

‘Second Opinion’ on Nordic Investment Bank (NIB)’s Environmental Bond Framework

December 4, 2018

Summary

The Nordic Investment Bank's (NIB) Environmental Bond framework (NEB) provides a clear and sound framework for climate-and environment friendly investment. The eligible project categories are aligned with promotion of a low-carbon and climate resilient economy and the governance processes outlined position NIB to select, manage and report on projects effectively and transparently. NIB has demonstrated its commitment to environmentally friendly investments through its two-part organizational mandate to promote productivity gains and environmental benefits for member countries.

NIB's governance procedures for project identification, selection and reporting are strong and proven; initial project screening includes qualitative and quantitative environmental impact ratings at the sector and project level before projects are considered for issuance under the Environmental Bond Framework. Impact is assessed and reported before and three years after implementation, quantitatively and qualitatively, to accurately capture impact. The methodology for calculating impact is disclosed transparently.

Several provisions in NIB's Environmental Bond Framework are clear strengths: NIB requires a 30% efficiency improvement for energy efficiency investments in existing buildings, which is in line with the International Energy Agency's recommendations. For new buildings, it requires LEED Platinum or BREEAM Excellent or Outstanding, an ambition that CICERO commends. The Framework provides for investments in storm systems and flood protection; protection of water resources; and protection and restoration of water and marine ecosystems. In light of recent flooding and drought patterns in the region, these are timely and appropriate investment opportunities to build climate resilience. Although NIB does not have clear targets for anticipated allocation between project categories, historic allocations from 2011 to 2017 indicate a majority of proceeds go to renewables (28%), waste water treatment (27%), green buildings (22%) and transportation (12%). These categories, with the specifications laid out in the framework, are considered almost entirely dark green, and therefore expected allocation is a strength.

There are a few areas for potential improvement that include systematized climate resilience screening and scenario stress testing and third-party verification of impact reports. On project categories, energy efficiency introduces the risk of potential rebound and lock-in effects. Inclusion of railway stations, platforms, treatment facilities and other supportive infrastructure for clean transportation and water management introduces some potential opportunities for emissions management from construction and operation. Interconnectors that increase connection of renewable energy to the grid are eligible. Because of the current energy mix in the member countries and their neighbors, interconnectors are to various extent exposed to indirectly supporting fossil fuels and nuclear energy. CICERO encourages NIB to continue to manage investments carefully and to continue being transparent about project selection, supply chain emissions, and impact to protect long-term investor interests.

CICERO finds this Framework to be aligned with the Green Bond Principles. Based on the project category shadings detailed below combined with consideration of NIB's governance structure, we rate the NIB **Green Bond Framework Dark Green**.



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1 Introduction and background

The global Expert Network on Second Opinions (ENSO), a network of independent non-profit research institutions on climate change and other environmental issues, was established by CICERO (Center for International Climate and Environmental Research – Oslo) to broaden the technical expertise and regional experience for second opinions. CICERO works confidentially with other members in the network to enhance the links to climate and environmental science, building upon the CICERO model for second opinions. In addition to CICERO, ENSO members include Basque Center for Climate Change (BC3), International Institute for Sustainable Development (IISD), Stockholm Environment Institute (SEI), and Tsinghua University's Institute of Energy, Environment and Economy.

This Second opinion was produced by CICERO on behalf of ENSO. CICERO is an independent, not-for-profit, research institute, focused on providing reliable and comprehensive knowledge about all aspects of the climate change problem. A more detailed description can be found at the end of this report. CICERO 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.

The CICERO-led ENSO provides second opinions on institutions' framework and guidance for assessing and selecting eligible projects for green bond investments, and assesses the framework's robustness in meeting the institutions' environmental objectives. The second opinion is based on documentation of rules and frameworks provided by the institution themselves (the client) and information gathered during meetings, teleconferences and email correspondence with the client. ENSO 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.

ENSO's Second Opinions are normally restricted to an evaluation of the mechanisms or framework for selecting eligible projects at a general level. ENSO network members do not validate or certify the climate effects of single projects, and thus, has no conflict of interest in regard to single projects. Network members are neither responsible for how the framework or mechanisms are implemented and followed up by the institutions, nor the outcome of investments in eligible projects.

This note provides a Second Opinion of the Nordic Investment Bank's (NIB) Green Bonds Framework and policies for considering the environmental impacts of their projects. This Second Opinion is based on the green bond framework presented to ENSO by the issuer. Any amendments or updates to the framework require that ENSO undertake a new assessment. ENSO takes a long-term view on activities that support a low-carbon climate resilient society. In some cases, activities or technologies that reduce near-term emissions result in net emissions or prolonged use of high-emitting infrastructure in the long-run. ENSO strives to avoid locking-in of emissions through careful infrastructure investments, and moving towards low- or zero-emitting infrastructure in the long run. Proceeds from green bonds may be used for financing, including refinancing, new or existing green projects as defined under the mechanisms or framework. ENSO assesses in this Second Opinion the likelihood that the issuer's categories of projects will meet expectations for a low carbon and climate resilient future.

