



Caruna

Green Finance Second Opinion

May 28, 2021

Caruna is Finland's largest electricity distributor with over 700,000 customers in southern and western parts of Finland and has an electrical grid network of more than 88,000 km. Caruna is actively developing new innovative solutions for electrifying society and improving access to renewables. Caruna has a primary objective to invest in network development to promote renewable energy capacity deployment.

Projects financed under this framework will contribute to Finland's electrification and decarbonization trajectory by enabling the use of more renewable energy. Around 80% of the investments are estimated to be in the subcategory of Cable or Overhead Line Network Upgrades, while smaller subcategories include Capacity expansion (an estimated 15%), Storage and Technology and R&D (together an estimated 5%). However, no more specific KPIs have been attributed to the project category. The grid emission factor is 91g/KWh compared to the European energy mix at around 315gCO₂/kWh.

The framework is however to some extent exposed to indirectly supporting fossil fuels and potential lock-in of emissions through its connection to the national transmission grid which carries fossil fuel based energy due to Finland's current energy mix, along with Caruna's obligation to connect all clients. The issuer confirmed that connections to fossil energy production will not be financed under this framework. Investors should therefore be aware that new transmission lines may also support electrification of fossil intensive industries incl. upstream fossil fuels.

Despite Caruna's climate related activity and having an internal Climate Roadmap, it has yet to set concrete quantitative targets. Furthermore, their reporting KPIs only cover the reduction of CO_{2e} for some of their projects: low-carbon/energy efficient services, which misses some important emissions sources. However, Caruna will provide externally verified allocation and impact reporting about green finance project achievements to investors and the public. Caruna is actively moving forward in its climate work, been the first European Distribution Systems Operator (DSO) to publish its carbon footprint, with a target to decrease its footprint continually, requiring suppliers to decrease their own footprints in construction and transportation, and assessing for climate risks and opportunities. The issuer's investments are highly exposed to physical climate risks, like increased flooding, landslides and higher snow loads. Caruna is assessing its climate risks but is not yet reporting according to TCFD recommendations.

Based on the overall assessment of the eligible green assets under this framework and governance and transparency considerations, Caruna's green finance framework receives a **CICERO Medium Green** shading and a governance score of **Good**. In order to improve the framework, Caruna could ensure implementation of concrete targets and stronger supplier criteria, conduct customer screening, include thresholds for eligibility, and improve their emissions impact reporting.

SHADES OF GREEN

Based on our review, we rate the Caruna's green finance framework **CICERO Medium 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 Caruna's framework to be **Good**.



GREEN BOND PRINCIPLES

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





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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 April 27, 2021. 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



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.



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.



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.

Examples



Wind energy projects with a strong governance structure that integrates environmental concerns



Bridging technologies such as plug-in hybrid buses



Efficiency investments for fossil fuel technologies where clean alternatives are not available

Sound governance and transparency processes facilitate delivery of the client's climate and environmental ambitions laid out in the framework. Hence, key governance aspects that can influence the implementation of the green bond are carefully considered and reflected in the overall shading. 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. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.



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

Caruna is Finland's largest electricity distributor with 20% of the electricity being distributed through their network. The current Caruna group came into existence on 1st January 2018 and is comprised of Caruna Networks Oy as the parent company. It fully owns (100%) two operating subsidiaries, Caruna Oy and Caruna Espoo (known as "Caruna OpCos"). The issuer of bonds is the external special purpose vehicle Transmission Finance DAC.

Caruna has over 700,000 customers in southern and western parts of Finland and has an electrical grid network of more than 88,000 km. Caruna also develops new innovative solutions for electrifying society and employs more than 300 people while additionally employing 1000 people nationwide through operation and maintenance. By the end of 2020, more than 9400 renewable energy generation systems have been connected to their network, an increase of 42% from 2019 and an increase in 20% renewable energy production from 2019. Caruna had a grid electricity consumption emission factor of 72 gCO₂/kWh in 2020¹ (Caruna's grid factor is the same as the national grid factor). In the Nordics, electricity demand is expected to increase from 406TWh (2020) to 664 TWh (2050), with electrification of industry and transport being the major drivers². Grid capacity expansion is crucial to meet the increase in demand.

