



Miris AS

Green Finance Second Opinion

January 8, 2020

MIRIS AS (Miris) is a real estate and energy efficiency technology investment company headquartered in Oslo Norway. Miris is operating a fully tokenized investment platform underpinned by blockchain technology, enabling efficient and direct investment in energy-efficient property and related technologies.

The proceeds from Miris green finance instruments will exclusively be allocated to eligible projects in the following categories: Green buildings; Energy efficiency; Renewable energy; Clean transportation; Pollution prevention and control; and Sustainable water and wastewater management. It is expected that Green buildings and Energy efficiency will be the more important categories for Miris, given its current business activities. Miris is applying high criteria for eligible projects under the green finance framework for these categories.

Miris is an early stage company which has not yet developed an overarching climate strategy or quantitative greenhouse gas emissions goals. They do, however, believe that sustainability is critical to its strategy and that its core business activities are aligned to developing a more energy-efficient and sustainable future. The selection process is good and well documented and based on adequate environmental competency. The management of proceeds is complex, but good. Impact reporting is mainly on energy, water and waste with no reporting on greenhouse gas emissions. No reporting along the guidelines from TCFD is planned.

Based on the shading of the project categories, and with consideration of environmental ambitions and governance structure reflected in Miris' green finance framework, we rate the framework **CICERO Medium Green**. This rating is influenced by the broad set of categories, some of which allows for fossil elements, a lack of an overarching climate strategy and quantitative targets for greenhouse gas emission reductions and a symmetric lack in the planned impact reporting. That said, we find the ambition level for green buildings very encouraging.

SHADES OF GREEN

Based on our review, we rate the Miris' 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 Miris' framework to be **Good**.



GREEN BOND PRINCIPLES and GREEN LOAN PRINCIPLES

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





Contents

1	Terms and methodology	3
	Expressing concerns with 'shades of green'	3
2	Brief description of Miris' green finance framework and related policies	4
	Environmental Strategies and Policies	4
	Use of proceeds	4
	Selection	5
	Management of proceeds	5
	Reporting	6
3	Assessment of Miris' green finance framework and policies	7
	Overall shading	7
	Eligible projects under the Miris' green finance framework	7
	Background	10
	Governance Assessment	10
	Strengths	11
	Weaknesses	11
	Pitfalls	11



1 Terms and methodology

This note provides CICERO Shades of Green's (CICERO Green) second opinion of the client's framework from December 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



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.



Brown is allocated to projects and solutions that are in opposition to the long-term vision of a low carbon and climate resilient future.

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



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 Miris' green finance framework and related policies

MIRIS AS (Miris) is a real estate and energy efficiency technology investment company headquartered in Oslo Norway. It focuses on the development of energy efficient real estate and management systems by identifying and applying innovative technology, sustainable and ethical building practices, and new investment models leveraging blockchain and Distributed Ledger Technology (DTL).

Miris is operating a fully tokenized investment platform underpinned by blockchain technology, enabling efficient and direct investment in energy-efficient property and related technologies.

Environmental Strategies and Policies

Miris does not have any substantial greenhouse gas emissions as of now, and no specific energy or emission targets. However, Miris is committed to protect the environment and manage environmental issues actively, openly and ethically. They are constantly striving to prevent pollution and reduce the environmental impact of their products and services during design, construction, operations and end-of-life. Environmental considerations are incorporated into the operations, business planning, decision-making and monitoring activities in order to understand impacts and improve procedures. They also expect their business partners and suppliers to share these values.

While Miris has the ambition to develop sustainability reporting in alignment with recognized frameworks such as the GRI Standards, the GHG Protocol, and the TCFD recommendations, the company is not currently at a stage of development where this reporting has been prepared.

Use of proceeds

Miris green finance instruments are any type of financial instrument where the proceeds will be exclusively applied to finance or re-finance, in part or in full, new and/or existing eligible green assets with environmental benefits aligned with the four core components of the Green Bond Principles ("GBP") established by the International Capital Market Association (ICMA). These instruments can include green bonds, green commercial papers, green private placements, green loans, and other types of debt instruments in line with the definition of green finance instrument provided above. Re-financing is estimated to be at most 5% and a look-back period of 2 years will be used. Proceeds raised through the issuance of green finance instruments will not be used for general operational expenses or other general corporate expenditures.

The proceeds from Miris green finance instruments will exclusively be allocated to eligible projects in the following categories: Green buildings; Energy efficiency; Renewable energy; Clean transportation; Pollution prevention and control; and Sustainable water and wastewater management. It is expected that Green buildings and Energy efficiency will be the more important categories for Miris given its current business activities, being allocated more than 50% of total net proceeds.

