An S&P Global Second Party Opinion (SPO) includes S&P Global Ratings' opinion on whether the documentation of a sustainable finance instrument, framework, or program, or a financing transaction aligns with certain third-party published sustainable finance principles. Certain SPOs may also provide our opinion on how the issuer's most material sustainability factors are addressed by the financing. An SPO provides a point-in-time opinion, reflecting the information provided to us at the time the SPO was created and published, and is not surveilled. We assume no obligation to update or supplement the SPO to reflect any facts or circumstances that may come to our attention in the future. An SPO is not a credit rating, and does not consider credit quality or factor into our credit ratings. See Analytical Approach: Second Party Opinions.

Second Party Opinion

Boreal Norge AS' Green Finance Framework

Feb. 1, 2024

Location: Norway  Sector: Transportation

Alignment With Principles

- Green Bond Principles, ICMA, 2021 (with June 2022 Appendix 1)
- Green Loan Principles, LMA/LSTA/APLMA, 2023

See Alignment Assessment for more detail.

Strengths

Boreal is targeting comprehensive and diversified technologies to decarbonize its fleet. To grow the proportion of vehicles with zero direct tailpipe CO2 emissions in its operations, Boreal will leverage technologies in battery electric, fuel cell, ammonia, and hydrogen and biofuels, potentially maximizing their impact on its carbon emissions.

The development of reliable public transportation is critical to reducing the use of personal cars. This multiplies the green benefits of Boreal’s decarbonization investments.

Weaknesses

No weakness to report.

Areas to watch

While the framework includes potential investments in hydrogen and ammonia, Boreal has limited expertise in these value chains. As a result, the company is likely to prioritize the electrification of its fleet. Moving forward, the company is looking to grow its expertise in alternative green fuels.

Scope 3 emissions assessment and management is a new frontier for Boreal. The company will take some steps in 2024 to assess its scope 3 emissions, for example via upcoming policies requiring suppliers to provide emissions data.
Eligible Green Projects Assessment Summary

Eligible projects under Boreal’s green finance framework are assessed based on their environmental benefits and risks, using Shades of Green methodology.

### Clean transportation - Expansion and refurbishment of buses network
- **Dark to Medium green**
- Acquisition of buses with zero direct tailpipe CO2 emissions (battery electric, fuel cell, ammonia, and hydrogen) or net zero (net negative) biofuels (liquefied biogas [LBG] and compressed biogas [CBG])
- Construction, modernization, and maintenance of the infrastructure required for the zero-emission bus network

### Clean transportation - Expansion and refurbishment of ferries network
- **Medium green**
- Acquisition of ferries with zero direct tailpipe CO2 emissions (battery electric, fuel cell, ammonia, and hydrogen) or net zero (net negative) biofuels (LBG and CBG)
- Construction, modernization, and maintenance of the infrastructure required for the zero-emission ferry network

### Clean transportation - Expansion and refurbishment of fast ferries network
- **Medium green**
- Acquisition of fast ferries with zero direct tailpipe CO2 emissions (battery electric, fuel cell, ammonia, and hydrogen) or net zero (net negative) biofuels (LBG and CBG)
- Construction, modernization, and maintenance of the infrastructure required for the zero-emission fast ferry network

### Clean transportation - Refurbishment and improvements of stations, equipment, and installations
- **Light green**
- Refurbishment of and improvements to stations, equipment, and installations dedicated to urban public passenger transport on road and water
- Contributing to increase the share of integrated public and low carbon transport over individual car use

### Clean transportation - Battery technology and charging
- **Dark green**
- Establishment and operation of bus charging infrastructure, for commercial charging services used by heavy vehicles, and for Boreal’s buses and vessels

### Clean transportation - Reuse of batteries
- **Dark green**
- Reuse of batteries in Boreal’s buses and ferries to meet demands for recirculation systems for batteries, and exploit the value of used batteries by offering stored power
### Clean transportation - Energy management system