Environmental Strategies and Policies

Caruna consideration for the environment throughout their operations and network is reflected in its environment related policies, its work on emissions reduction, biodiversity, and responsible material use. Caruna has a Health, Safety, and Environmental Policy which declares their commitment to climate change mitigation and management of environmental impacts from a lifecycle point of view. According to the issuer, they also have a Climate Roadmap which they started implementing in 2021 focused on measures reducing the carbon handprint³ of customers, reducing their own carbon footprint, and the development of the management and communication of climate issues. Caruna's major emissions sources include the materials used to build the electricity network, the loss of electricity in the distribution, the electricity, which is distributed, as well as the construction work on the network. In 2020, Caruna calculated their carbon footprint of their own operations in line with the Greenhouse Gas Protocol. The calculations covered scope 1-3 emissions done for years 2018-2020 and the total emissions are reported in their Annual Report. Most of Caruna's emissions are Scope 3 emissions, which come from their procurement and supply chain. Scope 1 covered their direct emissions which are derived mainly from leaks of sulphur hexafluoride and use of back-up power systems. Scope 2 covered their indirect emissions originating mainly from the losses in electricity distribution and transformation. From 2018 to 2020, overall emissions have generally followed a decreasing trend. Scope 3 emissions fell from 137,466 tons of CO₂e in 2018 to 90,636 tons of CO₂e in 2020 while scope 1 and 3 emissions slightly increase from 147 tons of CO₂e and 53,523 tons of CO₂e in 2018 to 354 tons of CO₂e and 54,688 tons of CO₂e in 2020 respectively. Around 60% of the emissions consist

¹ <https://www.fingrid.fi/en/electricity-market/electricity-market-information/real-time-co2-emissions-estimate/>

² https://www.energiforetagen.se/globalassets/dokument/nordenergi/electrification-in-the-nordics---nordenergi_19_05_2021.pdf

³ A **handprint** refers to the beneficial environmental impacts that organizations can achieve and communicate by providing products that reduce the footprints of customers. A **carbon handprint** is the reduction of the **carbon** footprint of a customer or customers (<https://doi.org/10.1016/j.jclepro.2018.09.233>)



of factors that can be mitigated (e.g. network materials, fuel upstream, construction etc.) and the rest consist of mainly losses of electricity. Their annual report also lists qualitative targets, measures and indicators for *climate impacts* and *responsible land use and biodiversity*. Caruna also works on helping their users decrease their carbon emissions (carbon handprint) through e.g. enabling the shifting to renewables. Caruna's procurement of materials processes also include comparison of environmental aspects and corporate responsibility strategies, including the requirement of decreasing the suppliers' carbon footprint of production and transportation.

Caruna is committed to using land responsibly as they design, build and maintain a reliable electricity network. Their new distribution transformers conform to the ECO Directive. They have a recycling and reuse programme which ensures that their dismantled materials, such as cables, transformers, and electricity poles are handled correctly considering lifecycle impacts. Caruna has a recycling rate over 90%. In 2020, approximately 97% of the processed scrap material from transformers and cables, created by Caruna's projects, was recycled and reused. According to the Annual Report, quantities of new material, waste, and recycling rates are monitored. Caruna monitors and manages its environmental impacts, e.g. minimizing oil leaks from transformers based on system alarms, maintenance inspections and stakeholder feedback and replanting freed-up-cable corridors to promote biodiversity.

Caruna has both an internal Code of Conduct and Compliance Policy. Caruna has the following certified management systems: environmental management (ISO 14001), occupational health and safety (ISO 45001), and asset management (ISO 55001). It has reported in line with the GRI for several years and the financial results form a part of their annual report. The annual report covers the standard disclosures of the GRI Standards, its Electrical Utilities Sector Disclosures as well as the sustainability topics considered material in their operations. Furthermore, Caruna's Supplier Code of Conduct requires suppliers to support and respect internationally proclaimed human rights and labour standards, as well as promote environmental responsibility and support a precautionary approach to environmental challenges.