Expressing concerns with 'shades of green'

CICERO/ENSO Second Opinions are graded dark green, medium green or light green, reflecting the climate and environmental ambitions of the bonds and the robustness of the governance structure of the Green Bond Framework. The grading is based on a broad qualitative assessment of each project type, according to what

extent it contributes to building a low-carbon and climate resilient society. The shading methodology also aims at providing transparency to investors when comparing green bond frameworks exposure to climate risks. A dark green project is less exposed to climate risks than a lighter green investment.

This Second Opinion will allocate a ‘shade of green’ to NIB’s environmental bond framework:

- **Dark green** for projects and solutions that are realizations today of the long-term vision of a low carbon and climate resilient future. Typically, this will entail zero emission solutions and governance structures that integrate environmental concerns into all activities.
- **Medium green** for projects and solutions that represent steps towards the long-term vision, but are not quite there yet.
- **Light green** for projects and solutions that are environmentally friendly but do not by themselves represent or is part of the long-term vision (e.g. energy efficiency in fossil-based processes).
- **Brown** for projects that are irrelevant or in opposition to the long-term vision of a low carbon and climate resilient future.

Assessing governance

In assessing the governance quality of the issuer, four aspects are studied: The policies and goals of relevance to the green bond framework; the selection process used to identify eligible projects under the framework, the management of proceeds and 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.

Overall shading

The project types that will be financed by the green bond primarily define the overall grading. However, governance and transparency considerations are also important because they give an indication whether the institution that issues the green bond will be able to fulfil the climate and environmental ambitions of the investment framework. Hence, the governance assessment plays a role in the overall shading of the framework. Investments in all shades of green projects are necessary in order to successfully implement the ambition of the Paris agreement. The overall shading reflects an ambition of having the majority of the project types well represented in the future portfolio, unless otherwise expressed by the issuer.

2 Brief Description of Nordic Investment Bank (NIB)'s Environmental Bond Framework and rules and procedures for environmentally-related activities

Nordic Investment Bank (NIB) is an international financial institution founded in the mid-1970s and headquartered in Helsinki, Finland. It has eight-member countries: Denmark, Finland, Iceland, Norway, Sweden, Estonia, Latvia, and Lithuania. NIB's lending activity offers corporate and sovereign loans, municipal loans, green bonds, and project and structure finance that support productivity and benefit the environment in the Nordic and Baltic countries. NIB's authorized capital amounts to approximately EUR 6,142 million. NIB enjoys the highest possible credit rating: AAA/Aaa from Moodys since the first rating in the 1980s. NIB was an early issuer of green bonds. Since 2011 NIB has raised funds for part of its environmental lending through issuing NIB Environmental Bonds (NEBs). This Second Opinion is an assessment of NIB's updated Environmental Bonds framework.

NIB's stated mission is to address the needs of the region and the challenges it is facing, namely sustainable growth, technological innovation, climate change, the development of circular economy and the protection of marine environments, by providing long-term complementary financing to projects that improve productivity and benefit the environment.

Environmental Strategies and Policies:

NIB's mandate to promote productivity gains and environmental benefits for the Nordic and Baltic is intended to respond to the following drivers: pollution reduction, preventative measures, resource efficiency, development of clean technology and climate change mitigation. NIB has a target of reaching 90% of mandate fulfillment (with a balance between productivity or environment). Currently 35 % of all the projects financed are rated Good or Excellent in environment, i.e. providing significant environmental benefits to NIB's member countries. NIB is a signatory to the European Principles for the Environment (EPE), chairing the Green Bond Principles executive committee, has been a member of the EU High-Level Expert Group on Sustainable Finance and is currently engaged in the EU Sustainable Finance Action Plan. NIB reports in compliance with the GRI Sustainability Reporting Standards and includes disclosures from GRI's Financial Sector Supplement. It has also identified relevant SDGs. NIB has confirmed that they are exploring implementation of the TCFD recommendations.

NIB has been part of WWF's Green Office network since 2009, and is refurbishing their headquarters to meet BREEAM excellent standards. NIB purchases the electricity needed for its premises from clean and renewable energy sources (100% wind energy); its origin is guaranteed by the European Energy Certificate System (EECS). NIB calculates use of energy and CO2 emissions from business trips. Annual targets include minimizing material consumption as well as purchasing sustainable products, in accordance with internal procurement guidelines on environmental practices. NIB reports on its direct environmental performance in its annual report.