- **Dark green**

  Supervise and manage bus charging and batteries reuse

### Clean transportation - Solar and wind power

- **Dark green**

  Develop a concept for renewable energy production on large roofs (Boreal and partners), energy storage, and effective utilization of energy to meet future tender demands

### Clean transportation - Green fuels

- **Light green**

  Develop carbon-neutral or carbon-free fuels (including ammonia, methanol, biogas, efuels, hydrogen) using Minol's facilities, competence, and customer portfolio

See Analysis Of Eligible Projects for more detail.
Issuer Sustainability Context

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

Company Description

Boreal Norge AS (Boreal) is a private public passenger transport company headquartered in Stavanger, Norway, and founded in 1999. It operates 863 buses, 35 ferries, 28 fast ferries, six trams, and travel services with 2,700 employees. In 2022, the company transported 20 million passengers across 40 million kilometers. Boreal mainly operates through Public Transport Authorities (PTA) contracts.

Boreal is indirectly and fully owned by Paris-based private equity firm Vauban Infrastructure Partners. Through investing in the expansion and modernization of its vehicles and vessels fleet, Boreal aims to enhance the attractiveness and mobility of the public transport system. It aims to contribute to Norway’s climate transition by accelerating low-carbon passenger transport and reducing the use of private cars.

Material Sustainability Factors

Climate Transition Risk

Transportation is the fastest growing source of emissions worldwide, and accounts for about a quarter of global greenhouse gas (GHG) emissions according to the International Energy Agency (IEA), behind the power sector. Although vehicles and ships do not burn fuel as intensively per weight carried as aircraft, their total number is much larger. Surface transport modes therefore represent most of the emissions in this sector. Regulation on fuel efficiency, powertrains, or emissions has begun emerging in some markets and may tighten further to address climate goals. For instance, the Norwegian Climate Laws target to reduce emissions by 55% by 2030 and 90%-95% by 2050, compared to 1990. The Norwegian Government’s climate status and plan (2023-2024) has also prompted the introduction of requirements for zero emissions in PTA contracts for all city buses and ferries from 2024, and all fast ferries from 2025. This could lead to higher regulatory costs and require investments in new engine technologies (battery and electric trucks) as well as the use of more expensive alternative fuels (such as liquified natural gas, green hydrogen, and biofuels), or new supporting infrastructure.

Physical Climate Risk

Boreal’s assets are exposed to acute weather events—like storms, heavy rains and winds, and floods—which can impair operations and immobilize assets, including but not limited to buses and vessels. They may also limit the accessibility of the essential infrastructure on which the industry relies, including roads, ports, and depots, and increase the risk of accidents. Over time, both acute and chronic risks—changing precipitation patterns and rising sea levels—could shorten the useful life of vehicles and infrastructure. Implications for stakeholders could be spread over the region or service area of the damaged infrastructure (or beyond), suspending passenger transportation and disrupting supply chains. Norway is exposed to higher annual mean temperatures and precipitation, rainfall floods, summer droughts, rising sea levels, and ocean acidification (source World Bank).

Pollution

Pollution can take the form of airborne emissions (such as nitrogen oxides and soot), resource use, and excessive noise. These have severe stakeholder impacts, especially for people living near major sea or road transportation routes. Modifications, upgrades, and expansions of transport network and infrastructure should be managed accordingly. There has been some progress in reducing pollution through regulation, engine improvements, safety procedures, and changes to equipment. Norway’s Pollution Control Act ensures that pollution and waste do not damage human health or adversely affect the natural environment and its capacity for self-renewal.
Workforce Health and Safety

The health and safety of employees and passengers is critical given that the transportation industry sees regular incidents and accidents, especially on roads. Workplace incidents can result in injuries and fatalities, which can also affect companies’ operations, legal exposure, and reputation. In the European Union in 2021, the transportation and storage sector had the second highest rate of fatal accidents, according to Eurostat. There are, however, also risks linked to supply chains, for example in the production of new engine technologies and fuels. The production of battery electric vehicles involves mining, smelting, and the refining of raw materials, with these activities often in regions where risks of human rights violations and safety hazards are high.