The framework covers the full geographical scope of Miris' operations which, as stated in its three-year strategy, intend to be limited to Norway. If the scope of operations should move outside of Norway, the same strict criteria, consideration of rebound effects, and avoidance of projects that prolong the life of fossil fuels will be applied.



The proceeds from the issuance of Miris green finance instruments will not be used to finance infrastructure supporting nuclear or fossil fuel energy generation.

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.

Miris will review the merits of all potential projects prior to investment, and will apply professional judgement, industry experience, and sustainability expertise before reaching a decision. Once a project has been approved, it will be eligible for investment and will be listed on the MIRIS X platform. Any investment in an eligible project will be recorded in the blockchain, allowing complete traceability of funds from the investor to the eligible project or the associated project company containing the eligible project. No project will be approved unless it meets the definition of an eligible project, and Miris' Head of Architecture and Design holds the primary responsibility during the review process for ensuring that all projects selected by Miris are in accordance with the green finance framework.

Miris will take a full lifecycle view when evaluating projects, and believes that a comprehensive investment decision-making process incorporates a review of climate resiliency, which is completed during the project feasibility study. As a general approach, Miris only considers projects which include the development of a new building in two cases: 1) If there is a belief that the construction of a new building will serve as a proof of concept for new technology, which can subsequently be applied to retrofits; or, 2) If a suitable existing structure cannot be identified to retrofit in order to achieve the goals of the project.

Management of proceeds

CICERO Green finds the management of proceeds of Miris to be in accordance with the Green Bond and Green Loan Principles. Miris has informed us that the financial blockchain transactions will be subject to Norwegian financial regulations and supervised accordingly.

The MIRIS X platform is a tokenized investment platform based on Ethereum-blockchain technology. In order to invest in one of Miris' projects, a potential investor must first convert their fiat currency (NOK, EUR, USD, etc...) into a MIRIS X token for use on the platform. Miris lists all eligible projects on the platform, and once an investor has converted their fiat currency to MIRIS X tokens, they can review the details of each project and select eligible projects for investment. Once the decision to invest has been made, the investor's MIRIS X tokens are converted to either Loan or Equity tokens unique to the project selected for investment. The use of Ethereum-blockchain technology to record the transactions provides an immutable and real-time record of the flow of funds from investor to project and allows for the use of smart contracts to regulate activities such as project initiation criteria and payment to suppliers.

If funds are raised for a specific project prior to the establishment of an associated project company, the investor's funds are converted into MIRIS X Eligible Project Loan Tokens unique to the associated eligible project. At this stage, the exchange is recorded on the blockchain, and the investor's funds in fiat currency are deposited into the MIRIS X Platform bank account. When the associated project company is established, the investor's funds in fiat currency are transferred from the MIRIS X Platform bank account to the project company dedicated bank account.



Funds which remain held as MIRIS X Loan Tokens and are not converted into MIRIS X Eligible Project Equity Tokens will remain in the MIRIS X Platform bank account¹ owned by Miris AS. These funds meet the criteria of investment in an eligible project as it represents an investment in Miris AS.

Miris' Finance function, under guidance from the CFO, will manage the net proceeds from green finance instruments on a project company basis and is responsible for ensuring that the net proceeds are financing eligible projects in accordance with the green finance framework. Each project company will have a dedicated bank account, containing only the funds associated with eligible project(s) held within the associated project company. Any unallocated proceeds, whether held in the MIRIS X Platform account or in a dedicated project company account, will be held as cash and will not be invested in any other type of financial instruments.

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.

The responsibility for selection and reporting from projects rests with Miris until such time as the project is completed.

To provide transparency and insight into project progress, Miris will produce green finance reporting at the project level on a minimum annual basis. The CFO and Head of Architecture and Design are responsible for preparing the reporting. It will form part of Miris' internal management reporting to senior management and be reviewed by the Board. The reporting will include, but not be limited to, the following:

- A list and description of eligible projects with, to the extent data is available:
 - The type of certification and level
 - Energy performance (kWh per square meter)
 - Waste data (waste diverted from landfill) from the construction phase (for new construction and major renovation projects)
 - Water intensity (m³ per m² and year)
- A list of the different categories of eligible projects financed, and the percentage distribution to each category;
- The net proceeds from each green finance instrument raised, on a per-project basis;
- The allocation of proceeds from each green finance instrument, on a per-project basis;
- The total amount of proceeds from each green finance instrument which have been paid out, on a per-project basis;
- A selection of further details on specific project examples.