All projects NIB finances are required to comply with the environmental and social standards defined in its sustainability policy and guidelines to help identify risks and opportunities and ensure that all relevant environmental and social impacts have been taken into account. All projects are also assessed against the NIB

Mandate Rating Framework, which rates the investments against NIB's mandate of sustainable growth, built on the two pillars of productivity gains and environmental benefits. The NIB Sustainability Policy and Guidelines has a list of project types excluded completely from NIB's financing, e.g. production or trade in radioactive parts; new fossil fuel baseload power plants with an installed capacity above 50MW (electricity and thermal heat); and drift-net fishing in the marine environment. NIB also excludes activities deemed illegal under host national laws and international conventions and agreements, as well as those subject to international phase-out bans. Further project categories are excluded from eligibility for NIB Environmental Bonds, such as coal, oil, natural gas, and peat; bio-fuels based on raw material feed from food; and new large hydropower.

According to NIB's sustainability policy, the bank recognizes the importance of life-cycle assessment approaches and that embedded energy and natural resource consumption constitute a global concern. NIB has confirmed that – to the extent possible – it considers supply chains and broader impacts when assessing environmental impacts of projects.

The mandatory environmental and social standards and review set by NIB's sustainability policy requires that each potential project be categorized (A, B, or C), that risks and impacts of the project are defined and mitigation measures are planned; that benchmarks for environmental and social performance are identified; and that costs from environmental and social risks and impacts are factored into the project.

NIB's sustainability policy defines three risk categories: Category A, B, and C. These categories are used to determine the level of review required. Category A projects present potential significant adverse social or environmental impacts that are diverse, irreversible or unprecedented, Category B projects present potential limited adverse environmental impacts, and Category C projects present limited or no negative environmental impacts. Category A projects need to have prevention and abatement plans according to EU legislation or international policies and guidelines (World Bank). Category A project information is made publicly available for comment to NIB via a description online.

Use of proceeds:

Projects eligible for funding under NIB's Environmental Bond (NEB) Framework must be in Nordic, Baltic or EU countries, must be new projects that cannot have been completed more than one year prior to NIB's review, and must provide significant environmental benefits with a high likelihood of achieving the targeted benefits. Proceeds cannot be used to refinance existing projects; buybacks are permitted and managed accordingly. Finally, the project must belong to one or more of the project categories listed below. Proceeds, in the form of loans to clients, can be allocated to a subset of the eligible categories or a project with aspects belonging to several categories.

The seven eligible project categories include energy efficiency; renewable energy; clean transportation; transmission, distribution and storage systems; water management and protection; resources and waste management systems; and green buildings. Projects that provide resilience and adaptation to climate change within the defined project categories, without necessarily showing a direct environmental impact, are also eligible. NIB does not have information about expected allocation between project categories but from 2011 to 2017, 28% of NEB proceeds financed renewable energy projects, 27% financed waste water treatment, 22% financed green buildings, 12% financed public transportation, 7% energy efficiency and 4% waste management.

NIB's Framework excludes efficiency projects for fossil-fueled power or heat generation, bio-fuels based on unsustainable feedstock and/or raw material from food and large hydro.

Selection:

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

NEB has a four-step screening process to identify and select projects eligible for NEB funding. All projects financed by NIB must first undergo a review of the environmental and social risks as well as resilience towards the effects of climate change in accordance with NIB's Sustainability Policy and Guidelines and must meet the criteria in order to be considered. The review checks for benchmarks, compliance with policy and IFC performance standards when applicable and EU legislation, reputation and credit risks, EIAs and reporting.

The projects are then assessed against NIB's Mandate Rating Framework. NIB has a dedicated Sustainability & Mandate Unit that assesses whether new projects considered for financing can fulfill NIB's mandate, as well as screens for and identifies projects that meet eligibility criteria for NEB funding.

The Sustainability & Mandate Unit is responsible for pre-selecting the loans suitable for NEB proceeds disbursement following the Sustainability Policy and Guidelines and Mandate Rating Framework. The Unit is made up of eight analysts (5 environmental analysts with specialties in engineering, geology and natural sciences; three productivity (economic) analysts), one head of unit and one trainee. When assessing NEB eligible projects, the Sustainability & Mandate Unit focuses on the environmental benefits. The Mandate Unit performs a qualitative sector assessment and a project-specific quantitative analysis to reach an overall environmental rating – from Negative to Excellent - using the Bank's NIB Mandate Rating Framework.

The projects with the highest rating on NIB's environmental mandate assessment (Good or Excellent) are considered eligible for NIB Environmental Bonds. The Sustainability & Mandate Unit screens these projects against the criteria and project categories in the NEB, thereby identifying projects for final review and approval by the Credit Committee. The Credit Committee is the decision-making body for loan approval. It looks at financial aspects but also at the mandate rating, as presented by the Sustainability and Mandate Unit. This four-step screening process is thorough, incorporates environmental competence in the first three steps, and ensures that environmental concerns are well considered before projects are approved for funding.