Issuer And Context Analysis

The framework’s eligible project categories aim to address both climate transition and pollution risks, which are material sustainability factors for Boreal. The evaluation and selection of eligible clean transportation categories to be financed also seek to address physical climate risk and health and safety risks, as part of the environmental and social risk identification and management process.

According to Vauban, it systematically engages with portfolio companies on environmental, social, and governance (ESG) factors, with the view to mutually agree on specific long-term targets. Vauban monitors the performance of portfolio companies in relation to these ESG objectives via a dedicated tool with 70 key indicators. It then calculates their portfolio climate risks, carbon footprint, and alignment with the Paris Agreement objectives. All Vauban Infrastructure Partners funds are classified as article 8 under Sustainable Finance Disclosure Regulation (SFDR) and exclude fossil fuel exploration and production and nuclear energy production.

The projects contribute to shifting toward low-carbon public transportation, in line with the national climate ambitions in the Norwegian Climate Law to reduce emissions by 55% by 2030 and 90%-95% by 2050. The transport sector accounts for 30% of total emissions in Norway, of which 18% are from land transportation and almost 50% of that from passenger cars. Boreal’s investments in a zero-direct-emission tailpipe fleet and associated infrastructure aim to offer an environmentally friendly alternative to private cars. This aligns with the Norwegian Environment Agency’s 2023 Environmental Directorate, which emphasizes the need to reduce and regulate the transport sector and sets out the zero-emissions requirements that will come into effect in future PTAs.

Boreal’s decarbonization strategy will reduce its reliance on fossil fuels. Boreal has announced several public targets, including to reduce scope 1 and 2 emissions by 60% and 30% in 2030, and to achieve net-zero operations by 2040. The company’s transition focuses on the electrification of bus, ferry, and fast ferry fleet, which will likely require an investment of around Norwegian kroner (NOK) 160 million (US$15 million) between 2023 and 2029. Its decarbonization strategy also includes the development of supporting infrastructure and services, and the production of renewable solar and wind power, as well as energy storage and energy efficiency equipment.

Boreal is piloting the development of net-zero-emitting ammonia, methanol, efuels, and biogas, which may be used to assist its transition project. The company will include scope 3 emissions in its annual reporting in 2024, mainly from activities associated with its upstream suppliers, and the end-use of fossil fuel (from its major fuel provider, sister company Minol). The assessment will be complemented through an update of its sustainability standards, requiring suppliers and business partners to fill in their carbon data.

Boreal relies on its procurement policy to manage air emissions of nitrous oxides, sulfur dioxides, and particulate matters, as well as noise. The company has stated that its vehicles will comply with the requirements of the Euro VI heavy duty emission type approval set out in accordance with Regulation (EC) No 595/2009. It abides by the EU Environmental Noise Directive 2002/49/EC and mitigates noise from the use of infrastructure through open trenches and wall
Second Party Opinion: Boreal Norge AS' Green Finance Framework

barriers. It is also working with Minol to manage and avoid the potential risks of ground spills from its handling of fossil fuels and lubricants.

The company has incorporated some physical climate risk considerations in its fleet services. It has identified extreme weather conditions, such as heavy storms, winds, and rains, but is yet to financially quantify its risk exposures. Nevertheless, the company has stated it will develop adaptation plans incorporating physical climate factors in its investments related to new infrastructure, ports, fleets, and services, as part of its project risk analysis. According to Boreal, Minol has conducted climate analysis based on 2°C and 4°C global warming impact scenarios. Vauban considers climate impacts and risks systematically as part of its due diligence and relies on Carbone 4 for further analysis, when relevant (see Vauban's ESG policy).

Boreal has policies to manage its exposure to workforce health and safety issues, which also apply to its suppliers and business partners. The company conducts risk assessments, with reference to the requirements of the core labor standards of the International Labor Organization (ILO) and is aligned with the Corporate Due Diligence Obligations in Supply Chains. It tracks and reports health and safety metrics for its operations and recorded one fatality in 2022. According to Boreal, it has enhanced its risk management plan, which includes additional employee training for traffic safety and increased use of visibility clothing.
Alignment Assessment

This section provides an analysis of the framework's alignment to Green Bond/Loan principles.

