeds and reporting are excellent. The methodological background for the impact reporting is publicly available. The overall assessment of Green Cargo’s governance structure and processes gives it a rating of Excellent.

Strengths

Green Cargo’s sustainability policy provides a solid framework on how the company operates within environmental and sustainability issues and Green Cargo is certified according to ISO 9001:2015, ISO 14001:2015 and OHSAS 18001:2007. Green Cargo has since 2002 reported on its sustainability work. The reporting is according to GRI standards (core). The framework of Green Cargo is well aligned with the Green Bond Principles and Green Loan Principles (2018). The eligible categories are well defined and provide steps toward a low carbon future.

Electric rail transport of goods is the most environmental benign mode of transport, in particular when considering that Green Cargo only buy electricity from producers basing their production on hydro and wind power.

Weaknesses

We find no substantial weaknesses in the green finance framework of Green Cargo but note a lack of overall (absolute) targets for greenhouse gas emissions. The guidelines from TCFD regarding risk reporting are not implemented. We encourage the issuer to include a consideration of TCFD in the ongoing strategic planning process.

Pitfalls

While electric modes of transportation are preferable to those that directly use fossil fuels, we should nevertheless be aware of the indirect GHG emissions stemming from the production and use (directly or indirectly) of electricity and strive to keep increasing their efficiency. In addition one should consider life cycle emissions when investments in new rolling stocks are to be made.

Due to the complexity of how socio-economic activities impact the climate, a specific project is likely to have interactions with the broader community beyond the project borders. These interactions may or may not be climate-friendly, and thus need to be considered with regards to the net impact of climate-related investments.

Efficiency improvements may lead to rebound effects. When the cost of an activity is reduced there will be incentives to do more of the same activity. An example is more energy efficient transport.

Appendix 1: Referenced Documents List

Document Number	Document Name	Description
1	Green Cargo - Ramverk Grön Finansiering	Green Cargo’s Green Finance Framework dated October 2019
2	2018-green-cargo-ars--och-hallbarhetsredovisning_sv_final	Annual report including sustainability reporting 2018
3	2018-gri-index	Overview of reporting according to GRI in 2018
4	2018-matmetoder-for-green-cargos-hallbarhetsredovisning-2018	Note on methods used in estimating numbers in the sustainability report, 2018
5	150624-faktablad_miljo_1506_print	A fact sheet on transport and the environment
6	arbetsmiljopolicy-green-cargo-sep-2018	A note on labour policy in Green Cargo
7	green-cargo-2018-Sustainable Logistics	A presentation on sustainable transport
8	green-cargo-bra-miljoval-licens-2008-06-09	Licence from the Swedish Natural protection organisation for the label “Bra Miljöval”
9	green-cargo-e-me-ohsase-2018-v2	Certificate for ISO 9001:2015, ISO 14002:2015 and OHSAS 18001:2007
10	kvalitetspolicy-green-cargo-sep-2018	Note on quality policy of Green Cargo 2018
11	miljopolicy-green-cargo-sep-2018	Note on the environmental policy of Green Cargo 2018

Appendix 2:
About CICERO Shades of Green

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

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

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