Management of proceeds:

In accordance with the ICMA Green Bond Principles, NIB allocates net bond proceeds, or an amount equal to these net proceeds, to a separate portfolio called the "NEB Fund Pool" until disbursement to eligible projects. Mismatches in the timelines of funding and disbursements are managed within the NIB's short-term asset and liability management according to NIB's liquidity policy. NIB Environmental Bonds can be increased (tapped), as long as proceeds are used for financing eligible projects. Buybacks can either be financed from funds in the NEB Fund Pool or from the NIB's general liquidity. In case of buybacks, reallocated funds are indicated in reporting to ensure that no double-counting of achieved impact is allowed. If a loan is repaid early, the proceeds will either go back into the NEB Fund Pool so it can be reused for loans to new eligible projects or become part of the NIB's general liquidity pool. The same applies in case NIB requests prepayment due to non-compliance with loan terms.

Transparency and Accountability:

Transparency, reporting, and verification of impacts are key to enable investors to follow the implementation of green bond programs. Procedures for reporting and disclosure of green bond investments are also vital to build

confidence that green bonds are contributing towards a sustainable and climate-friendly future, both among investors and in society.

NEB has a “Monitoring and ex post assessment framework” to guide monitoring and reporting. All projects are assessed ex-ante during the mandate rating process (MRF), where environmental benefits are estimated and monitoring indicators set for follow up with the client. An ex-post mandate assessment is done three years after completion to allow for meaningful evaluation of impact. The ex-post mandate assessment examines the implementation process, analyses why and to what extent intended results were or were not achieved, identifies lessons learned and highlights that can serve as recommendations for improvement. If during this assessment, the Sustainability & Mandate Unit observes that a loan has not fulfilled the NEB eligibility criteria and the anticipated environmental impact has deviated substantially from the ex-ante assessment, the unit will bring this to the attention of the NIB’s Credit Committee. The Credit Committee’s responsibility is to approve any recommendations, including removing a specific loan from the NEB Fund Pool. In the case that a project is no longer considered eligible for the NEB, impact reporting will be corrected.

Up-to-date information on all NIB Environmental Bonds and projects, which have either been partially or wholly allocated NEB proceeds, will be published on the NIB’s webpage: http://www.nib.int/capital_markets/environmental_bonds. NIB will report regularly on the expected impact of financed projects on its webpage and in its annual published NIB Environmental Bond Annual Report. NIB has confirmed that reporting has been at an aggregated level and will be on a project level moving forward. The Sustainability & Mandate Unit is responsible for assessing and reporting project impact internally and externally. NIB will use qualitative and quantitative performance indicators whenever feasible and disclose the key underlying methodology used. To date, NIB has not used external parties to verify impact reporting.

NIB’s NEB report will include information on the currency, amount, EUR equivalent, date and maturity date of issuances. The report will also report information about proceed disbursement by project category and country. Impact reporting will include information on estimated impact of projects such as RE capacity added, CO2 direct reductions/avoided emissions, wastewater treatment capacity and floor area of green buildings. NIB applies the European average grid factor, in accordance with the International Financial Institution Framework for a Harmonised Approach to Greenhouse Gas Accounting (November 2015), to report greenhouse gas emissions on all projects, as well as the Green Bond Principles’ impact working groups’ core indicators. NIB’s Monitoring and Ex Post Assessment Framework identifies sector-specific environmental reporting indicators across 16 sectors, which NIB continuously expands. Additionally, NIB arranges site visits for investors, when required.

The table below lists the documents that formed the basis for this Second Opinion:

Document Number	Document Name	Description
1	NEB Framework November 24 2018	NIB’s updated Environmental Bond Framework
2	NEB 1 August 2018	Presentation covering NIB’s environmental bond framework and portfolio

3	Monitoring and ex post assessment framework	Description of process to assess how NIB's lending projects have been implemented and how mandate criteria have been met. Includes sector-specific indicators across 16 sectors.
4	8927-interim Management Statement - August 2018	Brief operations and financial review
5	8481-Mandate Rating Framework	Detailed review of the approach to scoring projects on a scale of dark green/excellent to black/negative.
6	7575-NIB Financial Report 2017	Detailed review of financial performance
7	7574-NIB Environmental Bond report 2017	Presentation covering projects and impact funded through green bond portfolio, and providing an overview of the 2011 green bond framework.
8	56- Sustainability Policy Guidelines 2012	Detailed overview of exclusionary criteria, the process for NIB's environmental and social review, and project information requirements.