Alignment With Principles

| ✔ | Green Bond Principles, ICMA, 2021 (with June 2022 Appendix 1) |
|   | Green Loan Principles, LMA/LSTA/APLMA, 2023 |

✔ Use of proceeds

Boreal commits to allocating an amount equivalent to the net proceeds exclusively to clean transportation projects. The framework includes nine eligible activities in clean transportation and mobility. The maximum look-back period for refinanced projects is three years after issuance, in line with market practice. Please refer to the Analysis of Eligible Projects section for more information on our analysis of the environmental benefits of the expected use of proceeds. Boreal intends to align its eligible activities with the technical screening criteria for determining a substantial contribution to climate change mitigation, from the EU taxonomy regulation (EU 2020/852) and the Delegated Acts. The framework does not include an exclusion list.

✔ Process for project evaluation and selection

Boreal has established a dedicated green team to develop environmental initiatives and source eligible projects across the group. An ESG steering committee will oversee project evaluation and selection. It comprises the project manager of the green team, the chief financial officer, the head of business development, and the head of quality and organization (sustainability) and reports to the chief executive officer. The committee will regularly review the portfolio of green projects, which will subsequently be validated by the group’s management representatives and reported to the board. Boreal will identify and manage the environmental and social risks associated with the financed projects through risk analyses, policy implementation, and impact assessments. For instance, the company’s Sustainability Standards for Suppliers and Business Partners will contain required data and information related to environmental and social risk management.

✔ Management of proceeds

Boreal will deposit the proceeds raised into its general cash pool (meaning there will be no investment of unallocated proceeds in short-term financial products) and earmark an amount equal to the net proceeds for eligible green projects. The proceeds will be tracked and monitored by the group’s finance department and adjusted quarterly to ensure allocation to eligible green projects. If a project is no longer eligible, it will be substituted with other eligible green projects for an amount at least equal to ineligible projects as soon as an appropriate substitution is identified.

✔ Reporting

Boreal commits to reporting annually on the allocation of proceeds and actual impacts of financed projects, until full allocation of the green instruments, and in case of significant changes. The information will be shared in an integrated allocation and impact report. Allocation reporting will include information on the green instruments, the amounts allocated and unallocated, descriptions of eligible green projects, and the share of financing versus refinancing. Boreal will provide information on the environmental impact of financed projects, such as the amount of greenhouse gas emissions avoided, the number of clean vehicles deployed, energy savings, the amount of renewable energy generated, among others. Finally, Boreal will engage an independent third party to review and verify allocation reporting, adding transparency.
Analysis Of Eligible Projects

This section provides details of our analysis of eligible projects, based on their environmental benefits and risks, using the Shades of Green methodology.

For each financing under the framework, the company expects to typically allocate the proceeds to finance new projects that will commence in 2024. Boreal has said that green projects on existing PTA contracts could be refinanced provided that the assets or activities align with the criteria of this framework.

Boreal expects to allocate the bulk of the proceeds to its bus and ferry networks.

Overall Shades of Green assessment

Based on the project category shades of green detailed below, and considering the environmental ambitions reflected in Boreal’s green finance framework, we assess the framework as Medium green.

Green project categories – Clean Transportation and Mobility

### Expansion and refurbishment of Boreal’s bus network

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Description</th>
</tr>
</thead>
</table>
| Dark to Medium green | • Acquisition of buses with zero-direct-tailpipe CO2 emissions (battery electric, fuel cell, ammonia, and hydrogen) or net zero (net negative) biofuels (LBG and CBG)  
                      • Construction, modernization, and maintenance of the infrastructure required for the zero-emissions bus network, including charging stations and a depot dedicated to net zero buses, such as acquisition of electric buses (battery and fuel-cell), charging infrastructure, and the construction of new, and refurbishment of existing, bus depots for electric buses |

**Analytical considerations**

- Zero-direct-tailpipe emission public transport is essential in a 2050 future because public transportation is less resource and emissions-intensive than private modes of transportation. Investments in electrification and hydrogen are crucial, while biofuels (given the net-zero/net negative eligibility criteria) are also relevant in decarbonizing the transportation sector. Boreal will mainly focus on electrifying its fleet, as the company considers the application of and infrastructure for hydrogen, ammonia, and biofuels to be at a nascent and uncertain stage. We do not anticipate it making any investments in hydrogen and ammonia in the foreseeable future, and therefore assess this project category as Dark (electrification) to Medium (biofuels) green.