Caruna uses TCFD to evaluate the climate change impacts on their operations. In 2020 they updated their assessment and status of their actions and strengthened the management of climate issues, as well as their links with strategies and targets. Caruna has invested in the weatherproofing of the electrical network specifically against storm damage, also in a way that digitalises the electricity network resulting in lower faults and shorter duration of unavoidable faults. Their current investment programme, which continues over the next decade, aims to increase the resilience of the electricity system in order to comply with the Finnish reliability-of-supply criteria that must be fulfilled by the end of 2028. For example, Caruna is investing in underground cabling and has worked with Fortum on a battery-based renewable energy storage facility in 2020. In rural sparsely populated areas, there may be an extension of the national deadline past 2028. In these areas, Caruna is instead replacing above-ground poles with new ones, clearing trees from power line areas, and making use of automation.

Use of proceeds

The net proceeds of the green financing issued by Caruna will be used to finance or re-finance eligible projects that have been evaluated and selected by Caruna in accordance with the Green Financing Framework under the energy efficiency category. Around 80% of the investments are estimated to be in the subcategory of Cable or Overhead Line Network Upgrades, while smaller subcategories include Capacity expansion (an estimated 15%), Storage and Technology and R&D (together an estimated 5%). All eligible projects will be located in Finland. According to the issuer, the first issue will be mainly re-financing of eligible projects. Refinancing of eligible projects will have a look-back period of no longer than 5 years from the time of issuance.



Green proceeds will not be allocated to projects for which the purpose of the project is fossil energy production, nuclear energy generation, weapons and defence, potentially environmentally harmful resource extraction (such as rare-earth elements or fossil fuels), gambling or tobacco.

Selection

The selection process is a key governance factor to consider in CICERO Green's assessment. CICERO Green typically looks at how climate and environmental considerations are considered when evaluating whether projects can qualify for green finance funding. The broader the project categories, the more importance CICERO Green places on the governance process.

Caruna will establish a green finance committee (GFC) to evaluate and select assets and to ensure that projects are aligned with eligibility criteria detailed in the green framework. The committee will meet at least on an annual basis. The GFC comprises representatives from different departments, including the Health, Safety and Environment Manager, Electricity Network Business Controller and Treasury Manager. According to the issuer, decisions are made based on consensus.

The GFC will be responsible for:

- Evaluating the compliance of proposed assets with the eligibility criteria.
- Ensuring that the pool of eligible assets is aligned with the categories and criteria as specified under the use of proceeds.
- Replacing investments that no longer meet the eligibility criteria (e.g. following divestment, liquidation, concerns regarding alignment of underlying activity with eligibility criteria etc.).
- Review and update the Green Finance Framework as needed.
- Reporting to investors through the Green Financing Investor Report.

ESG risks are screened already in the long-term network planning phase and more detailed in portfolio management, program and project level.

Management of proceeds

CICERO Green finds the management of proceeds of Caruna to be in accordance with the Green Bond and Green Loan Principles. Caruna will establish a green financing register (GFR) with the purpose to monitor eligible projects financed by the green proceeds, as well as provide an overview of the allocation of the net green proceeds issued to the respective eligible projects. The value of the eligible projects detailed in the GFR will at least equal the aggregate net proceeds of all outstanding Caruna green bonds and loans.

If total outstanding net proceeds of green finance exceed the value of the eligible projects in the GFR, proceeds yet to be allocated towards eligible projects will be held in accordance with Caruna's liquidity management policy and managed as such. The Green Financing Register will form the basis for the impact reporting.

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.