3 Assessment of NIB’s Environmental Bond framework and policies



The framework and procedures for NIB’s environmental 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, whereas the weaknesses are typically areas that are unclear or too general. Pitfalls are also raised in this section to note areas where issuers should be aware of potential macro-level impacts of investment projects.

Overall shading

Based on the project category shadings detailed below, and consideration of the issuer’s systematic sustainability work and governance structure of NIB environmental bond framework in terms of management and use of proceeds, we rate the framework **CICERO Dark Green**.

Eligible projects under the Green Bond 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 or environmental bonds aim to provide certainty to investors 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  	<ul style="list-style-type: none"> Energy efficiency projects in industry leading to a reduction in energy use of at least 30%, including improvements in compressed air systems, the replacement of light fittings, the recovery of waste heat, the installation of heat exchangers in ventilation systems, making drying processes more efficient (including kilns), and making cooling/heating more efficient. Refurbishment of existing buildings includes improvements to heating systems, insulation upgrades, lighting and electrical equipment. The energy use shall decrease by at least 30%. 	Dark to Medium Green ✓ Energy efficiency investments, such as smart technology aimed at reducing energy consumption, are key to reducing emissions. However, efficiency improvements that reduces the overall cost of an activity may encourage increased levels of that same activity; beware of potential for rebound effects. Issuer has confirmed that waste heat from industry may be included. CICERO encourages the issuer to consider the potential of efficiency improvements and retrofits to introduce rebound effects and lock in obsolete technologies.

Note: The risk for fossil fuel lock-in is considered in the assessment. Efficiency projects for fossil-fueled power or heat generation are not eligible.

Issuer has clarified that projects in heavily emissions intensive industries such as cement, steel, and aluminum, are typically excluded unless they offer transformative technology.

- ✓ The issuer has confirmed that investments will finance only the energy efficiency technologies, not whole refurbishments.

Renewable energy



- Electricity generation from wind turbines, solar, tidal and wave and existing hydropower plants or small (<10 MW) greenfield power. Medium scale greenfield power (up to 100 MW) may be included based on assessment of the environmental impacts (e.g. projects in already exploited rivers with limited protection values).

✓ Issuer has confirmed that no dams will be financed, only run-of-river hydro projects.

✓ Consider local environmental impacts on biodiversity and ecosystem services, especially for medium scale hydropower on the higher end of NIB's range.

- Electricity or heat generation from geothermal installations and from biomass.

✓ Consider resilience of hydropower projects to climate change, for example the impact of flooding or drought.

- Infrastructure for the production or processing of liquid biofuels.

✓ Issuer has confirmed that emissions from operations of geothermal installations are assessed. Consider potential for heavy metal pollution.

- Investments in the development, design and manufacturing of renewable energy technologies.

✓ Issuer has clarified that unsustainable feedstocks include corn, rapeseed, and palm oil.

Note: bio-fuels based on unsustainable feedstock and/or raw material feed from food are not eligible. Peat is not considered to be a biofuel.

✓ Issuer has confirmed that transportation distances are considered in project selection and reporting for construction materials and feedstocks.

Transmission, distribution and storage systems



- Transmission and distribution system expansion or upgrades to allow for more renewable energy connected to the grid and storage solutions to balance fluctuating generation and demand patterns.

Dark to Medium Green

✓ Issuer has confirmed that general upgrades to the transmission and distribution system do not qualify. Interconnectors that increase connection of renewable energy to the grid are eligible.

- Projects in district heating and cooling networks enabling transition to carbon-neutral energy supply systems (e.g. heat pumps, seawater cooling systems, integration of industrial waste heat in the network).

✓ Note that interconnectors between countries introduces the risk of importing electricity from networks with a higher emissions factor compared to NIB member countries; this would be considered a brown investment.

Note: the risk for fossil fuel lock-in is considered in the assessment.

- ✓ Because of the current energy mix in the member state countries and their neighbor countries interconnectors are to various degree exposed to indirectly supporting fossil fuels and nuclear energy, which is an emissions-free climate friendly energy solution, but associated with other risks.
- ✓ The issuer has confirmed that interconnectors with a risk of increased transmission of fossil fuel based electricity would not be included for financing in this framework.
- ✓ Smart grids and grid upgrades are necessary to manage and increase the share of intermittent and decentralized renewable energy.
- ✓ Issuer has clarified that industrial waste heat refers to heat generated in buildings (from cooling), from wastewater treatment plants, and from industries with heat generation that cannot be used locally.

Clean transport solutions Clean transport solutions are primarily based on electricity or sustainable biofuels.