- According to Boreal, 13% of the company’s bus fleet was electrified as of 2022 (the majority is diesel). It targets to achieve 70% of electric buses by 2030, and 93% and 96% by 2035 and 2040, respectively. While electrified transportation has a lower carbon footprint than internal combustion engines (ICE), it does entail indirect GHG emissions stemming from the production and use of new vehicles. The sourcing of raw materials and production of batteries translate into substantial environmental disruptions. Boreal has said that the carbon footprint of fleet and batteries will become part of its supplier assessment in future tender processes.

- In 2022, the average emissions of Norway were 30g CO2e/kWh (source: Nowtricity). 99% of energy was produced from renewable sources, with the main source being Hydro (90%). Such low carbon intensity in the power grid amplifies the benefits of using batteries in the country, in the absence of lifecycle thresholds currently for battery sourcing.

- Boreal has stated that electric buses might have the option to use an oil-based heater on extremely cold days to avoid purchasing additional buses to use when low temperatures cause electric bus ranges to decline. The company is exploring opportunities to switch entirely to biofuels, with no timeline to do so. It excludes financing under this framework any fossil-fuel-based heating systems and infrastructure.
Boreal does not plan to bring in hydrogen or ammonia buses in the short term, but it has said that any hydrogen/ammonia investments will satisfy the requirements of the EU Taxonomy for additionality, temporal correlation, and geographic correlation. It will source hydrogen and ammonia locally and from renewable sources. It will use certificates of origin, for example, for the electricity used for the water electrolysis for hydrogen, while ammonia will be come from green hydrogen, or be recovered from wastewater. Production complexes could be exposed to physical and biodiversity risks, depending on their location, renewable energy sources, and water availability.

Not all biofuels are sustainable given the risks of indirect land use and adverse impacts on biodiversity. Boreal has stated that its “net-zero (net-negative) biogas” fueled buses will run solely on certified biofuels derived from non-food or feed-based feedstocks and waste. The company will exclude biofuel or feedstock derived from energy crops, and those associated with high indirect land use change (ILUC) risk. Boreal stated that its procurement of these fuels complies with Norwegian feedstock regulations and aims to stay aligned with the sustainability criteria of the EU Taxonomy (Annex 1) Chapter 3 Manufacturing of green energy/ green fuels, and Chapter 4 Green energy/fuels and storage, as well as the EU’s renewable energy directive (RED) III (for waste Annex IV). The company estimates the lifecycle emissions will be 50% less than fossil fuel-based combustion.

For managing lifecycle emissions, Boreal will update its sustainability standards and require emissions reporting from suppliers and business partners from 2024, as part of its procurement process. Through assessing the embodied scope 3 emissions in sourcing buses and ferries, among other assets, Boreal aims to explore opportunities to optimize their lifespan and circularity. For instance, it will prioritize suppliers based on their ability to recycle steel, iron, batteries, and parts of fleet. The framework does not specify any recycling or emission thresholds, however.

Construction and maintenance works are often emissions and resource intensive. In this respect, Boreal incorporates sustainability criteria in tenders for construction and demolition works. Infrastructure dedicated to transport (charging stations and depots for example) will be designed for fast charging the huge batteries electric buses use and will not serve hybrids. The scope of the investment will not include shopping areas within charging stations, or car parks at stations serving private vehicles. Boreal has also stated that it will consider criteria for green buildings and the embodied emissions of materials sourced, as well as energy efficiency performance. However, there is no specific energy efficiency standard in the framework.