Caruna will report annually using a Green Finance Investor Report which will include allocation and impact reporting. The report will include allocation and impact reporting. Allocation reporting will include a listing of all



individual bonds, description of the portfolio of eligible projects and allocation at portfolio level, type of financing instruments utilized and respective outstanding amounts, information on the split between new financing and re-financing and a list of eligible projects including the amounts allocated, including allocated and disbursed amounts per category and geographical distribution.

They intend to report on quantitative impact indicators where feasible and relevant data information is available. The impact reporting aims to disclose the environmental impacts of the eligible projects financed under the green framework, based on Caruna's financing share of each project. They intend to report on quantitative impact indicators where feasible and relevant data information is available. Caruna can finance large and small eligible assets in the same project category, and impact reporting will, to some extent, be aggregated. The impact assessment is provided with the reservation that not all related data can be covered and that calculations therefore will be on a best-effort basis. Emissions calculations will use the Finnish national grid factor which will be included in the report. The impact assessment will, if applicable, be based on the following example Key Performance Indicators (KPIs) related to energy efficiency:

- Capacity expansions in connecting new renewable energy to the grid (MWh).
- Amount of underground cables installed (in km)
- Amount of yearly grid losses (in MWh)
- Number of smart grid installations in the last 12 months
- Reduction of CO₂e due to low-carbon/energy efficient services, such as but not limited to charging infrastructure for EV's, small-scale solar panel systems and related services both for consumers and communities, load management services
- Renewable production in Caruna's network (in MWh)
- A list of projects financed and a qualitative explanation as to why they are sustainable and how they contribute, and geographical location.

Caruna will appoint an external independent auditor to annually assure that the selection process for the financing of eligible projects and that the allocation of the net proceeds of the green financing are done in accordance with Caruna's green finance framework. Impact reporting will also be externally verified. The third-party review and the green financing investor report will be publicly available on Caruna's website.



3 Assessment of Caruna’s green finance framework and policies



The framework and procedures for Caruna’s green bond 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 Caruna 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 Caruna’s green finance framework, we rate the framework **CICERO Medium Green**.

Eligible projects under the Caruna’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 bonds 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
Energy Efficiency  	<p>Capacity Expansion-Construction, reconstruction and upgrading of electricity networks to connect new electricity production or consumption to the grid in Finland such as but not limited to new cables connecting residential and commercial sites to the grid</p> <p>Cable or Overhead Line Network Upgrades - Upgrading of electricity networks to decrease losses and/or enhance capacity for electricity distribution such as but not limited to improving existing cable lines or overhead lines; moving overhead lines to underground cables, and transformer substations.</p>	<p>Medium to Dark Green</p> <ul style="list-style-type: none"> ✓ A well-functioning power grid is a prerequisite for electrification. ✓ Distribution grids connect with the national grid and can transport energy generated from fossil fuels. Caruna is legally obliged to offer grid connections to all clients, including those associated with fossil fuel related activities. Caruna does not foresee such new connections or upgrades with fossil fuel producers in the near future and can exclude from such use of proceeds. Though rare, if they come across a controversial project, they may pertain to opt out from such an investment. Caruna does not screen for fossil fuel intensive end-customers. In general, there is a risk of lock-in if the connections are still to fossil



<p>Storage and Technology - development and construction of energy storage, energy recovery and smart grids such as but not limited to storage solutions and smart grid installations.</p>	<p>fuel-based energy and transition to renewable is not fast enough.</p> <ul style="list-style-type: none">✓ Electrical equipment use SF6, a potent greenhouse gas, and pose a risk of leaks. Caruna manages and reports on SF6 gas and leaks and also new equipment have lower rate of leaks.
<p>R&D- R&D into creating new and/or improving old charging technologies and/or increasing the accessibility of such technologies to customers such as but not limited to investments done through Caruna LAB</p>	<ul style="list-style-type: none">✓ Battery storage requires high volumes of environmentally sensitive materials, including lithium, manganese and cobalt. The supply chains for these materials need to be appropriately managed, to avoid creating new adverse social and environmental impacts. Responsible sourcing and recycling should be part of any project developer's strategy.✓ Grids are susceptible to exceptional weather conditions, such as storms, heavy snowfall and exceptionally severe frosts. Caruna actively manages these risks and screens for them in the project selection process.✓ Cable or Overhead Line Network Upgrades can have environmental impacts related to emissions, ecosystem including biodiversity. Caruna pre-screens for ecosystem related impacts and uses a life cycle approach in their decision making process.