If an eligible project is not fully financed/refinanced with net proceeds from Miris' green finance instruments, Miris will disclose the funds associated with the asset (on a per-project basis), and highlight the portion financed/refinanced by the net proceeds from Miris' green finance instruments in terms of both total value and percent.

¹ The MIRIS X Platform bank account is a holding account which holds the investor's funds until they either decide which eligible project to invest in or to withdraw their funds by converting them back to fiat currency



3 Assessment of Miris’ green finance framework and policies

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

Eligible projects under the Miris’ 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 finance aim to provide investors with certainty that their investments deliver environmental returns as well as financial returns. The Green Bonds Principles (GBP) and the Green Loan Principle 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
Green buildings  	<ul style="list-style-type: none"> • Construction of new commercial or residential buildings with an energy use per year on a m² basis that is at least 25 per cent lower than that required by the applicable national building regulation (e.g. TEK17 in Norway) at the time of investment by Miris <i>and</i> that meet at least the minimum requirements of: <ul style="list-style-type: none"> ○ The LEED New Construction or Core and Shell “Platinum” certification; or, ○ The BREEAM New Construction “Outstanding” certification • Major renovations of commercial or residential buildings leading to a reduction in energy use per year on a m² basis of at least 35 per cent. Examples of activities that will be performed to obtain the above reduction in energy use are: 	Medium to Dark Green <ul style="list-style-type: none"> ✓ Passive or plus house technologies should become mainstream and the energy performance of existing buildings greatly improved. Miris is taking important steps towards this long-term vision with energy efficiency targets and environmental labelling. ✓ Construction projects can have potential negative local environmental impacts. ✓ For new buildings, access to public transport should be considered, as well as bicycle parking and charging facilities for electric cars. ✓ Resiliency concerns under a changing climate should be taken



- Building energy retrofits (equipment upgrades such as lighting/HVAC retrofits)
- Peak load demand reduction (smart consumption technology, thermal energy storage, batteries)

into account in the planning phase of green building projects.

Energy efficiency



- District heating/cooling
- Smart grid technology and/or infrastructure
- Energy recovery projects
- Smart consumption/intelligent energy optimization technology
- Investments in related technologies and/or processes, which, in each case or in combination lead to energy efficiency gains of at least 15 per cent compared to the technology, system, and/or process which was replaced. The focus of these projects will generally be light-touch retrofits, focusing on the use of sensors and software to optimize the efficient management of the building.

Medium Green

- ✓ District heating can contain fossil fuel elements (e.g. plastics in waste-to-heat processes). A Dark green shading would require control of the fossil elements in the waste stream. However, Miris informs us that they intend to use the district heating/cooling network mainly for dumping excess energy.
- ✓ Energy recovery projects is mainly from excess heat from data centres, but also methane recovery from waste and wastewater.
- ✓ 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 decentralized renewable energy.

Renewable energy



- Renewable energy means solar, wind, geothermal, tidal, or hydro, and any related infrastructure
- Onsite renewable energy generation used to power the building and/or sent back to the grid (solar, wind, geothermal, tidal, hydro)
- Offsite renewable energy purchase

Dark Green

- ✓ While renewable energy is generally low-carbon, local environmental impacts such as on biodiversity and landscape, and lifecycle emissions from construction and operation are concerns for these projects.
- ✓ Hydro power projects only cover “small hydro”, defined as maximum 10 MW generating capacity.
- ✓ Purchase of renewable energy does not necessarily imply more renewable energy overall.



Clean transportation



- Any transportation solutions/systems/processes based on non-fossil fuel or plug-in hybrid technologies and any related/supporting infrastructure

Light Green

- ✓ Hybrid technologies contain fossil fuel elements.
- ✓ Use of biofuels can be problematic unless care is taken. Should ideally be certified as sustainable.
- ✓ Supporting infrastructure can potentially be used by fossil fuel vehicles.

Pollution prevention and control



- Emissions reduction means the reduction of emissions (e.g. CO₂, SO_x, NO_x, particulate matter, heavy metals, and dioxins) into the air.
- Waste management means projects to either prevent or reduce waste through new technology or process improvements, such as improved sorting solutions for food or other waste material

Light Green

- ✓ Be aware of potential loss of energy efficiency and increased greenhouse gas emissions from pollution reduction activities.
- ✓ Apart from the direct climate impact, waste recycling strategies are crucial for environmental and social wellbeing. The waste sector contributes almost 5% of global GHG emissions mainly from landfill and wastewater methane and nitrous oxide as well as CO₂ from waste incineration.
- ✓ Waste-to-energy solutions will normally contain some fossil elements (e.g. plastics)

Sustainable water and wastewater management



- Water and wastewater management means projects targeting sustainable infrastructure for clean and/or drinking water, wastewater treatment, sustainable drainage systems, and forms of flood mitigation

Medium Green

- ✓ The impact of climate change on the hydrological cycle can lead to risks such as increased vulnerability to water-related hazards, water quality, decreased water supply or increased demand. Water risk concerns both water scarcity and overabundance; it is necessary to respond to those risks while planning ahead for a low-carbon and resilient society.
 - ✓ Methane recovery is included in this category.
-



- ✓ Consider environmental impacts of projects involving large construction projects, including use of emissions intensive materials and/or fossil-fueled equipment.