Boreal's decommission strategy has so far typically involved selling off its retired assets. As part of the updates to its sustainability standards, the company will invest in developing a system to reuse bus and ferry batteries in energy storage for grid and property owners (please refer to relevant Projects for more information- Reuse of Batteries, Energy Management System, and Solar and Wind Power).

Boreal is developing a climate adaptation strategy for 2024, which will feature physical risk analysis of its assets, for instance ports and infrastructure by the coastline. The company says that it does not own ports and quays, therefore physical risk is mostly relevant to its mobility assets, and to some extent Minol’s assets. According to the PTA contracts, Boreal typically receives funding to conduct financial risk evaluations due to physical climate risk damage and operation interruption.

### Expansion and refurbishment of Boreal's ferry network

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Description</th>
</tr>
</thead>
</table>
| Medium green | • Acquisition of ferries with zero direct tailpipe CO2 emissions (battery electric, fuel cell, ammonia, and hydrogen) or net zero (net negative) biofuels (LBG and CBG)  
• Construction, modernization, and maintenance of the infrastructure required for the zero-emission ferry network, including charging or filling stations at berth and ports, such as such as acquisition of electric ferries (battery and fuel-cell), and charging infrastructure |

### Analytical considerations

• According to Boreal, 43% of the company’s ferry fleet was diesel electric hybrids as of 2022 (most were diesel). The diesel “take me home” reserve energy production system (typically used over less than 10% of the distance travelled) is a safety precaution and not the main energy source, in contrast with electricity. This means that while ferries are hybrid by design, they are in practice electric. Through the investments, Boreal targets to have 67% electric ferries by 2030, and 94% by 2040.
Second Party Opinion: Boreal Norge AS' Green Finance Framework

- The company is looking into the possibility of a hybrid solution with 100% advanced or RED Annex IX biofuel starting from 2026 but has also mentioned the present challenges due to plugging in diesel filters. The limited, yet continued, reliance on diesel, and the absence of a concrete plan for switching entirely to biofuels limits our assessment to Medium green.

- See previous analytical considerations on climate impact, circularity, biodiversity, and physical risks.

### Expansion and refurbishment of Boreal's fast ferry network

**Assessment**

- Medium green

**Description**

- Acquisition of fast ferries with zero direct tailpipe CO2 emissions (battery electric, fuel cell, ammonia, and hydrogen) or net zero (net negative) biofuels (LBG and CBG)
- Construction, modernization, and maintenance of the infrastructure required for the zero-emission fast ferry network, including charging or filling stations at berth and ports, such as such the acquisition of LBG fast ferries, and filling infrastructure

**Analytical considerations**

- The existing fast ferry fleet is largely powered by diesel. Through the investments, Boreal targets to have 47% electric ferries by 2030, and 94% by 2040.

- The limited, yet continued, reliance on diesel (electric hybrids), and the absence of a concrete plan for switching entirely to biofuels limits our assessment to Medium green.

- See previous analytical considerations on climate impact, circularity, biodiversity, and physical risks.

### Refurbishment and improvements of stations, equipment, and installations

**Assessment**

- Light green

**Description**

- Refurbishment of and improvements to stations, equipment, and installations dedicated to urban public passenger transport on road and water
- Contributing to increasing the share of integrated public and low carbon transport over individual car use, such as ticketing, traffic information, passenger guidance systems, service centers, digital ticketing, and service solutions (hvv switch for example), and the integration of on-demand services and mobility hubs

**Analytical considerations**

- Upgrading the stations, equipment, and installations to support the operation of a zero-direct-tailpipe-emission bus and ferry fleet constitute a low carbon solution in the clean transportation category. As a bus operator, Boreal does not own or build public transport stations and has little impact on the criteria used for their design. However, the company manages a portfolio of bus depots, serving as parking facilities, small offices, and washing halls. Encouraging people to increase their use of public transport via improved accessibility, service, and information is also part of what we assess as a Light green solution.