Table 1. Eligible project categories

Background

In 2019, global renewable electricity generation rose 6%, with wind and solar PV technologies together accounting for 64% of this increase. Although the share of renewables in global electricity generation reached almost 27% in 2019, renewable power still needs to expand significantly to meet the IEA's Sustainable Development Scenario (SDS) share of 50% of the generation by 2030⁴. The EU has committed itself to a clean energy transition, which will contribute to fulfilling the goals of the Paris Agreement on climate change and provide clean energy to all. To deliver on this commitment, the EU has set binding targets, e.g., to increase the share of renewable energy to at least 32% of EU by 2030, reduce greenhouse gas emissions by at least 40% and increase energy efficiency by at least 32.5% .

Finland must reduce its greenhouse gas emissions by at least 80% by 2050 from the levels in 1990. The national renewable energy target set for 2030 in the National Energy and Climate Strategy (2016) is 50% of the gross final energy consumption⁵. Finland's 2030 target for non-ETS greenhouse gas emissions is -39% compared to 2005 as

⁴ <https://www.iea.org/fuels-and-technologies/renewables>

⁵ https://ec.europa.eu/energy/sites/ener/files/documents/fi_final_necp_main_en.pdf



set in the Effort Sharing Regulation (ESR)⁶. However, the government has set the objective to be carbon-neutral in 2035 and carbon-negative soon after that. Grid capacity is important to meeting this objective. The Climate and Energy Strategy and Medium-term Climate Change Policy Plan (KAISU) will be updated by 2021. The emission factor of electricity production in Finland is currently 91 gCO₂/kWh and the emission factor for electricity consumed in Finland 111gCO₂/kWh for 2021.⁷

On a global level, the IEA Sustainable Development Scenario estimates a required energy efficiency improvement rate of 3.2% per year through 2040, which is double the rate in the period 2000-2016, in order to be in line with the SDS scenario⁸. Energy efficiency investments, such as smart technology aimed at reducing energy consumption, are key to reducing emissions. Smart grids and grid upgrades are necessary to manage and increase the share of intermittent and decentralised renewable energy. In 2018, the Finnish Parliament accepted the government's proposal (HE 144/2018) regarding the transition to a centralized information exchange unit, datahub, to serve electricity suppliers, DSOs and customers⁹. The new system is intended to be operational in spring 2021. This will contribute to a more efficient energy market and help customers to gain information about when energy prices are lower and shift their energy consumption accordingly.

Energy storage is a key enabling technology for rolling out renewable energy further. In 2019, 2.9 GW of storage capacity were added to electricity systems globally – however this was almost 30% less than in 2018. The roll-out of storage systems is fragile and dependent on policy support.

The EU Taxonomy includes the activities transmission and distribution of electricity and the storage of energy. Currently, it is expected that most investments in transmission grids in Europe could qualify.

Governance Assessment

Four aspects are studied when assessing the Caruna'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. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.

Caruna is creating a strong foundation for work on climate issues and supporting societal transition to a low carbon economy. Caruna aims to continuously improve in reducing its emissions and that of society, however, has not yet set quantitative environmental or climate targets nor drafted a related public strategy. According to the issuer, they do have an internal Climate Roadmap and have set climate actions for 2021. They were the first European DSO to complete and publish their carbon footprint, including Scope 3 (supply chain emissions). Caruna has assessed its physical and transition related climate related risks according to the TCFD Framework but has not done so using scenario analysis.