- Infrastructure for clean transport (e.g. rail, charging stations, fuel distribution systems, bicycle and pedestrian infrastructure, vehicle sharing systems, supportive infrastructure)
- Vehicle and vessels supporting clean transport solutions (such as electric vehicles and vessels, rolling stock, biogas busses)

Dark Green

- ✓ While electric modes of transportation are preferable to those that directly use fossil fuels, we should nevertheless be aware of the indirect GHG emissions stemming from the production and use of vehicles and supporting infrastructure, and strive to keep increasing their efficiency.
- ✓ Observe complex impacts of some biofuels.
- ✓ The issuer has confirmed that hybrid vehicles are not eligible for investment.
- ✓ Construction of railway stations and platforms may be included as part of this category, and will be constructed in accordance with the national building code for energy performance. Climate science underscores the need for all housing and infrastructure investments to be energy efficient, including train stations. Consider reducing emissions from construction and operation of buildings and platforms.

Water management and protection



- Wastewater treatment and water pollution prevention – with an aim to reducing discharges to water (mainly P, N, BOD, COD, heavy metals, plastics, and pharmaceuticals). ✓ Construction of treatment plants and upgrading of existing plants may be included in this category, but operations is not eligible. Consider emissions from construction and operation of buildings.
- Stormwater systems and flood protection – with the aim to support pollution prevention and the development of climate change resilient infrastructure ✓ Note that treatment plants may include construction of technology that is fossil fueled, such as boilers and turbines. Issuer has informed us that new treatment plants usually take electricity from the grid or have "own" renewable production via biogas
- Protection of water resources with the aim to minimize groundwater extraction and contamination, improve aquifers replenishment ✓ Issuer has confirmed that stormwater ponds and other structures that provide pollution prevention and climate resilience measures may be included.
- Protection and restoration of water and marine ecosystems. Project aimed at the extension of protected areas, protection and restoration of water and marine ecosystems and biodiversity (such as wetlands, rivers and lakes, coastal areas, and open sea zones) ✓ Issuer has confirmed that energy source and associated CO₂ emissions for wastewater treatment plants are considered.
✓ Issuer has confirmed that emissions from construction and operation are considered.
✓ Consider environmental impacts of projects involving large construction projects on fragile ecosystems and biodiversity.

Resources and waste management systems



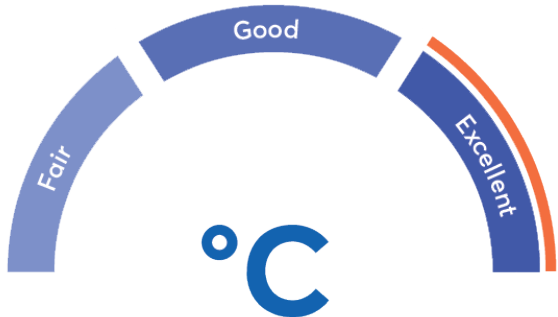
- Projects in resource efficiency aimed at maintaining the value of products, materials, and resources in the economy for as long as possible in support to a transition to a circular economy model (closing material loops; substitution of virgin raw materials; and reduced waste and pollution). ✓ Issuer has clarified that the majority of feedstocks for waste-to-energy programs is municipal household waste, which is sorted according to applicable EU regulation.
- Infrastructure for better waste management supporting pollution prevention (such as emissions of air pollutants and discharges to water) ✓ Waste to energy can be a strong solution to environmental problems, if managed well, and CICERO encourages investment in this area. However, it is best combined with ambitious recycling policies and careful management of potential rebound effects.
- Energy recovery from waste: ✓ When the capacity of waste incineration is high it might be an incentive to burn waste for energy purposes instead of material recycling. Hence, there is a particular need to continue to improve in this regard, in particular to recycle more fossil fuel waste such as plastics into new materials. This is
 - Production of biogas from organic waste
 - Waste-to-energy plants, considering the targets of the Circular Economy Policy and

	minimizing the combustion of recyclable materials.	the reason why this category also has some medium green elements.
Green buildings	The construction of new buildings certified, or to be certified according to LEED Platinum or BREEAM Excellent or Outstanding.	<p>Dark to Medium Green</p> <ul style="list-style-type: none"> ✓ Issuer has confirmed that adaptation concerns are discussed as part of due diligence for each project. ✓ Issuer has confirmed that emissions from construction and transportation of construction materials are considered. ✓ In the medium to long-term, the energy performance of buildings is expected to improve, with zero emissions and plus house technologies becoming mainstream. The issuer has clarified that the selected certifications require screening for embedded carbon, initiatives for the protection of biodiversity and preservation of natural environments. CICERO encourages the issuer to consider exceeding emissions reduction requirements of selected standards, and include provisions for clean transportation, to further improve its environmental impact.

Table 2. Eligible project categories

Governance Assessment

In assessing the governance quality of the issuer, four aspects are studied: The policies and goals of relevance to the green bond framework (1), the selection process used to identify eligible projects under the framework (2), the management of proceeds (3) and the reporting on the projects to investors (4). Based on these aspects, an overall grading is given on governance strength falling into one of three classes: Fair, Good or Excellent.