- Refurbishment and maintenance work will entail carbon emissions, which should be monitored and minimized. The company has stated that it will assess and limit emissions whenever possible during the construction and operation phases.

- Boreal will consider criteria for green buildings and the embodied emissions of materials sourced, the energy efficiency performance, and the proper handling of biogas, methanol, and ammonia. It has estimated that after it installs energy efficiency equipment such as energy management systems in its own buildings, it will achieve a minimum 30% increase in energy efficiency.

- There are no explicit performance thresholds for the embodied carbon emissions in the framework, limiting the visibility of the assets' potential environmental performance throughout the properties/equipment's lifecycle. Boreal has stated that it will start measuring its scope 3 emissions in 2024 by requiring suppliers to submit emissions data, which may partially mitigate this risk.
Boreal has stated that the equipment financed under this category will not be heated or powered by fossil fuels.

### Battery technology and charging

**Assessment**
- Dark green

**Description**
- Establishment and operation of bus charging infrastructure, for commercial charging services used by heavy vehicles, and for Boreal's buses and vessels

### Analytical considerations
- Projects involve the construction of a network of charging stations publicly available to essentially commercial vehicles. For construction works, Boreal will raise its standards in 2024 and demand its suppliers have policies on embodied carbon as well as circularity. The company also aims to stay aligned with the EU Taxonomy Objective 4 - Circular economic activity.
- The business model is based on contractual arrangements signed with Boreal's partners and end-users. Boreal has committed that its heavy vehicles will not use commercial charging services from industries producing or distributing hydrocarbons. This supports our Dark green assessment.

### Reuse of batteries

**Assessment**
- Dark green

**Description**
- Reuse of batteries in Boreal's buses and ferries to meet demands for recirculation systems for batteries in future tenders, and exploit the value of used batteries by offering stored power for the future flex, frequencies, and reserve markets for grid power

### Analytical considerations
- The manufacturing of batteries required in the electric fleet involves minerals like lithium, nickel, and cobalt. Mining is highly disruptive for the environment, given its energy intensity and the considerable volumes of rock to process. Repurposing old batteries through second-life applications can extend their lifespans and optimize materials efficiency, which will help to address supply chain risks, and supports our Dark green assessment.
- According to Boreal, the project will involve establishing a value chain to reuse retired bus and ferry batteries as energy storage units (see Project - Solar and Wind Power). It will also commission third-party suppliers for the decomposition and recycling of batteries in their end-of-life phases.
- Battery recycling is typically energy intensive and can require materials with high embodied emissions such as chemicals. In accordance with the waste hierarchy under the EU Taxonomy's transition to circular economy criteria, Boreal emphasizes optimizing the assets' lifespans and circularity in terms of repair, remake, reuse, and recycle. It will prioritize the selection of suppliers based on these sustainability criteria.

### Energy management system

**Assessment**
- Dark green

**Description**
- Supervise and manage bus charging and batteries reuse

### Analytical considerations
- According to Boreal, its energy management system will be used to charge bus batteries, as well as store energy generated from renewables in reused ferry batteries. This will facilitate optimized energy consumption. The company will draw on a mix of energy purchased from the grid, energy produced by its own renewable sources, and the aforementioned energy stored in the...
ferry batteries (refer to Project - Solar and Wind Power). This will also help balance energy demand in the Norwegian electricity grid. This supports our Dark green assessment.

- Part of Boreal's plan is to utilize this project to reduce its reliance on the Norwegian grid and use the information to set criteria for future energy consumption and promote efficient driving among drivers.

### Solar and wind power

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Description</th>
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<tbody>
<tr>
<td>Dark green</td>
<td>- Develop a concept for renewable energy production on large roofs (Boreal and partners), energy storage, and effective utilization of energy to meet future tender demands</td>
</tr>
</tbody>
</table>

#### Analytical considerations

- Boreal intends to install solar panels and windboxes on large rooftops, grey areas, and the façades of the real estate assets it owns or operates. It will also use some proceeds to finance the reuse of old batteries from electric buses for alternative energy storage in buildings and charging stations, as well as for energy systems that manage and optimize the renewable energy produced and stored. We assess this project category as Dark green considering its key contribution to climate mitigation and to the company’s decarbonization strategy.