Their selection process for their eligible projects is made within a Green Finance Committee which makes decisions in consensus and is based on existing internal pre-screening measures. Caruna is also aware of its climate related risks even though it is not yet using scenario analysis to do so. They try to avoid controversial projects take

⁶ Regulation (EU) 2018/842 of the European Parliament and of the Council of 30 May 2018 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013.

⁷ <https://www.fingrid.fi/en/electricity-market/electricity-market-information/real-time-co2-emissions-estimate/>

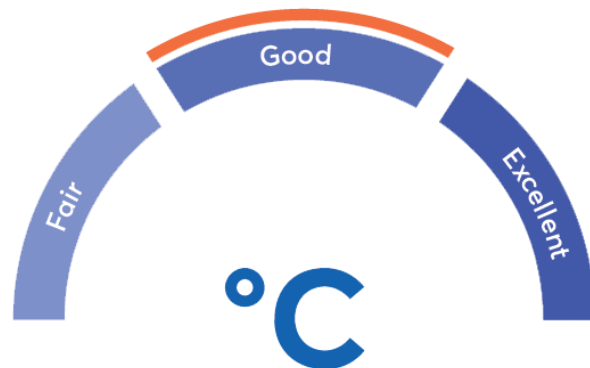
⁸ <https://www.iea.org/reports/energy-efficiency-2019>

⁹ <https://www.dittmar.fi/insight/finland-moves-forward-in-the-development-of-a-smart-electricity-system/>



a general life cycle approach and supply chain inclusive approach to manage their risks. Caruna is also working with their supply chains so that they can in the future use this information for decision making. Caruna's annual reporting, which covers both allocation and impact reporting, is aligned with the Green Bond Principles and both allocation and impact reporting will be subject to external verification. Furthermore, they will disclose their methodologies and assumptions related to impact reporting calculations in the report.

The overall assessment of Caruna's governance structure and processes gives it a rating of **Good**.



Strengths

Caruna has set up a Green Finance Committee which has representation across several different departments, including the HSE manager, to select the projects that will be eligible for funding under the GFF. Their reporting through their annual Green Financing Investor Report will include both allocation and impact reporting, both of which will be externally verified, which can be seen as a strength.

Caruna has also demonstrated its interest to improve its own climate friendliness and its ambition to enable further transition to renewables within society. It has assessed its climate footprint, as well as that of its clients (climate handprint) and is currently gathering data from its suppliers about the emissions related data from the materials it uses in its operations and infrastructure. According to its Annual Report 2020, it has also met most of its environmental targets for last year and is committed to continuous improvement also for next year.

Caruna plans to invest in storage technologies and R&D projects that support rapid uptake of renewable energy. Their capacity expansion is also directly focused on connecting to more renewable energy, which has become their primary objective. Green proceeds will not be allocated to projects for which the purpose of the project is fossil energy production, nuclear energy generation, weapons and defence, potentially environmentally harmful resource extraction (such as rare-earth elements or fossil fuels), gambling or tobacco.

Caruna's main priority is to invest in network development to support new renewable energy capacity deployment. Their network also include a high share of EV charging infrastructure. Caruna recognises that both physical climate risks as well as transition risks will have an influence on their operations. According to the issuer, their climate risk assessment highlighted how transition risks could be turned into opportunities. Also, their work on energy storage systems and their transferring of the network underground will help improve the resilience of the local grid. According to the issuer, Caruna has not yet used scenario analysis as recommended by TCFD for assessing its risks nor does it report against the TCFD recommendations in its annual financial reporting. Use of scenario analysis can provide a more robust evidence base for decision making related to climate risks as well as opportunities. According to the issuer, they will follow market based practices in sustainability reporting

Caruna has also recognised the impact of its operations on biodiversity, as well as the opportunities that future changes in the placement of infrastructure underground brings to both ecosystems and society. Even though environmental impact assessments are not typically required for their operations, Caruna conducts a light internal assessment based on databases to avoid controversial projects and projects which may have negative impact on the environment. It has also conducted singular biodiversity related projects.



Weaknesses

CICERO Green sees no material weaknesses in Caruna's Green Finance Framework.