The overall assessment of NIB’s governance structure and processes gives it a rating of Excellent. NIB has strong environmental goals and targets in place, a sound selection process and comprehensive and transparent reporting. Nevertheless, we note that NIB does not conduct climate scenario analysis or risk assessment in alignment with the methodology recommended by TCFD. We also would like to encourage NIB to include third party verification of impact reporting in its standard processes.

Strengths

Governance

NIB has demonstrated its commitment to environmentally friendly investments through its two-part organizational mandate to promote productivity gains and environmental benefits for member countries, strong internal policies on sustainability, supply chain and procurement, active participation in Green Bond Principle working groups, GRI-compliant sustainability reporting, and a long-term commitment to WWF's Green Office network to manage and reduce environmental impacts from its own direct operations.

NIB's environmental policies, processes, due diligence, and reporting are strong and proven, and managed by a dedicated Sustainability and Mandate Unit composed of a mix of environmental and finance experts. NIB applies its two-part mandate to all projects in its portfolio, as well as its Sustainability Policies and Guidelines, which is progressive for the market and a clear strength. These screens include a detailed list of exclusionary criteria, sector and project-level assessment with qualitative and quantitative ratings. The NIB Environmental Framework provides even more stringent criteria to these environmental screens. Categorization of risk (ABC) helps them flag potentially problematic projects for additional review, which is considered a strength and good management practice.

NIB assesses project impact before implementation and three years after to accurately capture impact. If the project is not considered eligible according to NEB criteria, it is removed from the portfolio and impact reporting before and after is corrected. This information is made available publicly on NIB's website. Reporting is done on expected impact annually using qualitative and quantitative reporting indicators. As more ex-post assessments are completed, also ex-post numbers will be presented. The methodology for calculating impact is disclosed transparently.

Project Categories

NIB's framework is designed to promote investment in a broad range of environmental projects that include pollution prevention and resource efficiency, in addition to mitigation and adaptation project categories. CICERO notes this broad mandate as a considerable strength that will effectively support the Nordic and Baltic regions' transition to a low carbon, climate resilient future.

With regards to the energy efficiency project category, it is a clear strength that NIB's Framework requires a 30% improvement for energy efficiency investments in existing buildings; this performance level is in line with the IEA's recommendation and therefore considered dark green. NIB also eliminates potential investments in fossil-fuel related assets for energy efficiency, and limits engagement with fossil-fuel based industries, such as cement, steel and aluminum, to transformative technologies, such as electrification of processes that formerly used fossil fueled equipment or transitioning equipment from fossil fuel to biofuel sourced from sustainable feedstocks.

Under the renewable energy project category, CICERO notes several conditions that support NIB's environmental mandate and provide dark green investment options. The Framework excludes large hydro and dams for hydropower, which helps sidestep many biodiversity and disrupted ecosystem concerns. NIB defines biofuels from unsustainable feedstock as including fuel from corn, rapeseed, and palm oil anticipate potential environmental and social concerns. NIB also considers emissions from transportation of feedstocks, which is progressive and helps to reduce Scope 3 emissions. CICERO encourages NIB to further improve the standards in this project category by considering resilience measures for hydropower projects and its impact on the energy industry and local livelihoods as drought and rainfall patterns in the Nordic and Baltic regions begin shifting.

Voluntary environmental certifications such as LEED and BREEAM can estimate the environmental footprint of buildings, but they do not guarantee a reduction in GHG emissions or climate resilience. In a low carbon 2050 perspective, the energy performance of buildings is expected to improve, with zero emissions and plus housing technologies becoming mainstream. The NIB Environmental Framework is taking valuable steps towards this long-term vision by requiring LEED Platinum or BREEAM Excellent or Outstanding for new green buildings, an ambition that CICERO commends. These certifications require advanced emissions reductions and consideration of other indicators such as impact on biodiversity, embedded carbon, and preservation of natural environments, which provides a more wholistic assessment of the investments' climate impact. In addition to these certifications, NIB considers Scope 3 emissions from the supply chain and during construction, including emissions from transportation of construction materials. Finally, NIB screens new building projects for resiliency measures on a case by case basis, which is in line with the recommendations made by the Task Force for Climate Related Disclosures (TCFD) and therefore a particular strength. In order to strengthen this criteria even further, CICERO encourages NIB to establish clearer requirements for best environmental technology – such as zero emission or plus house technology - in eligible green bond building projects. CICERO also encourages the issuer to develop and implement systemized resiliency planning to protect against potential impacts from more extreme weather events, such as flooding; transportation solutions such as charging stations for electric vehicles in or in close proximity of the building; and further management of environmental impacts in the construction phase of the building (building material and waste considerations).