- Boreal does not specify a quantitative lifecycle emissions threshold to limit potential emissions during the sourcing of solar panel or windbox materials, and their manufacturing, transportation, construction, and disposal. Boreal says it will select suppliers according to a stringent tender process under its procurement policy, which requires certain levels of sustainability of products, production processes, and operations. Boreal might also consider the Environmental Product Declaration and Product Passports, when available.

- Downstream end-of-life renewable energy infrastructure can be associated with waste and pollution risks. Under the waste hierarchy of the EU Taxonomy’s transition to circular economy criteria, Boreal’s sustainability standards for suppliers and business partners will be implemented in 2024. These will include the accounting of scope 3 emissions of its bus and ferry fleet, among other assets. The company aims to maximize the assets’ lifespans by optimizing their design with characteristics of circularity, in terms of repair, remake, reuse, and recycle.

- Solar and wind power projects can introduce biodiversity and environmental risks, such as from ecosystem disturbances, and construction pollution. They may also be exposed to physical climate risks. These risks are partly mitigated as the renewable energy infrastructure would be installed on the rooftops of Boreal’s facilities, for which physical climate risks analysis will be conducted, in line with the company’s climate adaptation strategy.

### Green fuels

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Light green</td>
<td>- Develop carbon neutral or carbon-free fuels (including ammonia, methanol, biogas, efuels, hydrogen) using Minol’s facilities, competence, and customer portfolio</td>
</tr>
</tbody>
</table>

#### Analytical considerations

- Projects include the procurement, storage, and distribution of different green alternatives to fossil fuels, leveraging Minol’s facilities and competencies and contributing to its clients’ decarbonization. Boreal has stated that blue and grey fuels will not be eligible under this project category. The envisaged fuels are expected to have zero direct-tailpipe CO2 emissions by 2040.

- Projects in this category remain largely aspirational for now, as Boreal will study their potential in the coming years. Accordingly, we assign a Light green shade to these future green fuels.

- For fuels based on hydrogen, Boreal has not estimated lifecycle emissions thresholds. Nonetheless, it stated that it will assess the Environmental Product Declarations for hydrogen if available. It will also align with the EU Taxonomy criteria for the
manufacture of hydrogen, whereas electricity with thresholds of below 100g CO2/kWh will be the preferred source of electrolysis.

- Boreal commits that the bio-based fuels (including bio-methanol) will comply with the Norwegian Produktforskriften, which, according to the company, is largely in line with the EU’s RED III Directive. The company expects the regulation to be implemented and incorporated into the European Economic Area Agreement (EEA) (Norwegian; EØS) soon.

- The potential source of efuels is not specified, but Boreal has stated that the electricity will have an emissions criterion of below 100g CO2/kWh, with an aim to stay in line with the EU Taxonomy.
### S&P Global Ratings’ Shades of Green

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

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

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

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

This framework intends to contribute to the following SDGs:

<table>
<thead>
<tr>
<th>Use of proceeds</th>
<th>SDGs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean Transportation and Mobility</td>
<td>3. Good health and well-being</td>
</tr>
<tr>
<td></td>
<td>8. Decent work and economic growth</td>
</tr>
<tr>
<td></td>
<td>9. Industry, innovation and infrastructure</td>
</tr>
<tr>
<td></td>
<td>10. Reduced inequalities</td>
</tr>
<tr>
<td></td>
<td>12. Responsible consumption and production</td>
</tr>
<tr>
<td></td>
<td>13. Climate action</td>
</tr>
<tr>
<td></td>
<td>17. Partnerships for the goals</td>
</tr>
</tbody>
</table>

*The eligible project categories link to these SDGs in the ICMA mapping.*
Related Research

- Analytical Approach: Shades of Green Assessments, July 27, 2023
- S&P Global Ratings ESG Materiality Maps, July 20, 2022

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Second Party Opinion: Boreal Norge AS' Green Finance Framework

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