Table 1. Eligible project categories

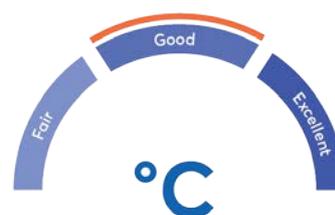
Background

In a low carbon 2050 perspective, the energy performance of buildings is expected to be improved, with passive house technology becoming mainstream and the energy performance of existing buildings greatly improved through refurbishments. According to the IEA², the buildings and buildings construction sectors combined are responsible for 36% of global final energy consumption and nearly 40% of total direct and indirect CO₂ emissions. Efficiency of building envelopes needs to improve by 30% by 2025 to keep pace with increased building size and energy demand – in addition to improvements in lighting and appliances and increased renewable heat sources.³ Energy efficiency improvements in buildings are thus important building blocks towards reaching the 2°C goal. Also, local transport solutions and easy access to renewable energy are important elements. Emissions from buildings are approximately half coming from materials/construction and half from energy use. Over time the energy use becomes less important (with off grid solution such as geothermal and solar increasing).

Governance Assessment

Four aspects are studied when assessing the Miris’ 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.

Miris is an early stage company which has not yet developed an overarching climate strategy or quantitative greenhouse gas emissions goals. They do, however, believe that sustainability is critical to its strategy and that its core business activities are aligned to developing a more energy-efficient and sustainable future. The selection process is good and well documented and based on adequate environmental competency. The management of proceeds is complex, but good. Impact reporting is mainly on energy, water and waste with no reporting on greenhouse gas emissions. No reporting along the guidelines from TCFD is planned.



The overall assessment of Miris’ governance structure and processes give it a rating of Good.

² <https://www.iea.org/topics/energyefficiency/buildings/>

³ <http://www.iea.org/tcep>



Strengths

The criteria for eligible projects are good, in particular when it comes to green buildings. However, some of the eligible categories allows for fossil fuel elements (e.g. hybrid cars, district heating based on waste-to-energy). Others are quite broad, e.g. Pollution prevention and control.

Weaknesses

We find no material weaknesses in the green finance framework of Miris.

Pitfalls

There is somewhat higher energy usage on a tokenized platform such as the one used by Miris compared to a platform hosted on a conventional website (due to the nature of the Distributed Ledger Technology). However, Ethereum uses considerably less energy than a comparable blockchain technology such as Bitcoin, and Ethereum's founder has announced plans to reduce its energy consumption by switching its consensus mechanism from Proof-of-Works system to a Proof-of-Stake system.

The management of proceeds is complex, but good. Impact reporting is mainly on energy, water and waste with no reporting on greenhouse gas emissions. No reporting along the guidelines from TCFD is planned

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. This is particularly the case when it comes to transport solutions associated with the buildings. 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.

Although voluntary environmental certifications such as LEED and BREEAM or equivalents can measure or estimate the environmental footprint of buildings and raise awareness of environmental issues, they fall short of measuring reduction in greenhouse gas emissions precisely and do not include considerations of resiliency.

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. Miris should be aware of such effects and possibly avoid green bond funding of projects where the risk of rebound effects is particularly high.



Appendix 1: Referenced Documents List

Document Number	Document Name	Description
1	Miris Green Finance Framework	Miris Green Finance Framework dated November 2019
2	Miris Code of Conduct Dec 2019	Draft Code of conduct, December 2019
3	Investment decision making process	A detailed description of the decision-making process of Miris.
4	Feasibility study of SVART	A feasibility study of an energy positive hotel. (https://drive.google.com/open?id=1hP6lxZYgxs_gz-_hiNniDy_qxghxzOtx)
5	Feasibility study of SPARK/EDGE	A feasibility study of using excess heat from data centres to heat other buildings. (https://drive.google.com/open?id=1hHTgE3PKI3bpBZK_r_l42gHnaj2fypkA)
6	Katrina Urbanik - Job Description	Job description for Head of Architecture and Design



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).