Transportation is among the most important sources of greenhouse gas emissions worldwide. To meet global goals, direct transport emissions must peak around 2020 and then fall by more than 9% by 2030. Consequently, electric public transportation systems is amongst the most environmentally friendly methods of transportation available, especially when compared to alternatives such as air and road transport. CICERO is encouraged to see that NIB excludes hybrid vehicles, thereby avoiding significant potential for locked in emissions.

NIB's water management and protection project category includes three subcategories that present opportunities for investment in much needed climate resilience and adaptation: storm systems and flood protection; protection of water resources; and protection and restoration of water and marine ecosystems. More frequent flooding and droughts in the European region has underlined the importance of these project categories in the near-term.

Weaknesses

No weaknesses perceived at this time.

Pitfalls

Governance

NIB currently does not require resilience screening, and does not conduct climate scenario stress testing for investments, although NIB has informed us that they are looking into it for next year. We encourage NIB to explore these initiatives to improve upon its already strong sustainability policies and environmental mandate and protect long-term investor interests.

External verification of impact reporting is recommended by the ICMA; NIB does not require this at this time. We encourage NIB to include third party verification as part of its standard operating procedure for selection criteria and impact reporting.

Project Categories

Energy efficiency investments, such as smart technology aimed at reducing energy consumption in industry and in the building sector, are key to reducing emissions. However, investments in these projects may introduce rebound effects and risk prolonging the life of fossil fuel infrastructure. Within this category, the issuer has indicated that capturing waste heat from industry may be included. This is an important efficiency initiative and CICERO considers it a strength that NIB is finding productive uses for waste heat. However, because of the potential for rebound and lock in effects, especially if efficiency technology is applied within emissions intensive industries such as steel or cement production, this is not a dark green initiative. CICERO encourages NIB to manage the potential for rebound effects and locked in emissions carefully.

Medium-scale hydropower projects are defined as between 10 MW and 100 MW, and may be included under this framework. CICERO supports hydropower as a clean, cost-effective and sustainable source of power. However, a broad range set for the definition of “medium” hydropower projects introduces potential for concerns typically associated with large hydropower projects, such as negative impacts on biodiversity and fragile ecosystem services, as well as locked in emissions from construction. NIB has confirmed that medium hydropower investments will be run-of-river projects, not dams; this is a strength because it avoids many of the more significant environmental and social concerns associated with larger dams. CICERO encourages NIB to continue to manage these potential impacts carefully and report transparently.

Under this framework, municipal household waste is sorted according to applicable EU regulation and incinerated for energy generation. Waste incineration with energy recovery is a sound environmental and climate friendly option to divert waste away from landfilling that CICERO encourages, but it is best combined with ambitious recycling policies to avoid burning fossil-fueled based waste such as plastic. The other potential pitfall associated with waste-to-energy is the introduction of rebound effects: when the capacity of waste incineration is high, it may introduce an incentive to burn waste for energy purposes instead of material recycling. CICERO notes that the Framework includes language about minimizing combustion of recyclable materials, which is commended.

Within the clean transportation project category, CICERO notes that investments may include construction of railway stations and other supporting facilities or infrastructure. This also applies to the water management project category. NIB has confirmed that these will be constructed in compliance with the appropriate national energy performance codes. However, this does present a clear opportunity for improvement in NIB’s framework. Improvements to energy efficiency requirements and refurbishments are necessary across all housing and infrastructure, including those built to support clean transportation and water management, such as stations and platforms.

Appendix: About CICERO

CICERO Center for International Climate Research is Norway's foremost institute for interdisciplinary climate research. We deliver new insight that helps solve the climate challenge and strengthen inter-national climate cooperation. We collaborate with top researchers from around the world and publish in recognized international journals, reports, books and periodicals. CICERO has garnered particular attention for its work on the effects of manmade emissions on the climate and the formulation of inter-national agreements and has played an active role in the UN's IPCC since 1995.

CICERO is internationally recognized as a leading provider of independent reviews of green bonds, since the market's inception in 2008. CICERO received a Green Bond Award from Climate Bonds Initiative for being the biggest second opinion provider in 2016 and from Environmental Finance for being the best external review provider (2017).

CICERO Second Opinions are graded dark green, medium green and light green to offer investors better insight in the environmental quality of green bonds. The shading, introduced in spring 2015, reflects the climate and environmental ambitions of the bonds in the light of the transition to a low-car-bon society.

CICERO works with both international and domestic issuers, drawing on the global expertise of the Expert Network on Second Opinions. Led by CICERO, ENSO is comprised of trusted 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). ENSO operates independently from the financial sector and other stakeholders to preserve the unbiased nature and high quality of second opinions.

cicero.oslo.no/greenbonds