Pitfalls

Caruna has yet to set concrete quantitative targets for its own environmental impact – short or long-term. The current targets are to increase renewables production and decrease their carbon footprint. Furthermore, although Caruna has a supplier Code of Conduct, it deals mainly with compliance. Caruna has been working with its suppliers on more detailed environmental issues and to gather the data related to the emissions of various materials for a baseline. Caruna's procurement of materials processes includes comparison of environmental aspects and corporate responsibility strategies, including requirement of decreasing the carbon footprint of production and transportation. Concrete quantitative time-based short and long-term targets for themselves and their suppliers would further strengthen the GFF and indicate their ambition level for transitioning to climate neutrality.

Caruna's selection process rests on the GFC and the ESG risks screening that takes place already in the long-term network planning phase, and in more detail in the portfolio management, program and project level. For some projects, like building transmission lines, impacts include clearing forested land. Caruna does use an internal light environmental impact assessment to screen for controversial projects. Their selection process also utilises the GFF eligibility criteria for the energy efficiency project category. However, as the eligibility criteria lacks specific thresholds, it is difficult to estimate the extent of efficiency gains that will be made and environmental impacts will be mitigated by investments. It also bears the risk of negligible improvements. Use of quantitative thresholds based on Life Cycle Analysis can help strengthen the project screening process to ensure that projects represent a significant improvement over status quo and help mitigate rebound effects.

Regarding transparency, Caruna will report on several impact indicators. However, the reduction of CO₂e will only be reported for reduction due to low-carbon/energy efficient services, which are only part of their services and operations. This lack of disclosure of the actual impact of investments is not reflective of the life cycle approach which looks at emissions more holistically. For example, as electrical equipment use the GHG SF₆ and pose a risk of leaks, these impacts should also be reflected in KPIs, either related to CO₂e emissions or separately. Indicators related to carbon emissions for a broader set of sub-categories and eligible activities would better represent the climate impact of the investments.

Although Caruna does not have control over the energy mix in the electricity grid, the framework is to some extent indirectly exposed to fossil fuels due to its connection with the national grid due to Finland's current energy mix (though no new investment into fossil fuel-based energy is foreseeable in the future). Although Caruna has a legal obligation to connect all the customers to the network and do not screen their customers against fossil intensiveness, the issuer has informed us that investments to connect fossil power sources are excluded from the use of proceeds. However, potential of connecting to fossil intensive industries could represent a risk of locking-in emissions.

Rebound effects 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. From the project categories in Table 2, an example is investment to reduce network losses, which decrease emissions from losses but may not decrease the consumption of energy. Caruna should be aware of such effects and possibly avoid Green Bond funding of projects where the risk of rebound effects is particularly high.

In terms of Management of Proceeds, in the case that total outstanding net proceeds of green finance exceed the value of the eligible projects in the GFR, proceeds yet to be allocated towards eligible projects will be held in



accordance with Caruna's liquidity management policy and managed as such. In the case that this liquidity management policy utilises different criteria than the GFF, this constitutes a risk.



Appendix 1: Referenced Documents List

Document Number	Document Name	Description
1	Caruna Green Finance Framework, Dated May 21, 2021	Green Finance Framework
2	Corporate Responsibility Framework Dated April 16, 2021	Document summarizing the governance structure of and documents related to corporate responsibility
3	Caruna Annual Report 2020	Status update on Caruna for 2020
4	Health, Safety & Environment (HSE) Policy Dated March 03, 2021	Document outlining Caruna's commitment to balanced consideration of responsibility as well as the driving principles (operating principles) in HSE management.
5	Supplier Code of Conduct Dated May 21, 2019	Document describing the basic principles for conducting business.
6	Caruna website caruna.fi	Issuer website
7	Caruna Investor Report H1/ 2020	Annual report to shareholders.
8	Caruna's role in climate change Mitigation (ppt)	Powerpoint presentation on climate impact, climate risks, and climate ambitions.



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).

